MALLA REDDY COLLEGE OF ENGINEERING

(Formerly CM Engineering College)

Estd :2005

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ISO 9001:2015 Certified Institution, Recognition of College under Section 2(f) & 12 (B) of the UGC Act,1956.

3.3.5: NUMBER OF BOOKS AND CHAPTERS IN EDITED VOLUMES/BOOKS PUBLISHED AND PAPERS IN NATIONAL/INTERNATIONAL CONFERENCE PROCEEDINGS PER TEACHER DURING THE LAST FIVE YEARS

S. No.	Title	Page No.
1	**Over all Summery Sheet**	2
2	**Academic Year 2014 – 2015 (First page of Conference Paper Publication)**	3
3	**Academic Year 2015 – 2016 (First page of Conference Paper Publication)**	50
4	**Academic Year 2016 – 2017 (First page of Conference Paper Publication)**	90
5	**Academic Year 2017 – 2018 (First page of Conference Paper Publication)**	151
6	**Academic Year 2018 – 2019 (First page of Conference Paper Publication)**	280
7	**First page of Book**	384
8	**First Page of Proceedings**	394

Principal
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3.3.5 Number of books and chapters in edited volumes / books published, and papers in national/international conference-proceedings per teacher during the last five years (6)(For UG Colleges weightage of this metric will be 8)

Year	2018-19	2017-18	2016-17	2015-16	2014-15
Number	141	155	55	55	42

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2014-2015

AN EFFICIENT DISTRIBUTION VERIFICATION PROTOCOL (EDVP) FOR DATA STORAGE SECURITY IN CLOUD COMPUTING

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Abstract -- *Cloud Computing (CC) is an emerging computing paradigm that provides large amount of computing and storage to the Clients provisioned as a service over the internet in a pay-as you-go pricing model, where the Clients pay only according to the usage of their services. In this thesis, we investigate this kind of security issues of cloud storage and propose New Probabilistic Efficient and Secure Protocols for data storage security. To avoid integrity availability & confidentiality for cloud storage. To provide better security to the consumers an efficient protocols and methodologies are to be used for cloud in order to store the data with third party members the main problem is security so in my thesis by using EDVP we can provide better security to*

the customers in cloud.

Keywords -- **CloudComputing,Storage,Security, Clients, Service, Protocols, Data.**

I. INTRODUCTION

This protocol implements the RSA-DPAP, ECC-DPAP and PVDSSP in a distributed manner which was discussed in chapters 5 and 6 respectively. Here, the *n* verifiers challenge the *n* servers uniformly and if *m* server's response is correct then, we can say that Integrity of data is ensured as to verify the Integrity of the data, the verification process uses multiple TPAs. Among the multiple TPAs, one TPA will act as main TPA and remaining are SUBTPAs. The main TPA uses all SUBTPAs to detect data corruptions efficiently, if main TPA fails, the one of the SUBTPA will act as main TPA. The SUBTPAs do not communicate witheach other and they would like to verify the Integrity of the stored data in cloud, and the 163 consistency of the provider's responses. The propose system guarantees *atomic* operations to all TPAS; this means that TPA which observe each SUBTPA operations are consistent, in the sense that their own operations, plus those operations whose effects they see, have occurred atomically in same sequence. The Centrally Controlled and Distributed Data paradigm, where all SUBTPAs areThe Centrally Controlled and Distributed Data paradigm, where all SUBTPAs are controlled by the TPA and SUBTPA's communicate to any Cloud Data Storage Server for verification. We consider a synchronous distributed system with multiple TPAs and Servers. Every SUBTPA is connected to Server through a synchronous reliable channel that delivers challenge to the

server. The SUBTPA and the server together are called parties P. A protocol specifies the behaviors of all parties. An execution of P is a sequence of alternating states and state transitions, called events, which occur according to the specification of the system components. All SUBTPAs follow the protocol; in particular, they do not crash. Every SUBTPA has some small local trusted memory, which serves to store distribution keys and authentication values. The server might be faulty or malicious and deviate arbitrarily from the protocol such behavior is also called Byzantine failure. A party P that does not fail in an execution is correct.

II. APPROACH

Here, the Coordinator will randomly generates a bit string for each SUBTPA termed as *TaskDistribution Key* (TDK). Each SUBTPA will successively apply their TDK on the generated Sobol sequence as a mask upto the sequence will exhaust and take thecorresponding sequence number as block number for verification.
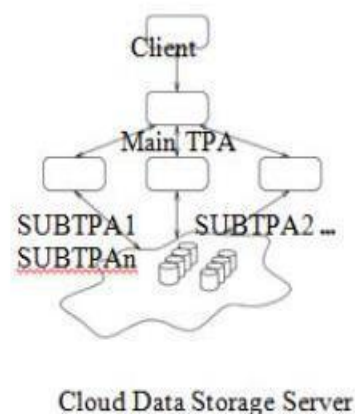

Fig. 1 Block Diagram of Distributed Audit System Architecture

For example, consider the TDK for the SUBTPA1 and SUBTPA2 are 10101 and 01010 respectively. Let, the generated Sobol random sequence is *{*1216, 5312, 3264, 7360, 704, 4800, 2752, 6848, 1728*}*, where file blocks are numbered from 0 to 8191. If we place the TDK for SUBTPA1 on the left end of the generated sequence and takes the block numbers corresponding to the 1, after that we slides the string to the right to the same length of the TDK and apply the same

CRYPTOGRAPHY BASED PRIVACY PRESERVING DATACOMMUNICATION IN HYBRID WIRELESS NETWORKS

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ABSTRACT

Distributed Three-hop Routing protocol.DTR is used for data transmission in Hybrid wireless network. DTR divide a data into segments and transmits the segment in a distributed way. It uses at most two hops in ad-hoc transmission mode and one hop in cellular transmission mode. However, the selection of trust nodes for data transmission is difficult in DTR which in turn creates security issues. This paper proposes a TEEN APTEEN SPEED (TAS) protocol for conviction node selection. TAS protocol allocate a threshold value to each node in a network. Based on the threshold value, a trust node is selected for efficient data transmission in Hybrid Wireless Network. The threshold value is also to preserve security in the network in order that unauthorized spoofing nodes can't enter the network. Furthermore, this paper implements overhearing technique in which the sending node share the content with one or more other nodes before data transmission with the purpose that failure node can be exposed and replaced.

Index Terms – Hybrid wireless networks, Cryptography, Trust node, Overhearing

1. INTRODUCTION

Hybrid wireless network merge mobile ad-hoc network and infrastructure wireless network. It is to be an [3]improved network arrangement for the next generation network. According to the environment situation, it can select base station transmission mode or mobile ad-hoc transmission mode. The mobile ad-hoc network is an infrastructure-less network. The devices in a mobile ad-hoc network can shift in any path and the link between the devices can altered regularly. In this network, the data is transmitted from starting place to target in a multi-hop way through in-between nodes. In an infrastructure wireless network (e.g. Cellular network), each device communicates with other device through base stations. Each cell in a cellular network has a base station. These base stations are linked via cable or fiber or wirelessly through switching centers.

If the region has no communication infrastructure or the existing infrastructure, communication between nodes are complex or not suitable to use. In this location [2] hybrid wireless network may still be able to communicate through the construction of an ad-hoc network. In such a network, every mobile node operates as a host and also as a router. Forwarding packets to new mobile nodes in the network may not be within straight wireless transmission range. Each node participates in an ad-hoc routing and infrastructure routing, for this [1] Distributed three hop routing protocol is used. It allows to discovering a "Three-hop" path to any other node during the network is introduced in this effort The first two hops in ad-hoc networking is sometimes called infrastructure-less networking, since the mobile nodes in the network animatedly make routing between themselves to form their personal network. The third hop is created in infrastructure networking. Most Wi-Fi networks task in an infrastructure approach. Devices in this network communicate through a single access point, which is generally the wireless router. For example, consider the two laptops are placed next to each other, each connected to the same wireless network. still the two laptops are sited next to each other, they're not communicating in a straight line in infrastructure network. Some possible uses of hybrid wireless network consist of students using laptop, computers to participate in an interactive instruct, trade associates and sharing information during a gathering soldiers communicate information about the condition attentiveness on the emergency failure release and personnel coordinating efforts after a storm or shaking

COOPERATIVE PROVABLE DATA POSSESSION FOR INTEGRITY VERIFICATION IN MULTI-CLOUD STORAGE

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Abstract -- *Provable data possession (PDP) is a procedure for guaranteeing the trustworthiness of information away outsourcing. In this paper, we address the development of a proficient PDP conspire for disseminated distributed storage to bolster the versatility of administration and information movement, in which we consider the presence of various cloud benefit suppliers to agreeably store and keep up the customers' information. We exhibit a cooperative PDP (CPDP) conspire based on homomorphic verifiable reaction and hash record chain of command. We demonstrate the security of our plan in view of multi-proven zero-learning confirmation framework, which can fulfill culmination, information soundness, and zero-learning properties. Also, we explain execution streamlining systems for our plot, and specifically show a productive strategy for selecting ideal parameter qualities to minimize the calculation expenses of customers and capacity benefit suppliers. Our investigations demonstrate that our answer presents bring down calculation and correspondence overheads in correlation with non-agreeable methodologies.*

Index Terms-- Provable Data Possession, Zero-Knowledge, Storage Security, POR, Multiple-Cloud

I.   INTRODUCTION

Lately, distributed storage benefit has turned into a quicker benefit development point by giving an equivalently ease, versatile, position-autonomous stage for customers' information. Since distributed computing environment is built in view of open models and interfaces, it has the ability to consolidate numerous inner as well as outer cloud benefits together to give high interoperability. We call such a disseminated cloud environment as a multi-Cloud (or cross breed cloud).Frequently, by utilizing virtual infrastructure management (VIM) [1], a multi-cloud permits customers to effortlessly get to his/her assets remotely through interfaces, for example, Web administrations gave by Amazon EC2. Provable data possession (PDP) [2] (or proofs of retrievability (POR) [3]) is such a probabilistic confirmation procedure for a capacity supplier to demonstrate the honesty what's more, responsibility for information without downloading information. The verification checking without downloading makes it particularly imperative for vast size records and envelopes (regularly including many customers' records) to check whether these information have been altered then again erased without downloading the most recent adaptation of information. Along these lines, it can supplant conventional hash and signature works away outsourcing. Different PDP plans have been as of late proposed, for example, Versatile PDP [4] and Dynamic PDP [5]. Nonetheless, these plans predominantly concentrate on PDP issues at untrusted servers in a solitary distributed storage supplier and are not appropriate for a multi-cloud environment.

There exist different devices and innovations for multi cloud, for example, Platform VM Orchestrator, VMware VSphere, and Ovirt. These devices cloud suppliers develop a disseminated distributed storage stage for dealing with customers' information. Notwithstanding, if such a critical stage is powerless against security assaults, it would convey hopeless misfortunes to the customers. For instance, the classified information in an undertaking might be illicitly gotten to through a remote interface gave by a multi-cloud, or important information and chronicles might be lost or messed with when they are put away into an· indeterminate capacity pool outside the endeavor. Along these lines, it is fundamental for cloud benefit suppliers to give security systems to dealing with their capacity administrations.

II.   RELATED WORK

To check the accessibility and uprightness of outsourced information in cloud stockpiles, scientists have proposed two essential methodologies called Provable Data Possession (PDP) [2] and Proofs of

WEB USAGE MINING THROUGH LESS COST

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Abstract: In this paper we present the web mining using Cloud Computing Technology. Web mining includes how to extract the useful information from the web and gain knowledge using data mining techniques. Here so many resources and techniques are available i.e. web content mining, web structure mining, web usage mining and access through the web servers. Web mining techniques (specially web usage mining techniques) and applications are much needed in cloud computing. The implementation of these techniques through cloud computing will allow users to retrieve relevant and meaningful data from virtually integrated data warehouse which reduces cost and infrastructure.

Keywords— Data mining, Web Mining, Data Warehouse, Knowledge Discovery, Cloud Mining, Web Content Mining, Web Structure Mining, Web Usage Mining.

INTRODUCTION

Web mining - is the application of data mining techniques to discover patterns from the Web. According to analysis targets, web mining can be divided into three different types, which are Web usage mining, Web content mining and Web structure mining. Web usage mining is the process of extracting useful information from server logs e.g. use Web usage mining is the process of finding out what users are looking for on the Internet using cloud computing . Some users might be looking at only textual data, whereas some others might be interested in multimedia data. Web Usage Mining is the application of data mining techniques to discover interesting usage patterns from Web data in order to understand and better serve the needs of Web-based applications. Usage data captures the identity or origin of Web users along with their browsing behavior at a Web site. Web usage mining itself can be classified further depending on the kind of usage data considered. Several data mining methods are used to discover the hidden information in the Web. However, Web mining does not only mean applying data mining techniques to the data stored in the Web. The algorithms have to be modified such that they better suit the demands of the Web [1].

The web usage mining generally includes the following several steps: data collection, data retreatment, and knowledge discovery and pattern analysis

A] Data collection:

Web usage mining is the process of extracting useful information from server logs e.g. use Web usage mining is the process of finding out what users are looking for on the Internet.

Approach of Web usage mining

2.1. Concept of web usage mining
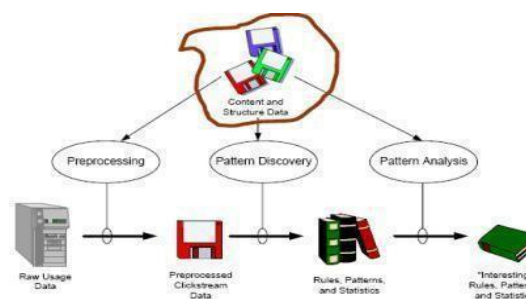
Exploiting Dynamic Resource Allocation for Efficient Parallel Data Processing in the Cloud

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ABSTRACT

In recent years ad-hoc parallel data processing has emerged to be one of the killer applications for Infrastructure-as-a-Service (IaaS) clouds. Major Cloud computing companies have started to integrate frameworks for parallel data processing in their product portfolio, making it easy for customers to access these services and to deploy their programs. However, the processing frameworks which are currently used have been designed for static, homogeneous cluster setups and disregard the particular nature of a cloud. Consequently, the allocated compute resources may be inadequate for big parts of the submitted job and unnecessarily increase processing time and cost. In this paper we discuss the opportunities and challenges for efficient parallel data processing in clouds and present our research project. It is the first data processing framework to explicitly exploit the dynamic resource allocation offered by today's IaaS clouds for both, task scheduling and execution. Particular tasks of a processing job can be assigned to different types of virtual machines which are automatically instantiated and terminated during the job execution.

Keywords: Task computing, query processing, dynamic resource allocation,Task Computing

I.   INTRODUCTION

For organizations that exclusive need to process vast sums Today a developing number of organizations need to prepare gigantic measures of information in a cost-effective way. Great agents forthese organizations are administrators of Internet web indexes, similar to Google, Yahoo, or Microsoft. The boundless measure of information they need to manage each day has made customary database arrangements restrictively costly [5]. Rather, these organizations have advanced a design worldview in light of countless servers. Issues like preparing slithered archives or recovering a web file are part into a few autonomous subtasks, appropriated among the accessible hubs, and computedin parallel.Cloud processing has developed as a promising way to deal with lease a huge IT in-frastructure on a fleeting pay-per-use premise. Administrators of alleged Infrastructure-as-a-Service (IaaS) mists, similar to Amazon EC2 [1], let their clients apportion, get to, and control an arrangement of Virtual Machines (VMs) which keep running inside their server farms and just charge them for the timeframe the machines are designated. The VMs are regularly offered in various sorts, every sort with its own qualities (number of CPU centers, measure of primary memory, and so forth.) and cost.

This paper is an extended It includes further detailson scheduling strategies and extended experimental results. The paper is structured as follows: Section II, starts with analyzing the above men-tioned opportunities and challenges and derives some important design principles for our new framework. In Section III, we present Nephele's basic architecture and outline how jobs can be described and executed in the cloud. Section IV, provides some first figures on Nephele's performance and the impact of the optimizations we propose. Finally, our work is concluded by related work (Section V) and ideas for future work

II.   CHALLENGES AND OPPORTUNITIE

Current data processing frameworks like Google's MapReduce or Microsoft's Dryad engine have been designed for cluster environments. This is reflected in a number of assumptions they make which are not necessarily valid in cloud environments. In this section we discuss how abandoning these assumptions raises new opportunities but also challenges for efficient parallel data processing in clouds.

A. OPPORTUNITIES

Today's processing frameworks typically assume the re-sources they manage consist of a static set of homogeneous compute nodes. Although designed to deal with individ- ual nodes failures, they consider the number of available machines to be constant, especially when scheduling the processing

Hypothetical Analysis on The Transitory Characteristics Of EDFA In Optical Fiber Communication

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2.Mr.Ch.Mahende Reddyr Assistant Professor CSE Malla Reddy College of Engineering

Abstract:

Erbium laser amplifier has become one of the important components indispensable in optical fiber communication for its high gain, high pumping efficiency, polarization-independent and small crosstalk between signals, etc. The transient characteristic of the EDFA is an inevitable phenomenon based on the mechanism of EDFA amplification by stimulated emission of radiation. This paper focuses on the EDFA transient effects caused by the signal power, pump power , and gain saturation recovery time from the aspects of EDFA transient rate equation、the relation between the signal power and the output power、The relations between pump power and the output power and the transient effect caused by gain recovery time.

Keywords: EDFA, transient characteristics, optical fiber communication

Introduction

In the future, optical fiber communication will occupy the leading position in the communication's industry inevitably as its large capacity, long distance, security and good performance of adaptability. While as a representative, Erbium laser amplifier has become one of the important components indispensable in optical fiber communication for its high gain, high pumping efficiency, polarization-independent and small crosstalk between signals, etc. However when a bunch of light pulses pass through an optical amplifier, the former pulse will have some impact on the amplification behavior of the latter one, even when it is a single light pulse, the leading edge will also affect the amplification behavior of the Trailing edge, which is an inevitable phenomenon based on the mechanism of EDFA amplification by stimulated emission of radiation, known as the transient characteristics of the EDFA.

The main reason causing the transient gain effect is the initial state of stimulated emission and the temporal correlation , the leading edge of signal pulse makes a large number of particles on the upper level transit by absorbing energy ,and then supply the lost particles for stimulated radiative transition on the upper level by the two means of transverse relaxation of the particles on the upper level and non-radiative transitions of a large number of particles in the pump energy level, in a sufficiently short period of time, if the number of particles in the upper level can't be replenished , there will be a gain difference between the former and the latter one of a series of pulses, or even the former and the latter edge of a pulse, causing changes in the output pulse waveform [1].

The main parameters of transient effects of EDFA are almost the same as the one of steady stat , both are associated with the pump power , signal power and noise - related gain of EDFA , the only difference is that the number of particles in the upper and lower levels is not certain value at transient changes, which changes with time, when the signal light passes through the EDFA , the

Improving Security and Quality of Service (QOS) Desktop Grids

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Mr CH.Vengaiah Assistant Professor MRCE Secunderabad-100.

Mrs.Vijaya Kumari Associate Professor MRCE Secunderabad-100.

Dr. Sunil Tekale Professor MRCE Secunderabad-100.

Abstract:

Simulation can be used to predict the functionality and behavior of the system . Grid computing uses massive power of idle cycles of PC's .Desktop grids is nothing using the idle cycles of desktop PC's for computing large scale applications. There are many fields which requires large scale massive power such as scientific fields to handle complex and demanding problems. In this paper we mainly discuss about different simulator tools available and how they can efficiently provide quality of services on desktop grids. Desktop Grids are being increasingly used as the execution platform for a variety of applications that can be structured as Bag-of-Tasks (BoT)[1].

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A study on Data Mining Techniques for Online Community System Analysis

Dr.Sunil Tekale Professor MRCE

Mr.Amarnath Associate Professor MRCE

Ch.Mahender Reddy Assistant Professor MRCE

Abstract

In this paper we take into consideration the concepts of using algorithmic and data mining perspective of Online Social Networks (OSNs), with special emphasis on latest hot topics of research area. There are several factors which has made the study of OSNs gain enormous importance by researchers. Few such factors include the availability of huge amount of OSN data, the representation of OSN data as graphs, and so on. Analysis of data in OSNs also has a great prospective for researchers in a variety of disciplines. Hence this paper gives an idea about the key topics of using data mining in OSNs which will help the researchers to solve those challenges that still exist in mining OSNs.

Keywords: Online Social Networks, Data Mining, Structure- based Analysis, Content-based Analysis

1. Introduction

With the advent of Online Social Networks (OSNs), a revolutionary change has occurred in the social interactions of people of this decade. Many popular OSNs such as

Facebook, Orkut, Twitter, and LinkedIn have become increasingly popular. Nowadays, these OSNs allow many easy-to-learn online activities including chatting, online shopping, gaming, tweeting, etc. According to the site *thenextweb.com*, Indian citizens spend one in four minutes online using social networking sites, more than any other Internet activity [1]. In fact, social networking is considered to be the second-

fastest growing activity, behind only entertainment.

However, social media sites provide data which are vast, noisy, distributed and dynamic. Hence, data mining techniques provide researchers the tools needed to analyze such large, complex, and frequently changing social media data. In this section, we introduce some representative research issues in mining social networking sites using data mining techniques as shown in Figure 1.

DATA SECURITY IN MOBILE AD HOC NETWORKS

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ABSTRACT

Today organizing innovation has risen quickly and now it has reached out to the development of remote systems. Diverse sorts of systems can be shaped to share the assets in light of necessities. As the development advances, the issue of security to the information in the system gets to be lasting significance. The information exchanged from one framework to other framework in versatile specially appointed system, has more powerlessness. Giving security at various levels is an absolute necessity in light of the fact that the assailants assault the systems at various levels, to get entrance the data. In spite of the fact that there are a few strategies rehearsed for giving security to the information, each time a gatecrasher finds distinctive approaches to access to the system on the grounds that the system continues developing. For giving security to the information, all security administrations to be considered are secrecy, trustworthiness, verification, non-revocation. Aside from this, security level is likewise considered, and the get to benefits for this level are resolved by client.

The exploration is centered around examining the standard security administrations accessible in portable specially appointed system environment. The objective is to keep the different assaults and to distinguish a superior course to move the date in the portable impromptu systems. The proactive approach expands remediation effectiveness, evaluates the genuine effect of potential assaults and doles out security assets wisely. Thus, an approach based shared plan is proposed for giving better security to the information that is moved in versatile specially appointed system. Securing information is done through privacy confirmation and honesty.

At first, Trust based parcel sending plan is proposed to ascertain the trust record of the hub and the courses are chosen by trust esteem with a view to enhance the trustworthiness. Keeping in mind the end goal to give confirmation dispersed declaration power strategy is given to build an authentication. A novel encryption and unscrambling instrument, which is a blend of both symmetric and topsy-turvy key cryptographic strategies is proposed to give classification. The three plans are consolidated to shape a common plan to give security to the information in light of the necessities of the client. The assurance conspire gives the sought level of security, in view of the arrangement by commonly coordinating the plan, as indicated by the prerequisite of the client. The proposed systems are joined to frame a strategy based shared plan for information security that can give finish insurance to the information in MANET correspondence.

Keywords—data security, networks, mobile networks

I.   INTRODUCTION

In recent years mobile ad hoc networks (MANETs) have received tremendous attention because of their self-configuration and self-maintenance capabilities. While early research effort assumed a friendly and cooperative environment and focused on problems such as wireless channel access and multihop routing, security has become a primary concern in order to provide protected communication between nodes in a potentially hostile environment. Although security has long been an active research topic in wireless networks, the unique characteristics of MANETs present a new set of nontrivial challenges to security design. These challenges include open network architecture, shared wireless medium, stringent resource constraints, and highly dynamic network topology. Consequently, the existing security solutions for wired networks do not directly apply to the MANET domain.

The ultimate goal of the security solutions for MANETs is to provide security services, such as authentication, confidentiality, integrity, anonymity, and availability, to mobile users. In order to achieve this goal, the security solution should

CRYPTOGRAPHY BASED PRIVACY PRESERVING DATACOMMUNICATION IN HYBRID WIRELESS NETWORKS

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If the region has no communication infrastructure or the existing infrastructure, communication between nodes are complex or not suitable to use. In this location [2] hybrid wireless network may still be able to communicate through the construction of an ad-hoc network. In such a network, every mobile node operates as a host and also as a router. Forwarding packets to new mobile nodes in the network may not be within straight wireless transmission range. Each node participates in an ad-hoc routing and infrastructure routing, for this [1] Distributed three hop routing protocol is used. It allows to discovering a "Three-hop" path to any other node during the network is introduced in this effort The first two hops in ad-hoc networking is sometimes called infrastructure-less networking, since the mobile nodes in the network animatedly make routing between themselves to form their personal network. The third hop is created in infrastructure networking. Most Wi-Fi networks task in an infrastructure approach. Devices in this network communicate through a single access point, which is generally the wireless router. For example, consider the two laptops are placed next to each other, each connected to the same wireless network. still the two laptops are sited next to each other, they're not communicating in a straight line in infrastructure network. Some possible uses of hybrid wireless network consist of students using laptop, computers to participate in an interactive instruct, trade associates and sharing information during a gathering soldiers communicate information about the condition attentiveness on the emergency failure release and personnel coordinating efforts after a storm or shaking

TESTING THE PERFORMANCE OF EAACK IN AUTHENTIC NETWORK ENVIRONMENT

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Abstract— The development to remote framework from wired framework has been a general example inside the late decades. The quality and quantifiability brought by remote framework make its potential in a couple of utilizations. Among all the best in class remote net-satisfies desires, Mobile Adhoc Network (MANET) is one in everything about overwhelming essential and diverse applications. On the notwithstanding matured assurance, MANET needn't trouble with a relentless framework base; every one single center point works as each a transmitter and a recipient. Center points talk particularly with each other once they are in degree between times steady correspondence shifts. Else, they place confide in their neighbors to exchange messages. The engineering toward oneself limit of center points in MANET made it in vogue among crucial mission applications like military usage or emergency recovery. In any case, the open medium and wide dispersal of center points make MANET subject to malicious aggressors. In the midst of this case, its crucial to make moderate intrusion acknowledgment parts to shield MANET from ambushes. With the upgrades of the designing and cut in fittings costs, we tend to range unit seeing a present example of extending MANET into mechanical applications. To figure out how to such example, we tend to persuasively acknowledge that its fundamental to handle its potential security issues. In the midst of this paper, we tend to propose and realize a fresh out of the box new interference area and revolution system named EAACK based Intrusion Detection and shirking structure using ECC approach phenomenally expected for MANET. Appeared differently in relation to extraordinary approaches, our strategy indicates higher threatening behavior revelation rates in without question conditions while doesn't unfathomably affect the framework presentations.

Keywords— **Digital signature, Enhanced Adaptive ACKnowledgment (AACK) (EAACK), Mobile Adhoc NETwork (MANET), Elliptic Curve Cryptography (ECC)**

I. INTRODUCTION

Because of their trademark quality and quantifiability, remote frameworks go unit unendingly most pervasive since the basic day of their creation. As a consequence of the upgraded designing and reduced costs, remote frameworks have grabbed rather more slant over wired frameworks inside the late decades. By definition, Mobile Ad hoc Network (MANET) is an arranged of flexible center points outfitted with each a remote transmitter and a recipient that talk with each other through bidirectional remote joins either direct or by suggestion. Advanced remote get to and organization by method for remote frameworks are getting additional and additional in style starting now [35]. One in all the key blessings of remote frameworks is its ability to permit electronic correspondence between absolutely particular get-togethers and still keep up their quality. Regardless, this correspondence is restricted to the move of transmitters. This underwear that 2 centers can't talk with each other once the space between the 2 centers is on the far side the correspondence changes of their own. MANET comprehends this inconvenience by permitting midway get-togethers to

CLASSIFIER BASED INFORMATION MINING APPROACHES

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Abstract— Content mining is a procedure of separating the data from an unstructured content. This examination work manages a few classifiers including k-Nearest Neighbor (k-NN), Radial Basis Function (RBF), Multilayer Perception (MLP), and Support Vector Machine (SVM) which are utilized as prepared classifiers for performing order of information into pertinent and non-significant information. This study means to look at the productivity of the different existing grouping calculations with the proposed arrangement calculations on the premise of runtime, blunder rate and exactness.

Keywords: **k-NN, RBF, MLP, SVM**

I. INTRODUCTION

Information mining can diminish data over-burden and enhance basic leadership. This is accomplished by separating and refining valuable learning through a procedure of hunting down connections and examples from the broad information gathered by associations. The separated data is utilized to anticipate, order, display, and outline the information being mined. A content mining methodology will include order of content, content bunching, and extraction of ideas, granular scientific classifications creation, estimation examination, record outline and demonstrating. It includes a two phase handling of content. In the initial step a portrayal of archive and its substance is finished. This procedure is called arrangement prepare. In the second step called as arrangement, the record is isolated into expressive classifications and an entomb archive relationship is set up. Content mining has been helpful in numerous zones, i.e. security applications, programming applications, scholarly applications and so forth.

k-closest neighbor is a directed learning calculation where the aftereffect of new occasion question is characterized in light of dominant part of k-closest neighbor classification. The motivation behind this calculation is to characterize another question in view of traits and preparing tests.

A spiral capacity or an outspread premise work (RBF) is a class of capacity whose esteem reductions (or increments) with the separation from an essential issue. A RBF has a Gaussian shape, and a RBF system is regularly a Neural Network with three layers. The info layer is utilized to just information the information. The Gaussian enactment capacity is utilized at the shrouded layer, while a direct actuation capacity is utilized at the yield layer. The goal is to have the shrouded hubs figure out how to react just to a subset of the info, to be specific, that where the

Gaussian capacity is entered. This is normally refined by means of administered learning.

The bolster vector machine (SVM) is a preparation calculation for taking in order and relapse rules from information. It can be connected for arrangement and relapse issues. It utilizes a non straight mapping to change the first preparing information into a higher measurement. Order calculations are progressively being utilized for critical thinking. The proficiency of calculations has been thought about on the premise of runtime, blunder rate, precision utilizing Weka machine learning device.

II. REVIEW OF LITERATURE

Numerous scientists have examined the procedure of consolidating the expectations of different classifiers to create a solitary classifiers (Breiman 1996c; Clemen, 1989; Perrone, 1993; Wolpert, 1992). The subsequent classifier (in the future alluded to as a troupe) is for the most part more exact than any of the individual classifiers making up the outfit. Both hypothetical (Hansen and Salamon, 1990; Krogh and Vedelsby, 1995) and experimental (Hashem, 1997; Opitz and Shavlik,1996a, 1996b) inquire about has exhibited that a decent outfit is one where the individual classifiers in the group are both exact and make their mistakes on various parts of the information space. Two mainstream strategies for making precise troupes are packing (Breiman, 1996c) and Boosting (Freund and Schapire, 1996; Schapire,1990). These strategies depend on "resampling" systems to get distinctive preparing sets for each of the classifiers. This work exhibits an extensive assessment of sacking on information mining issues utilizing four premise arrangement strategies: k-Nearest Neighbor (k-NN), Radial Basis Function (RBF), Multilayer Perceptron (MLP), and Support Vector Machine (SVM). Rachid Beghdad (2008) introduce a basic learn about the utilization of some neural systems (NNs) to identify and group interruptions. The point of research is to figure out which NN groups well the assaults and prompts to the higher location rate of every assault. This study concentrated on two order sorts of records: a solitary class (ordinary, or assault), and a multiclass, where the classification of assault is additionally recognized by the NN. Five distinct sorts of NNs were tried: multilayer perceptron (MLP), summed up bolster forward (GFF), spiral premise work (RBF), self-arranging highlight delineate), (and primary part examination (PCA) NN. In the single class case, the PCA NN plays out the higher recognition rate

EFFECTIVE AND SECURE KAC SCHEME FOR DISTRIBUTED CLOUD STORAGE

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Abstract—*Information sharing is a critical usefulness in cloud stor-age. In this past work, we demonstrate to safely, proficiently, and adaptable impart information to others in distributed storage. The current work shows the Key-Aggregate Cryptosystem (KAC) utilized for helpfully sent to others or be put away in a brilliant card with extremely constrained secure storage. An impediment of existing work is the predefined bound of the quantity of most extreme figure content classes and key is provoke to spillage. Our proposed work for the most part concentrates on over two issues. Our first work powerfully holds number of greatest figure content classes in distributed storage. If there should arise an occurrence of Stream figure the quantity of classes chose powerfully, in light of the fact that the figure content size is excessively bigger than piece figure. We propose an impeccable decentralized get to control conspire with total key encryption for information put away in cloud. This plan gives secure information stockpiling and recovery. Alongside the security the get to approach is additionally covered up for concealing the client's character. This plan is so effective since we utilize total encryption and string coordinating calculations in a solitary plan. The plan distinguishes any change made to the first document and if discovered clear the error's. The calculation utilized here are extremely basic so vast number of information can be put away in cloud with no issues. The security, confirmation, confidentiality are equivalent to the incorporated methodologies*.

Keywords: Cloud Storage, Data Sharing, Asymmetric Encryption, String matching algorithms, Key- Aggregate Cryptonyms-tem

I. INTRODUCTION

Distributed storage is picking up fame as of late. In big business settings, we see the ascent sought after for information out sourcing, which helps with the vital administration of corporate information. It is likewise utilized as a center innovation behind numerous online administrations for individual applications. Presently a days,

it is anything but difficult to apply with the expectation of complimentary records for email, photograph collection, document sharing and additionally remote access, with capacity estimate more than 25 GB (or a couple of dollars for more than 1 TB). Together with the present remote innovation, clients can get to al-most the majority of their documents and messages by a cell phone in any side of the world. Considering information security, a traditional approach to guarantee it is to depend on the server to uphold the get to control after verification, which implies any startling benefit acceleration will uncover all information. In a common ten a cycloid processing environment, things turn out to be much more dreadful. Information from various customers can be facilitated on discrete virtual machines (VMs) yet live on a solitary physical machine.

Information in an objective VM could be stolen by instantiating an-other VM inhabitant with the objective one. As to capacity of documents, there are progressions of cryptographic plans which go similarly as permitting an outsider reviewer to check the accessibility of records for the information proprietor without spilling anything about the information, or without Compromising the information proprietor's secrecy. In like manner, cloud users presumably won't hold the solid conviction that the cloud server is benefiting work as far as secrecy. These clients are roused to encode their information with their own keys before transferring them to the server clouds can give a few sorts of administrations like applications (e.g., Google Apps, Microsoft on the web), foundations Security is required in light of the fact that information put away in mists is exceptionally touchy, for instance, therapeutic records and interpersonal organizations.

So encryption must be done in a flawless way. A few late encryption calculation bombs in seeking process. Be that as it may, the best encryption calculation which likewise improves hunt is total sort encryption [1].Thus this encryption strategy is utilized generally. Giving security just is extremely straightforward yet furnishing security with privacy[2] is especially troublesome. Keeping up the

Particle Swarm Optimization Based K-mean Clustering - A Survey

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Abstract— **In Data Mining, Clustering is an important research topic and wide range of unsupervised classification application. Clustering is technique which divides a data into meaningful groups. K-mean is one of the popular clustering algorithms. K-mean clustering is widely used to minimize squared distance between features values of two points reside in the same cluster. Particle swarm optimization is an evolutionary computation technique which finds optimum solution in many applications. Using the PSO optimized clustering results in the components, in order to get a more precise clustering efficiency. In this paper, we present the comparison of K-mean clustering and the Particle swarm optimization.**

Keywords— *Clustering, K-mean Clustering, Particle Swarm Optimization*

I. INTRODUCTION

Clustering is a technique which divides data objects into groups based on the information found in data that describes the objects and relationships among them, their feature values which can be used in many applications, such as knowledge discovery, vector quantization, pattern recognition, data mining, data dredging and etc. [1] There are mainly two techniques for clustering: hierarchical clustering and partitioned clustering. Data are not partitioned into a particular cluster in a single step, but a series of partitions takes place in hierarchical clustering, which may run from a single cluster containing all objects to n clusters each containing a single object. And each cluster can have sub clusters, so it can be viewed as a tree, a node in the tree is a cluster, the root of the tree is the cluster containing all the objects, and each node, except the leaf nodes, is the union of its children. But in partitioned clustering, the algorithms typically determine all clusters at once, it divides the set of data objects into non-overlapping clusters, and each data object is in exactly one cluster. Particle swarm optimization (PSO) has gained much attention, and it has been applied in many fields [2]. PSO is a useful stochastic optimization algorithm based on population. The birds in a flock are represented as particles, and particles are considered as simple agents flying through a problem area. And in the multi-dimensional problem space, the particle's location can represent the solution for the problem. But the PSO may lack global search ability at the end of a run due to the utilization of a linearly decreasing inertia weight and PSO may fail to find the required optima when the problem to be solved is too complicated and complex. K-means is the most widely used and studied clustering algorithm. Given a set of n data points in real d-dimensional space (Rd), and an integer k, the clustering problem is to determine a set of k points in Rd,

the set of points is called cluster centres, the set of n data points are divided into k groups based on the distance between them and cluster centres. K means algorithm is flexible and simple. But it has some limitation, the cluster result mainly depends on the selection of initial cluster centroids and it may converge to the local optima [3]. However, the same initial cluster centre in a data space can always generate the same cluster results, if a good cluster centre can always be obtained, the K-means will work well.

II. K-MEAN CLUSTERING

James MacQueen, the one who proposed the term "k-means"[4] in 1967. But the standard algorithm was firstly introduced by Stuart Lloyd in 1957 as a technique pulse-code modulation. The K-Means clustering algorithm is a partition-based cluster analysis method [5]. According to the algorithm we firstly select k objects as initial cluster centres, then calculate the distance between each cluster centre and each object and assign it to the nearest cluster, update the averages of all clusters, repeat this process until the criterion function converged. Square error criterion for clustering.

$$E = \sum_{i=1}^{k} \sum_{j=1}^{n_i} \|x_{ij} - m_i\|$$

x_{ij} is the sample j of i-class, m_i is the center of i-class, n_i is the number of samples i-class, Algorithm step are shown in the fig(1).
K- means clustering algorithm is simply described as follows:

Input: N objects to be cluster {x1, x2........xn}, the number of clusters k;
Output: k clusters and the sum of dissimilarity between each object and its nearest cluster center is the smallest;
• Arbitrarily select k objects as initial cluster centers (m1, m2... mk);
• Calculate the distance between each object xi and each cluster center, then assign each object to the nearest cluster, formula for calculating distance as:

$$d(x_i, m_i) = \sqrt{\sum_{j-1}^{d} (x_{i1} - m_{f1})}$$

i = 1,2........N

SECURE BYOD ENVIRONMENTS ON REMOTE MOBILE SCREEN (RMS)

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Abstract -- *The presentation of bring your own particular gadget (BYOD) technique in the common world makes benefits for organizations and also work fulfillment for the representative. In any case, it additionally delivers tests as far as security as new liabilities emerge. Specifically, these difficulties incorporate space detachment, information security, and strategy consistence and also taking care of the asset requirements of cell phones and the lack of care made by introduced applications trying to perform BYOD capacities. We show Remote Mobile Screen (RMS), an approach for secure BYOD situations that reports every one of these analyses. So as to accomplish this, the endeavor furnishes the representative with a trusted virtual machine running a versatile working framework, which is situated in the undertaking system and to which the worker interfaces utilizing the portable BYOD gadget.*

Key words -- Privacy, Remote Mobile System, Remote Mobile Screen

1.   INTRODUCTION

Cell phones have gotten to be vital components in our everyday life, and they have ended up pervasive. For instance, in 2013, the selection of cell phones and associations developed to 7 billion units, as indicated by a report from Cisco [1]. To put this consider along with point of view, as per the United Nations there are 7.2 billion occupants on the planet [2].

Cell phones have tremendously affected organizations, since they increment the profitability of the representatives, and in addition give adaptability as far as time and space. Thusly, organizations have been furnishing their workers with cell phones to empower them to play out their occupation related assignments. Be that as it may, the broad utilization of these gadgets has made burdens for undertakings since they should handle the expenses connected with acquiring and keeping up such gadgets. Furthermore, the extraordinary speeds in which new advances are presented make the present models of these gadgets less engaging the representatives after a brief timeframe.
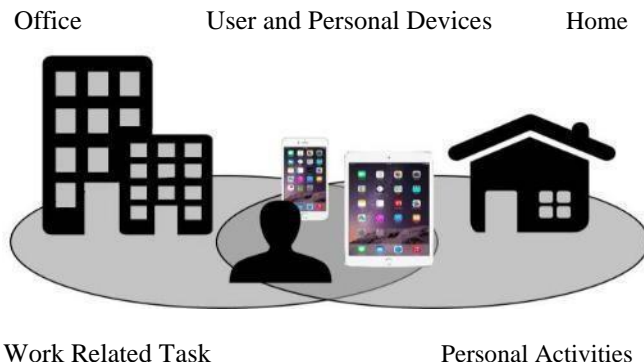
Office   User and Personal Devices   Home

Work Related Task   Personal Activities

Figure 1.1: Representation of a BYOD environment

These outcomes in circumstances where representatives need to change their gadgets quicker than the undertakings can furnish them with new ones. As an aftereffect of this decision and customization in cell phones, representatives frequently ask for their organizations to permit them to utilize their own cell phones for business related assignments while likewise holding them for individual utilize [3]. Due to this converging of utilization, these gadgets are known as double utilize gadgets [4].

Description of BYOD

In these situations, organizations have embraced arrangements as new strategies. This arrangement of strategies is known as Bring Your Own Device (BYOD), which permits a worker to utilize the cell phones they want to perform business related undertakings. In a late study did by Cisco, it was found that 89% of IT offices empower BYOD in some frame [5]. A common BYOD environment is portrayed in Figure 1.1. Where a representative uses an individual cell phone and an individual tablet for individual exercises as well as for business related errands.

BYOD gives a progression of favorable circumstances to both representatives and the undertaking, which are depicted underneath:

Job Satisfaction

The utilization of BYOD arrangements delivers an expansion in occupation fulfillment in the workers. As specified some time recently, representatives can choose the gadget they feel good with and supplant it at the season of their picking. They likewise abstain from conveying extra gadgets by utilizing a solitary gadget for both individual and

AUTHORSHIP IDENTIFICATION BASED ON STYLOMETRY FEATURES

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Abstract-- Electronic communication is one of the popular ways of communication in this era. E-mail communication is the most popular way of electronic communication. Internet works as the backbone for these communications. In digital forensics, questions is arises that the authors of documents and the author identity, demographic background is linked to other documents or not. So identification of the author(s) of the message(s) and non repudiation are some of the major challenges. Author identification is a critical point to be ensured, because many people are used to copy the content of others. Stylometry can be used for the author identification for text documents. As the non–repudiation and integrity of the message are the major concerns, Stylometry is not only identifying a writing pattern but we can also identify the gender of the human. So this document discussed about identification of author, authentication through stylometry technique. In this paper different stylometric techniques are discussed.

Key words-- Stylometry, author identification, email, gender.

I. INTRODUCTION

In 1851 the utilization of tools i.e. statistical tools to test inquiries of origin was done when mathematician Augustus de Morgan proposed utilizing normal word length to numerically describe initiation style [1]. After that Thomas Mendenhall who was a physicist and recommended that a author has a "trademark bend of arrangement" controlled by how a author utilizes expressions of various lengths every now and again, in year 1887 [2]. In 1888 a mathematician (William Benjamin Smith) distributed two papers depicting a "bend of style" to recognize authorial styles in view of normal sentence lengths, this strategy was connected to the Pauline Epistles [3]. A book "Principes de stylometrie" 1890 was given by the Polish logician Wincenty Lutosławski to depict the nuts and bolts of stylometry. Order of Plato's Dialogs was given by Lutosławski by utilizing this strategy. At that point Lucius Sherman, an educator of English in 1893, found that composition style after some time changes with normal sentence

length [4]. Because of the expanding figuring power, accessibility of the Internet, development of ultrahigh dimensional factual devices the stylometric methods are developing quickly step by step. In this paper, fundamentally we concentrated on the different sorts of stylometry procedures. This paper is composed as takes after: in area 2; we have the portrayal of stylometry and in segment 3. This study talked about the writing Review. In the segment 4, is giving the near investigation of research in light of logical articles, email writer recognizable proof utilizing stylometry and as a part of the end in area 4, is giving the conclusion over the examination given in the paper.

II. RELATED WORK

The fields of stylistics, computational linguistics, and non-conventional origin attribution to build up a conceivable structure for the ID of email content initiation. The fields like text classification, machine learning, software forensics, and forensic linguistics also affect on the present study. Written falsification discovery [8] can be viewed as integral to stylometric initiation attribution: it endeavors to recognize normal substance between records, regardless of the possibility that the style may have been changed. Origin attribution and initiation portrayal are very particular issues from unoriginality recognition. Initiation investigation has been utilized as a part of various application territories, for example, recognizing authors in writing, in program code, and so on. In the initiation attribution writing there are three sorts of proof that can be utilized to set up origin i.e. outside, interpretive and phonetic.

•External confirms incorporates the penmanship or a marked original copy of author.

•Interpretive confirmation is the investigation of archive i.e. when it was composed, what the author implied by it and how that can be contrasted with different works by a similar author.

•Linguistic confirmation is concentrating on the examples of words and the real words that are utilized as a part of an archive.

In a few spaces, factual procedures have effectively found author character. Stylometric examination is critical to social researchers, advertisers and experts since it gives demographic information specifically from crude content or

REVIEW ON PARAMETERIZED ALGORITHMS AND KERNELIZATION

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Abstract— *Huge numbers of the fascinating computational issues are NP-Hard. Down to earth uses of these issues made to handle these issues in numerous bearings. Correct answer for these NP-Hard issues is out of degree for sensibly greater occurrences of the issue. Heuristics, surmised arrangements are one approach to handle the issue. Parameterized many-sided quality comprehends these issues as for various different parameters. With the assistance of parameterized calculations a portion of the NP-Hard issues can be unraveled effectively for the little estimations of the information parameters. On the off chance that n is size of the information and k is the span of the parameter, an issue is Fixed Parameter Tractable (FPT) if the issue can be reasonable in time O (f(k) nc), where f(k) is a capacity just subject to k and c is a consistent. That is running time of the calculation is just polynomial ward of n.*

Kernelization is an intriguing idea to decrease the issue estimate. In this paper we audit this area of parameterized multifaceted nature, particularly parameterized calculations and kernelization procedures for a NP-Hard issue of registering Vertex Cover of a chart.

Keywords—Parameterized Complexity, Parameterized Algorithm, Kernelization, Vertex Cover

I. INTRODUCTION

To comprehend the NP-difficult issues in more point by point, Downey and Fellows (1999) presented the idea of parameterized many-sided quality. The traditional computational intricacy measures the running time of a calculation as a component of information size (say n). An issue is accepted to have productive arrangement if the issue can be understood in time corresponding to nc (that is O(nc)), where c is a consistent. Under the supposition that P ≠ NP there are numerous computational issues which might not have polynomial time calculations. These issues have exponential time calculations (That is O(cf(n))) for some steady c > 1. As n develops, the issue can't be settled by a PC. With the development of parameterized calculations, an issue in handled in numerous measurements. That is, aside from information measure, some different parameters are additionally given. Understood parameters incorporate, most

extreme level of a chart, yield arrangement estimate, tree width et cetera. On the off chance that we can propose a calculation with running time O(f(k) nc), where c is a consistent and f(k) is a capacity exclusively ward of k (can be an exponential capacity on k), for little estimations of k the issue is resolvable and the issue is called settled parameter tractable (FPT). FPT is presently regarded as computational class and contains every one of the issues which has FPT calculations. There are issues turned out to be in FPT and there are an issue ended up being to be not has a place with the FPT class. There are issues which are yet demonstrate their enrollment to the FPT class.

There are numerous approaches to demonstrate an issue is in FPT. In writing numerous procedures are utilized to demonstrate the presence of a FPT calculation. The strategies incorporate limited pursuit tree, iterative pressure and kernelization. There are different systems additionally yet in this paper we concentrate just on these three methods. For more points of interest on parameterized many-sided quality you can allude to the book [1] by Downey and Fellows and a late book [2] by Cyganet. al. on parameterized calculations.

Let G = (V, E), with the end goal that |V| = n and |E| = m, be a basic undirected chart. Level of a vertex v is the quantity of edges occurrence on the vertex v. The open neighborhood of a vertex v is the arrangement of all the vertices which are adjoining v and signified by N(v). Shut neighborhood of a vertex v is the arrangement of all the vertices adjoining the vertex v including the vertex v itself, indicated by N[v] = N(v) ∪ {v}.

The vertex cover issue is characterized as takes after: A vertex cover is a subset S of the vertex set V (S ⊆ V) with the end goal that, for each edge (u, v) ∈ E either u ∈ S or v ∈ S. There might be numerous vertex covers for a chart, for instance the whole arrangement of vertices V is a vertex front of the diagram. Be that as it may, the set S with least cardinality among all the vertex spreads is called least vertex front of the chart. Finding the base vertex front of a diagram is NP-Complete [3]. The parameterized variation of the vertex cover issue (k-vertex cover issue) is characterized as takes after:

Input Instance: Input diagram G = (V, E) and a positive number parameter k

Yield: Vertex front of size at generally k

Proportionate choice issues: (Answer to the choice issue is either "YES" or 'NO')

Input Instance: Input diagram G = (V, E) and a positive number parameter k

Yield: Does the diagram has vertex front of size at generally k

Strongly Providing Security in Multi-cloud Computing Environments Framework

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ABSTRACT

A proposed proxy-based multicloud computing framework allows dynamic, on the fly collaborations and resource sharing among cloud-based services, addressing trust, policy, and privacy issues without reestablished collaboration agreements or standardized interfaces. The recent surge in cloud computing arises from its ability to provide software, infrastructure, and platform services without requiring large investments or expenses to manage and operate them. Clouds typically involve service providers, infrastructure/resource providers, and service users (or clients). They include applications delivered as services, as well as the hardware and software systems providing these services. Cloud computing characteristics include a ubiquitous (network-based) access channel; resource pooling; multitenancy;automatic and elastic provisioning and release of computing capabilities; and metering of resource usage (typically on a pay-per-use basis). Virtualization of resources such as processors, network, memory, and storage ensures scalability and high availability of computing capabilities. Clouds can dynamically provision these virtual resources to hosted applications or to clients that use them to develop their own applications or to store data. Rapid provisioning and dynamic reconfiguration of resources help cope with variable demand and ensure optimum resource utilization. A proposed proxy-based multicloud computing framework allows dynamic, on- the-fly collaborations and resource sharing among cloud-based services, addressing trust, policy, and privacy issues without pre-established collaboration agreements or standardized interfaces.

DESIGN AND IMPLEMENTATION OF LTE FOR LOW POWER OPERATIONS

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Abstract—*Focuses on Design and Implementation of Long Term Evolution (LTE) front end modules to synchronize time and frequency with the help of Fast Fourier Transform (FFT). LTE is an emerging standard for high-speed wireless communications. The synchronizer proves to have an outstanding performance with less delay time with simple circuitry for all defined communication modes in LTE.*

Existing Method: Synchronizer is used when two systems operate in different frequencies. As a design FFT works on parallel data and inputs will be in terms of serial-data. Therefore we need to convert serial data into parallel data to the input of FFT. External Input frequency, design input frequency and output frequency are synchronized by using reset, preset and enables. If frequency variation is high, it really makes complex to design with SIPO and PISO.

Proposed System: In this system, we proposed to use FIFO based synchronizer for LTE network. In this design FFT works on post-FIFO data and inputs will be in terms of pre-FIFO data. There is no essential for converting the input data frequency into the other form of data to the input of FFT. External Input frequency, design input frequency and output frequency are synchronized by using pre-clock, clock and post-clock. If variation is high, it will be possible by using pre-FIFO and post-FIFO.The following difficulties are attempted to be addressed during this project work:

- Reducing circuit complexity.

- Replacing the SIPO/PISO Synchronizer modules with FIFO Synchronizer.

- Design of modules like FIFO synchronizer that generates necessary timing needed for interfacing to FFT.

- Reducing the of delay data processing.

Keywords: LTE, Synchronizer, SIPO, PISO, FFT, FIFO

I. INTRODUCTION
1.1 An Introduction to LTE
Mobile broad band is becoming a reality as Internet generation accustomed to access broadband wherever they go, mobile broadband, instead of only at home and in the office, has become a reality. Therefore, the Global System for Mobile Communications family constantly develops new mobile technologies to achieve better performance, such as higher speed, larger capacity and so forth. LTE is a step beyond 3G and towards the 4G Evolution. The contributions of LTE make sure that the users are able to request more mobile applications like interactive TV, mobile video blogging, advanced games or professional services.

Long Term Evolution (LTE) is a significant project of 3rd Generation Partnership Project (3GPP), initially proposed on the Toronto conference of 3GPP in 2004 and officially started as LTE work item in 2006. LTE,

Design of QSD Number System Addition using Delayed Addition Technique

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Abstract: **Quaternary number system is a base-4 numeral system. Using Quaternary Signed Digit (QSD) number system may also execute carry free addition, borrow free subtraction and multiplication. The QSD number system wants a different group of prime modulo based logic elements for each arithmetic operation. In this work we extend this QSD addition to Delayed addition in place of carry free addition. Carry free addition generates intermediate carry and intermediate sum, in this carry propagation is required to generate intermediate sum. To reduce carry propagation we evaluated delayed addition. This delayed addition reduces carry propagation and improves arithmetic calculations. We present both QSD and Floating –point single precision addition using delayed addition. The design work is carried by using Verilog HDL in ISE.**

Keywords: **QSD, DA, CFA and Floating-Point.**

I. INTRODUCTION

Quaternary is the base-4 numeral system. The degree of redundancy usually increases with increase of radix. It uses the digits 0, 1, 2 and 3 to signify any real number it shares with all fixed-radix numeral systems many properties, such as the capability to signify any real number with a canonical illustration (almost unique) and the characteristics of the representations of rational numbers and irrational numbers.

The high speed digital circuit uses the various arithmetic operations. These arithmetic operations are widely used and play significant role in different digital systems such as computers and signal processors. Designing this Arithmetic unit using QSD number representation has attracted the interest of many researchers. Additionally, current advances in technologies for included circuits make large scale arithmetic circuits suitable for VLSI implementation. The propose a high speed QSD adder design. The QSD addition operation employs a fixed number of min terms for any operand size. By using Wallace trees to accumulate results without carry propagation over head. The Wallace tree uses 3:2 or 4:2 compressors to perform addition operation. The fig.1 represents the n bit addition using 3:2 and 4:2 compressors.
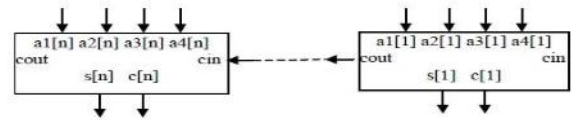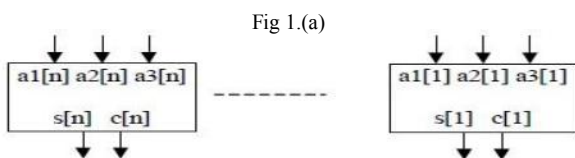

Fig 1.(a)

Fig 1.(b)

Fig.1 a) n bit adder using 3:2 compressors
Fig.1 b) n bit adder using 4:2 compressors

In the present work the design of an QSD adder using 3:2 and 4:2 compressors and also we designed floating point adder in Verilog HDL in Xilinx ISE environment based on Spartan 3E FPGA family.

Present work is divided as follows: Section II presents the QSD number system; section III presents the Carry Free addition; section IV is dedicated delayed addition and floating point number system and finally section V is for conclusion of the work.

II. QSD NUMBER SYSTEM

QSD numbers save 25% storage compared to BSD: To represent a numeric value N log $4N$ number of QSD digits and 3 log $4N$ binary bits are required while for the same log $2N$ BSD digits and *2* log $2N$ binary bits are required in BSD representation. Ratio of number of bits in QSD to BSD representation for an arbitrary number N is, 3 |log 4 N| / 2| log 4 N| which roughly equals to ¾. Therefore QSD saves ¼ storage used by BCD.

The proposed QSD adder is better than RBSD adder in terms of number of gates, input connections and delay though both perform addition within constant time. Proposed design has the advantages of both parallelisms as well as reduced gate complexity. The computation speed and circuit complexity increases as the number of computation steps decreases. A two step schemes appear to be a prudent choice in terms of computation speed and storage complexity. Quaternary is the base 4 redundant number system. The degree of redundancy usually increases with the increase of the radix [3]. The signed digit number system allows us to implement parallel arithmetic by using redundancy. QSD numbers are the SD numbers with the digit set as: { 3, 2,1, 0,1, 2, 3 } where 3, 2, and 1 represent -3, -2, and -1 respectively. In general, a signed-digit decimal number D can be represented in terms of an n digit quaternary signed digit number as

Efficient Memory based LUT Optimization Techniques for Digital Filters

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ABSTRACT As technology improves day by day wide and vast, we were expecting to get the things in the reduced size. Multiplication is major arithmetic operation in signal processing. In ALU's the multiplier uses lookup-table (LUT) as memory for their computations and it consume much hardware area, to reduce the size of the LUT, we present the antisymmetric product coding (APC) and odd-multiple-storage (OMS) techniques for lookup-table (LUT) design for memory-based multipliers to be used in digital signal processing applications. This LUT–memory based multiplication implements in Finite Impulse Response (FIR) filter where the filter outputs are computed as inner-product of input-sample vectors and filter-coefficient vector. It is found that the proposed LUT-based multiplier involves comparable area and time complexity for a word size of 8 bits, 16- and 32-bits, respectively, it offers more than 16% and 20% of saving in area–delay product.

Keywords: Digital Signal Processing, FIR, Look-Up-Table (LUT)-Based Computing, Memory-Based Computing, Digital Filters, Digital Signal Processing, FIR, VLSI.

I.INTRODUCTION

In most of the DSP processors the memory based computing structures are of primary concern than the multiply accumulate structures. Computational or functional operations performed in the DSP blocks of an FPGA for implementing a particular task are time consuming and require more components like adders, multipliers. In the processors like DSP core in FPGAs multiply and accumulate structures are replaced with Look Up Tables. Instead of using conventional multipliers for complex multiplication, operations are simplified with the usage of LUTs that are used for the direct storage of the complex computational values. Further optimization of Look-up-tables provides better performance in terms of speed and effective area utilization. In this paper, LUT optimization using the APC coding and OMS methodology are the primary concern.

In this paper, APC-OMS LUT based FIR filter is designed for DSP applications. A combined approach of the two methods is defined (i.e, Antisymmetric product coding and Odd Multiple Storage that are used previously to optimize LUTs with in a DSP cores for their related operations). The input address and LUT output could always be transformed into odd integers. Previously it is observed that, when an Antisymmetric product coding approach is combined with the Odd multiple storage technique, the two's complement address and LUT output could always be transformed into odd integers, and both cannot be combined since the words generated are odd numbers.

II. PROPOSED APC FOR LUT OPTIMIZATION

For simplicity of presentation, we assume both X and A to be positive integers. The product words for different values of X for L = 5 are shown in Table 1. It may be observed in this table that the input word X on the first column of each row is the two's complement of that on the third column of the same row. In addition, the sum of product values corresponding to these two input values on the same row is 32A. Let the product values on the second and fourth columns of a row be u and v, respectively.

Input, x	Product values	Input, x	Product values	Address X_3] x_2] x_1 x_0	Apc words
00001	A	11111	31A	1111	15A
00010	2A	11110	30A	1110	14A
00011	3A	11101	29A	1101	13A
00100	4A	11100	28A	1100	12A
00101	5A	11011	27A	1011	11A
00110	6A	11010	26A	1010	10A
00111	7A	11001	25A	1001	9A
01000	8A	11000	24A	1000	8A
01001	9A	10111	23A	0111	7A
01010	10A	10110	22A	0110	6A
01011	11A	10101	21A	0101	5A
01100	12A	10100	20A	0100	4A
01101	13A	10011	19A	0011	3A
01110	14A	10010	18A	0010	2A
01111	15A	10001	17A	0001	1A
10000	16A	10000	16A	0000	0A

Table.1. APC words for different input values for L = 5

Since one can write

IMPLEMENTATION OF PIR SENSOR OF 500 WATTS DOMESTIC LIGHTS USING RELAY CIRCUITS

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Abstract— **Energy conservation is the practice of decreasing the quantity of energy used while achieving a similar outcome. This practice may result in increase of financial capital, environmental value, national security, personal security, and human comfort. Individuals and organizations that are direct consumers of energy may want to conserve energy in order to reduce energy costs and promote economic, political and environmental sustainability There is provided an infrared sensor unit for deactivating an electrical appliance when left unattended by its user. The sensor unit includes a passive infrared sensor for sensing the user through a field of infrared light provided within a viewable distance of the electrical appliance. Whenever it detects any motion in the object automatically the light gets ON. If it is day time the light gets OFF this operation can be performed by light sensor (LDR).**

Index Terms— **PIR sensor, LDR sensor.**

I. INTRODUCTION

An embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and Microcontrollers.Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result.As everyone in this competitive world prefer to make the things easy and simple to handle, this project sets an example to some extent.In this busy and competitive world, human cannot spare time to do the things manually. He tries to atomize the things around him up to a maximum extent. There are many techniques to atomize the things around at the best level. One of the efficient techniques to atomize the things in an easy way is through this project.

An embedded system can be defined as a computing device that does a specific focused job. Appliances such as the air-conditioner, VCD player, DVD player, printer, fax machine, mobile phone etc. are examples of embedded systems. Each of these appliances will have a processor and special hardware to meet the specific requirement of the application along with the embedded software that is executed by the processor for meeting that specific requirement. The embedded software is also called "firm ware". The desktop/laptop computer is a general purpose computer. You can use it for a variety of applications such as playing games, word processing, accounting, software development and so on.

Embedded systems do a very specific task, they cannot be programmed to do different things. Embedded systems have very limited resources, particularly the memory. Generally, they do not have secondary storage devices such as the CDROM or the floppy disk. Embedded systems have to work against some deadlines. A specific job has to be completed within a specific time. In some embedded systems, called real-time systems, the deadlines are stringent. Missing a deadline may cause a catastrophe-loss of life or damage to property. Embedded systems are constrained for power. As many embedded systems operate through a battery, the power consumption has to be very low.

II. REVIEW

The use of motion detectors goes back to ancient societies that developed agriculture. Modern motion detection of people and things can be traced back to the early decades of the 20th century, with many of the same principles still in use today. The detection of motion finds its roots in astronomy, which goes back thousands of years. Early farmers looked to the heavens and used the movement of stars to determine when to plant crops and when to harvest them.

The first motion detection system--radar--was pioneered by Heinrich Hertz. Hertz studied the properties of waves and found that waves could bounce off of objects and had different speeds. World War II provided a perfect environment for the growth of motion detection technology: decades of study on the properties of waves and the need to track air and naval vessels. By the 1940s, radar technology was sufficiently advanced that the military could detect

ADVANCED CONTROLLERS FOR PERFORMANCE IMPROVEMENT USING FUZZY LOGIC CONTROLLER (FLC)

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Abstract—**Besides the advantages, there are some limitations of FLCs. The tuning of an FLC is very difficult. To make the tuning easy and efficient, there are several structures of fuzzy logic controllers. This paper considers new structures of fuzzy logic controllers. Two structures, self-tuning FLC (STFLC) and fuzzy supervised conventional PI controller (GSPI) are considered. In FLC control rules and scaling factors play very important role. In this paper, a self-tuning PI-like FLC (STFLC) is used for the tuning of output scaling factor. In FSPI, we tune the PI controller parameters with FLC. So, it adds the advantages of PID controller and FLC. The design of these controllers is discussed. These are implemented to control three non-linear example systems. The performance of FLC, STFLC and FSPI controller is compared with each other. It is found that STFLC and FSPI controller give better performance than the conventional PI controller or simple FLC.**

I. INTRODUCTION

As the complexity of the controlled processes/systems is increasing researchers concentrated their efforts on providing simple and easy control algorithms. The design method for a controller should enable full flexibility in the modification of the control surface. The systems involved in practice are, in general, complex and time variant, with delays and nonlinearities, and often with poorly defined dynamics. The most control solutions developed earlier were based on precise mathematical models of the systems. But for practical systems, it is difficult to describe them by mathematical relations; hence, these model-based design approaches may not provide satisfactory solutions. FLC is not based on a mathematical model of the plant and is widely used to solve problems which are uncertain and vague and those with high nonlinearities. Due to their characteristics, FLCs have been implemented successfully in various applications such as process control and robotics [3, 4, & 5]. Fuzzy logic provides a certain level of artificial intelligence to the conventional PID controllers. Fuzzy PID controllers have self-tuning ability and on-line adaptation to nonlinear, time varying, and uncertain systems Fuzzy PID controllers provide a promising option for industrial applications with many desirable features Besides the advantages, there are some limitations of FLCs. The main limitation of FLC is the lack of existence of a systematic procedure for design and analysis of the control system. It is well-known that tuning of an FLC is a difficult task. To tune an FLC is a much more difficult job than tune a conventional controller because there are many more parameters to adjust in an FLC such as SFs, MFs and control rules. While in conventional PI, PD or PID controllers, there are only two or three parameters. There is a lot of research work have done on FLC tuning. However, still there is no standard and systematic methodology for the tuning of FLCs. Most of the tuning approaches for the FLC parameters (SFs, MFs and rule-base) are time consuming. In designing FLCs there are many other difficulties, such as lack of completeness of the rule-base and lack of definite criteria for the selection of the scaling factors, for the shape of MFs, the number of MFs, the total number of rules required, the inference mechanism, and also the defuzzification scheme. There are various types of adaptive FLCs have been developed to overcome the above mentioned problems [10-18].

Most of the practical processes under automatic control are non-linear higher order systems and may have a considerable dead time. Due to the problems associated with dead time and higher order nonlinearities, it is very difficult to design an effective controller. For having a satisfactory performance, the controller output should be a non-linear function of the process state (e and Δe). In such a situation to eliminate this drawback, fixed valued SFs and predefined MFs may not be

DESIGN OF NOISE FREE FILTER FOR SERIAL DATA COMMUNICATION

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Abstract

This paper portrays a novel design of Universal Asynchronous Receiver Transmitter (UART) in light of Recursive Running Sum (RRS) channel. UARTs are utilized for nonconcurrent serial information correspondence between remote implanted frameworks. In the event that physical channel is boisterous then, serial information bits get adulterated amid transmission. The vigorous UART center portrayed here, uses recursive running entirety channel to expel uproarious examples. Input information flag is straightforwardly examined with framework clock and tests are collected over a window estimate. The window size is client programmable and it ought to be set to one fifth of required piece period. The middle of the road information bit is decoded utilizing greatness comparator. A greater part voter is utilized to interpret genuine information bit from five halfway information bits. The benefit of this engineering is that baud rate is chosen by the window measure so there is no need of any outer "clock module" which is typically required for standard UARTs. The Recursive Running Sum (RRS) channel engineering with programmable window size of M is composed and modules are executed with VHDL dialect. This venture usage incorporates numerous applications in remote information correspondence Systems like RF, Blue tooth, WIFI, ZigBee remote sensor applications. Add up to coding written in VHDL dialect. Reproduction in ISE Simulator, Synthesis done by XILINX ISE 9.2i. Blend result is confirmed by the Chipscope. Input flag given from the console and yield is seen by the assistance of HyperTerminal.

Keywords: Serial information, Clock, Samples, Baud Rate, Noise

1. Introduction

(UART) is used for asynchronous serial data communication between remote embedded systems. Standard UART cores utilize five mid-bit samples to decode the serial data bit and the sampling rate is derived from external timer module. But if the physical channel is noisy then data bits get corrupted during transmission and it leads to wrong data decoding at receiver. To overcome the noise problem a digital low pass filter based architecture is proposed in this paper.

Recursive Running Sum (RRS) is simple low pass filter; it can be used to remove noise samples from data samples at receiver [5]. Serial receive data signal is directly sampled with system clock and samples are fed to RRS filter. The window size of the filter is user programmable and it decides baud rate. RRS filter hardware implementation is described in section-2. Window size selection criteria are described in section-3. The UART Architecture is described in section-4 while section-5 gives simulation results and comparison with standard UART core. The robust UART core described here is designed using VHDL and implemented on Xilinx FPGA.

2. RRS Filter Implementation

The Recursive Running Sum (RRS) filter with window size of M is described by following equations.

$$H(z) = \frac{1 - z^{-M}}{1 - z^{-1}}$$

$$y(n) = x(n) + y(n-1) - x(n-M)$$

The hardware realization of the above equation is as shown in the Figure-1. It requires a Adder, subtracter, a unit delay and a M samples delay element. The window size (M) is related to baud rate which is user programmable. So M is variable, if a 16 bit register is used to hold value of M, it can have values from 0 to 65535. The hardware implementation of variable delay with above range would require 65535 D flip-flops and large number of combinatorial logic for MUX and selection logic implementation. So this implementation is not feasible for FPGA or ASIC platform.
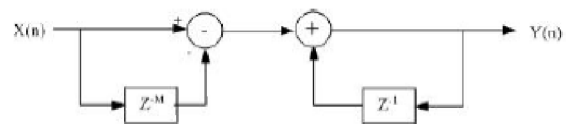

Figure-1 Hardware realization of RRS filter

DESIGN OF 7T SRAM CELL USING SELF-CONTROLLABLE VOLTAGE LEVEL CIRCUIT TO ACHIEVE LOW POWER

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Abstract: *Modern ICs are enormously complicated due to decrease in device size and increase in chip density involving several millions of transistors per chip. The rules for what can and cannot be manufactured leads to a tremendous increase in complexity due to the amount of power dissipation is increased. Power dissipation can be in various forms as dynamic, sub threshold, etc. In this project first, a low power 7T SRAM Cell is designed and later it is build with "Self-controllable Voltage level" circuit for maintaining low power consumption and high performance. A Self-Controllable Voltage Level (SVL) Circuit can supply a maximum dc voltage when the load circuits are in active mode or it can also decrease the dc voltage supplied to a load circuit which is said to be in standby mode. This SVL circuit can reduce standby leakage power of CMOS logic circuits drastically with minimum chip size and speed by considering 7T as load circuit. Furthermore, it can also be applied to memories and registers, because such circuits using SVL technique can retain data even in the standby mode. The entire simulations have been done on 180nm single n-well CMOS bulk technology, in virtuoso platform of cadence tool with the supply voltage 0.7V and frequency of 25MHz.*

Keywords: Low Power, Leakage current, Static Random Access Memory (SRAM), Self Controllable Voltage Level (SVL).

1. Introduction

Low power design has emerged as a principal theme in today's electronics industry. As million of transistor is fabricating on single chip failure rate also increase and degradation of performance takes place so, the major concerns of the designer were area, performance, cost and reliability. In recent years, this has begun to change and increasingly power is being given comparable weight to area and speed considerations [1]. As modern technology is spreading fast, it is very important to design low power, high performance, and fast responding SRAM (Static Random Access Memory) [2]. This is especially true for microprocessors where the on-chip cache sizes are growing with each generation to bridge the increasing divergence in speed of the processors and main memory [3]. Hence the demand for static random-access memory (SRAM) is increasing with large use of SRAM in System-On-Chip and high performance VLSI circuits [4].Due to the increased integration and operating speeds power dissipation has become an important consideration for the need of battery operated devices where the scaling is continued in CMOS technology [5].SRAM cell design depend upon the speed and size of the cell, SRAM cell should be sized as small as possible so large number of transistors can be fabricated on single chip, and we achieve high density in memory design. Typical SRAM cell consists of six MOSFETS. It consists of two invertors connected in back to back followed by the access transistors. Each bit in an SRAM is stored on four transistors that form two cross-coupled inverters. Apart from this the storage cell has two stable states which are used to denote **0** and **1.**Two additional transistors called as access transistors serve to control the access to a storage cell during read and write operations [4].The organization of the paper is as follows: The section 2,3 describes previous work which consists of 6T,7T SRAM cells. Section 4, presents the proposed method of 7T SRAM cell using SVL to reduce leakage current using cadence virtuoso. Section 5 presents simulation result of proposed method. Finally the conclusion is presented in section 6.

2. Conventional 6T SRAM Cell

Operation of SRAM cell can be categorized into three different states: *standby mode* circuit is in ideal mode, *write mode* when mode data has to be updated and *read mode* when data has to be extracted.

In standby mode if the word line is not asserted, the access transistors M5 and M6 disconnect the cell from the bit lines. The two cross coupled inverters formed by M1-M4 will continue to reinforce each other as long as they are connected to the supply.

In write mode, information data is imposed on the bit line and the inverse data on the inverse BLB. Then the access transistors are turned on by setting the word line to high. As the driver of the bit lines is much stronger it can assert the inverter transistors. As soon as the information is stored in the inverters, the access transistors can be turned off and the information in the inverter is preserved [6].Note that the reason this works is that the bit line input-drivers are designed to be much stronger than the relatively weak transistors in the cell itself, so that they can easily override the previous state of the cross-coupled inverters Schematic and waveforms are shown in fig 1 & fig 2 respectively.

In read mode if Q contains 1 the bit lines are first precharged to logical 1 then asserting the word line WL, enables both the access transistors. The second step occurs when the values stored in Q and QB are transferred to the bit lines by leaving BL at its precharged value and discharging BLB through M1 and M5 to a logical 0 .On the BL side, the transistors M4 and M6 pull the bit line toward VDD [6]. The schematic and waveforms are shown respectively in fig3 & fig4 respectively.

EFFECTIVE AND EFFICIENT APPROACH FOR POWER REDUCTION BY USING MULTI-BIT FLIP-FLOPS

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Abstract— **Power has become a burning issue in modern VLSI design. In modern integrated circuits, the power consumed by clocking gradually takes a dominant part. Given a design, we can reduce its power consumption by replacing some flip-flops with fewer multi-bit flip-flops. However, this procedure may affect the performance of the original circuit. Hence, the flip-flop replacement without timing and placement capacity constraints violation becomes a quite complex problem. To deal with the difficulty efficiently, we have proposed several techniques. First, we perform a co-ordinate transformation to identify those flip-flops that can be merged and their legal regions. Besides, we show how to build a combination table to enumerate possible combinations of flip-flops provided by a library. Finally, we use a hierarchical way to merge flip-flops. Besides power reduction, the objective of minimizing the total wirelength is also considered. The time complexity of our algorithm is $(n^{1.12})$ less than the empirical complexity of (n^2). According to the experimental results, our algorithm significantly reduces clock power by 20–30% and the running time is very short. In the largest test case, which contains 1 700 000 flip-flops, our algorithm only takes about 5 min to replace flip-flops and the power reduction can achieve 21%.**

Index Terms— **Clock power reduction, merging, multi-bit flip-flop, replacement, wirelength.**

I. INTRODUCTION

Due to the popularity of portable electronic products, low power system has attracted more attention in recent years. As technology advances, an systems-on-a-chip (SoC) design can contain more and more components that lead to a higher power density. This makes power dissipation reach the limits of what packaging, cooling or other infrastruc-ture can support. Reducing the power consumption not only can enhance battery life but also can avoid the overheating problem, which would increase the difficulty of packaging or cooling [1], [2]. Therefore, the consideration of power consumption in complex SOCs has become a big challenge to designers. Moreover, in modern VLSI designs, power consumed by clocking has taken a major part of the whole design especially for those designs using deeply scaled CMOS technologies [3]. Thus, several methodologies [4], [5] have been proposed to reduce the power consumption of clocking.
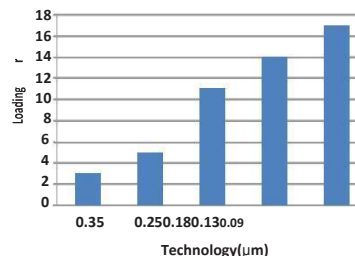

Fig. 1. Maximum loading number of a minimum-sized inverter of different technologies (rising time 250 ps).

Given a design that the locations of the cells have been determined, the power consumed by clocking can be reduced further by replacing several flip-flops with multi-bit flip-flops. During clock tree synthesis, less number of flip-flops means less number of clock sinks. Thus, the resulting clock network would have smaller power consumption and uses less routing resource.

Besides, once more smaller flip-flops are replaced by larger multi-bit flip-flops, device variations in the corresponding circuit can be effectively reduced. As CMOS technology progresses, the driving capability of an inverter-based clock buffer increases significantly. The driving capability of a clock buffer can be evaluated by the number of minimum-sized inverters that it can drive on a given rising or falling time. Fig. 1 shows the maximum number of minimum-sized inverters that can be driven by a clock buffer in different processes. Because of this phenomenon, several flip-flops can share a common clock buffer to avoid unnecessary power waste. Fig. 2 shows the block diagrams of 1- and 2-bit flip-flops. If we replace the two 1-bit flip-flops as shown in Fig. 2(a) by the 2-bit flip-flop as shown in Fig. 2(b), the total power consumption can be reduced because the two 1-bit flip-flops can share the same clock buffer.

However, the locations of some flip-flops would be changed after this replacement, and thus the wirelengths of nets connecting pins to a flip-flop are also changed. To avoid violating the timing constraints, we restrict that the wirelengths of nets connecting pins to a flip-flop cannot be longer than specified values after this process. Besides, to guarantee that a new flip-flop can be placed within the desired region, we also need to consider the area capacity of the region. As shown in Fig. 3(a), after the two 1-bit flip-flops $f1$ and $f2$ are replaced by the 2-bit flip-flop $f3$, the wirelengths of nets net_1, net_2, net_3, and net_4 are changed. To avoid the timing violation caused by the replacement, the Manhattan distance of new nets net_1, net_2, net_3, and net_4 cannot be longer than the specified values.

A Comparative Nature Inspired Load Balancing Algorithms in a Cloud Computing Environment

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Abstract— **One of the primary issues in cloud computing is implementation of a novel load balancing approach. The demanding thirst for optimal performance of the system is creating research interest in this area. Many Load Balancing algorithms that aim to enhance the overall system performance have been proposed. In this paper, we survey a special group of Load balancing algorithms that have taken inspiration from nature. We provide an overview of the current trends in the field by discussing and comparing these algorithms.**

Keywords- Cloud computing, Load balancing, swarm Intelligence

I. INTRODUCTION

The exponential growth of cloud computing in the recent years has attracted research and academia to this field. Load Balancing is a primary issue that needs to be taken care of. Several, Load Balancing algorithms have been proposed and investigated; however, there are issues yet to be addressed. Load balancing is "the process of distributing the work load among various nodes of a cloud based system to improve both resource utilization and job response time while also avoiding a situation where some of the nodes are heavily loaded while other nodes are idle or doing very little work."

Load balancing algorithms are divided as static and dynamic based upon the working environment [1], centralized and distributed based upon the control strategy [2].Static algorithms are effective in stable and homogenous environments where as Dynamic algorithms are effective in dynamic and heterogeneous environments. The centralized strategy requires an arbiter or control node to perform the load balancing act whereas in distributed strategy load balancing is performed by all the nodes of the system. Many

Load Balancing algorithms have been proposed in the recent past. In this paper, we present a survey of Nature Inspired. Load Balancing Algorithms that have been specifically developed for hosted environments. These algorithms use the concept of Swarm intelligence for Load Balancing [3].We consider some of the potentially viable nature inspired algorithms for load balancing in large scale cloud environments. There are two popular classes of Nature Inspired Algorithms available in the literature namely Ant Colony and Honey Bee Colony. We give an overview of

these algorithms, discuss their pros and cons and analyze their properties.

The rest of this paper is organized as follows. We discuss the related work in Section II. Then, in Section III we discuss the various challenges and issues of Nature Inspired load balancing in cloud computing environment. Afterwards in Section IV, we review and compare Nature Inspired Load Balancing Algorithms that are available currently in the literature. Section V concludes the paper and highlights future enhancements that can be done in Cloud Load Balancing.

II. RELATED WORK

Klaithem Al Nuaimi, Nader Mohamed, Mariam Al Nuaimi and Jameela Al-jaroodi have presented a survey of Load Balancing in Cloud Computing. The paper gives an overview of Load Balancing Algorithms like INS, ESWLC, CLBDM, Ants Colony, Mapreduce, VM Mapping and DDFTP. It compares the algorithms based upon on certain parameters[1]. Martin Randles, David Lamb,A. and Taleb-Bendiab have presented a comparative study of three distributed load balancing algorithms namely Honeybee based load balancing, Biased Random Sampling and Active Clustering. The paper describes and compares the algorithms by performing experiments using simulations set up in Repast.NET[4].Rich Lee and Bingchiang Jeng in their work made a comparitative analysis of Round-Robin, Weighted Round-Robin,Least Connection, Shortest Expected Delay, Resource Best and Resource Fit algorithms using a simulation program based on GNU R[5]. V. Sesum-Cavic and E. Kuhn have presented the advantages of using swarm intelligence in load balancing in their works [6].

III. ANALYSIS OF ISSUES RELATED TO NATURE INSPIRED CLOUD LOAD BALANCING ALGORITHMS

In this section we give an introduction to the major challenges a Nature Inspired Cloud Load Balancing Algorithm must address before it is implemented in the system. These challenges if not addressed properly may affect the performance of the algorithm. These challenges are summarized as follows.

A. Nature of the Cloud

Static Nature Inspired Cloud Load Balancing Algorithms are designed to work with static clouds. The performance of

Study of a DC-DC Converter with Large Step-Down Voltage Conversion

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Abstract— **A DC-DC converter with large step-down voltage conversion is presented in this paper. The proposed converter integrates a DC-DC buck converter with a hybrid DC-DC step-down converter by using a single switch to achieve large step-down voltage conversion. The rear semi-stage employs a coupled inductor with same winding turns in the primary and secondary sides. The primary and secondary windings of the coupled inductor are operated in series during ON-period and are operated in parallel during OFF-period. Also, the operating principle and steady-state analysis is discussed. Finally, the simulation results are shown to verify the performance of the proposed converter.**

Keywords-DC-DC converter, voltage conversion

I. INTRODUCTION

The high step-down DC-DC converters are used in many applications, such as renewable energy conversion systems, switching power supplies, and tele-communication power systems. Theoretically, the conventional DC-DC buck converter can achieve high step-down voltage conversion with an extremely low duty ratio [1-3]. However, it will result in poor performance and low efficiency. In order to improve these problems, some topologies have been presented to provide high step-down voltage conversion without an extremely low duty ratio. The converters with cascading connection can provide high step-down voltage gain [4], [5]. Nevertheless, more stages in cascade will result in low efficiency. The hybrid and interleaved buck converters can provide higher step-down voltage gain than the conventional buck converter [6], [7]. The quadratic buck converters are used for large step-down voltage conversion [8]. This paper presents a DC-DC converter, which integrates a DC-DC buck converter with a hybrid DC-DC step-down converter by using a single switch to achieve large step-down voltage conversion.

The rear semi-stage employs a coupled inductor with same winding turns in the primary and secondary sides. The primary and secondary windings of the coupled inductor are operated in series during ON-period and are operated in parallel during OFF-period.

II. OPERATING PRINCIPLE

The circuit configuration of the proposed converter is shown in Fig. 1. The PWM technique is used to control the switch S_1. Fig. 2 shows some typical waveforms. The operating principle in continuous conduction mode (CCM) is described as follows:

Mode 1: During this time interval $[t_0, t_1]$, S_1 is turned on. The current flow path is shown in Fig. 3(a). The energy of voltage source V_{in} is transferred to the inductor L_{in}, the coupled inductor, the output capacitor C_o, and the load R. The energy stored in the capacitor C_1 is also transferred to the coupled inductor, the output capacitor C_o, and the load R. Meanwhile, the primary and secondary windings of the coupled inductor are series.

Mode 2: During this time interval $[t_1, t_2]$, S_1 is turned off. The current flow path is shown in Fig. 3(b). The energy stored in the inductor L_{in} is released to the capacitor C_1. The energy stored in the coupled inductor, is released to the output capacitor C_o and the load R. Meanwhile, the primary and secondary windings of the coupled inductor are parallel.

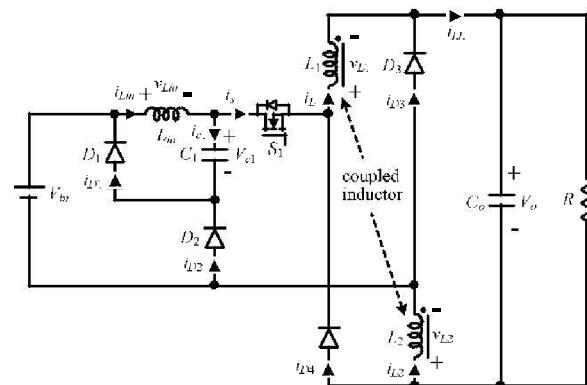## III. STEADY-STATE ANALYSIS

A. Voltage Gain

Since the primary and secondary winding turns of the coupled inductor are same, the inductance of the coupled inductor in the primary and secondary sides can be expressed as

$$L_1 = L_2 = L \tag{1}$$

Thus, the mutual inductance M of the coupled inductor is given by

$$M = k\sqrt{L_1 L_2} = kL \tag{2}$$

where k is the coupling coefficient of coupled inductor.

GSM Communication Network control Vehicle with a Solar Power Supply

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Abstract— **This paper presents the technical construction of a standalone vehicle controlled by GSM communication network. The designed GSM based solar powered vehicle could be operated from almost anywhere under GSM network which is powered by solar energy using 5 watt photo voltaic (PV) panel, stored in 3 similar 4V rechargeable batteries. The operation commences with a call generated from a cell phone which is auto received by another phone stalked in the vehicle motor driver. In the course of a call, if any of the buttons, 2, 4, 6 or 8, is pressed a tone corresponding to the button pressed is heard at the other end of the transmission which is called Dual Tone Multiple Frequency (DTMF) tone. The received tone in the cell phone at vehicle end is processed by a set of relays. These relayed signals are sent to the motor driver IC (L293D) which drives the motor forward, reverse, right or left. Most importantly as the car will be running by solar energy, so the vehicle can be sent to a long distance not worrying about the charge of the battery, since it accumulates the greater portion of the energy required from the external PV panel that absorbs and converts sunlight to generate the driving power, though there will be DC battery as a backup.**

Keywords- Solar vehicle, remote controlled transport, solar robot, GSM based remote

I. INTRODUCTION

A remote control vehicle is typically defined as any mobile device that is controlled by a means that does not restrict its motion with an origin external to the device. This is often a radio control device, cable between control and vehicle, or an infrared controller. A remote control vehicle (RCV) differs from a robot in that the RCV is always controlled by a human and takes no positive action autonomously [2]. One of the key technologies which underpin this field is that of remote vehicle control. It is vital that a vehicle should be capable of proceeding accurately to a target area; maneuvering within that area to fulfill its mission and returning equally accurately and safely to base [1].

The first general use of radio control systems in models started in the late 1940s with single channel self-built equipment; commercial equipment came soon thereafter. Initially remote control systems used escapement, (often rubber driven) mechanical actuation in the model [23]. Commercial sets often used ground standing transmitters, long whip antennas with separate ground poles and single vacuum tube receivers [5]. The first kits had dual tubes for more selectivity. Such early systems were invariably super regenerative circuits, which meant that two controllers used in close proximity would interfere with one another [6].

II. DESIGN AND CONSTRUCTION

In this project the vehicle is attached with a mobile phone under GSM communication network which is controlled by a user mobile phone. With the help of user mobile phone we can move the vehicle in desired direction as per our requirement. This project is constructed from a very compact dual tone multi-frequency (DTMF) based decoder, and the GSM network controlled vehicle organizes the switching from the decoded and power switching device for controlling the motor drive of the vehicle using two cell phones.

We know RC (Remote Controlled) cars or vehicle do not have a high range of wireless network. This means that the operator has to be in touching distance to the receiver of the vehicle. Thus it is clear that a remote controlled vehicle cannot be applied for an array of duty due to its lacking of controlling range. This is where GSM controlled vehicle steps in. Using two GSM able phones we can create a controlling mechanism for the vehicle. Here we do not have to worry about the range for operation, if sensors such as IR sensors and camera or 3G enabled mobile phones are used, as most of the world is under the assortment of GSM network [9]. By using this prospect we can take this vehicle and turn it for human benefits. These vehicles can be used as firefighting robots, battle vehicles or applied in vast places where it's not possible or dangerous for any human being to go.
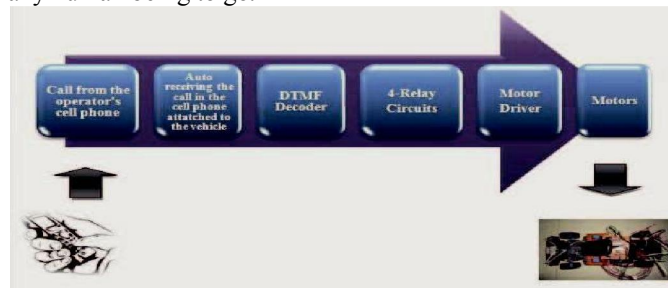

Fig. 1: Block diagram of GSM network controlled vehicle.

Improved power quality for renewable power generation systems presence of non linear loads

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Abstract— **An active power filter implemented with a four-leg voltage-source inverter using a predictive control scheme is presented. The use of a four-leg voltage-source inverter allows the compensation of current harmonic components, as well as unbalanced current generated by single-phase nonlinear loads. The compensation performance of the proposed active power filters.**

Keywords- Active power filter, Current control, Predictive control, Four-leg converters

I. INTRODUCTION

Renewable generation affects power quality due to its nonlinearity, since solar generation plants and wind power generators must be connected to the grid through high power static PWM converters [1]. The non-uniform nature of power generation directly affects voltage regulation and creates volt-age distortion in power systems. This new scenario in power distribution systems will require more sophisticated compensation techniques.

Although active power filters implemented with three-phase four-leg voltage-source inverters (4L-VSI) have already been presented in technical literature [2]– [6], the primary con tribution of this paper is a predictive control algorithm designed and implemented specifically for this application. Traditionally, active power filters have been controlled using pre-tuned controllers, such as PI-type or adaptive, for the current as well as for the dc-voltage loops [7], [8]. PI controllers must be designed based on the equivalent linear model, while predictive controllers use the non-linear model, which is closer to real operating conditions. An accurate model obtained using predictive controllers improves the performance of the active power filter, especially during transient operating conditions, because it can quickly follow the current-reference signal while maintaining a constant dc-voltage.

II. FOUR-LEG CONVERTER MODEL

Both types of power generation use AC/AC and DC/AC static PWM converters for voltage conversion and battery banks for long-term energy storage. These converters perform maximum power point tracking to extract the maximum energy possible from wind and sun. The electrical energy consumption behaviour is random and unpredictable.
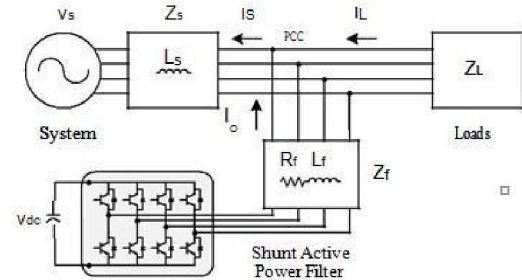

Fig. 1: Three-phase equivalent circuit of the proposed shunt active power filter

The voltage in any leg x of the converter, measured from the negative point of the dc-voltage (N), can be expressed in terms of switching states, as follows

$$v_{xN} = S_x \, v_{dc}, \quad x = u, \ v, \ w, \ n. \qquad (1)$$

equivalent circuit shown in fig 1 is,

$$\mathbf{v_o} = v_{xN} - R_{eq} \, \mathbf{i_o} - L_{eq} \frac{d\,\mathbf{i_o}}{dt}, \qquad (2)$$

It is composed by an electrolytic capacitor, a four-leg PWM converter, and a first-order output ripple filter, as shown in Fig.1.

Furthermore, the coordination packet is assumed to be small enough to be transmitted within slot duration. Instead of a common control channel, FHS provides a diversity to be able to find a vacant channel that can be used to transmit and receive the coordination packet. If a hop of FHS, i.e., a channel, is used by the primary system, the other hops of FHS can be tried to be used to coordinate. This can allow the nodes to use K channels to coordinate with each other rather than a single control channel.

Whenever any two nodes are within their communication radius, they are assumed to meet with each other and they are called as contacted. In order to announce its existence, each node periodically broadcasts a beacon message to its contacts using FHS. Whenever a hop of FHS, i.e., a channel, is vacant, each node is assumed to receive the beacon messages from their contacts that are transiently in its communication radius

III. DIGITAL PREDICTIVE CURRENT CONTROL

The block diagram of the proposed digital predictive current control scheme is shown in Fig. 2.This control scheme is basically an optimization algorithm and therefore it

DTMF and Gesture controlled Multipurpose Robot

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Abstract— **Robotics is an interesting field where everyengineer can showcase his creative and technical skills.. This paper summarizes a the feasibility of implementing Dual-Tone, Multi-Frequency (DTMF) as an alternative mean of robotic communication to Radio Frequency (RF). The Gesture module system design is divided into 3 parts namely: Accelerometer Part, Robotic Arm and Platform. It is basically and Accelerometer based system which controls a Robotic Arm wirelessly using a, small and low-cost, 3-axis (DOF's) accelerometer via RF signals. The Robotic Arm is mounted over a movable platform which is also controlled wirelessly byanother accelerometerOne accelerometer is mounted/ attached on the human hand, capturing its behavior (gestures and postures) and thus the robotic armmovesaccordingly and the other accelerometer ismounted on any of the leg of the user / operator. The different motions performed by robotic arm are: PICK and PLACE / DROP, RAISING and LOWERING the objects. Also, the motions performed by the platform are: FORWARD, BACKWARD, RIGHT and LEFT.**

Keywords- *DTMF module, Accelerometer, DOF, IP, RF Module*

I. INTRODUCTION

As interest in robotics continues to grow, robots are increasingly being integrated into everyday life. The results of this integration are end-users possessing less and less technical knowledge of the technology. For example, consider the application of mobile robots in the health care industry, where the intended end users are patients themselves. In this case, the need for simplified, reliable, and user-friendly robot designs is of almost importance. Mobile phones today became very popular an essential entity for one and all and so, for any mobile based application there is great reception.

Wireless controlled robots utilize RF circuits. However, the use of RF contributes to enhancing the already mysterious nature of robotic technology, which had limitations like limited range, limited frequency ranges and controls. But a mobile Phone controlled robot can hold up these limitations.

A. DTMF TECHNOLOGY

DTMF (Dual Tone Multiple Frequency) is a concept used in mobile phones to dial numbers. DTMF Tone is generated by two frequencies (low frequency and high frequency) .The two frequencies are arranged by matrix format and when user presses the keys the two frequencies will get shorted and will generate a tone, that tone is detected by DTMF decoder. DTMF Encoder is used to generate DTMF tones in mobile and will decode the tone and gives a 4 bit binary output and this output is the source of input to the Robot. A DTMF Decoder which gives a 4 bit binary output can perform 16 operations, but as mobiles have only 12 keys only 12 operations can be performed. Another drawback of DTMF decoder is that anyone who knows the receiver mobile number can access the Robot,

B. GESTURE CONTROL TECHNOLOGY

This recognition technique made it possible to implement an accelerometer based system to communicate with an industrial robotic arm wirelessly. In this particular project the robotic arm is powered with ARM7 based LPC1768 core. MEMS is a three dimensional accelerometer sensor which captures gestures of human-arm and produces three different analog output voltages in three dimensional axes. And two flex sensors are used to control the gripper movement.

Few variants are Keypad Controlled, Voice Control, Gesture Control, etc. However, mostof the industrial robots are still programmed using the typical teaching process which is still a tedious and time-consuming task that requires technical expertise.

II. LITERATURE REVIEW

A. DTMF TECHNOLOGY

The human mind always needs information of interest to control systems of his/her choice. In the age of electronic systems it is important to be able to control and acquire information from everywhere. Although many methods to remotely control systems have been devised, the methods have the problems such as the need for special devices and software to control the system. The DTMF tone generatedwhen the user pushes mobile phone keypad buttons or when connected to a remote mobile system

Retinal Vessel Extraction by Using Visual Cortical Filters

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Abstract— **The change in morphology, diameter, branching pattern and/or tortuosity of retinal blood vessels is an important indicator of various clinical disorders of the eye and the body. In this paper we implement a visual cortical filter which is also called as 2D - Gabor filter in combination with linear model for retinal vessel extraction. By convoluting multiple Gabor filter with the image we try to detect the retinal blood vessels. Here we consider Gabor transformed image as independent variables and the location the vessels as dependent variables. This method is validate graphically and by calculating sensivity and specificity.**

Keywords- cortical filters, sensivity, specificity, Image processing, Image analysis, Ophthalmology

I. Introduction

Eye disease identification techniques are highly important in the field of ophthalmology. Conventional retinal disease identification techniques are based on manual observation which is highly subjective and prone to error. Hence, the necessity for automated techniques which eliminates the drawback of the conventional techniques is significantly high in the medical field. The accuracy of the automated disease identification techniques should be high. Besides being accurate, the techniques also should possess a quick convergence rate which enables them to be suitable for real - time applications. Based on these two performance measures, several automated techniques are developed and implemented successfully for retinal disease identification. Some of the significant techniques available for the entire automated system. The automated disease identification system is not a single process. This system consists of various modules. The success rate of each and every step is highly important to ensure the high accuracy of the system. The rest of the report is organized as follows: (a) Retinal image database, (b) Image pre - processing, (c) Anatomical structure identification and feature extraction, (d) Optimization techniques, (e) Disease identification.

Certain eye diseases such as choroidal neovascularization and retinal artery occlusion also make changes in the retinal vasculature. As per previous statement, the segmentation of blood vessels in retinal images can be a valuable aid for the detection of diabetic retinopathy and glaucoma diagnosis.

Segmentation of anatomical and pathological structures in ophthalmic images is crucial for the diagnosis and study of ocular diseases. However, manual segmentation is often a time-consuming and subjective process. Retinopathy of prematurity (ROP) or Terry syndrome, previously known as retrolental fibroplasia (RLF), is a disease of the eye affecting prematurely-born babies generally having received intensive neonatal care, in which oxygen therapy is often used and advantageous. ROP is a disorder of the retinal blood vessels that is a major cause of vision loss in premature neonates. It is thought to be caused by disorganized growth of retinalblood vessels which may result in scarring and retinal detachment. ROP can be mild and may resolve spontaneously, but it may lead to blindness in serious cases. As such, all preterm babies are at risk for ROP, and very low birth weight is an additional risk factor. Both oxygen toxicity and relative hypoxia can contribute to the development of ROP. Important features of the disease include increased diameter (dilation) as well as increased tortuosity (wiggliness) of the retinal blood vessels in the portion of the retina centered on the optic nerve (the posterior pole). Increased dilation and tortuosity of the blood vessels in the posterior pole (called pre-plus in intermediate, and plus in severe circumstances) is an important indicator of ROP severity. Plus disease: This term refers to other ocular findings indicative of vascular activity. The most widely recognized feature of plus disease is posterior pole retinal venous dilation and arteriolar tortuosity. Subjective assessment of plus and pre-plus disease leads to poor agreement between examiners [3]. Manual segmentation of retinal images is not only demanding for experts and excessively time-consuming for clinical use, but is also inherently subjective, and different annotators often yield different results [4]. To address these difficulties, different approaches for automated segmentation of retinal vessels have been tried, with varying levels of success. Segmentation methods vary depending on the imaging modality, application domain, method being automatic or semi-automatic, and other specific factors. There is no single segmentation method that can extract vasculature from every medical image modality. While some methods employ pure intensity based pattern recognition techniques such as thresholding followed by connected component analysis [1], [2], some other methods apply explicit vessel models to extract the vessel contours [3], [4], and [5]. Depending on the image quality and the general image artifacts such as noise, some segmentation methods may require image pre-processing prior to the segmentation algorithm [6], [7]. On the other hand, some methods apply post-processing to overcome the problems arising from over segmentation we divide vessel segmentation algorithms and techniques into six main categories: (1) Parallel Multiscale Feature Extraction and Region Growing, (2) a hybrid filtering, (3) Ridge-Based Vessel Segmentation, (4)artificial intelligence based approaches, (5)neural network based approaches, and (6) miscellaneous tubelike object detection approaches. Pattern recognition techniques are further divided into seven categories: (1) multiscaleapproaches, (2) skeleton based

Performance Analysis of Fractional Frequency Reuse Factor For Interference Suppression In Long Term Evolution

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Abstract— **In cellular system the downlink performance is strongly limited by inter-cell interference. In order to mitigate this interference, a number of frequency reuse schemes have been proposed in literature. The current paper presents a novel fractional frequency reuse scheme combined with interference suppression for orthogonal frequency division multiple access network which are used in LTE-A and WiMAX IEEE 802.16M standardization process.FFR technique partitions each cell into two regions. Inner region and Outer region to allocate different frequency bands to each region. Since the user set inner region are less exposed to the inter cellular interference. The frequency resource in each inner region can be universally used. Based on this frequency band allocation. FFR may reduce channel interference and offer large system capacity. The entire mechanism is simulated through existing scenario.**

Keywords- long term evolution; fractional frequency reuse; orthogonal frequency division multiple access

I. INTRODUCTION

The 4th Generation (4G) of wireless mobile systems is characterized by Long Term Evolution (LTE) and WiMAX technologies which continue to evolve with higher data rates and improved Quality of Service (QoS) even for the cell edge users as the main targets. In order to achieve these, MIMO antenna techniques have been incorporated in these standards. The capacity promised by MIMO systems may not be fully realizable by conventional cellular architectures without additional control of inter-cell interference which limits throughput, in particular for cell-edge users.

Several techniques with different degrees of complexity can be considered for out-of-cell interference mitigation in OFDMA systems. OFDMA provides a degree of freedom by allowing dynamic assignment of channels/subcarriers to different users at different time instances, to take advantage of the channel response variations among different users on different channels. Sub-channelization implies that a significant fraction of the power is used on only a portion of the bandwidth used to serve the weak user even though universal reuse.

Nevertheless, neighboring sectors should assign orthogonal subcarriers to cell edge users and it is important to consider interference when assigning subcarriers to users.

One of the key characteristics of a cellular network is the ability to reuse frequencies in order to increase both capacity and coverage. Fractional Frequency Reuse (FFR) is discussed in the OFDMA-based network, such as the Long Term Evolution (LTE), to overcome the Co-Channel Interference(CCI) problems. In FFR the cell space is divided into two regions: inner, which is close to the Base Station (BS) and outer, which is situated to the borders of the cell. The whole frequency band is divided into several sub-bands, and each sub band is differently assigned to inner and outer region of the cell respectively. As a result of FFR, intra-cell interference is eliminated, and inter-cell interference is substantially reduced. At the same time the system throughput is enhanced. Various reuse factors and interference mitigation levels can be achieved by adjusting either the bandwidth proportion assigned to each region or the transmission power of each band.

Main goal of this paper is to propose and evaluate an interference management FFR mechanism for OFDMA macro cell networks. The mechanism calculates the optimal FFR scheme based on two parameters: user throughput and user satisfaction. The proposed mechanism successively checks the inner cell radius and the inner cell frequency and calculates the per-user Signal to Interference plus Noise Ratio (SINR), capacity and throughput. These values are then used in order to calculate the cell mean throughput and the user satisfaction. Finally, the mechanism selects the optimal FFR scheme that either maximizes the cell mean throughput or the user satisfaction. The paper also presents several simulation scenarios in order to evaluate the proposed FFR mechanism.

II. PROPOSED FFR AND SYSTEM MODEL

We consider the downlink of an OFDMA cellular system in which users are assigned a set of subcarriers at specific time slots for transmission of packets. As already discussed, the OFDMA system supports FFR by division of subcarriers into sub bands. Fig. 1 shows the traditional FFR for LTE whereas fig. 2 shows the proposed FFR.
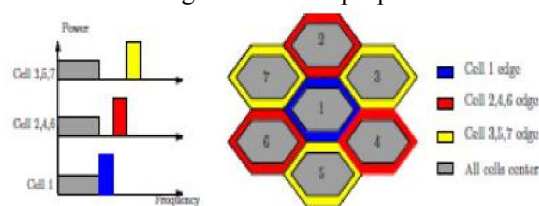

Fig 1.FFR in LTE. Frequency reuse factor is 3.

Online Self Repairing of Hard Faults in an ASIC Multi-core Processor using FPGA

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Abstract: - Multi-core systems have more functional units fabricated in to a single chip and they are more vulnerable to faults. These faults have to be handled efficiently without substantial loss of overall performance. In this paper a self repairing approach for hard faults using Field Programmable Gate Array (FPGA) is proposed. The proposed multi-core system will have a reconfigurable hardware unit and a fault look-up table included to individual cores of the multi-core system. The faulty unit details are updated in the fault look-up table as a result of fault detection phase. The faulty unit details are given as input to the decoder unit along with the usual inputs. Depending on these, the decoder unit will decide to choose either the Arithmetic and Logic Unit (without fault) or the Reconfigurable hardware unit (Faulty unit reconfiguration).

Key-Words: -Self Reparing, Hard faults, Field Programmable Gate Arrays, Early life failures, Reliability, Online Fault Repair

1 Introduction

With the advancements in the VLSI technology, more and more functional units are fabricated in a single chip. With more number of circuits in the chip, the probability of occurrence of faults in the circuit is also high. The faults can be classified in to a) Transient (or soft) errors, [1] caused by environmental disturbances, b) Permanent (or hard) errors[2], caused by latent manufacturing defects as well as aging (wear out phenomena) and c) Verification inefficiencies that allow important design bugs to escape in the system. Any type of fault in the system has to be taken care off, for graceful degradation of the system. The hard faults can occur during any stage of the chip's life cycle. The following figure 1 shows the trend in a chip's failure rate [3].
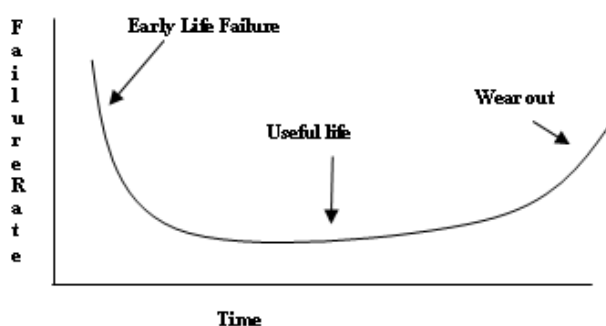

Figure 1. Product reliability [1]

From the above diagram it is clear that the faults can happen at early life of the product or during its useful period or can wear out after a long time.

Early life failures are also called as infant mortalities and they are the faults that escape during design verification process. Ideally, the early life failure should have a brief region in the figure 1. Even with today's advanced design verification and testing tools, early aging in multi-core processors is high because of their high transistor density [4]. For handling hardware failure during the early life or useful life, a post silicon fault repairing technique that can be done on the field is essential. Self-repairing of hardware fault is the capability of the processor to handle the hardware fault by itself. This paper proposes the idea of using FPGA for self-repairing of hardware faults in an ASIC design. The following section explains the existing post silicon self-repairing techniques.

2 Problem Formulation

Self-repairing is an emerging field that will have a major impact on increasing the reliability of the system. The importance of failure prediction is emphasized in [5]. Circuit failure prediction in [5] predicts the occurrence of hard faults even before it surfaces on the system's state or data. This prediction is made possible by collecting information about various system parameters over time and comparing them with the fault free signatures. Other available self-testing techniques includes Built In Self-Test(BIST) for failure prediction[6], Concurrent self-test[7] for failure prediction and Genetic algorithm based BIST [8].

Modeling and Analysis of Battery Lifetime in Cell Connection Control

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Abstract: - In the conventional low-power technologies, electric energy that can be drawn from the battery is constant regardless of discharging and operating conditions. However, this is not true, and the real electric energy drawn from the batteries varies a lot with discharging current, voltage, and time.When the connection of the battery cells are intelligently controlled to fully consider the electrochemical characteristics of the batteries, battery lifetime can be significantly extended.In this paper, we propose a simple battery lifetime model considering the electrochemical effects of battery cells and analyze these effects. Then, a simple battery cell connection control method is proposed to extend the battery lifetime.

Key-Words: -Cell Connection Control, Battery Lifetime, Recovery Effect, C-Rate Effect, Mobile Device, Low-Power

1 Introduction

Battery lifetime is one of the key performances in the commercial mobile devices. Various low-power technologies have been carried out to reduce power consumption of mobile devices for battery lifetime extension However, nowadays, it is quite difficult to further reduce power consumption, since current low-power technologies are almost optimized and saturated.

Recently, novel low-power approaches are proposed to exploit the electrochemical characteristics of batteries. In the conventional low-power technologies, electric energy that can be drawn from the battery is constant regardless of discharging and operating conditions. However, this is not true, and the real electric energy drawn from the batteries varies a lot with discharging current, voltage, and time.

Many mobile devices such as notebooks and tablet PCs exploit multiple battery cells connected in serial and parallel to extend battery capacity. When the connection of the battery cells are intelligently controlled to fully consider the electrochemical characteristics of the batteries, battery lifetime can be significantly extended. However, conventional low-power technologies seldom consider this aspect.

In this paper, we propose a simple battery lifetime model considering the electrochemical effects of battery cells and analyze these effects. Then, a simple battery cell connection control method is proposed to extend the battery lifetime.

2 Electrochemical Effects Affecting Battery Lifetime

It is known that there are two major electrochemical effects affecting battery lifetime. They are *recovery effect* and *C-rate effect*, as described below. Note that these two effects contradict each other.

2.1 Recovery Effect

Even if the same battery is discharged with same discharging current, time, and load, battery lifetime is different between the continuous discharge and intermittent discharge [1][2].

Fig. 1 shows the output voltage of the battery in the continuous discharge and intermittent discharge. As shown in Fig. 1, the battery output voltage continuously decreases in the continuous discharge, but it somewhat recovers during the battery idle time in the intermittent discharge.This is called as *recovery effect*. Thus, battery lifetime is significantly extended when battery idle time is intentionally given.

2.2 C-Rate Effect

Theoretically, battery output voltage remains constant during discharge and drops to zero after battery becomes empty. However, battery output voltage decreases during discharge, and it is related with the discharge current level [3].

Dyanamic Analysis of Machine Tools Structure

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Sivasankara Gowda

Abstract-
Theobjectiveofthispresentworkistoestimateandthefrequenciesofmode shapes,Deflections,stressesthatinducedinthemachinepartusedinamachinetoolstructure.TheemphasisinthisprojectisontheapplicationofcomputeraidedanalysisusingfiniteElementconcept.AmachinetoolisamachineforshapingormachiningmetalorotherRigidmaterials,usuallybycutting,boring,grinding,shearing,orotherformsofDeformation.Machinetoolsemploysomesortoftoolthatdoesthecuttingorshaping.Allmachinetoolshavesomemeansofconstrainingtheworkpieceandprovideaguided movementofthepartsofthemachine.Inanalysispartthe finiteelementofhollowmachinememberiscreatedusingsolidtetrahedronelements,appropriateboundaryconditionsareapplied,materialpropertiesaregivenandloadsareappliedasperitsdesign,theresultantdeformationandstressesandfrequenciesobtainedare reportedanddiscussed.

I.   INTRODUCTION

Beds,bases,columnsandboxtypehousingsarecalled"structures"inmachinetools.Inmachine tools,70-90%ofthetotal weightofthe machine is dueto the weight of thestructure.

Inthischapterclassificationandfunctionsofmachine toolstructureisdescribed.Researchershaveworkedwithdifferenttypesofmaterialslikecastiron,mildsteel,graniteand epoxyconcreteformachinetool structurefordifferentapplications. Profileof themachinetool andselection of differentstiffeners/ribsare

suggestedbyresearchers.Qualityofthejobproduced onthesemachinetools depends directly onthe quality andperformanceofmachinetools.Todevelopgoodproducts,design engineersneedto studyhowtheir designs willbehaveinreal-worldconditions.

Thelimitationsofphysicalmodeltechniqueshaveledtothedevelopmentofmathematicalmodelsrepresentingavarietyofmechanicalstructures.Asinthisapproach,wholestructureisdividedintofiniteelements,itisknownas'FiniteElementAnalysis'.TheFEAisaveryusefultoolinengineeringtodayandsamehasprovedtobeanimportanttechniqueinmachinetoolstructural

analysis.Thus,Computerisaninvaluabletoolforadesignerinhistaskforevaluatingalternativedesignstoarriveattheoptimumdesignandalsopredictingthestatic,
dynamicandthermalbehaviorofthemachinebeforearrivingatthefinaldesign.

DesignCriteriaforMachineToolStructure
Considerasimplemachinetoolbedwithtwosidewalls,

whichmayberepresentedasasimplysupportedbeam loadedbyconcentratedforcePactingatitscenter,asshowninFig. 1.1below:
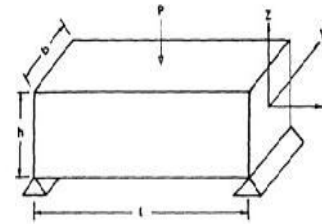

Fig. 1.1simplysupportedbeams

ProfilesofMachineToolStructures
Duringtheoperationofthemachinetool,amajorityofitsstructuresare subjected tocompoundloading andtheirresultantdeformationconsistsoftorsion,bendingandtensionorcompression.Undersimpletensileorcompressiveloading,thestrengthandstiffnessofanelementdependonlyupontheareaofcross-section.Itisknownfromclassicalmechanicsofelasticbodiesthatinthecaseofbendingandtorsionitispossibletodecreasetherequirement onmaterialbyasuitablechoiceof theformofthecross-section,byincreasingthesecondmomentofareaatconstantarea of thecrosssection i.e.atconstantweightoftheelement.

The stiffness offourdifferentcommonlyusedsectionsofstructuresiscomparedwithequalc/sareainTable1.3**.**

ItisevidentfromtheTable1.3thattheboxtypesectionhasthehighesttorsionalstiffnessandinthe overallassessmentseemsbestsuitedbothintermsofstrengthandstiffness.Theadditionaladvantagethatgoesinitsfavoristhe ease ofpropermatingwithothersurfaces.Thus,inthecaseofbendingandespeciallyfortorsiontheoptimumfromthepointofviewofstiffnessisthatofa closed boxcross-section,thebendingstiffnessofwhichisasadvantageousasthatofthe I-sectionanditstorsionalstiffnessapproachesthatofacircularsection.

THERMAL ANALYSIS ON HEAT EXCHANGER

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Abstract—

aHeatExchangerisadevicebuiltfortheefficientheattransferfromonefluidtoanother,whetherthefluidsareseparatedbyasolidwallsothattheynevermix,orthefluidsaredirectlyincontact.AnobjectiveofthepresentdissertationworkistodesignanddevelopaTubeintubetypeHeatexchanger.TheDissertationisaboutpreparingthemodelandperformingexperimentonanexperimentalsetupoftubeintubeheatexchangeranduseofdifferentinputsfortheestimationofheattransfer.Analyticalcalculationsweremadetoanalyzethetemperaturedropsasafunctionofbothinletvelocityandinlettemperatureandhoweachvarieswiththeotherinheatexchangermodels.TheCFDanalysisisdonewithCFDpackage, ANSYS 15.0.

Keywords: ANSYS, FEA, HeatExchanger etc…

IINTRODUCTION

Theheatexchangerisadevicewhichtransferstheheatfromhotmediumtocoldmediumwithoutmixingbothofmediumsincebothmediumsareseparatedwithasolidwallgenerally.Thereare manytypesofheatexchanger thatusedbasedontheapplication.Forexample,doublepipeheatexchangerisusedinchemicalprocesslikecondensingthevaportotheliquid.Whentoconstructthistypeofheatexchanger,thesizeofmaterialthatwanttousesmustbeconsideredsinceitaffectedtheoverallheattransfercoefficient.Forthistypeofheatexchanger,theoutlettemperatureforbothhotandcoldfluidsthatproducedisestimated byusingthe bestdesignofthistypeofheatexchanger.etc.Thepurposeofconstructingaheatexchangeristogetanefficientmethodofheattransferfromonefluidtoanother,bydirectcontactorbyindirectcontact.

Heat exchangebetween flowingfluids is oneofthemostimportantphysicalprocessofconcern,andavarietyofheatexchangersareusedindifferenttypeofinstallations,asinprocessindustries,compactheatexchangersnuclearpowerplant,HVACs, foodprocessing,refrigeration.Theheattransferoccursbythreeprinciples:conduction,convectionandradiation.Inaheatexchangertheheattransferthroughradiationisnottakenintoaccountasitisnegligibleincomparisontoconductionandconvection.

1.1 ScopesofResearch

Thescopesofthisresearchareasfollows:

i. Studyonheattransferforheatexchangerspecifictodoublepipeheatexchangertypes.
ii. DesignthedoublepipeheatexchangerbyusingGAMBIT.
iii. SimulationindoublepipeheatexchangerbyusingFLUENTsoftware.
iv. Analysistheheatexchanger specificto flowrateofhot andcoldfluid.
v. TosimulateheattransferinconcentrictubeheatexchangerbyusingCFD-Fluentsoftware.

vi. ToanalyzetheheattransferinconcentrictubeheatexchangerbycomparingthesimulationresulttotheAnalyticalcalculations.ValidatesimulationresultstotheAnalyticalcalculationswithin5%error.

1.2 Heatexchanger

Itisapieceofequipmentbuiltforefficientheattransferfromonemediumtoanother.Themediamaybeseparatedbyasolidwalltopreventmixingortheymaybeindirectcontact.They are widely used inspaceheating,refrigeration,airconditioning,powerplants,chemicalplants,petrochemicalplants,petroleumrefineries,naturalgasprocessing,andsewagetreatment.Theclassicexampleofaheatexchangerisfoundinaninternalcombustionengineinwhichacirculatingfluidknownasenginecoolantflowsthrougharadiatorcoilsandairflowspastthecoils,whichcoolsthecoolantandheatstheincomingair.

Therearethreeprimaryclassificationsofheatexchangersaccordingtotheirflowarrangement.In parallel-flowheatexchangers,thetwofluidsentertheexchangeratthesameend,andtravelinparalleltooneanothertotheotherside.Incounter-flowheatexchangers thefluidsentertheexchangerfromoppositeends.Thecountercurrentdesignisthemostefficient,inthatitcantransferthemostheatfromtheheat(transfer)mediumperunitmassduetothefactthattheaveragetemperaturedifferencealonganyunitlengthishigher.Seecountercurrentexchange.Inacross-flowheatexchanger,thefluidstravelroughlyperpendiculartooneanotherthroughtheexchanger.

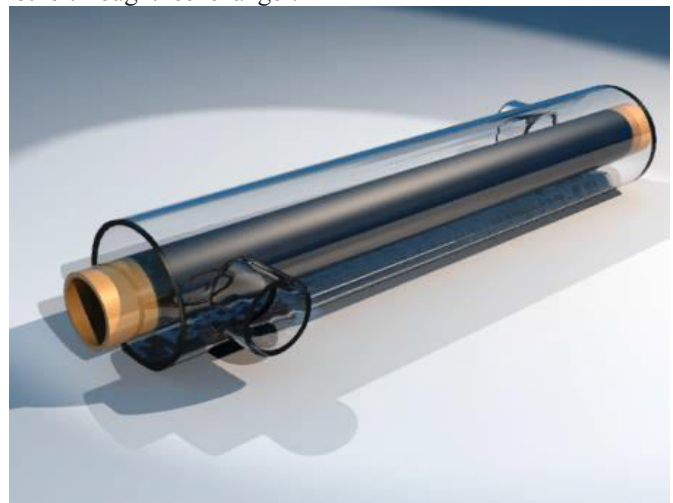**Figure-1.1**Doublepipeheatexchanger

Doublepipeheatexchangersarethesimplestexchangersusedinindustries.Ononehand,theseheatexchangersarecheapforbothdesignandmaintenance,makingthemagoodchoiceforsmallindustries.Ontheotherhand,theirlowefficiency

Design and modal analysis of an excavator arm

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Abstract-Anexcavatorisatypicalhydraulicheavy-dutyhuman-operatedmachineusedingeneralversatileconstructionoperations,suchasdigging,groundleveling,carryingloads,dumpingloadsandstraighttraction.Theseoperationsrequirecoordinatedmovementofboom,armandbucketinordertocontrolthebuckettippositiontofollowadesiredtrajectory.Anexcavatoriscomprisedofthreeplanarimplementsconnectedthroughrevolute joints known as the boom,arm,andbucket,andoneverticalrevolutejointknownastheswingjoint.Itwillbringbiggerdynamicstressbecauseofimpactandvibrancyofthehydraulicexcavatorwhenitis working,whichmaybeleadstothedamageofitsstructure.Themodelofthearmofsmall-scaledhydraulicexcavatorisbuiltbyusingPro-engineer.The3DSimulationAnalysisofarmofexcavatoriscarriedoutinANSYS.ThenaturalfrequenciesandmodeshapesofexcavatorarmaredetermineusingANSYS.**

Key words:CATIA,ANYSYS,Excavator etc..

IINTRODUCTION

a) Excavator

Anexcavatorisatypicalhydraulicheavy-dutyhuman-operatedmachineusedingeneralversatileconstructionoperations,suchasdigging,groundleveling,carryingloads,dumpingloadsandstraighttraction.Theseoperationsrequirecoordinatedmovementofboom,armandbucketinordertocontrolthebuckettippositiontofollowadesiredtrajectory.Anexcavatoriscomprisedofthreeplanarimplementsconnectedthroughrevolutejointsknownastheboom,arm,andbucket,andoneverticalrevolutejointknownastheswingjoint.Anexcavatorhasaboom,stick,bucketandcabona rotatingplatformknown asthehouse.The housesitsatopanundercarriagewithtracksorwheels.Acable-operatedexcavatoruseswinchesandsteelropestoaccomplishthemovements.Theyareanaturalprogressionfromthesteamshovelsandoftencalledpowershovels**.**Allmovementandfunctionsofahydraulicexcavatorareaccomplishedthroughtheuseofhydraulicfluid,withhydrauliccylindersandhydraulicmotors.Due tothe linearactuation ofhydrauliccylinders,theirmodeofoperationisfundamentallydifferentfromcable-operatedexcavators.

Excavatorsarealsocalleddiggersandmechanicalshovels.Trackedexcavatorsaresometimescalled"trackhoes"byanalogytotheback hoe.IntheUK,wheeledexcavatorsaresometimesknownas"rubber ducks."

b) Compactexcavator

A**compact**or**miniexcavator**isatrackedorwheeled vehiclewith anapproximateoperatingweightfrom0.7to8.5tones.Itgenerallyincludesastandardbackfillbladeandfeaturesindependentboomswing.HydraulicExcavatorsaresomewhat

differentfromotherconstructionequipmentinthatallmovementand functionsofthemachine areaccomplishedthroughthetransferofhydraulicfluid.Thecompactexcavator'sworkgroupandbladeareactivatedbyhydraulicfluidactinguponhydrauliccylinders.Theexcavator'sslew(rotation)andtravelfunctionsarealsoactivatedbyhydraulicfluidpoweringhydraulicmotors.

c) Draglineexcavator:

Adraglineexcavatorisa pieceofheavyequipmentusedincivil engineeringandsurfacemining.Draglinesusedincivilengineering arealmostalwaysofthissmaller,cranetype.Theseareusedforroad,portconstruction,pondandcanaldredging,andaspiledrivingrigs.ThesetypesarebuiltbycranemanufacturerssuchasLinkbeltandHyster.

Themuchlargertypewhichisbuiltonsiteiscommonlyusedinstrip-miningoperationstoremoveoverburdenabovecoalandmorerecentlyfortar-sandmining.Thelargestheavydraglinesare amongthe largestmobile landmachineseverbuilt.Thesmallest andmostcommonoftheheavy typeweigharound8,000tonswhilethelargestbuiltweighedaround 13,000tons.

Adraglinebucketsystemconsistsofalargebucketwhichissuspendedfromaboom(alargetruss-likestructure)withwireropes.Thebucketismaneuveredbymeansofanumberofropesandchains.The hoistrope,poweredbylarge dieselorelectricmotors,supportsthebucketandhoist-couplerassemblyfromtheboom.Thedragropeisusedtodrawthebucketassembly horizontally.Byskillfulmaneuverof thehoistandthedragropesthebucketiscontrolledforvariousoperations
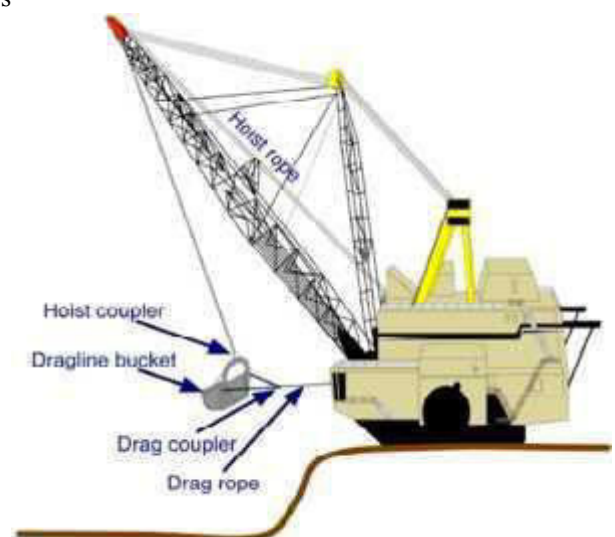

Fig.1Draglineexcavator

Static Analysis of Machine Tool Structure

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Abstract— **theobjectiveofthispresentworkistoestimatethedeflection,stressesan dthevonmisesStressesthatincludeinthemachinepartusedinamachine toolstructure.TheemphasisinThisprojectisontheapplicationofcomp uteraided analysisusingfiniteelementconceptAmachinetoolisamachineforshap ingormachiningmetalorotherrigid materials,byCutting,boring,grinding,shearing,orotherformsofdefor mation.Machinetoolsemploysomesortoftoolthatdoesthecuttingorsh aping.AllmachinetoolshavesomemeansofConstrainingtheworkpiec eandprovideaguidedmovementofthepartsofthemachine.Inanalysisp artthefiniteelementofhollowmachinememberiscreatedusingsolidTet rahedronelements,appropriateboundaryconditionsareapplied,mate rialpropertiesAregivenandloadsareappliedasperitsdesign,theresult antdeformationandstressesandobtainedarereportedand discussed.**

Keywords: FEA,ANSYS, Meshingetc…

IINTRODUCTION

1.1 INTRODUCTIONTOMACHINETOOL

Beds,bases,columnsandboxtypehousingsarecalled"structures"in machinetools.Inmachinetools, 70-90%ofthetotalweightofthemachineisduetotheweightofthestructu reInthischapterclassificationandfunctionsofmachinetoolstructur eisdescribed.Researchershaveworkedwithdifferenttypesofmater ialslikecastiron,mildsteel,graniteandepoxyconcreteformachineto olstructurefordifferentapplications.Profileofthemachinetool andselectionofdifferentstiffeners/ribsaresuggestedbyresearcher s.Qualityofthe job producedonthesemachinetoolsdependsdirectlyonthequalityandp erformanceofmachinetools.Todevelopgoodproducts,designengi neersneedtostudyhowtheir designs willbehaveinreal-worldconditions.

1.2 FUNCTIONSOFMACHINETOOLSTRUCTUREANDTHEIRREQUI REMENTS

Machinetool parts, such asbeds, bases,columns, box-typehousings,overarms,carriages,tableetc.areknownasstructures .Basicfunctionsofmachinetoolstructureareasfollows:

a) Toproviderigidsupporton whichvarioussubassembliescanbe mountedi.e.beds,bases.
b) Toprovide housingsforindividualunitsor theirassemblieslikesgearbox,spindlehead.
c) Tosupportandmovetheworkpieceandtoolrelatively, i.e.table,carriage,tailstocketc.

Machinetool structures mustsatisfy the followingrequirements:

a) Allimportantmatingsurfaceofthestructuresshouldbemachin edwithahighdegreeofaccuracytoprovidethedesiredgeometr icalaccuracy;
b) Theinitialgeometricalaccuracyofthestructuresshouldbemai ntainedduringthewholeservicelifeofthemachinetool;and
c) Theshapesandsizesofthestructuresshouldnotonlyprovidesaf eoperationandmaintenanceofthemachinetoolbutalsoensure thatworkingstressesanddeformationsdonotexceedspecificli mits;itshouldbenotedthatthestressesanddeformationsaredu etomechanicalaswellasthermalloading.
d) Efficientthermalcontrolonmachineelementsuchasspindle,b allscrewandbearingsforbetterpartaccuracy.
e) Fastertoolchangesystem.
f) Veryhighrapidtraverseratesofround40-60m/minforfastertoolpositioningandveryhighcuttingfeedra tesforincreasedmetalremovalrates.

Thedesignfeaturesthatprovideforeaseofmanufacture,m aintenance,etc.are peculiartoeachstructureandwill,therefore,bediscussedsepara telyfordifferentstructures.However,therearetwocommonfea tures,whicharefundamentaltothesatisfactoryfulfillmentofab overequirementsforallstructures.Theseare:

1. Properselectionofmaterial.
2. Highstaticanddynamicstiffness.

1.3 CLASSIFICATIONOFMACHINETOOLSTRUCTURE

Classificatio nofmachinetoolstructureswhichcanbesubdividedbyvariou scharacteristicsintothefollowinggroups:

a) Bypurposeinto:
    1. Beds,frameworks,carryingbodies.
    2. Bases,bedplatesetc.
    3. Housing,boxes,columns,pillar,brackets.
    4. Castingsandcovers.
b) Bythemethodofmanufactureinto:
    1. Cast.
    2. Welded.
    3. Combinedcastandwelded.
c) Byfunctionstheyperform:
    1. Beds and bases, upon which the varioussubassembliesaremounted.
    2. Boxtypehousingsinwhichindividualunitsareassembl ed.
    3. Partsthoseserveforsupportingandmovingworkpiecea ndtooli.e.table,carriageetc.

Study of Mechanical and Water Absorption Behavior of Short Natural Fiber Reinforced Hybrid Composites

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Abstract—The natural fiber composite materials are rapidly showing both in terms of their, individual applications and fundamental research they are renewable bio-degradable,availability, low density, ecofriendly, price as well as satisfactory mechanical properties to make them attractive & ecological alternative to glass fibers used for manufacturing composite materials. The natural fiber composite materials are used in transportation, military applications, building and constructions industries, packing. .In the present work hybrid composites are made using the *Kenaf* and *Cocus Nucifera* of 7mm lengths and PVC resin. Mechanical properties like tensile strength, impact strength and water absorption properties are evaluated.

Keywords—Hybrid Short natural fiber composites; Mechanical propertie; water absorption properties .

I. INTRODUCTION

Present day quality of human life can be attributed to the advances taking place in materials and technologies in various fields. In fact, any technological advancement has its impact on biodiversity. Land, water and air are being polluted without concern for the flora and fauna causing extinction of various living species. Global warming and greenhouse effect are due to undue exploitation of the gifts of nature. To help our future generations in sustaining the hardships of life, it is our responsibility to preserve the earth as safe abode for human existence. It is possible by adopting policies for development and application of materials and technologies that cause least damage to the environment. Earlier concept of producing things that are rare, exotic and for trade gains has altogether changed towards preserving or enhancing the environment and life processes giving birth to concepts like: sustainable, eco-friendly or green. Green composites are reinforced plastic materials developed from renewable sources using natural fibers and polymers. Different kinds of plant or animal based of natural fibers and polymers from organic substances like cellulose, starch or vegetable oils are used for developing these composites.

II. IMPORTANCE OF GREEN COMPOSITES

All human activity is entwined with the use of materials. For millennia, humans have endeavored to use the readily available materials like stone, clay, mud, wood, bone, hide and other vegetable produce for construction of their homes, tools and implements and means of transport. As Centuries rolled over, man discovered the secrets of nature and started its exploitation. He started building synthetic materials. There has been a gradual decline of the direct application of natural resources. Further we have reached to view that the use of traditional materials is inferior to synthetic materials. Fiber reinforced composites have attracted the aerospace and transportation industry due to their weight savings and many other superior properties. Today they find wide applications in containers, sports goods, electronics and appliances as well as in medical field. These composites are synthesized from different kinds of fibers such as: glass, aramid, graphite, carbon, boron, etc. and matrix materials: polyester and epoxy resins. They have excellent properties but they are not biodegradable. Mostly they are incinerated or disposed in landfills resulting in emission of toxic gases or cause soil impermeability. Recycling and disposal pose adverse effect on the environment. Thus the need for sustainable technology has driven the concerned scientists and engineers for reviving the use of natural materials and development of composites called green composites.

The natural fiber composites are CO_2 neutral, consume low energy for their production, give less problem for health and safety of workers, less abrasive, more pleasant to handle and give natural image. They have good specific, thermal and acoustic properties. They are costly compared to glass fiber reinforced plastics but use of inexpensive fibers and biodegradable matrices may balance the cost. Moisture adsorption, fluctuation in quality, dimensional instability, susceptibility to rotting, swelling, etc., are certain limitations

A. Historical Applications [1]

The 'green' concept in materials is not entirely new but dates back to the early examples of straw reinforced bricks, composite bows of mediaeval times. It was noted that even 3000 years ago, there have been designs of Egyptian chariots whose wheels were made of heat formed wood, laminated and bound with skin that made the wheel a tough and resilient composite and biodegradable vehicle part.

The advent of synthetic polymers and modern natural fiber reinforced polymers go back to the early part of the twentieth century. Even before that in 1850, frames for photographs were made using compound of shellac and wood flour. Consumer goods such as radio and speaker cases were

Dynamic Analysis of L-Shape Bracket

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Abstract-
Bracketisanarchitecturalelementastructuralordecorativemember.Itcanbemadeofwood,stone,plaster,metal,orothermediums.Itprojectsfromawall,usuallytocarryweightandsometimestostrengthenanangle"Inmechanicalengineering a bracketisanyintermediatecomponentforfixingoneparttoanother,usuallylarger,part.Whatmakesabracketabracketisthe factthatitisintermediatebetweenthetwoandfixestheonetoth eotherBracketsvarywildlyinshape,butaprototypicalbrackketwouldbetheL-shapedmetalpiecethatattachesashelf(thesmallercomponent)toawall(thelargercomponent)itsverticalarmisfixedtoone(usuallylarge)element,anditshorizontalarmprotrudesoutwards andholdsanother(usuallysmall)element.InthisprojectL-shapedbracketismodeledinAnsyssoftware.Boundaryconditionsapplieddynamicallyrespective frequencies formodeshapeswere reported.

Key words- Lshape bracket,dynamicanalysis

I. INTRODUCTION

Bracketsareusedtosupport beams,conduits,pipesetc.Whentheroofingworkisfinishedforaportal structure,theoverhangof thesheets issupportedbybrackets,Thelouvreswhichareessentialfor ventilationinashedsystemaresupportedbybrackets.Therailingsprovidedarounda Walkwayaresupportedbybrackets.Thetypicalcross-sectionofabracketischannel. Thebest exampleofabracketsis thecatenarysupportsystemusedbyrailways.

The structure ofamachine toolforms thevitallinkbetweenthecuttingtoolandworkpieceonametalcuttingmachine.Themachinetool"smetalremovalrate,accuracy,overallcost,methodofproductionandleadtimes,dependuponthetypeofstructuralmaterialanditsproperties.Thecommonlyusedmaterialsformachinetoolstructuresarecastironandsteel.

WhileinsomeapplicationsGraniteand,,EpoxyConcrete",newlydevelopedmaterial,isalsointroduced.Castironstructureswerealmostexclusivelyusedinmachinetoolstilladecadeorsoago,butlatelyweldedsteel structuresare finding widerapplicationduetoadvancesin weldingtechnology.Thechoiceofwhetherthestructureshouldbemadefromcastironorsteeldependsuponanumberoffactors.

II. MATERIAL PROPERTIES

Importantmaterialpropertiesofrelevanceareasunder:
• Modulusofelasticity:Forhighstiffnessitisnecessarytochoosematerialswithahighvalueof E.Forinstance,thehighstrengthnodulargraphitecastironhasdoubledthemodulusofelasticitythanthenormalcastiron,apartfromitshighinternaldamping.

Allsteelshavepracticallythesame E andthereforemostlytheenon-expensivegoodcommercialqualitysteelisusedformachinetoolstructures.

• Specificstiffness:Materialshouldhavehighspecificstiffness.

• Damping:Castironhashigherinherentdampingproperties,dampinginsteelstructures occursmainlyinwelds,ifweldedjointsareproperlydesigned,thedampingofsteelstructuremayapproachthatofcastiron.
• Long-termdimensionalstability:Themachinetoolstructuralmaterialmustalsohaveagoodlong-termdimensionalstability.Lockedinstresslevelsshouldbereducedtoasclosetozeroaspossibletoachievethis.

• Coolantresistance: Thematerialshould be unaffectedbycoolant.

• Wearrateandfrictionalproperties:Materialshouldhavelowwearrateandlowcoefficientoffriction.

• Thermalexpansioncoefficient:Thematerialusedshould haveareasonably lowcoefficientofexpansion.Ifseveralcompositematerials areused,eachshouldhavethesamecoefficientofexpansiontoavoidthermalbending/distortion

DifferentMaterialsUsedformachinetoolstructureAs already stated, commonly usedmaterialsformachinetoolstructurearecastironandsteel.Whileinrecenttimes,graniteandepoxyconcrete are alsodevelopedandusedforstructures.Thesematerialsarediscussedhere:

*a)CastIron:*Fromearlytimescastironhasbeenthemostcommonlyusedmaterialformachinetoolstructures.Itmaybecastintocomplexandintricateshapes.Itiseasilymachinedandmaybehand-scrapedandlappedtoahighdegreeofaccuracy.Ithasfairlygooddampingpropertiesandalsohasreasonablygoodantifrictionpropertieshelpedbythegraphitecontainedinit.Itcanbegivenverygoodlong-termdimensionalstabilitybygivingitaspeciallongcyclestressreliefannealingtreatment.Castironshouldbepreferredforcomplexstructuressubjectedtonormalloading,whenthesestructuresaretobemadelargeinnumbers.Itdoes,however,haveseveraldisadvantages.Onemajordisadvantageisthetimeandcosttakentoproduceafinishedcasting.Againcarehastobetakenatdesign

Structural Analsys of Household Gas Cylinder

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Abstract—thepresentworkinvolvedtheFiniteElementAnalysisofexistingLPGgascylindertoverifytheburstpressure.TheLPGgascylinderismanufacturedfromlowcarbonsteel.TheLPGtanksaresubjectedtoincrementalinternaluniformpressureintheFEAmodel.2Dnonlinearplanemodelsaredevelopedandevaluatedundernon-uniformandaxissymmetricboundaryconditions.Fortheanalysis,therequiredactualshellpropertiesincludingweldzoneandthicknessvariationareinvestigated.ThereforethestressdistributionhasbeenanalyzedusingANSYS14.0 softwareforwhich maximumshearstress;equivalentshearstressatcriticalareahasbeencalculated.Therefore3Dsolidmodelhasbeenchoseninordertopredictthedetailedstress.

Computeraidedinvestigations arecarriedusingANSYStoverifymaximumstressanditslocation.Topredictdetailedstress3Dsolidmodelhasbeenchosenwiththehelpof PROEsoftware. TwodifferenttypesofnonlinearFEmodels,planeandshell,weredevelopedusing2D axisymmetricfiniteplaneandshellelements,respectively.TocreatetheseFEmodelsandsimulatethe experimental burst,first, shellMPsandthicknessvariationsoftheLPGtanksduetospinningprocessesareinvestigatedandinputtothecomputermodelingprocesses.Additionally,afterselectingtheloadingandboundaryconditionsandappropriatefiniteelements,thenonlinearaxisymmetric2DFE modelsweregeneratedandsimulatedinnon-uniformandnon-homogeneousconditions.

Keywords–LPG,Burstpressure,nonlinearfailure analysis

IINTRODUCTION

1.1.   Introductiontohouseholdgascylinder:

Liquefiedpetroleum gas(alsocalledLPG,GPL,LPGas,autogas,orliquidpropanegas)isaflammablemixtureofhydrocarbongasesusedasafuelinheatingappliancesandvehicles.Itisincreasingly usedasanaerosolpropellantandarefrigerant,replacingchlorofluorocarbonsinaneforttoreducedamagetotheOzonelayer.

Withtherelatedliteraturereviewandobjectiveofthisconcernproject,wewillfindrelationbetweeninputparametersandcorrespondingoutputparameters andformulaterelationbetweenthemtogetrequiredresult.

Thisprojectsetouttoverifyfiniteelementanalysis,orFEA,whenappliedtopressurevesseldesign.Whilefiniteelementanalysis offersanotherwaytoanalyzestructures,itrequiresasunderstanding oftheprogramandsubjectbeingmodeled.Iftheoperatordoesnotuse thecorrectmodel,timeiswastedandmoreimportantlythedataisuseless.Theprimaryproblemofthemanufacturer istodeterminetheburstpressuresandvolumeexpansionsofthe LPGtankswhoseserviceandtestpressuresareknownbythedefinitionsoftheECR-RandTSrules.

Theservicepressure(SP)istheworking(operating)pressurewherethetanksarefilledandusedinindustrialapplications.Thetestpressure(TP)isagivenpressurethatisappliedandreleasedatwhichthepermanentvolumeexpansionsofthetankmustexceed10%oftheinitialmeasuredvolume.

Finiteelementanalysisisisapowerfultoolinthefieldofengineering.Initially,finiteelementanalysiswasusedinaerospacestructuralengineering.Thedifficultyisanalysisofstressandstressandstraininstructuralengineeringdependsonthestructureinvolved.Asthe structuregrowsincomplexity,so doesthe analysis.Manyofthemore commonlyusedstructuresinengineeringhavesimplifiedcalculationstoapproximatestressandstrains.However,thesecalculationsoften providesolutionsonlyforthemaximumstress and strainatcertainpointsinthestructure.Furthermore,thesecalculationsareusuallyonlyapplicablegivenspecificconditionsappliedtothestructure.

Liquefied petroleum gas or liquid petroleumgas(**LPG**or**LPgas**), also referred toassimplypropaneorbutane, areflammable mixturesofhydrocarbongasesu sedasfuel inheatingappliances,cookingequipment,andvehicles.Itisincreasinglyusedasanaerosol propellantand arefrigerant,replacingchlorofluorocarbonsozone layer. Whenspecificallyusedasavehiclefuelitisoftenreferredtoasautogas.

VarietiesofLPGboughtandsoldincludemixesthataremostlypropane(C3H8),mostlybutane(C4H10)and,mostcommonly,mixesincludingbothpropaneandbutane.Inthenorthernhemispherewinter,themixescontainmorepropane,whileinsummer,theycontainmorebutane.IntheUnitedStates,mainlytwogradesofLPGaresold:commercialpropaneandHD-5.ThesespecificationsarepublishedbytheGasProcessorsAssociation(GPA)andtheAmericanSocietyofTestingandMaterials(ASTM).Propane/butaneblendsarealsolistedinthesespecifications.

Propylene,butyleneand variousother hydrocarbonsareusuallyalsopresentinsmallconcentrations.HD-5limitstheamountofpropylenethatcanbeplacedinLPGto5%,andis utilized asanauto gasspecification.Apowerfulodorant,ethanol,isaddedsothatleakscanbedetectedeasily.TheinternationallyrecognizedEuropeanStandardisEN589.IntheUnitedStates,tetrahydrotheophany(thiophane)oramylmercaptanarealsoapprovedodorants,althoughneitheriscurrentlybeingutilized.

LPG is prepared byrefiningpetroleumor"wet"naturalgas,andisalmostentirelyderivedfromfossilfuelsources, being manufacturedduring therefining of

Design and Analysis of Bearing House

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Abstract—Bearings are precisioncomponents;theyrequirecleanlubricantsinadequateamountsto survive,andevenseeminglysmallamountsofcontaminationcangreatlyreduceequipmentreliabilityanduptime.Theforgingprocessissuperiortocastinginthatthepartsformedhavedensermicrostructures,more definedgrainpatterns,andlessporosity,makingsuchpartsmuchstronger thanacasting. Allmetalsandalloysare forgeable,but eachwill haveaforge abilityratingfrom highto lowor poor.Thefactorsinvolvedarethematerial'scomposition,crystalstructureandmechanicalpropertiesallconsideredwithin atemperaturerange.Thewiderthetemperaturerange,thehigherthef orgeabilityrating.Mostforgingisdoneonheatedworkpieces. "Coldforging"canoccur atroomtemperatures. Themostforgeablematerialsarealuminum,copper,and magnesium.Lower ratingsareappliedto thevarioussteels,nickel,andtitaniumalloys.Hotforgingtemperatures rangefrom 93 0C (2000F)to 16500C (30000F) for refractorymetals. InthisprojectacomponentanddiewillbedesignedinCATIAV5R2 0and analysiswere carriedoutinANSYS.

Keyword-bearinghouse,coldforging,analysis

I. INTRODUCTION

Housingisoneoftheaccuratecomponentstokeepthebearingreliabilityandsafety.

Anewgenerationofbearingprotectorsisnowavailablethatcan helpmaintainlubricantcleanliness,preventlossoflubricants,andprolongthelifeofyourrotatingequipment.

Dependinguponthedesignofashaftorhousing,theshaftmaybeinfluencedbyanunbalancedloadorotherfactorswhichcanthencauselargefluctuationsinbearingefficiency.Forthisreason,itisnecessarytopayattentiontothe followingwhendesigningshaftandhousing:

- Bearingarrangementselection;mosteffectivefixingmethodforbearingarrangement

- Selectionofshoulderheightandfilletradiusofhousingand shaft.

- Shapeprecisionanddimensionsoffitting;arearunouttoleranceofshoulder.

- Machiningprecisionandmountingerrorofhousingandshaftsuitableforallowablealignmentangleandinclinationofbearing.

II. MODELINGANDMESHING

A. IntroductiontoCATIA

CATIAisarobustapplicationthatenablesyoutocreaterichandcomplexdesigns.Thegoalsof theCATIAcoursearetoteachyouhowtobuild partsandassembliesinCATIA,andhowtomakesimpledrawingsof thosepartsandassembliesThis course focuses on thefundamentalskillsandconceptsthatenableyoutocreateasolidfoundationforyourdesigns

B. WhatisCATIA?

CATIA ismechanicaldesignsoftware.Itisafeature-based,parametricsolidmodelingdesigntoolthattakesadvantageof theeasy-to-learnWindowsgraphicaluserinterface.Youcancreatefullyassociative3-Dsolidmodelswithorwithoutconstraintswhileutilizingautomatic oruser-definedrelationstocapturedesignintent.Tofurtherclarifythisdefinition,theitalictermsabove willbefurtherdefined:

C. Feature-based:

Likeanassemblyismadeupofanumberofindividualparts,aCATIAdocumentismadeupofindividualelements.Theseelementsare calledfeatures.Whencreatingadocument,youcanaddfeaturessuchaspads,pockets,holes,ribs,fillets,chamfers,anddrafts.Asthefeaturesarecreated,theyareapplieddirectlytotheworkpiece.

Featurescanbeclassifiedassketched-basedordress-up:

- Sketched-basedfeaturesarebasedona2Dsketch.Generally,thesketchistransformedintoa3Dsolidbyextruding,rotating,sweeping,orlofting.

- Dress-upfeaturesarefeaturesthatarecreateddirectlyonthe solidmodel.Filletsand chamfersareexamplesofthistypeoffeature.

D. Parametric:

The dimensions andrelations usedtocreateafeature arestoredinthemodel.Thisenablesyoutocapturedesignintent,andtoeasilymakechangestothemodelthroughtheseparameters. Drivingdimensionsare the dimensions usedwhencreatingafeature.Theyincludethedimensionsassociatedwiththesketchgeometry,aswellasthoseassociatedwiththefeatureitself.Consider,forexample,acylindricalpad.Thediameterofthe padiscontrolledbythediameterofthesketchedcircle,andtheheight ofthepadiscontrolledbythedepthto whichthecircleisextruded.

*a) Concentricity:*Thistypeofinformationistypicallycommunicatedondrawingsusingfeaturecontrolsymbols.Bycapturingthisinformationinthesketch,CATIAenablesyoutofullycaptureyourdesignintentupfront.

b) SolidModeling:AsolidmodelisthemostcompletetypeofgeometricmodelusedinCADsystems.Itcontainsallthewireframeandsurfacegeometrynecessarytofullydescribetheedgesandfacesofthemodel.Inadditiontogeometricinformation,solidmodelsalsoconvey their—topology‖,whichrelatesthegeometrytogether.Forexample,topologymightincludeidentifyingwhichfaces(surfaces)meetatwhichedges(curves).Thisintelligencemakesaddingfeatureseasier. Forexample,ifamodelrequiresafillet,yousimplyselectanedgeand specifyaradiustocreateit.

c) FullyAssociative:-
ACATIAmodelisfullyassociativewiththedrawingsandpartsorassembliesthatreferenceit.Changesto themodelare automatically reflected inthe associated

Static Analysis of Lathe Cutter

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Abstract:- Latheis amachine toolusedinthe manufacturingindustry;latheisthemotherofallmachines.Whenama chineismanufactureditmayfailduetostressactingofthelathe,theman ufacturedpartmayfailduetovibration.Thispaperanalysisthevariouss tressesactingonthemachinetool,usingfiniteelementanalysis.Thean alyzeddatahelpstounderstandthebehaviourofthemachinetool;ithelp storedesignthemachinetoolstructures

Keywords: machinetool,finite elementanalysis,ansys.

I. INTRODUCTION

Alatheisamachinetoolthatrotatestheworkpieceonitsaxisto performvariousoperationssuchas,cutting,knurling,drilling,ord eformation,facing,turning,withtoolsthatareappliedtotheworkp iecetocreateanobjectwithsymmetryabout an axis of rotation.Lathesareusedinwoodturningmetalworking,metalspi nning,thermalspraying,partsreclamation,andglass- working.Lathescanbeusedtoshapepottery.Mostsuitablyequipp edmetalworkinglathescanalsobeusedtoproducemostsolidsofre volutionscrewthreadsor helices.Ornamentallathes canproducethree-dimensionalsolidsofincredible complexity. Theworkpieceisusuallyheldinplacebyeitheroneortwocentres,a tleastoneofwhichcantypicallybemovedhorizontallytoaccomm odatevaryingworkpiecelengths.Otherwork- holdingmethodsincludeclampingtheworkabouttheaxisofrotati onusingachuckorcollect,ortoafaceplate,usingclamps.

A) CUTTINGTOOL

Inthecontextofmachining,a**cuttingtool**or**cutter**isanytoolt hat isusedtoremovematerial from theworkpiecebymeansofsheardeformation.Cuttingmaybeacco mplishedbysingle-pointormultipointtools.Single- pointtoolsare used inturning,shaping,planningandsimilaroperations,andremove materialbymeansofonecuttingedge.Millinganddrillingtoolsar eoftenmultipointtools.Grindingtoolsarealsomultipointtools.E achgrainofabrasivefunctionsasamicroscopicsingle- pointcuttingedge(althoughofhighnegativerakeangle),andshear satinychip.

B) IntroductiontoFINITEELEMENTMETHOD

ThebasicideaintheFiniteElementMethodistofindthesoluti onofcomplicatedproblemwithrelativelyeasyway.TheFiniteEle mentMethodhasbeenapowerfultoolforthenumericalsolutionof awiderangeofengineeringproblems.Applicationsrangefromde formationandstress

analysisofautomotive,aircraft,building,defence,missileandbri dgestructurestothefieldanalysisofdynamics,stability,fracture mechanics,heatflux,fluidflow,magneticflux, seepageandotherflowproblems. With the advances incomputertechnologyandCADsystems,complexproblemsca nbemodelledwithrelativeease.Severalalternateconfigurationsc anbetried outona computer before the firstprototypeisbuilt.Thebasicsinengineeringfieldare musttoidealizethegivenstructurefortherequiredbehaviour.The proven knowledgein the computationalaspects oftheFiniteElementMethodisessential.IntheFiniteElementMe thod,thesolutionregionisconnectedasbuiltupofmanysmall,inte rconnectedsubregionscalledfiniteelements.

Thestepbystepprocedureforstaticstructuralproblemcanbest atedasfollows

STEP1: Discretizationofstructure(domain) Thefirststepinthefiniteelementmethodistodividethestructureor solutionregionintosub-divisionsorelements.

STEP2: Selectionofaproperinterpolationmodel. Sincethedisplacement(fieldvariable)solutionofacomplexstruc tureunderanyspecifiedloadconditionscan'tbepredictedexactly. Weassumesomesuitablesolutionwithinanelementtoapproxima tetheunknownsolution.Theassumedsolutionmustbesimplefro mcomputationalpointofview,anditshouldsatisfycertainconver gencerequirements.

STEP3: Elementstiffnessmatrices(characteristicmatrices)andl oadvectors. Fromtheassumeddisplacementmodelthestiffnessmatrix[K(e)] andtheloadvectorF(e)ofelement'e'aretobederivedbyusingeith erequilibriumconditionsorasuitablevariationprinciple.

STEP4: Assemblageofelementequationstoobtaintheoveralleq uilibriumequations.Sincethestructureiscomposedofseveralfini teelements,theindividualelementstiffnessmatricesandloadvect orsaretoassembledinasuitablemannerandtheoverallequilibriu mequationshavetobeformulatedas

$$[K]q=F$$

[K]iscalledassembledstiffnessmatrix,qiscalled thevectorofnodaldisplacementandFisthevectorofnodalforceso fthecompletestructure.

STEP5: Solutionofsystemequationshavetobemodifiedto accountforthe boundaryconditionsofthe problem.After

Design and Analysis of Portable Gantry Hoist

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Abstract-
DuringGantryHoist, engineershavetomanuallyevaluatevarioustoolssuchasCADandCAEtools. Thisprocesstakesconsiderableamountoftimeandeffort. Furthermore, theprocessofFEMsimulationssuchasmeshingandpostprocessingisveryiterativeandtimeconsuming. Inthiswork, an alternativeway to performFEAwillbepresented. Themainobjectiveofthisapproachis toreliefengineers fromtimeconsuminganditerative work

Beforeperformingthetopologyoptimization, thestructuralmodelingoftheGantryHoistneedstobedevelopedbyusingCATIA software. ThestructuralmodelingthenimportedintotheComputer-aidedengineering(CAE)andbeganthemeshingontheGantryHoist. Thefiniteelementmodeling(FEM)processeswereperformedbyusingAnsys15. Theboundarycondition(BC)andloadingselectedandplaceattheGantryHoist. Thefiniteelementanalysis(FEA)thencarriedoutattheGantryHoist. TheAnsys15usedtosolvetheanalysisequationthus, producingtheresultofstress, strainanddisplacementwhere itwillbeusedtoanalyzethecriticalareaoftheGantryHoist. FinallyResultsdescriptionintermsoffactor of safety, stiffens, deformationandstress

Key words-CATIA, FEM, ANSYS

I. INTRODUCTION

Therearecurrentlymanydifferentcranes. Gantrycranesareoneofthem. Gantrycranesarebuilttomovelarge loads, forexample, filledcontainersfromshipstoshore. Gantrycranesareavailableindifferentsizeandstructuredependingonthetasktheydo. Insomelinesofworkitisnecessarytohavetheloadsmovedquickly. Forexampleharborcranes, whereeachminuteittakestoemptyorloadashipcanbeextremelycostly. Thefirstgantrycranes were built over 40years ago andsincethentheyhaveundergone amajor development. In2009 theworld's largestgantrycranewasbuiltinSouthKorea.

Gantrycranesareatypeof crane builtatopagantry, whichis astructureusedtostraddlean objectorworkspace. Theyarealsocalledportalcranes, the"portal "beingtheemptyspacestraddledbythegantry. Theterms gantrycraneand overheadcrane (orbridgecrane)areoftenusedinterchangeably, asbothtypesofcranestraddletheirworkload. Theusualdistinctiondrawnbetweenhetwoisthatwithgantrycranes, theentirestructure(includinggantry)isusuallywheeled(oftenon rails). Bycontrast, thesupportingstructureofanoverheadcraneisfixedinlocation, oftenintheformofthewallsorceilingofabuilding, towhichisattachedamovablehoistrunningoverheadalongarailorbeam(whichmayitselfmove). Furtherconfusingtheissueisthat gantrycranesmayalsoincorporateamovablebeam-mountedhoistinadditionto theentire structure being wheeled, andsome overheadcranesaresuspendedfromafreestandinggantry.

Gantrycranesintheformofcontainercranesareprominentfeaturesofmostcontainerterminals, usedtoloadintermodalcontainersonandoffcontainerships. Theycanrangefromenormous"full "gantrycranes, capableoflifting someoftheheaviest loadsin theworld, tosmall shopcranes, usedfortaskssuchasliftingautomobileenginesoutof vehicles.

A. Background

Portableliftingequipmentisalargecomponentofanymechanicalshop. Thiscanbeachievedthroughtheuseofforklifts, chainlifts, etc. Whilemotor-poweredequipmentisexpensiveandrequiresmaintenanceandfuel, manuallyoperatedliftsareinexpensiveanddonotrequiremuch oranymaintenance. Easeofmaneuverabilityisabigissueformost shopsalongwithvariableterrain.

B. Justification

Theplanforthisprojectistodesignandvalidationofoverhead liftwitha chainhoistthatcanbebrokendown andeasilymovedtodifferentjobsitesandhavea2tonliftingcapacity. Usingmaterialsthatarealreadyavailablewillcutdownoncosts andallowformoremoneytobeputintoahigherqualityhoist. Thecasterwheelswillbeahighstrengthsolidrubberwheelsotherearenoproblemswithflattireswhileitstillhastheabilitytobemaneuvered inmorehostileterrainssuchassoftsoilandgraveldriveways. Theywillalsohavetohaveahigherloadratingthanthe2tonratedcapacitytoaccountfortheextraweightoftheframe, hoist, andtrolley. Buildingacustomhoistwillallowforplentyofcustomizationandpersonaladditionstothebasicoverheadhoistdesignsuchasracksfortools, parts, andotheritemscouldbeusefulinthe workarea.

C. VARIANTS:

Containercrane
Aship-to-shorerailmountedgantrycraneisaspecialisedversionofthegantrycraneinwhichthehorizontalgantry rails and theirsupporting beamarecantileveredoutfrombetweenframeuprightsspacedtosuitthelengthofastandardfreightcontainer, sothatthebeamsupportingtherailsprojectsoveraquaysideandoverthewidthofanadjacentshipallowingthehoisttoliftcontainersfromthequayandmove outalongtherailstoplacethecontainersontheship. Theuprightshavewheels

Determination of Stress Intensity Factors Under Mode-I Fracture of C45 Steel

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Abstract—

Thefocusofthispaperistoinvestigatehowacrackpropagatesandgrowsinarectangularplatewithanellipticalcrackthroughthecentre. ThefiniteElementAnalysistoolAnsysisusedtopropagatethefailure criteriaandtocomputestressesandStressIntensityfactorSIF(K).A specificobjectwascreatedandcentralcrackwasinvestigated.Thisc onfigurationwasintroducedsincetheengineersoftendetectMode1 Opentypecrackinobject.TheStressIntensityFactorobtainedtheor eticallyiscomparedagainstsamebyAnsys17.2tool.Bothofthemobt ainedandalsomaximumstresszoneislocatedat the cracktipinAnsys.

Keywords-

FractureMechanics,ANSYS,CentralCrack,CrackPropagation,L inearElasticFractureMechanics(LEFM),FiniteElementMethod, StressIntensityFactor,HighGrade Steel C45. I.

I.INTRODUCTION

Failureoftheengineeringstructuresiscausedbycracks,whichisd ependingonthedesignandoperatingconditionsthat extendbeyondasafesize.Cracks presentto someextentinallstructures,eitherasaresultofmanufacturingdef ectsorlocalized damagein service[2].Thecrackgrowthleadstoadecreaseinthestructuralstr ength.Fracture,thefinalcatastrophiceventtakesplaceveryrapidl yandispreccededbycrackgrowth.DamageTolerance(DT)assess mentisaprocedurethatdefineswhetheracrackcanbesustainedsa felyduringtheprojectedservicelifeofthestructure.Thefundame ntalassumptionoflinearelasticfracturemechanicsisthatthecrac kbehaviorisdeterminedsolelybythe valuesofthestressintensityfactorswhichareafunctionoftheappl iedload and thegeometryofthecrackedstructure.Fracturemechanicsdealsw iththestudyofhowacrackinastructurepropagatesunderappliedl oadspropagationandfailurewithexperimentalresults[5].Calcul atingfractureparameterssuchasstressintensityfactorinthecrack region[1],whichisusedtoestimatethecrackgrowth,makesthean alyticalpredictions.Sometypicalparametersare:Stressintensity factors(Openmode
(a) KI,Shearmode(b)KII,Tearmode(c)KIII

Figure1:ThreeTypesOfLoadingOnACrackedBody; (A) ModeI;(B)Mode IIAnd(C)ModeIII

II.REVIEW

DayalR.ParhiandSasankaChoudhuryacantileverbeamwithasi nglecrackhasbeentakenintoconsideration.Finiteelementmeth odisusedtofindoutthe naturalfrequenciesofthefaultycantileverbeam.Afuzzycontroll erhasbeendesignedusingtrapezoidal,Gaussianaswellastriangu larmembershipfunctiontofindoutthecrackdepthandcracklocat ion[5,7]

D.K.Agarwallaconcludescrackdetectionandlocalizationisthe maintopicofdiscussionforvariousresearchersacrosstheglobe.I tisconcludedthatresultsobtainedfromexperimenthaveaverygo odagreementwiththeresultsobtainedfromFEMandthestructure vibrateswithmorefrequencyinthepresenceofacrackawayfromt hefixedend.

Ananalyticalandexperimentalapproachby H.Nahviand M. Jabbarietal.tothecrackdetectionincantileverbeamsby vibrationanalysis.Sensibilityanalysisoftheinverseproblemoft hecrackparameters(locationanddepth)determinedbyM.B.Ros ales,CPFilipichandFSBuezasetal.Anefficient numerical techniqueisnecessarytoobtainsignificantresults.

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NOTABLE TRENDS ON QUERY PROCESSING IN WIRELESS SENSOR NETWORKS

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Abstract—Smart sensors are small wireless computing devices that sense information such as light and humidity at extremely high resolutions. A sensor query-processing architecture using database technology can facilitate deployment of sensor networks. This paper presents the sate-of-art in the Query Processing in WSN's with the related work which is done earlier. It also presents the related notable research issues and challenges that can be carried out further in future.

*Index Terms—***Wireless sensor nodes, Query processing, adaptive query operators, multi-hop**

I. INTRODUCTION

Sensor Networks have the prospective to maintain the applications ranging from the environment and structural monitoring to habitat and building automation to provide modified management. The users are typically attracted in unbroken streams of information representing the developing status of systems, combined with periodic statistical reports about specific phenomena. Query processing systems, including Directed Diffusion [1], TinyDB [2], and Cougar [3], provide high-level interfaces that allow users to collect and process such continuous streams. They are especially attractive as ways to efficiently implement monitoring applications without forcing users to write complex, low-level code for managing multi-hop network topologies or for acquiring samples from sensors.

The section –II presents the about the history of sensor networks with it's relevant research happened. The Section-III elaborates about the need of query evaluation in sensor nodes and with the query processing approach has explored. The related work done by different authors on the relevant issues are also discussed. Section –IV shows a part of notable research issues and challenges to be carried out in the Query processing for WSN's. Section –V concludes the paper.

II. RESEARCH HISTORY IN SENSOR NETWORKS

The development of sensor networks requires technologies from three different research areas: sensing, communication, and computing (including hardware, software, and algorithms). Thus, combined and separate advancements in each of these areas have driven research in sensor networks. Examples of early sensor networks include the radar networks used in air traffic control. The national power grid, with its many sensors, can be viewed as one large sensor network. These systems were developed with specialized computers and communication capabilities, and before the term "sensor networks" came into vogue.
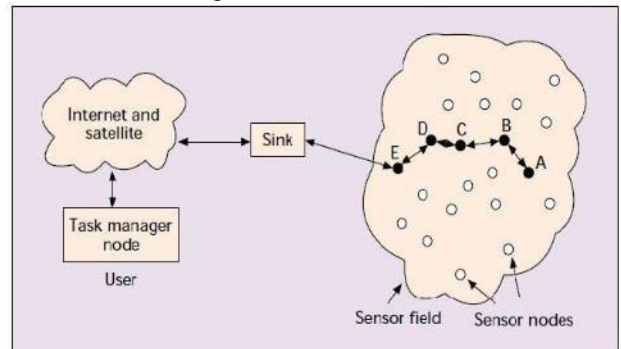
Figure:1 Sensor Nodes scattered in sensor field [7]

The sensor nodes are usually scattered in a sensorfield as shown in Fig. 1. Each of these scattered sensor nodes has the capabilities to collect data and route data back to the sink. Data are routed back to the sink by a multihop infrastructure-less architecture through the sink as shown in Fig. 1. The sink may communicate with the task manager node via Internet or satellite. The design of the sensor network as described by Fig. 1 is influenced by many factors, including fault tolerance, scalability, production costs, operating environment, sensor network topology, hardware constraints, transmission media, and power consumption.

Modern research on sensor networks started around 1980 with the Distributed Sensor Networks (DSN) program at the Defense Advanced Research Projects Agency (DARPA) started a research program on sensor networks to leverage the latest technological advances. Apart from hardware and domain-specific differences, these deployments contribute to a substantial group of software functionality: They all gather and periodically transmit information from some set of sensors, and they all must carefully manage limited power and radio bandwidth to ensure that essential information is collected and reported in a timely manner.

Recent advances in computing and communication have caused a significant shift in sensor network research and brought it closer to achieving the original vision. Small and inexpensive sensors based upon micro electromechanical system (MEMS) [4] technology, wireless networking, and

COOPERATIVE PROVABLE DATA POSSESSION FOR INTEGRITY VERIFICATION IN MULTI-CLOUD STORAGE

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Abstract -- *Provable data possession (PDP) is a procedure for guaranteeing the trustworthiness of information away outsourcing. In this paper, we address the development of a proficient PDP conspire for disseminated distributed storage to bolster the versatility of administration and information movement, in which we consider the presence of various cloud benefit suppliers to agreeably store and keep up the customers' information. We exhibit a cooperative PDP (CPDP) conspire based on homomorphic verifiable reaction and hash record chain of command. We demonstrate the security of our plan in view of multi-proven zero-learning confirmation framework, which can fulfill culmination, information soundness, and zero-learning properties. Also, we explain execution streamlining systems for our plot, and specifically show a productive strategy for selecting ideal parameter qualities to minimize the calculation expenses of customers and capacity benefit suppliers. Our investigations demonstrate that our answer presents bring down calculation and correspondence overheads in correlation with non-agreeable methodologies.*

Index Terms-- Provable Data Possession, Zero-Knowledge, Storage Security, POR, Multiple-Cloud

I.   INTRODUCTION

Lately, distributed storage benefit has turned into a quicker benefit development point by giving an equivalently ease, versatile, position-autonomous stage for customers' information. Since distributed computing environment is built in view of open models and interfaces, it has the ability to consolidate numerous inner as well as outer cloud benefits together to give high interoperability. We call such a disseminated cloud environment as a multi-Cloud (or cross breed cloud).Frequently, by utilizing virtual infrastructure management (VIM) [1], a multi-cloud permits customers to effortlessly get to his/her assets remotely through interfaces, for example, Web administrations gave by Amazon EC2. Provable data possession (PDP) [2] (or proofs of retrievability (POR) [3]) is such a probabilistic confirmation procedure for a capacity supplier to demonstrate the honesty what's more, responsibility for information without downloading information. The verification checking without downloading makes it particularly imperative for vast size records and envelopes (regularly including many customers' records) to check whether these information have been altered then again erased without downloading the most recent adaptation of information. Along these lines, it can supplant conventional hash and signature works away outsourcing. Different PDP plans have been as of late proposed, for example, Versatile PDP [4] and Dynamic PDP [5]. Nonetheless, these plans predominantly concentrate on PDP issues at untrusted servers in a solitary distributed storage supplier and are not appropriate for a multi-cloud environment.

There exist different devices and innovations for multi cloud, for example, Platform VM Orchestrator, VMware VSphere, and Ovirt. These devices cloud suppliers develop a disseminated distributed storage stage for dealing with customers' information. Notwithstanding, if such a critical stage is powerless against security assaults, it would convey hopeless misfortunes to the customers. For instance, the classified information in an undertaking might be illicitly gotten to through a remote interface gave by a multi-cloud, or important information and chronicles might be lost or messed with when they are put away into an indeterminate capacity pool outside the endeavor. Along these lines, it is fundamental for cloud benefit suppliers to give security systems to dealing with their capacity administrations.

II.   RELATED WORK

To check the accessibility and uprightness of outsourced information in cloud stockpiles, scientists have proposed two essential methodologies called Provable Data Possession (PDP) [2] and Proofs of

BACKGROUND SUBTRACTION FOR FOREGROUND DETECTION IN SENSITIVE AREAS

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Abstract—*Video surveillance systems have long been in use to monitor security sensitive areas. The making of video surveillance systems "Elegant" requires fast, reliable and robust algorithms for moving object detection, classification, tracking and activity analysis. Moving object detection is the basic step for further analysis of video. It handles segmentation of moving objects from stationary background objects. Object classification step categorizes detected objects into predefined classes such as human, vehicle, animal, clutter, etc. It is necessary to discriminate objects from each other in order to track and analyse their actions reliably.*

Index Terms—Video surveillance, classification, reliable, clutter.

1. INTRODUCTION

The motion of background objects once the coaching amount and foreground objects inactive during the coaching amount would be thought-about as permanent foreground objects. additionally the approach cannot address gradual illumination changes within the scene. These issues cause the need that any answer should perpetually re estimate the background model. Several adaptive background-modelling methods are planned to affect these slowly-changing stationary

signals. Milton Friedman and Russell modelled every picture element Associate in Nursing exceedingly in a very camera scene by an adaptive constant

quantity mixture model of three Mathematic distributions. They additionally give some temporary discussion on the web update equations supported comfortable statistics. Koller at all

used a Kalman filter to trace the changes in background illumination for each picture element. They applied a selective update theme to incorporate solely the probable background values into the estimate of the background. The strategies will cope well with the illumination changes but can not handle the matter of objects being introduced or faraway from the scene. One answer is to use a multiple-colour background model per picture element. Grimson at all utilized Associate in nursing adaptive statistic mathematician mixture model to resolve these issues. Their model also can reduce the result of little repetitive motions for instance, moving vegetation like trees and bushes furthermore as little camera displacement. Elgammal at all used a kernel computer for every picture element. Kernel exemplars were taken room a moving window. They additionally introduced a technique to scale back the results of little motions by using a abstraction coherence. This was done by examination merely connected elements to the background model of its circular neighbourhood. Though the authors conferred variety of speed-up routines, the approach was still of high machine quality. different techniques victimisation high level process to help the background modelling are proposed for example, the

Cipher text-Policy Attribute-based Encryption (CP-ABE)Data Access Control for Multi-Authority Cloud Storage

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Abstract— Data access control is an efficient way to make sure the data security in the cloud. Due to data outsourcing and entrusted cloud servers, the data access control becomes a challenging issue in cloud storage systems. Cipher text-Policy Attribute-based Encryption (CP-ABE) is regarded as one of the most suitable technologies for data access control in cloud storage, because it gives data owners more direct control on access policies. However, it is difficult to directly apply existing CP-ABE schemes to data access control for cloud storage systems because of the attribute revocation problem. In this paper, we design an expressive, efficient and revocable data access control scheme for multi-authority cloud storage systems, where there are multiple authorities co-exist and each authority is able to issue attributes independently. Specifically, we propose a revocable multi-authority CP-ABE scheme, and apply it as the underlying techniques to design the data access control scheme. Our attribute revocation method can efficiently achieve both forward security and backward security. The analysis and simulation results demonstrate that our proposed data access control scheme is secure in the random oracle model and is more efficient than previous works.

Index Terms: Access control, multi-authority, CP-ABE, attribute revocation, cloud storage

I. INTRODUCTION

CLOUD storage is a vital service of cloud computing, which offers services for data owners to host their data in the cloud. This new model of data hosting and data access services introduces a great challenge to data access control. Because the cloud server cannot be fully trusted by data owners, they can no longer depend on servers to do access control. Cipher text-Policy Attribute-based Encryption (CPABE) is regarded as one of the most suitable technologies for data access control in cloud storage systems, because it gives the data owner more direct control on access policies. In CP-ABE scheme, there is an authority that is responsible for attribute management and key distribution. The authority can be the registration office in a university, the human resource department in a company, etc. The data owner defines the access policies and encrypts data according to the policies. Each user will be issued a secret key reflecting its attributes. A user can decrypt the data only when its attributes satisfy the access policies. There are two types of CP-ABE systems: single-authority CP-ABE where all attributes are managed by a single authority and multi-authority CP-ABE where attributes are from different domain sand managed by different authorities. Multi-authority CP-ABE is more appropriate for data access control of cloud storage. Systems, as users may hold attributes issued by multiple authorities and data owners may also share the data using access policy defined over attributes from different authorities. For example, in an E-health system, data owners may share the data using the access policy ''Doctor AND Researcher'', where the attribute ''Doctor'' is issued by a medical organization and the attribute ''Researcher'' is issued by the administrators of a clinical trial. However, it is difficult to directly apply these multi-authority CP-ABE schemes to multiauthority cloud storage systems because of the attribute revocation problem. In multi-authority cloud storage systems, users' attributes can be changed dynamically. A user may be entitled some new attributes or revoked some current attributes. And his permission of data access should be changed accordingly. However, existing attribute revocation methods either rely on a trusted server or lack of efficiency, they are not suitable for trade with the attribute revocation problem in data access control in multi-authority cloud storage systems. In this paper, we first propose a revocable multiauthority CP-ABE scheme, where an efficient and secure revocation method is proposed to resolve the attribute revocation problem in the system., our attribute revocation system is efficient in the sense that it incurs less communication cost and computation cost, and is secure in the sense that it can achieve both backward security (The revoked user cannot decrypt any new cipher text that requires the revoked attribute to decrypt) and forward security (The newly joined user can also decrypt the previously published cipher texts..Compared to the conference version of this work, we have the following improvements:1. We modify the framework of the scheme and make it more practical to cloud storage systems, in which data owners are not involved in the key generation. Specifically, a user's secret key is not related to the owner's key, such that each user only needs to hold one secret key from each authority instead of multiple secret keys associated to multiple owners.2. We greatly improve the efficiency of the attribute

BIG DATA AND DATA QUALITY ISSUES

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Abstract:

The measure of information that is changing over the web today expanding step by step, the information huge and mind boggling too. Associations, organizations, human services framework and so forth., The information which are further utilized for making reports and settling on arrangement choices with a specific end goal to guarantee for better results. The procedure behind the result that these information sets recreate a test for programming engineers and organizations that give IT framework. The test is the manner by which to control an amazing volume of information that must be safely conveyed through the web and achieve its goal in place. This paper gives the difficulties that Big Data makes and how to improve the quality of the resultant data.

Keywords:Big data,data quality,measure,framework.

Introduction and History: Big data is a new concept, and academia hasn't made a uniform definition of its data quality and quality criteria. The literature differs on a definition of data quality, but one thing is certain: data quality depends not only on its own features but also on the business environment using the data, including business processes and business users. Only the data that conform to the relevant uses and meet requirements can be considered qualified (or good quality) data. Usually, data quality standards are developed from the perspective of data producers. In the past, data consumers were either direct or indirect data producers, which ensured the data quality. However, in the age of big data, with the diversity of data sources, data users are not necessarily data producers. Thus, it is very difficult to measure data quality. Big data is deals with the following data terms:

Volume. Data entities gather data from a variety of sources from business transactions, social networking media and information like video ,audio,textual data. In the past, storing data is problematic and complex to handle it.

Variability: In addition to the increasing velocities and varieties of data, data flows can be highly inconsistent with periodic peaks. Is something trending in social media? Daily, seasonal and event-triggered peak data loads can be challenging to manage. Even more so with unstructured data.

data quality management entails the establishment and deployment of roles, responsibilities, policies, and procedures concerning the acquisition, maintenance, dissemination, and disposition of data. A partnership betweenthe business and technology groups is essential for any data quality management effort to succeed.

The business areas are responsible for establishing the business rules that govern the data and are ultimately responsible for verifying the data quality. The Information Technology (IT) group is responsible for establishing and managing the overall environment – architecture, technical facilities, systems, and databases – that acquire, maintain, disseminate, and dispose of the electronic data assets of the organization.

Organizations of all kinds make decisions and service customers based on the data they have at their disposal. The data warehouse is often used to examine business trends to establish a strategy for the future; within the scope of

a customer relationship management (CRM) program, data about the customer is used to make appropriate decisions

concerning that customer; and data in the financial systems is used to understand the profitability of past actions. The viability of the business decisions is contingent on good data, and good data is contingent on an effective approach to data quality management.

The initial emphasis of many new data quality management initiatives launched in recent years has been on customer data, and technology has stepped up to this challenge by automating solutions to many of the data quality problems

CONCEPTUAL STUDY ON DATA MINING

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ABSTRACT

Data Mining is an emerging interdisciplinary domain of knowledge management. As we are aware that many Multi National Companies and large organizations are operated in different places of the different countries. Each place of operation may generate large volumes of data of any kind in the form of Peta bytes to jeta bytes which has drastically changed in the areas of science-- and engineering. Corporate decision makers require access from all such sources- and take strategic decisions[2]. To analyze, manage and make

a decision of such type of huge amount of data. we need techniques which will transforming in many fields. The Data warehouse is used in the significant business value by improving the effectiveness of managerial decision making.

Keywords: **Data mining, KDD ,Predictive mining, Descriptive mining, Decision tree, Classification, Clustering, Regression, Association, Association rule mining, Temporal mining, OLAP, Genetic Algorithm, Neural Networks ,Research Analysis, Financial Banking ,Medical, Education, Fraud detection ,Retail, etc.**

1. INTRODUCTION

In the last two decades human beings are used in the different technologies to adequate in the society[1]. Each and every day the human beings are using the vast data and these data are in the different fields. it may be structure form or unstructured form. not only to analyze the data but also take a good decision and maintain the data[7]. as and when the customer will required the data should be retrieved from the database and make the better decision. This technique is actually called as a data mining or KDD(Knowledge Discovery in Databases) process[2].The important reason that attracted a great deal of attention in information technology the discovery of useful information from large collections of data industry towards field of Data

mining is due to th**e perception of " we are data rich but information poor". There is a huge volume of**

data but we are hardly able to turn them into useful information and knowledge for managerial decision making in business. To generate information it requires massive collection of data. It may be different formats like audio, video, numbers, text, figures, Hypertext formats.

To make complete advantage of data , the data retrieval is simply not enough. It requires a tool for automatic summarization of data, extraction of the essence of information stored and the discovery of patterns in raw data[2]. With the enormous amount of data stored in files, databases and other repositories, it is increasingly important , to develop a powerful tool for analysis and interpretation of such data and for the extraction of interesting knowledge that could help in decision making. The only answer to all the above is Data Mining[4].

This paper describes 8 sections. Section 1 is completely introduction where you will get huge volume of information about the data mining concept. Section 2 describes Data mining is a decision support process in which we search for patterns of information in data Section 3 describes Data mining functionalities like predictive mining and descriptive mining section 4 describes types of data mining systems. Focuses on data mining classification tasks. section 5 describes Data mining life cycles section 6 describes Data mining Methods describes some popular methods. Section 7 describes data mining tools describe the availability of different tools used for data mining.

Section 8 describes applications of data mining. They are Commercial, Educational, Medical, Scientific, Insurance, Fraud detection fields are highlighted .

A REGULAR ASSOCIATION OF COMPARABLE INFORMATION WITH CLUSTERING METHODS

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Abstract— **This paper introduces the use of the Bees algorithm in optimizing the document clustering problem. The Bees algorithm simulates the foraging behavior of honey bees swarms in collecting nectar from flower patches by performing global and native search concurrently this improves avoidance of local minima convergence. The benefit of BA is the fact that, it performs local and global search concurrently which increases the fitness from the arrived at solutions and also the avoidance of local minima trapping. Genetic algorithm and also the K-means algorithm can be used for comparisons because they are one of the most generally used strategies to solve the issue. Document clustering is among data mining fields which mainly aim to instantly group the appropriate documents into clusters. The Genetic algorithm is among the Famous transformative algorithms that simulate natural chromosomes selection and recombination K-means very easy to large data sets. Within this algorithm, a cluster is symbolized through the mean worth of data points inside a cluster and also the clustering is completed by minimizing the sum of the Euclidean distances between data points and also the corresponding cluster centroid. Many experiments were performed on the corpus of 818 documents from 4 different fields and also the results have proven the Bees algorithm outperforms the Genetic algorithm and also the K-strategies by 15% and 50% correspondingly, when it comes to solutions fitness, by having an acceptable rise in the processing time. Several Clustering algorithms happen to be developed yet many of them couldn't match the needs of document clustering problem.**

Keywords: ***Document Clustering, Bees Algorithm, Genetic Algorithm, K-means, Evolutionary Algorithms***

I. INTRODUCTION

To find out cluster membership, most algorithms assess the distance from a point and also the cluster centroids. The output from the clustering algorithm is essentially a record description from the cluster centroids with the amount of components in every cluster. Several Clustering algorithms happen to be developed yet many of them couldn't match the needs of document clustering problem which are listed below: High dimensionality: The amount of

relevant terms inside a document set is usually within the order of thousands, otherwise thousands [1]. All these terms are really a dimension inside a document vector. Natural clusters tend not to appear in the entire dimensional space, however in the subspace created by some correlated dimensions. Locating clusters in subspaces can be tough. Scalability: Real life data sets could have thousands and thousands of documents. Precision: A great clustering solution must have high intra-cluster similarity and occasional Inter-cluster similarity. The Bees Algorithm (BA) utilized in this paper is one of the transformative algorithms family in which an issue is enhanced by iteratively enhancing candidate solutions regarding an assessment metric. BA is really a population-based algorithm that performs a mix of local and global search in a manner that simulates the foraging behavior from the honey bees swarms. To determine the efficiency from the algorithm when put on document clustering problem, comparisons are created between BA and also the Genetic Algorithm (GA) along with the K-means Algorithm.

II. PROPOSED METHODS

Transformative Algorithms (EA) are extremely generally utilized in solving optimization problems. It emulates natural behavior of population recombination and generating new generations by way of two primary operators: Recombination: Put on several selected candidates that results a number of new solutions Mutation: Put on an applicant means to fix result a brand new candidate. The Genetic Algorithm is among the famous transformative algorithms that simulate natural chromosomes selection and recombination GA may

SHORT MESSAGE SYSTEM: A STATE OF ART

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ABSTRACT

SMS is an android app, using which android users not only schedule the SMS as per the timings set but also can fix how frequent the message has to be delivered. Using this app, the user can set particular timings for particular date to send the SMS for the selected contact. Also User has options like how frequently he wants to send the message from the particular timings set. He will be provided options like FOR EVERY 15 minutes, FOR EVERY 1hr etc… So it will be helpful to the user as he can fix the SMS. The user has to write the message content, select the contact to which he wants to send the message, has to set the time and date. The message will be delivered to the selected contact on that particular date and time specifie Key words:SMS,SDK,Application.

I.INTRODUCTION

One of the fastest growing industries of information technology is the mobile industry .The SDKS namely Symbain, Windows mobile SDK, iPhone SDK and Android from Google which is supported for Google phones are described as next Generation mobiles. android users not only schedule the SMS as per the timings set but also can fix how frequent the message has to be delivered. Using this app, the user can set particular timings for particular date to send the SMS for the selected contact. Also User has options like how frequently he wants to send the message from the particular timings set. He will be provided options like FOR EVERY 15 minutes, FOR EVERY 1hr etc.

In this paper there are 5 Sections .Section 1 describes Introduction One of the fastest growing industries of information technology is the mobile industry.Section 2 descibes Review Architecture. InthisAndriod architecture ,Applications ,libraries Section 3 Existing work which describes android mobile, the user can only send messages, but he cannot schedule the SMS so that it can deliver in future in particular time on particular date . Section4 Proposed work describes Using this app, the user can send Message to the selected contact in particular timings with a particular date Section5Experiments&Resultsdescibes Hardware,software,environment Section6describesconclusion and future work.

2.REVIEW

EXECUTION ASSESSMENT OF GEOGRAPHIC MULTICAST DIRECTING WITH OTHER MULTICAST STEERING PLANS IN REMOTE SENSOR SYSTEMS

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Abstract---This paper proposes the execution assessment and correlation of the Geographic Multicast Routing (GMR) with and Beacon less Geographical multicast directing. Execution examination is appeared. The execution examination is finished with respect to the Packet conveyance proportion. This correlation is an outline of accessible arrangements in view of definite reenactment examine.

KEYWORDS: GMR, WSN, PBM

I. INTRODUCTION

A remote sensor system is a multi-jump remote system with an extensive number of minimal effort and low-control sensor hubs. These sensor hubs are by and large vitality compelled gadgets furnished with little memory, constrained calculation capacity and short range radio. Another key necessity for WSN is a self-arranging ability, the significance of this expansion with the span of the system. In any greater system in any event a portion of the hubs should likewise be equipped for multi-bounce information transmission in spite of low memory and computational limit. : In most sensor system situations, gadgets procure information from nature, and send it to different hubs for further handling and investigation. Directing conventions for remote sensor systems are utilized to transmit messages from sources to goals. They can be named unicast, communicate or multicast. Multicasting conventions attempt to minimize the utilization of system assets in examination of unicast and communicate conventions.

The fundamental favorable circumstances of Wireless Sensor Networks (WSNs) are their self-setup and self-association capacities that permit the organization of a checking framework in a simple and monetary way. Nonetheless, the ease together with the measurement of these little hubs causes a few restrictions at a level of the processor ability, stockpiling, correspondence and power. Due to these restrictions, it is important to utilize a considerable measure of hubs to get a productive and solid framework. The utilization of a Sink Node as an essential issue with bigger abilities that gathers thedata from sensors, is the normal arrangement of these sort of systems. Additionally, this sink hub is typically the interface between the sensor hubs and the Internet. To drag out the life time of WSN net with restricted vitality assets, Multicast can better meet the prerequisites of system assets .With the character of high

transfer speed use and viable instruments to spare vitality, Multicast parcels can be transmitted productively to lessen vitality utilization successfully.

Be that as it may, the broadly utilized of multicast innovation as a part of customary remote systems have an excessive amount of distinction with Wireless sensor arrange.

Geographic Multicast Routing (GMR) is a multicast directing convention for remote sensor systems. GMR figures out how to safeguard the great properties of past geographic unicast steering plans while having the capacity to productively convey multicast information messages to different goals. Every hub spreading a multicast information message needs to choose a subset of its neighbors as transfer hubs towards goals. GMR advances cost over advance proportion. The cost is equivalent to the quantity of chose neighbors, while advance is the general lessening of the rest of the separations to goals.

Most geographic unicast routing protocols and all of the geographic multicast ones assume that nodes know their neighbor's positions using beacons messages. Beacons are short messages periodically broadcast by sensor nodes to advertise their position and identifier to neighboring nodes.Be that as it may, the utilization of reference points can present various extreme issues when conventions are conveyed in genuine proving grounds: crashes, impreciseness in neighborhood tables, superfluous misuse of assets, and so on. Signal less Geographic convention finds responsively the arrangement of hopeful transfers for multicast bundles utilizing information parcels themselves. By doing that, Beacon less Geographic convention can perform exceptionally well in sensible situations with obstructions, impacts, etc.[3]

The rest of the paper is composed as takes after: area 2 shows a diagram of GMR and Beacon less Geographical directing. In Section 3 we assess the execution of both multicast steering conventions utilizing reproduction. At long last, segment 4 gives a few conclusions.

II. OVERVIEW OF MULTICAST ROUTING CONVENTIONS

2.1 Geographic Multicast Routing (GMR)

Geographic Multicast Routing(GMR) , a multicast directing convention for remote sensor systems. The

THE CHALLENGES IN DISTRIBUTEDSYSTEM

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Abstract

In last two decades computing industry is moving towards high speed computing and the trend is to achieve the same by moving towards Distributed, low cost unit, and high unit volume product. As the development of software is happening in decentralized manner , more challenges are faced by the software development organizations. The performance of computing system has increased drastically with the Parallel Computing , Multiprocessing and Multi computing . Systematic literature review on the issues, challenges, problems and solutions of the Distributed Software System are presented in this paper[1]. Focusing on the major issue like consistency. It also to a considerable extent may help the software developer and researchers to find a better solution for the problems and challenges faced by them. They may be in a position to find an amicable/precise solution while working on Distributed Software System.

Keywords:speedcomputing,Distributed,Multi processing,

I.Review

In the paper "Towards a Cloud Computing Research Agenda", two well known researchers in

distributed systems (Birman, van Renesse[3]) discuss the relevance of the distributed systems research agenda in the face of the emergence of cloud computing as the dominant paradigm for next generation of distributed systems[2]. They mention, forexample, the Bizantine failure problem[3]. A better understanding of the consistency restrictions in large scale replicated data storages. In particular understand how to model and implement different consistency requirements ranging from the traditional strong consistency to the now prevalent "best effort" approach that can't guarantee consistency[3].

II.Introduction

In computer science ,consistency models are used in distributed systems like distributed shared memory systems or distributed data stores (such as a file systems ,databases optimistic replication systems or web caching). The system supports a given model if operations on memory follows specific rules . The data consistency model specifies a contract between programmer and system where in the system guarantees that the programmer if follows the rules memory will be consistent and the result of memory operations will be predictable .In the distributed environment different activities occur in concurrent fashion .

Usually common resources like the underlying network, Web/application servers, database servers, and cache servers are shared by many clients. Distributing the computing load is the hallmark of distributed systems. Resource sharing and allocation is a major challenge in designing distributed architecture. For example, consider a Web-based database-driven business application. The Web server and the database server are hammered with client requests. Caching, load-balancing, clustering, pooling, and time-sharing strategies improve the system performance and availability.

Σ

WIRELESS SENSOR NETWORK TECHNOLOGY: A REVIEW

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Abstract—As remote sensor innovation enhances, an expanding number of associations are utilizing it for an extensive variety of purposes. ZigBee innovation is another standard in remote individual area after Bluetooth. After a prologue to this innovation, another remote meter-perusing framework in view of ZigBee convention has advanced. This framework, which is involved ZigBee system and database administration framework, has numerous vital focal points, for example, minimal effort, low power utilization, and low date rate. Remote Sensor Network in light of ZigBee innovation is a remote system which is made out of numerous hubs of ZigBee RF chip, sensor and MCU, particularly appropriate for use of the remote checking framework in combustible and dangerous environment. Combination of RFID and Zigbee is additionally conceivable which end up being shelter for remote sensor arrange innovation. A total outline of remote sensor organize innovation is given in this paper. Remote sensor arrange innovation has ended up one of mechanical fundamental needs of us.

Key Words — Zigbee, Wireless Sensor network, RFID.

I. INTRODUCTION

With the advancement of system and correspondence innovation, the burden of wiring is understood with WSN into individuals' life; particularly it has wide point of view and practicability in the region of remote detecting, modern mechanization control, and local apparatus et cetera. WSN has great elements of information gathering, transmission, and preparing. It has many favorable circumstances contrasted with customary wired system, for instance, advantageous arranging system, little impact to environment, low power dissemination, ease, and so forth. At present, close field remote correspondence innovation has been utilized broadly, particularly Bluetooth, remote neighborhood (WLAN), infrared, and so forth. In any case, they have various disservices, for instance, unpredictability, huge power dispersal, short separation, organizing in little scale. Keeping in mind the end goal to fulfill the request of low power dissemination and low speed among remote specialized gadgets, another kind of remote net innovation Zigbee raises as the times require. In this paper, we will present the systems administration innovation and use of Zigbee. How Zigbee and RFID mix can be utilized as a part of utilizations. In this paper first Zigbee is clarified, then its preferences application lastly its combination with RFID alongside applications is examined.

II. ZIGBEE TECHNOLOGY

ZigBee is new remote correspondence innovation with short separation, low many-sided quality, low vitality utilization, moderate information rate and minimal effort, and it depends on IEEE 802. 15.4 Standard with the limit of planning shared correspondence among a huge number of small sensors [1]. Through the radio waves, these sensors can transmit the information starting with one sensor then onto the next with little vitality cost and high proficiency. Contrasted and different existing remote correspondence innovation, ZigBee innovation has the most minimal vitality utilization and cost. In light of the moderate information rate and the little scope of correspondence, ZigBee innovation is greatly appropriate for agrarian field which has little measure of information streams. The specialized elements of this innovation additionally settle on it the best decision for remote sensor systems. In this manner, it has the useful hugeness when connected in the yield natural checking framework [1], [2].

ZigBee has the accompanying elements. ZigBee utilizes an assortment of force sparing modes to ensure that it could be utilized for no less than six months to two years fueled by two AA batteries. ZigBee utilizes the shirking impact component as a

SAFETY CHALLENGES ON CLOUD DATA

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Abstract: *Applying security approaches to our data while storing in to the cloud it is the biggest challenge in cloud computing environments. Before going to transfer any data to the cloud environments there is a chance of lack of control, lack of trust and multi tenancy. So we need to improve security issues like data encryption and data confidentiality by using transfer protocols and various security algorithms. In this paper we proposed one of the group key transfer protocol based on secret sharing and various technologies in cloud computing.*

Keywords:

Data Security, Cloud Models, Group key Transfer protocol.

1. INTRODUCTION:

The two security functions are implementing while transfer our data securely.

Data confidentiality: It ensures user that the data is securely stored in cloud environments.

Data Authentication: It ensures user that the data is only accessed by the authorized party.

In the cloud environments we can have many challenging issues like,

We can access clouds by virtually only but we can't imagine how the data is securely stored, by which pattern the data is organized on the cloud databases ,so many questions are raised, to avoid this type of situations we need to adopt the security emerged technologies on the clouds.

The encryption process is also a biggest challenge to apply for a data before going transfer to the cloud environments. It is difficult to implement due to key management and maintenance. In this technique how the third party people can manage the encryption keys for data and security in the cloud. To share data in the cloud from one person to another it is also a challenging issue for this we can implement various key exchanging algorithms for Secure reliable transfer by using third party authorities.

The group key transfer protocol is one of the finest approaches to share the data securely and secretly. In this method we can avoid the various attacks which come from internally and externally.

2. REVIEW WORK

Cloud models:

A *cloud delivery model* represents a specific, pre-packaged combination of IT resources offered by a cloud provider. Three common cloud delivery models have become widely established and formalized:

ß   Infrastructure-as-a-Service (IaaS)

ß   Platform-as-a-Service (PaaS)

ß   Software-as-a-Service (SaaS)

Cloud computing deployment models: Cloud hosting deployment models represent the exact category of cloud environment and are mainly distinguished by the proprietorship, size and access. It tells about the purpose and the nature of the cloud. Most of the organizations are willing to implement cloud as it reduces the capital expenditure and controls operating cost. In order to know which deployment model matches your website requirements it is necessary to know the four deployment models.

Public Cloud: is a type of cloud hosting in which the cloud services are delivered over a network which is open for public usage. This model is a true representation of cloud hosting; in this the service provider renders services and infrastructure to various clients. The customers do not have any distinguish ability and control over the location of the infrastructure.

Private Cloud: is also known as internal cloud; the platform for cloud computing is Implemented on a cloud-based secure environment that is safeguarded by a firewall which is under the governance of the IT department that belongs to the particular corporate. Private cloud as it permits only the authorized users, gives the organization greater and direct control over their data.

Hardware and Software Design for Automotive Security

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Abstract: - Nowadays security is a major area of concern. Embedded systems are used in every automotive system. So, attack from outside network, inside networks, bugs, hacking these are common and major concerns for an automotive security. This paper aims at providing hardware and software solution for security in automotive applications. In this paper we propose a hardware model for encryption as well as a software model that can be used for security, particularly in the Automobile domain. In Automobiles 40 to 50 microcontrollers will communicate over a CAN Bus, this communication can be encrypted, it should allow only authenticate controller to communicate inside as well as outside. In vehicle there are large no of microcontrollers called ECU's which performs specific action depending on information supplied to them by other ECU's inside vehicle or the other clusters who are outside vehicle and try to communicate. This will create a wide gateway for misusing the information and manipulations. In this paper, hardware approach is presented for security build on GRP algorithm consisting of structures of Multiplexers can be called as Hardware Security Model (HSM) and in software approach by creating a gateways and only allowing authenticate controllers to communicate.

Key-Words: - ECU, Automobile, Security, Hardware, Software.

1. Introduction

Today, in vehicular networks large no of digital control units are distributed and their communication is possible over a field buses like CAN, Flex ray, MOST etc. Same information which is transmitted by one node is available with all the nodes present on the bus, proper measures should be taken to receive information correctly for the specific node. Many future applications required very high end security measures for protecting information inside automobile. This generates need for cryptographic algorithms to play an important role in security in automotive domain. Encryption like symmetric, asymmetric, encryption using digital signatures, authenticate controllers [1] these techniques will be useful to provide security from misusing or manipulating a information. In this paper above mentioned software approach is designed in Embedded C and implemented on ARM7 LPC2129 board. Similarly a software algorithm lacks rich encryption standards because of flexibility and issues like predictability. In this paper we had presented a hardware approach which is previously implemented for audio application and now can be implemented for automotive application. In this approach, a discrete structure is made by using multiplexers to do swapping with the help of control words as input to multiplexers. This control words are generated by using GRP algorithm [2] which is best suited for performing permutation and combinations. A structure is formed by using sets of multiplexers which consumes less power and can be implemented in IC form. Separate structures are created for transmitter as well as receiver. This structure provides rich encryption standards as compared to other structures [3] like EMSN, MEMS. Moreover other hardware approaches like deigning a Hardware Security Models (HSM'S) [4] is very expensive for manufacture because of inclusion of many structures like counters, algorithms though it provides top encryption standards. In this paper we are proposing a hardware model consisting of sets of 2x1 multiplexers performing permutations on GRP algorithm implemented in FPGA.

2. EVITA Model

For implementing a security application in automobiles, EVITA has proposed a hardware security model which is implemented inside automobiles. Most advanced research algorithms like AES, HASH and others are implemented to secure information. These all schemes provide rich encryption standards and it's very difficult to hack the original information. Intruder sources like an owner, service mechanic or any other person who can able to see the information and tries to corrupt

Wiki platform - An implementation for Open University

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Abstract: This paper presents an ongoing implementation of a portal for students at academic specialization Automation and Applied Informatics. Through a wiki type environment - namely Doku Wiki, we implemented a collaborative site through which encourage, on the one hand, the active participation of students in solving practical laboratory activities, and on the other hand, to increase students' curiosity read educational materials before their presentation and laboratory course. In future implementations we will try to include a compiler for developing applications in C / C + +, PHP and Java. A wiki is also a natural medium for a repository for essential programming language concepts and material for teaching concepts.

Key-Words: wiki, educational site, teaching strategies

1 Introduction

What is a wiki?

A wiki is a collaborative tool that allows many people to collaborate to create and edit online documents or web pages without specialized programming skills. Many types of media formats can be incorporated in a wiki such as streams of text, images, video and RSS. The person who establishes a wiki can give other users access password protected, limiting the number of people who can edit or create content. As each edit is documented, it is possible to see a chronological list of changes made to the content, and even return back to previous versions. Many wikis also contain a number of other collaboration tools such as message boards to facilitate the process of collaboration.

Benefits of using wiki in the educational process:
- Students should not lose much time to learn how to use this technology because many features are familiar from word processors. Actually required only basic knowledge to use the wiki.
- Students can work asynchronously, i.e. not all students must be present at the same time or in the same place to provide support for team work
- Teachers can easily see that students bring their contribution in team work because each addition or modification of information is documented, making it easier for teachers evaluation.
- Similarly, the quality of student contributions can be easily monitored
- Students develop critical analysis skills and ability to constructively critique the work of their
- Many students reported that the results of group activities beyond what could be achieved individually

- The students reacted positively to the levels of support and fellowship that we have received from others Integrate students as part of the collaborative process. They also submitted that they began to know colleagues better in most cases.
- At first, many students expressed doubt about their ability to work collaboratively online and yet, at the end of activities, many were surprised and impressed by what they have achieved collectively.
Issues to be highlighted:
- Students may not know how to work effectively in groups. It is therefore necessary support and guidance from teachers
- Technical assistance should be provided to enable students to obtain skills in the effective use of wikis
- The first iteration of the class consumes significant time to develop structure, evaluating and creating technical resources support to students, but this meant that subsequent iterations spent minimal time for the introduction of information.

1.1 Types of wiki-based interaction

The term "wiki" is an acronym for "What I Know Is" [15]. In technology terms, a wiki is an editable website whereusers are able to create hyperlinks, insert images, and modify text [15] [8] [16]. The integration of wikis into lessonsand assessments is grounded in the theory of social constructivism [8]. Wikis can be an effective instructionalstrategy because they promote learning by enhancing interaction and empowering students in the educationalprocess. Three types of interaction are supported by wiki-based instruction: learner-content, learner-instructor,and learner-learner [11]. Wikis also provide additional opportunities outside the classroom setting for students tointeract with the course content, each other, and the instructor. When

Design of A Low Cost Extendable Embedded Smart Car Security System

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Abstract - The main aim of this proposed embedded car security system is, If the car is stolen, this system is designed to retrieve the position of the car and the car thief, and make an alarm loudly or soundlessly. The other modules transmit necessary information to users and help to keep eyes on cars all the time, even when the car is lost. Which consists of a face detection subsystem, a GPS module, a GSM module and a control platform? It captures the image using a camera which will be hidden in the dash board. Face Detection Algorithm is used to detect the face., In today's world, many new techniques such as biometric recognition technique, image processing technique, communication technique and so on, have been integrated into car security systems. At the same time, the amount of car lost is also increasing. The system is mainly used to identify the car and the thief who theft the car. This system prototype is built on the base of one embedded platform ARM7 which controls all the processes. Experimental results illuminate the validity of this car security system.

Keywords– *Vehicle Security Camera; GPS; GPRS; embedded system, ARM7.*

I.   INTRODUCTION

This proposed embedded car security system, FDS (Face Detection System) is used to detect the face of the driver and compare it with the predefined faces. For example, in the night when the car's owner is sleeping and someone theft the car then FDS obtains images by one tiny web camera which can be hidden in the car. FDS compares the obtained image with the predefined images if the image doesn't match, then the information is sent to the owner through MMS.So now owner can obtain the image of the thief in his mobile as well as he can trace the

Location-Aware and Safer Cards

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Abstract— **In this paper, we report on a new approach for improving security and privacy in certain RFID applications whereby location or location-related information (such as speed) can serve as a legitimate access context. Examples of these applications include access cards, toll cards, credit cards, and other payment tokens. We show that location awareness can be used by both tags and back-end servers for defending against unauthorized reading and relay attacks on RFID systems. On the tag side, we design a location-aware selective unlocking mechanism using which tags can selectively respond to reader interrogations rather than doing so promiscuously. On the server side, we design a location-aware secure transaction verification scheme that allows a bank server to decide whether to approve or deny a payment transaction and detect a specific type of relay attack involving malicious readers.**

The premise of our work is a current technological advancement that can enable RFID tags with low-cost location (GPS) sensing capabilities. Unlike prior research on this subject, our defenses do not rely on auxiliary devices or require any explicit user involvement.

Keywords- Context Recognition,RFID, Mobile Payment System, Relay Attacks, Location Sensing.

I. INTRODUCTION

Low cost, small size and the ability of allowing computerized identification of objects make Radio Frequency Identification (RFID) systems increasingly ubiquitous in both public and private domains. Prominent RFID applications supply chain management (inventory control), e-passports, credit cards, driver's licenses, vehicle systems (toll collection or car key), access cards (building, parking or public transport), and medical implants. NFC, or Near Field Communication, is yet another upcoming RFID technology that allows devices, such as smart phones, to have both RFID tag and reader functionality. In particular, the use of NFC-equipped mobile devices as payment tokens (such as Google Wallet) is considered to be the next generation payment system and the latest buzz in the financial industry.

A typical RFID system consists of tags, readers, and/or back-end servers. Tags are miniaturized wireless radio devices that store information about their corresponding subject. Such information is usually sensitive and personally identifiable. For example, a US e-passport stores the name, nationality, date of birth, digital photograph, and (optionally) fingerprint of its owner. Readers broadcast queries to tags in their radio transmission ranges for information contained in tags and tags

reply with such information. The queried information is then sent to the server (which may coexist with the reader) for further processing and the processing result is used to perform proper actions (such as updating inventory, opening gate, charging toll or approving payment).

Due to the inherent weaknesses of underlying wireless radio communication, RFID systems are plagued with a wide variety of security and privacy threats. A large number of these threats are due to the tag's promiscuous response to any reader requests. This renders sensitive tag information easily subject to unauthorized reading. Information (might simply be a plain identifier) gleaned from a RFID tag can be used to track the owner of the tag, or be utilized to clone the tag so that an adversary can impersonate the tag's owner.

Promiscuous responses also incite different types of relay attacks. One class of these attacks is referred to as "ghostand-leech". In this attack, an adversary, called a "leech," relays the information surreptitiously read from a legitimate RFID tag to a colluding entity known as a "ghost." The ghost can then relay the received information to a corresponding legitimate reader and vice versa in the other direction. This way a ghost and leech pair can succeed in impersonating a legitimate RFID tag without actually possessing the device.

A more severe form of relay attacks, usually against payment cards, is called "reader-and-ghost"; it involves a malicious reader and an unsuspecting owner intending to make a transaction in this attack, the malicious reader, serving the role of a leech and colluding with the ghost, can fool the owner of the card into approving a transaction which she did not intend to make (e.g., paying for a diamond purchase made by the adversary while the owner only intending to pay for food). We note that addressing this problem requires secure transaction verification, i.e., validation that the tag is indeed authorizing the intended payment amount.

The feasibility of executing relay attacks has been demonstrated on many RFID (or related) deployments, including the Chip-and-PIN credit card system, RFID assisted voting system, and keyless entry and start car key system. With the increasingly ubiquitous deployment of RFID applications, there is a pressing need for the development of security primitives and protocols to defeat unauthorized reading and relay attacks. However, providing security and privacy services for RFID systems presents a unique and formidable set of challenges. The inherent difficulty stems

Error Correction in Extended Orthogonal Latin Square Codes using Syndrome Fault Detection and Majority Logic Decoding

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Abstract—**Error correction codes (ECCs) are commonly used to Protect memories from errors. As multi-bit errors become more frequent, single error correction codes are not enough and more advanced ECCs are needed. The use of advanced ECCs in memories is, however, limited by their decoding complexity. In this context, one-step majority logic decodable (OS-MLD) codes are an interesting option as the decoding is simple and can be implemented with low delay. Orthogonal Latin squares (OLS) codes are OS-MLD and have been recently considered to protect caches and memories. The main advantage of OLS codes is that they provide a wide range of choices for the block size and the error correction capabilities. We can also extend these codes to accommodate more number of data bits thus reducing the overhead. But most of the time all the words in the memory are not error prone, but still we try to decode them and waste clock cycles on it. In this brief, a method is presented to detect whether an error is present in the code word and if present then only the correction is done using majority logic decoding.**

Keywords—*Error correction codes (ECCs), Extended Orthogonal Latin squares, Syndrome fault detection (SFD), majority logic decoding, and memory*.

I. INTRODUCTION

To mitigate errors, error correction codes (ECCs) are commonly used in memories [1]. Because of their simplicity, single error correction codes that can correct one bit per word are traditionally used [2]. Other codes that can also correct double adjacent errors [3] or double errors in general have also been studied [4]. Codes that can correct more errors have a larger impact on delay and power that can limit their applicability to memory designs [5]. One alternative to minimize those impacts is to use codes that are one-step majority logic decodable (OS-MLD). OS-MLD codes can be decoded with low latency and are, therefore, attractive to protect memories [6]. Several types of OS-MLD codes have been proposed for memory protection. One example is a type of Euclidean geometry (EG) codes studied in [7] and [8].

EG codes provide a limited number of block sizes and error correction capabilities. For example, for double error correction (DEC), only very small data block sizes (smaller than 16 bits) can be implemented. In addition, the error correction capability for a block size is fixed and cannot be adapted to the error rate. Another type of code that is OSMLD is orthogonal Latin squares (OLS) code [11]. OLS codes can be implemented for a wide range of block sizes and error correction capabilities. This flexibility and the simple and fast decoding are the main advantages of OLS codes. However, OLS codes typically require more parity bits than other codes to correct the same number of errors. In some applications, this disadvantage is offset by their modularity and the simple and low delay decoding implementation (as OLS codes are OS-MLD). For example, OLS codes have been recently considered to protect memories [12], caches [13], and interconnections [14].

The rest of this brief is organized as follows. Section II provides an overview of OLS and Extended OLS codes summarizing some of their properties that are used in the rest of this paper. Then, the proposed method for error detection and correction is presented in Section III. Section IV speaks of the results. Finally, the conclusions are presented in Section V.

II. OLS and Extended OLS Codes

A Latin square of size m is an $m \times m$ matrix that has permutations of the digits 0, 1, …, and $m-1$ in both its rows and columns [15]. Two Latin squares are said to be orthogonal if when they are superimposed every ordered pair of elements appears only once. OLS codes are derived from OLS [11]. The block sizes for OLS codes are $k = m2$ data bits and $2tm$ parity bits, where t is the number of errors that the code can correct and m is an integer. For a given pair of values of t and m, the corresponding OLS code exists only if there are at least $2t$ OLS of size m.

The extended codes have the same number of parity bits as the original OLS codes but a larger number of data bits. Therefore, the relative overhead is smaller. The derived codes can be decoded using OS-MLD as the original OLS codes. The decoding area and delay are also similar. Therefore, the

PERSONAL HEALTH MONITORING WITH ANDROID BASED MOBILE DEVICES

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ABSTRACT: Patient monitoring systems are gaining their importance as the fast-growing global elderly population increases demands for caretaking. These systems use wireless technologies to transmit vital signs for medical evaluation. The aim of the project is to provide a better health care to people from house in more economic and pertinent friendly manner. The need of home based health monitoring system is increased now days because health care cost is increasing exponentially in last few decades. In the proposed home based health monitoring system using android smart phone includes the aspects of acquisition of medical parameters like Body temperature, Pulse rate and ECG. Processing of a collected data using ARM7 (LPC2148) processer and processed data is then displayed on doctors or relatives android mobile phones. Also the data can be displayed on personal computer. The system is utilizing a low cost component to transmit data like ECG to physician for monitoring; diagnosis and patients care at significantly low cost, regardless of patient's location.

KEY WORDS- **medical evaluation, android smart phone, aspects of acquisition, ECG, ARM7 (LPC2148), Diagnosis**

INTRODUCTION:

In intensive care units, there are provisions for continuously monitoring patients. Their heart rates, temperatures, ECG etc. are continuously monitored. But in many cases, patients get well and come back to home from hospital. But the disease may return, he may get infected with a new Disease, there may be a sudden attack that may cause his death. So in many cases, patients are released from hospital but still they are strongly advised to be under rest and observation for some period of time (from several days to several months). In these cases, our system can be quite handy. Patient's data (temperature, heart rate, ECG etc.) will be frequently measured and sent to server. Period of sending (say every 3 min) can be set. Heart rates can be sent every minute and temperatures can be sent after half an hour etc. But these can be parameterized to ensure that when a patient is normal, not many readings will be sent so that sensors have a longer life-time. But when the patient is ill, readings will be taken frequently and sent to server.

Monitoring person learns patient specific threshold. Say the regular body temperature of a patient is 37 c whereas one person feels feverish if his body temperature is 37.0 c. By employing an averaging technique over a relatively long time, Observer can learn these thresholds for patients. Using android application, one can view his medical history date wise, event wise etc. android application can perform data mining on a particular patient data to discover important facts. Suppose a person has medium high temperature that starts at evening and lasts till midnight. If this phenomenon continues for several days, observer can detect this fact and inform to doctors saying "You frequently have short-period fever that may be a symptom of a bad disease. Consult patient immediately". This system can transmit continuously data. Suppose a patient has come back home after cardiac surgery. If the patient has cardiac problems like arrhythmia, then there will be irregular variation of heart signal. This may occur only once or twice a day. But if system transmits continuous data, such variations will be immediately detected and alerts will be issued.

I. HARDWARE SYSTEM:

Micro controller: This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

ARM7TDMI: ARM is the abbreviation of Advanced RISC Machines, it is the name of a class of processors, and is the name of a kind technology too. The RISC instruction set, and related decode mechanism are much simpler than those of Complex Instruction Set Computer (CISC) designs.

DESIGN AND IMPLEMENTATION OF BCH CODE FOR ERROR DETECTION AND CORRECTION OF DIGITAL SYSYEMS

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Abstract— **In general Error correction codes (ECCs) are commonly used to protect memories against errors. Among ECCs, OLS codes have gained renewed interest for memory protection due to their modularity and simplicity of the decoding algorithm that enable slow delay implementations. An important issue is that when ECCs is used, the encoder and decoder circuits can also suffer errors**. **The proposed method uses a concurrent error detection technique for the properties of BCH codes to efficiently implement a parity prediction scheme that detects all errors that affect a single circuit node, which reduces the parity bits, area, error detection and correction delay and its performance is simulated by using Xilinx**

Key words- **Error correction codes, OLS codes, BCH codes, correction delay**

I. INTRODUCTION

Error correction codes (ECCs) have been utilized to secure memories for a long time. There will be a wide range of codes that will be utilized or have been proposed for memory applications. Single Error Correction(SEC) codes that can amend one bit for every statement are normally utilized. More exceptional codes that can additionally right twofold contiguous lapses or twofold slips by and large have likewise been mulled over. The utilization of more mind boggling codes that can revise more mistakes will be restricted by their effect on delay and power, which can limit their materialness to memory outlines.

To defeat those issues, the utilization of codes that are one step majority logic decodable (OS-MLD) has as of late been proposed. OS-MLD codes might be decoded with low idleness and are, accordingly, used to ensure memories. Among the codes that are OS- MLD, a sort of Euclidean geometry (EG) code has been proposed to secure memories. The utilization of distinction set code has additionally been as of late dissected in. An alternate kind of code that is OS-MLD is BCH code .The utilization of BCH codes has picked up reestablished enthusiasm for interconnections, memories, and stores. This is because of their seclusion such that the lapse revision abilities might be effortlessly adjusted to the blunder rate or to the mode of operation. RS codes regularly require more equality bits than different codes to revise the same number of lapses. The rest of this brief is organized as follows. Section II provides an overview of OLS and Extended OLS codes summarizing some of their properties that are used in the rest of this paper. Then, the proposed method for error detection and correction is presented in Section III. Section IV speaks of the results. Finally, the conclusions are presented in Section V.

Notwithstanding, their measured quality and the straightforward and low defer disentangling usage (as BCH codes are OS-MLD), counterbalance this inconvenience in numerous applications. A vital issue is that the encoder and decoder circuits required to utilize (Eccs) can likewise endure lapses. At the point when a slip influences the encoder, an inaccurate word may be built into the memory.

II VARIOUS CODE TECHNIQUES:

1. DUPLEX SYSTEM:

A duplex framework is an illustration of a traditional excess plan that might be utilized for simultaneous lapse location demonstrates the fundamental structure of a duplex framework. Duplication has been utilized for simultaneous mistake location as a part of various frameworks including the Bell Switching System, from organizations like Stratus and Sequoia. In any duplex framework there are two modules (indicated in Fig. 2.1 as Module 1 and Module 2) that actualize the same rationale capacity. The two executions are not so much the same. A comparator is utilized to check whether the yields from the two modules concur. On the off chance that the yields deviate, the framework demonstrates a lapse. For a duplex framework,

Performance Analysis of Linear and Nonlinear Resource Allocation Techniques in OFDM System

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Abstract— **Multiuser orthogonal frequency division multiplexing(MU-OFDM) is promising technique for achieving high downlink capacities in future cellular and wireless LAN systems OFDM base stations allows multiple users transmitter simultaneously on different sub carrier during the same symbol period. The sum capacity of MU-OFDM is maximized when each sub channel is assigned to the user with best channel to noise ratio for that sub channel in this paper we focus the base station resource allocation in terms of sub carrier and power to each user to maximize the sum of user data rates subject to constraints on total power bit error rate and proportionality among user data rate there are number of methods proposed in the literature which are being iterative non linear methods which has suitable for offline optimization in the special I sub-channel SNR case and iterative route finding method has linear time complex city in the number of users and NlogN complexity in the number of sub-channels the proposed method is low complex method which works under waving the restriction of high sub channel SNR and yields higher user data rates it is also shown that with the proposed resource allocation algorithm sum capacity is distributed more fairly and flexibility among users then the sum capacity maximization method.**

Keywords- MU-OFDMA, SNR, Resource Allocation

I. INTRODUCTION

OFDMA, also referred to as Multiuser-OFDM is being considered as a modulation and multiple access method for 4th generation wireless networks OFDMA is an extension of Orthogonal Frequency Division Multiplexing (OFDM), which is currently the modulation of choice for high speed data access systems such as IEEE 802.11a/g wireless LAN and IEEE 802.16a fixed wireless broadband access systems.

Orthogonal frequency division multiplexing (OFDM) is a promising technique for the next generation of wireless communication systems.

OFDM divides the available bandwidth into *N* orthogonal sub-channels. By adding a cyclic prefix (CP) to each OFDM symbol, the channel appears to be circular if the CP length is longer than the channel length. Each sub channel thus can be modeled as a time-varying gain plus additive white Gaussian noise (AWGN). Besides the improved immunity to fast fading brought by the multicarrier property of OFDM systems, multiple access is also possible because the sub channels are orthogonal to each other.

OFDM adds multiple access to OFDM by allowing a number of users to share an OFDM symbol. Two classes of resource allocation schemes exist: fixed resource allocation and dynamic resource allocation [. Fixed resource allocation

schemes, such as Time Division Multiple Access (TDMA) and Frequency Division Multiple Access (FDMA), assign an independent dimension, e.g. time slot or sub-channel to each user. A fixed resource allocation scheme is not optimal since the scheme is fixed regardless of the current channel condition. On the other hand, dynamic resource allocation allocates a dimension adaptively to the users based on their channel gains. Due to the time-varying nature of the wireless channel, dynamic resource allocation makes full use of multiuser diversity to achieve higher performance.

The problem of assigning subcarriers and power to the different users in an OFDMA system has recently been an area of active research. In the margin-adaptive resource allocation problem was tackled, wherein an iterative subcarrier and power allocation algorithm was proposed to minimize the total transmit power given a set of fixed user data rates and bit error rate (BER) requirements. In the rate-adaptive problem was investigated, wherein the objective was to maximize the total data rate over all users subject to power and BER constraints. It was shown in that in order to maximize the total capacity, each subcarrier should be allocated to the user with the best gain on it, and the power should be allocated using the water-lling algorithm across the subcarriers. However, no fairness among the users was considered in this problem was partially addressed by ensuring that each user would be able to transmit at a minimum rate, and also in by incorporating a notion of fairness in the resource allocation through maximizing the minimum user's data rate. In the fairness was extended to incorporate varying priorities. Instead of maximizing the minimum user's capacity, the total capacity was maximized subject to user rate proportionality constraints. This is very useful for service level differentiation, which allows for flexible billing mechanisms for different classes of users. However, the algorithm proposed in involves solving non-linear equations, which requires computationally expensive iterative operations and is thus not suitable for a cost-effective real-time implementation.

This paper extends the work in by developing a sub-carrier allocation scheme that linearizes the power allocation problem while achieving approximate rate proportionality. The resulting power allocation problem is thus reduced to a solution to simultaneous linear equations. In simulation, the proposed algorithm achieves a total capacity that is consistently higher than the previous work, requires significantly less computation, while achieving acceptable rate proportionality.

II. SYSTEM MODEL

1
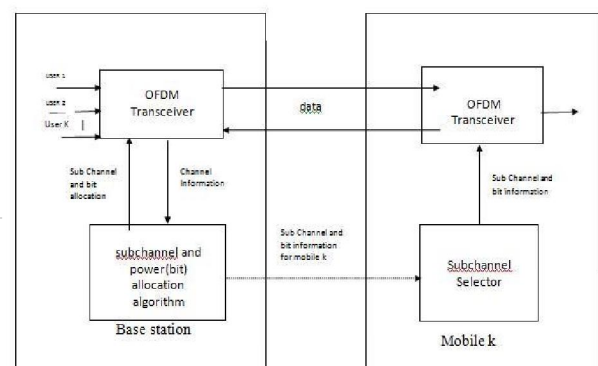
Hybrid High Noise resiliency Pitch Detection Algorithm

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Abstract— **Pitch is one of the essential features in many speech related applications. A pitch detection algorithm (PDA) is an algorithm designed to estimate the pitch or fundamental frequency of a quasiperiodic or virtually periodic signal, usually a digital recording of speech or a musical note or tone. This can be done in the time domain or the frequency domain or both the two domains. Although numerous pitch detection algorithms have been developed, as shown in this paper, the detection ratio in noisy environments still needs improvement. In this paper, we present a hybrid noise resilient pitch detection algorithm named BaNa that combines the approaches of harmonic ratios and Cepstrum analysis. A Viterbi algorithm with a cost function is used to identify the pitch value among several pitch candidates. We use an online speech database along with a noise database to evaluate the accuracy of the BaNa algorithm and several state-of-the-art pitch detection algorithms. Results show that for all types of noises and SNR values investigated, BaNa achieves the best pitch detection accuracy. Moreover, the BaNa algorithm is shown to achieve around 80% pitch detection ratio at 0dB signal-to-noise ratio (SNR).**

Keywords- Pitch detection, noise resilience, harmonics, Viterbi algorithm

I. INTRODUCTION

A pitch detection algorithm (PDA) is an algorithm designed to estimate the pitch or fundamental frequency of a quasiperiodic or virtually periodic signal, usually a digital recording of speech or a musical note or tone. This can be done in the time domain or the frequency domain or both the two domains.

PDAs are used in various contexts (e.g. phonetics, music information retrieval, speech coding, musical performance systems) and so there may be different demands placed upon the algorithm. There is as yet no single ideal PDA, so a variety of algorithms exist, most falling broadly into the classes given below.[1]

In the time domain, a PDA typically estimates the period of a quasiperiodic signal, then inverts that value to give the frequency.

One simple approach would be to measure the distance between zero crossing points of the signal (i.e. the Zero-crossing rate). However, this does not work well with complex

waveforms which are composed of multiple sine waves with differing periods. Nevertheless, there are cases in which zero-crossing can be a useful measure, e.g. in some speech applications where a single source is assumed. The algorithm's simplicity makes it "cheap" to implement.

More sophisticated approaches compare segments of the signal with other segments offset by a trial period to find a match. AMDF (average magnitude difference function), ASMDF (Average Squared Mean Difference Function), and other similar autocorrelation algorithms work this way. These algorithms can give quite accurate results for highly periodic signals. However, they have false detection problems (often "*octave errors*"), can sometimes cope badly with noisy signals (depending on the implementation), and - in their basic implementations - do not deal well with polyphonic sounds (which involve multiple musical notes of different pitches).

Current time-domain pitch detector algorithms tend to build upon the basic methods mentioned above, with additional refinements to bring the performance more in line with a human assessment of pitch. For example, the YIN algorithm and the MPM algorithm are both based upon autocorrelation.

In the frequency domain, polyphonic detection is possible, usually utilizing the periodogram to convert the signal to an estimate of the frequency spectrum. This requires more processing power as the desired accuracy increases, although the well-known efficiency of the FFT, a key part of the periodogram algorithm, makes it suitably efficient for many purposes.

Popular frequency domain algorithms include: the harmonic product spectrum cepstral analysis and maximum likelihood which attempts to match the frequency domain characteristics to pre-defined frequency maps (useful for detecting pitch of fixed tuning instruments); and the detection of peaks due to harmonic series.

To improve on the pitch estimate derived from the discrete Fourier spectrum, techniques such as spectral reassignment (phase based) or Grandke interpolation (magnitude based) can be used to go beyond the precision provided by the FFT analysis. Another phase-based approach is offered by Brown and Puckette.

Network Traffic Monitoring Using Intrusion Detection System

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Abstract— **Security is a big issue for all networks in today's enterprise environment. Many methods have been developed to secure the network infrastructure and communication over the Internet, among them the use of firewalls, encryption, and virtual private networks. Intrusion detection is a relatively new addition to such techniques. IDS protect a system from attack, misuse, and compromise. It can also monitor network activity. Network traffic monitoring and measurement is increasingly regarded as an essential function for understanding and improving the performance and security of our cyber infrastructure.**

Keywords- IDS, NTM, Pattern Matching, IMAP

I. INTRODUCTION

A. Statement Of Problem

Security is a big issue for all networks in today's enterprise environment. Intruder infect the file by adding some signatures and by applying IDS that file is detected.With networking technologies and services evolving rapidly, as witnessed by the explosive growth of the World-Wide Web, peer-to-peer networks, and the GRID, accurate network traffic monitoring is required to ensure the security and optimize the efficiency of our cyberspace.

B. Intrusion Detection System:

The purpose of the IDS is to detect certain well-known intrusion attacks on the host system and display warnings to the user and also store information regarding the IP addresses and allow the traffic based on that information.

C. Network Traffic Monitoring:

Network traffic monitoring and measurement is increasingly regarded as an *essential function* for understanding and improving the performance and security of our cyber infrastructure. Network Traffic Monitor is a network analytic tool that examines local area network usage and provides a display of upload and download statistics. The main purpose of the application is monitoring the IP traffic between your local area network and Internet.

II. LITERATURE SURVEY

A. Basic Terminology

1) *Intrusion:*

An unauthorized entry into a network or system. Frequently synonymous with an information technology security incident.

2) *Signatures:*

Signature is the pattern that you look for inside a data packet. A signature is used to detect one or multiple types of attacks Signatures may be present in different parts of a data packet depending upon the nature of the attack. Usually IDS depends upon signatures to find out about intruder activity. Some vendor-specific IDS need updates from the vendor to add new signatures when a new type of attack is discovered.

3) *Network Traffic*:

Incoming and outgoing packets generating traffic.

B. Need

A virus, worm program that is either downloaded from some site on the Internet, that you receive in the form of an attachment to an email message that you open, or that is delivered via an embedded Active X control or JavaScript program in a Web page. To detect these viruses and worms we need a powerful system IDS. Traffic consist of packets which are coming from various ports like HTTP,FTP,SMTP, etc; these packets may be malicious or non-malicious. To view the integrity of packets we need network traffic monitoring tool. By using network traffic monitoring tool incoming and outgoing packets are captured and then analyze by using pattern matching IDS system.

C. Types Of Ids

1) *Host based Intrusion Detection System:*

HIDS involves not only looking at the network traffic in and out of a single computer, but also checking

A New Approach to Intrusion Detection System

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Abstract: The design and implementation of intrusion detection systems (IDS) remain an important area of research in the field of security of information systems. Despite the undeniable progress, much remains to be done to improve the security of computer networks today. For this, many mechanisms have been developed {[1], [2]}. In general, these systems are vulnerable to attack from unauthorized users (external attacks) as well as attacks by authorized users (internal attacks) who abuse the privileges granted to them. In this paper, our contribution consists of the design of an intrusion detection system based on security policy at three levels. This approach, very interesting even for complex information systems, allows administrators of information systems and responsibles of network security, the protection from external attacks and internal attacks.

Keywords: *Security Policy (SP), Intrusion Detection System (IDS), Alerts Correlation (AC), Data Fusion (DF), Network Security (NS)*

1. INTRODUCTION

In recent years, significant progress has been made towards improving the security of computer systems. Unfortunately, the undeniable reality remains that all computer systems are still vulnerable. These systems are vulnerable to attack from both unauthorized users and attacks by authorized users who abuse their privileges.

In this paper, we propose an approach based on security policy at three levels for complex computer systems. These three levels working together to protect the computer system from inside and outside attacks. This global security policy will allow the administrator security systems not only to detect attacks but also to warn about this intrusion and deny access to all networks.

2. INTRUSION DETECTION SYSTEMS

2.1 DEFINITION

An intrusion detection system (IDS) is a mechanism to detect abnormal or suspicious activity on a given target to address the problems as quickly as possible. Given their practical value, the IDS have been studied heavily over the past 20 years in order to improve their effectiveness. The fruits of these studies are of different classes of IDSs that rely on different detection techniques,

each of which is more appropriate for a particular context. Among others, we find the intrusion detection systems that base their decisions on information found in machines called HIDS and intrusion detection systems that base their decisions solely on information flowing in a network called NIDS. More details on the various classes of IDS and their evolution can be found in [3].

2.2 VULNERABILITY OF SYSTEMS

An attack is an exploitation of vulnerability in a system. Thus, reducing attacks can only be done with a good understanding of the system and possible sources of vulnerability in order to find suitable remedies. The word vulnerability expresses all the weaknesses of computer resources that can be exploited by malicious people. In [4], D. Denning explains the presence of vulnerabilities in information systems by, among others, the following reasons:

- ✓ Good security costs usually very expensive and most organizations do not have sufficient budget to afford this need.

- ✓ Security tools used cannot be 100% sure, see that they are often ineffective.

- ✓ Security policies are commonly complex, incomplete and sometimes inconsistent.

- ✓ The bugs in programs that are common and are still exploited by attackers.

ENHANCED PID CONTROLLER USING NEURAL NETWORKS IN MATLAB SIMULATION

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ABSTRACT:"ENHANCED PID CONTROLLER BASED ON BACK PROPAGATION NEURAL NETWORK" is used to tune the PID controller to update its gain automatically to its desired value. The conventional PID controller has a constant gain value where it is difficult to choose its gain if the system is a non linear system. In order to overcome this problem we are going for Adaptive PID controller based on back propagation neural network. According to the requirements of system output performance, the BP neural network can automatically adjust its weights to vary kp, ki and kd, in order to match the system. Here the system we are using is the position control system where the servo valve is used to control the position of the piston. It is called the "Electro Hydraulic Servo Valve position control system." The simulation results of an electro-hydraulic servo valve position control system using adaptive PID controller based on BP neural network shows that it can get better control characteristics adaptability and strong robustness in the nonlinear time varying system compared to correctional   PID controller. At the same time, simulate results provides a theoretical basis for the design and application of electro-hydraulic position servo control system. The system here we are using is a SISO.

Keywords: Adaptive, Electro hydraulic system, SISO-Single input and single output system, BP-back propagation.

1.INTRODUCTION

The proportional-integral-derivative (PID) controller is one of the most commonly used controllers in the industrial closed loop control system for its simple algorithm, good robustness and stability(fig 1). But PID controller has its disadvantage that it is not suitable for the control of long time-delay and nonlinear system, in which the P, I and D parameters are difficult to choose and can hardly adapt to time varying of characteristics in wide range. With the development of modern computer technology and control theories such as fuzzy, neural networks and gray theory these difficulties can be overcome. Back propagation (BP) is one of the neural network algorithm and is a powerful computational tool that have been used extensively in the areas of pattern recognition, systems and identification. The adaptive PID controller based on back propagation neural network which is designed combining traditional PID strategy with neural network has created a new concept and a new tool for control. The self-learning ability of BP neural network can tune automatically and modify the robust PID parameters online. Below fig shows
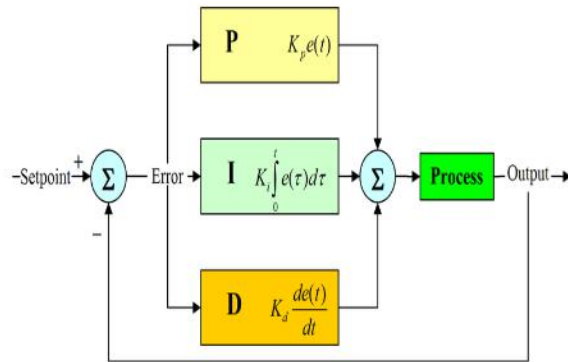
FIGURE 1: PID Controller

Where as in the case of BP neural network based PID controller. The BP identifies **kp, ki and kd** value for each instances. According to the magnitude of the error signal. Here **kp, ki and kd** values keeps on changing to improve the system performance.

Figure 2 shows the complete block diagram of the enhanced PID controller based on BP neural network. The block shows that there is an input to the system which is r.
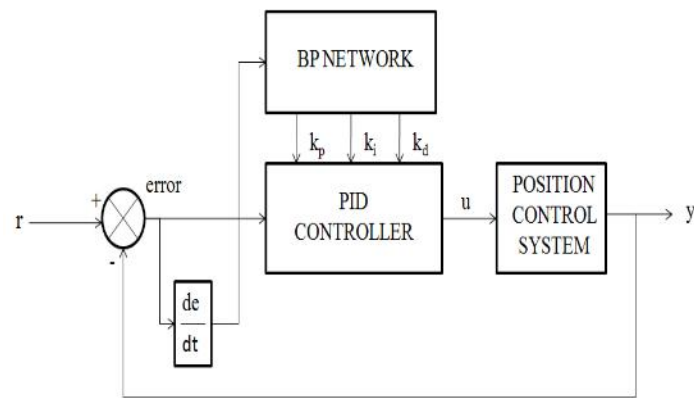
FIGURE 2: Structure of enhanced PID controller based on BP neural network.

IMPLEMENTATION OF SENSOR FUSION-BASED VACANT PARKING SLOT DETECTION AND TRACKING USING ARM-7

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Abstract- *This paper introduces an intelligent parking slot detection and tracking with ARM7-LPC2148 microcontroller. The parking problem in big cities, especially the mega-cities, has become one of the key causes of the city traffic congestion. The Vacant Parking slot detection and tracking is considered to be an effective way to improve parking situation. The parking slot occupancy classification stage identifies vacancies of detected parking slots using ultrasonic sensor data. Parking slot occupancy is probabilistically calculated by treating each parking slot region as a single cell of the occupancy grid. The parking slot marking tracking stage continuously estimates the position of the selected parking slot while the ego-vehicle is moving into it. In the experiments, it is shown that the proposed method can recognize the positions and occupancies of various types of parking slot markings and stably track them under practical situations in a real-time manner. The proposed system is expected to help drivers conveniently select one of the available parking slots and support the parking control system by continuously updating the designated target positions.*

***Keywords** LPC2148, ZIGBEE, RFID READER, REFLECTION SENSORS, WIFI.*

I. Introduction

Due to the rapidly growing interest in parking aid products, automatic parking systems have been extensively researched. Target position designation is one of the primary components of automatic parking systems. This has been explored in a variety of ways that can be categorized into four types: user interface-Based, free space-based, parking slot marking based, and infrastructure-based approaches. Most of the (semi-) automatic parking system products on the market designate target positions by utilizing a user interface-based approach via a touch screen or a free space-based approach via ultrasonic sensors (usually mounted on both sides of the front bumper). Once the target position is designated, the system generates a path from the initial position to the target position and autonomously controls the steering to follow the path. For this purpose, it continuously estimates the ego-vehicle position using in vehicle motion sensor-based odometry. Meanwhile, an Around View Monitor (AVM) system has become popular as a parking aid product, and most car makers have started to produce vehicles equipped with this system. An AVM system produces a bird's-eye view image for the 360◦ surroundings of the vehicle by stitching together a number of images acquired by three or four cameras. Displaying AVM images helps drivers easily recognize parking slot markings and obstacles around the vehicle during the parking maneuver. This paper proposes a vacant parking slot detection and tracking system that fuses the sensors of an AVM system and an ultrasonic sensor-based automatic parking system. The flowchart of the proposed system is presented in Fig. 1. Once a driver starts parking, the system continuously detects parking slot markings and classifies their occupancies. Simultaneously, it presents the detection and classification results on AVM images to help the driver identify available parking slots. If a driver selects a desirable parking slot using the touch screen interface, this system tracks the position of the selected parking slot while the ego-vehicle is moving

DESIGN AND IMPLEMENTATION OF FRACTIONAL ORDER PID CONTROLLER FOR INTEGER ORDER AND FRACTIONAL ORDER THERMAL PROCESS

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Abstract:- **Recently, The fractional order PID control is the generalization of the PID control, has been focused. For implementation of FOPID, approximation of the fractional integrator and differentiator is required. Short memory principle (SMP) is one of the effective approximation methods. However, there is a disadvantage that the approximated filter by the SMP can't eliminate the steady state error. To overcome this, we introduce the distributed implementation of integrator technique. Using the Temperature control system of heat plate, the proposed method is implemented in MATLAB and compare it with traditional PID control scheme.**

keywords: FOPID, SMP, GL, Z-N method.

I.   INTRODUCITON

The FO-PID control has a fractional integral and a differential elements in which these orders are non-integer. Generally, as the physical plant has a fractional characteristic, it is expected that the fractional controller will be effective for actual plants. There are some advantages of fractional control scheme, it was reported that $PI^{\alpha}D$ control system has a robust characteristics for the input saturation. Implementation of FOPID finite order approximation is required, fractional elements have infinite order. There have been various researches for approximation of fractional elements by the finite order filter. The SMP (short memory principle) method is effective in terms of implementation and approximation accuracy. The SMP method gives the discrete approximation of the fractional element and provides the better approximation accuracy than other digital methods. The binomial coefficients at the beginning were reduced as time advances. The integral and differential are approximated using the data during recent interval. The output error remains in steady state as the FOPID approximated by SMP.

To eliminate the steady state error, divide the fractional integral into traditional integral s^{-1} , it is called distributed implementation. The implementation method of fractional order integration, which has the integration characteristics in low frequency is examined. Approximation accuracy using SMP is evaluated.

II.   PID CONTROLLER

Proportional–Integral–Derivative controller (PID controller) is a generic control loop feedback mechanism (controller) widely used in industrial control systems – a PID is the most commonly used feedback controller. A PID controller calculates an "error" value as the difference between a measured process variable and a desired set point. The controller attempts to minimize the error by adjusting the process control inputs. The PID controller calculation (algorithm) involves three separate constant parameters, and is accordingly sometimes called three-term control: the proportional, the integral and derivative values, denoted P, I, and D. These values can be interpreted in terms of time: P depends on the present error, I on the accumulation of past errors, and D is a prediction of future errors, based on current rate of change. The weighted sum of these three actions is used to adjust the process via a control element. The power supply of a heating element. In the absence of knowledge of the underlying process, a PID controller is the best controller. By tuning the three parameters in the PID controller algorithm, the controller can provide control action designed for specific process requirements. The response of the controller can be described in terms of the responsiveness of the controller to an error, the degree to which the controller the set point and the degree of system oscillation. Note that the use of the PID algorithm for control does not guarantee optimal control of the system or system stability.

Stroh Formalism for Stress Distribution around Holes in Composite Laminates

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Abstract--**The general solution for stresses around holes in laminates using Stroh formalism is presented in this paper. This is a one-stop solution for all cases of in-plane loading on infinite plates. The results of solutions by different formulations in the literature are reproduced exactly by the present solution. This is achieved by using Savin's mapping function in a generalized form and also introducing the arbitrary biaxial loading condition into the basic equations of Stroh formalism. This solution is highly useful for parametric study of the effect of shape of hole, material, fiber orientation, stacking sequence and type of loading on stress distribution around the cutout. Results are presented for new cases such as, cross-ply, angle-ply laminates and different laminas of Graphite/epoxy, Boron/epoxy and glass/epoxy with circular, elliptical, triangular and rectangular holes under uni-axial, biaxial and shear loading. The material identities are handled elegantly by MATLAB.**

Keywords--Stroh formalism; anisotropic plates; cutouts in laminates; in-plane loading.

I. INTRODUCTION

Composite panels are widely used in aircraft wings, transportation equipment and construction applications. Cutouts are made in laminates for practical purposes, such as access to system equipment, maintenance of hydraulic piping, electrical wiring etc. Holes in aircraft wings, ship decks and other transportation equipment result in degradation of the strength of the laminate. In order to predict the structural behavior the laminates with certain degree of accuracy, it is necessary to study the effect of anisotropy, laminate geometry, fiber orientation, shape of hole, type of loading on the stress distribution around the cutouts.

Many analytical solutions are available in the literature with varying degree of complexity. Most of the researchers have considered only specific shapes of holes in the laminate under certain case of in-plane loading. Earliest solution by Lekhnitskii [1] for stresses around holes in anisotropic plates has used an expression for the shape of hole that gives only an approximate polygonal hole as a degeneration of the circular hole. The shapes have curved edges and rounded corners. The stress functions are taken in series requiring lengthy mathematical procedure. The unknown constants are determined by applying the boundary conditions. The first solution on multi-layered plates is given for unidirectional and bidirectional laminates of Graphite/epoxy,

Boron/epoxy and glass/epoxy with circular hole under uni-axial and biaxial loading conditions given Gao[2]. The influence of bluntness curvature and material properties on the state of stress around triangular hole in uni-directional layers of different materials under tensile loading was studied in another solution of Daoust and Hoa [3]. In this solution, the triangular hole is taken based on an expression that gives a degenerated circular hole. Another solution by Hwu [4,5] was given for stresses around holes in anisotropic plates under arbitrary uni-directional loading at infinity. The expression used in this solution could produce several shapes of holes whose shapes were only approximate. To investigate the effect of the shape of cutout on the maximum stress and its location in a flat plate under uni-axial tension was given for triangular, square and hexagonal cutouts in composite plates Rezaeepazhand and Jafari [6,7,8] was given in the similar lines of the earliest solution [8]. The solution given by Ukadgaonker and Rao [9], Nageswara Rao et al.[10] is based on Savin's formulation Savin[11] using the stress functions. The hole shape is given by an expression with number of terms. Results in all the solutions indicated that the maximum stress was dependent on the material as well on the shape of the cutout.

The present general solution is derived by incorporating a generalized form of mapping function and an arbitrary biaxial loading condition into the basic equations of Stroh formalism. The generalized mapping function for polygonal holes is obtained from the Schwarz-Christoffel formula Savin[11]. This solution gives the stresses around holes with given constants of the mapping function, constants for type of loading, type of material, fiber orientation and stacking sequence. The solution by Stroh formalism is very elegant as it converts the complex eigenvalues and eigenvectors into real form in a simple manner making it applicable for both anisotropic and isotropic plates.

I. STROH FORMALISM

The basic equations of two-dimensional anisotropic elasticity are:

$$\varepsilon_{ij} = \frac{1}{2}(u_{i.j} + u_{j,i}) \qquad \qquad …(1)$$

$$\sigma_{ij} = C_{ijkl}\varepsilon_{kl} \qquad \qquad …(2)$$

$$\sigma_{ij,j} = 0 \text{ ,where, } i, j, k, l = 1,2,3 \qquad …(3)$$

Considering the classical laminate theory, the mid-plane displacements of the laminate are represented by $u_i,(i=1,2,3)$ along the three axes. For the assumption of positive energy, the elastic

Design and Analysis of Conveyor Idler Frame

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2 &3:Professor,DepartmentofMechanicalEngineering,MRCE,JNTU Hyderabad

Abstract--
Troughingidlersframesareusedforconveyingbulkmaterials,andaredesignedandmanufacturedwithdifferentTroughingangels.DesignofidlersandidlersframesaredoneasperCEMAstandards.Staticanddynamicanalysesarecarriedoutto evaluatethestructuralstabilityintermsofstrengthandfrequency.Thestressesobtainedfromstaticanalysisarebelowtheallowablelimitandthefundamentalfrequencyobtainedfrom thedynamicanalysisisissafewhencomparedtooperatingfrequencyoftheconveyorbelt.

1.INTRODUCTION

Conveyorsaredurableandreliablecomponentsusedinautomateddistributionandwarehousing.Incombinationwithcomputercontrolledpallethandlingequipmentthisallowsformoreefficientretail,wholesale,andmanufacturingdistribution.Itisconsidereda laborsavingsystemthatallowslargevolumestomoverapidlythroughaprocess,allowingcompaniestoshiporreceivehighervolumeswithsmallerstoragespaceandwithlesslaborexpense.

Beltconveyorsarethemostcommonlyusedpoweredconveyorsbecausetheyarethemostversatileandtheleastexpensive.Producticonveyeddirectlyonthebeltsobothregularandirregularshapedobjects,largeorsmall,lightandheavy,canbetransportedsuccessfully.Theseconveyorsshoulduseonly   the   highestquality premium belting

products,whichreducesbeltstretchandresultsinlessmaintenanceefortensionadjustments.Beltconveyorscanbeusedtotransportproductinastraightlineorthroughchangesinelevationordirection.Incertainapplicationstheycanalsobeused forstaticaccumulationorcartons.

2.CALCULATIONS

SELECTIONANDLOADRATINGOFTHEIDLERSFORBELTCONVEYORS

Selectionofthebulkhandlingidlersisbasedontheidlerload,generallyonthecenteridlerofa3-rollset.

Q=conveyorcapacity(t/h)v= beltspeed(m/s)
G=beltweight(kg/m)
FT=totalloadofoneidlerset(N)FQ= totalloadofcenteridler(N)B=beltw idth(mm)
L=lengthofidlershell(mm)D=idlerdiameter(mm)
d=shaftdiameter(mm)a =idler spacing(m)
a=troughingangle
þ=rollingangleofthe materialinmotion
e=factorwhichtakesintoaccounttheinfluenceofthetroughinangleontheloadofcentreidler(table1)
c=factor whichtakesinto accounttheinfluenceofmaterialparticlesizeontheloadofcentreidler(table2)

Table 1, Table 2, and idler load diagram

Calculationofidlerload(centeridlerof3-rollset)

Q=1300t/hv =2.2m/sG=20kg/m
B=1400mm
a=1.2m

$\phi=45^0$(Coal)
$\beta=30^0$(Coal)
Loadforoneidlerset

$$ = [\frac{ }{ } \times] \times $$

$$ = [\frac{ }{ } \times] $$

Loadofcenteridler

$$ = $$
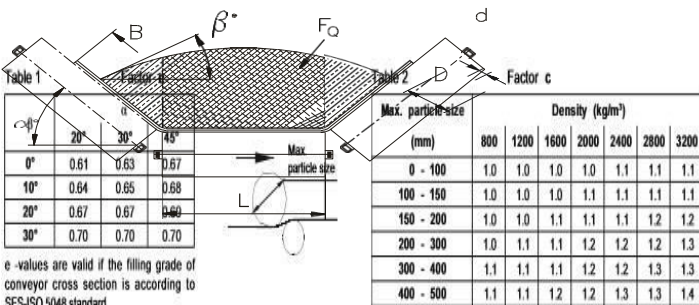
Dynamic Analysis of Spindle in CNC Horizontal Boring Machine

J.Chandrasekhar, B.Rajendra Prasad, B.c.Raghukumar reddy,Dr.D.K.NageswaraRao
DeptofMechanicalEngineeringMallaReddyCollegeofEngg,HYD
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*Abstract--*Thestructureofmachinetoolforms thevitallinkbetweenthecuttingtoolandtheworkpiece.Th emachinetoolaccuracymostlydependsuponthestructura ldesignof the variouscomponentsofthemachinetool. Tomaintainthe accuracyunder theinfluenceofcuttingforcesandthemovingweightofmac hinetoolelements,thestructure,particularlyspindlemust poseshighdynamicstiffness.Thespindleshouldberigiden oughtowithstandthevariousforcesactingonit.Therefore, theextenttowhichthebehaviorofthevariouselementsofa machinetoolcontributedtoitsoverallperformanceisbyno means fullyunderstood.

To sumupmachinetoolmustmeettheeverincreasingdemandofmoderni ndustryforfasterspeeds,greateraccuracy,smootherfinishandhighpro ductionrateatminimumcost.Thevariousinfluencingparametersonth eperformanceofmachinetool spindle(CNC horizontal Boringmachine) are

- Differentspindlespeeds
- Typeofworkpiecematerial
- Variousdepthofcuts
- Typeof cuttingtoolsusedetc.,

Theobjectiveofthepresentprojectworkistodesignthemachineto olspindle(CNCHorizontalBoringmachine)fordynamicstiffnessbyc onsideringtheaboveinfluencingparameters.

Forthis purposeFiniteElementMethodis being implementedtoanalyzethespindlebehaviorinCNCHorizontalBorin gmachine.FEM packagelike ANSYS15isused in thisproject.

1. INTRODUCTION

Thestructureofmachinetoolformsthevitallinkbetweenth ecuttingtoolandtheWorkpiece.Themachinetoolaccuracymostlydep endsuponthestructuraldesignofvariouscomponentsof themachine tool.Tomaintaintheaccuracyundertheinfluenceofcuttingforcesandt hemovingweightofthemachinetoolelements,thestructure,particular lyspindlemustpossesshighstaticanddynamicstiffness.Forthiscondit iontheSpindleshouldberigidenoughtowithstandthevariousforcesac ting onit.Machinetool mustmeettheever increasing demandof modernindustryfor faster Speeds,greater accuracy,smootherfinishandproductionrateatminimumcost.Suchc onsiderationsareinfluencedbymachinetoolsspindleswithitssupport bearings.TheMachinetoolbuilder,spindlemakerandbearingmanufa ctureareallofgreatimportanceinachievingthesegoals.Themachinet oolspindleisexpertlydesignedtomeetaboverequirement.

- Operating speed
- Typeof lubrication
- Estimatingtheworking loads
- Torque
- Spindlematerial.

SPINDLEExperiment models andanalysis:

Generallythescaledownmodelsofthedesiredspindleswe rebeingmadeandtestedtoobtainstaticanddynamiccharacteristics.Th esemodelswerealsosometimesbeingtested under working conditions.Staticloadsareapplied

atdesiredpointsanddirectionsbydeadweightfortests.For dynamicanalysisisexcitationsareappliedby usingexciters,suchaselectrodynamicexciter,electromechanicalexci teretc.thedisplacementpickupandelectronicindicatorswerebeingus edtomeasurethedisplacementsanddeflectionsrespectively.Forthist ypeofanalysisateststructureshouldexist,becauseitisan experimental method.

1.2 SALIENT FEATURESOFCNC HORIZONTALMACHINGCENTRE

TheMachine usedfor analysisof its spindleis showninfig anditsdetailsare givenbelow.

MachineSpecification

X-Axisstroke:

1300mmY-Axisstroke:

1000mmZ-Axisstroke:

1000 mm

Pallettablesurface:760X760 MM

Maximumpermissibleloadon table (fixtureandworkpiece): 1800 kg

Number of tools:

40Selection:

Random

Tool identification: Codedtool pocket

Full diameter cutter with adjacentpocketsempty:

160mmMaximumtool weight: 15 kg

Maximumtool length: 400 mm

Total weightof the machine:17000kg

Overall dimensions(lengthXwidthXheight): 4300 X 5910X 4025mm

Spindle:

Spindlebore:ISO45Int.

taper.FrontBearing:

boredia.85mmDrive:

DCElectricmotor

Model analysis of spindle rod

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ABSTRACT-
Inmachinetools,aspindlearearotatingaxisofthemachine,whichoftenhasashaftatitsheart.Theshaftitselfiscalledaspindle,butalso,inshop-floorpractice,theword often isused metonicallytorefertotheentirerotaryunit,includingnotonlytheshaftitself,butitsbearingsandanythingattachedtoit(chuck,etc.).inthis paperspindlemodeliscrestedbyusingCADsoftwareandmodelanalysisiscarriedoutandresultsare enlisted.

Key words- spindlerod,modelanalysis,

I. INTRODUCTION

Amachinetoolmayhaveseveralspindles,suchasthehead stock andtailstock spindles onabenchlathe.Themainspindleisusuallythebiggestone. Referencesto"thespindle"withoutfurtherqualificationimply themainspindle.Somemachinetoolsthatspecializeinhigh-volumemassproductionhaveagroupof4,6,orevenmoremains pindles.Thesearecalled**multispindle**machines.Forexample, gangdrillsandmanyscrewmachinesaremultispindlemachines.Althoughabenchlathe hasmorethanonespindle(counting thetailstock),itisnotcalledamultispindlemachine;ithasonem ainspindle.

SpindleBearings:Type,Quantity,Mounting,andLubricationMethod

Oneofthemostcriticalcomponentsofanyhighspeedspin dledesignisthebearingsystem.Ourdesignrequirementsstatet hatthespindlemustprovidehighrotationalspeed,transfertorq ueandpowertothecuttingtool,andbecapableofreasonableloa dingandlife.Thebearingtypeusedmustbeconsistentwiththes edemands,or thespindlewillnotperform.Highprecisionbearingsareavaila bletodayfromavarietyofmanufacturersworldwide.Thetypeo fbearingsavailableforhighspeedspindlesincludesroller,tape redrollerandangularcontact ball bearings. Theselectioncriteriaofwhichtypetousewilldependuponthes pindlespecifications,aseach willhave animpactor impactuponthebearingselection,asthefollowingtableexplai ns.

Requirement	Best Bearing Type	DesignImpact
High Speed		SmallShaft,LowPower
HighStiffness	SmallAngularContact	Low Speed, Large Shaft
AxialLoading		
RadialLoading	Large Roller	LowerSpeed
HighAccuracy	High Contact Angle	HigherSpeedExpensive,LowSpeed
	Low Contact	

Asyoucansee,therearemanyfactorsthatdeterminethefinalde cision.Aspindlethatisdesiredtohavethe highestspeedwillnothavethemaximumstiffnesspossible,and ,thespindlewiththehigheststiffnesscannotrunathighspeeds withoutsacrificingbearinglife.So,asdesigners,compromises mustbemadeinordertoarriveatafinaldesignthatwillofferthec ompromise.

II. ANALYSIS PREFERENCES–STRUCTURAL
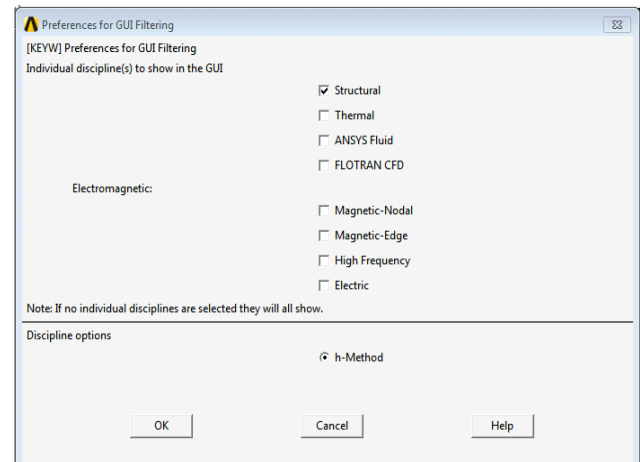
NITRO SHOCK ABSORBERS

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Abstract-

Inthepresentscenarioofautomobileindustrymanufacturersaretryingtoproducecomfortableandsafevehicleswhichtheconsumersarelookingfor.Ashockabsorberisadampingelementofthevehiclesuspension,anditsperformancedirectlyaffectsthecomfortability,dynamicloadofthewheelanddynamicstrokeofthesuspension.Theconventionaltypeofshockabsorbershasgotthemaindrawbackthatitcausesfoamingofthefluidathighspeedsofoperation.Thisresultsinadecreaseofthedampingforcesandalossofspringcontrol.Thegasfilled(nitrogen)shockabsorbersaredesignedtoreducefoamingoftheoilandprovideasmoothridefora longperiod.

Keywords-nitro,shockabsorbers,suspension,spring,dynamic load

I. INTRODUCTION

Forasmoothandcomfortableridethedisturbingforcesshouldbeeliminatedorreducedconsiderablybyusingsomedevices.Shockabsorbersaresuchdeviceswhichisolatethevibrationsbyabsorbingsomedisturbingenergythemselves.Ofthemanytypes telescopicshocksarewidelyusedwhichhasgotthedrawbackthattheflowofoilinthecylindercancausefoamofoilandairtoform.Theselimittheoptimumthroughoutoftheflowinthevalves.Gasshocksrepresentanadvanceovertraditionalshocks.Nitrogenfilledgasshockabsorbersaretheresultsofyearsofextensiveresearchanddevelopmentwithtopflightshockdesignengineers.Theyaredesignedforbothloweredandstockvehiclestoprovideshockabsorbersthatwouldoutperformanythingonthemarkettoday.Nitroshockabsorbersarehighquality,nitrogenfilledshocksdesignedandgaschargedspecificallyforeachvehicleapplication.Theadditionofnitrogenunderpressurelimitsthefoamingeffectandincreasesefficiency.

A. Need for shockabsorbers:

Springs alone cannot providea satisfactorily smooth ride.Thereforeanadditionaldevicecalleda"shockabsorber"isusedwitheachspring.Considertheactionofacoilspring.Thespringisunderaninitialloadprovidedbytheweightofthevehicle.Thisgivesthespringanoriginalamountofcompression.Whenthewheelpassesoverabump,thespringbecomesfurthercompressedafterthebumpis passedthe springattemptsto returntoitsoriginalposition.Howeveritoverridesitsoriginalpositionandexpandstoomuch.Thisbehaviorcausesthevehicleframetobethrownupward.Havingexpandedtoomuch,thespring attemptstocompress thatitwillreturn

toitsoriginalposition;but incompressingit againoverrides.In doing this thewheelmayberaisedclearof the roadandthe frameconsequentlydrops.Theresultisanoscillatingmotionofthespringthatcausesthewheeltoreboundorbounceupanddownseveraltimes, aftera bump is encountered.If,inthemeantime,anotherbumpisencountered,asecondseriesofreboundingwillbestarted.Onabumpyroad,andparticularlyinrounding acurve,theoscillationsmightbesoseriousasto causethedriverto losecontrolofthevehicle.

Ashockabsorberisbasicallyahydraulicdampingmechanismforcontrolling springvibrations.Itcontrolsspringmovementsinbothdirections:whenthespringiscompressedandwhenitisextended,the amountof resistanceneededineachdirectionis

determinedbythetypeofvehicle,thetypeofsuspension,thelocationoftheshockabsorberinthesuspensionsystemandthepositioninwhichitismounted. Shock absorbers areacriticalproductthatdeterminesanautomobile'scharacternotonlybyimprovingridequalitybutalsobyfunctioningtocontroltheattitudeandstabilityofthe automobilebody.

B. Principleofoperation:

Thedampingmechanismofa shock absorber is viscousdamping.Viscosityisthepropertyofafluidbyvirtueofwhichitoffersresistancetothemotionofonelayerovertheadjacenton.Themaincomponentsofa viscousdamperarecylinder, pistonandviscousfluid.Thereisaclearancebetweenthecylinderwallsandthepiston.Moretheclearancemorewillbethevelocityofthepistonintheviscousfluidanditwillofferlessvalueofviscousdampingcoefficient.Thebasicsystemisshownbelow.Thedampingforceisoppositetothedirectionofvelocity.
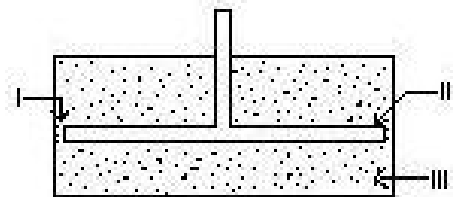
I-CLEARNCE,II-PISTON,III-VISCOUSFLUID

Fig.1.1componentsofviscousdamper

Thedampingresistancedependsonthepressuredifferenceonthebothsidesofthepistonintheviscousmedium.Thefigureshownbelowshowstheexampleof freevibrationswithviscousdamping.
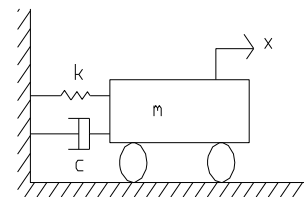
Fig.1.2Freevibrationswithviscousdamping

Theequationof motionforthesystem canbewrittenasm(dx/dt) + c(dx/dt)+kx=0

C. Energydissipationinviscousdamping:

Foravibratorybodysomeamountofenergyisdissipatedbecauseofdamping.Thisenergydissipationcanbepercycle.RateofchangeofworkWiscalledenergy.ForaviscouslydampedsystemtheforceFis expressedasF=cdx/dt,

WorkdoneW=Fx= (cdx/dt)x

Therate ofchangeof workper cycle

i.e.Energydissipated

Mechanical, Thermal and Water Absorption Properties of Kenaf Fibre Composites

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Abstract—**Most of the studies available in the literature on kenaf fibre (KF) composites pertain to composites with short fibres. A comprehensive testing is carried out on woven KF composites and the results of various studies, viz., flexural, tensile, impact, hardness, thermal resistance and water absorption properties of treated and untreated composites are presented in this paper. The effect of alkali treatment on various properties is brought out very clearly. The glass transition temperature, T_g is obtained through DSC and thermal degradation of the composite is analyzed through TGA. Fracture behavior of the composites is studied through SEM. Results reveal that the untreated kenaf fiber composite has superior flexural modulus, high tensile strength, tensile modulus, high impact strength as well as high barcol hardness. Treated fiber composite has high flexural strength, low water absorption capacity and high thermal stability. SEM study reveals a brittle fracture for treated fiber composite while significant fiber pull out is observed for the untreated fiber composite.**

Keywords—kenaf fiber composites; natural fiber composites; mechanical properties; moisture absorption properties; differential scanning calorimetry; thermogravimetric analysis; scanning electron microscopy.

I. INTRODUCTION

Kenaf, Hibiscus cannabinus, L. belongs to the Malvaceae family, which is largely grown in Asia and Central America. Kenaf has been a potential fibre for various domestic applications, such as coarse canvas, sacks and gunny bags, floor matting, rug and chair backing, etc.   It is suitable for manufacture of paper pulp. The cuttings are employed in paper manufacture. In the context of developing biodegradable materials from renewable sources, kenaf fiber has been used extensively. Various components can be molded using thermosetting or biodegradable polymers with woven kenaf fiber mats as reinforcement. These laminates can be used as casings for different equipment and machinery and also for sports and domestic products. Present work involves extraction and treatment of kenaf fibers and preparation of laminates using kenaf fiber mats as reinforcement. Such laminates are tested for various mechanical, thermal and moisture absorption properties. Results are compared for treated (*k-t*) and untreated (*k-ut*) kenaf fiber composites.

II. LITERATURE REVIEW

Initial focus during 2000s was on comparative study of the properties of natural and glass fibre composites. Due to increased attention on sustainability of the environment, the bio-composites have subsequently emerged as a new class of materials. Ford Motors [1] have started using natural fibre composites for their interiors since 1930s. However, contemporary research on composites is progressing towards green and nano composites. Green composites are produced using natural fibers and thermoplastic/thermosetting resins [2-4]. Hybrid composites [5-9] have been made out of combination of fibers such as, natural fibre/fabric and glass fibre/fabric, banana/kenaf, jute/cotton, woven betel palm and kenaf fibre with polyester matrix. These composites are found to have superior strength, thermal stability and dielectric properties than the individual composites. Surface treatments [10-16] like, alkalization, benzoylation, etc., on natural fibres have significantly improved the strength properties, glass transition temperature, storage modulus, loss modulus and damping factor. These treatments have decreased the water absorption capacity of the composite. Treatment of sisal fibres with poly methyl methacrylate and admicellar polymerization [17-19] has enhanced the tensile, flexural and impact strengths, dynamic mechanical behaviour, electrostatic charge, thermal stability, dielectric constant and ac conductivity. Storage modulus, activation energy, etc., are found to be higher for the cured polyester resin (neat resin). Maya and Anandjiwala [20], have done extensive studies on surface modification of natural fibres and bio-composites. Studies on banana, doum palm and piassava fibre composites [21-26] have revealed very good mechanical and thermal properties. Doum palm and piassava fibres are very strong and they are subjected to a combination of treatments like, alkali/enzymatic and mercerization/ acetylation treatments to improve softness and adhesion. Silk fabric reinforced epoxy phenol cashew nut shell liquid toughened composites [27] have enhanced the properties compared to those of pure epoxy/silk composites. Hemp and agave fibre composites are found to have superior mechanical, thermal and water absorption properties [28, 29]. Chemically treated okra fibre composites [30, 31] have increased the tensile strength, tensile modulus and thermal stability. Most recently, Januar,et.al. [32], have published the results of DSC and TGA analysis on pineapple leaf fiber (PALF) reinforced high impact poly styrene (HIPS) composites. Due to superior physical characteristics of length,

Dynamic and static coupled field analysis of a piston In a four-stroke diesel engine using ANSYS

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Abstract-

Thecomponentpistoninaninternalcombustionengineplaysanimportantroleintransformingtheethermalenergydevelopedduringthecombustionintomechanicalenergy.Duringthisprocess,thepistonissubjecttoheat,andpressuresdevelopedinthecombustionaswellasvariationsinpressuresduringvariousstrokesoftheengine.Hence,thereisaneedtostudythebehaviorofthepistontotheloadsactingonit.Inthiswork,thedistributionsofstressandtemperaturesinthepistonarefoundusingfiniteelementanalysispackage,ANSYSUNDERtwoloadingconditionsi.e.onlygaspressure,andcombinationofthermalloadandgaspressure.Designofthepistonhasbeencarriedoutusingstandardproceduresavailableintheliterature.Later,uniaxialtensiontesthasbeenperformedonanAluminiumspecimenandthevaluesfromthestress-traindiagramareimportedtoANSYStodefinethenon-linearbehaviourofthematerial.CADmodelisgeneratedintheANSYS andstaticcouplefieldanalysis(Non-linearstructuralandthermal)isperformedbyapplyingvariousloads(thermalandcombustionpressure)onthepiston.Thestressandtemperaturedistributionsonthepistonare studiedandthe conclusionsare drawn.

Keywords-dynamicanalysis,staticanalysis,four-strokedieselengine,

I. INTRODUCTION

ApistonisacomponentofreciprocatingIC-engines.Itisthemovingcomponentthatiscontainedbyacylinderandismadegas-ightbypistonrings.Inanengine,itspurposeistotransferforcefromexpandinggasinthecylindertothecrankshaftviaapiston rod.Pistonenduresthecyclicgaspressureand theinertialforcesatwork,and thisworkingconditionmaycausethefatiguedamageofpiston,suchaspistonsidewear,pistonheadcracksandsoon.Sothereisaneedtooptimizethedesignofpistonbyconsideringvariousparametersinthisprojecttheparametersselectedareanalysis ofpistonbyapplyingpressureforceactingatthetopofthepistonandthermalanalysisofpistonatvarioustemperaturesinvariousstroke.Thisanalysiscouldbeusefulfordesignengineerformodificationofpistonatthetimeofdesign.In thisprojectwedeterminethevariousstresscalculationbyusingpressureanalysis,thermalanalysisandthermo-mechanicalanalysis

II. DESIGNOFTHEPISTON

A. AboutPiston

Apistonisacomponentusedinaninternalcombustionengine,whichtransformsthethermalenergygeneratedduring the combustionintomechanicalenergy. Itisconnectedtothecrankshaftviaconnectingrod.Whenthecombustionprocesshappensinsidethecylinder,thegaspressure actingon the pistoncrowntendsto push it downward

towardsthecrankcaseanditsreciprocatingmotionisconvertedtorotarymotionofthecrankshaftwiththehelpofconnectingrod.Dependingonthedimensions,thepistonsareclassifiedas:

Figure1:Generalviewofpiston

The design procedure adopted in this workispresentedbelowandtheresultsaretabulated:

a)PistonHead:-

Thicknessofpistonheadisdeterminedonbasisofstrengthas

$$\text{wellasonheatdissipation} \, t_H = D\sqrt{\frac{3P}{16\sigma_t}}$$

$$\text{Cross-sectionalArea,} A = \frac{\Pi}{4}D^2$$

$$\text{IndicatedPower,} I.P = \frac{PLAN}{60}$$

$$P = P_m = \text{indicatedmeaneffectivepressure.}$$

$$\text{BrakePower,} B.P = I.P * \eta_{mech}$$

$$\text{Heatflowthroughpistonhead,} H = C*H.C_v*m \times B.P$$

Design and Comparative Analysis of Different Hydraulic Cylinders by ANSYS

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Abstract—
AHydrauliccylinderisamechanicalactuatorthatisutilizedtogiveaunidirectionaldrivethroughaunidirectionalstroke.   It hasnumerousapplications,outstandinglyindevelopmentgear,producingapparatusandstructuralbuilding."Hydraulics"byandlargealludestocontroldeliveredbymovingliquids.Modernhydrodynamicsischaracterizedastheutilizationofrestrictedfluidtotransmitcontrol,increasecompel,orcreatemovement.Awaterdrivencylindercomprisesoftheseparts-cylinderbarrel,cylindertop,cylinderhead,cylinder,cylinderpole,organand seals.

InthepresentworkthegeometricmodelismadeinCATIASoftwareandimportedtohyperworkforfocalizedFiniteelementmethodandexamination.StretchandrelocationsdistinctivewaterdrivencylindersarefiguredbyutilizingAnsysprogramming.
*Keywords-Ansys,Hydraulicsystem,Hydrodynamics
,CATIA,Actuator*

I INTRODUCTION

1.1. **HydraulicCylinder:-**Hydraulic

cylinderisamechanical   actuator

thatisusedtogiveaunidirectionalforcethroughaunidirectionalstroke.
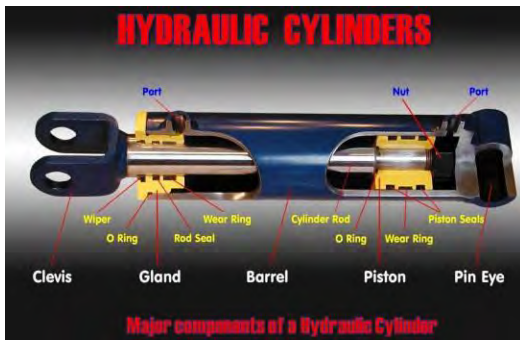
Thepistonpartitionswithinthecylinderintotwochambers, thebasechamber(topend)andthepistonbarsidechamber(poleend/headend).Flanges,trunnions,clevises,Lugs are regularcylindermountingalternatives.Thepistonpolelikewisehasmountingconnectionstointerfacethecylinderto theprotestormachinesegmentthatitispushing/pulling.

Ifweassumethattheoilentersfromcapend,duringextensionstroke,andtheoilpressureintherodend/headendisapproximatelyzero,theforce*F*onthe

pistonrodequalsthepressure*P*inthecylindertimesthepistonarea*A*:

$$F=P.A$$

Thehydrauliccylindersaredoubleactingsinglerodpistoncylinder.Itsfeaturesare
1.   simpleinstructure,
2.   reliableinoperation,
3.   Convenientinassembleanddisassembleeasyinmaintenance

Theamazing   amount   offorceacylinderexerts isduetothesimplemechanicalprincipleofpressureexertedonthesurfaceareaofthe**piston**.Simplyput,thelargerthe diameterofthecylinder,themoreitwilllift.Theformulaforthisis**areaxpsi(***Poundspersquareinch***)=Force.**
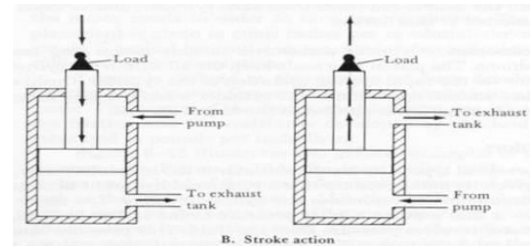
Fig1.HydrulicSystem
Hydraulicdrivenandpneumaticsystemsuppliesaretheessentialsegmentsofdesigningapplications.Particularlywaterdrivenand pneumaticcylindersareutilizedasapartofnumerousdesigningapplicationslike;programmedassemblingandmontagelines,substantialdevelopmentsupplies,controlframeworks,delicateestimationandtest frameworks.Astandoutamongstthemostessentialcomponentsconsideringattheoutlineventureofthesetypesofgearisworkingstatesofcylinder.Cylindershavediverseworkingfrequenciesasindicatedbytheirutilizationfields. Whiletheenormous estimated

Static Analysis of milling cutter by Using finite element method

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ABSTRACT: Millingmachineisoneoftheimportantmachiningoperations.Inthisoperationtheworkpieceisfedagainstarotatingcylindricaltool.Therotatingtoolconsistsofmultiplecuttingedges(multipointcuttingtool).Normallyaxisofrotationof feedgivento theworkpiece..

Inthisprojectworkthedesignaspectsofplainmillingcutteris analysed.Theobjectiveconsideredisthedesignandmeshingofplain millingcutterandtoanalysevariousstresscomponentsactingonit.Themodellingandanalysisiscarriedoutusingsoftware ANSYS.
Keywords: static analysis,millingcutter, FEM

I. INTRODUCTION

Millingisaprocessofproducingflatandcomplexshapeswith theuseofmulti-toothcuttingtool,whichiscalledamillingcutterandthecuttinged gesarecalledteeth.Theaxisofrotationofthecuttingtoolisperpen dicultartothedirectionoffeed,eitherparallelorperpendicultartoth emachinedsurface.Themachinetoolthattraditionallyperformst hisoperationisamillingmachine.Millingisaninterruptedcutting operation:theteethofthemillingcutterenterandexittheworkduri ngeachrevolution.Thisinterruptedcuttingactionsubjectstheteet htoacycleofimpactforceandthermalshockoneveryrotation.The toolmaterialandcuttergeometrymustbedesignedtowithstandth eseconditions.Cuttingfluidsareessentialformostmillingoperati ons.Thecutterisliftedtoshowthechips,andthework,transient,an dmachinedsurfaces.Thecutterdesignbeingpresentedinthispap erisusefulforsinglepointaswellasformulti-pointcutterssuchasthoseusedforturningandmilling.Infact,thed esignprinciplesforbothsingleandmulti-pointcuttersaresimilar.Thedesignparameterssuchasrakeangle, clearanceangleoftooth,andheightoftootharecommoninbothsin glepointandmulti-pointcutters.Additionally,parameterssuchasspeedofrotation,f eed,anddepthofcutarealsosimilar.However,parameterssuchas diameterofthecutter,numberofteethonthecutter,andangularspa cingofteethareexclusivelyassociatedwithmillingcutters.Inthef amilyofmillingoperationssuchasplainmilling,slotmilling,side milling,endmilling,facemilling,andformmilling,designparam etersdifferonlyintheirnumericalvalues.Ineverycase,theteethof millingcuttershavecuttingedgesandanglesrelatedtoedges.Ineff ecteachtoolactslikesinglepointtoolmountedonacylindricalhhu b.Theteethonthe

millingcuttersaremostlyevenly spaced. There aretwobasictypesofmilling,areasfollowsdown(climb)milling:i tistypeofmillinginwhichthecutterrotationisinthesamedirectio n as themotionof theworkpiecebeingfed.Indownmilling,thecuttingforceisdirect edintotheworktable,whichallowsthinnerworkpartstobemachin ed.Bettersurfacefinishisobtainedbutthestressloadontheteethis abrupt,whichmaydamagethecutter.Inconventionalmilling,fric tionandrubbingoccur astheinsertentersintothecut,resultinginchipweldingandheatdis sipationintotheinsertandworkpiece.Resultantforcesinconventi onalmillingareagainstthedirectionofthefeed.Work-hardeningisalsolikelytooccur.

II. PROPOSED WORK

Millingoperationisconsideredaninterruptedcuttingoperati onteethofmillingcutterenterandexittheworkduringeachrevolut ion.Thisinterruptedcuttingactionsubjectstheteethtoacycleofim pactforceandthermalshockoneveryrotation.Thetoolmaterialan dcuttergeometrymustbedesignedtobeartheabovestatedconditi ons.Inthisprojectworkthedesignaspectsofplainmillingcutteris analysed.Theobjectiveconsideredisthedesignandmeshingofpl ainmillingcutterandtoanalysevariousstresscomponentsacting onit.ThemodellingandanalysisiscarriedoutusingsoftwareANS YS.

III. CUTTINGCONDITIONS IN MILLING

Inmilling,eachtoothonatoolremovespartofthestockinthef ormofachip.Thebasicinterfacebetweentoolandworkparti spicturedbelow.Thisshowsaonlyafewteethofaperipheral millingcutter.
-
teethPlainMillingCutterUsedforPeripheralorSlabMillin gCuttingvelocityVistheperipheralspeedofthecutterisdefi nedbyV=πDNWhereDisthecutterouterdiameterandNist herotationalspeedofthecutter.Asin thecase ofturning,cuttingspeedVisfirstcalculatedorselectedfrom appropriatereferencesourcesandthentherotationalspeedo fthecutterN,whichisusedtoadjustmillingmachinecontrols ,iscalculated.Cuttingspeedsareusuallyintherangeof0.1~4 m/s,lowerfordifficult-to-cutmaterialsandforroughcuts,andhigherfornon-ferrouseasy-to-cutmaterialslikealuminiumand forfinishingcuts.

Design of an Automotive Exhaust Thermoelectric Generator

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Abstract--
Todesignandanalyseamodelthatcanutilizethewasteheatenergyfro mvarioussourceslikeheatenergyobtainedthecarenginesexhaustsyst emandto convertobtainedheatenergyintoelectricityformultipurposeuseinau tomobiles.Manyconsiderationshavebeentakentomakethissystemec onomical,easyto implementanddoesnotproduceanyburdenoncarefficiencyorengine efficiency.Themodelhasbeendevelopedtosimulatecoupledthermala ndelectricalenergytransferprocessesinathermoelectricgenerator(TEG)designedforautomotivewasteheatrecoverysystems.Conventi onalbismuthtellurideisconsideredforthermoelectricmodules(TEM s)forconversionofwasteheatfromexhaustintousableelectricalpowe r.HeattransferbetweenthehotexhaustgasandthehotsideoftheTEMs isenhancedwiththeuseofaplate- finheatexchangerintegratedwithintheTEGandusingforcedconvent ionalcoolingonthecoldside.TheTEGisdiscretizedalongtheexhaustfl owdirectionusingafinite- volumemethod.Detailedresultsareprovidedforlocalandglobalheatt ransferandelectricpowergeneration.Duringtheresearch,thermoele ctricdeviceistestedina varietyofconfigurations withthegoalofdemonstratingathermoelectric-poweredfan.

Keywords:Thermo- ElectricModule,PeltierEffect,ExhaustSystem,BismuthTelluri de,Plate-FinHeatExchanger,Thermoelectric-PoweredFan

I. INTRODUCTION

Ouraddictiontoelectricityhasgeneratedaconcurrentaddictiontof ossilfuels.However,thereservesoffossilfuelswill soonbedepleted,sinceoil isalimitedresource.Overtheyears,thecostofelectricityhasrisento unprecedentedlevelsduethelimitedsupply ofoilandeconomicandpoliticalfactors.Thus,renewableenergyis amoreattractivealternativetoelectricitygeneration,asitwillalsopr ovideacleanerenvironmentforfuturegenerations.Intheworldtoda y,therearemanygreatsolutionstorenewableenergy,butsomeareu nfeasible.Inthis proposed project,adevicewillbecreatedtointroduceawayforhumanstocrea terenewableenergyusingthermoelectricdevices.

Thisprojectaimstoprovideasourceofrenewableenergythatoverc omesthelimitationsofcurrentmethods.Athermoelectricdeviceco nvertsthermalenergytoelectricalenergybyusinganarrayoftherm ocouples.Thisdeviceisareliablesourceof powerforsatellites,spaceprobes,andevenunmannedfacilities.Sat ellitesthatflytowardplanetsthatarefarawayfromthesuncannotrel y exclusivelyonsolarpanelstogenerateelectricity.Thesesatellitesw illhavetouseanalternativeenergysource,suchasthermoelectricde vices,to generatetheirpower.Thermoelectricdevicesfordeep- spacemissionsusearadioactivematerial,likeplutonium,togenerat eheat,andthermocouplestoconverttheheattoelectricity.Sinceath ermoelectricdevicehasnomovingparts,it is reliableandcangenerateelectricity formanyyears.Studieshavebeendoneonimprovingtheefficiency ofthermoelectricgeneratorbyincorporatingothertechnologies,li kenanotechnology.By achievingabetterefficiency,thermoelectricdevices wouldneedlessradioactivematerialtoproducethesameamountof power,makingthepowergenerationsystemlighter.Lessradioacti vematerialwillalsodecreasethecostofspaceflightlaunches.

II. DESIGNCONSTRAINTS

Essentiallythegoalis toremovesufficientheatfromthedevicesothatitdoesnotoverheat, whileretainingthelargesttemperatureatthehotsideoftheTEmodul etogeneratepower.Therearetwobroadcategoriesintermsofgeom etricalconfigurations:thethermoelectricmodulecaneitherbether mallyinseriesorinparallelwiththemainheatsink.Furthermore,flo wconditionsconsideredforthechosengeometrymustincludeboth forcedconvectionforthesteadystateandnaturalconvectionforthes tart-uptransient.Thefollowingconstraintsarerequired:

- Constraint1:Maximumjunctiontemperatureof125^0C
- Constraint2:Createthelargestpossibletemperaturediffe renceacrossthermoelectricmodulegivenconstraint1
- Constraint3:Thermalcontactcanonlybemadeononesid eofthedevice(usuallythecaseforpowerdevices)

Aneasywaytocomplywiththeconferencepaperformattingrequire mentsistousethisdocument asatemplateandsimplytype yourtextintoit.

III. THERMALCIRCUITANDFEMSIMULATION

Athermallyseriesconfiguration,asshowinfigure1,isnotfeasibles implybecause,whileitwouldprovidethelargesttemperaturediffer enceacrossthethermoelectricmodule,thethermalresistanceofthe TEmoduleissolargethatefficientheatremovalisimpossible,even withforcedconvection.

Analysis of bevel gears using FEA

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Abstract—
Gearsareanintegralandnecessarycomponentinourdaytodaylives.Theyarepresentinthesatelliteswecommunicatewith,automobilesandbicycleswetravelwith.Gearshavebeenaroundforhundredsofyearsandtheirshapes,sizes,andusesarelimitless.Forthevastmajorityofourhistorygearshavebeenunderstoodonlyfunctionally.Thatistosay,thewaytheytransmitpowerandthesizetheyneedtobetotransmitthatpower havebeenwell knownformanyyears.It was notuntilrecentlythathumansbegantousemathematicsandengineeringtomoreaccuratelyandsafelydesignthesegears.Bevelgearsarewidelyusedbecauseoftheirsuitabilitytowardstransferringpowerbetweennonparallelshaftsatalmostanyangleorspeed.TheAmericanGearManufacturingAssociation(AGMA)hasdevelopedstandardsforthedesign,analysis,andmanufactureofbevelgears.ThebendingstressequationforbevelgearteethisobtainedfromtheLewisbendingstressequationforabeamandbendingstress valuederive forthespiralbevelgear,straightteethbevelgearandzerolbevelgear.Forabovementionedgearcomparisonbetweenanalyticalvalue andvalueobtainbytheANSYSWorkbench15.0.

Keywords:CATIA,ANYSYS,BevelGear,GearNomenclature,deformation,von missesstressetc..

ıINTRODUCTION

Powertransmissionisthemovementofenergyfromitsplaceofgenerationtoalocationwhereitisappliedtoperforminguseful work.Powertransmissionisnormallyaccomplishedbybelts,ropes, chains,gears,couplingsandfrictionclutches.

1.1 GEAR

Atoothedwheelthatengagesanothertoothedmechanisminordertochangethespeedordirectionoftransmittedmotion.

Fig1.1:Gear

Agearisacomponentwithinatransmissiondevicethattransmitsrotationalforcetoanothergearordevice.Agearisdifferentfromapulleyinthatagearisaroundwheelwhichhaslinkages("teeth"or"cogs")thatmeshwithothergearteeth,allowingforcetobefullytransferredwithoutslippage.Depending on their construction andarrangement, geared

devices cantransmitforces atdifferentspeeds,torques,or inadifferentdirection,fromthepowersource.ThemostcommonsituationisforageartomeshwithanothergearGear'smostimportant feature isthatgearsofunequalsizes(diameters)canbecombinedtoproduce amechanicaladvantage,sothattherotationalspeedandtorqueofthesecondgeararedifferentfromthatofthefirst.Toovercometheproblemofslippageasinbeltdrives,gearsareusedwhichproducepositivedrivewithuniformangularvelocity.

1.2 GEARCLASSIFICATION

Gearsortoothedwheelsmaybeclassifiedasfollows:
1. Accordingtothepositionof axesoftheshafts.
Theaxesofthetwoshaftsbetweenwhichthemotionistobetransmitted,maybe
a. Parallel
b. Intersecting
c. Non-intersectingandNon-parallel

1.3 Generalnomenclature
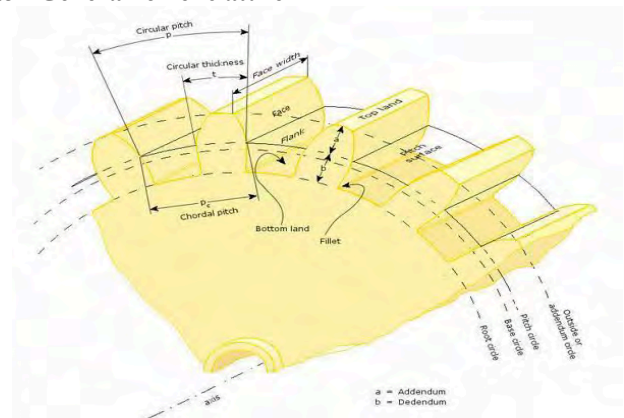
Fig1.2:GearNomenclatureRotationalf

requency,n
Measuredinrotationovertime,suchasRPM.
Angularfrequency,ω
Measuredinradianspersecond

$$1RPM = \pi/30 \text{ rad/second}$$

Numberofteeth,N
Howmanyteethagearhas,aninteger.Inthecaseofworms,itisthenumberofthreadstartsthatthe wormhas.
Gear,wheel
Thelargeroftwointeractinggearssoragearonitsown.
Pinion
Thesmalleroftwointeractinggears.
Pathofcontact
Pathfollowedbythepointofcontactbetweentwomeshinggearteeth.

Static analysis of airfoil

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Abstract—Inthisproject, theAirfoil isconsideredandFiniteElementAnalysis(FEM)isdonetoanalyse itsperformanceandbasedonit,willbetrytoincreasetheefficiency. TheFEMprincipleswhicharemadeuseinthisprojectareeffectivea ndappropriatemethodsthat usingfiniteelementmethodstosolvetheprocessesthatconsistoftra nsportphenomena.TheAirfoilmodeledandmeshedinANSYS.In ordertoavoidthedatalossthenecessarynumericalcomputationsar eaccomplishedbyANSYS(theelementsolverprogram)andtheres ultsaregivenintabularrepresentation. Thisanalysis is done foranexistingAIRFOILwiththespecifiedconditionsandfinallyth edeformations,stressesvonmisesstreses and the respectivedeformations ,stressesovertheAirfoilisplottedandconclusionarepresented.

Keywords—Fem,Vonmisesstreses,Airfoil

I INTRODUCTION

In theearliestdays,whenmanwasyetlivingin thelapofnature,theonlymeansoflocomotionwashislegs.G radually,wehave achievedfasterandmore luxuriouswaysoftravelling,latestbeingtheairtransport.Si nce,itsinventionaeroplaneshavebeengettingmoreandmor epopularityasitisthefastestmodeoftransportationavailabl e.Ithasalsogainedpopularityasawarmachine sinceworldwar II. Thispopularityofairtransporthasledtomanynewinvention sandresearchtodevelop fasterandmoreeconomical planes.Thisprojectissuchanattempttodeterminehowweca nderivemaximumperformanceoutof an airfoilsection.

Anairfoilisacross- sectionofwingoftheplane.It'smainjobistoprovidelifttoan aeroplaneduringtakeoffandwhileinflight.But,ithasalsoas ideeffectcalledDragwhichopposesthemotionoftheaeropl ane.Theamountoflift neededbyaplanedependsonthepurposefor whichitistobeused.Heavierplanes

requiremoreliftwhilelighterplanesrequirelessliftthan the heavier ones.Thus,depending upontheuseofaeroplane,airfoilsectionisdetermined.Liftf orcealsodeterminestheverticalaccelerationoftheplane, whichinturnsdependsonthehorizontalvelocityoftheplane .Thus,determiningthecoefficientofliftonecancalculateth eliftforceandknowingtheliftforceandrequiredverticalacc elerationonecandeterminetherequiredhorizontalvelocity.

Anairfoil(inAmericanEnglish)oraerofoil(inBritish English)isthestateofawingoredgeorcruiseasseenincross- area.Anairfoil- formedbodytraveledthroughafluidhandlesanaerodynami cenergy.Thesegmentofthispowerperpendiculartothecour seofmovementiscalledlift.Thesegmentparalleltothebeari ngofmovementiscalleddrag.Subsonicflightairfoilshaveat rademarkshapewithanadjustedheadingedge,emulatedby asharptrailingedge,regularlywithunevencamber.Foilsofc omparativecapacitycomposedwithwaterastheworkingflu idarecalledhydrofoils.Theliftonanairfoilisfundamentally theconsequenceofitsapproachand shape. At thepointwhenarrangedasuitableedge,theairfoildivertst heapproachingair, bringingaboutan energyonthe airfoilintheheadinginversetothediversion.

Finite Element Analysis of Aircraft Wing for Strength Enhancement

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ABSTRACT

Awingisatypeoffinwithasurfacethatproducesaerodynamic forceforflightorpropulsionthroughtheatmosphere,orthroug hanothergaseousorliquidfluid.Assuch,wingshaveanairfoil shape,astreamlinedcross-sectionalshapeproducinglift.Awing'saerodynamicqualityi sexpressedasitslift-to-dragratio.Theliftawinggeneratesatagivenspeedandangleof attackcanbeonetotwoordersofmagnitudegreaterthanthetot aldragonthewing.Ahighlift-to-dragratiorequiresasignificantlysmaller thrust topropelthewingsthroughtheairatsufficientlift.

I.INTRODUCTION

In the1960s,everlargeraircraftweredevelopedtocarrypasseng ers.Asenginetechnologyimproved,thejumbojetwasengine eredandbuilt.Stillprimarilyaluminumwithasemimonocoqu efuselage,thesheersizeoftheairliners ofthedayinitiatedasearchforlighterandstrongermaterialsfro mwhichtobuildthem.Theuseofhoneycombconstructedpan elsinBoeing'sairlineseriessavedweightwhilenotcompromi singstrength.Initially,aluminumcorewithaluminumorfiber glassskinsandwichpanels were used on wingpanels,flightcontrolsurfaces,cabinfloorboards,andoth erapplications.Asteadyincreaseintheuseofhoneycombandf oamcoresandwichcomponentsandawidevarietyofcomposi tematerialscharacterizesthestateofaviationstructuresfromt he1970stothepresent.Advancedtechniquesandmaterialco mbinationshaveresultedinagradualshiftfromaluminumtoc arbonfiberandotherstrong,lightweightmaterials.Withsome airframesapproaching100percent.Theterm "verylight jet"(VLJ)has cometodescribeanewgenerationofjetaircraftmadealmoste ntirelyofadvancedcompositematerials

2.AIRFOILS

Anairfoilsshapeisdefinedbyseveralparameters,whichares howninthefigurebelow.
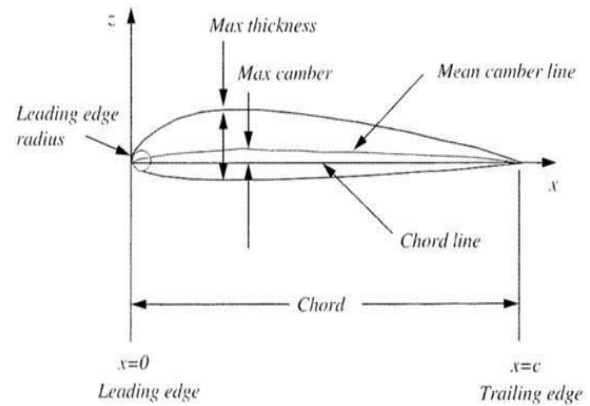
Fig2.1Airfoilshapeparameters

AirfoilDefinitions:
ChordLine: Straightlinedrawnfromtheleadingedgetothetr ailingedge
ChordLength(c): Lengthofthechordline
MeanCamberLine: Curvedlinefromtheleadingedgetothet railingedge,whichisequidistantbetweentheupperandlower surfacesoftheairfoil
Maximum(orJust)Camber: Maximumdistancebetweent hechordlineandthemeancamberline.
MaximumThickness: Maximumdistancebetweentheuppe randlowersurfacesoftheairfoilnormaltothechordline.
Span: Widthoftheairfoil.
AngleofAttack: Anglebetweenthechordlineandthestream wiseflowdirection.
ZeroLiftAngleofAttack: AngleofAttackthatwillproducen olift.Foroursymmetricwedgethiswouldbeanangleofattack ofzero.
StallAngleofAttack: Angleofattackatwhichthereismaxim umlift(orliftcoefficient)
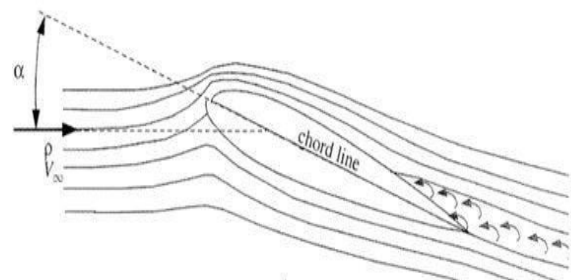
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Embedding of Data Efficiently Using Image & Video Steganography

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Abstract— **Steganography is that the science and art of covert communication, that aims to cover the key messages into a cover medium whereas achieving the smallest amount doable applied mathematics detestability. to the present finish, the framework of least distortion embedding is wide adopted within the development of the Steganography system, during which a neat distortion function is of significant importance. During this paper, a category of latest distortion functions called uniform embedding distortion function (UED) is given for each side-informed and non side-informed secure JPEG steganography. By incorporating the syndrome trellis committal to writing, the simplest codeword with least distortion for a given message is decided with UED, which, instead of random modification, tries to unfold the embedding modification uniformly to amount distinct circular function remodel (DCT) coefficients of all doable magnitudes. during this means, less statistical detestability is achieved, attributable to the reduction of the average changes of the first- and second-order statistics for DCT coefficients as a full. The effectiveness of the projected theme is verified with proof obtained from thorough experiments using in style steganalyzers with numerous feature sets on the BOSS base information. Compared with previous arts, the projected scheme gains favorable performance in terms of secure embedding capacity against steganalysis.**

Keywords- JPEG steganography; minimal-distortion embedding; uniform embedding, distortion function design; DCT-discrete cosine transform;

I. INTRODUCTION

The rise of the web one amongst the foremost vital factors of knowledge technology and communication has been the protection of knowledge. Cryptography was created as a way for securing the secrecy of communication and lots of completely different ways are developed to inscribe and rewrite knowledge so as to stay the message secret. Sadly it's generally not enough to stay the contents of a message secret [1], it should even be necessary to stay the existence of the message secret. The technique accustomed implement this, is named steganography [2] . it's differs from cryptography within the sense that wherever cryptography focuses on keeping the contents of a message secret, steganography focuses on keeping the existence of a message secret Steganography and

cryptography area unit each ways in which to safeguard info from unwanted parties. Once the presence of hidden [10] info is disclosed or perhaps suspected, the aim steganography is partially defeated. The strength of steganography will so be amplified by combining it with cryptography [3].

II. RELATED WORK

A. Watermarking Security: Theory and Practice

This paper proposes a theory of watermarking security supported a cryptography purpose of read. The most plans is that data concerning the key leaks from the observations, as an example, watermarked items of content, on the market to the opponent. Tools from scientific theory [7] (Shannon's mutual data and Fisher's data matrix) will live this run of knowledge. The protection level is then outlined because the range of observations the offender has to with success estimate the key. This theory is applied to 2 common watermarking methods [6]: the substitutive theme and therefore the unfold spectrum-based techniques. Their security levels square measure calculated against 3 types of attack. The experimental work illustrates however Blind supply Separation (especially freelance element Analysis) algorithms facilitate the opponent exploiting this data run to disclose the key carriers within the unfold spectrum case. Simulations assess the protection levels derived within the theoretical a part of the paper [1].

B. Secure Spread Spectrum

This paper presents a secure (tamper-resistant) formula for watermarking pictures, and a strategy for digital watermarking that will be generalized to audio, video, and multimedia system knowledge. We have a tendency to advocate that a watermark ought to be made as A freelance and identically distributed (i.e.) mathematician random vector that's unnoticeably inserted during a spread-spectrum-like fashion into the perceptually most important spectral elements of the information. we have a tendency to argue that insertion of a watermark below this regime makes the watermark strong to signal process operations (such as loss compression, filtering, digital-analog and analog-digital conversion, requantization, etc.), and customary geometric transformations

Applying association rules with domain ontologies

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Abstract— **We propose an alternative approach for the association rule mining algorithm using domain ontologies. In our proposed system we use domain ontologies to represent the user knowledge, and based on the rules defined over the concepts of ontologies, and finding the semantic similarity between the concepts by calculating the semantic distances between them we infer the strong rules. So if we make use of this approach then we can overcome the drawbacks of association rule mining and we can derive the rules which are interested for the user.**

Keywords- Association rule mining; domain ontologies; knowledge representation; and semantic distances;

I. INTRODUCTION

Association rule mining is considered as one of the important tasks in knowledge discovery process in database [1]. It discovers the implicative tendencies between the items in the transaction of databases. An association rule can be defined as A→B, here A and B are two items of the database where A∩B=θ and the interestingness of an association rules can be described by two factors- support and confidence.

Association rules mining is essentially a two-step process:

Step 1: Identification of all (large) item-sets having support above *minsup,* i.e.., idenfiying 'frequent' item-sets;

Step 2: Discovery of all derived association rules having confidence above *minconf;*

Apriori is the first algorithm proposed by Agarwal et al. [2] in the association rule mining field and many algorithms are derived from the apriori algorithm. The basic idea behind apriori algorithm is that all subsets of a frequent set are frequent as well. This property is also known as the downward-closure or *Apriori* property. Once the frequent item sets have been discovered using the support measure, the 'useful' association-rules can be derived using the confidence measure. The association rule mining algorithms generate the large number of association rules. As per the Silbershatz and Tuzilin [3] the valuable information is frequently represented in rare, low support, association rules which are surprising and unexpected to the user. But to analyze the mining results processing this large amount of discovered rules are difficult for the decision- maker. And if we increase the support value, the algorithm will be more efficient and the discovered rules will be more obvious but these are less interested for the user.

So it is important to help the decision-maker with an efficient processing task to discover the user interested rules. To reduce the number of rules several methods are proposed like *Redundancy reduction*, *Pruning*, *Summarization* and *Visualization*. Since the rule interestingness is depends on the user knowledge and goals, these methods can reduce the number of rules but not guarantee that the extracted information is interested for the user, because these are based on the statistical information.

The most important point is representation of user knowledge. If the knowledge is represented in an accurate and flexible form, the generated rule will be efficient. In the Semantic Web field, *ontology* is considered as proper representation of user knowledge. Depending on the granularity, four types of ontologies are in use: Upper or top level ontologies, task ontologies, domain ontologies, and application ontologies [4]. Top level ontologies handle general impression concepts and remaining handles domain specific concepts. Ontologies in data mining can be used in three ways: Domain and Background knowledge ontologies, Ontologies for data mining process, Metadata ontologies. Background and domain knowledge ontologies have an important task in different levels of knowledge discovery process. Ontologies for data mining process systematically arrange the description of mining process and choose the relevant task according to the specific problem. And the metadata ontologies deal with the construction process of items [5].

The first consideration of using the Domain Ontologies was introduced by Srikanth and Rakesh Agarwal with the concept of mining *Generalized Association Rules* (GAR) [6]. Given a large database of transactions. Where each transaction consists of a set of items, and taxonomy (is-a hierarchy) on the items, they find associations between items at any level of the taxonomy. For example, given a taxonomy that says that apple is-a fruit is-a food item, from that we can infer a rule that "people who buy Fruits tend to buy grapes". This rule may hold even of rules that "people who buy apple tend to buy grapes", and "people who buy food item tend to buy grapes" do not hold.

But these representations are limited to is-a relation. So here we propose to use Rule Schemas to represent the user expectations. And based on the relatedness between the items measuring their similarity according to item taxonomies, from

ICTIMES – International Conference on Latest Trends in Electronics and Communications (ICLTEC)

WEB SERVER BASED ENERGY METERING FOR DUPLEX AND HOUSING COLONIES

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Abstract: This paper proposes a system where the metering of multiple duplex or homes is done by using a single system. The metering is prepaid and it gives SMS updates to the user whenever he needs to pay his bill. This concept provides a cost efficient manner of electricity billing. The present energy billing systems are discrete, inaccurate, costly and slow. They are also time and labour consuming. The major drawback of traditional billing system is power and energy theft. This drawback is reduced by using a prepaid energy meter which is based on the concept "Pay first and then use it". Prepaid energy meter also reduces the error made by humans while taking readings to a large extent and there is no need to take reading in it. The complete usage details will be present on the web server of the electricity department and the consumer can access it anytime.

Keywords: LPC2148, Energy Meter, IoT, GSM.

I. INTRODUCTION

In present scenario the human operator goes to the consumer's house, takes the photograph of meter reading and produces the bill. If the consumer is not available, the billing process will be pending and human operator again needs to re-visit the pending houses. Going to each and every consumer's house and generating the bill is a laborious task and requires lot of time. It becomes very difficult especially in rainy season. If any consumer did not pay the bill, the operator needs to go to their houses to disconnect the power supply. AMR is a process of automatically collecting consumption, diagnostic, and status data from energy metering devices and transferring that data. While Italy's ENEL SpA is considered to be first utilities' company which heralded in the new era of Automatic Meter Reading (AMR) in Europe, it is by no means alone in this massive endeavor. Among other countries, Germany, Greece, United Kingdom, Australia, and Argentina have deployed several AMR projects with the aim of reducing the cost of meter-reading, improving the collection of data from the meters, and then providing timely comprehensive information to consumers about their energy usage for better load balancing and utilities' management. By 2008, all European Member States have to implement the Energy Services Directive, which

requires customers to be given more information about their energy usage, and receive more timely and accurate billing.

To complement AMR initiatives underway in various countries, a pilot project called "Design and Implementation of a Wireless Automatic Meter Reading System" (WAMRS) was undertaken by a group of students and faculty at Sultan Qaboos University (Oman), with the author being the main supervisor of the project, aimed at coming up with a model of wireless electricity meter-reading system which can be implemented in Oman. The model should circumvent the disadvantages mentioned previously and be economically viable within the budget allocated for the project by the Department of Electrical and Computer Engineering (about US$500). In India, utilities are still on a wait and watch mode for this technology, however, as the government's plan for 100 smart cities materializes, AMR would become one of the most sought after technologies for utilities. AMR is a process of automatically collecting consumption, diagnostic, and status data from energy metering devices and transferring that data to a central database for billing, troubleshooting, and analyzing.

II. LITERTURE SURVEY

AMR (Automatic Meter Reading) is the modern Power measuring device .it is being used in measuring electricity , gas , water consumption in many countries on the world since it has a lot of advantages that the old analog meters doesn't have . It has advantages in safety; real time measuring and time save as well as it has a better user interface and digital data analysis. AMR appears in several types depends on measured data type and data transfer technologies. We can say that AMR is the best solution to measure, collect and analyse data for the Mega networks like the electricity transmission and distribution network in India. In 1897, the first ac transmission line was installed near Darjeeling. Since this age, it was very important to measure the energy that consumers pay for. Hence, the first generation of power meters was found which we know as (Watt-Hour meter) [1]. As most of us

REMOTE BASED INDUSTRIAL APPLIANCES CONTROL THROUGH RADIO FREQUENCY

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Abstract *— - Controlling industrial / home appliances is a very interesting and useful project. This project is designed to control up to four electrical appliances. This project used popular RF encoder and decoder IC's. Four Switches are connected to the RF Encoder. This encoded data is transmitted through a RF transmitter module. In the receiver side, the RF receiver module receives the encoded data and decodes using an RF Decoder. This decoded output data is given to triac driver. Loads are driven through triacs. Up to 7A load can be connected to these loads In this project 433 MHz RF transmitter and receiver modules are used. These are ideal for remote control applications where low cost and longer range is required. The transmitter operates from a1.5-12V supply, making it ideal for battery-powered applications. The transmitter employs a SAW-stabilized oscillator, ensuring accurate frequency control for best range performance. The manufacturing-friendly SIP style package and low-cost make the STT-433 suitable for high volume applications.*

INTRODUCTION:

In wired communication, the more signal loss occurs and the signal travels down the wire. This is why special cables have been developed to help preserve the strength of the signal. However, the use of such technology usually comes at a significant higher price.One clear disadvantage is you have to put wire everywhere. This can get cumbersome, difficult to hide, and time consuming in buildings that are already constructed (such as wiring your home). Another disadvantage that applies to industrial environments is copper/metal conductors wired between places that potentially have different ground potential rise (GPR) can cause equipment failures when ground voltage at one side of the wire becomes significantly higher than at the other end.

.

WIRELESS COMMUNICATION:

Wireless communication, as the term implies, allows information to be exchanged between two devices without the use of wire or cable. A wireless keyboard sends information to the computer without the use of a keyboard cable; a cellular telephone sends information to another telephone without the use of a telephone cable. Changing television channels, opening and closing a garage door, and transferring a file from one computer to another can all be accomplished using wireless technology. In all such cases, information is being transmitted and received using electromagnetic energy, also referred to as electromagnetic radiation. One of the most familiar sources of electromagnetic radiation is the sun; other common sources include TV and radio signals, light bulbs and microwaves. To provide background information in understanding wireless technology, the electromagnetic spectrum is first presented and some basic terminology defined.

RF COMMUNICATION

Radio frequency (RF) is a frequency or rate of oscillation within the range of about 3 Hz to 300 GHz. This range corresponds to frequency of alternating current electrical signals used to produce and detect radio waves. Since most of this range is beyond the vibration rate that most mechanical systems can respond to, RF usually refers to oscillations in electrical circuits or electromagnetic radiation.Electrical currents that oscillate at RF have special properties not shared by direct current signals. One such property is the ease with which it can ionize air to create a conductive path through air. This property is exploited by 'high frequency' units used in electric arc welding. Another special property is an electromagnetic force that drives the RF current to the surface of conductors, known as the skin effect. Another property is the ability to appear to flow through paths that contain insulating material, like the dielectric insulator of a capacitor. The degree of effect of these properties depends on the frequency of the signals.

PROPOSED WORK

Radio Frequency Based Remote Industrial Appliances Control System is an interesting project of operating the industrial appliances by using wireless communication.Industry is a place consisting of many machines, boilers , motors etc. Manually it is very difficult for a person to switch on and off all the appliances in an industry. It might even cause harm to the person due to high voltages. This project is specially

Area-delay efficient binary adders in QCA

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Abstract

In this paper, a novel quantum-dot cellular automaton (QCA) adder design is presented that reduces the number of QCA cells compared to previously reported designs. The proposed one-bit QCA adder structure is based on a new algorithm that requires only three majority gates and two inverters for the QCA addition. By connecting n one-bit QCA adders, we can obtain an n-bit carry look-ahead adder with the reduced hardware while retaining the simple clocking scheme and parallel structure of the original carry look-ahead approach. The proposed adder is designed and simulated using the QCADesigner tool for the four-bit adder case. The proposed design requires only about 70% of the hardware compared to previous designs with the same speed and clocking performance.

Keywords- quantum-dot cellular; adder; carry look-ahead;

I. INTRODUCTION

A quantum-dot cellular automaton (QCA) has been recognized as one of the technologies that may replace field-effect transistor (FET)-based computing devices at the nano-scale level. In QCA, binary information is encoded in the charge configuration within quantum dot cells. Many studies have reported that QCA can achieve high device density, extremely low power consumption, and very high switching speed [1], [2]. First proposed in 1993 by Lent, et. al and fabricated in 1997, QCA is expected to play an important role in nanotechnology research [3], [4].

Recently, QCA adders have been studied intensively [5]- [7]. Initial adder designs were constructed with five majority gates (a fundamental QCA logic gate) and three inverters [5]. By connecting n such one-bit QCA full adders, a carry look- ahead (CLA) adder can be obtained, since the carry is generated before the sum in the QCA adder [6]. A new bit- serial QCA adder has also been proposed [7] that uses carry feedback and only requires three majority gates and two inverters. However, this bit-serial approach requires a complicated clocking scheme and feedback control.

In this paper, a novel QCA adder design is presented that reduces the number of QCA cells when compared to previously reported designs. We demonstrate that it is possible to design a CLA QCA one-bit adder, with the same reduced hardware as the bit-serial adder, while retaining the simpler clocking scheme and parallel structure

Gates and two inverters for the QCA addition. It is noted that the bit-serial QCA adder uses a variant of the proposed one-bit QCA adder.   By connecting n
Proposed one-bit QCA adders, we can obtain an efficient n-bit QCA adder with CLA.

The rest of the paper is organized as follows. In Section II,we introduce some background material on QCA technology. In Section III we propose a new QCA addition algorithm and the corresponding one-bit QCA adder structure that reduces the number of majority gates and inverters required by existing designs [5],[6]. Then we demonstrate that, using this structure, we can obtain efficient n-bit CLA QCA adders. In Section IV we use simulation results obtained from QCADesigner [6] to compare our new adder design with previously published designs [5]-[7]. Finally, we conclude the paper in Section V.

II.   BACKGROUND MATERIALS

A QCA Basics

QCA is based on the interaction of bi-stable QCA cells constructed from four quantum-dots. A high-level diagram of two polarized QCA cells is shown in Fig. 1. Each cell is constructed from four quantum dots arranged in a square pattern. The cell is charged with two electrons, which are free to tunnel between adjacent dots. These electrons tend to occupy antipodal sites as

result of their mutual electrostatic repulsion. Thus, there exist two equivalent energetically minimal arrangements of the two electrons in the QCA cell as shown in Fig. 1. These two arrangements are denoted as cell polarization P = +1 and P = -1 respectively. By using cell polarization P = +1 to represent logic "1" and P = -1 to represent logic "0", binary information can be encoded.

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FOOT STEP POWER GENERATION FOR RURAL ENERGY APPLICATION TO RUN AC AND DC LOADS

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Abstract— **In this project we are generating electrical power as non-conventional method by simply walking or running on the foot step. Non-conventional energy system is very essential at this time to our nation. Non-conventional energy using foot step is converting mechanical energy into the electrical energy. This project uses piezoelectric sensor. In this project the conversion of the force energy in to electrical energy. The control mechanism carries the piezo electric sensor, A.C ripples neutralizer, unidirectional current controller and 12V, 1.3Amp lead acid dc rechargeable battery and an inverter is used to drive AC/DC loads. The battery is connected to the inverter. This inverter is used to convert the 12 Volt D.C to the 230 Volt A.C. This 230 Volt A.C voltage is used to activate the loads. We are using conventional battery charging unit also for giving supply to the circuitry.**

Index Terms— **piezoelectric sensor, inverter, conventional battery.**

I. INTRODUCTION

Man has needed and used energy at an increasing rate for his sustenance and well-being ever since he came on the earth a few million years ago. Due to this a lot of energy resources have been exhausted and wasted. Proposal for the utilization of waste energy of foot power with human locomotion is very much relevant and important for highly populated countries like India and China where the roads, railway stations, bus stands, temples, etc. are all over crowded and millions of people move around the clock. This whole human/ bio-energy being wasted if it can be made possible for utilization it will be great invention and crowd energy farms will be very useful energy sources in crowded countries. Walking is the most common activity in day to day life. When a person walks, he loses energy to the road surface in the form of impact, vibration, sound etc, due to the transfer of his weight on to the road surface, through foot falls on the ground during every step. This energy can be tapped and converted in the usable form such as in electrical form. In this project the main role is played by piezoelectric sensor. These sensors convert the mechanical energy into electrical energy. This energy stored in rechargeable battery and this energy is used for operating A.C and D.C.

II.REVIEW

Sensors are sophisticated devices that are frequently used to detect and respond to electrical or optical signals. A **Sensor** converts the physical parameter (for example: temperature, blood pressure, humidity, speed, etc.) into a signal which can be measured electrically. Let's explain the example of temperature. The mercury in the glass thermometer expands and contracts the liquid to convert the measured temperature which can be read by a viewer on the calibrated glass tube. If the sensor is not ideal, several types of deviations can be observed: The sensitivity may in practice differ from the value specified. This is called a sensitivity error, but the sensor is still linear. Since the range of the output signal is always limited, the output signal will eventually reach a minimum or maximum when the measured property exceeds the limits. The full scale range defines the maximum and minimum values of the measured property. If the output signal is not zero when the measured property is zero, the sensor has an offset or bias. This is defined as the output of the sensor at zero input. If the sensitivity is not constant over the range of the sensor, this is called nonlinearity. Usually this is defined by the amount the output differs from ideal behavior over the full range of the sensor, often noted as a percentage of the full range. If the deviation is caused by a rapid change of the measured property over time, there is a dynamic error. Often, this behavior is described with a bode plot showing sensitivity error and phase shift as function of the frequency of a periodic input signal. If the output signal slowly changes independent of the measured property, this is defined as drift (telecommunication). Long term drift usually indicates a slow degradation of sensor properties over a long period of time. Noise is a random deviation of the signal that varies in time. Hysteresis is an error caused by when the measured property reverses direction, but there is some finite lag in time for the sensor to respond, creating a different offset error in one direction than in the otherIf the sensor has a digital output, the output is essentially an approximation of the measured property. The approximation error is also called digitization error. If the signal is monitored digitally, limitation of the sampling frequency also can cause a dynamic error, or if the variable or added noise noise changes periodically at a frequency near a multiple of the sampling rate may induce aliasing errors. The sensor may to some extent be sensitive to properties other than the property being measured. For example, most sensors are influenced by the temperature of their environment. All these deviations can be classified as systematic errors or random

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EMBEDDED PASSWORD BASED SECURITY DOOR LOCK SYSTEM USING I^{2}C PROTOCOL

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Abstract— **Security is prime concern in our day-to-day life. Every one wants to be as much as secure as to be possible. An access control systems forms a vital link in a security chain. The micro controller based digital lock presented here is an access control system that allows only authorized persons to access a restricted area. This system is best suitable for corporate offices, ATMs and home security. The system comprises a small electronic unit with a numeric keypad, which is fixed out side the entry door to control a solenoid-operated lock with the help of a stepper motor. When an authorized person enters predetermined user ID and password via the keypad, the stepper motor is operated for a limited time to unlatch the solenoid-operated lock so the door can be open. At the end of preset delay, the stepper motor is operated in reverse direction and the door gets locked again.**

When the code has been incorrectly entered three times in a row, the code lock will switch to block mode. This function thwarts any attempt by 'hackers' to quickly try a large number of codes in a sequence. If the user forgets his password, the code lock can be accessed by a unique 10 digit administrator password. The secret code can be changed any time after entering the current code (Master code).A buzzer is provided for audio acknowledgment of the key impression. Whenever a key is pressed on the numeric key pad, the system acknowledges the impression by a short beep sound. This buzzer is driven by an NPN transistor.This project uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac out put of secondary of 230/12V step down transformer

Introduction

An embedded system is a combination of software and hardware to perform a dedicated task.Some of the main devices used in embedded products are Microprocessors and Microcontrollers .Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result.

The Project Embedded Password based Electrical Appliances control system using 89C51 Microcontroller is an excellent project that provides security in every way.

This project is very useful in places where security is must.**Security** is the condition of being protected against danger or loss. In the general sense, security is a concept similar to safety. The nuance between the two is an added emphasis on being protected from dangers that originate from outside. Individuals or actions that encroach upon the condition of protection are responsible for the breach of security. The word "security" in general usage is synonymous with "safety," but as a technical term "security" means that something not only is secure but that it has been secured. One of the best options for providing good security is by using a technology named embedded systems.

I.OVERVIEW OF EMBEDDED SYSTEM

ARCHITECTURE

The system consists of a PV-FC hybrid source with the main grid connecting to loads at the PCC as shown in Fig.

1.The photovoltaic [3], [4] and the PEMFC [5], [6] are modelled as nonlinear voltage sources. These sources are connected to dc–dc converters which are coupled at the dc side of a dc/ac inverter.

Layered Architecture of an Embedded System
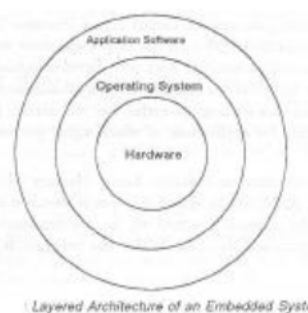
have an operating system in every embedded system. For small appliances such as remote control units, air conditioners, toys etc., there is no need *for* an operating system and you can write only the software specific to that application. For applications involving complex processing, it is advisable to have an operating system. In such a case, you need to integrate the application software with the operating system and then transfer the entire software on to the memory chip. Once the software is transferred to the memory chip, the software will continue to run *for* a long time you don't need to reload new software.

FPGA Implementation of Secured and Apparent Electronic Voting Machine Using Verilog HDL

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Abstract

Electronic Voting Machine is an electronic voting device used for conducting the elections electronically. It consists of two units that can be inter-linked; a ballot unit which a voter uses to exercise his vote and a control unit which used by the polling officials. As there is no available design of Electronic Voting Machine using Verilog FPGA, in this paper, we introduce an efficient, transparent andsecured FPGA implementation of EVM using Verilog HDL. The design is coded in Verilog hardware description language at Register Transfer Level (RTL), simulated in Model Sim, synthesized in Quartus II andimplemented in Cyclone II FPGA using the AlteraDE1 board.

Key words: *EVM, RTL, Verilog HDL, FPGA, VLSI, FSM*

INTRODUCTION

For a democratic country, public opinion is the most important to establish a government. Voting is the process through which people display their opinion and help to setup a democratic government. So the voting system should be reliable, accurate and it must be transparent. The voting system is still paper ballot based, a very outdated process. The whole world is looking forward to E-voting rather than using paper ballots in voting. Today Electronic Voting Machines has become a major concern in electoral mechanisms in general elections. Considering these points, we made the design for an Electronic Voting Machine using Verilog FPGA, which absolutely is an original design of our own where with the advantages of VLSI design methodology and Verilog codes; we focused on implementing proficient, secured and apparent satisfactorily error free electronic voting device.

The rest of this paper is organized as follows. Section II present design description . Section III shows design hierarchy and section IV shows describes entire block design. Section V describes methodology and hardware part and section VI describe the result of our design. Advantages and conclusions are given in Section VII respectively.

II DESIGN DESCRIPTION

This section should provide the reader with all the information necessary to repeat the work. Our voting machine works as same as electronic voting device. But there is a little bit change we made on our voting machine. Our voting machine does not totally depend on electronic system. We also include a punch system which performs quite similar operation like paper ballot system does. Voting contains the instantiations of the other 5 modules, which are 5 separate source files of the 5 different operations. Inside Ballot module and Control module, there are another two modules separately instantiated.We use five different steps for our design. Firstly we have to prepare our design specification. From our design specification we write RTL Description. Then
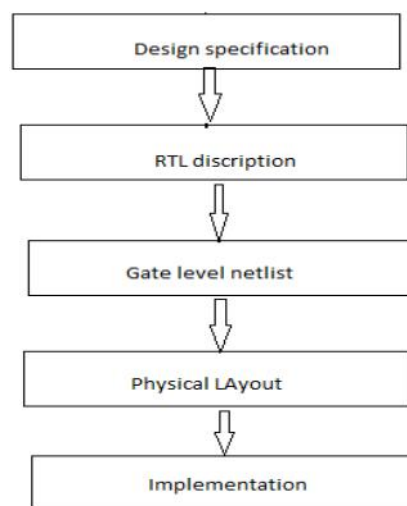
we convert our RTL f our design. Finally we implement our description to Gate level design.

AUTOMATIC CAR INDICATORS

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1. Abstract— **Learners of car will face some problems and they will be in confusion during starting days of learning. So to help them we are implementing a proto type project to indicate the direction of movement of car. Most of prototype vehicles will be implemented using DC motors. DC motor is found with lots of applications in computer peripherals, business machines, process control, machine tools and robotics. Especially in robotics and process control unit like silicon processing, I.C.Bonding and Laser trimming applications, it is necessary to control the DC motor. This project is to control the car direction using switches. This deals with the design and development of hardware and software for DC motor control system. Switches are used to control the direction. When the corresponding switches are pressed the car turns in right, left and stop respectively. In almost all the robotic applications DC motor are used, we are implementing car direction with this motor. Here we are also using a LED array to indicate the direction.**

Keywords: H- Bridge, DC motor, LED Array, Switch array, Bridge Rectifier ,regulator

2.INTRODUCTION

An embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and Microcontrollers.Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result. As everyone in this competitive world prefer to make the things easy and simple to handle, this project sets an example to some extent. In this busy and competitive world, human cannot spare time to do the things manually. He tries to atomize the things around him up to a maximum extent. There are many techniques to atomize the things around at the best level. One of the efficient techniques to atomize the things in an easy way is through this project. An embedded system can be defined as a computing device that does a specific focused job. Appliances such as the air-conditioner, VCD player, DVD player, printer, fax machine, mobile phone etc. are examples of embedded systems. Each of these appliances will have a processor and special hardware to meet the specific requirement of the application along with the embedded software that is executed by the processor for meeting that specific requirement. The embedded software is also called "firm ware". The desktop/laptop computer is a general purpose computer. You can use it for a variety of applications such as playing games, *word* processing, accounting, software development and so on. In contrast, the software in the embedded systems is always fixed.

3. RELATED WORK

POWER SUPPLY The input to the circuit is applied from the regulated power supply. The a.c. input i.e., 230V from the mains supply is step down by the transformer to 12V and is fed to a rectifier. The output obtained from the rectifier is a pulsating d.c voltage. So in order to get a pure d.c voltage, the output voltage from the rectifier is fed to a filter to remove any a.c components present even after rectification. Now, this voltage is given to a voltage regulator to obtain a pure
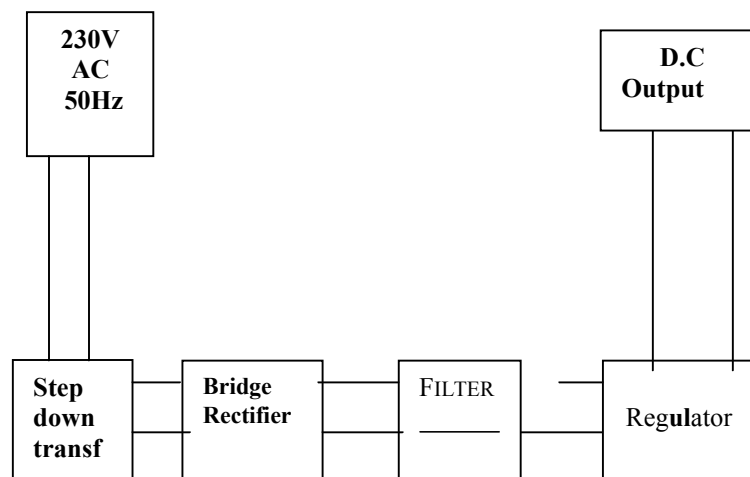
Fig: Power supply

TRANSFORMER

Usually, DC voltages are required to operate various electronic equipment and these voltages are 5V, 9V or 12V. But these voltages cannot be obtained directly. Thus the a.c input available at the mains supply i.e., 230V is to be brought down to the required voltage level. This is done by a transformer. Thus, a step down transformer is employed to decrease the voltage to a required level

Farmer Friendly Solar based Electric Fencer for Rural Agriculture

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ABSTRACT:

Electric fences can be used to protect farmhouses, farmlands, forest bunglows, etc from animals. In a way, these simulate the job of a cowboy or forest guard. Already popular in countries where manpower is expensive, electric fences are slowly becoming popular in India as well. These control the animals by giving them a short, sharp but safe shock that teaches them to stay away from the fence. Thus electric fences are economical and practical solutions to maximize field production through controlled grazing. Electric fencing is safe, as its output is discrete (not continuous). There is certain time duration between two pulses that prevents prolonged shocking to animals or people. In addition, the short 'on'-time (normally 1/5000th of a second) prevents heat build-up.

This paper works on principle of stable multivibrator. A free running oscillator is designed to generate square wave and the output is given to push-pull amplifier. This square wave is stepped up to high voltage level and can be connected to the fence. This fence system is powered by a 12V rechargeable battery. A solar panel is connected to the battery to charge on day time. A normal PN junction diode is used for unidirectional low of charge current. The battery also can be charged from house hold AC supply of 230V, 50 Hz. The battery charger circuit is designed to charge the battery with the help of house hold AC supply for emergency conditions. This circuit uses regulated 12V, 750mA power supply. 7812 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/18V step down transformer.

Key words

Electric fencing, multivibrator, PN junction diode

INTRODUCTION

An electric fence is a barrier that uses electric shocks to deter animals or people from crossing a boundary. The voltage of the shock may have effects ranging from uncomfortable, to painful or

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DESPECKLING OF OPTICAL COHERENCE TOMOGRAPHY IN THE CONTOURLET DOMAIN

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ABSTRACT:

An important image post-processing step for optical coherence tomography (OCT) images is speckle noise reduction. Noise in OCT images is multiplicative in nature and is difficult to suppress due to the fact that in addition the noise component, OCT speckle also carries structural information about the imaged object. To address this issue, a novel speckle noise reduction algorithm was developed. Speckle noise reduction is a prerequisite task in images captured by OCT systems due to their inherent noisy nature. In this work, we propose a new despeckling method in the contourlet domain using the Cauchy prior. The multiplicative speckle noise is first transferred to an additive one using a logarithmic transform. The logarithmically-transformed contourlet coefficients of the image and noise are assumed to be the Cauchy and Maxwell distributions, respectively. In order to estimate the noise-free contourlet coefficients, an efficient closed-form Bayesian maximum a posteriori estimator is developed. Simulations are carried out to evaluate the performance of the proposed despeckling method by using the synthetically-speckled and real OCT images. It is shown that the proposed method outperforms several existing techniques in terms of the signal-to-noise ratio and is able to preserve the diagnostically significant details of the OCT images.

Keywords—

OCT image despeckling; contourlet transform; Cauchy distribution; Bayesian MAP estimator.

I. INTRODUCTION

It is known that the Optical Coherence Tomography (OCT) systems are intrinsically contaminated by the speckle noise. Speckle noise considerably degrades the image quality and obscures making a diagnosis. Despeckling of OCT images is an inevitable preprocessing procedure in order to avoid any negative impact on diagnostic task. Several techniques, from spatial filters for e.g., median, and Wiener filters to frequency domain filters for e.g., homomorphic filter and wavelet shrinkage, have been proposed to reduce the speckle noise. Spatial domain filters, however, suppress the speckle noise at the expense of blurring many important image details. The frequency domain techniques, on the other hand, have shown to preserve

more details such as anatomical boundaries in the image. The homomorphic filter-based method has been proposed to convert the multiplicative speckle noise to an additive one using a logarithmic transformation. This method has been combined by the Bayesian estimators to outperform classical linear processors and simple thresholding estimators in removing speckle noise from OCT images. In Bayesian methods, a suitable probability density function (PDF) is utilized as a prior model for characterizing the log-transformed coefficients. A Bayesian MAP estimator is developed by using the Gaussian PDF for modeling the signal coefficients, and the Rayleigh PDF for modeling the log-transformed speckle noise. A homomorphic method for simultaneous compression and denoising of OCT images has been developed by modeling the coefficients using the generalized Gaussian PDF. A homomorphic method has been proposed in the wavelet domain. A multiscale-based method for despeckling the OCT images has been proposed by employing a generalized likelihood ratio. The contourlet transform has been shown to provide significant noise reduction in comparison to that provided by the earlier wavelet-based methods. This is due to its flexible directional decomposability in each scale as compared to the wavelet transform in representing smooth contour details in images. The contourlet subband coefficients of an image have been shown to be highly non-Gaussian and heavy-tailed and thus, modeled by the non- Gaussian distributions such as the Cauchy PDF. It should be noted that the performance of the Bayesian estimators depend significantly on the accuracy of the models assumed for the prior PDFs of the log-transformed OCT image and noise. In many works, the noise PDF has been considered to follow the Gamma PDF. However, after logarithmic transformation made by the homomorphic filter the speckle noise is converted to an additive one. In this work, a new contourlet domain method for despeckling medical OCT images is proposed. The contourlet coefficients of the log-transformed reflectivity are modeled by the Cauchy PDF while those of the log transformed noise are assumed to follow the Maxwell

Collision Management Technique ForRFID Tag's

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Abstract: -This paper presents a proposed collision management technique for Radio Frequency Identification passive tag's. The Anti-collision technique architecture consists of two main subsystems; pre-collision subsystem and post-collision subsystem. The First subsystem is to detect any error in the incoming messages. Then the identification bit of the no error packet will be fed to the next subsystem. The Second subsystem is to identify the tag by using the proposed Fast-search Lookup Table. The proposed system is designed using Verilog HDL. The system is simulated using Modelsim and synthesized using Xilinx Synthesis Technology. Finally the Anti-collision technique architecture is resynthesized using from the hardware verification results, it shows that the proposed Anti-collision technique system enables to identify the tags without error at the maximum operating frequency of 261 MHz and the average connection delay is 1.15 ns. Maximum pin delay is 4.177ns.

1. Introduction

The main role of the Data link layer is to convert the unreliable physical link between reader and tag into a reliable link. Therefore, the RFID system employs the *Cyclic Redundancy Check* (CRC) as an error detection scheme. The CRC calculation consists of an iterative process involving Exclusive-ORs and shift register, which is executed much faster in hardware compare in software. Whenever Reader communicates with the multiple tags, an anti -collision technique is required. The technique is to coordinate the communication between the reader and the tags. The common deterministic anti-collision techniques are based on the Tree algorithm such as the Binary Tree.

2.About RFID

RFID (Radio Frequency Identification) is a method of identifying unique items using radio waves. Typical RFID systems are made up of three components: readers (interrogators), antennas and tags (transponders) that carry the data on a microchip.

RFID technology is used today in many applications, including security and access control, transportation and supply chain tracking. It is a technology that works well for collecting
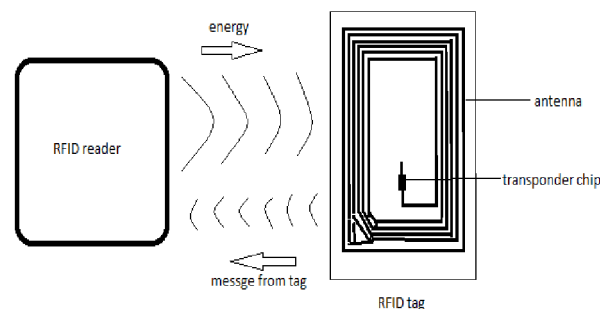
multiple pieces of data on items for tracking andcounting purposes in a cooperative environment.

3.RFID principles:

Many types of RFID exist, but at the highest level, we can divide RFID devices into two classes: active and passive. Active tags require a power source—they're either connected to a powered infrastructure or use energy stored in an integrated battery. In the latter case, a tag's lifetime is limited by the stored energy, balanced against the number of read operations the device must undergo. One example of an active tag is the transponder attached to an aircraft that identifies its national origin. Another example is a LoJack device attached to a car, which incorporates cellular technology and a GPS to locate the car if stolen. However, batteries make the cost, size, and lifetime of active tags impractical for the retail trade. Passive RFID is of interest because the tags don't require batteries or maintenance. The tags also have an indefinite operational life and are small enough to fit into a practical adhesive label. A passive tag consists of three parts: an antenna, a semiconductor chip attached to the

antenna, and some form of encapsulation. The tag reader is responsible for powering and communicating with a tag.

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A CONTROL STRATEGY IN POWER MANAGEMENT FOR A GRID CONNECTED PV-FC HYBRID SYSTEM

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Abstract— **This paper presents a method of maximum power point tracking, MPPT using adaptive fuzzy logic control for grid connected photovoltaic system. The system composed of photovoltaic module, boost converter and the fuzzy logic controller. The maximum power point tracking control is based on adaptive fuzzy logic to control ON/OFF time of MOSFET switch of boost converter. The complete simulation results using Simulink software for the whole system containing the PV array, boost converter, and fuzzy controller were presented. The control strategy for the boost converter and the whole system is carried out by using field programmable gate array (FPGA)**

Index Terms— **Maximum power point tracking, fuzzy logic controller ,photovoltaic array,Pemfc(proton exchange membrane fuel cell) model**

I. INTRODUCTION

Renewable energy is currently widely used. One of these resources is solar energy. The photovoltaic (PV) *array normally uses a maximum power point tracking (MPPT)* technique to continuously deliver the highest power to the load when there are variations in irradiation and temperature. The disadvantage of PV energy is that the PV output power depends on weather conditions and cell temperature, making it an uncontrollable source. Furthermore, it is not available during the night. In order to overcome these inherent drawbacks, alternative sources, such as PEMFC, should be installed in the hybrid system. By changing the FC output power, the hybrid source output becomes controllable. However, PEMFC, in its turn, works only at a high efficiency within a specific power range [1], [2]. The hybrid system can either be connected to the main grid or work autonomously with respect to the grid-connected mode or islanded mode, respectively. In the grid-connected mode, the hybrid source is connected to the main grid at the point of common coupling (PCC) to deliver power to the load. When load demand changes, the power supplied by the main grid and hybrid system must be properly changed. The power delivered from the main grid and PV array as well as PEMFC must be coordinated to meet load demand. Generally the hybrid source has two control modes: 1) unit-power control (UPC) mode and feeder-flow control (FFC) mode. In the UPC mode, variations of load demand are compensated by the main grid because the hybrid source output is regulated to reference power. Therefore, the reference value of the hybrid source output must be determined. In the FFC mode,

the feeder flow is regulated to a constant, the extra load demand is picked up by the hybrid source, and hence, the feeder reference power must be known. Here Fuzzy logic or fuzzy set theory is a new method of controlling the MPPT is implemented in obtaining the peak power point. It has the advantage of being robust, fast in response. Fuzzy controller operates in two basic modes coarse and fine modes. The proposed fuzzy operating strategy is to coordinate the two control modes and determine the reference values of the fuzzy control so that all constraints are satisfied. This operating strategy will minimize the number of operating mode changes, improve performance of the system operation, and enhance system stability.

II. SYSTEM DESCRIPTION

The system consists of a PV-FC hybrid source with the main grid connecting to loads at the PCC as shown in Fig.

1.The photovoltaic [3], [4] and the PEMFC [5], [6] are modelled as nonlinear voltage sources. These sources are connected to dc–dc converters which are coupled at the dc side of a dc/ac inverter.
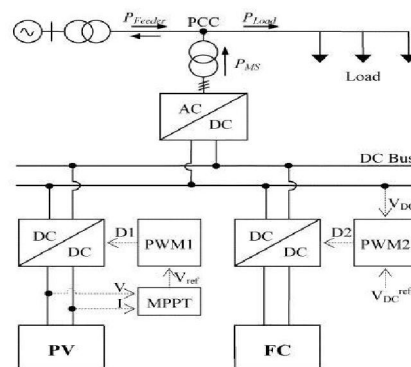
Fig. 1. Grid-connected PV-FC hybrid system.

The dc/dc connected to the PV array works as an MPPT controller. Many MPPT algorithms have been proposed in the literature, such as incremental conductance (INC), constant voltage (CV), and perturbation and observation (P&O). The P&O method has been widely used because of its simple feedback structure and fewer measured parameters [7]. The P&O algorithm with power feedback control [8]–[10] is shown in Fig. 2.As PV voltage and current are determined, the power is calculated. At the maximum power point, the derivative dp/dv is equal to zero. The maximum power point can be achievedby changing the reference voltage by the

DESIGN AND IMPLEMENTATION OF BCH CODE FOR ERROR DETECTION AND CORRECTION OF DIGITAL SYSYEMS

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Abstract— **In general Error correction codes (ECCs) are commonly used to protect memories against errors. Among ECCs, OLS codes have gained renewed interest for memory protection due to their modularity and simplicity of the decoding algorithm that enable slow delay implementations. An important issue is that when ECCs is used, the encoder and decoder circuits can also suffer errors**. **The proposed method uses a concurrent error detection technique for the properties of BCH codes to efficiently implement a parity prediction scheme that detects all errors that affect a single circuit node, which reduces the parity bits, area, error detection and correction delay and its performance is simulated by using Xilinx**

Key words- **Error correction codes, OLS codes, BCH codes, correction delay**

I. INTRODUCTION

Error correction codes (ECCs) have been utilized to secure memories for a long time. There will be a wide range of codes that will be utilized or have been proposed for memory applications. Single Error Correction(SEC) codes that can amend one bit for every statement are normally utilized. More exceptional codes that can additionally right twofold contiguous lapses or twofold slips by and large have likewise been mulled over. The utilization of more mind boggling codes that can revise more mistakes will be restricted by their effect on delay and power, which can limit their materialness to memory outlines.

To defeat those issues, the utilization of codes that are one step majority logic decodable (OS-MLD) has as of late been proposed. OS-MLD codes might be decoded with low idleness and are, accordingly, used to ensure memories. Among the codes that are OS- MLD, a sort of Euclidean geometry (EG) code has been proposed to secure memories. The utilization of distinction set code has

additionally been as of late dissected in. An alternate kind of code that is OS-MLD is BCH code .The utilization of BCH codes has picked up reestablished enthusiasm for interconnections, memories, and stores. This is because of their seclusion such that the lapse revision abilities might be effortlessly adjusted to the blunder rate or to the mode of operation. RS codes regularly require more equality bits than different codes to revise the same number of lapses. The rest of this brief is organized as follows. Section II provides an overview of OLS and Extended OLS codes summarizing some of their properties that are used in the rest of this paper. Then, the proposed method for error detection and correction is presented in Section III. Section IV speaks of the results. Finally, the conclusions are presented in Section V.

Notwithstanding, their measured quality and the straightforward and low defer disentangling usage (as BCH codes are OS-MLD), counterbalance this inconvenience in numerous applications. A vital issue is that the encoder and decoder circuits required to utilize (Eccs) can likewise endure lapses. At the point when a slip influences the encoder, an inaccurate word may be built into the memory.

II VARIOUS CODE TECHNIQUES:

1. DUPLEX SYSTEM:

DESIGN OF HIGH SPEED AND LOW POWER
15-4COMPRESS

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Abstract—**This paper presents a low power and high speed 15-4 Compressor for digital signal processing applications. A new 5-3 compressor also proposed which is faster and also consumes less power than the conventional 5-3 compressor. This proposed 5-3 compressor is utilized in 15-4 compressor which will results in low power and high speed. Proposed 15-4 compressor is 11.01% faster and power consumption is reduced by 8.7%.**

IndexTerms—**5-3 compressor, 15-4 compressor, Compressors, High Speed, Low Power.**

I. INTRODUCTION

DIGITAL signal processing area is widely used in order to perform complex operations like DFT (Discrete Fourier transform), FFT [6, 7] (Fast Fourier transform), convolution, filtering and etc. Multiplier is the basic block required for many signal processing applications.

Multiplication is the complex operation which consumes most of the processing time and power. So designing the high speed multiplier [8] is one of the challenging tasks. The multiplication process mainly consists of three steps [3, 4]. They are 1. Partial product generation 2. Partial product reductions 3.Final carry propagating addition. Reduction of partial product takes much time and power in the multiplier. Many techniques have been proposed to reduce vertical critical path in the multiplier. Using compressor in partial products reduction step is so popular. Compressors are basic circuits which counts the number of ones in the given input. There are many compressors available e.g. 3-2 compressor, 4-2 compressor, 5-2 compressor, 5-3 compressor and so on [1]. Digital signal processing [9] involves large multiplication (to perform complex operation) where multiplier and multiplicand exceeds 128bit or more. For such operations, using of small compressors like 5-2 and 7-2 would not give better performance in terms of speed and power. Design of higher bit compressor is required for such applications. This paper is focused on 15-4 compressor which can be used for multiplier. This multiplier can be used in many signal processing applications. In this paper, conventional 5-3 compressor is presented in section II. In section III, a proposed 5-3 compressor is presented. Section IV shows the design of 15-4 compressor. Section V consists of simulation results and section VI has conclusion.

II. CONVENTIONAL 5-3 COMPRESSOR

The conventional 5-3 compressor architecture is showed in fig 1.Conventional 5-3 compressor has five inputs and three outputs. It will compress five partial products into three outputs. It has five XOR gates and two MUX and one AND gate. In order to generate O0 three XOR gates are required. XOR gate has more critical delay than any other gate. So conventional5-3 compressor has more delay and consumes more power. Further optimization of this compressor is possible. The proposed design gives better performance than conventional structure.
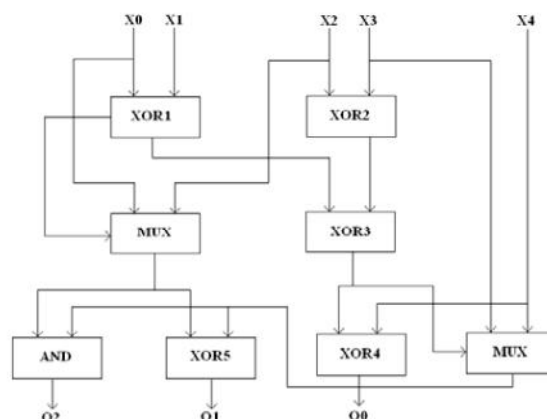
Fig. 1.Conventional 5-3 compressor

III. PROPOSED 5-3 COMPRESSOR

Conventional 5-3 compressor has five XOR gates to generate the output. The circuit has been rearranged so that the use of XOR gates is reduced. Proposed 5-3 compressor is designed with the help of three 4-1 MUX. Three partial products from partial product array are given as input and two partial products are given as control signal for multiplexer. D and E are given as control signals which are readily available. So generation of output (O1, O2 and O3) is faster. As we know multiplexer is faster and consumes less power because only one input is active at any instant of time based on control signals(D&E).This idea is used to design a proposed 5-3 compressor. The equation of proposed 5-3 compressor is

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OBJECT RECOGNITION USING CONSTRAINTS FROM PRIMITIVE SHAPE MATCHING

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Abstract—In this paper, an object recognition and pose estimation approach based on constraints from primitive shape matching is presented. Additionally, an approach for primitive shape detection from point clouds using an energy minimization formulation is presented. Each primitive shape in an object adds geometric constraints on the object's pose. An algorithm is proposed to find minimal sets of primitive shapes which are sufficient to determine the complete 3D position and orientation of a rigid object. The pose is estimated using a linear least squares solver over the combination of constraints enforced by the primitive shapes. Experiments illustrating the primitive shape decomposition of object models, detection of these minimal sets, feature vector calculation for sets of shapes and object pose estimation have been presented on simulated and real data.

I. Introduction

Object detection, recognition and pose estimation using 3D data is a classic problem in computer vision. There are several types of approaches widely used for this problem. Purely shape based approaches include geometric shape detection [1], primitive shape graphs [2], [3], surflet-pair based approaches [2], [4], [5] and triple-point feature method [6]. Keypoint and descriptor based approaches include local color keypoint [7], [8], local shape keypoint [9] and global descriptors [10]. Each of these approaches have their own advantages and disadvantages. Color based methods work only on textured objects, while purely shape based approaches can not distinguish between objects having identical shape but different texture. Global descriptors such as VFH [10] require a cumbersome training phase, where a large number of object views need to be generated by real experiments. Besides, their accuracy decreases significantly in case of occlusions and partial views. The advantage of these methods lies in their computational speed. On the other hand, methods such as [3], [4], [5] are designed to be robust to partial views, occlusions and noisy data but don't scale well for real-time applications or large point clouds. This work focuses on object detection using shape information, since the applications we deal with involve industrial parts which are often metallic and texture-less. Another important property of these parts is that they are often composed of simpler geometric parts and hence, their geometries can be approximated accurately using a set of primitive shapes such as planes, cylinders, sphere, etc. Primitive shape detection from 3D data, which is essential for this approach, is also a well-researched topic. Some of the prominent approaches include detection of planes and 3D conics [3], super quadrics [11] and fast plane detection [12]. In this paper, we propose an energy minimization based approach which can handle different kinds of primitive shapes, given that the distance of a candidate point from the shape and an estimate of the complexity of the shape representation can be calculated. Our approach is similar to the one presented in [2]. A key difference in our work is that the iterations for merging/filtering of primitive shapes are now included in the energy minimization approach itself. Hence, heuristics for merging shapes are no longer required. An important concept presented in this work is an algorithm to detect minimal sets of primitive shapes in an object model. In [2], the authors presented the concept of minimal sets for 3D pose estimation. However, possible combinations such as 3 planes or a plane and a cylinder were defined explicitly. In our approach, we model the constraints that each primitive shape enforces on the object's pose and can detect these minimal sets automatically from a set of shapes. Also, the object recognition approach can handle over-specified constraints and estimate the pose in a least-squares sense. This provides additional tolerance to noise in the estimation of the primitive shape parameters. Finally, an approach for calculating feature vectors from sets of primitive shapes is presented, that can be used for object recognition. These features contain not only the features from each of the primitive shapes, but also encode geometric properties which arise from combinations of these primitive shapes.

II. Organization and Overview

In Section 3, the primitive shape decomposition approach is presented. In Section 4, the modeling of constraints from primitive shapes is presented. In Section 4.1, an algorithm for object recognition using feature vectors from sets of primitive shapes is presented. In Section 4.2, an algorithm for detection of minimal sets of primitive shapes is presented. In Section 4.3, a pose estimation approach using a least squares optimization over shape constraints is presented. Finally, in Section 5 an evaluation of the mentioned approaches and some applications are provided.

DESIGN OF NOISE FREE FILTER FOR SERIAL DATA COMMUNICATION

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Abstract

This paper portrays a novel design of Universal Asynchronous Receiver Transmitter (UART) in light of Recursive Running Sum (RRS) channel. UARTs are utilized for nonconcurrent serial information correspondence between remote implanted frameworks. In the event that physical channel is boisterous then, serial information bits get adulterated amid transmission. The vigorous UART center portrayed here, uses recursive running entirety channel to expel uproarious examples. Input information flag is straightforwardly examined with framework clock and tests are collected over a window estimate. The window size is client programmable and it ought to be set to one fifth of required piece period. The middle of the road information bit is decoded utilizing greatness comparator. A greater part voter is utilized to interpret genuine information bit from five halfway information bits. The benefit of this engineering is that baud rate is chosen by the window measure so there is no need of any outer "clock module" which is typically required for standard UARTs. The Recursive Running Sum (RRS) channel engineering with programmable window size of M is composed and modules are executed with VHDL dialect. This venture usage incorporates numerous applications in remote information correspondence Systems like RF, Blue tooth, WIFI, ZigBee remote sensor applications. Add up to coding written in VHDL dialect. Reproduction in ISE Simulator, Synthesis done by XILINX ISE 9.2i. Blend result is confirmed by the Chipscope. Input flag given from the console and yield is seen by the assistance of HyperTerminal.

Keywords: Serial information, Clock, Samples, Baud Rate, Noise

1. Introduction

 (UART) is used for asynchronous serial data communication between remote embedded systems. Standard UART cores utilize five mid-bit samples to decode the serial data bit and the sampling rate is derived from external timer module. But if the physical channel is noisy then data bits get corrupted during transmission and it leads to wrong data decoding at receiver. To overcome the noise problem a digital low pass filter based architecture is proposed in this paper.

Recursive Running Sum (RRS) is simple low pass filter; it can be used to remove noise samples from data samples at receiver [5]. Serial receive data signal is directly sampled with system clock and samples are fed to RRS filter. The window size of the filter is user programmable and it decides baud rate. RRS filter hardware implementation is described in section-2. Window size selection criteria are described in section-3. The UART Architecture is described in section-4 while section-5 gives simulation results and comparison with standard UART core. The robust UART core described here is designed using VHDL and implemented on Xilinx FPGA.

2. RRS Filter Implementation

The Recursive Running Sum (RRS) filter with window size of M is described by following equations.

$$H(z) = \frac{1 - z^{-M}}{1 - z^{-1}}$$

$$y(n) = x(n) + y(n-1) - x(n-M)$$

The hardware realization of the above equation is as shown in the Figure-1. It requires a Adder, subtracter, a unit delay and a M samples delay element. The window size (M) is related to baud rate which is user programmable. So M is variable, if a 16 bit register is used to hold value of M, it can have values from 0 to 65535. The hardware implementation of variable delay with above range would require 65535 D flip-flops and large number of combinatorial logic for MUX and selection logic implementation. So this implementation is not feasible for FPGA or ASIC platform.

Design of 7T SRAM Cell Using Self-Controllable Voltage Level Circuit to Achieve Low Power

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Abstract: *Modern ICs are enormously complicated due to decrease in device size and increase in chip density involving several millions of transistors per chip. The rules for what can and cannot be manufactured leads to a tremendous increase in complexity due to the amount of power dissipation is increased. Power dissipation can be in various forms as dynamic, sub threshold, etc. In this project first, a low power 7T SRAM Cell is designed and later it is build with "Self-controllable Voltage level" circuit for maintaining low power consumption and high performance. A Self-Controllable Voltage Level (SVL) Circuit can supply a maximum dc voltage when the load circuits are in active mode or it can also decrease the dc voltage supplied to a load circuit which is said to be in standby mode. This SVL circuit can reduce standby leakage power of CMOS logic circuits drastically with minimum chip size and speed by considering 7T as load circuit. Furthermore, it can also be applied to memories and registers, because such circuits using SVL technique can retain data even in the standby mode. The entire simulations have been done on 180nm single n-well CMOS bulk technology, in virtuoso platform of cadence tool with the supply voltage 0.7V and frequency of 25MHz.*

Keywords: Low Power, Leakage current, Static Random Access Memory (SRAM), Self Controllable Voltage Level (SVL).

1. Introduction

Low power design has emerged as a principal theme in today's electronics industry. As million of transistor is fabricating on single chip failure rate also increase and degradation of performance takes place so, the major concerns of the designer were area, performance, cost and reliability. In recent years, this has begun to change and increasingly power is being given comparable weight to area and speed considerations [1]. As modern technology is spreading fast, it is very important to design low power, high performance, and fast responding SRAM (Static Random Access Memory) [2]. This is especially true for microprocessors where the on-chip cache sizes are growing with each generation to bridge the increasing divergence in speed of the processors and main memory [3]. Hence the demand for static random-access memory (SRAM) is increasing with large use of SRAM in System-On-Chip and high performance VLSI circuits [4].Due to the increased integration and operating speeds power dissipation has become an important consideration for the need of battery operated devices where the scaling is continued in CMOS technology [5].SRAM cell design depend upon the speed and size of the cell, SRAM cell should be sized as small as possible so large number of transistors can be fabricated on single chip, and we achieve high density in memory design. Typical SRAM cell consists of six MOSFETS. It consists of two invertors connected in back to back followed by the access transistors. Each bit in an SRAM is stored on four transistors that form two cross-coupled inverters. Apart from this the storage cell has two stable states which are used to denote **0** and **1.**Two additional transistors called as access transistors serve to control the access to a storage cell during read and write operations [4].The organization of the paper is as follows: The section 2,3 describes previous work which consists of 6T,7T SRAM cells. Section 4, presents the proposed method of 7T SRAM cell using SVL to reduce leakage current using cadence virtuoso. Section 5 presents simulation result of proposed method. Finally the conclusion is presented in section 6.

2. Conventional 6T SRAM Cell

Operation of SRAM cell can be categorized into three different states: *standby mode* circuit is in ideal mode, *write mode* when mode data has to be updated and *read mode* when data has to be extracted.

In standby mode if the word line is not asserted, the access transistors M5 and M6 disconnect the cell from the bit lines. The two cross coupled inverters formed by M1-M4 will continue to reinforce each other as long as they are connected to the supply.

In write mode, information data is imposed on the bit line and the inverse data on the inverse BLB. Then the access transistors are turned on by setting the word line to high. As the driver of the bit lines is much stronger it can assert the inverter transistors. As soon as the information is stored in the inverters, the access transistors can be turned off and the information in the inverter is preserved [6].Note that the reason this works is that the bit line input-drivers are designed to be much stronger than the relatively weak transistors in the cell itself, so that they can easily override the previous state of the cross-coupled inverters Schematic and waveforms are shown in fig 1 & fig 2 respectively.

In read mode if Q contains 1 the bit lines are first precharged to logical 1 then asserting the word line WL, enables both the access transistors. The second step occurs when the values stored in Q and QB are transferred to the bit lines by leaving BL at its precharged value and discharging BLB through M1 and M5 to a logical 0 .On the BL side, the transistors M4 and M6 pull the bit line toward VDD [6]. The schematic and waveforms are shown respectively in fig3 & fig4 respectively.

Effective and Efficient Approach for Power Reduction by Using Multi-Bit Flip-Flops

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Abstract— **Power has become a burning issue in modern VLSI design. In modern integrated circuits, the power consumed by clocking gradually takes a dominant part. Given a design, we can reduce its power consumption by replacing some flip-flops with fewer multi-bit flip-flops. However, this procedure may affect the performance of the original circuit. Hence, the flip-flop replacement without timing and placement capacity constraints violation becomes a quite complex problem. To deal with the difficulty efficiently, we have proposed several techniques. First, we perform a co-ordinate transformation to identify those flip-flops that can be merged and their legal regions. Besides, we show how to build a combination table to enumerate possible combinations of flip-flops provided by a library. Finally, we use a hierarchical way to merge flip-flops. Besides power reduction, the objective of minimizing the total wirelength is also considered. The time complexity of our algorithm is $(n^{1.12})$ less than the empirical complexity of (n^2). According to the experimental results, our algorithm significantly reduces clock power by 20–30% and the running time is very short. In the largest test case, which contains 1 700 000 flip-flops, our algorithm only takes about 5 min to replace flip-flops and the power reduction can achieve 21%.**

Index Terms— **Clock power reduction, merging, multi-bit flip-flop, replacement, wirelength.**

I. INTRODUCTION

DUE to the popularity of portable electronic products, low power system has attracted more attention in recent years. As technology advances, an systems-on-a-chip (SoC) design can contain more and more components that lead to a higher power density. This makes power dissipation reach the limits of what packaging, cooling or other infrastruc-ture can support. Reducing the power consumption not only can enhance battery life but also can avoid the overheating problem, which would increase the difficulty of packaging or cooling [1], [2]. Therefore, the consideration of power consumption in complex SOCs has become a big challenge to designers. Moreover, in modern VLSI designs, power consumed by clocking has taken a major part of the whole design especially for those designs using deeply scaled CMOS technologies [3]. Thus, several methodologies [4], [5] have been proposed to reduce the power consumption of clocking.

Fig. 1. Maximum loading number of a minimum-sized inverter of different technologies (rising time 250 ps).

Given a design that the locations of the cells have been determined, the power consumed by clocking can be reduced further by replacing several flip-flops with multi-bit flip-flops. During clock tree synthesis, less number of flip-flops means less number of clock sinks. Thus, the resulting clock network would have smaller power consumption and uses less routing resource.

Besides, once more smaller flip-flops are replaced by larger multi-bit flip-flops, device variations in the corresponding circuit can be effectively reduced. As CMOS technology pro-gresses, the driving capability of an inverter-based clock buffer increases significantly. The driving capability of a clock buffer can be evaluated by the number of minimum-sized inverters that it can drive on a given rising or falling time. Fig. 1 shows the maximum number of minimum-sized inverters that can be driven by a clock buffer in different processes. Because of this phenomenon, several flip-flops can share a common clock buffer to avoid unnecessary power waste. Fig. 2 shows the block diagrams of 1- and 2-bit flip-flops. If we replace the two 1-bit flip-flops as shown in Fig. 2(a) by the 2-bit flip-flop as shown in Fig. 2(b), the total power consumption can be reduced because the two 1-bit flip-flops can share the same clock buffer.

However, the locations of some flip-flops would be changed after this replacement, and thus the wirelengths of nets con-necting pins to a flip-flop are also changed. To avoid violating the timing constraints, we restrict that the wirelengths of nets connecting pins to a flip-flop cannot be longer than specified values after this process. Besides, to guarantee that a new flip-flop can be placed within the desired region, we also need to consider the area capacity of the region. As shown in Fig. 3(a), after the two 1-bit flip-flops f_1 and f_2 are replaced by the 2-bit flip-flop f_3, the wirelengths of nets net_1, net_2, net_3, and net_4 are changed. To avoid the timing violation caused by the replacement, the Manhattan distance of new nets net_1, net_2, net_3, and net_4 cannot be longer than the specified values.

ANDROID MOBILE PHONE CONTROLLED BLUETOOTH ROBOT USING 8051 MICROCONTROLLER

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Abstract—**A robot is usually an electro-mechanical machine that is guided by computer and electronic programming. Many robots have been built for manufacturing purpose and can be found in factories around the world. Designing of the latest inverted ROBOT which can be controlling using an APP for android mobile. We are developing the remote buttons in the android app by which we can control the robot motion with them. And in which we use Bluetooth communication to interface controller and android. Controller can be interfaced to the Bluetooth module though UART protocol. According to commands received from android the robot motion can be controlled. The consistent output of a robotic system along with quality and repeatability are unmatched. Pick and Place robots can be reprogrammable and tooling can be interchanged to provide for multiple applications**

Keywords: Android Smartphone, Bluetooth module, robot, single microcontroller chip

1.Introduction

Nowadays smart phones are becoming more powerful with reinforced processors, larger storage capacities ,richer entertainment function and more communication methods. Bluetooth is mainly used for data exchange; add new features to smart phones. Bluetooth technology, created by telecom vendor Ericsson in 1994[1], shows its advantage by integrating with smart phones. It has changed how people use digital device at home or office, and has transferred traditional wired digital devices into wireless devices. A host Bluetooth device is capable of communicating with up to seven Bluetooth modules at same time through one link [2]. Considering its normal working area of within eight meters, it is especially useful in home environment. Thank for Bluetooth technology and other similar techniques, with dramatic increase in Smartphone users, smart phones have gradually turned into an all-purpose portable device and provided people for their daily use [3][4]. In recent years, an open-source platform Android has been widely used in smart phones [5]. Android has complete software package consisting of an operating system, middleware layer and core applications. Different from other existing platform like iOS (iPhone OS), it comes with software development kit (SDK), which provides essential tools and Application. Using a Smartphone as the "brain " of a robot is already an active research field with several open opportunities and promising possibilities. In this paper we present a review of current robots controlled by mobile phone and discuss a closed loop control systems using

audio channels of mobile devices, such as phones and tablet computers. In our work, move the robot upward, backward, left and right side by the android application such as Arduino Bluetooth RC Car. This article is organized as follow: Section 2 describes the motivation of the work, Section 3 describes our experimental setup, Section 4 depicts a discussion about our experimental setup and Section 5 presents our conclusions**.**

2.Purpose

The purpose of our research is to provide simpler robot's hardware architecture but with powerful computational platforms so that robot's designer can focus on their research and tests instead of Bluetooth connection infrastructure. This simple architecture is also useful for educational robotics, because students can build their own robots with low cost and use them as platform for experiments in several courses. Common control architectures: The following list shows typical robot control architecture

2.1. AT89S52

The AT89S52 is a low-power, high performance CMOS 8bit microcontroller with 8k bytes of in-system programmable flash memory. The device is manufactured using Atmel's high-density nonvolatile memory technology and is compatible with the industry-standard 80C51 instruction set and pin out. The Atmel AT89S52 is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications. The AT89S52 Provides the following standard features: 8K bytes of flash, 256 bytes of RAM, 32 I/O lines, Watchdog timer, two data pointers, three 16-bit timer/counters, a six-vector two- level interrupt architecture, a full duplex serial port, on-chip oscillator, and clock circuitry. The AT89S52 is designed with static logic for operation down to zero frequency and supports two software selectable power saving modes. The power- down mode saves the RAM contents but freezes the oscillator, disabling all other chip function until the next interrupt or hardware reset .

2.2. HC Serial Bluetooth

HC Serial Bluetooth product consists of Bluetooth serial interface module and Bluetooth adapter. Bluetooth serial module is used for converting serial port to Bluetooth. This module has two modes: master and slaver device the device named after even number is defined to be master or slaver when out of factory and can't changed to the other mode. But for the device named after odd number, users can set the work mode (master or slaver) of the device by AT commands.

Structural Analysis of Steam Turbine Rotor

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Abstract—**All machine components and structural members contain some form of geometrical Or micro structural discontinuities. These discontinuities are very dangerous and lead to Failure. So, it is very much essential to analyze the stresses induced for critical Applications like turbine rotors.**

In this project, the structural analysis of steam turbine rotor is carried out using Ansys software. Ansys is a software where we can analyses different types of stresses, strains, thermal analyses. Rotation of blade causes the centrifugal force and steam pressure on blade causes the axial force are considered for analysis. The axial forces are calculated by drawing the velocity diagrams for each stage.

Material used for the manufacturing of the blade are AISI TYPE 304 steel. After importing the design of the roto different stages in the velocity of motor blade and at different position of rotor blade loads are applied and Von Misses stress are observed and plotted out with deformed shapes. By this analyses it is observed that the axial forces are calculated by drawing the velocity diagrams for each stage. Stress induced by the centrifugal force and axial force and combination of centrifugal and axial force are lesser than allowable maximum stress of a steel alley.

Keywords — **Ansys , Velocity, Steam Turbine, Axial force , Centrifugal force**

1. INTRODUCTION

A steam turbine is a device that extracts thermal energy from pressurized steam and uses it to do mechanical work on a rotating output shaft. In this case, the pressure and flow of newly condensed steam rapidly turns the rotor. This movement is possible because the water to steam conversion results in a rapidly expanding vapor. As the turbine"s rotor turns, the rotating shaft can work to accomplish numerous applications, often electricity generation.

Types of Steam Turbines

There are complicated methods to properly harness steam power that give rise to the two primary turbine designs:

(i) Impulse
(ii) Reaction turbines.

These different designs engage the steam in a different method so as to turn the rotor. As water converts into steam, the molecules grow further apart. While steam can exert pressure, it cannot exert the correct pressure needed to spin the rotor quickly enough to generate electricity. Thus, a special design of rotor is required to properly harness the steam and spin.

In an impulse turbine, nozzles direct the steam towards the rotors, which are equipped with concave panels called buckets. The nozzles are able to project a jet of steam that spins the rotor at a loss of roughly 10 percent energy. As the jets change their position, they can increase or decrease the rate of rotor spin.

A reaction turbine works opposite the impulse turbine. The steam nozzles are attached to the rotor blades on opposite sides. The nozzles are so positioned that when they release jets of stream, they propel the rotor in a spinning motion that keeps it rotating as long as steam is being expelled. It can reach high speeds because the nozzle designs focus the steam into a thin stream, although the initial warm up period may take several moments.

Compounding of Steam Turbines

Compounding of Steam Turbines is the method in which energy from the steam is extracted in a number of stages rather than a single stage in a turbine. A compounded steam turbine has multiple stages i.e. it has more than one set of nozzles and rotors, in series, keyed to the shaft or fixed to the casing, so that either the steam pressure or the jet velocity is absorbed by the turbine in number of stages.

Types of Compounding

In an Impulse steam turbine compounding can be achieved in the following three ways
1. Velocity compounding
2. Pressure compounding
3. Pressure-Velocity Compounding
In a Reaction turbine compounding can be achieved only by Pressure compounding.

DYNAMIC ANLYSIS OF CONNECTING ROD

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Abstract— **The objective of this present work is to estimate the deflections, modal shapes with frequencies induced in the connecting rod of an engine. The emphasis in this project is on the application of computer aided analysis using finite element concept. The component chosen for analysis is a connecting rod used in numerous situations, most commonly in the engines of automobiles. Connecting rods connect the crankshaft to the pistons and are necessary for the proper functioning of an internal combustion engine. The purpose of a connection rod is to provide fluid movement between pistons and a crankshaft. Connection rods are widely used in vehicles that are powered by internal combustion. In analysis part the finite element of connecting rod is created using solid tetrahedron elements, appropriate boundary conditions are applied, material properties are given and loads are applied as per its design, the resultant deformation and frequencies that induced when the body is dynamically subjected obtained are reported and discussed.**

Keywords—dynamic analysis, finite element method,connectin rod (key words)

I. INTRODUCTION

The connecting rod is the intermediate member between the piston and the crankshaft. Its primary function is to transmit the push and pull from the piston pin to the crank pin, thus converting the reciprocating motion of the piston into rotary motion of the crank. Existing connecting rod is manufactured by using iron. This project describes modeling and analysis of connecting rod Analysis is carried out by using ansys software. Connecting rod can be designed for weight and cost reduction also to increase the life time of connecting rod. Upto some level of extent the weight of the connecting rod is lighter and having more strength as compared to the original design.

The maximum stress is within the allowable stress limit for chrome steel the main objective of this study was to explore weight and cost reduction opportunities for a production forged steel connecting rod. This has entailed performing a detailed load analysis. Therefore, this study has dealt with two subjects, first, dynamic load and quasi-dynamic stress analysis of the connecting rod, and second, optimization for weight and cost. In the first part of the study, the loads acting on the connecting rod as a function of time were obtained. The relations for obtaining the loads and accelerations for the connecting rod at a given constant speed of the crankshaft were also determined. Quasidynamic finite element analysis was performed at several crank angles.

The stress-time history for a few locations was obtained. The difference between the static FEA, quasidynamic FEA was studied. Based on the observations of the quasi-dynamic FEA, static FEA and the load analysis results, the load for the optimization study was selected. The results were also used to determine the variation of R-ratio, degree of stress

multiaxiality, and the fatigue model to be used for analysing the fatigue strength. The component was optimized for weight and cost subject to fatigue life and space constraints and manufacturability.

1.1 Necessity

In the last 50 years, cars have learned to think, adjust, and even protect. High performance is more demanding. Not only putting a little smile on the face, the majority of people want a machine that will get them from spot A to spot B as easy as possible. Mainly this smile comes by a quick strike of the accelerator. Keeping it in mind, manufacturer has to design lighter, faster, and more efficient engines for this job. In this project, one component of an engine in particular, the connecting rod, will be analyzed. Being one of the most integral parts in an engine's design, the connecting rod must be able to withstand tremendous loads and transmit a great deal of power.

II. REVIEW

The connecting rod is subjected to a complex state of loading. It undergoes high cyclic loads of the order of 108 to 109 cycles, which range from high compressive loads Duet combustion, to high tensile loads due to inertia. Therefore, durability of this Componentized of critical importance. Due to these factors, the connecting rod has been the Topic of research for different aspects such as production technology, materials, Performance simulation, fatigue, etc. For the current study, it was necessary to investigate finite element modelling techniques, optimization techniques, and developments in production Technology, new materials, fatigue modeling, and manufacturing cost analysis. This brief literature survey reviews some of these aspects. Webster et al. performed three dimensional finite element analysis of a High-speed diesel engine connecting rod. For this analysis they used the maximum Compressive load which was measured experimentally, and the maximum tensile load. Balasubramaniam et al. (1991) reported computational strategy used in Mercedes Benz using examples of engine components. In their opinion, 2D FE models can be used to obtain rapid trend statements, and 3D FE models for more accurate investigation. The Various individual loads acting on the connecting rod were used for performing Simulation and actual stress distribution was obtained by superposition.

Design and Analysis of Propeller Shaft

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Abstract—All machine components and structural members contain some form of geometrical Or micro structural discontinuities. These discontinuities are very dangerous and lead to Failure. So, it is very much essential to analyze the stresses induced for critical Applications like propeller shaft.

In this project, the structural analysis of propeller shaft is carried out using Ansys software. Ansys is a software where we can analyses different types of stresses, strains, thermal analyses. Torsional vibrations occur twice per revolution of the drive shaft. They could be due to excessive u-joint angles or a shaft not in phase with its design specifications. Component failure of the drive shaft or the motor and transmission mounts can cause vibration

Material used for the manufacturing of the drive shaft are including carbon fiber, carbon fiber-wrapped aluminum, chromoly steel, and D.O.M. steel. After importing the design of the shaft different stages in the velocity of drive shaft and at different position of propeller shaft loads are applied and Von Misses stress are observed and plotted out with deformed shapes. By this analyses it is observed that the axial forces are calculated by drawing the velocity diagrams for each stage. Stress induced by the deformation force and equivalent and combination of deformation force equivalent stress and are lesser than allowable maximum stress of a steel alley.

Index Terms—Anysis ,Torsion, propeller shaft, deformed shapes , Equivalent stresses

I. INTRODUCTION

PROPELLER SHAFT ARRANGEMENT

A propeller shaftThis is a shaft which transmits the drive from the transmission to the bevel pinion or worm off final drive in the front engine, rear drive vehicles and from the transfer box to the front and rear axles in all-wheel drive vehicle. It is also called drive shaft. It mainly consists of three parts. A propeller shaft consists of two universal joints at the ends and a slip or sliding joint. Slip joint is formed by the internal splines on the sleeve attached to the left universal

joint and external splines on the propeller shafts.

Types of propeller shafts

There are complicated methods to properly harness propeller shaft that give rise to the three primary propeller shaftdesigns:
(i) Constant Velocity Driveshaft Types
(ii) Stub and Slip Type Driveshafts.
(iii)All Wheel Drive Vehicle Type Shafts

In vehicles with large wheel base, the long propeller shaft would tend to sag and whirl is like the action of a rope that is in arc while held at both ends. At a certain speed the whirling becomes critical and shaft vibrates violently. This also sets up sympathetic resonant vibrations in the vehicle body. Critical whirling speed of shafts can be increased by acceleration and increasing its diameter, but that would increase its inertia which would decrease its deceleration. Critical whirling speed is also found to decrease as the square of its length. Thus decreasing the length to half would increase the critical speed four times. In some designs this has been achieved by extending the rear end of the transmission main shaft and housing while in others, by extending the final drive pinion shaft and housing.

Another method to decrease the shaft length is to use divided propeller shaft, supported by intermediate bearings. Other advantages of such arrangement are the lower floor height and possibility of achieving large offsets between transmission centre line and the final-drive pinion center line in commercial vehicles in two or more stages. An example is a two-piece propeller shaft used in Ashok Leyland vehicles in India. It consists of two propeller shafts supported in the middle by a self-aligning ball bearing fitted in cross member of chassis frame. In all the there are 3 universal joints and 2 slip joints. At the end there are flange yokes which fitted to the gear box shaft and the rear axle pinion shafts.

Compounding of

In order to help ensure a vibration free operation, the propeller should always be properly mated
to the shaft taper. The tapers of both the shaft and propeller

Evaluation of Strength and Optimum Dessign of Piston for Strength using FEM

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Abstract—**This paper describes the stress distribution and deformations of three different aluminum alloys piston by using finite element method (FEM). Design a piston for a two wheeler engine using theoretical calculations, model the piston using CATIA V5 software. The parameters used for the simulation are operating gas pressure, temperature and material properties of piston.**

This paper illustrates the procedure for analytical design of three aluminum alloy pistons using specifications of four stroke single cylinder engine of Bajaj Kawasaki motorcycle. The results predict the maximum stress and critical region on the different aluminum alloy pistons using FEA. It is important to locate the critical area of concentrated stress for appropriate modifications. Static stress analysis is performed by using ANSYS 15. The best aluminum alloy material is selected based on stress analysis results. The analysis results are used to optimize piston geometry of best aluminum alloy.

Keywords—Piston; FEA; CAD; A2618, A4032, ALGHS1300, ANSYS, CATIA, Stress, Strain, Defomation;

I. INTRODUCTION

A piston is a component of reciprocating IC-engines. It is the moving component that is contained by a cylinder and is made gas-tight by piston rings. In an engine, its purpose is to transfer force from expanding gas in the cylinder to the crankshaft via a piston rod. Piston endures the cyclic gas pressure and the inertial forces at work, and this working condition may cause the fatigue damage of piston, such as piston side wear, piston head cracks and so on. So there is a need to optimize the design of piston by considering various parameters in this project the parameters selected are analysis of piston by applying pressure force acting at the top of the piston. This analysis could be useful for design engineer for modification of piston at the time of design.

Most of the pistons are made of an aluminum alloy which has thermal expansion coefficient, 80% higher than the cylinder bore material made of cast iron. This leads to some differences between running and the design clearances. Good sealing of the piston with the cylinder is the basic criteria to design of the piston. Also to improve the mechanicalefficiency and reduce the inertia force in high speed machines the weight of the piston also plays major role.

II. SELECTION OF MATERIALS

The materials chosen for this work are A2618, A4032 and Al-GHS1300 for an IC engine piston. The relevant mechanical and thermal properties of A2618, A4032 and Al-GHS 1300 aluminium alloys are listed in the table [1].

S.No	Parameters	A2618	A4032	Al-GHS 1300
1.	Elastic Modulus (GPa)	73.7	79	98
2.	Ultimate Tensile Strength (MPa)	480	380	1300
3.	0.2% Yield Strength (MPa)	420	315	1220
4.	Poisson's Ratio	0.33	0.33	0.3
5.	Thermal Conductivity (W/m/^{o}C)	147	154	120
6.	Coefficient of Thermal Expansion (1/K)	2.59E-05	7.92E-05	1.80E-05
7.	Density (Kg/m^3)	2767.99	2684.9 5	2780

Table1: Material Properties

III. DESIGN OF PISTON
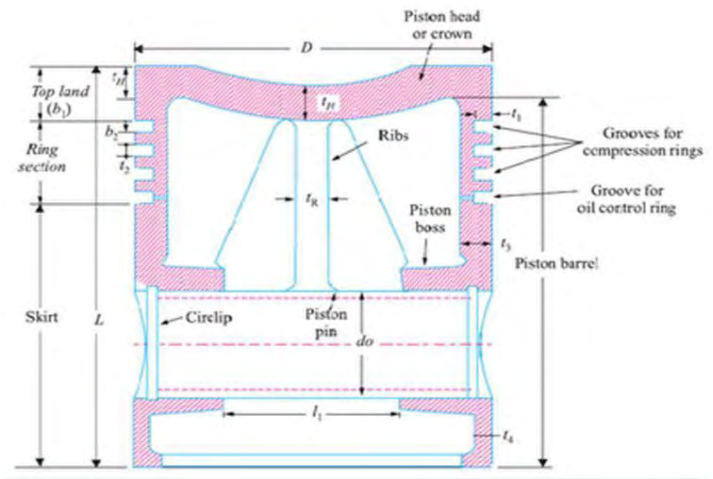
Fig1: Schematic diagram of a Piston

Design of Composite Material Trolley Axle for Weight Reduction

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Abstract:-*An axle is a central shaft for a turning wheel or apparatus On wheeled vehicles, the axle might be altered to the wheels, pivoting with them, or settled to the vehicle, with the wheels pivoting around the axle. In the previous case, orientation or bushings are given at the mounting focuses where the axle is upheld. In the last case, a course or bushing sits inside a central gap in the wheel to permit the wheel or apparatus to turn around the axle. Now and then, particularly on bikes, the last sort axle is alluded to as a spindle.*

Tractor trolley (or) trailers are exceptionally prominent and less expensive method of products and transport in country and additionally urban zones. A large portion of the tractor trolley axle utilized today is rectangular cross area sort which thus prompts increment in the heaviness of tractor trolley and axle. To begin with we need to discover the hassles, distortion and FOS of the current axle logically. At that point find such shape which is having preferred properties over existing. At that point do the systematic estimation or the recommended shape and discover its weight. Examination is done on the premise of systematic figuring for existing state of axle and weight with its proposed material. In this work an endeavor has made with rectangular cross area by change in the materials of SAE 1040 and SAE 1020 is done in view of this outcomes, it is presumed that round cross segment with SAE 1040 material is best in weight decrease and in addition in stretch diminishment, Further improve the model roundabout cross segment display broke down with kevlar and boron epoxy composites for static auxiliary and modular examination. At that point pick such a material which is having great result when contrasted with the current one. Last period of my paper is to analyze the consequence of programming produced on the premise of the correlation propose the most ideal shape and material for the present applications. Which bring about diminishing the disfigurement and stretch of the axle and further the cost of the axle.

I. INTRODUCTION:

Axle:- The trolley axle is a central shaft for turning wheels. The wheels are settled to the axle, with direction or bushings gave at the mounting focuses where the axle is bolstered. The axle keeps up the position of the wheels with respect to each other and to the vehicle bodyThe

trolley axle is a central shaft for pivoting wheels. The wheels are settled to the axle, with course or bushings gave at the mounting focuses where the axle is upheld. The axle keeps up the position of the wheels in respect to each other and to the vehicle body. Trolley axle under thought is a supporting shaft on which a wheel spins. The axle is settled to the wheels, altered to its environment and an orientation sits inside the center with which a wheel rotates around the axle. A trolley axle is likewise called as bar axle which is ordinarily suspended by leaf springs

Cab:- This allowed a sleeper compartment in a short tractor, and maximum wheelbase relative overall length, important for bridge formula weight restrictions

Composites:- A composite material is an arrangement of materials making out of at least two materials fortified on a perceptible scale. For the most part, a composite material is made out of fortification (fibers, particles, flakes, and additionally fillers) implanted in a lattice (polymers, metals, or ceramics). The network holds the support to frame the sought shape while the fortification enhances the general mechanical properties of the framework. At the point when composed legitimately, the new blend of materials exhibitsmuch preferable quality over the individual material.

Classification of composites:-The two classes of composites are (1) Particulate composites and (2) fibrous composites.

Materials used as matrix in composite:-The basic form a composite material is one, which is composed of at least two elements working together to produce properties of material that are different to the properties of those elements on their own

Structural Analysis of Milling Cutter

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Abstract— **Milling is a process of producing flat and complex shapes with the use of multi-tooth cutting tool, which is called a milling cutter and the cutting edges are called teeth. The axis of rotation of the cutting tool is perpendicular to the direction of feed, either parallel or perpendicular to the machined surface. The machine tool that traditionally performs this operation is a milling machine. Milling is an interrupted cutting operation: the teeth of the milling cutter enter and exit the work during each revolution. This interrupted cutting action subjects the teeth to a cycle of impact force and thermal shock on every rotation. The tool material and cutter geometry must be designed to withstand these conditions. Cutting fluids are essential for most milling operations. The cutter is lifted to show the chips, and the work, transient, and machined surfaces. The cutter design being presented in this paper is useful for single point as well as for multi-point cutters such as those used for turning and milling. In fact, the design principles for both single and multi-point cutters are similar. The design parameters such as rake angle, clearance angle of tooth, and height of tooth are common in both single point and multi-point cutters. Additionally, parameters such as speed of rotation, feed, and depth of cut are also similar. However, parameters such as diameter of the cutter, number of teeth on the cutter, and angular spacing of teeth are exclusively associated with milling cutters. In the family of milling operations such as plain milling, slot milling, side milling, end milling, face milling, and form milling, design parameters differ only in their numerical values.**

Keywords— Millingcutter,operations, teeth,modeling

I. INTRODUCTION OF MILLING CUTTER

In milling, each tooth on a tool removes part of the stock in the form of a chip. The basic interface between tool and work part is pictured below. This shows a only a few teeth of a peripheral milling cutter. -teeth Plain Milling Cutter Used for Peripheral or Slab Milling Cutting velocity V is the peripheral speed of the cutter is defined by $V = \pi DN$ Where D is the cutter outer diameter and N is the rotational speed of the cutter. As in the case of turning, cutting speed V is first calculated or selected from appropriate reference sources and then the rotational speed of the cutter N, which is used to adjust milling machine controls, is calculated. Cutting speeds are usually in the range of 0.1~4 m/s, lower for difficult-to-cut materials and for rough cuts, and higher for non-ferrous easy-to-cut materials like aluminium and for finishing cuts.

a) Cutting Speed

Cutting speed of a milling cutter is its peripheral linear speed resulting from operation. It is expressed in meters per minute. The cutting speed can be derived from the above formula. Spindle speed of a milling machine is selected to give the desired peripheral speed of cutter .$V = (\pi\ dn)/1000$ Where d = Diameter of milling cutter in mm, V = Cutting speed (linear) in meter per minute, and n = Cutter speed in revolution per minute.

b) Feed Rate

It is the rate with which the work piece under process advances under the revolving milling cutter. It is known that revolving cutter remains stationary and feed is given to the work piece through worktable. Generally feed is expressed in mm/rev.

c) Feed per Tooth

It is the distance travelled by the work piece (its advance) between engagements by the two successive teeth. It is expressed as mm/tooth (*ft*).

d) Feed per Revolution

Travel of work piece during one revolution of milling cutter. It is expressed as mm/rev. and denoted by $f\,/$ (rev).

e) Feed per Unit of Time

Feed can also be expressed as feed/minute or feed/sec. It is the distance advances by the work piece in unit time (*fm*).

f) Direction of milling feed

The application of the milling tool in terms of its machining direction is critical to the performance and tool life of the entire operation. The two options in milling direction are described as either conventional or climb milling. Conventional and climb milling also affect chip formation and tool life.

II. FINITE ELEMENT METHOD

a) Introduction:

The basic idea in the Finite Element Method is to find the solution of complicated problem with relatively easy way. The Finite Element Method has been a powerful tool for the numerical solution of a wide range of engineering problems. Applications range from deformation and stress analysis of automotive, aircraft, building, defence, missile and bridge structures to the field analysis of dynamics, stability, fracture mechanics, heat flux, fluid flow, magnetic flux, seepage and other flow problems. With the advances in computer technology and CAD systems, complex problems can be modelled with relative ease. Several alternate configurations can be tried out on a computer before the first prototype is built. The basics in engineering field are must to idealize the given structure for the required behaviour. The proven knowledge in the computational aspects of the Finite Element Method is essential. In the Finite Element Method, the solution region is connected as built up of many small, interconnected sub regions called finite elements.

b) Need of Finite Element Method:

To predict the behaviour of the structure the designer adopts three tools such as analytical, experimental and numerical methods. The analytical method is used for the regular

Modelling and Analysis of Engine Block

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Abstract—**The finite element method (FEM) has now become a very important tool of engineering analysis. Its versatility is reflected in its popularity among engineers and designers belonging to nearly all the engineering disciplines finite element method handy and useful. It is not that these problems remained unproved before the finite element method came into vogue; rather this method has become popular due to its relative simplicity of approach and accuracy of results.**

The usage of CAD CAE & CAM have changed the over look of the industries and developed healthy & standard competition , as could achieve target in lean time and ultimately the product reaches market in estimated time with better quality and consistency . In general view, it has lead to fast approach and creative thinking..

CATIA is a robust application that enables you to create rich and complex designs. The goals of the CATIA course are to teach you how to build parts and assemblies in CATIA, and how to make simple drawings of those parts and assemblies. This course focuses on the fundamental skills and concepts that enable you to create a solid foundation for your designs

Keywords—**FEM, CATIA , ANSYSIS, CAE**

I INTRODUCTION

The internal combustion engine is an engine in which the combustion of a fuel (normally a fossil fuel) occurs with an oxidizer (usually air) in a combustion chamber that is an integral part of the working fluid flow circuit. In an internal combustion engine (ICE) the expansion of the high-temperature and high-pressure gases produced by combustion apply direct force to some component of the engine. The force is applied typically to pistons, turbine blades, or a nozzle.

CATIA is mechanical design software. It is a feature-based, parametric solid modeling design tool that takes advantage of the easy-to-learn Windows graphical user interface. You can create fully associative 3-D solid models with or without constraints while utilizing automatic or user-defined relations to capture design intent. To further clarify this definition, the italic terms above will be further definedMaintaining the Integrity of the Specifications

II LITERATURE REVIEW

P S Shenoy and A Fatemi, in this paper, stress distribution and fatigue life of Connecting Rod in light vehicle engine were analyzed using the commercial 3D finite element software, ANSYS.

1. Adila Afzal's study investigates and compares fatigue behavior of forged steel and powder metal connecting rods. A literature review on several aspects of connecting rods in the areas of load and stress analysis, durability, manufacturing, economic and cost analysis, and optimization is also provided. In this study, first a literature review on several aspects of connecting rods in the areas of load and stress analysis, durability, manufacturing, economic and cost analysis, and optimization was carried out. Forged steel, C-70 steel and powder metal connecting rods were then used to obtain and compare the fatigue properties and behaviors.

2. S.B. Chikalthankar, V.M. Nandedkar, this paper shows the complete connecting rod Finite Element Analysis (FEA) methodology. It also performed a fatigue study based on Stress Life (SxN) theory, considering the Modified Goodman diagram.

3. Vivek. C. Pathade, Bhumeshwar Patle, this paper says that, the automobile engine connecting rod is a high volume production critical component. Every vehicle that uses an internal combustion engine requires at least one connecting rod. From the viewpoint of functionality, connecting rods must have the highest possible rigidity at the lowest weight. The major stress induced in the connecting rod is a combination of axial and bending stresses in operation. The axial stresses are produced due to cylinder gas pressure (compressive only) and the inertia force arising in account of reciprocating action (both tensile as well as compressive), where

Design And Optimization Of Pressure Vessel Using Ansys

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Abstract— **The scope of the project is to deal with the design of pressure vessel in accordance to the ASME code with provided data. The Mechanical strength calculation of drawing, general assembly, detailing of pressure vessel, an analysis on the nozzle-shell junction shall be carried out in this project by taking the design parameters like internal design pressure, design temperature and data of wind & seismic into consideration.**

Key words: ANYSYS, Pressure vessel, Optimization etc..

I. INTRODUCTION

A pressure vessel is defined as a closed container designed to hold gases or liquids at a pressure substantially different from the ambient pressure.

The inside pressure higher than is usually ambient pressure.

The fluid inside the vessel may undergo a change in state as in the case of the steam boiler or may combine with other reagent as in the case of the chemical reactor.

Pressure vessels are used in number of industries, for example The power generation industry for fossil and nuclear power.

The petro chemical industry for storing and processing crude petroleum oil in tank farms as well as storing gasoline in service stations and chemical industry.
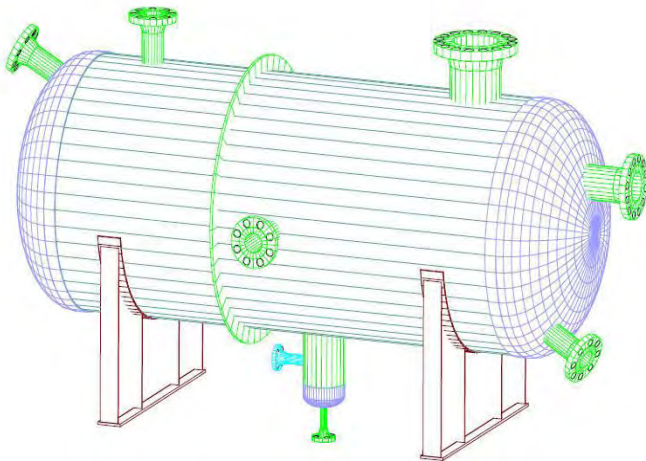
Ellipsoidal Head
This is also called as 2:1 elliptical head. The shape of this head is more economical, because the height of the head is just a quarter of the diameter. Its radius varies between the major and minor axis.
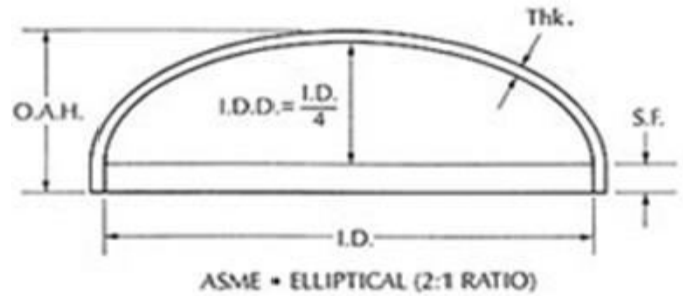
Fig 1.1Ellipsoidal Head
For an ellipsoidal, crown radius and knuckle radius have to be calculated to produce the elliptical shape.
Crown Radius (CR) = 0.9045*I.D
Knuckle Radius (KR) = 0.1728*I.D

Hemispherical Head:
A sphere is the ideal shape for a head, because the pressure in the vessel is divided equally across the surface of the head. The radius of the head equals the radius of the cylindrical part of the vessel.
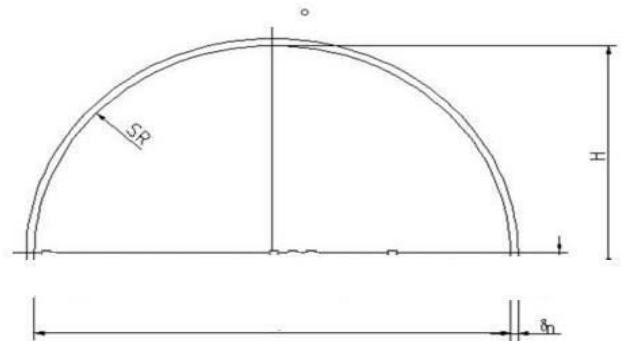
Fig 1.2 Hemispherical Head

Tori-spherical Head:
These heads have a dish with a fixed radius (CR), the size of which depends on the type of tori-spherical head. The transition between the cylinder and the dish is called the knuckle. The knuckle has a toroidal shape.

Design And Analysis Trestle Used In Steel Structures

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Abstract—**The steel structures has been widely adopted in bridge construction especially in long-span bridges, large-space structures, Conveyors etc. due to its various advantages, including high strength, good toughness, short construction period. A trestle bridge is a bridge composed of a number of short spans supported by such frames. Since this type of bridge is sometimes called a "trestle" for short, each supporting frame is generally referred to as a bent. Timber and iron "trestles" (trestle bridges) were extensively used in the 19th century. Moreover, many of these structures have been in the extended service state, which threatens the production safety. To perform finite element analysis of trestle by using Ansys 15 for SAE 1020 material.The health state of a trestle structure is directly related to the safety of cargo handling and the risk of marine. The research focus is on designing the Trestle based on the loads that are coming on the structure and Validation of the structure is done using Ansys software.**

Key words: CATIA, ANYSYS, Bevel Gear, Gear Nomenclature, deformation, von misses stress etc..

I. INTRODUCTION

A **trestle** (sometimes **tressel**) is a rigid frame used as a support, historically a tripod used both as stools and to support tables at banquets. A **trestle bridge** is a bridge composed of a number of short spans supported by such frames. Since this type of bridge is sometimes called a "trestle" for short, each supporting frame is generally referred to as a bent. Timber and iron "trestles" (trestle bridges) were extensively used in the 19th century, the former making up from 1 to 3 per cent of the total length of the average railroad. In the 21st century, steel and sometimes concrete trestles are commonly used to bridge particularly deep valleys while timber trestles remain common in certain areas.

Figure 1. Structure of Iron Trestle

Timber trestles: One of the longest trestle spans created was for railroad traffic crossing the Great   Salt   Lake on the Lucincut off in Utah. It was replaced by a fill causeway in the 1960s, and is now being salvaged for its timber.

Iron trestles: Trestles in cast- or wrought-iron were used during the 19th Century on the developing railway network in the United Kingdom. These generally carried decking consisting of some form of trusted.

Steel trestles: The steel trestle at Martinez, California, shown below, is a modern structure with a long expected lifetime compared to a wooden trestle. Being fire resistant in this brushy location is also an advantage. The approaches to the Kate Shelley High Bridge near Boone, Iowa, are steel trestles.

Many timber trestles were built in the 19th and early 20th centuries with the expectation that they would be temporary. Timber trestles were used to get the railroad to its destination. Once the railroad was running, it was used to transport the material to replace trestles with more permanent works, transporting and dumping fill around some trestles and transporting stone or steel to replace others with more permanent bridges.

tructure	Weight (including Belt and Cable tray
E (N)	Tail end structure
a (N)	Loading section
b (N)	3m intermediate section
C (N)	3m intermediate section
d (N)	2m intermediate section x 2
ES (N)	Drive end structure
E (N)	Drive
c (Nm)	Moment about S5

Table 1: Nomenclature for Load calculation

II. DESIGN AND ANALYSIS

Design Criteria and Loads:

Dead load and live loads are acting on the structure. Combined load will be calculated from both dead & live loads and applied on the structure. The dead load & Live load will be calculated from weights of the individual parts. The calculation procedure of loads are shown in below

Structural Analysis of a Bracket

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Abstract— **Engine designers design brackets in various shapes and sizes for mounting bleed air ducting,starter air duct, fuel lines and hydraulic lines to the engine core. Many of the ducting supports used in Aero engine design have the shapes of L,T and Z to accommodate to multiple tubes inthe tight space found . In this project, L-section is modeled using commercial software, ANSYS. In this project the bracket is modeled with alltherespectivedimensions**
. Appropriate boundaryconditions in the form of constraints and external loads were applied at defined regions , staticanalysis is done followed by stress and strain values by using ANSYS analysis tool arecontoured and graphs were plotted.

1. INTRODUCTION

Engine designers design brackets in various shapes and sizes for mounting bleed air ducting, starter air duct, fuel lines and hydraulic lines to the engine core. Many of the ducting supports used in Aero engine design have the shapes of L,T and Z to accommodate to multiple tubes in the tight space found in an aircraft. Generally the bracket thickness ranges from 0.125 to 0.5inch as brackets must be thin to reduce weight and cost and to serve its purpose in extreme environment. Any crack found in a bracket may cause the ducting to become unstable during a mission and thus induce high cyclic fatigue load on the overall majorstructures and shorten the structure life. Hence complete monitoring and early detection of cracks in these brackets is essential to replace broken brackets which mitigate the risk of damaging other components such as ducting. Monitoring of these cracks on brackets reveals the fatigue life of the component.Linear elastic material behavior is often assumed for the analysis of stress surrounding the crack tip for any homogeneous and isotropic material .The method of linear elastic fracture mechanics assumes the plastic region near crack tip is much smaller than the dimensions of the crack and structural member. This is very important concept and is called as small scale yielding for simplifying the stress analysis near crack tip. The surface displacement of crack is described by three modes. In mode I the crack surfaces move directly apart. Mode II is sliding or in plane shear mode where the crack surfaces slide over another in a direction perpendicular to the leading edge of the crack. Mode III is tearing and anti-plane shear mode where the crack surface move relative to one another and parallel to the leading edge of the crack. Within the scope of the theory of linear elasticity, a crack introduces a discontinuity in the elastic body such that the stresses tend to infinity as one approach the crack tip.

Brackets are used to support beams, conduits , pipes etc. When the roofing work is finished for a portal structure, the overhang of the sheets is supported by brackets, The louvres which are essential for ventilation in a shed system are supported by brackets. The railings provided around a Walkway are supported by brackets. The typical cross-section of a bracket is channel. The best example of a brackets is the catenary support system used by railways.

FINITE ELEMENT METHOD

The basic idea in the Finite Element Method is to find the solution of complicated problem with relatively easy way. The Finite Element Method has been a powerful tool for the numerical solution of a wide range of engineering problems. Applications range from deformation and stress analysis of automotive, aircraft, building, defence, missile and bridge structures to the field analysis of dynamics, stability, fracture mechanics, heat flux, fluid flow, magnetic flux, seepage and other flow problems. With the advances in computer technology and CAD systems, complex problems

Finite Element Analysis of Pressure Vessel

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Abstract— **This project presents design, and analysis of pressure vessel. High pressure rise is developed in the pressure vessel and pressure vessel has to withstand severe forces. In the design of pressure vessel safety is the primary consideration, due the potential impact of possible accident. There have a few main factors to design the safe pressure vessel. This writing is focusing on analyzing the safety parameter for allowable working pressure. Allowable working pressures are calculated by using Pressure Vessel Design Manual by Dennis Moss, third edition. The corruption of the vessel are probability occur at maximum pressure which is the element that only can sustain that pressure. Efforts are made in this paper to design the pressure vessel using ASME codes & standards to legalize the design.**

Index Terms— Anysis , Velocity,stress

I. INTRODUCTION

To be competitive in a changing market it is necessary to deliver reliable products in the shortest period of time possible. Before the advancement of personal computers, only few institutions were able to perform Finite Element Analysis, making the design process extensive and exclusive in the automobile and aeronautic industries. Nowadays the use of this tool has become a routine in different areas of engineering, as stated by Turkiyyah&Fenves (1996) **[1]**. "FE methods have become the standard techniques for evaluating the physical performance of structural systems in various engineering applications"

In the concept realization phase of the mechanical design process, it is necessary to evaluate if the model can resist loads applied to it. In order to analyze the structure, static and dynamic calculations are performed. The time required to evaluate complicated structures is extensive, even though computational tools are utilized.

In order to perform FEA it is not sufficient to just run the simulation in any FE available software, it is more important to understand the method behind the analysis. There are certain parameters which control the accuracy of the FEA, such as: model simplification, mesh size, element type and accuracy percentage. By understanding the impact of the parameters mentioned above, it is possible to run the simulation efficiently.

The main goal of this thesis is to automate the FEA process in ANSYS Workbench and prove the advantages of having a parametric design of a model. This thesis also aims to create a generic framework which can import CAD models automatically and

evaluate mesh size in order to establish fast analysis without the results being compromised.

LITERATURE REVIEW

High-pressure vessels, such as ammonia converters, urea reactors and supercritical fluid extractors, etc. are widely used in chemical, oil refining, energy industries, and so on. Such vessels are key equipment"s in various processes industries and have potential hazards. Much attention has been paid to using them safely and to lowering their costs, with great progress being made in the last century. For example, Analysis of Pressure Vessel junction by the Finite element Method written by Mahadeva Siva Ramakrishna Iyer not only tells the use of method to solve such high tension zone problems but also gives a way to predict results for stresses and optimize the design [1], Finite element analysis of Pressure vessel by David Heckman also tells the use of computer programs instead of hand calculations for analysing the high stress area"s and different end connections [2].The different types of stresses and modelling of pressure vessel joints are also depicted in ASME code in section "Design by analysis".

ABOUT ANSYS

ANSYS is a general purpose finite element analysis software developed, supported and marketed by ANSYS INC formerly known as Swanson analysis systems founded in 1970 by Dr.John wide range of products including aircraft and automobile engines, space craft , computer chips, buildings office furniture and medical devices.

The ANSYS program can be accessed either interactively or in which batch made. The interactive mode provides the user with a graphical user interface; online help and other tools to relate the model modify and save the work to database. In batch mode the user submits a file contain ansys commands to the program. A batch job runs in the back ground. This is especially suitable during solution phase. Batch mode can also be accessed by other commercial CAD programs.

FINITE ELEMENT METHODS (FEM)

Finite Element Analysis (FEA) was first developed in 1943 by R. Courant, who utilized the Ritz method of numerical analysis and minimization of variation calculus to obtain

Finite Element Analysis of Connecting Rod

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Abstract—**The connecting rod is the intermediate member between the piston and the Crankshaft. Its primary function is to transmit the push and pull from the piston pin to the crank pin, thus converting the reciprocating motion of the piston into rotary motion of the crank. This thesis describes designing and Analysis of connecting rod. Currently existing connecting rod is manufactured by using Carbon steel. In this drawing is drafted from the calculations. A parametric model of Connecting rod is modeled using Ansys Workbench software and to that model, analysis is carried out by using ANSYS 15 Software. Finite element analysis of connecting rod is done by considering the Forged steel material. The best combination of parameters like Von misses Stress and strain, Deformation, Factor of safety and weight reduction for two wheeler piston were done in ANSYS software.**

Keywords— **ANSYS**, *Velocity, Steam Turbine, Axial force , Centrifugal force.*

I. INTRODUCTION

The purpose of this chapter is to provide information which related to the connecting rod, finite element analysis (FEA) and also about optimization of connecting rod.

2.2 CONNECTING ROD

In modern automotive internal combustion engines, the connecting rods are most usually made to absorb high impact stresses that occur onto it. Rasekh et al. (2009) explained about study of experimental equation that was performed for a Tractor MF- 285 connecting rod and also using FEA. The maximum stresses in different parts of MF-285 connecting rod were determined. From the analysis, three parts were being considered of the stress distributions which are pin end, rod and crank end. Finally, a comparison between FEA results and

experimental equation method were made. Mirehei et al. (2008) investigated the connecting rod fatigue of universal tractor (U650) was through the ANSYS software application and its lifespan was estimated. The connecting rod behavior affected by fatigue phenomenon due to the cyclic loadings and to consider the results for more savings in time and costs, as two very significant parameters relevant to manufacturing. The results indicate that with fully reverse loading, one can estimate longevity of a connecting rod and also find the critical points that more possibly the crack growth initiate from. It is suggested that theresults obtained can be useful for modifications in the process of connecting rod.

Afzal and Fatemi (2004) investigate and compare fatigue behavior of forged steel and powder metal connecting rods. The experiments included strain-controlled specimen testing, with specimens obtained from the connecting rods, as well as load controlled connecting rod bench testing. Monotonic and cyclic deformation behaviors, as well as strain-controlled fatigue properties of the two materials are evaluated and compared. Experimental S-N curves of the two connecting rods from the bench tests obtained under R = -1.25 constant amplitude loading conditions are also evaluated and compared. Fatigue properties obtained from specimen testing are then used in life predictions of the connecting rods, using the S-N approach. The predicted lives are compared with bench test results and include the effects of stress concentration, surface finish, and mean stress. The stress concentration factors were obtained from FEA was used to account for the mean stress effect. Fractography of the connecting fracture surfaces were also conducted to investigate the failure mechanisms. A discussion of manufacturing cost comparison and recent developments in 'crackable' forged steel connecting rods are also included.

2.3 FINITE ELEMENT MODELING AND ANALYSIS

The objective of FEA was to investigate stresses and hotspots experienced by the connecting rod. From the resulting stress contours, the state of stress as well as stress concentration factors can be obtained and consequently used for life predictions (Afzal and Fatemi, 2004).

Rahman (2009) discuss about FEA of the cylinder block of the free piston engine. The 4 nodes tetrahedral (TET4) element version of the cylinder block was used for the initial analysis. The comparison then are made between the TET4 and the 10 nodes tetrahedral (TET10) element mesh while using the same global mesh length for the highest loading conditions (7.0 MPa) in the combustion chamber. From the results, the TET10 mesh predicted higher von Mises stresses than that the TET4 mesh. The TET10 mesh is presumed to represent a more accurate than TET4 meshes. TET4 employed a linear order interpolation function while TET10 used quadratic order interpolation function. For the same element size, the TET10 is expected to be able to capture the high stress concentration associated with the bolt holes. A TET10 was then 6 finally used for the solid mesh. Mesh study is performed on FE model to ensure sufficiently fine sizes are employed for accuracy of calculated results but at competitive cost (CPU time).

Bari et al. (2004) compare FEA of slab with others analytical solution. Slabs are most widely used structural elements that transmit load to the supporting walls and beams and sometimes directly to the columns by shear and torsion. Similarly with various classical mathematical procedures, simple beams were analyzed in which the concrete and the steel reinforcement were represented by two-dimensional triangular finite elements. Special bond link elements were used to connect the steel to the concrete. Linear analysis were performed on beams with predefined crack patterns to determine principal stresses in the concrete, stresses in the steel reinforcement and bond stresses. From the observations of the results, displacements and moments by using FEM were 20% more accurate

Static Analysis of Composite Plate

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Abstract— **Composite materials (also called composition materials or shortened to composites) are materials made from two or more constituent materials with significantly different physical or chemical properties, that when combined, produce a material with characteristics different from the individual components. The individual components remain separate and distinct within the finished structure. The new material may be preferred for many reasons: common examples include materials which are stronger, lighter or less expensive when compared to traditional materials. In this project the structural analysis APDL programming plays a key point. APDL stands for ANSYS Parametric Design Language, a scripting language that you can use to automate common tasks or even build your model in terms of parameters (variables). . A square cross ply laminated plate is subjected with the respective boundary conditions and assuming axis symmetry properties and orthotropic material properties. The deflections stress and considerable results are obtained.**

Key words: FEM, ANYSYS, Composite Plate etc..

I. INTRODUCTION

A composite material is made by combining two or more materials – often ones that have very different properties. The two materials work together to give the composite unique properties. However, within the composite you can easily tell the different materials apart as they do not dissolve or blend into each other. A composite material can be defined as a combination of a matrix and a reinforcement, which when combined gives properties superior to the properties of the individual components. In the case of a composite, the reinforcement is the fibers and is used to fortify the matrix in terms of strength and stiffness. The reinforcement fibers can be cut aligned placed in different ways to affect the properties of the resulting composite.

The matrix, normally a form of resin, keeps the reinforcement in the desired orientation. It protects the reinforcement from chemical and environmental attack, and it bonds the reinforcement so that applied loads can be effectively transferred.

A. Natural composites

Natural composites exist in both animals and plants. Wood is a composite – it is made from long cellulose fibers (a polymer) held together by a much weaker substance called lignin. Cellulose is also found in cotton, but without the lignin to bind it together it is much weaker. The two weak substances – lignin and cellulose – together form a much stronger one. The bone in your body is also a composite. It is made from a hard but brittle material called hydroxyl apatite (which is mainly calcium phosphate) and a soft and flexible material called collagen (which is a protein). Collagen is also found in hair and finger nails. On its own it would not be much use in the skeleton but it can combine with hydroxyl apatite to give bone the properties that are needed to support the body.

B. Making composites

Most composites are made of just two materials. One is the matrix or binder. It surrounds and binds together fibers or fragments of the other material, which is called the reinforcement.

Applications of composites on aircraft include:
• Fairings
• Flight control surfaces
• Landing gear doors
• Leading and trailing edge panels on the wing and stabilizer
• Interior components
• Floor beams and floor boards
• Vertical and horizontal stabilizer primary structure on a large aircraft
• Primary wing and fuselage structure on new generation Large aircraft
• Turbine engine fan blades
• Propellers

C. Major Components of a Laminate

The measured properties of an isotropic material are independent of the axis of testing. Metals such as aluminum and titanium are examples of isotropic materials. A fiber is the primary load carrying element of the composite material. The composite material is only strong and stiff in the direction of the fibers. Unidirectional composites have predominant mechanical properties in one direction and are said to be anisotropic, having mechanical and/or physical properties that vary with direction relative to natural reference axes inherent in the material. Components made from fiber-reinforced composites can be designed so that the fiber orientation produces optimum mechanical properties, but they can only approach the true isotropic nature of metals, such as aluminum and titanium.

A matrix supports the fibers and bonds them together in the composite material. The matrix transfers any applied loads to the fibers, keeps the fibers in their position and chosen orientation, gives the composite environmental resistance, and determines the maximum service temperature of a composite.

a) Strength Characteristics

Structural properties, such as stiffness, dimensional stability, and strength of a composite laminate, depend on the stacking sequence of the plies. The stacking sequence describes the distribution of ply orientations through the laminate thickness. As the number of plies with chosen orientations increases, more stacking sequences are possible.

Dynamic Analysis of Lathe Cutter

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***Abstract*:A lathe is a machine tool that rotates the workpiece on its axis to perform various operations such as , cutting,knurling,drilling, or deformation,facing,turning, with tools that are applied to the workpiece to create an object with symmentry about an axis of rotation. Lathes are used in woodturning metal working,metal spinning thermal spraying , parts reclamation, and glass-working. Lathes can be used to shape pottery.Most suitably equipped metalworking lathes can also be used to produce most solids of revolution screw threads or helices. Ornamental lathes can produce three-dimensional solids of incredible complexity. Dyanamic analysis of modal means the variable the realtions with variable parmeter time. The workpiece is usually held in place by either one or two centers, at least one of which can typically be moved horizontally to accommodate varying workpiece lengths. Other work-holding methods include clamping the work about the axis of rotation using a chuck or collet, or to aface plat, using clamps. Lathe may or may not have legs, which sit on the floor and elevate the lathe bed to a working height. A lathe may be small and sit on a workbench or table, not requiring a stand.**

Keywords - *Dynamic analysis, Finite element method, Lathe*

I.   INTRODUCTION

A lathe is a mahine tool that rotates the work piece on its axis to perform various operations such as , cutting,knurling, drilling, or deformation,facing,turning, with tools that are applied to the work piece to create an object with symmentry about an axis of rotation. Lathes are used in woodturning metal working,metal spinning thermal spraying , parts reclamation, and glass-working. When a workpiece is fixed only to the spindle at the headstock end, the work is said to be "face work". When a workpiece is supported in this manner, less force may be applied to the workpiece, via tools, at a right angle to the axis of rotation, lest the workpiece rip free. Thus, most work must be done axially, towards the headstock, or at right angles, but gently.

1.1 CUTTING TOOL

In the context of machining, a cutting tool or cutter is any tool that is used to remove material from the workpiece by means of shear deformation. Cutting may be accomplished by single-point or multipoint tools. Single-point tools are used in turning, shaping, planing and similar operations, and remove material by means of one cutting edge. Milling and drilling tools are often multipoint tools. Grinding tools are also multipoint tools. Each grain of abrasive functions as a microscopic single-point cutting edge (although of high negative rake angle), and shears a tiny chip.

Cutting tools must be made of a material harder than the material which is to be cut, and the tool must be able to withstand the heat generated in the metal-cutting process. Also, the tool must have a specific geometry, with clearance angles designed so that the cutting edge can contact the workpiece without the rest of the tool dragging on the workpiece surface. The angle of the cutting face is also important, as is the flute width, number of flutes or teeth, and margin size. In order to have a long working life, all of the above must be optimized, plus the speeds and feeds at which the tool is run. Cutting tools are often designed with inserts or replaceable tips (tipped tools). In these, the cutting edge consists of a separate piece of material, either brazed, welded or clamped on to the tool body. Common materials for tips include cemented carbide, polycrystalline diamond, and cubic boron nitride.[1] Tools using inserts include milling cutters (endmills, fly cutters), tool bits, and saw blades. The typical tool for milling and drilling has no changeable insert. The cutting edge and the shank is one unit and built of the same material. Small tools cannot be designed with exchangeable inserts. The cutting edge of an cutting tool is a very important for the performance of the cutting process. The main features of the cutting edge are:

- form of the cutting edge: radius or waterfall or trumpete
- cutting edge angles (free angle and rake angle)
- form and size of the chamfers

The measurement of the cutting edge is performed using a tactile instrument or an instrument using focus variation.Cutting tool materials can be divided into two main categories: stable and unstable.

Unstable materials (usually steels) are substances that start at a relatively low hardness point and are then heat treated to promote the growth of hard particles (usually carbides) inside the original matrix, which increases the overall hardness of the material at the expense of some its original toughness. Since heat is the mechanism to alter the structure of the substance and at the same time the cutting action produces a lot of heat, such substances are inherently unstable under machining conditions.

For the lathe machine to function and perform its operations, various important parts are integrated together. These essentials parts make up the lathe machine and include the following:

Stand (or legs). This is used in holding the lathe machine and in elevating the lathe bed to a working height.

Bed. This is usually a horizontal beam that holds the chips and the swarfs.

Headstock. The headstock contains the high precision

Studies on Nano Cellulose Century Fiber Composites

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Abstract--**Nano cellulose composites are used for advanced applications for structural parts and electronic components. Biocompatible water soluble cellulose composites are used in medical applications as well. Nano cellulose fibers are extracted through various chemical and mechanical treatments to separate the cellulose and to further refine it. Composites are made using thermosetting polyester resin and biodegradable poly vinyl (PVA). A research work is proposed in this paper for extraction of lignocellulose and nano cellulose fibers from century plant and developing the composites for evaluation of TGA, DSC, DMA, dielectric, tensile, flexural, impact, hardness and hygroscopic properties. Applications for the composites will be suggested based on the the properties of the composites.**

Key words--*Century fiber composites; nanocellulose fibers; nano cellulose composites; biodegradable composites.*

I. INTRODUCTION

Nano-cellulose composites have drawn the attention of the researchers for development thermosetting and biodegradable materials for automotive, packaging and medical applications [1-10]. Nano cellulose fiber composites are fully biodegradable and biocompatible with excellent mechanical properties. Due to high crystallinity and high aspect ratio and low density of the nano cellulose fibers, there is considerable increase in the stiffness of the composites produced.

II. LITERATURE REVIEW

The comparative study [1-3] of mechanical, thermal, electrical and water absorption properties of different natural fiber composites has identified that the Century fiber has great potential to give better properties. There has been an increasing interest on use of natural fiber composites over the last decade and extensive research has been carried out to explore the best properties for various applications [4,5]. Nano cellulose fibers are isolated from a variety of natural fibers by chemical and mechanical treatments [5]. Chemical treatments prior to mechanical treatments reduce the size of the fibers before homogenization by [6] and reduce the energy consumption during mechanical treatments. Different chemical treatments include: alkaline treatment coupled with high pressure defibrillation, acid treatment, enzyme-assisted hydrolysis and acid hydrolysis. Mechanical treatments include: high pressure homogenization, ultrasonication, cryocrushing and grinding. Isolation of nano fibers is assisted by oxidation pretreatment by 2-Tetramethylpiperidine-1-oxyl (TEMPO) that facilitates. Other methods include steam explosion and electro-spinning [7-11]. Nano fibrillated cellulose (NFC) reinforced composites are produced using phenolic resin, styrene butyl acrylate, amylopectin, polyurethane, melamine formaldehyde, etc. Nano composites are made by hand layup technique using bio-based epoxy resin and TEMPO oxidized NFC. The specimens are investigated for mechanical, dynamic mechanical, thermal [12] and dielectric properties as well as humidity absorption, morphology and transparency of the composites [6]. Different biodegradable polymers used are: PEO-poly (ethylene oxide), PVA-poly(vinyl alcohol), PAA-poly (acrylic acid), PCL-poly(ε-capro lactone), PLA-poly(lactic acid), PS-polystyrene, EVOH-ethylene-vinyl alcohol copolymer, PMMA-poly(methyl methacrylate) [12,14].

Thermoplastic rice straw nano cellulose composites are made using reinforced starch polymer [15]. In the first step, almost all the non-cellulosic components are removed from the straw and a white pulp of cellulosic fibers are obtained. Then a diluted suspension of fibers was ultra-sonicated to destroy inter molecular hydrogen bonds and nano fiber networks are obtained. The fibers are then used for casting films of the composite. It was found that the yield strength and Young's modulus of the nano composites is due to the reinforcement by cellulose fibers. Humidity absorption resistance was significantly enhanced. Recently, modified cellulose has been used as reinforcement for various composites with water soluble polymers. Addition of cellulose increased the viscosity and mechanical properties and accelerated the rate of biodegradation. Chemical modification of cellulose has been an important route for the production of multifunctional materials. High strength biodegradable composite films for membrane and packaging applications are developed by film casting method using modified cellulose with poly(vinyl alcohol) in different compositions [8,15,16]. These films are characterized for mechanical, moisture absorption, gas barrier, and biodegradable properties [16,17]. They have shown good transparency, flexibility, good mechanical and biodegradable properties. These films have exhibited better barrier properties with increase in percentage of modified cellulose. Literature review revealed that reported research has not been found on Century cellulose nano fiber composites. Century fibers will be extracted from Agave Americana plants are abundantly available as border plant. The century fibers are widely used in the textile and paper industry. The century nano cellulose fibers will be used to cast various structural parts in automobiles, electronic and packaging industry.

III. PROPOSED WORK

ANALYSIS OF EMTRICITABINE BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHIC METHOD: DEVELOPMENT AND VALIDATION

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Abstract:

A simple and rapid stability indicating liquid chromatographic method with UV detection was developed and validated for the determination of emtricitabine in bulk drug and pharmaceutical dosage form. Chromatographic separation has been achieved within 5 minutes by using Phenomenex C18 column (250 mm × 4.6 mm I.D., 5 μm particle size as the stationary phase with a mobile phase consisted of 0.1M Ammonium acetate - Acetonitrile (60: 40) at a flow rate of 1.0 ml/min. Using an UV detector, detection was performed at 275nm. The method was validated in accordance with International Conference on Harmonization guidelines with respect to linearity, sensitivity, selectivity, accuracy, precision, specificity and robustness. Regression analysis showed good correlations (R^2=0.9996) for emtricitabine in the concentration range of 5-60 μg/ml. The emtricitabine was exposed to acidic, basic, oxidation, photo degradation and dry heat stress conditions. The developed HPLC method can efficiently separate the emtricitabine from its degradation products. Therefore, it can be employed as stability-indicating method. The percentage recovery was in the range of 99.54–99.83% with relative standard deviation in the range of 0.242 – 0.481 %, emtricitabine from the pharmaceutical dosage form. The proposed method is suitable for determination of emtricitabine in bulk drug and in its pharmaceuticaldosageform.

Effective Writing Skills for Successful Career

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ABSTRACT:

Technology has spread in every aspect of our life. The importance of technology can be felt more in the field of engineering. Technical communication is very important for practical applications of science. Engineers are the one who build and design technology so in order to express their views and thoughts to others they need to have good speaking and writing skills. The student of today's generation needs more ability than ever and a key need is to increase the ability to communicate both in speech and graphics. Written expression is a crucial part of communication and critical thinking. For engineering students, developing strong writing skills not only helps their grades but also prepares them for their academic and professional futures. Whether writing letters, taking notes or applying for scholarships, students must learn to develop their ideas before presenting it. To present the ideas effectively, to transmit the ideas understandably and influentially both verbally and in writing. This paper deals with the importance of technical writing, features of technical writing and the challenges the students face in written communication.

Introduction:

Writing skills are an important part of communication. Good writing skills allow you to communicate your message with clarity and ease to a far larger audience than through face-to-face or telephone conversations. You might be called to devise plan or strategy at work; write a grant application or press release within a volunteering role; or you may fancy communicating your ideas online via a blog. Poor writing skills create poor first impressions and many readers will have an immediate negative reaction if they spot a spelling or grammatical mistake. For eexample, a spelling mistake on a commercial web page may cause potential customers to doubt the credibility of the website and the organization.Writing helps you refine your ideas while giving a feedback. It fosters your ability to explain a complex position to the readers and for yourself.

ESSENTIAL SPEAKING SKILLS FOR ENGINEERING STUDENTS

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ABSTRACT- To be speechless is often, but to be speechful is rare". Effective speaking skills have become extremely mandatory for the successful career of present engineering students. Effective speaking skills are essential for everyone in this world of crucial competition. In this existing corporate world, importance of oral communication and hard skills has become the vital career enhancers for an engineering student. Most of the MNC's are in search of a suitable candidate with sound knowledge in professional communication. An effective speaking skill makes the person confident and able to reach the pinnacle of his success. This paper flashes about the importance and the ways of speaking and also overcoming the most communicative problems faced by engineering students.

KEYWORDS: Engineering, essential, skills, career.

INTRODUCTION

Engineering, being the most opted stream is the biggest field of study.A person without oral communication skills will suffer in this era of competition and may find it difficult to achieve a higher position.English helps the students to build up a better communicative atmosphere.

In this modern period of time, English language has displaced other languages and has become the best way of communication worldwide. Its prepotency continues to expand each and every day. Speaking is a huge part of English language. In this context we can recall a great saying by John F. Kennedy, "Public speaking is the art diluting a two-minute with a two-hour vocabulary."

During the job hunting process ininterviews,speaking plays a major role in impressing the interviewers such as in a group discussion or a just a minute session. For engineers who are the builders of our Past, Present and future speaking is the most important aspect. In order to be co-operating and communicating with different people from different parts of the world, for most of the peoplespeaking should be improved in certain places like pronunciation and grammar.

Problems faced by engineering students

Some of the usual problems faced by engineering students for being unable to have proper speaking ability in English could be,

- ➢ Family background**.**
- ➢ Lack of skillful teachers.
- ➢ Spoon fed education system.
- ➢ Inappropriate usage of grammar.

Family background often determines the capacity of communication of capacitive competence in the child. The support for this is the literate parents provide more exposure towards importance of speaking English to their child whereas the illiterate parents fail in providing parental advice and guidance.

Lack of skillful teachers is the other major drawback for the students in having poor speaking skills. The teaching-learning process now-a-days has become completely marks oriented than being skill and knowledge oriented. Even the parents crave for the same

ANXIETY AND LEARNING ENGLISH AS SECOND LANGUAGE IN INDIAN CLASSROOMS

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ABSTRACT- One of the reasons for the declining standards of teachings English is the inability of teachers to understand the difference between the teaching of literature and the teaching of language skills. As of now people know that the study of a language is not an end in itself, it is a means to develop one's power of expression and understanding can be accomplished by mastering various elements of the language. Accordingly,English language teaching in India, has suffered a lot so much that our students who pass inter or degree examinations with English either as a mandatory or as an elective subject can neither speak nor write correct English, may be because the emphasis in our schools and collages has always been on the conceptual content and the stylistic content has been neglected so far"

INTRODUCTION

English has got a place of status in our country, even though over a six decades since Britishers left India. No native language any how has come up to replace English, either as a medium of communications or as an official language in India under the influence of nationalistic feeling and emotional hostility English began to reassert its portion. The content of the present paper is an outlook of major problems concerned with teaching English as second language. In these days it is still urgent to discuss, what to teach and how to teach a second language taking into account the objective, social and professional needs of future language experts in our country. Apart frombusinessman,tradesmen,engineers,scientists and scholars across the globe must know English because it is the international means of exchange of information and experience. The students have to learn second language because students of any field, any profession must learn a second language teaching it is important to formulate its actual and realistic aims and tasks. Whenever we come across any outcome we see the crucial role of English in decreasing the result.

The way English is taught in our collages today is to a great extent responsible for the pit falls. The aims of English education and teaching are certainly very lofty and there are inadequate means to realize them. The policy makers have completely forgotten

SILHOUETTE OF EPOCHS IN ENGLISH WRITING

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ABSTRACT- **Using oral, written, reading, listening and interpersonal communication to inform ,motivate , and effect change is one of the most graduates learning outcomes. It is important for all graduates to have mastered the generic skills of communication in order to attain employment, be successful in their future careers. As writing play a magnificent role in language, history and famous writing of tremendous personalities. History is impossible without the written words. This report also discusses about different variations in English writing and Indo - literature. "if there is a book you want to read ,but it hasn't been written yet ,then you must write it." by - Toni Morrison**

INTRODUCTION

WHAT IS WRITING ALL ABOUT

Writing skills are an important part of communication. Good writing skills allow you to communicate your message with clarity and ease to a far larger audience than through face-to-face or telephone conversations.

Writing is a medium of human communication that represents language and emotion through the Inscription or recording of signs and symbols. In most languages, writing is a complement to speech or spoken language.
A 'complete writing' system should fulfill all the following criteria:
* It must have as its purpose communication;
* It must consist of artificial graphic marks on a durable or electronic surface;
* It must use marks that relate conventionally to articulate speech or electronic programming in such a way that communication is achieved.

You might be called upon to write a report, plan or strategy at work; write a grant application or press release within a volunteering role; or you may fancy communicating your ideas online via a blog. And, of course, a well written CV or resume with no spelling or grammatical mistakes is essential if you want a new job.

"For many of us it will have been a long time since we were taught any **writing skills** and a refresher may be needed."
This report is on the "HISTORY OF WRITING ACROSS BORDERS."

ERA OF WRITING

ANCIENT

Old English is the earliest historical form of the English language, spoken in England and southern and eastern Scotland in the early Middle Ages. It was brought to Great Britain by Anglo-Saxon settlers probably in the mid 5th century, and the first Old English literary works date from the mid-7th century.
Old English developed from a set of Anglo-Frisian or North Sea Germanic dialects originally spoken by Germanic tribes traditionally known as the Angles, Saxons, and Jutes. Old English had four main dialects, associated with particular Anglo-Saxon kingdoms: Mercian, Northumbrian, Kentish and West Saxon. Anglo-Saxon literacy developed after Christianization in

A novel numerical method for solving heat conduction problems

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Abstract:

In this work, an efficient numerical method with a high accuracy is proposed for solving the heat conduction problems. In this method, the governing equation of heat conduction in the partial differential equation form is firstly integrated over the small volume around each node point. In the resulting integrals the spatial derivatives of the unknown temperature and heat flux disappear. Then the numerical quadrature is employed to discretize the integrals. Numerical results show that when the same amount of the computer memory and CPU-time is consumed the proposed method can achieve a high accuracy in comparison with the finite volume method (FVM). Furthermore, the proposed method is more accurate than the finite element method (FEM) and boundary element method (BEM) for multi-dimensional heat conduction problems.

Key words: Heat conduction, numerical method, finite volume method

1. Introduction

The subject of heat conduction is of fundamental importance in many engineering applications, such as the thermal cooling, thermal protection, and heat exchange problems. The analytic solutions of heat conduction problems are limited by the complex geometries of the heat conduction media. As the rapid development of the computer technology, the numerical solution becomes a powerful approach for solving the heat conduction problems. Various numerical methods, such as the finite difference method (FDM) [1-4], FVM [5-10], FEM [11, 12], BEM [13-16], and meshless method [17-19], have found wide applications in the heat conduction problems. Among them, the FVM is central to the most well-established CFD codes,. The control volume integration which is implemented in the FVM can keep the conservation of the relevant properties for each finite size cell, which is one of main attractions of the FVM. Actually, the control volume integration has another advantage that it reduces the order of the highest derivative that appears in

the governing equations of fluid flow and heat transfer, which weakens the requirement of the smoothness of the flow velocity and temperature field. Along this line, some integration methods based on the governing equations in the pure integral equation form have been developed. An axial Green's function method (AGM) was proposed for solving multi-dimensional elliptic boundary value problems [20]. Then it was applied to solve the Stokes flow [21]. Recently, a local axial Green's function method which is the localization of the AGM was developed for solving the convection-diffusion problems [22]. Similarly, a nonstandard finite difference scheme based on the Green's function formulation was established for solving the reaction-diffusion-convection problems [23]. Based on the Green's function in a series form and the integration formulation, we have proposed an integral equation approach for simulating the magnetic reconnection phenomenon [24] and the convection-diffusion problems [25]. The magnetic reconnection phenomenon involves the velocity, magnetic and

MIN-MAX THEOREMS IN GRAPH THEORY AND THEORETICAL CONSEQUENCES IN COMBINATORIAL OPTIMIZATION

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Abstract: *In this paper we present some central min-max theorems in graph theory from the view point of linear programming. We study and review the Maximum flow Minimum cut theorem and discussed the standard proof using Ford-Fulkerson algorithm. Also we focused on some graph theoretic consequences of the Max-flow Min-cut theorem in combinatorial optimization.*

Keywords: Graphs, Maximum flow Minimum cut, combinatorial optimization.

I.Introduction:

Here we study some min-max theorems in combinatorial optimization. One of the earliest and well recognized results is the Max- flow Min-cut theorem by Ford and Fulkerson [4] in 1956. This theorem states the equivalence between the maximum flow and minimum cut in a network. In this chapter we review the Max- flow Min-cut theorem and its proof using Ford-Fulkerson algorithm. This theorem had several implications in combinatorial optimization. Also we focused on some graph theoretic consequences of the Max-flow Min-cut theorem in combinatorial optimization.

1.Preliminaries:

Definition 1.1.1. (Network) A Network is a directed graph $G(V, E, c, s, t)$ with vertex set V and an arc set E in which every directed edge $(i, j) \in E,$ has a non negative capacity $c(i, j) \geq 0, \quad c : V \, X \, V \to R^+$ the vertices $s \in V, t \in V$ are the source vertex and the sink vertex of the network.

Definition 1.1.2. (s,t-cut) An s,t-cut is a partitioning of the vertices of a Network into two sets, say A and B, such that $s \in A$ and $t \in B$.

The capacity of a cut (A, B) is given as

$$C(A, B) = \sum_{u \in A, v \in B} C(u, v)$$

Definition 1.1.3. (Flow) A flow is a mapping $f : E \to R,$ denoted by f_{uv} or $f(u, v)$, subject to the following constraints:

$f(u, v) \leq c(u, v)$ for each $(u, v) \in E$ (capacity constraint)

$f(u, v) = -f(v, u)$ (skew symmetry)

$\sum_{v \in V} f(u, v) = 0 \ \forall u \in V \setminus \{s, t\}$ (conservation of flow)

The value of flow is defined by $|f| = \sum_{v \in V} f(s, v)$ where s is the source of N.It represents the amount of flow passing out of the source to the sink. The following figure 1.1 shows a typical network and a flow in that network. Here f can be viewed as a vector over the directed edges of the network.
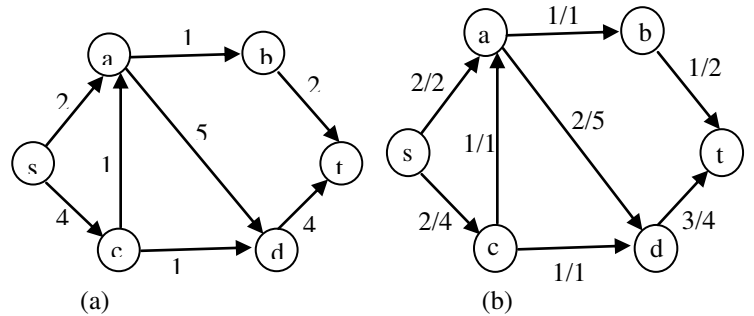
Figure 1.1: (a) A network with edge capacities.

(b) The corresponding flow network with $|f| = 4$.

Definition 1.1.4. (Flow across a cut) If (A,B) is any cut in the network, then the flow across the cut is defined as

$$f(A, B) = \sum_{u \in A, v \in B} f(u, v)$$

Lemma 1.1.1. If f is a flow in a network G, then for any s,t-cut (A, B) $f(A, B) = |f|$

Proof: We prove this by considering the flow over the cut and reducing it to the flow from the source vertex which is the actual flow.

$$f(A, B) = \sum_{u \in A, v \in B} f(u, v) = \sum_{u \in A, v \in B} f(u, v) + \sum_{\{w, w^/\} \in A} f(w, w^/)$$

$$\text{Since} \quad \sum_{\{w, w^/\} \in A} f(w, w^/) = 0$$

Because for every $\{x, y\} \in A$ both $f(x, y)$ and $f(y, x)$ are added.

$$= \sum_{u \in A, v \in V} f(u, v) = \sum_{v \in V} f(s, v) + \sum_{u \in A \setminus \{s\}, v \in V} f(u, v)$$

$$= \sum_{v \in V} f(s, v) = |f|$$

The effect of radially varying MHD and mass transfer on peristaltic flow of Williamson fluid in a vertical annulus

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Abstract

In the present paper, we have investigated the influence of the effects of radially varying MHD and mass transfer on peristaltic flow of Williamson fluid model in a vertical annulus. The governing equations of Williamson fluid model are simplified using the assumptions of long wavelength and low Reynold's number. An approximated analytical solution has been derived for velocity field using Perturbation Method. The expressions for pressure rise are calculated using numerical integration. The graphical results are presented to interpret various physical parameters.

Keywords: Peristaltic flow, Williamson fluid, Annulus, Perturbation solution, MHD.

1. Introduction

The study of peristaltic transport has enjoyed increased interest from investigators in several engineering disciplines. From a mechanical point of view, peristalsis offers the opportunity of constructing pumps in which the transported medium does not come in direct contact with any moving parts such as valves, plungers, and rotors. This could be of great benefit in cases where the medium is either highly abrasive or decomposable under stress. This has led to the development of fingers and roller pumps which work according to the principle of peristalsis. Applications include dialysis machines, open-heart bypass pump machines, and infusion pumps. After the first investigation reported by Latham [1], several theoretical and experimental investigations [2–6] about the peristaltic flow of Newtonian and non-Newtonian fluids have been made under different conditions with reference to physiological and mechanical situations.

The peristaltic transport of magnetohydrodynamic (MHD) flow of a fluid in a channel is of interest in connection with certain problems of the movement of conductive physiological fluids, e.g., the blood, blood pump machines and with the need for experimental as well as theoretical research on the operation of a peristaltic MHD compressor. Effect of a moving magnetic field on blood flow was investigated by Sud et al. [7], and they observed that the effect of suitable moving magnetic field accelerates the speed of blood. Agrawal and Anwaruddin[8] developed a mathematical model of MHD flow of blood through an equally branched channel with flexible walls executing peristaltic waves using long wave length approximation method and observed, for the flow blood in arteries with arterial disease like arterial stenosis or arteriosclerosis, that the influence of magnetic field may be utilized as a blood pump in carrying out cardiac operations. The principle of magnetic field is successfully applied to Magnetic Resonance Imaging (MRI) when a patient under goes in a height static magnetic field. Abbasi et al. [9] developed a mathematical model on peristaltic transport of MHD fluid by considering variable viscosity. Moreover, the influence of magnetic field on peristaltic flow of a Casson fluid in an asymmetric channel was studied by Akbar[10] who has also investigated the characteristics of fluid flow in tabular harmonizes by considering

Preparation and Electrical Properties of h-LiMnBO₃ Nanoparticles synthesized by a new Pechini process

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Abstract— The h-LiMnBO₃ nanoparticles prepared by using pechini process. The prepared h-LiMnBO₃ nanoparticles were investigated by using X-ray diffraction (XRD), Fourier Transform Infrared spectroscopy (FTIR) and scanning electron microscopy (SEM) respectively. XRD results confirm the formation of pure phase of nanocrystalline h-LiMnBO₃ particles calcinated at 650 °C. FT-IR results confirm the formation of h-LiMnBO₃ structure and the formation of structural coordination. SEM images confirms the formation of spherical shape particles. The measured impedance data, at different frequencies and temperatures, were analyzed to obtain the electrical conductivity of the h-LiMnBO₃ sample and it was found to be 4.40×10^{-5} S cm^{-1} at 298 K.

Keywords: h-LiMnBO₃; Pechini process; XRD; FTIR; SEM-EDX; Electrical conductivity.
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I. INTRODUCTION

There is an increasing need for new lightweight, long-lived, high energy density rechargeable batteries because of the rapid growth of wireless telecommunications and emerging integrated optoelectronic circuits. Recently, the crystal structures of new borates with the composition of LiM′BO₃ have also been investigated [1]. In alkaline earth metal borates suffered the crystal structure of Li[M′]BO₃ (M= Fe, Co, Mn, Mg and Zn, etc.) which exhibits three coordinate boron group BO₃ which are linked by M and Li cation-centered oxygen polyhedral. However, these group of alkaline earth metal borates important because of its excellent chemical and thermal stabilization, facile synthesis and cheap raw material (H₃BO₃), so it has been extensively applied. Physical, chemical and structural properties of lithium meta borates, Li[M′]BO₃ play major role on its potential as energy storage devices, non-linear optical materials, ferroelectric and piezoelectric materials, luminophores and semiconductors. Borates have a wide variety of chemistry structures: a boron atom may exist either tetrahedral (BO₄) or triangular (BO₃) oxygen coordination, and both the boron atoms can polymerize by sharing corner oxygen atoms to form isolated rings and cages or infinite chains and networks [1]-[7].

However, a major difficult faced was to obtain a phase pure form of LiMBO₃ (M = Fe, Co) compounds. Hence, authors attempted to synthesize the mesoporous nanocrystalline pure phase h-LiMnBO₃ compound by simple Pechini process and investigated its phase, structure of the prepared h-LiMnBO₃ compound as a useful high energy cathode material, X-ray powder diffraction (XRD), Fourier-transform infrared (FT-IR), Scanning electron microscopy (SEM), and impedance spectroscopy techniques.

II. EXPERIMENTAL PROCEDURE

A. Preparation of h-LiMnBO₃ nanoparticles
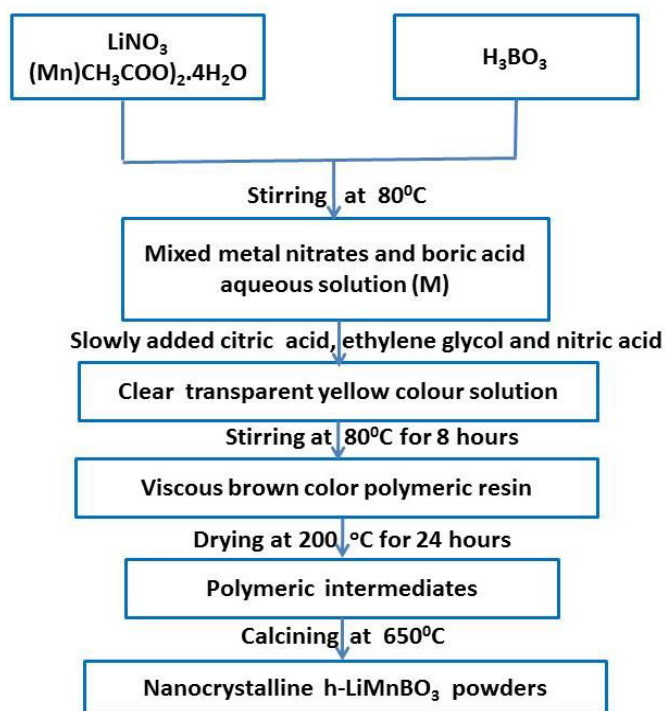
Fig.1 shows the flow chart for the preparation of nanocrystalline hexagonal LiMnBO₃ powder sample by a Pechini process. As shown in fig.1, stoichiometric amounts of lithium nitrate and manganese acetate, were dissolved in a deionizer water under constant stirring and sonicated for 15 minutes. Simultaneously, in another beaker, required amount of boric acid was dissolved in a de-ionizing water under continuous stirring for 30 minutes at 80 °C to form clear

Preparation and Electrical properties of Spinel LiMn$_2$O$_4$ Nanoparticles and Nanorods for Li-ion Battery Applications

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Abstract— Spinel LiMn$_2$O$_4$ nanoparticles were prepared by pechini process. LiMn$_2$O$_4$ nanorods were prepared by rapid two steps synthesis process, which involves a novel microwave hydrothermal synthesis and followed by a solid-state reaction. XRD studies of the prepared samples confirmed the formation of crystalline pure spinel phase of LiMn$_2$O$_4$ nanoparticles and nanorods. SEM micrographs of the prepared samples showed the formation of the LiMn$_2$O$_4$ nanorods and nanoparticles. FTIR studies of the prepared samples confirmed the formation of the LiMn$_2$O$_4$ structured nanoparticles and nanorods. Electrical conductivities studies of LiMn$_2$O$_4$ nanorods and nanoparticles were studied through impedance spectroscopy measurements. Detailed results will be presented and discussed.

Keywords: LiMn$_2$O$_4$ nanorods and nanoparticles; X-ray diffraction; FTIR; SEM; Impedance & Electrical Conductivity.

I. INTRODUCTION

The Li-ion batteries, which have high energy density and long cycle life, are considered to be one of the most promising energy storage systems for portable electronic devices such as cellular phones, camcorders, i-Pods, laptop computers, etc. [1,2]. Three dimensional open structured spinel LiMn$_2$O$_4$ is found to be a potential cathode material to replace layered LiCoO$_2$ in lithium-ion battery applications, because of its high reduction potential, low cost, high abundance, non-toxicity, etc. [3-5]. However, the application of spinel LiMn$_2$O$_4$ in high power systems such as electric vehicles (EVs) and hybrid electric vehicles (HEVs) requires fast kinetic properties. Nano-structured materials with different morphologies, such as spherical nanoparticles, nanorods, nanowires, nanosheets, etc., are found to be effective in enhancing the kinetic properties of the spinel LiMn$_2$O$_4$ electrode [6,7]. The synthesis process plays a major role in determining the physical and chemical properties of nano-structured materials. In the past decade, so many synthesis routes have been developed for the preparation of LiMn$_2$O$_4$ nanoparticles like sol-gel, combustion, hydrothermal, microwave hydrothermal, etc. [8-10]. In the present work, LiMn$_2$O$_4$ nanoparticles and nanorods were prepared by two different methods. LiMn$_2$O$_4$ nanoparticles were prepared by Pechini process and LiMn$_2$O$_4$ nanorods were synthesized by two steps process: the first step involves the microwave hydrothermal synthesis to prepare β-MnO$_2$ nanorods and the second step involves a solid state reaction

between as prepared β-MnO$_2$ nanorods and lithium hydroxide monohydrate (LiOH.H$_2$O) to form the LiMn$_2$O$_4$ nanorods. The prepared samples were characterized by X-ray diffraction (XRD), Fourier transform infrared (FTIR) spectroscopy, Scanning electron microscopy (SEM) and impedance spectroscopy techniques.

II. EXPERIMENTAL PROCEDURE

### A. Preparation of LiMn$_2$O$_4$ nanoparticles

Stoichiometric quantities of LiNO$_3$ (S.d. Fine-Chem. Ltd) and Mn(CH$_3$COO)$_2$.4H$_2$O (Qualigens) were dissolved in citric acid (Qualigens) and ethylene glycol (Merck chemicals) solution. The molar ratio of total metal ions to citric acid was kept as 1:1 and the molar ratio of total metal ions to ethylene glycol was kept as 1:2. Standard (16N concentrated) nitric acid (NA) was added to the starting solution (SS) by keeping the volume ratio of SS: NA = 5:1. The resulting transparent yellow color solution was evaporated at 80 °C under constant stirring condition. Continuous evaporation of the solution leads to the formation of dark yellowish resin. The obtained resin was dried at 170 °C for 24 hours to obtain the polymeric intermediate. The polymeric intermediate was grounded and calcined at 500 °C for 12 hours to obtain LiMn$_2$O$_4$ nanopowders.

B. Preparation of LiMn$_2$O$_4$ nanorods

First, β-MnO$_2$ nanorods were prepared as follows: 0.004:0.004 molar ratio of Mn(CH$_3$COO)$_2$.4H$_2$O (Merck) and Na$_2$S$_2$O$_8$ (Aldrich) were dissolved in 35 ml of de-ionized water under mild magnetic stirring condition at room temperature. The obtained clear solution was transferred to a 100 ml teflon liner vessel container and the vessel was covered with a high strength sleeve made of advanced composite material. The vessel was sealed and placed inside a microwave accelerated reaction system (MARS, CEM corporation, USA) and maintained at 120 °C for 90 minutes. After the reaction, the obtained product was washed several times with the distilled water followed by acetone to remove sulphate ions and remenants by centrifugation process. The final product was dried at 120 °C for 12 h in vacuum oven. To prepare spinel LiMn$_2$O$_4$ nanorods, 1:2 molar ratio of LiOH.H$_2$O and the prepared β-MnO$_2$ nanorods were dispersed in 5 ml of ethanol solution to form a slurry and grounded for several hours to form a fine mixture solution, and dried at ambient conditions. This process was

Synthesis and electrical conductivity studies of nanocrystalline Dy^{3+} doped BaMoO$_4$

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Abstract

Solid oxide fuel cells (SOFCs) have received a great attention in electrochemical devices because of their high energy conversion efficiency, little pollution and widely flexible fuel choices. Scheelite type based oxide ion conducting materials like PbWO$_4$, BaMoO$_4$, SrMoO$_4$ having more ion conductivity and these can be used as electrolyte for intermediate temperature solid oxide fuel cell (ITSOFC) applications. The present work aims to develop nanocrystalline Dy^{3+} doped BaMoO$_4$ to increase the ionic conductivity for ITSOFC applications. Nanocrystalline dysprosium doped BaMoO$_4$ samples were prepared by using acrylamide assisted gel combustion process. All these samples were characterized by TG/DTA, XRD, FTIR and SEM techniques.For the sintered Dy^{3+} doped BaMoO$_4$ crystalline samples,electrical conductivity of grain interior and grain boundary effects areevaluated from the analysis of the impedance plots obtained at different temperatures.

Keywords:sol-gel method, BaMoO$_4$, XRD, FTIR, SEM, Impedance and Electrical conductivity.

I. INTRODUCTION

Generally, Oxygen ion conductors are much imperative samples and can be used in various technological devices such as solid oxide fuel cells, oxygen sensors, electrochemical oxygen pumps, etc. [1-2]. Several families of oxygen ion conductors are being investigated for intermediate temperature solid oxide fuel cells (ITSOFCs) like fluorite type (stabilized ZrO$_2$, CeO$_2$ and δ-Bi$_2$O$_3$) oxides, pervoksite type (LaGaO$_3$, BaCeO$_3$ and SrCeO$_3$) oxides, brownmillerite type (Ba$_2$In$_2$O$_3$) oxides, aurivillius type (BIMEVOX) oxides, pyrochlore type (Gd$_2$Zr$_2$O$_7$) oxides and scheelite type (PbWO$_4$)oxides [3-5].

In these, scheelite type oxides exhibit high ion conductivity, which are comparable with the yttria stabilized zirconia. [6-8] Takao Esaka et. al., systematically investigated the composition dependent of electrical conductivity for PbWO$_4$ scheelite type samples and reported the higher electrical conductivity, 4.2×10^{-2} Scm^{-1}at 800 ºC for Pb$_{0.8}$La$_{0.2}$WO$_{4.1}$. [7]V.Thangadurai et al. preapared ABO$_4$ (A= Ca, Sr, Ba; B= Mo,W) scheelite type samples and they noticed that the scheelite type samples (PbWO$_4$, SrWO$_4$) show the higher electrical conductivity between the temperatures 500ºC to 900 ºC [8].The nanocrystalline metal oxide compounds have the small grain size, which lead to the increase of ionic conductivity and also the stabilization of hightemperature crystal structure. In recent years, nanostructured ceramics have been investigated due to the presence of a large fraction of grain boundaries that can lead to remarkable or enhanced electrical, magnetic, mechanical, optical, sensing and biomedical properties compared with the microstructured samples [9]. Dy$_2$O$_3$ is one of the rare earth oxides and it has high mechanical and thermal stability, suitable for glass, optic and ceramic applications.In the present study, scheelite type dysprosium doped BaMoO$_4$ (BDM) compounds were prepared by using acrylamide assisted gel combustion process and also all the compounds were characterized by TG/DTA XRD, FTIR and SEM techniques. For sintered BDM pellets, the ionic transport was studied by evaluating electrical conductivity at different temperatures through the impedance spectroscopy.

Role of Chemical Analysis in Food Adulteration

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Abstract: Very often fraudulent business men cheat the consumers by adding various adulterants which poses a serious risk to health. Some pesticide residues considered as chemical adulterants were found in the food products due to the ignorance of illiterate farmers. A common man may not possess knowledge about purity and quality of food particles he consumes. But one should be very grateful to chemist Frederick Accuum and medic Arthur Hill Hassalli who confronted the problem in the 19th century. Simple chemical tests to modern analytical techniques can determine known chemical and non-chemical contaminants in simple to complex food matrices at very low concentration levels. They also help to discover and identify unexpected chemical adulterants such as pesticide residues, environmental residues etc., Knowledge of chemical science is always a boon to the human society unless and until the mankind utilizes it in a positive way.

Key words: adulterants, confronted, contaminants, food matrices, fraudulent, residues.

I.INTRODUCTION

Food plays a prominent role in everday needs of man. The mankind's lure of riches is one of the main reasons that led to adulteration. Adulteration of food is generally defined as the addition or subtraction of any substance to or from food, so that the natural composition and

An Empirical Analysis of Banks Financial Efficiency in India using Data Envelopment Analysis (DEA)

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Abstract- The purpose of this paper is to measure the financial performance efficiency of public sector banks and private sector banks in India by using the Data Envelopment analysis (DEA).For measuring the efficiency of the banks, following three different parameters have been used.

1.   **Efficiency of Total Income to Total Investments**

2.   **Efficiency of Total Income to Total Expenses**

3.   **Efficiency of Total Expenses to Total Liabilities**

The efficiency calculated for 24 public sector banks and 16 private sector banks using the Data Envelopment Analysis, individual banks wise.

Keywords: Data Envelopment Analysis, Bank Efficiency, Financial Efficiency.

I.   INTRODUCTION

Many studies have evaluated the performance of banking sector; very few of those studies evaluated the performance of the in banking sector in developing countries. The objective of the any organization is maximization of profits in a proper way by utilizing the resources efficiently and effectively. Enhancing the efficiency is helpful to an organization as it decreases the cost of production and increases the profits of an organization. Higher profit of an organization helps to increase the value of the firm. The profit performance of an organization directly reflects the market price of the organization. The profit directly depends on the lower cost of production or higher production output, indirectly on higher prices and high customer satisfaction.

The service sector industries mainly face problems in terms of efficiency. The problems occur for service sector industries due to the continuous changes in government regulations, competition, technology and global economy etc. The banking sectors, Tourism, hotels, etc are the main services sector facing efficiency problems. The present study focuses on the financial performance efficiency of the banking industry in India. It is important to the banking sector to increase the efficiency of utilization of their financial resources as it helps the banks

ENHANCING EMPLOYABILITY IN ENGINEERING STUDENTS THROUGH SOFT SKILLS

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ABSTRACT

the professional world has undergone a tremendous change. Scores of graduates are losing out in the job market because of lack of soft skills. The scope of soft skills goes beyond just communication skills and personality-driven traits. Apart from having technical background required for the job, they also need non technical skills and corporate dynamics for their career. The main cause why corporate companies are focusing soft skills is to see how an engineer interacts with the global client's. As an engineer, you will often be required to communicate with other engineers and with colleagues from different departments, as well as with upper-level management. So now this paper gives a glance over the soft skills required for engineers.

KEYWORDS: Engineer, soft skills, career, communication skills!

INTRODUCTION:

The importance of soft skills in engineering and teaching these has been raised by industries and MNCs.

One of the challenges in engineering education in India today is to improve the soft skills of the young engineers and prepare them for the workplace. But the reality is that in the increasingly globalised world and the internationalized nature of workplaces, only 25% of the Indian engineering graduates are employable because they are lacking soft skills especially as per given below,

> Communication skills

> self confidence

> empathy

> adaptability

> creativity

> teamwork

> attitude

> willingness to learn

> collaboration

> leadership

> patience!

Communication skills

It is essential to develop a variety of skills for both communicating to is understanding. How they need to receive information is equally important as knowing ourselves. To every employer good communication skills are important.

Self Confidence:

"A feeling of trust in ones abilities, qualities and judgment" In most societies, self-confidence is widely regarded as a valuable individual asset, Constructive changes to self-reliance and constructive changes rest inside of you and all it takes is you to take some time to discover your inner powers.

INVESTMENT PREFERENCES OF INDIVIDUALS

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ABSTRACT
Investment depends upon so many factors like gender, age, family background, profession, educations, health status, taxation, number of dependent members, number of other earning members, ancestral property, retirement age, type of employer, etc. So, the study aims to decide about investment by individuals persons and the problem is that how much amount, at what stage, at what income level, for what time period, in which portfolio assets, with what objective, with what risk assumption, should be invested in taking care of risk and return, maturity period, earnings and appreciations, safety and security, liquidity, lock in period, cost of transaction, return, capital appreciation, etc. In the field of behavioral finance investment is not done only on profit earning motive but it has inputs of psychological needs, aspirations and satisfactions. Data analysis has been done on the basis of percent analysis. The study concludes that ten factors predominantly decide the individual investment patterns and people differ on the basis of annual income, age, gender and profession while investing.

Keywords: Investment, Individuals Preferences, Chi squares

INTRODUCTION

Many individuals find investments to be fascinating because they can participate in the decision making process. One expects to earn a positive return on a diversified portfolio[1]. Investing is not a game but a serious subject matter that can have a major impact on investor's future wellbeing. Virtually, everyone makes investments. Each of the investment has common characteristics like, potential return, capital appreciation and the risk one must bear. The future is uncertain, and one must determine how much risk one is willing to bear since higher return is associated with accepting more risk[2]. The capital market plays an important role in the development of the country for mobilizing and allocation of domestic and foreign savings[3]. It plays crucial role to channelize the savings from household sector of the country, which in turn enhance the capacity of the economy to product goods and services to society. Therefore capital market plays a very crucial role in stimulating industrial growth as well as economic growth and development. Indian financial system's formal part is consisting of an existence of stock exchange and an active new issue market. This market is consisting of primary and secondary segments, which deal with new issues of securities and trade the existing securities, respectively. Securities in both the market comprise of debt and equity instruments. Both are open for individual retail investment to park their saving[4].

Investment

Investment is an employment of funds with the aim of achieving additional income or growth in value. The essential quality of an investment is that it involves waiting for a reward[5]. Investment is the allocation of monetary resources to assets that are expected to yield some gain or positive return over a given period of time. These assets range from safe investments to risky investments[4]. These forms of investments are also called as financial instruments[6].

LITERATURE REVIEW

Investment is an activity that follows after proper evaluation of all the alternatives[4]. The value associated with analysis of the consumer decision making process is widely recognized by various researchers. People's decision regarding how much to save and invest for future depends upon the trade-off between immediate and future consumption. This tradeoff was modeled as a problem of optimizing utility or happiness over life span. Within this framework, optimal saving and consumption path depends on how much people value the consumption at different times in the future[7&8]. Risky asset fraction of the portfolio are positively correlated with income and age and negatively correlated with marital status[9]. Several studies have brought out the relationship between the demographics such as gender, age and risk tolerance level of individuals[10]. The relationship between age and risk tolerance level has attracted much attention. Biological, demographic and socioeconomic characteristics; together with investors psychological makeup affects

An Empirical Study on Shareholder Wealth Creation Using Economic Value Added in India

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Abstract— the modern financial management practices of business organizations are more concentrated on the value/wealth creation of share holders/owners. The only way to achieve this goal for the business organizations is to reach the expectations of shareholders. The main problem here is how to measure the business organizations whether they are achieving their goals or not. To overcome these problems Joel Stern introduced a modified concept of economic profit named "Economic Value Added (EVA)".By using this method this study focuses on: knowing whether all Bombay Stock Exchange index (SENSEX) listed 30 companies are really providing wealth to the shareholder or not. To test this, following hypothesis has been framed - The entire Bombay Stock Exchange index listed companies are having positive Economic Value Added (EVA). Based on the analysis of results, 56.67% of companies are getting a positive EVA since last five years, 13.33% companies have not achieved EVA benchmark in one year among last five years. 30% of companies have not achieved the EVA benchmark since last five years. The hypothesis of this study may not be accepted in this situation. Out of 30 companies 9 companies are not reaching the EVA benchmark. In this study the alternative hypothesis is accepted as in this case all BSE index companies are not having positive EVA.

Key words- Economic Value Added, Share Holders Wealth, Value Creation, Measurement, Bombay Stock Exchange

I. INTRODUCTION

The major difference between traditional and modern financial management practices is, in the tradition financial management practice scope is limited to procurement of financial resources, where as in the modern financial management practice the business organizations concentrate more on the value/wealth creation of share holders/owners. The only way to achieve this goal for the business organization is to reach the expectations of shareholders. The main problem here is how to measure the business organizations whether they are achieving their goals or not. Profits are the main indicators of organization performance but the problem here is the profits of an organization is not helping to understand the wealth of the share holders. In the modern financial management especially in the 20th century many researchersconcentrate and addressed this issue. The problem here is there is no such kind of benchmark available to measure the business organization performance. There are many Accounting and Financial Management measures like

ISSUES AND CHALLENGES IN DIGITAL LIBRARY

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Abstract :

The idea of easy, finger-tip access to information-what we conceptualize as digital libraries today-began with Vannenar Bush's Memex machine (Bush, 1945) and has continued to evolve with each advance in information technology. With the arrival of computers, the concept centered on large bibliographic databases, the now familiar online retrieval and public access systems that are part of any contemporary library. When computers were connected into large networks forming the Internet, the concept evolved again, and research turned to creating libraries of digital information that could be accessed by anyone from anywhere in the world. Phrases like "virtual library," "electronic library," "library without walls" and, most recently, "digital library," all have been used interchangeably to describe this broad concept.

But what does this phrase mean? What is digital library? And what are the issues and challenges in creating them? Moreover, what are the issues involved in creating a coordinated scheme of digital libraries? It has been suggested that digital libraries will only be viable within such a scheme (Chapman and Kenny, 1996). This paper provides a very high-level overview of digital libraries and briefly outlines each of these questions in turn.

Introduction:

What is a Digital Library?

What is a digital library? There is much confusion surrounding this phrase, stemming from three factors. First, the library community has used several different phrases over the years to denote this concept-electronic library, virtual library, library without walls-and it never was quite clear what each of these different phrases meant. "Digital library" is simply the most current and most widely accepted term and is now used almost exclusively at conferences, online, and in the literature.

Another factor adding to the confusion is that digital libraries are at the focal point of many different areas of

research, and what constitutes a digital library differs depending upon the research community that is describing it (Nurnberg, et al, 1995). For example:

- from an information retrieval point of view, it is a large database
- for people who work on hypertext technology, it is one particular application of hypertext methods
- for those working in wide-area information delivery, it is an application of the Web
- and for library science, it is another step in the continuing automation of libraries that began over 25 years ago

In fact, a digital library is all of these things. These different research approaches will all add to the development of digital libraries.

Third, confusion arises from the fact that there are many things on the Internet that people are calling "digital libraries," which--from a librarian's point of view--are not. For example:

- for computer scientists and software developers, collections of computer algorithms or software programs are digital libraries.
- for database vendors or commercial document suppliers, their databases and electronic document delivery services and digital libraries.
- for large corporations, a digital library is the document management systems that control their business documents in electronic form.
- for a publisher, it may be an online version of a catalogue.
- and for at least one very large software company, a digital library is the collection of whatever it can buy the rights to, and then charge people for using.

Thus, in examining the various examples of what are called digital libraries, it appears that librarians have been confused about what a digital library is, that the word "library" has been appropriated by many different groups to

OUTCOME BASED TEACHING, LEARNING PROCESS (OBTLP)

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ABSTRACT

The move to outcome-based education has been one of the most important trends in Engineering and Technological Education in recent years. This paper defines outcomes and outcome-based education, describes the development of outcome-based education, identifies several different ways that outcomes have been presented, and discusses the benefits of the outcome-based educational approach.

I. Introduction

The contemporary medical era has witnessed unprecedented calls for greater accountability in all aspects of the professions, and this has inspired the outcomes-based education movement in medical education. Gone is the time when medical education could be planned with a focus solely on the latest aspects of medical diagnosis and treatment. Increasingly, medicine is being asked to be responsive to societal needs   and mindful of the outcomes of its educational enterprise. Medical educators now ''begin with the end in mind'' and focus on the competencies needed by graduates of medical education to meet the needs of those they serve, and effect the outcomes desired in health care.

II. REVIEW

Outcome-based education was introduced at the University of Dundee medical school in 1997. Ten steps were followed in the outcome-based curriculum planning process14 and those ten steps are described here.

Step 1: Identification of the Type of Doctor That the Country Needs This step is decided in the UK by the GMC and relates to the level of training. All UK medical schools provide graduates who progress to the next stage of training, the pre-registration house-officer year, when graduates work as house officers in recognized posts in National Health Service hospitals. Training is thus focused on preparing for the next stage of training and not on independent practice.

Step 2: Identification of the Outcomes of the Educational Process In outcome-based education the exit learning outcomes must be explicit and clearly and unambiguously defined. Medical educators supported discussion and debate among faculty that led to agreement on the exit learning outcomes, based on the three-circle model (Harden et al 1999). These learning outcomes are:

What the Doctor Is Able to Do—Doing the Right Thing: The Technical Intelligences

1. Competence in Clinical Skills—the doctor should be competent to take a comprehensive, relevant medical and social history and perform a physical examination. He or she should be able to interpret the findings and formulate an appropriate action plan to

Validated Rp-Hplc Method For The Determination of Methyl Paraben In Bulk And Pharmaceutical Formulations

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Abstract

The main objective of the present work is to develop a sensitive, highly specific validated HPLC method for the determination of Methyl Paraben in bulk and pharmaceutical dosage forms. A reverse phase HPLC method was developed using Luna C_{18} 5μm (4.6 x 150 mm) or equivalent column and a mixture of Methanol: Water in the ratio of 50:50 v/v was used as mobile phase at a flow rate of 1.0 mL/min with UV detection at 254 nm for Methyl Paraben. The retention time of the drug was 4.8 minutes. The developed method was validated for specificity, linearity, precision, accuracy and robustness as per ICH guidelines. Linearity was found in the range of 1.14 - 0.00285 mg/swab. The mean recovery of the drug was 83.0 %. The proposed method could be used for routine analysis of Methyl Paraben in their dosage forms.

Keywords: Liquid Chromatography, Methyl Paraben, dosage forms, determination, Validation

I INTRODUCTION

Drug Profile

Methylparaben, also methyl paraben, one of the parabens, is a preservative with the chemical formula $CH_3(C_6H_4(OH)COO)$. It is the methylester of *p*-hydroxybenzoic acid. Methylparaben serves as a pheromone for a variety of insects[1] and is a component of queen mandibular pheromone. Methylparaben is commonly used as a fungicide in *Drosophila* food media. To *Drosophila*, methylparaben is toxic at higher concentrations, has an estrogenic effect, and slows the growth rate in the larval and pupal stages at lower concentrations.[2-6]
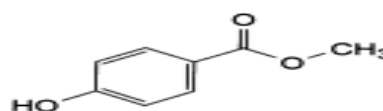
Fig 1: Methyl Paraben

Several analytical methods[7-14] have been reported for the determination of Methyl hydroxyl benzoate in pure drug, pharmaceutical dosage

MICROBIAL DEGRADATION OF POLYTHENE__A BOON TO ENVIRONMENT

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ABSTRACT-

Use of polythene is increasing day by day and now it can be seen that polythene is being used in almost every activity of life. It has been estimated that India's polythene demand is expected to increase by 129 % by 2023. With the increased use of polythene, the pollution level caused by it will also be increased, affecting almost every kind of environment including terrestrial as well as aquatic biome. There are various methods for lowering down the polythene littering; having their own associated pros and cons. Among all other methods, biological degradation appears to be the most promising method. Microbes utilize the polythene as source of carbon and use their enzymatic machinery to solubilize it. In this study an array of microbes have been studied for their biodegradation capacity of polythene.

Keywords: Polythene ,Bio-degradation, Microbes

Since they are also buoyant, an increasing load of plastic debris is being dispersed over long distances, and when they finally settle in sediments they may persist for centuries.

Worst Plastic Offenders
Plastic debris contributed to ocean in 2014 , pounds*

*Median
Source: Jambeck et al, Science, 2015
CLIMATE DESK
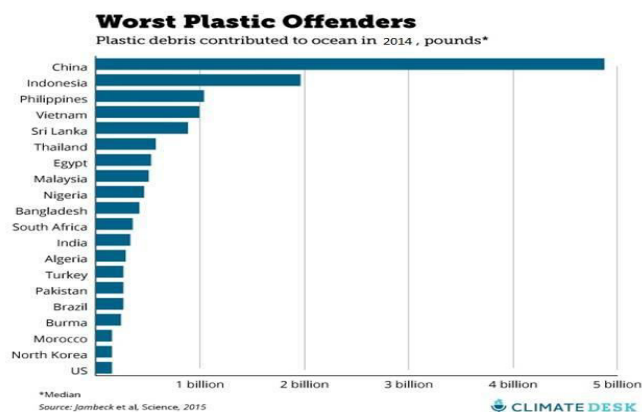
INTRODUCTION :

Plastics are synthetic organic polymers, and though they have only existed for just over a century (German, 1993), by 1988 in the United States alone, 30 million tons of plastic were produced annually. The versatility of these materials has lead to a great increase in their use over the past three decades, and they have rapidly moved into all aspects of everyday life. Plastics are lightweight, strong, durable and cheap, characteristics that make them suitable for the manufacture of a very wide range of products. These same properties happen to be the reasons why plastics are a serious hazard to the environment .

Effects of Polythene on different kinds of Environments :

The environment has been classified mainly in to five categories i.e. aquatic, deserts, forests, grasslands and tundra. It is extremely tragic news that polythene is showing it deleterious effects on all major types of biomes. Total plastic waste that is polluting marine as well as terrestrial environment is around 25 million tons, out of which 64% are synthetic plastics.

ELECTRONIC WASTE (E-WASTE) MANAGEMENT

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Abstract

E-waste, a relatively recent addition to the waste stream in the form of discarded electronic and electric equipment, is getting increasing attention from policy makers as the quantity being generated is rising rapidly. One of the most promising policy options to address this issue is to extend the producers responsibility for their products beyond the point of sale, until end-of-product-life. It is in using EPR to manage its e-waste, elaborating on the experience of the system in overcoming specific issues, and finally wrapping up with a synopsis of the lessons for policy makers ..

Keywords: e-Waste; WEEE; Extended producer responsibility; EPR; Environmental policy.

INTRODUCTION

Electronic waste or **e-waste**

It describes discarded electrical or electronic devices. Used electronics which are destined for reuse, resale, salvage, recycling or disposal are also considered e-waste. Informal processing of e-waste in developing countries can lead to adverse human health effects and environmental pollution.

Electronic scrap components, such as CPUs, contain potentially harmful components such as lead, cadmium, beryllium, or brominated flame retardants. Recycling and disposal of e-waste may involve significant risk to workers and communities in developed countries[1] and great care must be taken to avoid unsafe exposure in recycling operations and leaking of materials such as heavy metals from landfillsand incinerator ashes.[2]

"Electronic waste" may be defined as discarded computers, office electronic equipment, entertainment device electronics, mobile phones, television sets, and refrigerators. This includes used electronics which are destined for reuse, resale, salvage, recycling, or disposal. Others are re-usables (working and repairable electronics) and secondary scrap (copper, steel, plastic, etc.) to be "commodities", and reserve the term "waste" for residue or material which is dumped by the buyer rather than recycled, including residue from reuse and recycling operations. Because loads of surplus electronics are frequently commingled (good, recyclable, and non-recyclable), several public policy advocates apply the term "e-waste" broadly to all surplus electronics. Cathode ray tubes (CRTs) are considered one of the hardest types to recycle. .[3]

CRTs have relatively high concentration of lead and phosphors (not to be confused with phosphorus), both of which are necessary for the display. The United States Environmental Protection Agency (EPA) includes discarded CRT monitors in its category of "hazardous household waste"[4] but

Pedagogical dimension of Functional Grammar

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ABSTRACT

Communication is a process of expressing one's ideas in a way that a listener/reader understands. For this, we need a language that conveys what we intend to send to somebody written or verbal. English is a beautiful language. It removes all barriers and establishes understanding among nationalities. Any language without its cream' Grammar' is sensory crippled. English language without its grammar is no longer communicable. The appropriate and handy use of functional grammar is an epitome to one's puritanical expression. One ought to be mindful of tenses, modals, phrases, clauses, and emphatic sequence of syntax In order to establish communicative correlation between expression on paper and something that is heard, here I would like to make the world aware very simple use of grammar in our communication system. This paper will definitely help a student of English improve potentiality and mastery over the language, in writing and speaking.

Introduction

As a learner or a student of English from a non native speaking nationality, one should know the essence of English Language. Usage and Use of Functional Grammar in one's everyday communication plays a pivot role in command over a language. As English is a global language, we are to be aware of its functional and practical and applicative prospective. One ought to get complete command over Phrases, Clauses, Modals, Tenses and Sequential frame of a sentence.

Review: This paper has been prepared keeping in view of the authors like Michael Swan's 'Practical English Usage' and A J Thomson and A V Martinet- 'Practical English Grammar', 'King's Grammar' by S.Chand Publication and a few more papers online .The analysis must have been originally researched through pedagogical experiments yielded practical experiences.

Learning centered approach to Prepositions and Adverbs

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ABSTRACT

In the high speed mechanical age of the progressive emerging world, for the non native speaking nations of English language, like India, it's being very difficult for students, teachers and even for professional at all spheres to understand and analyze what prepositions and adverbs are, and also how to, where to and when to use them in their communications. Prepositions and adverbs play a key role in one's communication whether oral or written. Without their appropriate use, someone becomes ineffective speakers or writers. In order to avoid the age old confusion and to facilitate the entire mankind, this paper has been brought into an international conference.

INTRODUCTION

Prepositions and adverbs are very essential in one's communication. Their appropriate use helps a speaker or a writer's language be pure. Adverbs sometimes are mistaken as prepositions. In many newspapers, it has been found that a preposition has been viewed as preposition. A preposition is the position of a subject in a sentence, while an adverb is for a verb, for an adjective and also for another adverb.

Review

This piece of original work has been presented before the world, having reviewed many a book of grammar such as Michael Swan's 'Practical English Usage' and A J Thomson and A V Martinet- 'Practical English Grammar', 'King's Grammar' by S. Chand Publication and a few more papers online .The analysis must have been originally researched through pedagogical experiments yielded practical experiences.

Presentation of Analysis over Prepositions and Adverbs

Preposition speaks the position of a subject in a sentence. Pre+ Position= Position of subject. Example: The duster is **on** the table.

Few Prepositions are analyzed below:

Into : in motion towards interior

Example: The teacher is moving into the hall.   (in motion towards interior)

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IMPORTANCE OF SOFT SKILLS
FOR ENGINEERING STUDENTS

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ABSTRACT

With conventional Education, there is almost no opportunity for students to develop Interactive, Time Management, decision making, and problem solving skills and achieve specific goals. The educational focus is confined to a learner in knowing the answer to a specific question. But, with soft skills we can improve a student's perspective as how to arrive at a particular question. Having mere hard skills is not sufficient in one's professional life, in order to be successful and accomplish satisfactory career, a person should also acquire soft skills .This paper highlights the importance of soft skills in making students efficient and capable for better future opportunities.

I-   INTRODUCTION

Soft skills are "people skills and abilities "that helps us to build a successful career. A soft skill is a perfect balance between knowledge and behaviour. It is a combination of interpersonal skills , social skills, communication skills, character traits, career attributes and emotional intelligence quotient. In broad, soft skills include a learner's aims, aspirations, goals, initiatives, problem solving techniques and time management skills----the entire gamut of qualities that help a learner understand and develop a satisfying working environment.

Acquiring soft skills, you possess a positive outlook towards life and are optimistic to face real life challenges. With this excellence you can be efficacious and witness greater job opportunities

Keywords: Soft skills, Time Management skills, problem solving skills, management skills,

Character traits, optimistic, solving techniques.

Soft skills versus hard skills

Hard skills are the minimum skills necessary to perform a job which mostly deals with laws and principles of palpable reality. To be brief, students, in order to have an excellent career should possess the basic skills like subject knowledge ,machine operation ,sales administration, financial systems, planning analysis, technical analysis, data handling skills, research skills and improving statistical and mathematical skills. A person along with the knowledge of hard skills has to also possess minimum knowledge of soft skills as they are much acknowledged by our ever growing advanced educational system.

Reviews

What exactly are soft skills?

ENGLISH, THE MOST COVETED LANGUAGE QUALITATIVE APPROACH

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ABSTRACT-**Communication skills are an essential component in the education of engineering students to facilitate not just students' education but also to prepare them for their future careers. Though employers consider management and technical skills, confidence and competence to work, yet at the bottom of these lies an effective communication skill. If students fail to see the broader scenario of the corporate world and ignore the communication skills, it can be detrimental to their careers. Knowledge and technical know-how are clearly important, but these require to be presented with excellence. Indeed oral skills, presentation skills are considered one of the best career enhancers and to the single biggest factor in determining a student's career success or failure. This page emphasizes the need for the engineering students to learn or improve their communication skills effectively and efficiently.**

INTRODUCTION

English is widely recognized language and is largely spoken in the world. This English, whose advent into our country was an accident of history has come to stay as an inextricable part of consciousness and life style. We, the Indians have realized the need for English in view of its present richness and popularity as an international language. English is ungrudgingly accepted as the lingua franca. The status enjoyed by English in India at present is similar to that enjoyed by Sanskrit in the earlier times.

Some men of letters make a free use of the expression 'Indian English', taking its existence for granted. Some of our Indo-Anglican writers prefer to call themselves Indian English writers. The Sahitya Academy too put its seal of approval on this expression. However, most Indians do not have a clear idea of how on earth this Indian English differs from the one that was hitherto taught and learnt in our schools and colleges. Some even wishfully think that it is nothing but condoning and legalizing all the common errors in English usage by Indians. The fact is it does not exist. True, appeals have been made now and then, experiments have been conducted here and there to lend an Indian flavor to English, but those efforts being fruitless and isolated, did not have much impact on the average educated Indians. For example, some time back, Raja Rao, the noted Indo-Anglican novelist, in his Foreword to Kantapura wrote: "We cannot write like the English. We should not. We can write only as Indians. We have grown to look at the large world as part of us. Our method of expression therefore has to be a dialect which will someday.

prove to be as distinctive and colorful as the Irish or the American. Time alone will justify". Kantapura and other works of Raja Rao, was to a large extent, successful in imparting a Kannada, though not exactly Indian, flavor to English. But his effort and achievement are not widely known, as Raja Rao himself is not widely known outside Indo-Anglican circles. Similarly, some eminent professors of English endeavored to promote Indo-Anglican writing by according to it academic status and critical attention, but this did not greatly help the evolution of Indian English. Now, English is being used in India not only by teachers and students but practically all educated Indians. In fact even illiterate people unconsciously use a number of English words like road, bus, cinema, school, doctor, computer, cell, mobile, etc.

IMPORTANCE OF ENGLISH

English is the most important language in the world. It is the major medium of education, publishing and international negotiation. It is perhaps the most flexible of all languages. Therefore, people belonging different parts of the world widely use English. It is the lingua franca of the world. A person in Tamil does not speak Hindi, however he can understands English. Thus, English is a link language. Different people can

2017-2018

Evaluation Based Load Balancing for Cloud Computing

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Abstract:

Cloud computing is the best technology today for all those people who wants to go with minimum investment on infrastructure and wants to outsource the burden of handling technical issues to third party by paying the charges for the services utilized.

Today there is huge amount of demand from the clients to make use of cloud technology as it provides multiple features and take off the load of maintaining infrastructure. This has created a huge amount of load on servers . So it is must to handle issues related to load balancing. This is basically to see that the load on a particular server is kept maximum to its threshold level. So that it can handle the task and also can complete it in a faster manner. It minimizes the cost and time involved in the major computational models and helps to improve proper utilization of resources and system performance. Many algorithms are recommended by various researchers from all over the world to solve the problem of load balancing.

In this paper, we present a new algorithm named as combo algorithm to address the issue of load balancing in a cloud environment.

Keywords - Cloud Computing optimization Load Balancing Network

1. Introduction

Cloud computing is a newly progressing technique which offers online computing resources, storage and permits users to organize applications with enhanced scalability, availability and fault tolerance. Cloud computing is about storing the stuff on remote servers instead of on own computers or other devices[1].

This information can be retrieved using the internet with any device, everywhere in the world as long as that device can support cloud computing systems. The cloud computing system is comprised of a front-end, which is the client side and a back-end which is a collection of the servers and computers owned by a third party which stores the data. A central server which is a fragment of the back-end follows protocols and uses middleware to communicate between networked computers. Cloud computing accumulates all the computing resources and manages them automatically Its characteristics[4]

describe a cloud computing system: on-need self-service, pooling of resources, access to the internet, the elasticity of service availability and measurement of services utilized by individual users[6]. Cloud computing is everywhere with tools like Google Drives replacing Microsoft Office, Amazon Web Services replacing traditional enterprise data storage, banking websites replacing branch offices and Dropbox storing all our data and files. The cloud even provides different deployment models and service models[8].

The four deployment models present in cloud computing are:[2]

1. Public cloud: In the public cloud, the cloud provider provides resources for free to the public. Any user can make use of the resources; it is unrestricted. The public cloud is connected to the public internet for anyone to leverage.

2. Private cloud: In a private cloud, the planning and provisioning of the cloud are operated and owned by the organization or the third party. Here the hosted services are provided to a restricted number of people or group of individuals.

Spectrum Sensing For Performance Improvement

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Abstract— **Cognitive radio has emerged as one of the most promising candidate solutions to improve spectrum utilization in next generation cellular networks. A crucial requirement for future cognitive radio networks is wideband spectrum sensing: secondary users reliably detect spectral opportunities across a wide frequency range. In this article, various wideband spectrum sensing algorithms are presented, together with a discussion of the pros and cons of each algorithm and the challenging issues. Special attention is paid to the use of sub-Nyquist techniques, including compressive sensing and multi-channel sub-Nyquist sampling techniques.**

Index Terms— **Cellular network, cognitive radio, compressive sensing, spectrum sensing, sub-Nyquist sampling, wideband spectrum sensing.**

I. INTRODUCTION

Radio frequency (RF) spectrum is a valuable but tightly regulated resource due to its unique and important role in wireless communications. With the proliferation of wireless services, the demands for the RF spectrum are constantly increasing, leading to scarce spectrum resources. On the other hand, it has been reported that localized temporal and geographic spectrum utilization is extremely low [1]. Currently, new spectrum policies are being developed by the Federal Communications Commission (FCC) that will allow secondary users to opportunistically access a licensed band, when the primary user (PU) is absent. Cognitive radio [2], [3] has become a promising solution to solve the spectrum scarcity problem in the next generation cellular networks by exploiting opportunities in time, frequency, and space domains.

Cognitive radio is an advanced software-defined radio that automatically detects its surrounding RF stimuli and intelligently adapts its operating parameters to network infrastructure while meeting user demands. Since cognitive radios are considered as secondary users for using the licensed spectrum, a crucial requirement of cognitive radio networks is that they must efficiently exploit under-utilized spectrum (denoted as spectral opportunities) without causing harmful interference to the PUs. Furthermore, PUs have no obligation to share and change their operating parameters for sharing spectrum with cognitive radio networks. Hence, cognitive radios should be able to independently detect spectral opportunities without any assistance from PUs; this ability is called spectrum sensing, which is considered as one of the most critical components in cognitive radio networks.

Many narrowband spectrum sensing algorithms have been studied in the literature [4] and references therein, including matched-filtering, energy detection [5], and cyclostationary feature detection. While present narrowband spectrum sensing algorithms have focused on exploiting spectral opportunities over narrow frequency range, cognitive radio networks will eventually be required to exploit spectral opportunities over wide frequency range from hundreds of megahertz (MHz) to several gigahertz (GHz) for achieving higher opportunistic throughput. This is driven by the famous Shannon's formula that, under certain conditions, the maximum theoretically achievable bit rate is directly proportional to the spectral bandwidth. Hence, different from narrowband spectrum sensing, wideband spectrum sensing aims to find more spectral opportunities over wide frequency range and achieve higher opportunistic aggregate throughput in cognitive radio networks. However, conventional wideband spectrum sensing techniques based on standard analog-to-digital converter (ADC) could lead to unaffordably high sampling rate or implementation complexity; thus, revolutionary wideband spectrum sensing techniques become increasingly important.

In the remainder of this article, we first briefly introduce the traditional spectrum sensing algorithms for narrowband sensing in Section II. Some challenges for realizing wideband spectrum sensing are then discussed in Section III. In addition, we categorize the existing wideband spectrum sensing algorithms based on their implementation types, and review the state-of-the-art techniques for each category. Future research challenges for implementing wideband spectrum sensing are subsequently identified in Section IV, after which concluding remarks are given in Section V.

II. NARROWBAND SPECTRUM SENSING

The most efficient way to sense spectral opportunities is to detect active primary transceivers in the vicinity of cognitive radios. However, as primary receivers may be passive, such as TVs, some receivers are difficult to detect in practice. An alternative is to detect the primary transmitters by using

SURVEY ON CRIME ANALYSIS AND PREDICTION USING DATA MINING TECHNIQUES

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Abstract

Data Mining is the procedure which includes evaluating and examining large pre-existing databases in order to generate new information which may be essential to the organization. The extraction of new information is predicted using the existing datasets. Many approaches for analysis and prediction in data mining had been performed. But, many few efforts has made in the criminology field. Many few have taken efforts for comparing the information all these approaches produce. The police stations and other similar criminal justice agencies hold many large databases of information which can be used to predict or analyze the criminal movements and criminal activity involvement in the society. The criminals can also be predicted based on the crime data. The main aim of this work is to perform a survey on the supervised learning and unsupervised learning techniques that has been applied towards criminal identification. This paper presents the survey on the Crime analysis and crime prediction using several Data Mining techniques.

Keywords:

Criminology, Crime Analysis, Crime Prediction, Data Mining

1. INTRODUCTION

Historically solving crimes has been the right of the criminal justice and law enforcement specialists. With the increase in the use of the computerized systems to track crimes and trace criminals, computer data analysts have started lending their hands in helping the law enforcement officers and detectives to speed up the process of solving crimes. Criminology is process that is used to identify crime and criminal characteristics. The criminals and the crime occurrence possibility can be assessed with the help of criminology techniques. The criminology aids the police department, the detective agencies and crime branches in identifying the true characteristics of a criminal. The criminology department has been used in the proceedings of crime tracking ever since 1800. Crimes are a social nuisance and cost our society dearly in several ways. Even, the Indian Government has taken steps to develop applications and software for the use of State and Central Police in relation with the National Crime Records Bureau (NCRB) [27]. Any research that can help in solving crimes faster will pay for itself. About 10% of the criminals commit about 50% of the crimes [15]. People who study criminology will be able to identify the criminals based on the traces, characteristics and methods of crime which can be collected from the crime scene. In the middle of 1990s, data mining came into existence as a strong tool to extract useful information from large datasets and find the relationship between the attributes of the data [11]. Data mining originally came from statistics and machine learning as an interdisciplinary field, but then it was grown a lot that in 2001 it was considered as one of the top 10 leading technologies which will change the world [12]. According to many researchers such

as Nath [23], solving crimes is a difficult and time consuming task that requires human intelligence and experience and data mining is one technique that can help us with crime detection problems. For solving crimes faster we have to develop a data mining paradigm that performs an interdisciplinary approach between computer science and criminal justice. As said earlier, the Criminology is a process that aims to identify crime characteristics and it is one of the most important fields for applying data mining. By using this, data mining algorithms will be able to produce crime reports and help in the identification of criminals much faster than any human could. Because of this remarkable feature, there is a growing demand for data mining in criminology. Actually, Crime analysis is a process which includes exploring the behavior of the crimes, detecting crimes and their relationships with criminals. The huge volume of crime and criminal datasets and the complexity of relationships between these kinds of information have made criminology an appropriate field for applying data mining techniques. Identifying crime characteristics is the first step for proceeding with any further analysis. The quality of data analysis depends greatly on background knowledge of analyst. A criminal can range from civil infractions such as illegal driving to terrorism mass murder such as the 9/11 attacks, therefore it is difficult to model the perfect algorithm to cover all of them [21]. The knowledge that is gained from Data Mining approaches is a very useful and this can help and support, the police. More specifically, we can use classification and clustering based models to help in identification of crime patterns and criminals. The wide range of data mining applications in the criminology has made it an important field of research. Data mining systems have played as a key role in assisting humans in this forensic domain and criminology domain. This makes it one of the most challenging decision-making environments for research.

The motivation for proceeding with this survey work is to aid a helping hand to the young researchers who are performing their research in criminal analysis and crime prediction areas. The paper is organized in such a manner to provide insights about the crime analysis procedure and then produce different types of crime analysis operations and those which can be applied together for producing an end user product which can be applied to the crime analysis in any police stations and detective agencies. This work will be a valuable reference to those who precede their research work in the crime analysis and Crime prediction using data mining techniques.

This survey paper is organized in such a manner for easy understanding of the concepts. The general crime analysis procedure is discussed in section 2. The Criminal analysis methods are discussed in the section 3 which will include all the different types of methods grouped under their own categories. Finally, section 4 gives the Qualitative analysis of the Crime Analysis and Prediction techniques and section 5 gives the

Cybercrime: A threat to Network Security

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ABSTRACT

This research paper discusses the issue of cyber crime in detail, including the types, methods and effects of cyber crimes on a network. In addition to this, the study explores network security in a holistic context, critically reviewing the effect and role of network security in reducing attacks in information systems that are connected to the internet. As, all this adversely affects the efficiency of information security of any kind of security that exists and is used in information systems. Since hackers and other offenders in the virtual world are trying to get the most reliable secret information at minimal cost through viruses and other forms of malicious soft-wares, then the problem of information security - the desire to confuse the attacker: Service information security provides him with incorrect information; the protection of computer information is trying to maximally isolate the database from outside tampering. In other words, the Internet is a large computer network, or a chain of computers that are connected together. This connectivity allows individuals to connect to countless other computers to gather and transmit information, messages, and data. Unfortunately, this connectivity also allows criminals to communicate with other criminals and with their victims.

Keywords

Security, Network Security, Computer, Privacy, Cyber Crimes.

1. INTRODUCTION

The advent of computers and the expansion of the Internet made likely the accomplishment of large improvement in research, surgery, expertise, and communication. Unfortunately, computers and the Internet have furthermore supplied a new natural environment for crime. As Janet Reno, U.S. advocate general throughout the Clinton management, put it, "While the Internet and other data technologies are conveying tremendous advantages to humanity, they furthermore supply new possibilities for lawless individual behavior" (Dasey, Pp. 5-19).

Cybercrime is roughly characterized as committing a misdeed through the use of a computer or the Internet. The Internet has been characterized as "collectively the myriad of computer and telecommunications amenities, encompassing gear and functioning programs, which comprise the interconnected worldwide mesh of systems that provide work the Transmission Control Protocol/Internet Protocol, or any predecessor or successor protocols to such protocol, to broadcast data of all types by cable or radio"

(Internet Tax Freedom Act of 1998: 112 Stat. 2681–719). In other phrases, the Internet is a large computer mesh, or a string of connections of computers that are attached together. This connectivity permits persons to attach to countless other computers to accumulate and convey data, notes, and data. Unfortunately, this connectivity furthermore permits lawless individuals to broadcast with other lawless individuals and with their victims. Although no unanimously acknowledged delineation of cybercrime lives, a distinction is often made between a customary misdeed that is perpetrated through the use of a computer or the Internet and a misdeed that engages expressly aiming at computer technology (Richards, Pp. 21-54).

This paper provides an understanding of how network security protection can help a firm to keep its information

ROUTING INFORMATION PROTOCOL FOR WIRELESS SENSOR NETWORKS

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Abstract - A routing algorithm is a method for determining the routing of packets in a node. For each node of a network, the algorithm determines a routing table, which in each destination, matches an output line. The algorithm should lead to a consistent routing, that is to say without loop. This means that you should not route a packet a node to another node that could send back the package. Our contribution in this paper is e3D, diffusion based routing protocol that prolongs the system lifetime, evenly distributes the power dissipation throughout the network, and incurs minimal overhead for synchronizing communication. We compare e3D with other algorithms in terms of system lifetime, power dissipation distribution, cost of synchronization, and simplicity of the algorithm.

Keyword: Routing Algorithm, OSPF, RIP, LSP, Authentication

INTRODUCTION

In this paper, we attempt to overcome limitations of the wireless sensor networks such as: limited energy resources, varying energy consumption based on location, high cost of transmission, and limited processing capabilities. Besides maximizing the lifetime of the sensor nodes, it is preferable to distribute the energy dissipated throughout the wireless sensor network in order to minimize maintenance and maximize overall system performance. For more in depth understanding of the problem statement and proposed algorithm, we refer the reader to the full length version of this paper [1].

Any communication protocol that involves synchronization between peer nodes incurs some overhead of setting up the communication. We attempt to calculate this overhead and to come to a conclusion whether the benefits of more complex routing algorithms overshadow the extra control messages each node needs to communicate. Obviously, each node could make the most informed decision regarding its communication options if they had complete knowledge of the entire network topology and power levels of all the nodes in the network[2]. This indeed proves to yield the best performance if the synchronization messages are not taken into account. However, since all the nodes would always have to know everything, it should be obvious that there will be many more synchronization messages than data messages, and therefore ideal case algorithms are not feasible in a system where communication is very expensive. For both the diffusion and clustering algorithms, we will analyze both realistic and optimum schemes in order to gain more insight in the properties of both approaches[3]. The benefit of introducing these ideal algorithms is to show the upper bound on performance at the cost of an astronomical prohibitive synchronization costs.

RIP (ROUTING INFORMATION PROTOCOL)

RIP is the most widely used protocol in the TCP / IP environment to route packets between the gateways of the Internet. It is a protocol IGP [4] (Interior Gateway Protocol),

Realistic Future Flying Car

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Abstract: As the number of vehicles are increasing at a very high rate on the roads and it is almost becoming impossible to travel, there needs to have a solution for the traffic congestion. Many methods were tried and almost every method has some or the other drawback[7]. The only solution for reducing the traffic congestion is to have triple mode car, which should run on road, water and should fly in the sky[3]. This will definitely reduce the traffic congestion and will also provide or perhaps helps to start a thought process in designing the same concept car. These cars will be useful for different section of people in terms of commercial and personnel use. People can travel on their own or can use the same for delivery of goods from one place to another and even for lifting patients from a place to nearby hospital. Which means this car can be a life saver vehicle. Many issues needs to be addressed in order to make it a safe triple mode car. Here we have to design a car with road safety measures ,safety measures necessary to fly and also we need to take care of safety measures to run on water It has become inexcusably obvious that our technology has exceeded our humanity[8].---
Key words: Traffic congestion, Design car, Safety measures, Radar, Flying ,Futuristic.
Albert Einstein.

Introduction: 'Flying car', 'Street car', 'swimming car' a triple mode car will help to fulfill the long pending dreams of aviation, automobile, and navy enthusiasts[6]. As this car will bring the best in 3 worlds. The basic purpose of this car is to solve the problems pertaining to traffic congestion on roads, where we find many people getting struck every day in this traffic which not only damages their health and also waste lot of time on travelling. The concept here is to see that this car not only allow people to travel on road but also to fly in the sky depending on the requirement and distance to travel, apart from swimming in the water[2]. The car will have to cater to different needs of the people and will help the future generation to travel in the manner they prefer. The designing of this car will have multiple obstacles

as it has to satisfy the regulation of the 3 different worlds. Tech titans like Uber, Amazon, and Google have all laid out ambitious plans for filling the skies with autonomous aircraft[4]. Uber wants to move people

around with flying taxis, and Airbus is committed to producing this kind of vehicle.

Meanwhile Google and Amazon are hoping to deliver packages with much smaller drones. All see the potential for fleets of unmanned aerial vehicles that can pilot themselves[5]. But to make that vision a reality, we're going to need a new breed of sense and avoid technology. Echodyne, a Bellevue, Washington-based startup, believes it has the answer. The company announced preliminary test results from field trials of its MESA-DAA radar system today[2]. It says the device, which is barely larger than smartphone, is capable of detecting even small aircraft at a distance 1.8 miles in varying weather conditions. The company says this breakthrough is driven by the use of meta materials, which allow the radar to eliminate moving parts, making the hardware smaller and more battery efficient without sacrificing range[1].A lot of modern

automobiles are now equipped with radar systems, in fact Tesla recently announced that it would be focusing on radar as the core technology in its autonomous driving system[1]. But even long-range automotive radar from the likes of Bosch and Delphi only claim a range of a few hundred meters. They also don't typically have a very wide field of view. Echodyne's technology claims to be able to have a

DISTRIBUTED TRACKING SYESTEM

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ABSTRACT:

The Project basically deals with the idea to track the goods, which are sent by different people to their choice of destination. So as to have a control and clear cut information system to the companies involved in this kind of business as well as to the customers those who make use of these services. The companies like DLF and Safex are involved in logistic Business, where they are involved in thorough dispatch of goods to the correct destination with in a stipulated time.These companies can make use of this software or it can be used by any smaller companies, which will have a direct impact on the profit of business happening.

The companies can use this to track and check whether the goods are in process of dispatch or got strucked at place. The customer gets an idea about how and when the packet he/she will receive.

1. Introduction:

These companies can make use of this software or it can be used by any smaller companies, which will have a direct impact on the profit of business happening. The companies can use this to track and check whether the goods are in process of dispatch or got stroked at place. The customer gets an idea about how and when the packet he/she will receive.

Functional Requirements:

The various aspects associated are

- Design of user interface/Login form
- Validating user data
- Storing the same in database
- Providing unique number to customer.

2. Related to work:

2.1 Existing System

In the existing system the problem faced by the staff and customers are a lot. In this system the tracking of the product and the responsibility of the products received and sent are not fixed and can lead to loss of products and goods sent. The billing and the timeliness is also not accurate. The

A Technique in Communication with cloud using RPC

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ABSTRACT

Cloud computing emerging area for distributing applications and accessing application through remote procedure calls are helpful to request data and sending data to clouds. In cloud computing there is lot of mechanisms to transfer data like message queues but by using remote procedure calls can access information remotely without having independent failures. Data available at the source and the consumer can interact with the system. However security is one of the criteria to apply lot of security algorithms for data exchange in between source and the user. The cloud server can search the user data by request through remote procedure call and find out the information by using index and corresponding files. The functions contained within RPC are accessible by any program that must communicate using a client/server methodology.

KEYWORDS

Remote Procedure calls, Data security, Network protocols, Cloud Platforms.

1. INTRODUCTION

Cloud computing is the advanced technology for data storage and describes the web as a platform for accessing information. To users cloud is the pay per use on demand to use resources through internet. Cloud models are helpful to exploring the view of the end user.

Public Cloud: is a type of cloud hosting in which the cloud services are delivered over

a network which is open for public usage. This model is a true representation of cloud hosting; in this the service provider renders services and infrastructure to various clients. The customers do not have any distinguish ability and control over the location of the infrastructure.

Private Cloud: is also known as internal cloud; the platform for cloud computing is Implemented on a cloud-based secure environment that is safeguarded by a firewall which is under the governance of the IT department that belongs to the particular corporate. Private cloud as it permits only the authorized users.

Hybrid Cloud: is a type of cloud computing, which is integrated. It can be an arrangement of two or more cloud servers, i.e. private, public or community cloud that is bound together but remain individual entities. Benefits of the multiple deployment models are available in a hybrid cloud hosting. A hybrid cloud can cross isolation and overcome boundaries by the provider; hence, it cannot be simply categorized into public, private or

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ABSTRACT:

Nowadays our beloved ones security issues are getting increased, as they are moving from one location to another. In order to resolve the problem we have developed an app, when everthe person whose mobile number is registered with our application not answering our phone call, itwill help to send the person location information to us within 5 minutes and he can view the exact location where he is with the help of Google maps. You need to add phone numbers of your guardian in this app. By default if any one of a guardian gives you missed calls your location is sent to that guardian only.

1 Introduction:

This is an application which is used for security purpose. This is an android application. Here we will be having guardians and users, where users add other people as his guardians. When the user does not lift the phone, the details of his location are sent to the guardian. Here the address will be sent using which we can locate it in the map. And This application should be installed on both the guardian's and user's phone. So, only the guardian will receive the location details of the user of he does not lift the phone but not when the user calls and when the guardian does not lift the phone

1.1 Objective:

- Here the main objective is to provide security for people.
- The main purpose is to send the location of user to the guardian.
- We can get the location of the person when the person does not lift the phone.
- We can even see the map regarding the location.

1.2 Scope:

- Internet connection is compulsory for this application to send the location of the person.
- Once a guardian calls a person and if the person does not lift the phone then automatically the person's

1

A Survey of Nature Inspired Load Balancing Algorithms in a Cloud Computing Environment

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Abstract- One of the primary issues in cloud computing is implementation of a novel load balancing approach. The demanding thirst for optimal performance of the system is creating research interest in this area. Many Load Balancing algorithms that aim to enhance the overall system performance have been proposed. In this paper, we survey a special group of Load balancing algorithms that have taken inspiration from nature. We provide an overview of the current trends in the field by discussing and comparing these algorithms.

Keywords- Cloud computing, Load balancing, swarm Intelligence.

I . INTRODUCTION

The exponential growth of cloud computing in the recent years has attracted research and academia to this field. Load Balancing is a primary issue that needs to be taken care of. Several, Load Balancing algorithms have been proposed and investigated; however, there are issues yet to be addressed. Load balancing is "the process of distributing the work load among various nodes of a cloud based system to improve both resource utilization and job response time while also avoiding a situation where some of the nodes are heavily loaded while other nodes are idle or doing very little work."

Load balancing algorithms are divided as static and dynamic based upon the working environment [1], centralized and distributed based upon the control strategy [2].Static

algorithms are effective in stable and homogenous environments where as Dynamic algorithms are effective in dynamic and heterogeneous environments. The centralized strategy requires an arbiter or control node to perform the load balancing act whereas in distributed strategy load balancing is performed by all the nodes of the system. Many Load Balancing algorithms have been proposed in the recent past. In this paper, we present a survey of Nature Inspired Load Balancing Algorithms that have been specifically developed for hosted environments. These algorithms use the concept of Swarm intelligence for Load Balancing [3].We consider some of the potentially viable nature inspired algorithms for load balancing in large scale cloud environments. There are two popular classes of Nature Inspired Algorithms available in the literature namely Ant Colony and Honey Bee Colony. We give an overview of these

Need for Various Energy Efficient Mechanisms in the Wireless Sensor Networks

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Abstract **- Sensor nodes in the wireless sensor networks (WSNs) are of battery made-up. Hence they are provided with limited amount of energy. The battery of a sensor node is unrechargeable and also it is difficult to recharge them manually. Therefore they are to be used in more efficient manner for longer life time. It is difficult to increase the life time of the battery by manually but by implementing some protocols or methods of energy efficiency that can be achieved. Many research works and various protocols have been developed for the past few years in the WSNs. Hence there are various schemes or mechanisms designed for the efficiency of the wireless sensor networks. These things majorly concentrate on the improvement of the energy efficiency of the nodes in the networks where energy is drained out by performing several actions like communicating to the neighbor nodes for the transmission of the packets, by sensing the medium, during the reception of the acknowledgements, during the neighbor node discovery etc. Some protocols have been developed in the regard of providing energy efficiency.**

Key Words: Wireless Sensor Networks, Sensor Nodes, Energy – Efficiency.

I. INTRODUCTION

Wireless Sensor Networks (WSNs) are the networks which are prominently used in the information technology. They consist of the tiny devices with sensors named as Sensor Nodes. The Sensors perform the tasks like – sensing, minor computations and forward the sensed data to the sink or the base station. Mobile Sensor Networks are those which are a class of the WSN and are growing rapidly in the field of various applications. Hence these are having many challenges like – to provide connectivity among the sensor nodes as well as at the same time to maintain the energy consumption at minimum in the sensor nodes as they are made up with batteries

where energy cannot be recharged further. Hence these issues made researchers to think and develop various mechanisms in order to provide energy efficiency in the network. Few applications of the WSN are: Home and Office, Control and Automation, Environment Monitoring, Health care, Military, Security and Surveillance etc.

The following lines give an idea about the sensor node – the block diagram, characteristics etc.

1.1 Characteristics of Sensor Node:

The following is the list of characteristics of a sensor node

- They are tiny in size,
- Have limited memory size to store the values or queue them before transmitting,
- Short range of transmission,
- Low energy capacity,
- Limited lifetime.

The Fig 1, illustrates the block diagram of the sensor node. It shows how a sensor node is and gives a clear picture of the above listed characteristics of the sensor node.
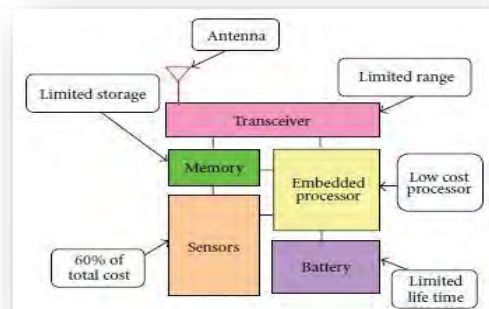

Fig 1: Block Diagram of Sensor Node

Time-of-Arrival (TOA), Angle-of-Arrival (AOA) and Hybrid - TOA &AOA based Localization in Wireless Sensor Networks

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Abstract - This paper mainly focuses to reduce the localization error of a sensor node which is deployed in a Wireless Sensor Network (WSN). Here, time-of-arrival (TOA) and angle-of-arrival (AOA) based random transmission directed localization (RTDL) technique is considered. This technique can be applied in wireless sensor networks, especially suitable for network with low frequency range in the wireless sensor network. In this work, localization Error could be improved via TOA–AOA during node communicating with each other. Ad hoc On-Demand Distance Vector (*AODV*) routing protocol to be implemented in this work. The node categories in two ways: those nodes equipped with known vector position of the Omni-direction antenna (Source-nodes) and those nodes equipped with unknown vector position of the Omni-direction antenna (Sink-nodes). All nodes are capable of communicating with other nodes. Source-nodes are capable of positioning (TOA–AOA estimation) the other nodes located in their coverage area. The system estimates the error rate of distance between the nodes, by measuring TOA–AOA based RTDL at an appropriate number of nodes. This paper shows the proficiency of the proposed method to reduce the localization error and determine the attacker's nearest location in the network.

Keywords: Wireless Sensor Networks (WSN), Time-of-Arrival (TOA), Angle-of-Arrival (AOA), Ad-hoc On-Demand Distance Vector (*AODV*)

I. INTRODUCTION

1.1 Wireless Sensor Networks

Wireless sensor networks comprises of the upcoming technology that has attained noteworthy consideration from the research community. Sensor networks comprise of many small, low cost devices and are naturally self-organizing ad hoc systems. The function of the sensor network is monitoring the physical environment, collect and transmit the information to other sink nodes. In general the range of the radio transmission for the sensor networks are in the orders of the magnitude which is smaller than the geographical extent of the intact network [1].

Wireless sensor network comprises of a great number of minute electromechanical sensor devices which possess the sensing, computing and communication abilities. These devices can be utilized for gathering sensory information, like measurement of temperature from an extended geographical area [2].

Many of the features of the wireless sensor networks give rise to challenging problems [3-7]. The most important three characteristics are:

- Sensor nodes are the ones which are prone to maximum failures.

- Sensor nodes make use of the broadcast communication pattern and have severe bandwidth restraint.

- Sensor nodes have limited amount of resources.

Despite the huge research effort, still a well-accepted approach on how to solve the localization issue is being realized. Since the sensor nodes are inexpensive and are in huge number it is not practical to equip these sensors with a Global Positioning System (GPS) receiver. Various localization approaches have been proposed and can be seen in the literature [8] and there is not a single approach which is simple, distinct and gives decentralized solution for WSNs. The Ultra-Wide Band (UWB) techniques [9] give very decent localization accuracy but the systems are expensive.

The commonly used approaches for measuring position estimate in WSN are Time of Arrival (TOA) [10], Time Difference of Arrival (TDOA)[16], Received Signal STRENGTH (RSS)[17] AND ANGLE OF ARRIVAL (AOA) A.K.A., Direction of Arrival (DOA)[18]. Where, the TOA, TDOA, and RSS measurement gives the distance calculation between the source sensor and the receiver sensors while DOAs provide the information of the angle and the distance measurements from the source and the receiver. Calculating these distance and angle measurements is not simple because of the nonlinear relationships with the source.

Given the TOA, TDOA, RSS and DOA information, the main focus of this paper is based on TOA positioning algorithms. We consider a two dimensional (2D) rectangular area where the sensors are deployed in Line-of-Sight (LOS) transmission, i.e., there is a direct path between the source and each receiver [19]. Also, we conclude that the measurements are well inside the expected range in order to obtain reliable location estimation.

UNSTRUCTURAL DATA USING HADOOP

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ABSTRACT:

Big data came into existence when the traditional relational database systems were not able to handle the unstructured data (weblogs, videos, photos, social updates, human behavior) generated today by organization, social media, or from any other data generating source. Data is increasing in size day by day and Hadoop is used to process such large amount of data. In is paper, I made a study of various security issues associated with big data in context with the Hadoop environment and the various solution techniques and technologies involve in securing the big data Hadoop.

Keywords: Big Data, SASL, delegation, cell level, variety, unauthorized.

I.INTRODUCTION

Big data means data which is large in size, volume, variety. Nowadays the size a data is increasing rapidly, use of social media, Smartphone's, online shopping's etc. The volumes of Big data are on a roll, which can be inferred from the fact that as far back in the year 2012, there were a few dozen terabytes of data in a single dataset, which has interestingly been catapulted to many petabytes today. Such large amount of data is used for commercial purpose by enterprise to increase their business profit and many other applications, and therefore there is a need to secure such large amount of data and its processing. Big data has the following characteristics: Volume: In Big data the word big it-self define the size data. Volume is associated with the size of big data. At• present the data is supposed to be petabytes with could increase to zettabytes in near future. Velocity: Velocity in Big data deals with the speed of the data coming from various sources. Velocity characteristic• is not limited to the speed of incoming data but also speed at which the data flows and aggregated. Variety: Data variety is a measure of the richness of the data representation – text, images video, audio, etc. the• data processed is not of a single type it consists of semi structured data and unstructured data. Value: Data value measures the usefulness of data for making decisions. The data science is useful in getting to• know the data, but "analytic science" encompasses the predictive power of big data. Various users can run certain queries against the data stored and thus can deduct important results from the filtered data obtained and also rank it according to the dimensions they require. These reports help people to find the business trends according to which they can make change in their strategies. Complexity: Complexity measures the degree of a interdependence in big data structures such that a small change• (or combination of small changes) in one or a few elements can yield very large changes or a small change that ripple across or cascade through the system and substantially affect its behavior, or no change at all (Katal, Wazid, & Goudar, 2013) and interconnectedness (possibly very large).

GOOGLE PROJECT LOON

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Abstract

This paper describes an overview of a Balloon-powered Internet for everyone. Currently we are using the internet service through Internet Service Providers to connect globally. Loon purpose is to provide wireless network to remote areas through of a set of high altitude balloon equipped with advanced sophisticated wireless transceivers to connect people globally. This technology could allow developing countries to avoid the using of expensive underground infrastructure. This project loon helpful to connect many areas and will also help to share new ideas and techniques for the development of countries.

INTRODUCTION

What is Project Loon?

In the evolution of the Internet nowadays, some population of the world enjoys the benefits of the Internet. According to Google™, two-thirds of people on the earth, reliable Internet connection is still out of reach. To solve this global problem, Google™ developed an innovative project called the "LOON" , to provide broadband for free in rural and remote areas, as well as to improve communication during and after natural disasters or a humanitarian crisis. During because information in itself is really lifesaving. Here the key concept is a set of a crisis, connectivity is really significant high-altitude balloons ascends to the stratosphere and creates an aerial wireless network (see Fig. 1). The technology designed in the project could allow countries to avoid using expensive underground infrastructure

Figure 1. Balloon-based network [1].

History

The idea may sound a bit crazy, initially everyone thought it as a prank by Google™. The Project Loon unofficial development began in 2011 and officially announced as a Google™ project in 2013. A pilot experiment was happened in New Zealand's South Island where about 30 balloons were launched (see Fig. 2). [1] After this initial trial, Google™ plans on sending up 300 balloons around the world at the 40th parallel south that could provide coverage to New Zealand, Australia, Chile, and Argentina. Google™ hopes to eventually have thousands of balloon fly in the stratosphere.

RESOURCE PLANNER

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Abstract

When a software development company wants to achieve its goals on time and efficiently use its staff on the projects, it is necessary for the company to have hands on information related to number of employees working on various projects along with their skill set and the number of employees still needed to complete the projects on time. Resource Planner is a convenient tool to handle various projects in a software company efficiently.

When a software development company wants to achieve its goals on time and efficiently use its staff on the projects, it is necessary for the company to have hands on information related to number of employees working on various projects along with their skill set and the number of employees still needed to complete the projects on time. Resource Planner is a convenient tool to handle various projects in a software company efficiently.

Resource Planner is an online tool to manage projects currently running with the company as well as future projects. This tool tracks the employees working for the existing projects and details of new projects like no. of employees required, location, etc. This tool is very useful in estimating revenue, etc which helps higher management to know the status of the various

projects and work force. With this tool HR can estimate the requirement of employees for the new projects and hence can recruit exact number of employees.

This application maintains the centralized database so that any changes done at a location reflects immediately. This is an online tool so more than one user can login into system and use the tool simultaneously.

The administrator of this software will be able to create new users and remove any user. He allots passwords and changes them. He can view the details of all employees in the company. He can also view the management reports where the information is presented project wise and location wise.

Existing System

Current system is a manual one in which users are maintaining books etc to store the information like project details, requirement, availability and allocations of employees for the existing project as well as for the new projects. It is very difficult to maintain historical data. Also regular investments need to purchase stationary every year.

The following are the disadvantages of current system

- ➢ *It is difficult to maintain important information in books*
- ➢ *More manual hours need to generate required reports*

Data Storage Security in a Hosted Environment

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Abstract

The introduction of hosted environments to computing has brought a lot of change in the industry. With the advent of Infrastructure-as-a-Service, the concept of renting data stores is catching up. Security for the data in a hosted environment is an alarming issue. The paper focuses on cloud data storage security. We propose a security model to maintain the data store. This model ensures the safety of data in the hosted environment. By utilizing the homomorphic token with random masking the model achieves the abstraction of data stored on the Hosted Environment.

Keywords: Data Store, Security, Hosted Environment, Infrastructure-as-a-Service.

1. Introduction

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared
pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that
can be rapidly provisioned and released with minimal management effort or service provider interaction [1]. Cloud computing not only reduces the cost of service delivery but also increases the speed and agility with which services are deployed. Cloud computing incorporates virtualization, on-demand deployment, Internet delivery of services, and open source software [2].The characteristics of cloud computing include On-demand self-service, Broad network access, Resource pooling, Rapid elasticity and Measured service. Even though cloud offers a lot of advantages there are some issues that cloud has to deal with. Security in cloud computing is a major concern in the industry. Many companies are still waiting

for an amicable solution for this major problem to be solved as they don't want to take any risks with their critical & sensitive data. The unique issues associated with cloud computing security have not been resolved yet. Access to your information from anywhere at any time is the specialty of hosted environments. You don't need to be in the same physical location as the hardware that stores your data. The Cloud provider houses the hardware and software necessary to run your applications.

Cloud computing raises a lot of security threats. Traditional cryptographic primitives can not be directly adopted for data security in a hosted environment because the user losses control over the data. Verification of correct data storage in the cloud must be conducted without explicit knowledge of the whole data. The problem of verifying correctness of data storage in the cloud is a challenge because various kinds of data for each user is stored in the cloud and also there is a demand for long term continuous assurance of this data. Data storage in a Hosted environment is not just a third party data

Agricultural update via SMS

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Abstract

Agriculture has always been India's most important economic sector. India is one of the fastest growing economies of the world and is currently the focus of a great deal of international attention. In the mid-1990s, it provides approximately one-third of the GDP (gross domestic product) and employs roughly two-thirds of the population. It is the seventh largest country in the world in terms of its geographical size. Agriculture still provides the bulk of wage goods required by the nonagricultural sector as well as numerous raw materials for industry.[7]

The indirect share of agricultural products in total exports, such as cotton textiles and jute goods, is taken into account, the percentage is much higher. With current population growth by 2025 India may even have caught up with China according to the UN. In this paper we focus on agriculture and especially on agriculture trade. India has a large and diverse agriculture and is one of the world's leading producers. [7]

It is also a major consumer, with an expanding population to feed. For this reason and agricultural trade policy, its

presence on the world market has been modest. Given the size of Indian agriculture, changes in its balance sheets for key commodities have a potentially large impact on world markets [8].

Agriculture plays an important, though declining role in the economy. Its share in overall GDP fell from 30% in the early nineties, to below 17.5% in 2006.[8]

Agriculture will continue to play a central role as Asia pursues the complementary goals of poverty reduction, sustainable food security, environmental conservation, and increasing trade competitiveness. According to the surveys new technologies including crop biotechnology, will be essential to meet these challenges. The prospects for their utilization are particularly promising. [8]

Plant biotechnology will facilitate the farming of crops with multiple durable resistances to pests and diseases, particularly in the absence of pesticides. This is expected to be very much useful in the countries like India. There is a lot of work going on this field. Some examples like Golden Rice, BT Brinjal, and BT Cotton etc. can be considered. Now a day's

A Survey paper on Data Security in cloud computing

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Abstract: cloud security is an essential topic in the new emerging technologies. This paper describes the survey on security of data in cloud computing. Security is applied to our own data for storing in the cloud environment. Data protection methods are useful to avoid the problems happens at the data storing and data transits. Cloud computing is especially used in the IT sector for business information in the public environments. Cloud computing can be analyze by using its types private, public and hybrid clouds. To share the information to IT people by using single private cloud is the difficult task in cloud environments. By applying data lock down, access policies and security intelligence we can provide the security to the cloud environment for sharing the information in the private cloud.

Keywords : Hybrid Cloud, Distributed, Computing, Virtual Private System

I.INTRODUCTION:

The cloud computing technology is the term used to share the resources as well as data by providing easy access. Cloud computing is service oriented by using this we can reduce the infrastructure and cost of

Ownership and provide flexibility. One of the advantages in the cloud is sharable to many organizations. In some cases data cannot be stored as secure as possible due to some threats. We cannot store sensitive data in the clouds also.

Cloud administrations are accessible on-request and frequently purchased on a "pay-as-you go" or membership premise. So you ordinarily purchase distributed computing a similar way you'd purchase power, telephone utilities, or Web access from a service organization. Some of the time distributed computing is free or paid-for in different ways (Hotmail is sponsored by promoting, for instance). Much the same as power, you can purchase to such an extent or as meager of a distributed computing administration as you require starting with one day then onto the next. That is incredible if your necessities change eccentrically: it implies you don't need to purchase your own enormous PC framework and hazard make them stay there doing nothing.

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A Distributed Three-hop Routing Protocol to Increase the Capacity of Hybrid Wireless Networks

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ABSTRACT

Hybrid wireless networks combining the advantages of both mobile ad-hoc networks and infrastructure wireless networks have been receiving increased attention due to their ultra-high performance. An efficient data routing protocol is important in such networks for high network capacity and scalability. However, most routing protocols for these networks simply combine the ad-hoc transmission mode with the cellular transmission mode, which inherits the drawbacks of ad-hoc transmission.

Keywords : MANETs, Hybrid Wireless Network, Routing

INTRODUCTION

Over the past few years, wireless networks including infrastructure wireless networks and mobile ad-hoc networks (MANETs) have attracted significant research interest. Wireless devices such as smart-phones, tablets and laptops, have both an infrastructure interface and an ad-hoc interface. As the number of such devices has been increasing sharply in recent years, a hybrid transmission structure will be widely used in the near future

In a mobile ad-hoc network, with the absence of a central control infrastructure, data is routed to its destination through the intermediate nodes in a multi-hop manner. The multi-hop routing needs on-demand route discovery or route maintenance.

However, direct combination of the two transmission modes inherits the following problems that are rooted in the ad-hoc transmission mode.

BENEFITS OF MOBILE COMPUTING:

- Improve business productivity by streamlining interaction and taking advantage of immediate access

- Reduce business operations costs by increasing supply chain visibility, optimizing logistics and accelerating processes

- Strengthen customer relationships by creating more opportunities to connect, providing information at their fingertips when they need it most

- Gain competitive advantage by creating brand differentiation and expanding customer experience

Li-Fi Technology

Transmission of data through light

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Abstract—Li-Fi stands for Light-Fidelity. Li-Fi technology, proposed by the German physicist—Harald Haas, provides transmission of data through illumination by sending data through an LED light bulb that varies in intensity faster than the human eye can follow. This paper focuses on developing a Li-Fi based system and analyzes its performance with respect to existing technology. Wi-Fi is great for general wireless coverage within buildings, whereas Li-Fi is ideal for high density wireless data coverage in confined area and for relieving radio interference issues. Li-Fi provides better bandwidth, efficiency, availability and security than Wi-Fi and has already achieved blisteringly high speed in the lab. By leveraging the low-cost nature of LEDs and lighting units there are many opportunities to exploit this medium, from public internet access through street lamps to auto-piloted cars that communicate through their headlights. Haas envisions a future where data for laptops, smart phones, and tablets will be transmitted through the light in a room.

Keywords—Li-Fi, Wi-Fi, high-brightness LED, photodiode, wireless communication.

I. INTRODUCTION

Transfer of data from one place to another is one of the most important day-to-day activities. The current wireless networks that connect us to the internet are very slow when multiple devices are connected. As the number of devices that access the internet increases, the fixed bandwidth available makes it more and more difficult to enjoy high data transfer rates and connect to a secure network. But, radio waves are just a small part of the spectrum available for data transfer.

A solution to this problem is by the use of Li-Fi. Li-Fi stands for Light-Fidelity. Li-Fi is transmission of data through illumination by taking the fiber out of fiber optics by sending data through an LED light bulb (shown in Fig. 1) that varies in intensity faster than the human eye can follow.

Li-Fi is the term some have used to label the fast and cheap wireless communication system, which is the optical version of Wi-Fi. Li-Fi uses visible light instead of Gigahertz radio waves for data transfer.

The idea of Li-Fi was introduced by a German physicist, Harald Hass, which he also referred to as ―data through illumination‖. The term Li-Fi was first used by Haas in his TED Global talk on Visible Light Communication. According to Hass, the light, which he referred to as D-Light, can be used to produce data rates higher than 10 megabits per second which is much faster than our average broadband connection [9].

Li-Fi can play a major role in relieving the heavy loads which the current wireless systems face since it adds a new and unutilized bandwidth of visible light to the currently available radio waves for data transfer. Thus it offers much larger frequency band (300 THz) compared to that available in RF communications (300GHz). Also, more data coming through the visible spectrum could help alleviate concerns that the electromagnetic waves that come with Wi-Fi could adversely affect our health.

Li-Fi can be the technology for the future where data for laptops, smart phones, and tablets will be transmitted through the light in a room. Security would not be an issue because if you can't see the light, you can't access the data. As a result, it can be used in high security military areas where RF communication is prone to eavesdropping.

Expressive, Efficient, and Revocable Data Access Control for Multi-Authority Cloud Storage

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Abstract—Data access control is an effective way to ensure the data security in the cloud. Due to data outsourcing and entrusted cloud servers, the data access control becomes a challenging issue in cloud storage systems. Cipher text-Policy Attribute-based Encryption (CP-ABE) is regarded as one of the most suitable technologies for data access control in cloud storage, because it gives data owners more direct control on access policies. However, it is difficult to directly apply existing CP-ABE schemes to data access control for cloud storage systems because of the attribute revocation problem. In this paper, we design an expressive, efficient and revocable data access control scheme for multi-authority cloud storage systems, where there are multiple authorities co-exist and each authority is able to issue attributes independently. Specifically, we propose a revocable multi-authority CP-ABE scheme, and apply it as the underlying techniques to design the data access control scheme. Our attribute revocation method can efficiently achieve both forward security and backward security. The analysis and simulation results show that our proposed data access control scheme is secure in the random oracle model and is more efficient than previous works.

INTRODUCTION:

cLOUD storage is an important service of cloud computing [1], which offers services for data owners to host their data in the cloud. This new paradigm of data hosting and data access services introduces a great challenge to data access control. Because the cloud server cannot be fully trusted by data owners, they can no longer rely on servers to do access control. Cipher text-Policy Attribute-based Encryption (CP-ABE) [2], [3] is regarded as one of the most suitable technologies for data access control in cloud storage systems, because it gives the data owner more direct control on access policies. In CP-ABE scheme, there is an authority that is responsible for attribute management and key distribution. The authority can be the registration office in a university, the human resource department in a company, etc. The data owner defines the access policies and encrypts data accord-ing to the policies. Each user will be issued a secret key reflecting its attributes. A user can decrypt the data only when its attributes satisfy the access policies.

There are two types of CP-ABE systems: single-author-ity CP-ABE [2], [3], [4], [5] where all attributes are managed by a single authority, and multi-authority CP-ABE [6], [7], [8] where attributes are from different domains and man-aged by different authorities. Multi-authority CP-ABE is more appropriate for data access control of cloud storage

The authors are with the Department of Computer

systems, as users may hold attributes issued by multiple authorities and data owners may also share the data using access policy defined over attributes from different au-thorities. For example, in an E-health system, data owners may share the data using the access policy ''Doctor AND Researcher'', where the attribute ''Doctor'' is issued by a medical organization and the attribute ''Researcher'' is issued by the administrators of a clinical trial. However, it is difficult to directly apply these multi-authority CP-ABE schemes to multi-authority cloud storage systems because of the attribute revocation problem

Oruta: Privacy-Preserving Public Auditing for Shared Data in the Cloud

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Abstract:

With cloud storage services, it is commonplace for data to be not only stored in the cloud, but also shared across multiple users. However, public auditing for such shared data— while preserving identity privacy — remains to be an open challenge. In this paper, we propose the first privacy-preserving mechanism that allows public auditing on shared data stored in the cloud. In particular, we exploit ring signatures to compute the verification information needed to audit the integrity of shared data. With our mechanism, the identity of the signer on each block in shared data is kept private from a third party auditor (TPA), who is still able to verify the integrity of shared data without retrieving the entire file. Our experimental results demonstrate the effectiveness and efficiency of our proposed mechanism when auditing shared data.

Key Words: Provable Data Possession, Third party Auditor, Hybrid Cloud

Existing System:

The first provable data possession (PDP) mechanism [2] to perform public auditing is designed to check the correctness of data stored in an un trusted server, without retrieving the entire data. Moving a step forward, Wang *et al.* [3] (referred to as WWRL in this paper) is designed to construct a public auditing mechanism for cloud data, so that during public auditing, the content of private data belonging to a personal user is not disclosed to the third party auditor.

Disadvantage:

Data is not in an encrypted format.

Proposed System:

In this paper, we only consider how to audit the integrity of shared data in the cloud with *static groups*. It means the group is pre-defined before shared data is created in the cloud and the membership of users in the group is not changed during data sharing. The original user is responsible for deciding who is able to share her data before outsourcing data to the cloud. Another interesting problem is how to audit the integrity of shared data in the cloud with *dynamic groups* — a new user can be added

Speaker Segmentation- an Comparative study using Support Vector Machines and Auto Associative Neural Network

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ABSTRACT

In this paper we propose a classification based method to identify speaker turn point detection and segmenting speech contains individual speaker using support vector machines (SVM) and Auto associative neural network (AANN). Speaker turn point detection is important for automatic segmentation of multi speaker speech data into homogenous segments with each segment containing the data of one speaker only. Existing approach for speaker turn point detection are based on the dissimilarities of the distribution of data before and after a speaker turn point. Patterns extracted from the data around the speaker turn points are used as positive examples. Patterns extracted from the data between the speaker turn point are used as negative examples. The linear predictive cepstral coefficients (LPCC) and Mel frequency cepstral coefficients (MFCC) and extracted from the speech signal, the positive and negative examples are used in training a SVM and AANN separately for speaker turn point detection. The extraction of fixed length pattern from speaker are given as input to SVM and AANN models are used to classify the speaker turn points and speaker no turn points using specific features. Experiments are carried out on different audio databases and the proposed method is better for detecting speaker turn point changes with sort duration of speech.

Keywords:

Linear Predictive Coefficients (LPC), Linear Predictive Cepstral Coefficients (LPCC), Mel-Frequency Cepstral Coefficients (MFCC), Weighted Linear Predictive Cepstral Coefficients (WLPCC), Support Vector Machines (SVM) , Autoassociative Neural Network (AANN).

INTRODUCTION

Speaker turn point detection involves determining the points at which there is a speaker turn changes in the multi speaker speech data as in audio recordings of conversation, broadcast news and movie. Speaker turn point detection is the first step in the speaker based segmentation of multi speaker only. Speaker segmentation is important for tasks such as audio indexing, speaker tracking and speaker adaptation in automatic transcription of conversational speech. Speaker turn point detection should do without the knowledge of the number of speakers and the identity of speakers. Therefore, a Speaker turn point[12],[13],[14] detection systems should be speaker independent.

The existing approaches for Speaker turn point detection are based on the dissimilarity in the distributions of data before and after the points of speaker change. Dissimilarity measurement is commonly based on comparison of the parametric statistic model of the distribution such as Mahalanobis distance, Weighted Euclidean distance, Bayesian information criteria. In these approaches for Speaker turn point detection, the dissimilarity is measured for the data between two adjacent windows of fixed length. The points at which the dissimilarity is above a threshold are hypothesized as the speaker turn points. We propose an approach in which a classification model is trained to detect the Speaker turn point points and segment the data for according to the speakers.

1. ACOUSTIC FEATURE EXTRACTION

Acoustic features representing the speaker information can be extracted from the speech signal at the segmental features are the features[2],[3],[1] extracted from the short (20 milliseconds) segments of the speech signal. These features represent the short time spectrum speech signal. The short time spectrum envelop of the speech signal is attributed primarily to the shape of the same sound uttered by two persons may differ due to change in the shape of the individual's vocal tract[4]system and the manner of speech production. For acoustic feature extraction, the differenced speech signal is divided in to frame of 20 milliseconds, with a shift of 10 milliseconds. Feature extraction is done by using LPC and LPCC.

1. a) Data Collection:

Two speaker Conversation speech signal is recorded.

    i. Male-male conversation.

    ii. Male-Female conversation.

    iii. Female-Female conversation.

The recording rate for speech is 8 KHz. The sampling bit rate is 16 bits. The recording mode is mono. The sample values vary from -32,768 to +32,767. We used unidirectional microphone. For 1 second 8000 samples will be recorded. Frame size is 20 milliseconds (160 samples).Frame shift is 10 milliseconds (80 samples).The file is stored as .wav extension format.

1. b) LPC Model:

Linear Predictive Coefficients (LPC) is a powerful speech analysis technique. It is predominant technique for estimating the basic speech parameters. e.g. pitch, formants and vocal tract area function and for representing speech for low bit rate transmission or storage[15],[16],[17].

ANDROID SECURITY

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ABSTRACT

In this application which is useful for the user when he is in some problem or needs any help. When the user opens this application, he can see a HELP button. Also he can store a message and 3 contact numbers. When the user is in some difficulty or needs any help,

1.1 Purpose of the Project

When the user is in some difficulty or needs any help, he needs to simply open the app and click on the "HELP" button. This application sends the message to those contact numbers which he has stored.

1.2 Scope of the Project

Android application which is useful for the user when she is in some problem or needs any help. When the user opens this application, he can see a HELP button. Also he can store a message and 3 contact numbers. When the user is in some difficulty or needs any help, he needs to simply open the app and click on the "HELP" button.

1.3 Features of the Project

To reduce user effort and solve problems inherent to the cellular phones small screen, several functions are provided on the cellular viewer.

- Supports multiple connections at the same time.
- Different work modes: "view only" and "full control".
- Different display modes: "windowed", "full screen", and "scaled".
- Runs as a service on the NT systems.
- Works through the firewalls and supports DHCP.
- Supports high screen resolutions and color depths.

2   SYSTEM ANALYSIS AND DESCRIPTION

2.1 Existing System:

In the existing system, the user has to write the message content and select the contacts and only then he can send the message but what if the user do not have that much time or unable to do it.

1

Is Alcohol Affect Students Performance: Searching and Predicting using Data Mining Algorithms

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ABSTRACT

Chronic heavy drinking and alcoholism can have serious repercussions for the learning, and memory. Excessive drinking among college students is associated with a variety of negative consequences that include alcohol poisoning; fatal and nonfatal injuries; blackouts; violence, academic failure; including sexually transmitted diseases, rape and assault; unintended pregnancy; property damage; including HIV/AIDS; criminal consequences and vocational that could jeopardize future job prospects. The present research intends to the student achievement in Higher Education using Data Mining techniques. This real-world data was collected by using performance reports and questionnaires which was collected and analyzed by MCA department, VBS Purvanchal University, India. In this experimental dataset used data set about MCA student on their courses which holds 450 instances. Four Decisions Tree algorithms (BFTree, J48, RepTree and Simple Cart) are applied in this work. The results showed that BFTree algorithm mostly proper to classify and predict student's whose performance is excellent and who's poor during studying the subjects.

Keywords: Data Mining, Questionnaires, BFTree, Drinking and Alcoholism, Chronic.

Design and Implementation Of Dynamic Trust Model
for Individual Authorization

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Abstract—Development of authorization mechanisms for secure information access by a large community of users in an open environment is an important problem in the ever-growing Internet world. In this paper we propose a computational dynamic trust model for user authorization, rooted in findings from social science. Unlike most existing computational trust models, this model distinguishes trusting belief in integrity from that in competence in different contexts and accounts for subjectivity in the evaluation of a particular trustee by different trusters. Simulation studies were conducted to compare the performance of the proposed integrity belief model with other trust models from the literature for different user behavior patterns. Experiments show that the proposed model achieves higher performance than other models especially in predicting the behavior of unstable users.

Index Terms—Authorization, human factors, security, trust

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1 INTRODUCTION

THE everyday increasing wealth of information avail-able online has made secure information access mech-anisms an indispensable part of information systems today. The mainstream research efforts for user authori-zation mechanisms in environments where a potential user's permission set is not predefined, mostly focus on role-based access control (RBAC), which divides the authorization process into the role-permission and user-role assignment. RBAC in modern systems uses digital identity as evidence about a user to grant access to resources the user is entitled to. However, holding evi-dence does not necessarily certify a user's good behavior. For example, when a credit card company is deciding whether to issue a credit card to an individual, it does not only require evidence such as social security number and home address, but also checks the credit score, repre-senting the belief about the applicant, formed based on previous behavior. Such belief, which we call dynamic trusting belief, can be used to measure the possibility that

a user will not conduct harmful actions.

In this work, we propose a computational dynamic trust model for user authorization. Mechanisms for building trusting belief using the first-hand (direct experience) as well as second-hand information (recommendation and reputation) are integrated into the model. The contributions of the model to computational trust literature are:

The model is rooted in findings from social science, i.e., it provides automated trust management that mimics trusting behaviors in the society, bringing

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trust computation for the digital world closer to the evaluation of trust in the real world.

Unlike other trust models in the literature, the pro-posed model accounts for different types of trust. Specifically, it distinguishes trusting belief in integ-rity from that in competence.

The model takes into account the subjectivity of trust ratings by different entities, and introduces a mecha-nism to eliminate the impact of subjectivity in repu-tation aggregation.

Empirical evaluation supports that the distinction between competence and integrity trust is necessary in decision-making [15]. In many circumstances, these attrib-utes are not equally important. Distinguishing between integrity and competence allows the model to make more informed and fine-grained authorization decisions in dif-ferent contexts. Some real-world examples are as follows:

1) On an online auction site, the competence trust of a seller can be determined by how quickly the seller ships an item, packaging/item quality etc., each being a different competence type. The integrity trust can be determined by whether he/she sells buyers' information to other parties without buyer consent. In the case of an urgent purchase, a seller with low integrity trust can be authorized if he/she has high competence trust.

2) For an online travel agency site, competence consists of elements such as finding the best car deals, the best hotel deals, the best flight deals etc., whereas integrity trust is based on factors like whether the site puts fraudulent charges on the customers' accounts. In a context where better deals are valued higher than the potential fraud risks, an agency with lower integrity trust could be preferred due to higher competence.

3) For a web service, the competence trust can include factors such as response time, quality of results etc., whereas integrity trust can depend on whether the service outsources requests to untrusted parties.

Using Data Mining Techniques Analysing About Road Accidents

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Abstract: *Globalization has influenced numerous nations. There has been an uncommon increment in the financial exercises and utilization level, prompting extension of travel and transportation. The expansion in the vehicles, activity prompt street mishaps. Considering the significance of the street security, government is endeavoring to distinguish the reasons for street mischances to decrease the mishaps level. The exponential increment in the mischances information is making it hard to investigate the limitations causing the street mishaps. The paper depicts how to mine incessant examples causing street mischances from gathered informational index. We discover relationship among street mischances and anticipate the kind of mishaps for existing as wel with respect to new streets. We make utilization of affiliation and grouping standards to find the examples between street mishaps and also foresee street mischances for new streets.*

Key Words: Data mining, Association rule, Classification rule, Apriori algorithm, Naïve Bayes algorithm.

1.INTRODUCTION

India has second largest road network in the world. Road accidents happen quite frequently and they claim too many lives every year. It is necessary to find the root cause for road accidents in order to avoid them. Suitable data mining approach has to be applied on collected datasets representing occurred road accidents to identify possible hidden relationships and connections between various factors affecting road accidents with fatal consequences. The results obtained from data mining approach can help understand the most significant factors or often repeating patterns. The generated pattern identifies the most dangerous roads in terms of road accidents and necessary measures can be taken to avoid accidents in those roads.

2. METHODOLOGY

Descriptive or predictive mining applied on previous road accidents data in combination with other important information as weather, speed limit or road conditions creates an interesting alternative with potentially useful and helpful outcome for all involved stakeholders.

Association rule mining is used to analyse the previous data and obtain the patterns between road accidents. The two criterion used for association ule mining are support and confidence. Apriori algorithm is one of the techniques to implement association rule mining. In the proposed system, we use apriori algorithm

to predict the patterns of road accidents by analyzing previous road accidents data.

The steps for the apriori algorithm:

- Scan the data set and find the support(s) of each item.

- Generate L1 (Frequent one item set).Use Lk-1, join Lk-1 to generate the set of candidate k - item set.

- Scan the candidate k item set and generate the support of each candidate k – item set.

- Add to frequent item set, until C=Null Set.

- For each item in the frequent item set generate all non empty subsets.

- For each non empty subset determine the confidence. If confidence is greater than or equal to this specified confidence .Then add to Strong Association Rule.

INPUT DATASET (A,B,C,D and E are accident types):

TID	ITEMS
1	A,C,D
2	A,C,E
3	A,B,C,E
4	B,E

Minimum Support = 50%

Minimum Confidence = 80%

Item set: A, B, C, D, and E

STRONG ASSOCIATION RULE:

This is the result obtained.

1. {B}->{E}

2. {CE}-> {A}

3. {AE}->{C}

4. {A}-> {C}

5. {C}->{A}

# Dynamic Access Control Policies in Multi Cloud Storage Based NCC Clouds.

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Abstract: To provide mistake tolerance for reasoning space for storage, recent reports propose to stripe information across several reasoning vendors. However, if a reasoning suffers from a lasting failing and loses all its information, we need to fix the lost information with the help of the other surviving clouds to preserve information redundancy. We present a proxy-based space for storage system for fault-tolerant multiple-cloud space for storage called NCCloud, which accomplishes cost-effective fix for a lasting single-cloud failure. The protected transmitting of details among working together customers should be efficient as well as versatile in order to support accessibility management designs with different granularity levels for different kinds of programs such as protected team interaction, secure powerful conference meetings, and selective/hierarchical accessibility management published details. Accessibility management of short end users in cloud computing using Attribute-Set-Based Security (ASBE) with an requested structure of clients is not preferable for multi user access control in cloud computing. In this paper, we recommend the first provably protected Broadcast Group Key Management (BGKM) plan where each user in a team stocks a key with the reliable key server and the following re-keying for be a part of or leaving of customers needs only one transmitted concept. Our plan meets all the specifications set down for an effective GKM plan and needs no change to key stocks current customers have. We evaluate the security of our BGKM plan and evaluate it with the current BGKM techniques which are mostly ad-hoc.

Index Terms: Cloud computing, Attribute Based Encryption, Access Control, Security Model, Group Key Management, Trusted Authority for Key Sharing.

I. INTRODUCTION

The fast advancement of the Internet and the Web in past decades has fundamentally changed the way individuals live, work, learn, think, shop, and impart everywhere throughout the globe. The open nature of the Internet makes it a twofold edged sword: On the one hand, telecom what's more, trade of data have never been speedier, less demanding, and more successful; on the other hand, new types of dangers like worms, infections, digital law violations have risen that bargain information/data security and client protection, and have postured numerous open difficulties to the world [1]. All sorts of client requests are actualized with great execution and association cost contains high. Clients may require any sort of assets to give the arrangements like pay per use way. Thinking handling gives the arrangements like unlimited wellsprings of subtle elements. We are going to take a shot at computation of time prerequisites, sources and asset necessities. Quality Based Encryption (EABE) permits just associations having a predefined arrangement of elements that can unscramble figure writings. EABE is suitable to openness administration, for example, the PC document talking about methods, in light of the fact that few associations can be accommodated the unscrambling of a figure content. We are recommending an improved EABE arrangement that is more viable than the previous one.
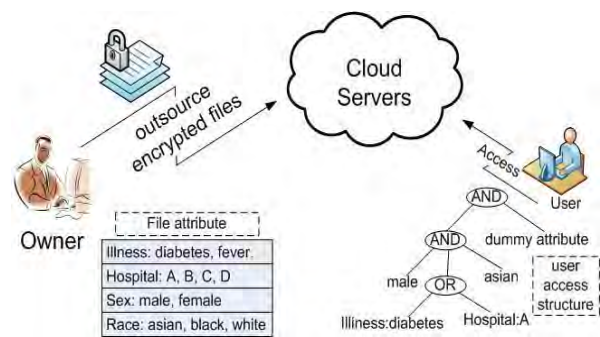
Digital image encryption based on fuzzy logic

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Abstract—**Today it is a big challenge to see that the data that is transferred from one place to another over network is highly secured, we need to have a secured network where there is no chance for the hackers to play their role, as many organizations are dependent on technology and it is the major source of the growth, we need to provide a highly secured and reliable data transfer. In this paper we have designed an algorithm which helps in transmission of data on network in a secured manner. The data in this is encrypted using matrix manipulation concept and the data after encryption is transferred on the network. Encryption is process of hiding the information, when the information is transferred through a network and decryption is the process of extracting the information from an encrypted information. For this encryption and decryption, we need some encryption and decryption algorithm which are proposed as a part of this paper.**

Keywords—Encryption, Decryption, Image, Fuzzy Logic.

I. INTRODUCTION

The world has recently witnessed major development in the information and communications technology and the digital world. The computer science is used in all areas of life, including sending and receiving digital images as the importance of which are tremendously increasing. The images are sent and treated automatically, and this requires careful secret storage of data to be sent as there are many reasons to protect the image of the breach. Cryptography is the science which deals with ways that help us to protect and store information and transfer in a wide range and these methods depend on a secret key that is used to encrypt data. (1).

Security is the main problem in the modern digital world. There are a lot of cyber-crimes have arisen with the development of technology. [3] As solutions for these security risks users can shut down unused services, keep patches updated, reduce permissions and access rights of applications and users.

Another solution for this problem can be provided by using cryptography. [4]Cryptography consists of cryptology and crypto analysis. Encryption comes under cryptology. It is the process of converting a readable message into an unreadable format. [5] A set of rules is using for that process. It is called an encryption algorithm. Most of the nowadays existing encryption algorithms only concern on security. [6] However,

users who have connections with low bandwidths need an encryption algorithm, which uses a low processing power. High security algorithms tend to take little more processing power than the low security algorithms. Nevertheless, newly implemented encryption algorithm, which has the facility to control both desired security level and the processing level, will be a great improvement for current real world applications. Various algorithms have been proposed to implement encryption in digital images. They can be categorized into three major clusters (i) value transformation [2], (ii) pixel position permutation [7, 8] (iii) chaotic systems [1517].

Fuzzy logic is a problem-solving control system methodology that presents itself to implementation in systems ranging from simple, small, embedded micro-controllers to large, networked, multi-channel PC or workstation-based data acquisition and control systems. [18][19] Fuzzy logic provides a simple way to arrive at a definite conclusion based upon vague, ambiguous, imprecise, noisy, or missing input information. [20] In fuzzy logic rules and membership sets are used to make a decision. [21] To achieve security and low processing, the algorithm uses variable keys. 0th position gives a fully low processing algorithm, and 1st position gives fully secured algorithm. The fuzzification changes depending on the key size and the number of mapping tables of the encryption algorithm. Users can input the desired key. One character will be 8-bit long. The main algorithm structure defines different key sizes up to 128bit. User can enter desired key- (application defines as the password) and also depending on the number of mapping tables' algorithm will allocate weight dynamically. Allocation of the weights will differ from 0.0 to 1.0 range; and the number of security levels will be vary from 1-16.The number of rounds will be determined by pre-defined mapping tables and the users initial input. Mapping tables are predefined in the algorithm and consists of mathematically defined values, and then those values will dynamically choose the relevant algorithm procedure once the user input the key to encryption.

A. Fuzzification

Fuzzification is the operation of making a crisp quantity Fuzzy. It is simply done by recognizing that many of the quantities that are regarded as crisp deterministic are actually not deterministic at all; they carry considerable doubt. If the

Time Slicing Approach for Resource Allocation in Cloud Computing

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Abstract:
Cloud computing is an on-demand service resource which includes applications to data centers on a pay-per-use basis. In order to allocate these resources properly and satisfy users' demands, an efficient and flexible resource allocation mechanism is needed. Due to increasing user demand, the resource allocating process has become more challenging and difficult. One of the main focuses of research scholars is how to develop optimal solutions for this process. In this paper, a an algorithm is proposed which will help to perform the allocation of resources in a better and optimized manner[1].

Keywords - Cloud Computing resource s allocation time sharing optimization Network

1. Introduction

Resource management is a major task in cloud computing and in any other computing environments[1][2]. Cloud computing attempts to provide cheap and easy access to computational resources, which include servers, networks, storage, and, possibly, services. Cloud providers have to efficiently manage, provide, and allocate these resources to provide services to cloud consumers based on service level agreements (SLAs) which both sides agree to prior to the consumer using the services[1][3]. Therefore, providers must maintain a reliable allocating mechanism in order to satisfy the cloud users' requirements, while stabilizing an appropriate profit margin for themselves. Due to the increasingly high use of the Internet, and thereby cloud services, the typically static allocation and management of resources have become impractical, and the development of dynamic mechanisms have become more appropriate and worth studying[1].

Nonetheless, even these dynamic mechanisms present issues and challenges to be overcome and solutions to be found. Many researchers have tried, and are still trying, to provide the optimal solutions for the resource allocation and management problem in cloud computing environments[1].

The four deployment models present in cloud computing are: [2]

1. Public cloud: In the public cloud, the cloud provider provides resources for free to the public. Any user can make use of the resources; it is unrestricted. The public cloud is connected to the public internet for anyone to leverage[4].

2. Private cloud: In a private cloud, the planning and provisioning of the cloud are operated and owned by the organization or the third party. Here the hosted services are provided to a restricted number of people or group of individuals.

3. Community cloud: These type of cloud infrastructures exists for special use by a group of users. These are a group of users who share a common mission or have specific regulatory requirements, and it may be managed by the third party or organizations.

4. **Hybrid Cloud:** Hybrid Cloud provides the best of above worlds. It is created by combining the benefit of different types of cloud (private cloud & public cloud). In these clouds, some of the resources are provided and managed by public cloud and others as a private cloud.

ENERGY-EFFICIENT SECURE DATA AGGREGATION FRAMEWORK (ESDAF) PROTOCOL IN HETEROGENEOUS WIRELESS SENSOR NETWORKS

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ABSTRACT - Wireless Sensor Networks (WSNs) are constrained in terms of memory, computation, communication, and energy. In the existing secure data aggregation techniques, reduction in the energy consumption is not much discussed and combined solution for both integrity and authentication is not addressed. Data aggregation is a very important technique, but it gives extra opportunity to the adversary to attack the network, inject false messages into the network and trick the base station to accept false aggregation results. This paper presents an energy-efficient secure data aggregation framework (ESDAF) protocol WSN. The goal of the framework is to ensure data integrity and data confidentiality. ESDAF uses two types of keys. Base station shares a unique key with each sensor node that is used for integrity and the aggregator shares a unique key with each sensor node (within that cluster) that is used for data confidentiality. Sensor nodes calculate a message authentication code (MAC) of the sensed data using shared key with base station, which verifies the MAC for message integrity. Sensor nodes encrypt the sensed data using shared key with aggregator, which ensures data confidentiality. Proposed framework has low communication overhead as the redundant packets are dropped at the aggregators.

Keyword: Wireless Sensor Network (WSN), Message Authentication Code (MAC), Energy-Efficient Secure Data Aggregation Framework (ESDAF).

1. Introduction
1.1. Wireless Sensor Networks

Wireless sensor networks comprises of the upcoming technology that has attained noteworthy consideration from the research community. Sensor networks comprise of many small, low cost devices and are naturally self organizing ad hoc systems. The function of the sensor network is monitoring the physical environment, collect and transmit the information to other sink nodes. In general the range of the radio transmission for the sensor networks are in the orders of the magnitude which is smaller than the geographical extent of the intact network. Hence, the data has to be transmitted hop-by-hop towards the sink in a multi-hop manner. The consumption of energy in the network can be reduced if the amount of data to be relayed is reduced. [1].

Student Learning Experience by Data Mining & Social Media

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Abstract:

Many issues like depression, suicide, anger, anxiety are increasing among students. These issues are necessary to seek out and analyze, but students never discuss their issues with anyone. Today Social media is very popular medium where individuals share their feeling and opinion. Students also terribly active on social sites like Facebook and Twitter. Their unceremonious discussion on social media (e.g. Twitter, Facebook) illuminates light on their educational experiences—vote, sentiment, opinions, feelings, and concerns about the learning process. Data from such environments can supply valuable information which is helpful knowledge to understand student learning experiences. Analyzing such data can be challenging. The augmenting scale of data demands automatic data analysis techniques. This paper depicts a workflow to integrate both qualitative analysis and large-scale data mining techniques. This Paper emphasized on student's twitter posts to learn problems in student life as well as positive things occurred in their educational life. First conducted a qualitative analysis on sample tweets related to student's college life. Students face issues such as heavy work load of study, lack of social engagement, and sleep deprivation, employment issue, etc. In this paper "positive things" happen in student's life is also taken in to consideration. To classify tweets reflecting student's problem multilabel classification algorithms is implemented. Naïve Bayes and Linear Support Vector Machine Learning algorithms are used. The performance of these algorithms is compared in terms of accuracy, precision, recall and F1-Measure. Support Vector Machine learning algorithm have more accuracy than Naïve Bayes Algorithm.

Keywords: Education, computers and education, social networking, web text analysis, Twitter Multi-Label Classifier.

Improving Energy Efficient in Wireless Sensor Networks Using Path Algorithm

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Abstract - Node are using some powered by using of batteries in wireless sensor networks, with limited amount of energy, there are two severe problems in WSN increasing the life span of the network and reducing the usage of energy. We introduce the minimum spanning tree reduce the total energy consumption of WSN. Heavy load of sending the data packets to the node easily reduce the energy. Our proposal work aimed on presenting an Energy Conserved Fast and Secure Data Aggregation Scheme for WSN in time and security logic occurrence data collection application. Invention is finished on Energy Efficient Utilization Path Algorithm (EEUPA), to extend the lifespan by processing the collecting series with path mediators depending on gene characteristics sequencing of node energy drain rate, energy consumption rate, and message overhead together with extended network life span. A mathematical programming technique is designed to improve the lifespan of the network. Simulation experiments carried out among different relating conditions of wireless sensor network by different path algorithms to analyze the efficiency and effectiveness of planned Efficient Energy Utilization Path Algorithm in wireless sensor network (EEUPA).

Keywords - WSN, Energy, EEUPA, Data Collection

1. INTRODUCTION

A wireless sensor network (WSN) physically consists of large amount of miniature, multifunctional and resource controlled sensors which are self-organized as an informal network to examine the physical world. Sensor networks are often used in applications where it is complicated or impossible to gather wired networks. WSNs) in various areas such as examination, disaster liberation, intellectual carrying, surveillance, environmental managing, healthcare, goal tracking, and more. To collect the information and data in unkind or defensive atmosphere, Wireless Sensor Networks are more useful. In a Wireless Sensor Networks, data collected by sensor nodes are preferred to be circulated to destinations (base stations).

2. LITERATURE REVIEW

The field of wireless sensor networks (WSN) is now developed in the research community area because of its applications in different fields for instance defense security, civilian applications and medical research. These limitations eliminate the utilization of traditional path protocols planned for other ad hoc wireless networks. Secondly, the base station cannot verify data reliability and accuracy via fixing message digests or signatures to every sensing model. To come across the above two disadvantages, the base station [1] can regain all sensing data yet these data has been combined. The multi level data aggregation method are presented [6] to develop the data collecting path for a mobile destination as Infrastructure based Data Gathering Protocol (IDGP) and a Distributed Data Gathering Protocol (DDGP). A k-hop relay mechanism is established to restrict the number of hops for path data to a mobile sink.

The key point of EEGA scheme [2] is that accurate data aggregation is attained without discharging secret sensor readings and without initiating important overhead on the battery-limited sensors. To come across the delay planned an Efficient Data Collection Aware of Spatio-Temporal Correlation (EAST) that utilizes shortest routes used for forwarding the collected data toward the sink node [3] and fully expand both spatial and temporal correlations to execute near real-time data collection in WSN. Developed [4] easy, least-time, energy-efficient path protocol by means of one-level data aggregation which guarantees improved life span for the network. The energy-efficient data development issue [5] through person packet delay limitations to an energy-efficient service curve construction issue is developed and solves the difficulty by developing a local optimality theorem.

Smart Agriculture through IOT

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Abstract: Agriculture plays vital role in the development of agricultural country. In India about 70% of population depends upon farming and one third of the nation's capital comes from farming. Issues concerning agriculture have been always hindering the development of the country. The only solution to this problem is smart agriculture by modernizing the current traditional methods of agriculture. Hence the project aims at making agriculture smart using automation and IoT technologies. The highlighting features of this project includes smart GPS based remote controlled robot to perform tasks like weeding, spraying, moisture sensing, bird and animal scaring, keeping vigilance, etc. Secondly it includes smart irrigation with smart control and intelligent decision making based on accurate real time field data. Thirdly, smart warehouse management which includes temperature maintenance, humidity maintenance and theft detection in the warehouse. Controlling of all these operations will be through any remote smart device or computer connected to Internet and the operations will be performed by interfacing sensors, Wi-Fi or ZigBee modules, camera and actuators with micro-controller and raspberry pi.

Keywords: IoT, automation, Wi-Fi

I. INTRODUCTION

Agriculture is considered as the basis of life for the human species as it is the main source of food grains and other raw materials. It plays vital role in the growth of country's economy. It also provides large ample employment opportunities to the people. Growth in agricultural sector is necessary for the development of economic condition of the country. Unfortunately, many farmers still use the traditional methods of farming which results in low yielding of crops and fruits. But wherever automation had been implemented and human beings had been replaced by automatic machineries, the yield has been improved. Hence there is need to implement modern science and technology in the agriculture sector for increasing the yield. Most of the papers signifies the use of wireless sensor network which collects the data from different types of sensors and then send it to main server using wireless protocol. The collected data provides the information about different environmental factors which in turns helps to monitor the system. Monitoring environmental factors is not enough and complete solution to improve the yield of the crops. There are number of other factors that affect the productivity to great extent. These factors include attack of insects and pests which can be controlled by spraying the crop with proper insecticide and pesticides. Secondly, attack of wild animals and birds when the crop grows up. There is also possibility of thefts when crop is at the stage of harvesting. Even after harvesting, farmers also face problems in storage of harvested crop. So, in order to provide solutions to all such problems, it is necessary to develop integrated system which will take care of all factors affecting the productivity in every stages like; cultivation, harvesting and post harvesting storage. This paper therefore proposes a system which is useful in monitoring the field data as well as controlling the field operations which provides the flexibility. The paper aims at making agriculture smart using automation and IoT technologies. The highlighting features of this paper includes smart GPS based remote controlled robot to perform tasks like; weeding, spraying, moisture sensing, bird and animal scaring, keeping vigilance, etc. Secondly, it includes smart irrigation with smart control based on real time field data. Thirdly, smart warehouse management which includes; temperature maintenance, humidity maintenance and theft detection in the warehouse. Controlling of all these operations will be through any remote smart device or computer connected to Internet and the operations will be performed by interfacing sensors, Wi-Fi or ZigBee modules, camera and actuators with micro-controller and raspberry pi.

II. LITERATURE REVIEW

The newer scenario of decreasing water tables, drying up of rivers and tanks, unpredictable environment present an urgent need of proper utilization of water. To cope up with this use of temperature and moisture sensor at suitable locations for monitoring of crops is implemented in. [1] An algorithm developed with threshold values of temperature and soil moisture can be programmed into a microcontroller-based gateway to control water quantity. The system can be powered by photovoltaic panels and can have a duplex communication link based on a cellular-Internet interface that allows data inspection and irrigation scheduling to be programmed through a web page. [2] The technological development in Wireless Sensor Networks made it possible to use in monitoring and control of greenhouse parameter in precision agriculture. [3] After the research in the agricultural field, researchers found that the yield of agriculture is decreasing day by day. However, use of technology in the field of agriculture

A Framework for Underwater Image Enhancement and Object Detection

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Abstract— **The underwater images are distorted due to absorption and scattering of light. The enhancement techniques used to improve the quality of underwater images are based on the level of noise introduced and also the water quality. Underwater image enhancement is necessary extract the desired or suspicious objects under the sea. This paper describes an improved image enhancement for the underwater images in YCbCr space and canny edge detection for underwater images. The edge detection is done for each Y, Cb and Cr components separately and are combined to get more accurate edge detected underwater image. The morphological process is also applied to obtain the thin edges and the identified objects parameter like area, length, width, etc are also calculated. The obtained results of the proposed method improve the accuracy of object detection.**

Keywords— *underwater images, color segmentation, histogram, number of edges.*

I. INTRODUCTION

The quality of underwater images plays a pivotal role in scientific missions such as monitoring sea life, taking census of populations, and assessing geological or biological environments. Capturing images underwater is challenging, mostly due to haze caused by light that is reflected from a surface and is deflected and scattered by water particles, and color change due to varying degrees of light attenuation for different wavelengths. Light scattering and color change result in contrast loss and color deviation in images acquired underwater. Several methods have been introduced for underwater image enhancement and detection. The underwater image processing differs from normal image processing due to noise and poor illumination [1], [2]. Conventional techniques use blind color equalization for enhancing the underwater images. Images enhanced using these techniques are not giving promising results for edge detection, feature extraction and analysis. In particular, blue and green colors are dominant in underwater images. The colors like red and yellow almost disappear with increasing depth. So, efficient image enhancement and edge detection is required for underwater analysis.

In the RGB model the color components are not separated. This makes it unsuitable for enhancing images. Meanwhile YCbCr model separates the input image into three components and gives more flexibility in modifying images. In this paper, the algorithm enhances the brightness, visibility and contrast of underwater images. The enhanced image is subjected to edge detection. The proposed technique uses YCbCr model for processing. Enhancing the luminance component in this model automatically enhances the brightness of the image without disturbing Cb and Cr components.

Object detection in underwater image is difficult since the object edges are affected by light reflection near water surface. Also in deep water, the boundary of the object is not detected accurately due to dark color of the object and poor illumination. The enhanced images produce an improved edge detection results. In this paper section II describes the literature survey and section III describes the proposed work. Section IV and V explains the results with evaluation measurements and session VI concludes the paper.

II. EXISTING WORK

Edge detection is most widely used in image processing and analysis of the underwater images such as feature description image segmentation, pattern recognition, etc. The classic edge detection methods require pre-processing for efficient underwater images. So pre-processing is a key factor for obtaining efficient feature extraction. In [3], underwater image processing for object detection is described. In that paper, first the RGB image is converted into blue image and then LOG operator is used for edge detection. The advantages of the LOG operator over the other operators are the edge smoothening by Gaussian function and the rational invariance by laplacian portion. A disadvantage of the operator is the large size of the kernels.

In [4], enhancement of underwater images using CLAHE Algorithm is explained. RGB color space is converted into L*a*b color space and CLAHE algorithm is applied to L only. Yuejiao et la [5] used K-means algorithm for underwater image edge detection and classification.

Bio-Electronic Approach for Various Adders Circuit Design

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Abstract— **The DNA molecule is indubitably the most powerful medium known for DNA's ability to code, store information as a means of data storage. But till now, DNA molecule has found little use in computing applications. For initiating computing application with DNA molecule, it requires to design DNA transistors which can be utilized to design basic gates to implement Boolean logic. Interestingly some recent researches have shown that it's very much possible to design a three terminal transistor like device architecture by controlling the flow of RNA polymerase along DNA with specific integrases. Along with that, very recently, fundamental experimental designs for realizing various basic Boolean logic functions have been demonstrated successfully with DNA molecule. Till now the experimental design was in multi strand fashion. Present work adopted, modified and extended such DNA logic gate concept to execute design, simulation and performance analysis of various adder circuits in a single strand fashion. Adders are one of the most widely digital components in the digital integrated circuit design and necessary part of Digital Signal Processing. In this work the design of various adders such as Ripple Carry Adder, Carry Look Ahead Adder, Carry Save Adder and Carry Select Adder are discussed and are compared on the basis of their performance parameters such as delay and the calculation of error percentage.**

Keywords— DNA, RNA, Transistors, Logic Gates, Ripple Carry Adder, Carry Look Ahead Adder, Carry Save Adder, Carry Skip Adder, Carry Select Adder.

I. INTRODUCTION

The world of electronics starts with a material called "semiconductor" which can be induced to conduct or stop the flow of electrons or holes. Si has been the dominant electronics material since the latter half of the 20th century. It must be clear that the successful development of Si devices took years and decades. In conventional electronic circuits transistors are implemented to process, store and transfer signal or data with the flow of electrons or holes. Where as two or more transistors together form a logic gate, which allows a computer to manage mathematical operations. From the beginning to till date, the main aim of the electronics industry is to produce more powerful chips. In that process, designers have scale transistors in size to produce smaller, faster, power efficient chip at lower price [1]. The net result of this transistor scaling action is because the transistor to reach the physical, technical and economic limits. And also that has produced small, faster chips, beyond a certain limit, the number of silicon atoms in the insulating layer of a transistor is no longer sufficient to prevent the leakage of electron that causes the circuit to shorten [1]. In order to overcome these limitations the scientists and technologists are looking for new materials, innovative structures and revolutionary ideas to realize reliable transistor like action in such tiny space [2]. Most novel materials available today are at the first step, where researchers are trying to understand their properties and characteristics of transistors fabricated using them.

Presently throughout the world several groups of scientists, researches and technologists are trying to store, retrieve and process signals using bio-chemical reactions with newer biological materials [3-5]. In such context, with research it has been proven that, the blueprint for life DNA, can also become the templates for making a new generation of transistors, logic gates and subsequent computer chips [6]. In last decade lots of research articles have been reported on experimental realization of transistor like action and logic operation with DNAs [7-9]. Recently, Drew Endy et. al. at Stanford University in California have designed a transistor like device that controls the movement of an enzyme called RNA polymerase along a strand of DNA with bacteriophage serine integrases [10]. They have also experimentally created logic gates that allow both information storage and logical operations with multiple transcriptors [10]. Such remarkable break through can be utilized to realize biochip and subsequent biological computers which can be used to study and reprogram the living systems, monitor environments and improve cellular therapeutics [9-10]. Till now most of the research activities related to DNA logic gate realization are concentrated into intense experimental activities. But, along with such experimental ventures theoretical simulation is also important to understand the operation and functionality of higher order circuits with such DNA based logic gates. Arithmetic unit are the essential blocks of digital systems such as Digital Signal Processor, microprocessors, micro controllers and other data processing units. In many arithmetic applications and other kinds of applications, adders are not only used in the arithmetic logic unit but also used in other parts of processors. In general, addition is a process which involves two numbers which are added and carry will be generated. All complex adder architectures constructed from its basic building blocks such as Half Adder (HA), Multiplexer circuit and Full Adder(FA). Under the present work, based on DNA logic gates, the design, simulation and performance

Genetic Algorithm based Fractional Order PID Control for Temperature Control Plant

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Abstract:

With the continuous innovation and to control the temperature produced by appliances to help the energy consumption. The energy demand and control motor temperature, speed, positions along with the congested transmission systems, fractional order PID[1] is suggested as the best solution So many methods are involved to control temperature but sometimes they fail because of increased temperature. Temperature sensors are used many appliances but due to this failure sometimes accidents happen. To overcome this issue we introduced fractional order PID controller to control the temperature [2] before attending the cutoff level. To design the fractional order PID controller [1] using a genetic algorithm to get better value for the fractional orders of the corresponding systems.
Key words: FOPID, GA Tuning, Temperature control system

INTRODUCITON

The FO-PID [1] control has a fractional integral and a differential elements in which these orders are non-integral. Generally, as the physical plant has a fractional characteristic, it is expected that the fractional controller will be effective for actual plants. There are some advantages of fractional control scheme, it was reported that PI$^\alpha$D control system has a robust characteristics for the input saturation.

Implementation of FOPID [1] finite order approximation is required, fractional elements have infinite order. There have been various researches for approximation of fractional elements by the finite order filter. The SMP (short memory principle) method is effective in terms of implementation and approximation accuracy. The SMP method gives the discrete approximation of the fractional element and provides the better approximation accuracy than other digital methods. The binomial coefficients at the beginning were reduced as time advances. The integral and differential are approximated using the data during recent interval. The output error remains in steady state as the FOPID approximated by SMP. To eliminate the steady state error, divide the fractional integral into traditional integral s^{-1} , it is called distributed implementation.

1. The implementation method of fractional order integration, which has the integration characteristics in low frequency is examined.
2. Approximation accuracy using SMP is evaluated.

TYPES OF FRACTIONAL ORDER CONTROLLER:-

Historically there are four major types of fractional order controllers [1],
- CRONE Controller.
- Tilted Proportional and Integral(TID) Controller.
- Fractional Order PID (FOPID) Controller.
- Fractional Order Lead-Lag Compensator.

REASON FOR SELECTING FOPID:-

Most of the physical plant has a fractional characteristic, it's expected that the fractional controller will be effective for actual plants.

BLOCK DIAGRAM:-
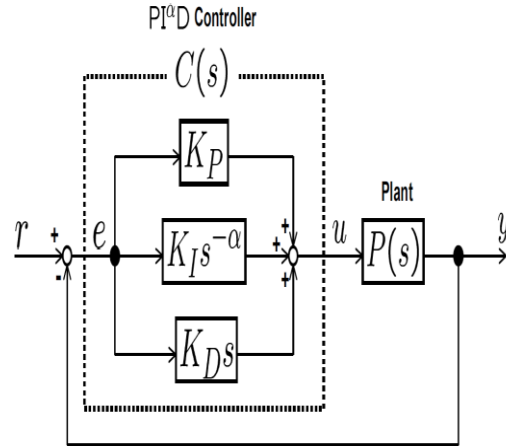
Fig. 1 BLOCK DIAGRAM OF PI$^\alpha$D CONTROLLER

PI$^\alpha$D controller one of the FOPID controllers with fractional integrator. In case $\alpha=1$, the Controller is equivalent to the traditional PID controller. Advantages of the fractional Control scheme, it was reported that PI$^\alpha$D control system has robust characteristics for the saturation of the input.
Fractional order PID controller output is

$$C_f(s) = K_p + K_i/s^\lambda + K_d s^\mu$$

Analysis of Energy Efficient Tracking In Wireless Sensor Networks

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ABSTRACT:

When a problem is large or difficult to solve, computers are often used to find the solution. Traditional methods of finding the answer may not be enough. It is in turning to nature that inspiration can be found to solve these difficult problems. Nature-inspired algorithms are among the most powerful algorithms for optimization. This paper tends to provide a detailed information of the firefly algorithm in tracking method that can reduce by an accurate estimation of the target location. we will compare the firefly algorithm with the particle swarm optimization. Energy saving is the critical issue for object tracking in sensor networks. The number nodes surrounding the mobile target should be responsible for observing the target to save the energy consumption and extend the network lifetime. Simulations and results indicate that the proposed firefly algorithm is superior to particle swarm optimization .In particle swarm optimization the present location of the object and by probability best and Global best the future location of the object is determined and energy consumption is more compared to firefly algorithm .In firefly algorithm the past, present and future locations and path of the object is determined, the accuracy is more and the time consumption is less in the mobile target.

KEY WORDS: Tracking ,particle swarm optimization ,Mobilty based Tracking,Firefly.

INTRODUCTION:

Object tracking has a great deal of attention in recent years. The reason is that object tracking has found its way in many real world applications, for example Surveillance ,Vision based control, and robotics ,and in military regions. Sensors are used to collect information about moving target position and to monitor the moving pattern in sensor field .wireless sensors networks must rely on the sensors used and collaborative signal processing to dynamically manage nodes resources and effectively process distributed information. Along the direction, moving target tracking will be accuracy and fault tolerance and missing target recovery. In all tracking process more energy is consumed for messages are transmission between the sensors nodes or between the sensor and sink. In target tracking application the sensor nodes which can sense the target at a particular time are kept in active mode, while the remaining nodes are to be in inactive mode so to conserve energy until the target approaches to nodes. The sensor whose sensing range contains the queried object will reply to the query. Clearly, this approach is inefficient because a considerable amount of energy will be consumed when the network scale is large or when the query rate is high. The power consumption is one of the most critical issues in object tracking. Energy dissipation in sensors is different, depending on the condition of the each sensor. Therefore each sensor must minimize the battery for longevity of network operation. The object tracking algorithm should be designed in such a way that result in good quality tracking with low energy consumption by using the firefly algorithm.

This paper aims to introduce the new Firefly Algorithm and to provide the comparison study of the FA with PSO algorithms. We will first outline the particle swarm optimization, then formulate the firefly algorithms and finally give the comparison about the performance of these algorithms. The FA optimization seems more promising than particle swarm optimization in the sense that FA can deal with wireless sensor network more efficiently and naturally.

OPTIMIZATION AND TRACKING:

Optimization is defined as finding an alternative with the most cost effective or highest achievable performance under the given constraints, by maximizing desired factors and minimizing undesired ones. In comparison, maximization means trying to attain the highest or maximum result or outcome without regard to cost or expense. Practice of optimization is restricted by the lack of full information, and the lack of time to

DESIGN OF NOISE FREE FILTER FOR SERIAL DATA COMMUNICATION USING MEJORITY VOTER CONCEPT

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Abstract

The present study explains structural design of UART on the basis of Advanced RRS filter. UARTs are used for asynchronous serial data communication between remote embedded systems. If channel is noisy then, serial data bits get corrupted during transmission. The UART core described here, utilizes Advanced RRS filter to remove noisy samples. Input signal is directly sampled with system clock and samples are accumulated with a window size. The window size is user programmable and it should be set to one fifth of required bit period. The intermediate data bit is decoded using magnitude comparator. A majority voter is used to retrieve actual data bit from five intermediate data bits. The advantage of this architecture is that baud rate is decided by the window size so there is no need of any external "timer module" which is normally required for standard UARTs. VHDL language used to implement the modules and design of The Advanced RRS filter with window size of M. This project implementation includes many applications in wireless data communication Systems like RF, Blue tooth, WIFI, ZigBee wireless sensor applications. Total coding written in VHDL language. Simulation in ISE Simulator, Synthesis done by XILINX , Spartan-3E

Keywords: Serial data, Clock, Samples, Baud Rate, Noise

1. Introduction

 (UART) is used for asynchronous serial data communication between remote embedded systems. Standard UART cores utilize five mid-bit samples to decode the serial data bit and the sampling rate is derived from external timer module. But if the physical channel is noisy then data bits get corrupted during transmission and it leads to wrong data decoding at receiver. To overcome the noise problem a digital low pass filter based architecture is proposed in this paper.
Recursive Running Sum (RRS) is simple low pass filter; it can be used to remove noise samples from data samples at receiver [5]. Serial receive data signal is directly sampled with system clock and samples are fed to

RRS filter. The window size of the filter is user programmable and it decides baud rate.RRS filter hardware implementation is described in section-2. Window size selection criteria are described in section-3.

The UART Architecture is described in section-4 while section-5 gives simulation results and comparison with standard UART core. The robust UART core described here is designed using VHDL and implemented on Xilinx FPGA.

2. RRS Filter Implementation

The Recursive Running Sum (RRS) filter with window size of M is described by following equations.

$$H(z) = \frac{1 - z^{-M}}{1 - z^{-1}}$$

$$y(n) = x(n) + y(n-1) - x(n-M)$$

The hardware realization of the above equation is as shown in the Figure-1. It requires a Adder, subtracter, a unit delay and a M samples delay element. The window size (M) is related to baud rate which is user programmable. So M is variable, if a 16 bit register is used to hold value of M, it can have values from 0 to 65535. The hardware implementation of variable delay with above range would require 65535 D flip-flops and large number of combinatorial logic for MUX and selection logic implementation. So this implementation is not feasible for FPGA or ASIC platform.
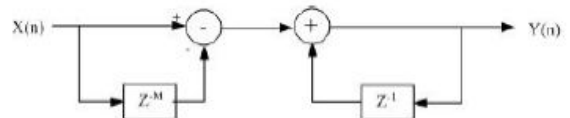

Figure-1 Hardware realization of RRS filter

The Other approach for hardware realization of RRS filter using a factor of M decimator is shown in Figure-2. It requires a Adder, subtracter, two unit delays and a down sampler of factor M. The implementation of down sampler requires a 16 bit counter and a magnitude comparator which is much simpler than previous approach. So this

Multimode Graded-Index polymer Optical Fiber for High-Capacity Long Haul Multiplexed Transmission

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Abstract: Data traffic is growing exponentially due to the emergence of various network services. Although the transmission capacity of optical fibers has dramatically increased thanks to advanced communication technologies such as Copper based technologies but Copper based technologies' suffer strong susceptibility to electromagnetic interferences and have limited capacity for digital transmission as well as the presence of crosstalk. Compared to these copper based technologies, optical fiber has smaller volume; it is less bulky and has a smaller weight. In comparison with data transmission capability, optical fiber offers higher bandwidth at longer transmission distances. The main objective of Polymer Optical Fiber(POF) to integrate voice, video, and data streams over all-optical systems as communication signals make their way from LANs down to the end user by Fiber-To-The-x (FTTx), offices, and in-homes. This paper reviews the major achievements of our polymer optical Fiber based MMF research and development.

Keywords: Graded index polymer optical Fiber, wavelength division multiplexing, Multimode optical Fiber, LAN.

1. INTRODUCTION

At present, twisted pair and coaxial cables are commonly used as the physical medium to deliver telecom services within the customer's premises. However, these two transmission medium suffer from serious shortcomings when they are considered to serve the increasing demand for broad-band services. For instance, twisted pair has a limited bandwidth and it is susceptible to electromagnetic interference (EMI). Coaxial cable offers a large bandwidth, but it poses practical problems due to its thickness and the effort required to make a reliable connection. Moreover, the coaxial cable is not immune to EMI. Optical fiber is extensively used for long-distance data transmission and it represents an alternative for transmission at the customer premises as well. Optical fiber connections offer complete immunity to EMI. Optical silica-glass fibers, however, are not suitable for use within the customer premises because of the requirement of precise handling, and thus, the high costs involved. Polymer optical fibers are very attractive for use within the customer premises

with their easy handling and low cost. This is mainly due to their relatively thick core. In fact, several polymer fiber-based systems are commercially available. However, these systems are based on the use of the multimode step index polymer optical fiber (SI-POF), whose bandwidth distance product is limited to a few MHz km.

The way toward broad-band POF systems is opened by the use of graded-index polymer optical fiber (GI-POF). The high bandwidth of the GI-POF (typically 2 GHz km) compared to SI-POF, is attributable to the graded-index profile in the core. The transmission media used at present are not suited for provisioning high-bandwidth services at low cost. For instance, today's wiring in LANs is based mainly on copper cables (twisted pair or coaxial) and silica (glass) fiber basically of two kinds: single mode optical fiber (SMF) and multimode optical fiber (MMF). Copper based technologies suffer strong susceptibility to electromagnetic interferences and have limited capacity for digital transmission as well as the presence of crosstalk. Compared to these copper based technologies, optical fiber has

SMART WATER SPRINKLER BASED ON MICROCONTROLLER

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ABSTRACT:

The system is designed to implement a "Smart water sprinkler which is based on Arduino Microcontroller". Today whole world is facing scarcity of water including India. In irrigation the water requirement is large and in the process lot of water is wasted too. In addition the plants require continuous observation. The main motive of designing this system is to impart a water delivering schedule to the plants. This smart system aims at minimizing the water loss and also reducing the constant supervision required for plants. It also avoids the damaging of plants by providing the exact amount of water which is needed by the plants. The system contains a soil moisture sensor which acts as a sensing element in the system. A gateway unit which consists of Arduino Microcontroller, switching device, actuators like servo motor and pump is present. A program is developed in accordance with the threshold values of the sensing element and the actuators. The Arduino microcontroller used here acts as the data processing element it processes the input data from sensing element and accordingly takes decision based on its predefined values. The switching device used here is a relay which controls the pump according to the instruction provided by the microcontroller. The servo motor acts as an actuator which provides water to the direction where it is needed. This system is highly efficient with high accuracy and low cost. It consumes low power which makes it a resource efficient technology.

1. INTRODUCTION

Embedded Systems:

Embedded systems are computer systems that are part of larger systems and they perform some of the requirements of these systems. Some examples of such systems are auto mobile control systems; industrial processes control systems, mobile phones, or small sensor controllers. Embedded systems cover a large range of computer systems from ultra small computer-based devices to large systems monitoring and controlling complex processes. The overwhelming number of computer systems belongs to embedded systems: 99% of all computing units belong to embedded systems today.

Water is a resource that is needed by all living species. So it is necessary for us to check the water usage and preserve it for the future generation to come. One industry that uses large amount of water is the agriculture industry. In India still 14.5% of GDP is dependent on agriculture which shows the status of agriculture in India. A large amount

Segmentation of Brain Tumour Affected Cells using Simulink Model

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Abstract— **This paper analysis brain tumor affected cells segmentation using simulink model for MRI (Magnetic Resonance Imaging) images. The proposed simulink model uses various edge detection operators for segmenting the affected cells. The statistical analysis of affected cells are also calculated and compared with the normal cells in the image. Edge detection forms a pre-processing stage to remove the redundant information from the input image, thus dramatically reducing the amount of data to be processed while at the same time preserving useful information about the boundaries. Here various edge detection techniques simulink models and the segmented output statistical analysis are discussed.**

Keywords— *Simulink, Segmentation, Sobel, Perwitt, Robert*

I. INTRODUCTION

To obtain the quality images and to provide the image accuracy Image processing plays an important role. Image processing is a type of signal processing in computer vision where the input is an image. Image processing output can be a image or parameters related to image. In segmentation image is subdivided into its constituent objects or regions. It partitions the digital image into multiple regions and extracting meaningful region known as ROI region of interest.ROI varies with applications. For multi- domain simulation and model based design of dynamic system simulink is a platform. For modeling simulink is an interactive tool and is ideal for digital signal processing, control system design and communication system design simulation option [1][2]. In most of the image processing applications edge detection is a fundamental tool used to obtain frames information before extracting features and segmentation [3] of objects. Edge detection detects object outlines, boundaries and background in the image. The matrix area gradient operation is a basic edge detection operator which determines the variance levels between pixels. Sobel, Prewitt and Robert operators are the examples of gradient based edge detectors.

II. EDGE DETECTION TECHNIQUES

The boundary between two homogeneous regions forms an image. The process of locating and identifying sharp discontinuities in image refers to edge detection. Edge detection detects the outlines and the background in image. Different types of edge detection operators are available each designed to be sensitive to certain types of edges. Many edge detection methods exist like Sobel [4][5][6], Prewitt [7], Robert. The amount of data in the image is significantly reduced during preservation of most important structural features of the image [8]. Blocks used for simulink implementation is shown in Table 1.

Table 1: Blocks used in simulink for implementation

BLOCK	LIBRARY
Image from workspace	Computer vision system toolbox>source
Edge detector	Computer vision system toolbox>analysis and enhancement
Video viewer	Computer vision system toolbox>sinks
Sum of elements	Simulink>math operations
Constant	Simulink>commonly used blocks
Divide	Simulink>math operations
Display	Simulink>sinks
2D standard deviation	Computer vision system toolbox>statistics
2D variation	Computer vision system toolbox>statistics

1. Sobel edge detection:

Sobel is one of the edge detection methods which produce edges with less noise. Two masks are used in sobel edge detection like vertical mask and horizontal mask. These masks generally use 3x3 matrices. Especially, the matrices which have 3x3 dimensions are used in Matlab. With the Sobel approximation to the derivative the Sobel method finds edges. The operator consists of a pair of 3x3 convolution kernels as shown in Table 2 and the block representation of sobel operator is

Analysis of Multispectral Image Compression

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Abstract— **Remote sensing multispectral image compression encoder requires low complexity, high robust, and high performance because it usually works on the satellite where the resources, such as power, memory and processing capacity are limited. For multispectral images, compression algorithms based on 3D transform (like 3D DWT, 3D DCT) are too complex to be implemented in space mission. In this paper, image compression techniques such as JPEG, JPEG2000, SPIHT and EZW techniques are analyzed for multispectral image compression and the results are compared.**

Keywords— *Multispectral image, SPIHT, JPEG2000, Compression, DCT.*

I. INTRODUCTION

A multi-spectral image is a collection of several monochrome images of the same scene, each of them taken with a different sensor. Each image is referred to as a band. A well known multi-spectral (or multi-band image) is a RGB color image, consisting of a red, a green and a blue image, each of them taken with a sensor sensitive to a different wavelength. Multispectral imaging technique has been widely applied in many fields, like science research, airborne and airspace remote sensing, medical devices, environment monitoring, geological survey, agricultural monitoring, military applications and so on. In multispectral images, because of more than one band, the amount of data to be transmitted is more when compared to the normal images. And also the multispectral image data processing, storage and transmission also complicated. These problems can be significantly reduced by using some form of data compression before transmission over wireless channel [1-3]. For transmission of high quality multispectral images through wireless communication channels it is necessary to achieve efficient compression that maintains the good image quality without increasing the transmission bandwidth. A number of techniques have been proposed in the last few years for the compression and transmission of multispectral images [4].

The most commonly multispectral image techniques can be used the lossless or lossy compression lossless coding is reversible processes in which the original images can be recovered from the encoded image without any loss of information but the compression ratio will be small value rarely exceed 2:1, and this ratio is not enough for many applications of multispectral images. So that we used some lossy compression techniques [5] are used in this paper. The JPEG (DCT), JEPEG2000 (DWT), Embedded Zero tree Wavelet (EZW) and Set Partitioning In Hierarchical Trees (SPHIT) [5- 7] are used. And these compression techniques are implemented on land sat multi-spectral image.

The paper is organized as follows. Section II describes literature survey, Section III describes various techniques. Result and discussion is in section IV. The analysis is concluded in Section V.

II. EXISTING WORK

Remotely sensed multispectral images have been in use for a long time. The Landsat-1 system was the first one for remote sensing application in the year 1972.Multispectral images are not similar to conventional 2D images. It has the third dimension as spectral data. Initially KL transform is used to de correlate the bands and after that conventional 2D transforms are applied for compression. For high fidelity color reproduction of multispectral images in the visual band, weighted KLT and adaptive quantization techniques are applied [8].A new automatic onboard multispectral image compression system was proposed by Guoxia et al [9] for Low Earth Orbit Earth Observation systems. In that work JPEG 2000 compression standard is used for compression. Based on the importance of the data, multispectral images may be compressed using lossy compression or Lossless compression techniques. Consultative Committee for Space Data System (CCSDS) produced an image data compression recommendation suitable for space applications in the year 2005.In this standard, Discrete Wavelet transform is combined with Bit plane coding is used for encoding the data. Conventional image compression techniques like transform based coding, predictive coding and encoding techniques like SPIHT SPECK algorithms are discussed in [10].

Multispectral compression based on DSC Combined with CCSDS-IDC for improved compression in on board

Power Estimation and Optimization Techniques using VLSI

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Abstract- **With the headway in minimal, versatile and high-thickness small scale electronic gadgets and frameworks, the power dispersed in substantial scale incorporated (VLSI) outline circuits has turned into a basic concern. Precision and productivity in control estimation involvedin the outline stage is imperative so as to meet power determinations without high cost overhaul process. This paper, displays a survey of the power enhancement hypothesis approach and the estimation strategies of late recommendation. VLSI configuration has intriguing application region for all combinationcircuit advancement. Invirtual setting all established blend improvement issues, happen in naturalway as subtasks. The fast mechanical progression and major hypothetical idea propels the arithmetic of VLSI outline, which has changed essentially finished the most recent two decades. This study paper additionally gives a current record on the key factors in improvement design.And presents a study of format procedures keeping in mind the end goal to configuration low power advanced CMOS circuits. It depicts the issues looked by the architects at the physical designabstraction and surveys a portion of the procedures which are proposed to defeat these troubles.**

Keywords- **optimization, VLSI, physical design, layout, placement, routing, MED, BDD, CMOS.**

I. INTRODUCTION

In the past decades, the main concerns of VLSI designers were area, performance, cost involved and reliability; power consumption was mostly of only secondary importance to other things. However, this has begun to change and, with major priority, power consumption is given comparable importance to area and speed. Numerous factors have contributed to this. Portable computing and communication devices demand high-resolution of fast computation and complex functional style with reduced power consumption. Heat generation in high-end computer products limits the feasible packing and performance of VLSI circuits and increases the packaging and cooling costs. Circuit and device reliability deteriorate with increased heat dissipation, and thus the die temperature. Heat pumped into the rooms, the electricity consumed and the office noise diminishes with low power LSI chipset. Our goal in writing this paper is to provide background and outlook for people interested in using or developing low power design methodologies and techniques.

Even though we tried to be complete, some significant research work might have been unintentionally left out. The paper is organized as follows. First, we describe sources of power dissipation in CMOS circuits and degrees of freedom in the low power design space. We then present an in-depth survey (and in many cases analysis) of power minimization techniques and describe some of the frontiers of the research currently being pursued. We conclude by summarizing the major low power design challenges that lie ahead of us.Managing the power of an IC design adds to a growing list of problems that IC designers and design managers have to contend with. Computer Aided Design (CAD) tools are needed to help with the power management tasks.

In CMOS and Bi-CMOS technologies, the chip components (gates, cells) extract power supply current only if a logical transition takes place(ignoringsmall leakage current). While considered an attractive low-power feature technology, it also makes the power-dissipation greatly dependent on the switching activities inside these circuits. Simply put, a more active circuit will consume more power. This complicates the power estimation problem because the power becomes a moving target-it is input pattern dependent. Thus the simple and straight-forward solution of estimating power by using a simulator is severely complicated by this pattern-dependence problem. Input signals are generally unknown during the design phase because they depend on the system (or chip) in which the chip (or functional block) will eventually be used. Furthermore, it is practically impossible to estimate the power by simulating the circuit for all possible inputs.

Recently, several techniques have been proposed to overcome this problem by using probabilities to describe the set of all possible logic signals, and then studying the power resulting from the collective influence of all these signals. This formulation achieves a certain degree of pattern-independence that allows one to efficiently estimate and manipulate the power dissipation.

Sources of Power Dissipation

Power dissipation in digital CMOS circuits is caused by four sources as follows.

• The leakage current, which is primarily determined by the fabrication technology, consists of two components:

Applications of ARM Processors in Industries

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Abstract—

In these days industrial automation plays a vital role in various fields such as power plants, weather monitoring, medicine storage, Signal processing etc. This paper describes applications of ARM processors in Industries. Arm based control can be implemented in two ways one is to sense the room temperature, pressure, humidity values at a time in the system and other method is for office premises in which user can login into his account at anywhere and anyplace and ensure all parameters at a single window. ARM 32 bit RISC CPU has features of image/object detection and video processing by using various features and classification algorithms for object detection. Image processing is a form of signal processing for which the input is an image, such as a photograph or video frame and the output of image processing may be either an image or a set of characteristics or parameters related to the image. The ARM based applications in medical field and image processing are discussed.

*Keywords— **ARM**, **Processor, medical, image processing***

I. INTRODUCTION

In industries, systems are becoming very complex. Industries system needs to test the site equipments and environmental so it can track state of system in real time. This system requires design which has to be flexible and adaptable, for that microcontroller based systems can be used. This is more reliable and provides high performance to the system. Microcontroller is very practical and successfully utilized, the conventional 8 and 16-bit Microcontroller has its deficiencies when compared with 32-bit. The ARM architecture is based on Reduced Instruction Set Computer (RISC) principles, and the instruction set and related decode mechanism are much simpler than those of micro programmed Complex Instruction Set Computers. This simplicity results in a high instruction throughput and impressive real-time interrupt response from a small and cost-effective processor core.Pipeline techniques are employed so that all parts of the processing and memory systems can operate continuously. Typically, while one instruction is being

Recent Trends in Optical Communications

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Abstract
The Recent Trends in optical communication are changing very quickly. It is quite interesting to see that the core of every large communication network carries huge traffic, to minimize this optical fiber technology was introduced, which was very unrealistic 3 decades ago. With the changes in the demand and availability of the new technologies are being added to the main optical fiber technologies. Now, there are so many emerging technologies in this list, such as the usage of optical fiber in the Military sector, in Railways, in Space communications, in telecommunications, in marine fields, in medical fields etc. In the future it will be more advanced and diversified with new applications and trends. One day it may be possible that the whole static communication network will be purely optical.

Introduction:`
Optical communication[1] is any type of communication in which light is used to carry the signal to the remote end, instead of electrical current. Optical communication relies on optical fibers to carry signals to their destinations. A modulator/demodulator, a transmitter/receiver, a light signal and a transparent channel are the building blocks of the optical communications system.
Communication systems[4] that carry information through a guided fiber called fiber optic systems.
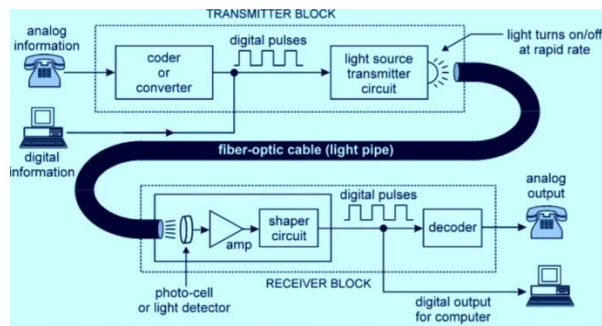
Block Diagram: Optical Communication System
Because of its numerous advantages over electrical transmission, optical fibers have largely replaced copper wire communications in core networks in the developed world. Because, when metal wires transmit information, they create a small amount of heat. This heat causes damage to the wires over time. They often need to be replaced. For fiber optics, the data is transmitted through the use of light, which does not affect the integrity of the wire, therefore there is a much lower chance of needing to replace them

Future plans :
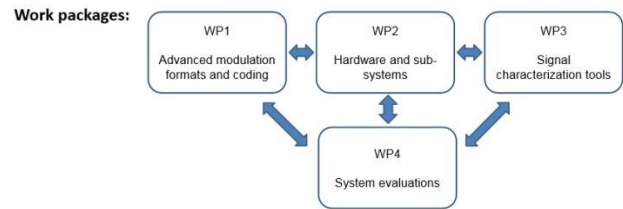
WP1: Advanced modulation and coding Coded modulation optimized for more realistic fiber transmission systems Estimation methods based on training sequences for phase/polarization tracking & timing recovery

WP2: Hardware and subsystems Novel modulation formats, e.g. pulse-position modulation combined with PS-QPSK Novel concepts for dispersion and nonlinearity mitigation, e.g. so-called factor graphs

WP3: Signal characterization tools Quantify DSP-based carrier recovery performance (coherence, noise) by benchmarking with self-homodyne method Parallelized real-time optical sampling for high bandwidth signal characterization

WP4: System evaluations Evaluation of ultralow noise, phase-sensitive amplifiers in real transmission links Adaptive optical networks; Channel estimation & optical performance monitoring

Trends in Optical Communications:
Fiber Optic Interconnects
Interconnections[3] are one of the largest and most widely used areas for fiber optic cables and assemblies. An interconnect is defined as the physical connection of two or more fixtures through which communication is possible. Interconnects range from simple, simplex patch cords to multi-channel distribution and backbone cables and virtually everything in between. Most interconnects are used for smaller, localized network or system structures, linking similar machines, complimentary devices, and/or data communications from one system to another, please see below ref [4]

Implementation of Wideband Spectrum Sensing For Performance Improvement of Cognitive Radio

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Abstract— **Cognitive radio has emerged as one of the most promising candidate solutions to improve spectrum utilization in next generation cellular networks. A crucial requirement for future cognitive radio networks is wideband spectrum sensing: secondary users reliably detect spectral opportunities across a wide frequency range. In this article, various wideband spectrum sensing algorithms are presented, together with a discussion of the pros and cons of each algorithm and the challenging issues. Special attention is paid to the use of sub-Nyquist techniques, including compressive sensing and multi-channel sub-Nyquist sampling techniques.**

Index Terms— **Cellular network, cognitive radio, compressive sensing, spectrum sensing, sub-Nyquist sampling, wideband spectrum sensing.**

I. INTRODUCTION

Radio frequency (RF) spectrum is a valuable but tightly regulated resource due to its unique and important role in wireless communications. With the proliferation of wireless services, the demands for the RF spectrum are constantly increasing, leading to scarce spectrum resources. On the other hand, it has been reported that localized temporal and geographic spectrum utilization is extremely low [1]. Currently, new spectrum policies are being developed by the Federal Communications Commission (FCC) that will allow secondary users to opportunistically access a licensed band, when the primary user (PU) is absent. Cognitive radio [2], [3] has become a promising solution to solve the spectrum scarcity problem in the next generation cellular networks by exploiting opportunities in time, frequency, and space domains.

Cognitive radio is an advanced software-defined radio that automatically detects its surrounding RF stimuli and intelligently adapts its operating parameters to network infrastructure while meeting user demands. Since cognitive radios are considered as secondary users for using the licensed spectrum, a crucial requirement of cognitive radio networks is that they must efficiently exploit under-utilized spectrum (denoted as spectral opportunities) without causing harmful interference to the PUs. Furthermore, PUs have no obligation to share and change their operating parameters for sharing spectrum with cognitive radio networks. Hence, cognitive radios should be able to independently detect spectral opportunities without any assistance from PUs; this ability is called spectrum sensing, which is considered as one of the most critical components in cognitive radio networks.

Many narrowband spectrum sensing algorithms have been studied in the literature [4] and references therein, including matched-filtering, energy detection [5], and cyclostationary feature detection. While present narrowband spectrum sensing algorithms have focused on exploiting spectral opportunities over narrow frequency range, cognitive radio networks will eventually be required to exploit spectral opportunities over wide frequency range from hundreds of megahertz (MHz) to several gigahertz (GHz) for achieving higher opportunistic throughput. This is driven by the famous Shannon's formula that, under certain conditions, the maximum theoretically achievable bit rate is directly proportional to the spectral bandwidth. Hence, different from narrowband spectrum sensing, wideband spectrum sensing aims to find more spectral opportunities over wide frequency range and achieve higher opportunistic aggregate throughput in cognitive radio networks. However, conventional wideband spectrum sensing techniques based on standard analog-to-digital converter (ADC) could lead to unaffordably high sampling rate or implementation complexity; thus, revolutionary wideband spectrum sensing techniques become increasingly important.

In the remainder of this article, we first briefly introduce the traditional spectrum sensing algorithms for narrowband sensing in Section II. Some challenges for realizing wideband spectrum sensing are then discussed in Section III. In addition, we categorize the existing wideband spectrum sensing algorithms based on their implementation types, and review the state-of-the-art techniques for each category. Future research challenges for implementing wideband spectrum sensing are subsequently identified in Section IV, after which concluding remarks are given in Section V.

II. NARROWBAND SPECTRUM SENSING

The most efficient way to sense spectral opportunities is to detect active primary transceivers in the vicinity of cognitive radios. However, as primary receivers may be passive, such as TVs, some receivers are difficult to detect in practice. An alternative is to detect the primary transmitters by using

A REVIEW ON TRENDS AND CHALLENGES OF GRID-CONNECTED PHOTOVOLTAIC SYSTEMS

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Abstract:

This paper presents a literature review of the recent developments and trends pertaining to Grid-Connected Photovoltaic Systems (GCPVS). In countries with high penetration of Distributed Generation (DG) resources, GCPVS have been shown to cause inadvertent stress on the electrical grid. A review of the existing and future standards that addresses the technical challenges associated with the growing number of GCPVS is presented. Maximum Power Point Tracking (MPPT), Solar Tracking (ST) and the use of transformer-less inverters can all lead to high efficiency gains of Photovoltaic (PV) systems while ensuring minimal interference with the grid. Inverters that support ancillary services like reactive power control, frequency regulation and energy storage are critical for mitigating the challenges caused by the growing adoption of GCPVS.

II.INTRODUCTION

It is generally accepted in the scientific community that human activity is affecting climate change and that a majority of this impact comes from fossil fuel combustion caused by the electric utility industry [3]. Conventional fossil-fuel generating facilities have in past met the majority of global electrical energy demands. However, environmental and climate change implications of fossil fuel-based generation present serious challenges to society and the environment [1]. Distributed Generation (DG), particularly Photovoltaic (PV) systems, provides a means of mitigating these challenges by generating electricity directly from sunlight.

Unlike off-grid PV systems, Grid-Connected Photovoltaic Systems operate in parallel with the electric utility grid and as a result they require no storage systems. Since GCPVS supply power back to the grid when producing excess electricity (i.e., when generated power is greater than the local load demand), GCPVS help offset greenhouse gas emissions by displacing the power needed by the connected (local) load and providing additional electricity to the grid. As such, during peak solar hours (maximum solar irradiance), fewer conventional generation plants are needed. In addition, GCPVS reduce Transmission and Distribution (T&D) losses. Although average T&D losses amounted to 5.7% in the U.S. in 2010, losses during peak hours are higher [2]. For example, the estimated T&D losses for Southern California Edison and Pacific Gas & Electric exceeded 10% in 2010 [4]. Locating DG assets close to loads can help to partially mitigate these losses.

This paper is organized as follows: section II summarizes the current state and trends of the PV market. Section III discusses regulatory standards governing the reliable and safe operations of GCPVS. In section IV we discuss the technical challenges caused by GCPVS. Since there are a number of approaches for increasing the output power of PV systems, i.e., Maximum Power point tracking (MPPT), Solar Tracking (ST), a combination of both [5] or by using transformless inverters, section V examines each method

SST with EMG based Noise Reduction System

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Abstract-the Silent sound technology (SST) is a completely new technology which can prove to be a solution for those who have lost their voice but wish to speak over phone. It can be used as part of a communications system operating in silence-required or high-background- noise environments. This article outlines the history associated with the technology followed by presenting two most preferred techniques viz. Electromyography and Ultrasound SSI. The concluding Section compares and contrasts these two techniques and put forth the future prospects of this technology.

Index Terms - Articulators , Electromyography, Ultrasound SSI, Vocoder, Linear Predictive Coding.

I. INTRODUCTION

Each one of us at some point or the other in our lives must have faced a situation of talking aloud on the cell phone in the midst of the disturbance while travelling in trains or buses or in a movie theatre. One of the technologies that can eliminate this problem is the 'Silent Sound' technology.Silent sound technology is a technique that helps one to transmit information without using vocal cords which was developed at the Karlsruhe Institute of Technology[1]. It enables speech communication to take place when an audible acoustic signal is unavailable. The main goal of Silent Sound technology is to notice every movement of the lips and internally transform the electrical pulses into sounds by neglecting all the surrounding noise, which could help people who lose voices to speak, and allow people to make silent calls without bothering others. Rather than making any sounds, the handset would decipher the movements made by one's mouth by measuring muscle activity, then convert this into speech that the person on the other end of the call can hear[2].

The technology opens up a host of applications, from helping people who have lost their voice due to illness or accident to telling a trusted friend your PIN number over the phone without anyone eavesdropping assuming no lip-readers are around. It can be used used in Military for communicating secret or confidential matters to others Also, given the numbers of cell phones in use today, the market for this technology could potentially become very important if such a concept gained public acceptance. Silent Sound Technology is implemented using two methods. They are

- Electromyography (EMG)
- Ultrasound SSI

Electromyography involves monitoring tiny muscular movements that occur when we speak and converting them into electrical pulses that can then be turned into speech, without a sound being uttered. Ultrasound imagery is a non-invasive and clinically safe procedure which makes possible the real-time visualization of the tongue by using an ultrasound transducer.

II. HISTORICAL FRAMEWORK

The idea of interpreting silent speech with a computer has been around for a long time, and came to public attention in the 1968 Stanley Kubrick science-fiction film 2001,A Space Odyssey, where a HAL 9000 computer was able to lip-read the conversations of astronauts who were plotting it's destruction. Automatic visual lip-reading was proposed as an enhancement to speech recognition in noisy environments [3], and patents for lip-reading equipment able to interpret simple spoken commands began to be registered in the mid 1980's [4].The first true SSI system which deployed 3 electromyographic sensors mounted on speaker's face and interpreted the speech with an accuracy of 71%, originated in Japan. [5]A few years later, an imaging- based system, which extracted the tongue and lip features from the video of speaker's face, returned 91% recognition[6]. A major focal point was the DARPA Advanced Speech Encoding Program (ASE) of the early 2000's, which funded research on low bit rate speech synthesis with acceptable intelligibility, quality, and aural speaker recognizability in acoustically harsh environments, thus spurring developments in speech processing using a variety of mechanical and electromagnetic glottal activity sensors [7]. The first SSI research papers explicitly mentioning cellphone privacy as a goal also began to appear around this 2004[8].

III. SILENT SOUND TECHNOLOGIES

This section illustrates two fundamental techniques that are put to use in interpretation of speech in noisy

The Comparison of Non-Cooperative Spectrum Sensing Techniques for performance improvement of Cognitive Radio

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Abstract: The Cognitive radio is the emerging wireless communication system. In the fundamental wireless communication system, the static allocation of spectrum is used and that directed to the problem called spectrum scarcity. The concept of cognitive radio was suggested by the Mitola in 1998. Spectrum sensing is an important and motivating issue in Cognitive radio. Spectrum sensing is the technique to find the primary user transmission in the assigned licensed spectrum band. The numerous non-cooperative spectrum sensing techniques and their comparisons given in this paper.

Index terms: Cognitive Radio, Primary User, Secondary User, Spectrum Sensing, Match Filter Detection, Energy Detection, Cyclostationary Detection.

I. INTRODUCTION:

In cognitive radio(CR), the users that have been given the utmost priority on the use of the particular spectrum are known as Primary Users(PU) and the users with the lower priority on the use of spectrum are called Secondary Users(SU). Our main motive is to make spectrum usable for the secondary users without affecting interference to the PUs. This can be done if the SUs sense the PUs transmission before its own transmission. The secondary users check whether there is any active receiver within the range of the secondary user. If there is a presence of the active primary user then secondary user cannot transmit the signal because it will cause the interfering to the primary user. So to avoid the interference problem to the primary user it is necessary to continuously check the presence of any active primary receiver.

The secondary users need to continuously check the activities of the primary users to find the spectrum holes. Spectrum holes are distinct as the spectrum bands that can be used by the secondary user without producing interference to the primary users. This process of finding the spectrum holes is called the spectrum sensing. A cognitive radio may be furnished with different forms of cognitive capabilities i.e. a CR may sense the ON/OFF status of the PUs, or can measure the interference power level at primary receiver. Since a CR may be organized with different cognitive capabilities, it can access the radio spectrum in different ways. There are two cognitive spectrum access models we have [1]: 1) the opportunistically access model and 2) the concurrent spectrum access model. The first model is shown in Fig. 1. Here a CR user senses the spectrum to detect spectrum holes. As it detects the one or multiple spectrum holes, it reconfigures the transmission parameters (Ex., carrier frequency, bandwidth, and modulation scheme).
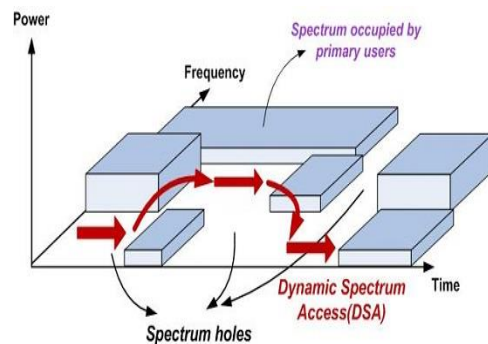

Fig.1. CR users opportunistically access the spectrum hole

The second model is shown in Fig. 2, in which both the CR user and an active PU can exist together till the interference caused by the CR transmitter to the primary receiver is below a tolerable limit. In this

A CASE STUDY ON ULTRA LOW POWER WIRELESS BODY MOUNTED SENSORS FOR HEALTH MONITORING

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Abstract—This paper describes the design of a custom LSI which operated at less power nearly 0.5 µW for wireless sensor nodes used in animal health monitoring systems. A wireless sensor network system is composed of sensors, signal processing units, receiver and other components. There is a huge requirement to monitor body temperature and activity of animal or human with low power consumption, low power sensors and ultra-low power signal processing are essential. This presentation depicts low power technologies of wireless sensor network system developed for chicken health monitoring system. The average power consumption calculated of the wireless sensor node is less than 1µW.Here the Measurement method with bimetal type and piezoelectric type MEMS sensors which need almost no electrical power and on chip circuits of multistep selectable voltage reference generator for comparators to detect the output signal of the sensors. The piezoelectric sensor which generates even 1 mV of output voltage can be utilized by this method. The LSI consists of CMOS combination logic circuits and works at low frequency and RC oscillator to decrease the power Utilization.

Index Terms— LSI, MEMS, ultra low power, sensor network, health monitoring, chicken.

I. INTRODUCTION

Wireless sensor networks which consist of a lot of wireless sensor nodes distributed in our surrounding and linked together are expected to be used for health and medical monitoring applications as well as environmental monitoring[1], control and security .In general a wireless sensor node, consisting of sensors, a transceiver (or transmitter), a battery. In addition to this the sensor node functions, miniaturized and performance improved by using Micro electro mechanical systems (MEMS) technology. The MEMS technology is contribute to realization of autonomous sensor nodes without batteries by providing a small high-efficient energy harvesting device. Recent research has focused on hen productivity, feed consumption, health, or the quality and investigating the dynamic behavior and activity of hens housed in indoor non-cage environments. In this paper we report the results of a lightweight wireless body mounted wireless sensor system used monitor the activity of laying hens within non-cage housing systems. As an application of wireless sensor network, our group has been developing a global avian influenza surveillance system by monitoring the health

COOPERATIVE SPECTRUM SENSING IN COGNITIVE RADIO: A REVIEW

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Abstract—

As the bandwidth is limited, the available spectrum is being congested day to day. Cognitive Radio It adjusts the parameters and protocols dynamically to supply unused areas within the total usable spectra. There are a numerous techniqes to identify the unused spectrum areas like Energy Detection, Matched Filter Detection, Cyclostationary Feature Detection. Spectrum sensing can be enriched by allowing different users to share their local sensing observations and to cooperatively decide on the licensed spectrum occupancy. Spectrum sensing is considerably increased by permitting completely different users to share their nativesensing observations and to hand and glove want the authorised spectrum occupancy. Further, it has some limitations such as high computational complexity and increased sensing time.

Index Terms—

Cognitive radio, Spectrum sensing, Cooperative spectrum sensing, Energy detection, Cyclostationary feature detection.

I.INTRODUCTION

Since spectrum is a finite resource, the effective use of available spectrum is an important prerequisite for designing of wireless system. The transceiver in cognitive radio system has the control to observe that communication channels are in use and that don't seem to be, and instantly get in unoccupied channels but avoiding occupied ones. For the further discussion, it is useful to distinguish between the two different definitions of cognitive radio:

1. All the transmission parameters, i.e., modulation format, coding, center frequency, transmission times, bandwidth, and so on are adopted by a fully cognitive radio. Even though a fully cognitive radio is stimulating from a scientific point of view, it currently seems too complicated for practical purposes.

2. Cognitive radio adapts the transmission frequency, bandwidth, and time according to the environment. This kind of cognitive radio is also called Dynamic Spectrum Access (DSA).

Here we have three kinds of models for DSA:

a) Dynamic exclusive model.

b) Hierarchical access model

c) Open sharing model

The main principle of hierarchical cognitive radio is that the secondary users do not disturb the primary users. This can be done by three important approaches: interweaving, overlay, and underlay. In the interweaving approach, the radio knows those parts of the spectrum that are not being used at a certain time, and transmits in those; thus, such a radio is a spectrum-sensing radio. In an overlay approach, the cognitive radio senses the transmitted signal of the primary user, and adjusts its signal in such a way

DESIGN AND OPTIMIZATION OF SHELL AND TUBE HEAT EXCHANGER

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Abstract—**In the pre-sents, the most regular type of heat exchangers used extensively in oil refineries and large scale chemical processing industries are the Shell and Tube Heat Exchangers due to its nature of suitability for applications of high pressure. There lies an internal component in the exchangers that supports the tubes to attain rigidness in structure, to attain higher heat transfer coefficient, direct the flow across the tube bundles and prevent vibrations are the Baffles. The centre line distance between adjacent two Baffles is called Baffle Spacing (B).The segmental height to shell inside diameter, which is expressed in terms of percentage and provided on Baffles is called Baffle Cut(Bc). The variation of baffle cut ranges from 15% to 45% of shell inside diameter. To attain the better performances , researches showing their interests towards work on helical baffles than the single segmental baffle but it raises a problem in manufacturing costs, maintenance and set up costs. In heat exchanger design, mostly we focus on two important parameters such as cost and efficiency. So, for the development of thermal performance at low costs using shell and tube heat exchanger, the study is focused in providing some inclination over baffles to attain a reasonable pressure drop across the heat exchanger.**

The project, deals with initially Simulation which consists of modeling followed by meshing the heat exchanger design of basic geometry by adopting a software known as CFD package ANSYS 14.0. The main moto of the project is to develop a design of shell and tube heat exchanger consisting of baffles with various helix angles .Later we examine the intensity of flow and temperature field also determined within the shell at various points using ANSYS Software tools. The variation of helix angle over baffles ranges between 0 º to 20 º.The final reproduction will display how the variation taken place with respect to pressure flow velocity and temperature distribution in the shell due to provision of different helix angle . The pattern of flow in the shell side of heat exchanger with continuous helical baffles must be rotational and helical because of baffles geometry inside the shell, which finally shows a substantial raise in heat transfer coefficient per unit pressure drop across the heat exchanger.

Keywords—heat exchanger ;baffles ;helixangle ; pressure ;heat transfer coefficient.

I. INTRODUCTION

Heat exchanger is most useful equipment in the present large scale and small scale industries. It is a process of the heat transfer between two streams of body. This contains the heating and cooling process of the fluid or liquid in the present day. Present many industries using arrangement of helical baffles in heat exchangers. In this type there is nothing coincides of both hot and cooler fluids with each other because in between these separated pipes are constructed. This is better for compared to many other type, finally this type gives the better results. It is a one arrangement to give all quality of heat will be transfer in very fast and maintenance of all the working procedure in that of situation. OBJECTIVES

1. Analytical study.
2. To perform CFD reproductions of single stage and single segmental astounded shell-and-tube heat well exchanger with variable number of astounds and confound slant points by utilizing business CFD bundle FLUENT 14.5.
3. Examine the warmth exchange coefficient and weight drop on shell side by contrasting CFD results and the logical result.
4. Validate simulation results to analytical results.
    In this present project, we tried to improve the heat transfer, pressure drop, velocity and temperature.
5. We used 10 degree and 20 degree baffle inclination angle orientation in single arrangements shell tube heat exchanger.
6. We used 6,8,10 and 12 number of hurdles' in single segmental shell and tube heat exchanger.
7. By using 6,8,10 and 12 number of baffles we made CFD simulation for flow inside the shell and implemented pressure drop variation, heat transfer, velocity and temperature for 10 and 20 degree baffle inclination orientation.
8. We made analytical calculations for the single segmental shell and tube heat exchanger compared with CFD calculations.

"STRUCTURAL ANALYSIS OF CARBON COMPOSITE LEAF SPRING WITH STEEL LEAF SPRING"

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ABSTRACT: Expanding rivalry and development in car division has a tendency to adjust the current items by new and propelled material items. A suspension arrangement of vehicle is likewise a range where these developments are done consistently. Leaf springs are one of the most seasoned suspension segments that are as a rule still utilized broadly in autos. Weight diminishment is additionally offered because of significance via car producers. The vehicle business has indicated expanded enthusiasm for the utilization of composite leaf spring in the place of regular steel leaf spring because of its high quality to weight proportion. This work manages substitution of customary steel leaf spring of a light business vehicle with composite leaf spring utilizing Carbon/Epoxy. Measurements of the composite leaf spring are to be taken as same measurements of the regular leaf spring. The goal is to look at the heap conveying limit, stresses, redirection and weight reserve funds of carbon composite leaf spring with that of steel leaf spring

KEY WORDS: Laminated Composite leaf spring (LCLS); Static analysis ; Carbon/epoxy..

INTRODUCTION

In now a day the fuel efficiency and emission gas regulation of automobiles are two important issues. To fulfill this problem the automobile industries are trying to make new vehicle which can provide high efficiency with low cost. The best way to increase the fuel efficiency is to reduce the weight of the automobile. The weight reduction can be achieved primarily by the introduction of better material, design optimization and better manufacturing processes. The achievement of weight reduction with adequate improvement of mechanical properties has made composite a very good replacement material for conventional steel. In automobile car out of many components one of the components of automobile which can be easily replaced is leaf spring.

LITERATURE REVIEW

HISTORY/ORIGINS:
Over the last thirty years composite materials, plastics and ceramics have been the dominant emerging materials. The volume and number of applications of composite materials have grown steadily, penetrating and conquering new markets relentlessly. Modern composite materials constitute a significant proportion of the engineered materials market ranging from everyday products to sophisticated niche applications. While composites have already proven their worth as weight-saving materials, the current challenge is to make them cost effective. The efforts to produce economically attractive composite components have resulted in several innovative manufacturing techniques currently being used in the composites industry. Unlike conventional materials (e.g. steel), the properties of the composite material can be designed considering the structural aspects. The design of a structural component using composites involves both material and structural design. Composite properties (e.g. stiffness,) can be varied continuously over a broad range of values under the control of the designer. Careful selection of reinforcement type enables finished product characteristics to be tailored to almost any specific engineering requirement.

COMPOSITE MATERIALS:

A composite material is a macroscopic combination of two or more distinct materials, having a recognizable interface between them. Composites are used not only for their structural properties, but also for electrical, thermal, tribological, and environmental applications. Modern composite materials are usually optimized to achieve a particular balance of properties for a given range of applications. Many composite materials are composed of just two phases; one is termed the matrix, which is continuous and surrounds the other phase, often called the dispersed phase. The properties of composites are a function of the properties of the constituent phases, their relative amounts, and the geometry of the dispersed phase.

FIBER-REINFORCED COMPOSITES

The most commonly used composites in which the dispersed phase is in the form of a fiber. Design goals of fiber-reinforced composites often include high strength and/or stiffness on a weight basis. Fiber-reinforced composites with exceptionally high specific strengths and moduli have been produced that utilize low-density fiber and matrix materials.

Material	Longitudinal Tensile Strength (MPa)	Transverse Tensile Strength (MPa)
Glass-polyester	700	20
Carbon (high modulus)-epoxy	1000	35
Kevlar-epoxy	1200	20

LONGITUDINAL AND TRANSVERSE LOADING OF COMPOSITES

HAND LAY UP TECHNIQUE

Hand lay-up technique is the simplest method of composite processing. The processing steps are quite simple. First of all, a release gel is sprayed on the mold surface to avoid the sticking of polymer to the surface. Thin plastic sheets are used at the top and bottom of the mold plate to get good surface finish of the product. Reinforcement in the form of woven mats or chopped strand mats are cut as per the mold size and placed at the surface of mold after Perspex sheet. Then thermosetting polymer in liquid form is mixed thoroughly in suitable proportion with a prescribed hardener (curing agent) and poured onto the surface of mat already placed in the mold. The polymer is uniformly spread with the help of brush. Second layer of mat is then placed on the polymer surface and a roller is moved with a mild pressure on the mat-polymer layer to remove any air trapped as well as the excess polymer present. The process is repeated for each layer of polymer and mat, till the required layers are stacked.

THE POWER OUTPUT OF THE COMBINED CYCLE PLANT WITH OPTIMIZATION OF THE STEAM TURBINE EFFECT OUTPUT QUALITY

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Abstarct: **There is a thin hallway to a feasible arrangement going through the watchful strides to enhance the productivity of the (Resource Management) it gives earth cordial vitality. Warm power plants are more typical in many parts of vitality generation around the world. In this way, in this investigation ebb and flow explore and gave an exhaustive warm model framework consolidated cycle control plant with steam generator warm recuperation double weight. Since the nature of the yield of the steam turbine is highlighted prohibitive, and completed the improvement of three cases with various quality steam and talked about. In dissecting hand, exergy vitality and different segments of each of these three distinct cases evaluated and looked at. The outcomes demonstrate that it is truly imperative to keep up the nature of the steam turbine in a static port to 88% for the outcomes to be more reasonable, and enhanced information and practical and in fact suitable.**

I. INTRODUCTION

Energy is one of the main driving forces, helping to sustain human life. And it is available in various forms, for example, heat, light and electricity. Energy and won considerations on the economic and environmental impact much attention over the past three decades. Energy resources in the market and increasingly lower and higher prices with the progress of the industrial revolution. This is due to several terms reasons such growth of the world economy and depletion of energy resources, and environmental effects of production of this energy. Therefore, these energy issues now threatens many aspects of human life on this planet. existing concerns regarding the transfer of energy from thermal sources of electricity sources. In this sense, the central play a key role in the production of electricity. Among the different types of power plants and power plants combined cycle (CCPP) gained much attention due to the fact that is attractive in power generation due to high thermal efficiency instead of a gas turbine or steam energy individual plants. In addition, they are also important due to the relatively high energy efficiency, low emissions of pollutants and greenhouse gases, and operating Flexibility. The literature on this topic shows that several efforts optimal plant. And it is used to reduce energy consumption and improve annual earnings and other approaches. Unlike energy, exergy is a measure of energy efficiency that can be considered to assess, analyze and improve the system. Exergy analysis is used to determine the maximum system performance and determine its

irreversibility. Therefore, the Exergy is a powerful tool for assessing the performance of the cycle, and is also one of the objectives usually went to the lack of studies of economic, technical and environmental viability. More recently, A set of tools as assessments of exergy, economic and environmental has received increasing attention throughout the term. Therefore, the way that considers all objectives, and offers a practical solution is currently required by the designers of the CCPP factory. In this regard, he conducted several studies [1-8] to investigate the combined cycle, but with some examples of multiple objectives of this plant, which represents the three main issues at one time would have made the best of our knowledge [2]. Exergy analysis is a useful tool to find the sites and the types and amounts of non-real efficiency (irreversibility) and suggest ways to improve overall system efficiency [2.9 to 12]. In the literature, there have been many studies associated exergy analysis of plants. Lior [13] proposed the concept of future power generation systems and the role of exergy analysis in its development. It illustrated some of the ideas to meet the demand for electricity in the light of the limitations of population growth and land use when the environmental impact of holding a bear. The following is Focus on Exergy, which will be essential in the design and development of this type of analysis operations. Finally discusses the surface modification is a generic term that is now applied to a large field of different techniques that can be used to achieve higher pay and improved performance reliability of industrial components. continuous quest to increase efficiency and

STUDY ON LIFECYCLE OF SOLAR PHOTOVOLTAICS POWER SYSTEMS

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ABSTRACT

The usage of sun oriented vitality for power age – fundamentally through Solar PV – is blasting, without a doubt. Since 2000, the worldwide Solar PV industry has developed by around 45% every year all things considered, so introduced limit has been multiplying each a few years. All things being equal, Most places on earth get adequate daylight to make Solar PV an in fact reasonable alternative when combined with some type of vitality stockpiling. Life-cycle investigation is an important device for assessing the natural profile of an item or innovation from support to grave. Such life-

LITERATURE REVIEW

The investigation expands such examinations past the assembling stage and assesses the forthcoming support to-grave life-cycle effects of natural photograph voltaics contrasted and regular ones. Two frameworks (sun oriented housetop exhibit and compact sun powered charger) were outlined how extraordinary item incorporations, span of utilization and transfer courses influence potential natural benefits of natural photovoltaic while educating analysts on the prospects for

cycle examination of vitality advancements are fundamental, particularly as material and vitality streams are frequently mixed, and disparate outflows into the earth may happen at various life-cycle-stages. sun oriented speaks to a little bit of aggregate worldwide power generation.The potential for the use of extra sunlight based vitality – and for sun based to assume an extensive part in worldwide vitality creation – is immense. the natural heap of photovoltaic power age framework (PV) amid its life cycle by vitality payback time (EPT) and Greenhouse Gas outflows are checked on through LCA concentrate to the condition of specialty of the photovoltaic innovations.

proceeded with advancement and scaling-up this innovation.

The consequences of the life-cycle appraisal demonstrated that ecological benefits for natural photovoltaics stretch out past the make of the photovoltaic boards, with gauge support to-grave effects for both long haul utilizes (housetop clusters) and here and now utilizes (convenient chargers) by and large 55% and 70% lower than silicon gadgets, Evident vulnerabilities encompassing the OPV boards are the accepted lifetimes and efficiencies that will

DESIGN AND ANALYSIS OF STEAM BOILER USED IN THERMAL POWER PLANTS

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ABSTRACT

Steam boiler is a shut vessel in which water or other liquid is warmed under pressure and the steam discharged out is utilized for various warming applications. The primary contemplations of an boiler for a specific application are Thermal outline and investigation, Design for fabricate, physical size and cost.

In this postulation the steam stream in steam boiler tube is demonstrated utilizing PRO-E outline programming. The proposal worries with the warm and electronic liquid elements (CFD) investigation with various speeds. Warm examination is done for the steam boiler by steel, stainless steel& brass at various heat exchange coefficient esteems. These heat exchange coefficient esteems are taken from CFD investigation at various speeds.

In this postulation the CFD examination is utilized to decide the warmth exchange coefficient(h), warm or heat exchange rate(Q), mass stream rate(m), pressure drop(p). The thermal examination is utilized to decide the temperature dissemination and warmth transition for various materials. Here the 3D displaying is done in parametric programming Pro-Engineer and examination is done in ANSYS programming.

I. INTRODUCTION

STEAM BOILER: Steam boilers heat water to produce steam, which is then used to generate energy or heat for other processes.

Boilers are utilized to produce steam that at that point gives warmth or power. Water is changed over to steam in the evaporator. This steam goes through the warming device which can be any bit of hardware that requires steam for operation. The cooled steam is then consolidated into water and comes back to the kettle to begin the cycle once more.

Boilers are generally classified in to 2 types, they are

- fire tube boilers

- water tube boilers.

In Fire tube boiler, the hot gasses goes through number of tubes and water surrounds these tubes.

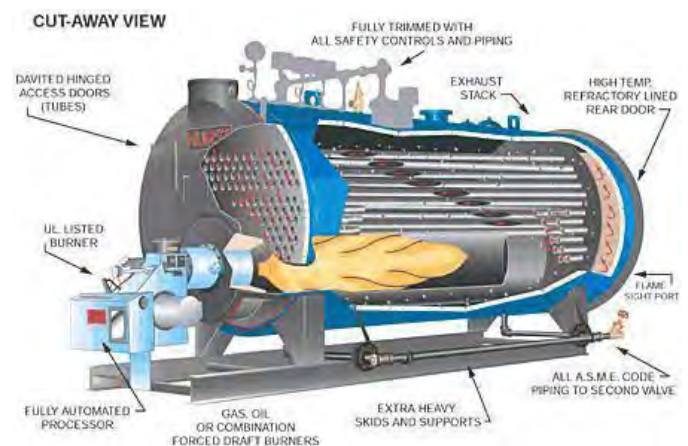In water tube boiler, the water warmed inside and hot gasses encompass these tubes.
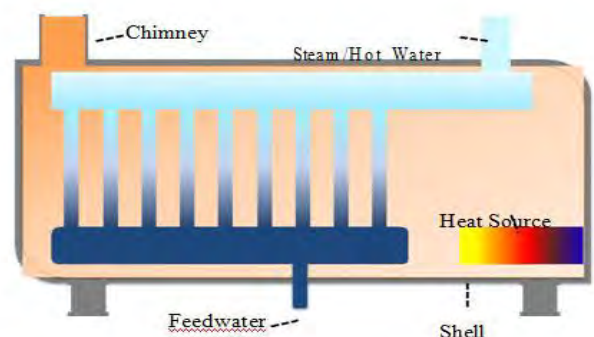

Figure 1 - FIRE TUBE BOILER

Figure 2 - WATER TUBE BOILER

Study of Power Generation from Sewage Water

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Abstract—**This study is concerned with the feasibility of power generation using a hydraulic turbine from sewage flowing in pipes. This study indicates that the connection point have hydraulic potential that can be used for power generation throughout the year. It also demonstrates that the hydraulic turbine can be usefully employed for power generation from sewage flowing in the pipe at the connection points.**

Keywords—Hydraulic turbine, Sewage Power generation, Connection point, Hydraulic potential.

I. INTRODUCTION

Sewage is composed of rainwater and water discharged into sewers by humans and production activities. The sewer system contains wastewater and human waste from houses, offices, and factories. The approximate amount of wastewater generation is about 1800 MLD (Million Liters per Day). However, only 715 MLD of the wastewater can be treated. That's why most of the water is discharged into several lakes or the dry river bed of old Musi-River.

Hussain Sagar Sewage facilities comprise drainage facilities such as sewage pipes, treatment facilities such as treatment plants, and complementary facilities such as pump stations. The above mentioned estimation of the hydraulic energy potential seems to be restricted to the treated water discharged from treatment facilities

It is presumed that hydraulic energy potential is dispersed in sewage pipes around the city. Consequently, the utilization of sewage flowing in drainage facilities (sewage pipes) for power generation promises to realize small-scale distributed power generation, which could contribute to the local production of electric power for local consumption. However, such sewage power generation has never been conducted, and the hydraulic energy potential in the drain- age facilities has not yet been investigated.

In Telangana, hydropower is also receiving much attention because it is a promising renewable energy resource that is largely unaffected by the weather. As large-scale hydroelectric plants having outputs of more than 100 MW require huge dams and long conduits, few locations for such plants remain undeveloped. Thus, there is an increasing desire to realize micro-scale hydraulic power generation with an output of less than 100 kW. Such power generation can utilize small-scale hydropower, which is widely distributed in small rivers and irrigation canals in Telangana. Consequently, several small-scale hydraulic turbines have been developed. Such micro-hydraulic turbines are frequently blocked with foreign matter such as fallen leaves, twigs, and refuse and they occasionally lose their function. A filter installed upstream of the micro-hydraulic turbine can remove the foreign matter. However, such equipment increases the operation cost of micro-hydraulic turbines. We are engaged in the development of a hydraulic turbine with excellent performance in the passage of foreign matter. The runner has a circular hollow around the central axis so that foreign matter can pass through the runner. The efficiency and foreign matter passage performance of this hollow hydraulic turbine are being studied through laboratory experiments and demonstration experiments in a small river. Sewage contains hair and vegetable waste from home bath-rooms and kitchens, as well as human waste. To successfully generate power from sewage, it is essential that the hydraulic turbine is not blocked by foreign matter. Therefore, the hollow hydraulic turbine we are developing promises to be effective for sewage power generation applications.

The objective of this study is to search for possible hydraulic power generation from the sewage flowing in pipes. First, the present study focuses on the Hyderabad Sewerage water; it explores the sewage flow rate at the connection points over the course of a year to clarify the hydraulic energy potential of the sewage. Second, this study investigates the efficiency and foreign matter passage performance of the hollow hydraulic turbine in laboratory experiments that suppose the turbine to be installed in the sewage pipe at the connection points.

1. Flow duration and hydraulic potential of Hyderabad Sewerage

Outline of Hyderabad Sewerage

Development of Layerless Additive Manufacturing Stereolithography Machine to Improve Surface Quality and Dimensional Accuracy

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Abstract: Stereolithography (SLA) is an Additive Manufacturing (AM) process that has recently gained significant popularity in manufacturing research. The material used in SLA is a photocurable resin. SLA fabrication has conventionally been executed in a layered build process, which results in the staircase effect: a common problem in layered manufacturing giving a lower quality part surface due to created cusps on the surface. Manufacturing the part using a continuous build should theoretically eliminate this issue. A methodology for the design, development and calibration of a new layer less additive manufacturing system is introduced in this thesis. The methodology involves synchronizing the display of cross-sectional images with the platform elevation on an SLA machine and finding the optimal parameters in order to obtain a more dimensionally accurate and higher surface quality part. A variety of geometric features are constructed through experiments and their properties are examined to extract the most adequate fabrication parameters. The layer less process was found to reduce the staircase effect and the surface roughness on fabricated parts, as well as improve the ability of the machine to build complex features.

Introduction: Additive Manufacturing (AM) is a popular field of research in engineering, in which three dimensional shapes are constructed by adding material layer by layer (layered manufacturing). It is also commonly known as Three-Dimensional Printing (3DP), which has been an attractive research topic in manufacturing in recent years. There are several applications of 3DP, including but not limited to Fused Deposition Modeling (FDM), Selective Laser Sintering (SLS), Inkjet Printing (IP), Bioprinting (BP), and Stereolithography (SLA) [Gibson et al. 2010]. Demand for improving the surface quality and dimensional accuracy of fabricated three-dimensional parts is consistently increasing. This research pertains to the design and development of a specific SLA AM application, in which near-Ultraviolet (UV) light is used as a radiation source to project images of the cross-sections of a 3D model onto a build plate submerged in photocurable resin [Karsten et al. 2009]. The original setup constructs each layer of an object in sequence and builds parts in a bottom-up process. Layered manufacturing presents a well-known problem in 3DP known as the 2 staircase effect, which results in lower surface quality and can jeopardize the accuracy of manufactured parts. The motivation behind this research

is to develop a solution to avoid the staircase effect resulting from the typical layered manufacturing processes. Surface quality involves the study of surface roughness and must not be improperly associated with surface integrity as having the same definition. Surface quality can include all of surface finish/roughness, waviness and lay of any fabricated surface, whereas surface integrity is the condition of a work piece after being used in a manufacturing process. Some of the parameters affecting surface integrity are tool wear, cutting speed, tool material, coatings, cutting angle and contact area. The challenges to achieve this objective are due to four major limitations in the design and development of the layerless manufacturing process: the material used for part construction, the radiation source used, the graphical device used and the complexity of the part desired, which all affect the capabilities of the machine and are dependent on one another. The material used in this research is MakerJuice Substance G+ photocurable resin, a liquid that hardens when exposed to specific types of light. This hardening is a chemical process also known as curing or photopolymerization. MakerJuice G+ is commercially available and reacts quickly to the light. The radiation source used is several near-UV Light-Emitting Diode (LED) units, rated at 405 nanometres and 3 Watts of power each, since the resin will only cure at wavelengths of 440 nanometres or less. The graphical device used is a monochrome Liquid Crystal Display (LCD) screen, which transfers a fraction of the power of the lights through a displayed shape and penetrates into the resin-filled container onto the build plate. A poor quality screen will transmit much less power, but the monochrome screen transmits five times as much power as multicolor. 3 The build process will take less time to complete and the quality of the part should be better. The optimal amount of time the light is exposed to the part, the exposure time, needs to be determined. In order to avoid the drawbacks of layered manufacturing including the stair-case effect, a layerless SLA system is designed and developed. This requires two tasks: Slicing Process - implementing a program to produce information from the cross-sections of a 3D model from a Stereolithography file (STL), and Dynamic Curing Process - synchronizing the transfer of slicing data with the elevation of the machine platform considering the optimum curing parameters. The input of the slicing process is either a text or binary STL file and the desired output is a video of the desired geometric model, showing its cross-sections for a length specified

EXHAUST MANIFOLD OPTIMIZATION OF BURNING MULTI-CYLINDER IC ENGINE BY USE OF THERMAL ANALYSIS

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Abstract— **Exhaust manifold is one of the critical components of IC engine for improving the volumetric efficiency. The volumetric efficiency of the engine can be increased by reducing the backpressure in the exhaust manifold. This work analyzes the flow through two different models of exhaust manifold using CFD. The design of exhaust manifold is modified to get optimal geometry. The analysis results of two models are compared for back pressure. By comparing the results of two models the decrease in back pressure is found which ensure improvement in volumetric efficiency of the engine.**

Keywords— *Exhaust Manifold, CFD, Multi-Cylinder SI Engine, Back Pressure.*

I. INTRODUCTION

An exhaust manifold collects the exhaust gases from multiple cylinders into one pipe. It is attached downstream of the engine and is major relevance in multi-cylinder engines where there are multiple exhaust streams that have to be collected into a single pipe. When an engine starts its exhaust stroke, the piston moves up the cylinder bore, decreasing the total chamber volume. When the exhaust valve opens, the high pressure exhaust gas escapes into the exhaust manifold or header, creating an exhaust pulse comprising three main parts: The high pressure head is created by the large

pressure difference between the exhaust in the combustion chamber and the atmospheric pressure outside of the exhaust system. As the exhaust gases equalize between the combustion chamber and the atmosphere, the difference in pressure decreases and the

exhaust velocity decreases. This forms the medium-pressure body component of exhaust pulse. The r e ma i n i n g exhaust gas fo rms the lo w pressure tail component. This tail component may initially match ambient atmospheric pressure, but the momentum of the high and medium pressure components reduces the pressure in the combustion chamber to a lower than atmospheric level . This relatively low pressure helps to extract all the combustion products from the

cylinder and induct the intake charge during the overlap period when both intake and exhaust valves are partially open. The effect is known as scavenging. Length, cross-sectional area, and shaping of the exhaust ports and pipe works influences the degree of scavenging

effect. *Seenikannan et al.* [1] analyzed a Y section exhaust manifold system experimentally to improve engine performance. This paper investigates the effect of using various models of exhaust manifold on CI engine performance and exhaust emission. *Yasar Deger et.al* [2] had done CFD-FE-Analysis for the Exhaust Manifold of a Diesel Engine aiming to determine specific temperature and pressure distributions. The fluid flow and the heat transfer through the exhaust manifold were computed correspondingly by CFD analyses including the conjugate heat transfer. *Dr. Kutaiba et.al* [3] made an approach to estimate of flow characteristic in inlet and exhaust manifolds of internal combustion engines using a four-stroke variable compression ratio single cylinder gasoline engine. In the experimental work, the compression ratio was varied from 7 to 11 at variable speed with constant throttle opening, where engine performance was obtained. *Scheeringa* [4] studied analysis of Liquid cooled exhaust manifold using CFD. Detailed information of flow property distributions and heat transfer were obtained to improve the fundamental understandings of manifold operation. A number of computations were performed to investigate the parametric effects of operating conditions and geometry on the performance of manifolds. *Gopal et al.* [5] has conducted experimental analysis of flow through the exhaust manifold of a multi cylinder Petrol engine of a contessa engine of 20 hp at maximum speed of 2000 rpm and then analyzed using FLUENT [1].

II. BACK PRESSURE

Back pressure usually refers to the pressure exerted on a moving fluid by obstructions against its direction of flow. Back pressure caused by the exhaust system of an automotive

Modeling,Manufacturing and Analysis Of Crankshafts Using Ansys

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Abstract—**The crankshaft is the part of an engine that translates reciprocating linear piston motion into rotation. To convert the reciprocating motion into rotation, the crankshaft has "crankpins", additional bearing surfaces whose axis is offset from that of the crank, to which the "big ends" of the connecting rods from each cylinder**

It typically connects to a flywheel to reduce the pulsation characteristic of the four-stroke cycle, and sometimes a torsional damper at the opposite end, to reduce the torsional vibrations often caused along the length of the crankshaft by the cylinders farthest from the output end acting on the torsional elasticity of the metal

In this project Static and Modal Analysis was done on crankshafts of single cylinder four stroke engines by using Steel En36 and Cast iron Alloy. Static element analysis was performed on Crankshaft to obtain the Deformation and Stress at critical locations. Modal Analysis was done on the Crankshaft to obtain Mode Shapes and Natural Frequency of the crankshaft

Index Terms- **crankshaft, crankpins, cylinder, flywheel, Modal Analysis**
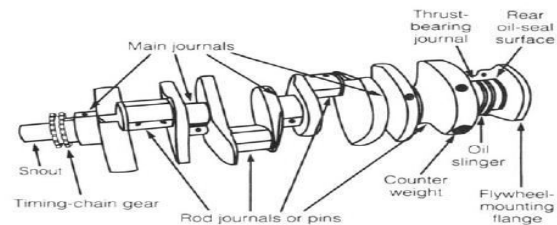
I. INTRODUCTION

Crank shaft is a large component with a complex geometry in the I.C engine, which converts the reciprocating displacement of the piston to a rotary motion with a four bar link mechanism. Crankshaft consisting of shaft parts, two journal bearings and one crankpin bearing. The Shaft parts which revolve in the main bearings, the crank pins to which the big end of the connecting rod are connected, the crank arms or webs which connect the crank pins and shaft parts. In addition, the linear displacement of an engine is not smooth; as the displacement is caused by the combustion chamber therefore the displacement has sudden shocks. The concept of using crankshaft is to change these sudden displacements to as smooth rotary output, which is the input to many devices such as generators, pumps and compressors. It should also be stated that the use of a flywheel helps in smoothing the shocks. Crankshaft experiences large forces from gas combustion. This force is applied to the top of the piston and since the connecting rod connects the piston to the crank shaft, the force will be transmitted to the crankshaft. The magnitude of the forces depends on many factors which consist of crank radius, connecting rod dimensions, and weight of the connecting rod, piston, piston rings, and pin. Combustion and inertia forces acting on the crankshaft. 1. Torsional load 2. Bending load. Crankshaft must be strong enough to take the downward force of the power stroke without excessive bending so the reliability and life of the internal combustion engine depend on the strength of the crankshaft largely. The crank pin is like a built in beam with a distributed load along its length that varies with crank positions. Each web is like a cantilever beam subjected to bending and twisting. 1. Bending moment which causes tensile and compressive stresses. 2. Twisting moment causes

shear stress. There are many sources of failure in the engine one of the most common crankshaft failure is fatigue at the fillet areas due to the bending load causes by the combustion. The moment of combustion the load from the piston is transmitted to the crankpin, causing a large bending moment on the entire geometry of the crankshaft. At the root of the fillet areas stress concentrations exist and these high stress range locations are the points where cyclic loads could cause fatigue crank initiation leading to fracture.

II. MOTIVATION AND OBJECTIVES OF THE STUDY

This study was motivated by a need for a comparative study of forged steel and ductile cast iron crankshafts, which are the most commonly, used manufacturing processes for an automotive crankshaft. In addition, it was desired to develop an optimized geometry, material, and manufacturing procedure which will reduce the weight of the forged steel component for fuel efficiency and reduce the manufacturing cost due to high volume production of this component. In this section, these two competing manufacturing processes are explained and compared.This is followed by the optimization study of the forged steel crankshaft .The optimization process started with geometry optimization and was completed by considering modifications to the manufacturing process and using alternative materials.

A. Modification to Manufacturing Process

As the next step for the optimization study it is tried to modify the production steps in order to reduce the cost or improve the performance of the current crankshaft. Further improvement of the performance could result in more geometry changes and weight reduction. The optimization in this section was investigated by considering adding compressive residual stress to the fillet area of the crankpin. Due to lack of experimental information, the magnitude of the residual stress that could be induced in the studied crankshaft geometry is not identified. It was shown in the studies by Kamimura , Park et al. and Chien et al. , as discussed in inducing compressive residual stress increases the fatigue strength of the crankshaft. Therefore, adding compressive residual stress on the fillet area of the current crankshaft increases its fatigue strength by 40% to 80% based on the material properties, crankshaft geometry, and applied rolling force. Effect of nitriding as a surface hardening process was discussed in the literature review in Section 2.5. Since the nitriding process is time consuming in comparison with other heat treatment processes, it was not considered as a modification to manufacturing

EVALUATION OF THE STATE OF STRESS AT THE MIDDLE OF DAMAGED PLATE

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ABSTRACT:

There are two, parallel ways to investigate the geometry effect on fracture toughness: experimental and computational analysis, the latter referring often to Finite Element Method (FEM). This investigation is at the middle of damaged plate of a finite length. Basically state of stress is calculated here analytically and computationally. ANSYS 11.0 is used as a computational tool. For different values of same pressure, state of stress is calculated and then compared with analytical results and good agreement is noted between both approaches.

Keywords: State of stress, Damaged length, Middle of Damaged Plate, ANSYS, and FEM.

1. INTRODUCTION

Fracture mechanics is a branch of science involving with micromechanics and strength of materials. Fracture mechanics is applied in order to obtain the fracture parameters of a cracked components or specimens, creating a singular stress field at the tip of the crack. Fracture toughness describes the ability to resist fracture and depends on component dimension, loading and material properties at the operating conditions. Problems are encountered with the size requirement. Usually low strength materials have high fracture toughness and so the minimum required specimen size for those materials may be very large, in some cases of the order of several meters. This leads to the need of larger testing machines which increases costs. On the other hand, in some cases the specimen size is limited due to manufacturing process or material availability. The stress intensity factor, K, is used in fracture mechanics to predict the stress state ("stress intensity") near the tip of a crack caused by a remote load or residual stresses. It is a theoretical construct usually applied to a homogeneous, linear elastic material and is useful for providing a failure criterion for brittle materials. The concept can also be applied to materials that exhibit small-scale yielding at a crack tip. The magnitude of K depends on sample geometry, the size and location of the crack, and the magnitude and the modal distribution of loads on the material.

2.LITERATURE REVIEW

To describe the behaviour of the crack growth the first milestone was set by Griffith [1] in his famous 1920 paper that quantitatively relates the flaw size to the fracture stresses. However, Griffith's approach is too primitive for engineering applications and is only good for brittle materials. For ductile materials, the milestone did not come about until Irwin developed the concept of strain energy release rate G in 1950s.When the strain energy release rate reaches the critical value, the crack will grow. Later, the strain energy release rate was replaced by the stress intensity factor K with a

MODELING AND STRUCTURAL ANALYSIS OF SPUR GEAR TOOTH WITH DIFFERENT MATERIAL

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ABSTRACT

Rigging is a standout amongst the most basic part in a mechanical power transmission framework, and most modern turning hardware The target of this proposal is to consider the different anxiety condition of apparatus tooth. The most widely recognized methods for transmitting power is Gears in the wooden mechanical world. They shift from a modest size utilized as a part of watches to bigger riggings utilized as a part of huge speed reducers, connect lifting system and rail street turn table drive. The riggings are key components of fundamental and helper instrument in many machines, for example, autos, tractors, metal cutting machine apparatuses moving factories facilitating and transmitting and transporting hardware, monstrous motors and so forth. In this venture outfit tooth is demonstrated in Ansys with separate measurements. Static investigation is carried on the tooth with the characterized material properties. Distortion, Stresses and vonmises stress will be shaped.

INTRODUCTION

Gears are ordinarily utilized for transmitting power. They grow high anxiety focus at the root and the point of contact. The weariness disappointment of apparatus tooth happens because of the rehashed worrying on the filets. A limited component model of Spur equip utilized as a part of the headstock of Lathe machine for control transmission is considered for investigation

The most astounding anxiety happens at two areas:

1. For the most part At contact point, where the power F acts and

2. At the filet locale close to the base of the tooth.

The surface disappointments happening chiefly because of contact weakness are setting and scoring. It is a wonder in which little particles are expelled from the surface of the tooth because of the high contact focuses on that are available between mating teeth. In reality the weakness disappointment of the tooth surface is Pitting. Hardness is theessential property of the rigging tooth that gives imperviousness to setting. At the end of the day, setting is asurface wearinessdisappointment because of numerousredundancies of high contact push, which happens on adapt tooth surfaces when a couple of teeth is transmitting power .Gear teeth bombs because of contact. Weakness is a typical marvel watched. Contact disappointment in gears is presently anticipated by contrasting the computed Hertz contact worry with tentatively decided admissible esteems for the given material. The technique for ascertaining gear contact worry by Hertz'scondition initially determined for contact between two barrels. The Hertz conditions talked about so far can be used to figure the contact stresses which win if there should arise an occurrence of tooth surfaces of two mating goad gears. In spite of the fact that an estimation, the contact parts of such riggings can be taken to be proportionate to those of barrels having similar radii of ebb and flow at the contact point as the heap transmitting gears have sweep of ebb and flow changes persistently if there should be an occurrence of involutes bend, and it changes pointedly in the region of the base circle.

Types of Gear:
- ➢ Spur Gear
- ➢ Helical Gear
- ➢ Spiral Gear
- ➢ Involute Gear

FINITE ELEMENT METHOD

Step by Step Procedure:
1. Discretization of the area
2. Fundamental Element Shapes
3. Size of Elements
4. Area of Nodes
5. Number of Elements

Advantages:
1. The utilization of partitioned sub locales or limited components for the trail arrangements allows a more prominent adaptability in considering continuation of complex shape.
2. As the limit conditions don't go into conditions for the individual limited components, one can utilize a similar field variable for both inner and limit

Transient Thermal Analysis of I C Engine Exhaust valve

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Abstarct: **I C motors deliver deplete gasses at high temperatures and weights also. These hot gasses additionally go through the fumes valve, and the temperature valve, the valve situate, the power increment. To stay away from any harm to the fumes valve, and the warmth is exchanged from the fumes valve through the distinctive parts, particularly the consideration of the valve situate amid the cycle of opening and shutting since contact each. In this article, it is of restricted utilize component technique for displaying the fumes valve transient warm investigation. They are acquired from the temperature dispersion, warm and coming about weight in both opening and shutting. It conducts point by point investigation to gauge the limit states of the inside ignition motor. The model incorporates the fumes valve seat, manual, and spring. Investigation proceeds until the enduring condition of the state. In this examination, ANSYS and works for demonstrating and investigation of the fumes valve. It has been the improvement of an approach for dissecting the warm transient of the fumes valve.**

I. INTRODUCTION

With the depletion of conventional sources of fuel at a tremendous rate and increasing environmental pollution it has stimulated extensive research on alternative fuels and engine design. Development work oriented good fuel economy and low consumption of exhaust emissions often change the operating parameters, which is time and money consuming method. Instead of a simulation engine with a mathematical model it can easily be done to evaluate the effects of design changes in the operating parameters in a short period of time and inexpensive device. Modeling is a simple representation of complex real-world problem. Almost all real-world phenomena are complex and may take some simplifications. It is required to develop the simplest possible model, which includes the main features of this interesting phenomenon. Many models have been developed by many researchers to solve the combustion process is a complex homogeneous diesel [1-5]. Due to the complexity of engine operations and understanding it is not enough at a basic level, most incomplete engine models. The models used for design purposes, a complete understanding of the operations and to predict the behavior over a wide range of engine operating conditions. Theoretical models used in the case of internal combustion engines can be classified into two main groups: thermal models and models of fluid dynamics. Thermal models are mainly based on the first law of thermodynamics are used to analyze the performance characteristics of the engines. The pressure, temperature and other conditions necessary for the evaluation of crank angle or time characteristics. Engine friction and heat transfer is taken into account using The mathematical equations that were obtained from the experiments. These models are classified into two groups of an area, multi zone models and models. On the other hand, multi-zone models also computational fluid dynamics models is called. They are based on a numerical calculation of the equations of mass, momentum and energy and the preservation of species in any one or two or three dimensions for following the spread of flame or combustion front inside the combustion chamber of the engine. Two zone model is the burn area is one containing the pure air and the other consists of products of fuel combustion and calls burn area. And apply the first law of thermodynamics and equations of state in each of the two regions for the production of cylinder temperature and the change of the cylinder pressure. Using the model of two combustion zones has been the determination of the parameters of combustion and the formation of chemical Imbalance. Multidimensional models need information in detail many of the phenomena and calculating a timeline. A simple model area but does not account for the heterogeneity of diesel engines. Therefore, it is reasonable to choose the Bmntqtin model are simple and require a reasonably computer time. Defines biodiesel as fatty acid monoalkyl esters derived long chain vegetable oils or animal fats. It was observed from the literature [6-8] that the use of biodiesel in diesel engine results in a slight decrease in the strength of the brakes and a slight increase in fuel

MODELING AND STRUCTURAL ANALYSIS OF SPINDLE

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ABSTRACT
In modern machine tool applications the performance of a machine tool is judged by its strength. The machine tool spindle has a profound impact on the overall machine performance. The work presented here provides machine tool spindle designers to develop spindles that are sufficiently stiff to meet their need.

In this we are using the dynamic analysis and the static analysis is use to calculate the deflection of spindle-bearing system. This analysis is to find out the deflections, stress induced.
and the frequencies of the mode shape for both steel material and 20MnCr5 material in machine tool spindle. This project is on the application of computer aided analysis using finite element method. The boundary conditions, loads, material properties are added according as per the design. The resultant of the deformation and stresses and the frequency of mode shapes obtained are reported and discussed

CHAPTER 1
INTRODUCTION

1.1 Introduction about spindle

In machine tools, a **spindle** is a rotating axis of the machine, which often has a shaft at its heart. The shaft itself is called as a spindle, but also, in shop-floor practice, to refer to the entire rotary unit, including not only the shaft itself, but its bearings and anything attached to it (chuck, etc.)

A machine tool may have several spindles, mainly the headstock and tailstock spindles on a bench lathe. The main spindle is usually the biggest one. References to "the spindle" without further qualification imply the main spindle. Some machine tools that specialize in high-volume mass production have a group of 4, 6, or even more main spindles. These are called **multi spindle** machines. For example, gang drills and many screw machines are multi spindle machines. A bench lathe has more than one spindle (counting the tailstock), it is not called a multi spindle machine; it has one main spindle.

Examples of spindles include:

- On lathe machine (whether wood lathe or metal lathe), the spindle is the heart of the headstock.
- In rotating-cutter wood working machinery, the spindle is the part on which shaped milling cutters are mounted for cutting features (such as rebates, beads, and curves) into the mould sand similar millwork.
- Similarly, in rotating-cutter metalworking machine tools (such as milling machines and drill press), the spindle is the shaft to which the tool (such as a drill bit or milling cutter) is attached.
- Varieties of spindles include grinding spindles , electric spindles, machine tool spindles, low-speed spindles, high speed spindles, and more.

Machine tool spindles are rotating components that are used to hold and drive cutting tools or work pieces on lathes, milling machines and other machine tools. They use belt, gear, motorized, hydraulic or pneumatic drives and are available in a variety of configurations. For example,
Cartridge assemblies are housed in a stationary enclosure while angled spindles are configured to allow right angle or adjustable tool rotation. Some machine tool spindles are housed in a solid block or box-like housing. Others are bolted down via flanges or feet at the bottom of the housing.
Most machine tool spindles that fit the heads of cutting tools feature a Morse taper or other standardized machine tool taper. Multiple spindle heads are used to speed machining operations and in repetitive precision work such as close-tolerance center holes. A variety of bearing types are used with machine tool spindles.
Selecting machine tool spindles requires an analysis of performance specifications, tool mounting, and spindle features. Performance specifications include:

- Operating speed
- Spindle power
- Maximum torque
- Input voltage

Tool mounting measurements such as outer diameter (OD) and inner diameter (ID) are measured in either English units such as inches or metric units such as centimeters.

DESIGN AND ANALYSIS OF COMBUSTION CHAMBER IN I.C ENGINE

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ABSTRACT

Inside ignition motors are seen each day in autos, trucks, and transports. The name inside ignition alludes additionally to gas turbines aside from that the name is typically connected to responding inward ignition (I.C.) motors like the ones found in ordinary cars. There are essentially two sorts of I.C. start motors, those which require a start plug, and those that depend on pressure of a fluid. Start motors take a blend of fuel and air, pack it, and light it utilizing a start plug. In this proposal, the ignition chamber is composed by the ic motor determinations and broke down for its warmth exchange rate utilizing Finite Element investigation programming ANSYS. Displaying will be done in CREO parametric programming. CFD investigation to decide the weight drop, speed, warm exchange rate and mass stream rate with distinctive liquids (ethanol, methanol, ethylene, Propyl and gasoil).Thermal examination is to decide the warmth exchange rate per unit zone i.e. warm motion and temperature dissemination for two materials steel and cast iron.
Keywords: Internal combustion, CREO, ANSYS 14.5

1. INTRODUCTION:

ICEs typically comprise reciprocating piston engines, rotary engines, gas turbines and jet turbines. The combustion process increases the internal energy of a gas, which translates into an increase in temperature, pressure, or volume depending on the configuration. In an enclosure, for example the cylinder of a reciprocating engine, the volume is controlled and the combustion creates an increase in pressure.

In a continuous flow system, for example a jet engine combustor, the pressure is controlled and the combustion creates an increase in volume. This increase in pressure or volume can be used to do work, for example, to move a piston on a crankshaft or a turbine disc in a gas turbine. If the gas velocity changes, thrust is produced, such as in the nozzle of a rocket engine.

DESIGN OF MAIN LANDING GEAR AND STRESS ANALYSIS

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ABSTRACT

The Landing gears of an aircraft forms an integral part of the aircraft structure. This is a complex structure capable of transferring large aircraft loads on to the ground. It is one of the mission's most critical part and is also the component that will causes the most trouble in aircraft design. Main load carrying member of landing gear "Leg" is considered for the design and analysis. The estimated loads acting on the Main Leg are analyzed for different Ground loads data.CAD Model is generated by using CATIA modeling tool for FEM analysis. Ground Loads are evaluated by using empirical formulae as per MIL guidelines. These evaluated loads are used as an input loads to carry out Finite Element Analysis (FEM). Stress analysis is carried out by using Patran software for different Ground loads. For different Ground loads, reaction at each component of Landing gear is also calculated by making free body diagram and by using moment arm method.The design of LEG has been validated by estimating the stresses experienced by the leg for given load conditions. Factor of Safeties & reserve factor were calculated against yield strength and UTS established from FE results. Factor of Safety obtained from the analysis are found to be within the acceptable levels and hence the design of the Leg is safe with respect to strength requirement.

Introduction

In aviation, the undercarriage or landing gear is the structure (usually wheels) that supports an aircraft on the ground and allows it to taxi. Landing gear usually includes wheels equipped with shock absorbers for solid ground, but some aircraft are equipped with skis for snow or floats for water, and/or skids. Landing Gear is a complex structure capable of reacting the largest local loads on the aircraft. Its function is to convert a relatively airborne vehicle into a rather awkward and clumsy ground vehicle. In one brief moment, the landing gear must make the best of returning the aircraft from its natural environment to hostile environment – the earth.

Landing Gear Purpose

The purpose of landing gear is

- To absorb horizontal and vertical energy during touchdown
- Facilitate ground maneuver
- Stop the aircraft during runway operation
- Provide adequate tail down angle for takeoff rotation
- To provide the aircraft with stable support while on the ground.

Additionally, landing gear enables the aircraft to roll up to its take-off position and to take off without the use of a launching catapult trolley, as well as to carry its own means of retaining forward motion, or braking, without resort to external arresting equipment.

The landing gear of an aircraft supports it during ground maneuvering operations, by providing a suitable suspension system and also cushions the landing impact. It features a shock strut, which dissipates the kinetic energy associated with the vertical velocity on landing, and provides ease and stability for ground maneuvering.

Types of landing gears

There are two basic types of landing gear:

1. Cantilever (Telescopic)
2. Articulated.

A Cantilever configuration is most widely used, and it is without question the most cost and weight efficient. The name comes from the fixit of shock strut cylinder to aircraft. It supports drag and side loads An Articulated gear finds application where the ground clearance is low, or where stowage is limited. It offers maintenance advantage, since the shock strut can be removed in

THERMAL TRANSIENT ANALYSIS OF FINS WITH DIFFERENT PROFILES

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ABSTRACT

Consideration of FIN in Heat transfer mostly depends on Space, cost consideration, manufacturing techniques, weight and thermal characteristics. In the present study, a detailed work has been carried out to develop a finite element methodology to estimate the temperature distribution for transient heat transfer and thermal stresses induced. Finite element method (FEM) was used to compute the temperatures. An extensive study was carried out using ANSYS, a powerful platform for finite element analysis.

Transient analysis is carried out for the fins of different profiles under the convection and a specified base temperature condition. Thermal conductivity of the fin material is specified. A constant temperature condition is applied at the base of the fin. Comparative study is being done among the fins of different profiles to find out the best profile under the conditions. In results temperature distributions at different times at a node, temperature distributions along the fin, thermal stress distribution of thermal gradients and heat flux values of fin for different profile sections were discussed and reported.

CHAPTER - 1
1. INTRODUCTION

Fins are extended surfaces which can provide a considerable available area for heat transfer between a solid and a fluid. For proper prediction and control of the fin performance, It is essential to perceive the temperature distribution of fins under transient or unsteady thermal condition for proper prediction and control of the fin performance.
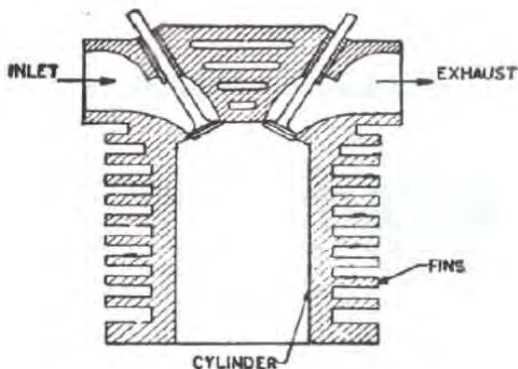
Fig: 1.1 Fins

1.1 Fin

In the study of heat transfer, fins are surfaces that extend from an object to increase the rate of heat transfer to or from the environment by increasing convection.

The amount of conduction, convection, or radiation of an object determines the amount of heat it transfers. Increasing the temperature gradient between the object and the environment, increasing the convection heat transfer coefficient, or increasing the surface area of the object increases the heat transfer. Sometimes it is not feasible or economical to change the first two options. Thus, adding a fin to an object increases the surface area and can sometimes be an economical solution to heat transfer problems.

1.2 TYPES OF FINS

- RECTANGULAR FINS
- TRIANGULAR FINS
- CIRCULAR FINS
- PIN FINS
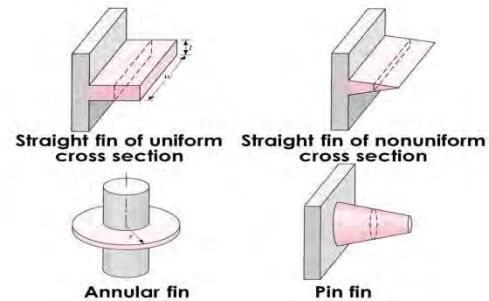
Fig: 1.2 Types of fins

SPECIAL CASES:

Consider 3 cases of constant area fins

- Specified temperature at base, semi-infinite fin
- Finite fin, specified temperature at the base, insulated tip
- Finite fin, specified temperature at the base, heat transfer at the tip

1.3. APPLICATIONS OF FINS:

Air-cooled heat exchangers, variety of sensible, condensing, and boiling services in shell and tube exchangers

Research Paper

DESIGN AND STRUCTURAL ANALYSIS OF COMPOSITE LEAF SPRING

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ABSTRACT

Reducing weight while increasing or maintaining strength of products is getting to be highly important research issue in this modern world. Composite materials are one of the material families which are attracting researchers and being solutions of such issue. In this paper we discuss the design parameters and analysis of composite leaf spring.

The objective is to compare the stresses, deformations and weight saving of Composite Leaf Spring with that of Steel and Aluminum Leaf Spring. The design constraint is stiffness. The Automobile Industry has great interest for replacement of steel leaf spring with that of composite leaf spring, since the composite materials has high strength to weight ratio, good corrosion resistance.The materials selected were Glass Fiber Reinforced Polymer (E-glass Epoxy), steel and Aluminum. The design parameters were selected and analyzed with the objective of minimizing weight of the Composite Leaf Spring as compared to the Steel Leaf Spring and Aluminum Leaf Spring.

1.0 INTRODUCTION

Semi-elliptic leaf springs are almost universally used for suspension in light and heavy commercial vehicles. For cars also, these are widely used in rear suspension

The spring consists of a number of leaves called blades. The blades are varying in length. The blades are us usually given an initial curvature or cambered so that they will tend to straighten under the load. The leaf spring is based upon the theory of a beam of uniform strength. The lengthiest blade has eyes on its ends. This blade is called main or master leaf, the remaining blades are called graduated leaves. All the blades are bound together by means of steel straps.

The spring is mounted on the axle of the vehicle. The entire vehicle load is rests on the leaf spring. The front end of the spring is connected to the frame with a simple pin joint, while the rear end of the spring is connected with a shackle. Shackle is the flexible link which connects between leaf spring rear eye and frame. When the vehicle comes across a projection on the road surface, the wheel moves up, this leads to deflecting the spring. This changes the length between spring eyes.

1.1 Suspension System

The automobile chassis is mounted on the axles, not direct but some form of springs. This is done to isolate the vehicle body from the road shocks, which may be in the form of bounce, pitch, roll or sway. These tendencies give rise to an uncomfortable ride and also cause additional stress in the automobile frame anybody. All the part, which performs the function of isolating the automobile from the road shocks, is collectively called a suspension system. It includes the springing device used and various mountings for the same.

Broadly speaking, suspension system consists of a spring and a damper. The energy of road shock

causes the spring to oscillate. These oscillations are restricted to a reasonable level by the damper which is more commonly called a shock absorber.

1.2 Objective of Suspension

2.   To prevent the road shocks from being transmitted to the vehicle components.
3.   To safeguard the occupants from road shocks.
4.   To preserve the stability of the vehicle in pitting or rolling, while in motion.

1.3 Types of Leaf Springs

Fig: Types of leaf springs

STUDY ON INCREMENTAL SHEET METAL FORMING

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ABSTRACT

Unique ISF (incremental sheet metal forming) has superb flexibility to customary processing machines and requires least utilization of complex tooling, dies and shaping press, which influences the procedure to savvy and simple to computerize for different applications. It is a method which utilizes CNC apparatuses to form sheet metals. The technique isn't relevant for large scale manufacturing yet observed to be extremely valuable in little group quality creation. This paper gives the data on essentials of incremental sheet metal forming, impact of different parameters, for example, step size, Tool radius and forming angle. This examination likewise incorporates the applications and points of interest of ISF in different fields.

Keywords: Incremental sheet forming (ISF), Tool radius and forming angle.

INTRODUCTION

Besides being a noteworthy industry, metal framing is the foundation of current manufacturing industry. It is a mass maker of semi-completed and completed products, which is practical to embrace innovative work ventures. Roll forming and Deep drawing illustration being the most prevalent sheet metal shaping procedure were found for the prerequisites of large scale manufacturing. For both small batch and prototype productions the design of heavy die and punches is only misuse of material, time and money. Another creation strategy called incremental sheet forming (ISF) is being produced to repay these three factors.

Incremental sheet forming is a procedure for deforming sheet metals by the localized deformations.These disfigurements are continued by the utilization of well ordered incremental encourage to the deforming tool.

FUNDAMENTAL SETUP OF ISF:

Simple geometry tool is mounted on a CNC machine having three degrees of freedom (X, Y and Z hub). The sheet is

The CFD Analysis Of Engine Combustion Characteristics

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***Abstarct:* Computational fluid dynamics code (CFD) Fluidity used to model the compound The phenomenon of combustion pressure Engine ignition. Temperature profile and nitrogen oxides Produced within the combustion chamber Compared with traditional jatropha Diesel.The simulation results obtained Experimentally verified for both jatropha and test conventional diesel diesel engines. Simulation is fluid in use Ansys- Mixture combustion model is to respond to the real needs The parameters in the combustion cylinder.Two Combustion chamber dimensions network simulation distortion is used.**

Keywords—CFD Analysis,combustion,fluidity,jatropha   diesel, simulation

I.   INTRODUCTION

Since the beginning of civilization, it has provided the combustion of fuels for most of our energy needs. Tgreater still providing 70% [3] of its current capacity of the planet. Therefore, combustion technology remains the main energy in the foreseeable future. The combustion phenomenon is the conversion of the energy trapped in various types of chemically fuel heat model (and light). This energy can be used to increase the generation of steam and electricity, Tricity, heating, transport and cooking area, and many other applications. It can happen fuel used in domestic and industrial equipment combustion in any of the three phases that occur naturally (solids, liquids and gases). This fuel must react with oxygen, which occur in gaseous form. But also it must be converted into gaseous form before undergoing combustion reactions. This conversion occurs through evaporation of the liquid fuel or solid fuel outgassing at high temperatures.

At the molecular level, which can be of two reagents undergo a change in electronic form to form or break the links leading to a chemical reaction. They have to be thoroughly mixed and Esna implementation cient combustion. Therefore bringing the two reactants, namely. Fuel and oxygen, in proximity to each other at the molecular level, forming part of the challenge for the design of any combustion equipment. Research hill experience provides useful data that can be used in the design of this equipment in trying to theoretical developments to explain the experimental behavior BE-observed. Numerical simulations give predictability needed for the design of combustion systems. And the use of experimental results and theoretical and proposals on the development of numerical simulation successfully. Most fuels used in combustion applications are a mixture of several chemical types. Each of these species reacts with oxygen to release its own heat reemployment. Such reactions do not occur, such as the process from step one, but make up many of the initial steps involving many intermediate species. All these steps intermediate

species necessary to understand the behavior of fuel

combustion. Several decades of research have achieved mathematical and numerical method .For treatment of the complex nature of chemical reactions. These include the disarmament of the kinetic model of chemical glue, accounts balance and solving equations of balance of species in the simple flow

equipment. The fluid flow may have additional properties, such as compressible, swirling, and is stable with respect to time or any of the groups from above. Ff flow characteristics ect shape and extent of the fuel particles and oxidant contact one another. Therefore, in addition to know the details of the chemistry and behavior of operations problems, it is also necessary to have the descriptive approach to simulate the interactions between the two countries (viz. The chemical interaction agitation). combustion reactions often result in many contaminants such as soot, nitrogen oxides and sulfur oxides. an accurate prediction of these contaminants that all details of the chemical reactions are inserted into the flow simulation is required. This becomes a turbulent flow cases integrals. And it can be used to simulate the response of simplistic give good results with respect to the release of heat patterns approach and flow but not grasp the ignition delay and the formation of pollutants time details. Along similar lines, can be complex shapes (such as Monte Carlo) modeling turbulent flow is also to be exhaustive. There are several methods for modeling the precise details of agitation alone, and chemical reactions, and there alone, and the development of a simplified plan the previous days more complex and intensive studies numerically latter approach. He described some of them in the following chapters. However, its design and following thoughtful and optimization in the industry today, and the balance of accuracy is required for an account. Approach that focuses on a single detail of this phenomenon can be misleading or does not serve the general purpose of simulation studies

II. LITERATURE REVIEW

The Process work in a simulation of the combustion process in diesel engines compression ignition (CI) using low ILDM mechanism automatically using technology in the three-dimensional model CFD. While the conditions in the diesel engine online characterized by high pressure and temperature, and a similar approach can be used to simulate the combustion process it is similar to mixing systems.

DESIGN, COMPARISON AND THERMAL ANALYSYS OF PIN FINS IN A WEDGE DUCT

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ABSTRACT

This project titled "Design, comparison and thermal analysis of pin fins in a wedge duct" presents design, numerical comparison of the flow and heat transfer characteristics of circular and elliptical in line pin fins in a wedge duct with different types of coolants. Pin fins at the trailing edge of the turbine blade connecting the upper end wall and lower end wall , con not only effectively improve the heat transfer rate, but also improves the strength of the blade trailing edge. Blade cooling improves the overall efficiency and improve the power output of the turbo engine. Because proper blade cooling can increase the turbine inlet temperature, since blade can withstand more temperature. Here in this project we are studying the effect of air and steam as coolant. Analysis done at two different duct Reynolds number. Geometric model of elliptic and circular pin fins was created by CATIA V5 and mesh generated using ANSYS ICEM-CFD. Required results are obtained with the help of ANSYS CFX-15:0. Validation of the numerical results obtained in this project is done with the help of experimental results published by J.J.Hwang and C.C.Lui in 2001. This project result is showing that elliptical pin having better thermal performance when compared with circular pin fins.

KEY WORD-Pin fin cooling

I. INTRODUCTION

I.1 BLADE COOLING

Blade cooling is the most effective way of maintaining high operating temperatures making use of the available material. Based on the cooling site blade cooling is classified as external cooling and internal cooling. According to the cooling medium it is classified as liquid cooling and air cooling [1].
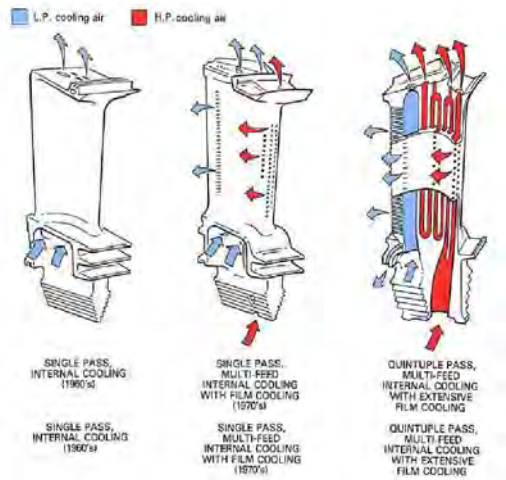
I.2 PIN FIN COOLING

Trailing edge of the blade is very thin in nature, so cooing in this area is very complicated. Here comes the use of pin fin technique, which helps in cooling of the turbine blades trailing edge area.

Pin fins are designed in such a way that, it is connecting the upper end walls and the lower end walls. Implementation pin fin at the trailing edge of the turbine. Blade, not only increase the internal heat transfer but also increase the strength of the blade, mainly at the trailing edge. Trailing edge region of the blade is in a form of wedge, since the blade is designed in such a way that to increase the aerodynamic efficiency. Blade thickness is gradually reducing from the leading edge to the trailing edge. Coolants first flowing through the wedge trailing edge with pin fin cooling and eject at the slot of the trailing edge. Thereafter this coolant mixes with the main stream. Here heat transfer characteristics in a convergent pin fin channel are analyzed. Trailing edge portion of a gas turbine engine blade posses a small wedge angle. So here we are analyzing the pin fins arranged in a wedge duct. Circular pin fin arrangement and elliptical pin fin arrangement are taken into consideration for the analysis.
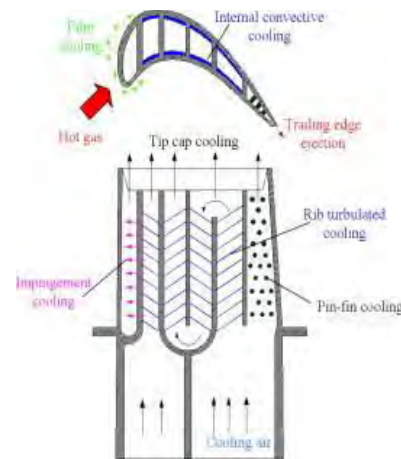
Pin fins were installed at the trailing edge of the blade, they can intensify the mixing of the fluid by triggering walls and this improves the heat transfer performance. Pin fins are extending from top end wall to bottom end wall. At the ends of the pin fins, vortex generation occurs and this improves the end wall heat transfer characteristics. At the junction of pin fin with end walls will tend to initiate horse shoe vortices and this tend to enhance the regional end wall heat transfer rate [2]. In this project we are using types of pin fin arrangements.

1. Circular pin fins

2. Elliptical pin fins

Heat transfer performance of circular pin fins and elliptical pin fins are analyzed and compared here. Here in this paper, for analysis elliptical and circulars pin fins placed in a wedge duct is taken into consideration. In most cases the cooling fluid used is the air extracted from the compressor inlet in real gas turbine. This method of extracting a portion

MODELING AND ANALYSIS OF COMPOSITE PLATE USING DIFFERENT ANSYS ELEMENTS

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ABSTRACT

Composite materials (likewise called arrangement materials or abbreviated to composites) are materials produced using at least two constituent materials with altogether unique physical or synthetic properties, that when consolidated, create a material with qualities not quite the same as the individual segments. The individual parts stay partitioned and particular inside the completed structure. The new material might be favored for some reasons: basic illustrations incorporate materials which are more grounded, lighter or more affordable when contrasted with conventional materials. In this venture the basic examination. A square cross employ overlaid plate is subjected with the particular limit conditions and accepting axisyymentry properties and orthotropic material properties. The diversions, stresses, and extensive outcomes are gotten and plotted.

INTRODUCTION

A composite material is made by consolidating at least two materials – frequently ones that have altogether different properties. The two materials cooperate to give the composite special properties. In any case, inside the composite you can without much of a stretch distinguish the distinctive materials one from the other as they do notdissolve or mix into each other.A composite material can be characterized as a mix of a network and a support, which when consolidated gives properties better than the properties of the individual parts.

Uses of composites on airplane include:
• Fairings
• Flight control surfaces
• Landing gear entryways
• Leading and trailing edge boards on the wing and stabilizer
• Interior parts
• Floor bars and planks of flooring
• Vertical and level stabilizer essential structure on extensive airplane
• Primary wing and fuselage structure on new era extensive airplane
• Turbine motor fan sharp edges
• Propellers

Significant Components of a Laminate:
➢ Quality Characteristics
➢ Fiber Orientation
➢ Twist Clock
➢ Fiber Forms
➢ Wandering
➢ Unidirectional (Tape)
➢ Bidirectional (Fabric)
➢ Nonwoven (Knitted or Stitched)

Types of Fiber:
➢ Fiberglass
➢ Carbon/Graphite
➢ Boron
➢ Fired Fibers
➢ Lightning Protection Fibers

Matrix Materials:
➢ Thermosetting Resins
➢ Polyester Resins
➢ Vinyl Ester Resin
➢ Phenolic Resin
➢ Epoxy
➢ Polyimides
➢ Polybenzimidazoles (PBI)
➢ Bismaleimides (BMI)
➢ Thermoplastic Resin
➢ Semicrystalline Thermoplastics
➢ Indistinct Thermoplastics
➢ Polyether Ether Ketone (PEEK)

FINITE ELEMENT METHOD

Step by Step Procedure:
1. Discretization of the area
2. Fundamental Element Shapes
3. Size of Elements
4. Area of Nodes
5. Number of Elements

Advantages:
1. The utilization of partitioned sub locales or limited components for the trail arrangements allows a more prominent adaptability in considering continuation of complex shape.
2. As the limit conditions don't go into conditions for the individual limited components, one can utilize a similar field variable for both inner and limit components.
3. The field variable models require not be changed when the limit conditions change.

DESIGN AND ANALYSIS OF AIRCRAFT WIND SHIELD BY USING FSI TECHNIQUE

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ABSTRACT.
The windshield or windscreen of a flying machine, auto, transport, motorbike or cable car is the front window. Windshield is a vital get together of a flying machine and some ace highlights are relied upon its quality. The vital quality attributes of windshield are perceivability through the overhang, structure inflexibility, affect resistance, dependability of the inward instruments, and the delicacy of development. The most generally utilized material for light coach air ship windshield is Glass. In the present work, it is proposed to substitute the current glass for a light mentor. In the present work two unique materials were considered to be specific polymethyl- methacrylate and poly vinyl butyl for windshield

INTRODUCTION
1. WINDSHIELD

The windshield (North America) or windscreen (Commonwealth nations) of an air ship, auto, transport, motorbike or cable car is the front window. Current windshields are for the most part made of covered security glass, a sort of treated glass, which comprises of two (commonly) bended sheets of glass with a plastic layer overlaid between them for wellbeing, and are reinforced into the window outline. Motorbike windshields are regularly had of high-effect acrylic plastic.
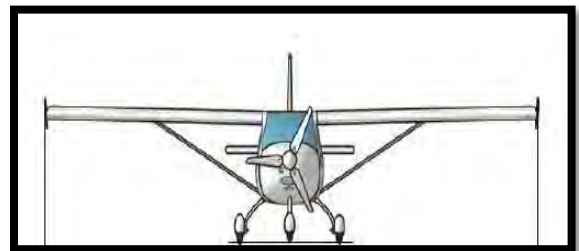

Fig.1.1 Aircraft
1.4 WINDSHIELD MAIN STRUCTURE
After essential fuselage structure were composed, it had been clear where precisely windshield structure must be adjusted. It was chosen principle casing

DESIGN AND ANALYSIS OF A DIESEL ENGINE NOZZLE

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ABSTRACT

The nozzle is used to transform the chemical energy into kinetic energy in the combustion chamber. The nozzle converts the high pressure, high temperature and low velocity gas in the combustion chamber into high velocity gas of lower pressure and lower temperature. Nozzle is designed to control the rate of flow, velocity, direction, mass, shape, and the pressure of the stream that exhaust from the nozzle exit.

Nozzle is designed based on its mission in which its used, its shape and size are the important factors depending in the study of its performance characteristic. Since heating of the propellant in the combustion chamber is possible convergent nozzle is used mostly

In this thesis we use convergent divergent nozzle with different nozzle diameter and different fluids at different velocities are used. We modelled convergent divergent nozzle changing with different nozzle diameters and its analysed with different mass flow rates to determine the pressure fall, heat transfer coefficient, and velocity and heat transfer rate for the fluid by CFD technique.

I. INTRODUCTION

The primary challenges towards developing new diesel engines for traveller cars be the strict future emission legislation together with the customer's demands for steady rising performance. For instance, the emission limitations of Tier a pair of Bin five needs a complicated once treatment system and a sturdy combustion method that minimizes emissions within the method of them being shaped. Advancements within the technology of Diesel Injection (DI) systems have contend in necessary role within the enhancements that are created up to the current purpose. Combining the reduction in nozzle passage diameters through increased flow characteristics with inflated injection pressures provides a chance to develop engines that includes high power density and reduced emissions. the first downside to those fashionable spray hole geometries is that they typically suffer a discount of power output throughout long run operation.Alternative studies have known these important formations of deposits because the main reason for this behaviour.
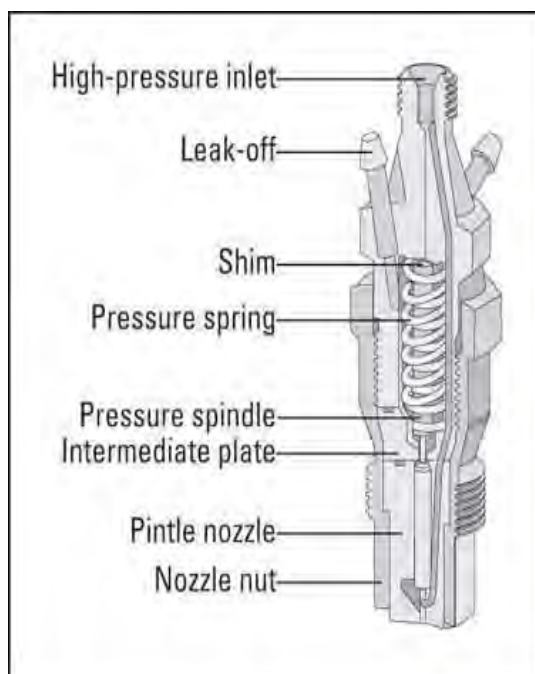
Fig 1 MODERN FUEL INJECTORS

Basic mechanisms are often wont to make a case for the formation and removal of deposits in burning engines These mechanisms act severally of the situation of shaped deposits (e.g. injection nozzles, heat changer) and of the combustion method (e.g. IDI, DI; diesel or gasoline).

The model delineate within the study illustrates the interaction of a wall with the introduction flow regime. The transport of particles to the wall is predicated on the method of thermophiles is that this process ends up in the force of gas particles within the direction of the temperature depression. It's amplified with associate degree increasing temperature differential between wall (cold) and fluid (hot). This method results is associate degree increasing concentration of deposit-building particles close to the wall.

TEMPERATURE DISTRIBUTION AND THERMAL STRESS CALCULATON OF TURBINE DISC OF AN AEROJET ENGINE

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ABSTRACT

The turbine blades are responsible for extracting energy from the high temperature gas produced by the combustor. These turbine blades are supported by turbine disc. Operating the turbine blades and disc at high temperature would provide better efficiency and maximum work output. Withstanding of gas turbine blades and disc for the elongation is a major consideration in their design, because they are subjected to high tangential, axial, centrifugal forces during their working conditions.

This project summarizes the design and analysis of turbine disc, on which NX 8.5 is used for modeling the turbine disc, ANSYS APDL 16 software is used for analysis of model generated by Finite Element Modeling of disc by hypermesh

I.INTRODUCTION

THE NECESSITY AND SIGNIFICANCE OF DISC THERMAL DESIGN AND THERMAL STRESS ANALYSIS: Gas turbine engines are operating on high pressure ratios. Efficiency and work output of an engine is depends on compression ratios, turbine inlet temperature etc. The pressure and temperature are high at the turbine inlet and combustion chamber exit. Turbine is a power producing device which converts thermal energy into mechanical power output. Therefore the pressure and temperature reduces during their operation. The compressor and turbine blades are mounted on discs. The turbine blades are extracting energy from the high temperature gas produced by the combustor. Operating the blade and disc at high temperature provide better efficiency and work output. The blade and disc are subjected to different forces like tangential, axial, centrifugal etc which leads to stresses. The disc must have strength to withstand all the forces and stresses acting on it without failure and it should have long life.

Also, additional stresses acting on the disc due to engine over rotational speed. The material used in the disc which withstands all forces and stresses. The blades are dissipating heat into the disc. The disc receives heat from hot mainstream gas through blade on the rim and cool air from secondary air on the bore. This results in high thermal gradient and stresses. The disc also withstand excessive thermal stresses acting on it without failure.

The disc withstanding different stresses like thermal, centrifugal, tangential, axial etc without failure. Therefore the designer must take care of the material and the properties .
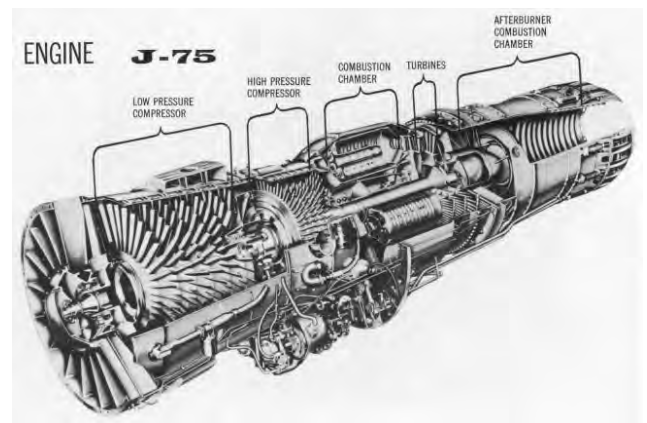
Figure 1 - layout of jet engine

This report describes the Temperature distribution and Thermal stress analysis of high pressure turbine disc of a jet engine .Analysing temperature distribution and thermal stress of UDIMET 720 and INCONEL 718.The analysis has been carried out by using finite element software ,ANSYSAPDL.The analysis and results are described in this report.

NX 8.5 is used to design the model, meshing is done by HYPERMESH and ANSYS APDLL is used for analysis.

Turbine disks are the most massive and expensive rotating components in gas turbine engines. They therefore have the highest kinetic energy, and a disk failure cannot be survived in most aerospace applications. Advanced engine

NUMERICAL ANALYSIS OF HEAT TRANSFER AND FLOW FRICTION THROUGH A PIN FIN CHANNEL SECTION

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Abstract

A numerical study was conducted to investigate the flow friction and heat transfer performance in rectangular channels with pin fins in the Reynolds number range of 8200–54,000. The study aims at improving the cooling design for the gas turbine components such as combustion chamber and turbine blades. The pin fins are enhancing the heat transfer and also increase the structure integrity and stiffness. The friction factor and Nusselts number of the pin fin channels have been obtained and compared with the previously published data and also with the result obtained by using correlations correspondence to the smooth channel. CATIA software is used for the modeling of the test section and NUMECA is used for its grid generation, analysis and post processing purpose. By this study observed that the presence of pin fin is increases the heat transfer rate through the channel. It is obtained by, when the fluid flows across the pin fins arrays unsteady vertical shedding induced from the pin. Hence this produce high turbulence level in the flow and it enhance the convective heat transfer performance. The frictional factor also is higher for pin fin channel than the smooth channel. The Reynolds numbers also have a role in the heat transfer rate. The heat transfer rate is increases with increasing the Reynolds number. For analyzing different turbulence model gives different result. k-ϵ turbulence model gives a matching result with the previously published paper. The pin fin is a easy method for improving heat transfer rate.

Key words: Heat transfer, pin fin, flow friction, NUMECA, CATIA

1. INTRODUCTION

Heat is the major source of energy; it can be converted into mechanical energy through gas turbines and power plants. Gas turbine output is used for different types of work. Maximum amount of heat energy converted into mechanical work by improving the efficiency of the gas turbine engine. In the turbine component, entering

THE COMPRESSED AIR VEHICLE

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Abstract—**While developing of compressed air vehicle, control of compressed air parameters like temperature, energy density, requirement of input power, energy release and emission control have to be mastered for the development of a safe, light and cost effective compressed air vehicle in near future.This paper describes the design and construction of a viable experimental pneumatic driven vehicle. The main aim is to find ways to drive efficiently by using alternative energy, not necessary cheaper, but more environmental friendly in increasing polluted metropolis. This is done by taking the emission source from the vehicle's tail pipe to the central electrical generating plant. Emission control measures at a central generating plant may be more effective and less costly than treating the emissions of widely dispersed vehicles. Where low emissions sources are available like: Aeolian, water, solar, and nitrogen byproducts; net production of pollutants can be reduced. The results used in this study are obtained by designing, building and testing experimental configurations of compressed-air/gas vehicles.**

Keywords-pneumatic vehicle, compressed air, chassis, ackermann condition, pollutant, CO2

I INTRODUCTION

A **compressed-air vehicle** (**CAV**) is powered by an air engine, using compressed air, which is stored in a tank. Instead of mixing fuel with air and burning it in the engine to drive pistons with hot expanding gases, compressed-air vehicles use the expansion of compressed air to drive the pistons. The first compressed air vehicle was established in France by a Polish engineer Louis Mekarski in 1870 was tested in Paris in 1876.The working principle of Mekarski's engine was the use of energy stored in compressed air to increase gas the efficiency of S.I.engine.It is experimentally found that the efficiency of the vehicle ranges from 72-95%. So this can be considered as one of the preferable choices to run the vehicle.

Compressed-air technology reduces the cost of vehicle production by about 20%, because there is no need to build a cooling system, fuel tank, Ignition Systems or silencers.Hydro-carbons and carbon monoxide and CO2, SO2 are the major pollutants released by the combustion of fuels.

II. MODE OF USE

A. Design of chassis

Chassis is made by arc welding at various sections for the Rectangular cross sections. It includes:

•Lap joint welds •Butt welds •T joint welds

The end joints re butt welded and some internal angular sections are lap welded. The steering column support is given by welding a hollow shaft with a T weld to the front frame of the chassis.

The steering of a vehicle is so arranged that the front wheels will roll truly without any lateral slip. The function of the steering system is to convert the rotary movement of the steering wheel into angular turn of the front wheels. To keep effective control on the moving vehicle throughout its range of speed irrespective of the load and road conditions. The steering system of a vehicle should fulfill the following requirements:

1. It should multiply the effort applied on the steering wheel by the drivers.

2. The mechanism should have self-adjusting effect so that when the driver releases the steering wheel after negotiating the turn, the wheel should try to achieve straight ahead position.

3. It should not transmit road shocks to steering wheel.

PERFORMANCE STUDY ON SOLAR STEEL WITH WATER COOLING

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ABSTRACT

A solitary bowl sun oriented still is a straightforward gadget to create drinking water from effortlessly accessible saline water. Due to its low efficiency it isn't prominently utilized. A great deal of research work is embraced to enhance the efficiency of the still. Warmth move in a sun based still mostly relies upon the temperature contrast between the evaporative water surface and the gathering surface for a given surface region. An endeavor has been had to expand the temperature effect by diminishing the consolidating surface temperature. In such manner two comparable, single bowl twofold incline sunlight based stills are taken for our examination. Experimentation is performed in the premises of SHIATS-DU Allahabad. 17% pick up is recorded in the distillate yield due to cooled gathering spread.

Key words: Solar Still, Heat and Mass Transfer.

INTRODUCTION

Oceans are inexhaustible sources of water covering three fourth of the earth surface. But water in the oceans is of high salinity. Water shortage problems can be addressed by desalination of this water. Separation of salts from sea water requires lot of energy, which when produced from fossil fuel, can cause harm to the environment. Sea water desalination using solar energy gives viable solution to this problem.

Solar energy can be used for sea water desalination either by producing the thermal energy required to drive the phase change processes or by generating the electricity required to drive the membrane processes. The energy required for various desalination processes, as obtained from a survey of manufacturer's data that the process with the smallest energy requirement is Reverse Osmosis with energy recovery. But this is only viable for very large systems due to the high cost of the energy recovery turbine. The next lowest is the RO without energy recovery and the MEB system. A comparison of the desalination equipment cost and the sea water treatment requirement as obtained from a survey of manufacturers data, The cheapest of all the systems considered is the solar still. This is the direct collection system which is very simple to construct and operate. The disadvantage of this process is the very low yield [1].The production capacity of a simple type solar still is in the range of 2-5 L/m^2/day only. Number of methods is available to improve the productivity of single basin solar still. The required output from the still is the condensed water from the glass cover. The condensation is higher when the condensing heat transfer from the glass and the evaporation heat transfer from the basin water are high. Heat transfer within the solar still mainly depends on the evaporative surface area and the temperature difference between the evaporative surface temperature and the condensing surface temperature. In order to maximize the existing temperature difference between the water and the condensing surface, an attempt has been made to cool down the condensing surface by flowing water on the condensing surface. The glass cover temperature is reduced by a film of cooling water continuously flowing over the glass [2] or intermittent flow of cooling water on the cover [3].The wind velocity is also affecting the cover temperature. At higher wind velocity the convective heat transfer from the cover to atmosphere increases due to increase in convective heat transfer coefficient between cover and atmosphere. This effect increases the condensing and evaporation rate and productivity of the still [4, 5].

EXPERIMENTAL SETUP

Optimization of Drilling Parameters on Hemp Fibre Reinforced Composite Using Taguchi and Anova

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ABSTRACT

Common fiber composites today are supplanting manufactured fiber composites because of predominant properties of characteristic strands, for example, low thickness, high particular quality and modulus, relative nonabrasiveness, simplicity of fiber surface alteration, and wide accessibility. Boring is frequently required to encourage the gathering of the parts to get the last item. Be that as it may, boring composite materials introduce various issues, for example, delamination related with the attributes of the material and with the utilized cutting parameters. The present examination is an endeavor to ponder the components and blend of variables that impact the dalamination of the penetrated unidirectional hemp fiber fortified composites utilizing Taguchi and ANOVA investigation and to accomplish the conditions for least delamination. Affirmation tests were directed to check the anticipated ideal parameters with the test comes about.

Keywords: Delamination, Drilling, Hemp fiber reinforced polymer composite, Taguchi.

1. INTRODUCTION

Natural fibers like jute, hemp, sisal, coconut (coir) and bamboo in their natural form as well as several waste cellulosic products such as shell flour, wood flour and pulp have been used as reinforcing agents of different thermosetting and thermoplastic composites. Several authors have reported the chemical composition, properties of natural fibers and their composites by incorporating the fibre in different matrices before and after treatment by different methods [1–5].

The manufacturing of the natural fiber reinforced composite can broadly be classified as primary and secondary manufacturing. The primary manufacturing results in a near-net shape of the final product. The various primary manufacturing processes are hand lay-up, pultrusion, filament winding, vacuum bag molding and resin transfer molding. Although most of the composite products are made to a near-net shape, a certain degree of intricacy in the product design necessitates the development of the composite product in parts. The independently manufactured parts are then finally assembled to get the final composite product. Machining thus becomes imperative to ascertain the structural integrity of complex composite products. Hole making is one of the important machining operations to facilitate the assembly operations. Though a number of approaches have been used for making holes in composite laminates, conventional drilling till date is the most widely acceptable and frequently practiced machining operation for hole making. Conventional drilling however results in damage in the form of delamination, micro cracks, fiber pull out and matrix burning around the hole and may ultimately cause variation in the strength of the component with a drilled hole.

Koenig et al. [6] studied in 1985 the machining of fiber reinforced plastics

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EXPERIMENTAL INVESTIGATION OF A DOUBLE SLOPE SOLAR STILL WITH LATENT HEAT STORAGE MEDIUM

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ABSTRACT--- Single basin star still could be a terribly straightforward star device used for changing out there briny or water into contemporary water. This device are often made-up simply with domestically out here materials. the upkeep is additionally low cost and no mean labor is needed. The device could also be an appropriate answer to resolve water draw back however due to its low productivity it's not popularly used. variety of works square measure undertaken to boost the productivity of the still. the utilization of heat energy storage system exploitation state change|natural action|action|activity} material (PCMs) is an efficient method of storing thermal energy and has the advantage of high energy density and therefore the equal nature of the storage process. Double slope single basin star still is experimented by adding a heat reservoir within the basin exploitation atomic number 30 NitrateHexahydrate.

Single basin solar still is a very simple solar device used for converting available brackish or water into fresh drinking water. This device can be fabricated easily with locally available materials. The maintenance is also cheap and no skilled labor is required. The device may be a suitable solution to solve drinking water problem but because of its low productivity it is not popularly used. Number of works are undertaken to improve the productivity of the still. The use of latent heat storage system using phase change material (PCMs) is an effective way of storing thermal energy and has the advantage of high energy density and the isothermal nature of the storage process. Double slope single basin solar still is experimented by adding a heat reservoir in the basin using Zinc Nitrate Hexahydrate. It is a material which changes its phase during addition and removal of heat. It is observe that an increment of 33.5 % is observed in the collection of distillate when the still is used with PCM as Zinc Nitrate Hexahydrate.

Key Words: double Slope Solar Still, Phase Change Materials

INTRODUCTION

Water is the primary source of life. Next to oxygen, fresh water is the most important substance for sustaining human life. Water shortage is a worldwide problem, where 40% of the world population is suffering from water scarcity [1]. Although Water is one of the most abundant resources on Earth, covering approximately three-quarters of the planet's surface. About 97% of the Earth's water is salt water in the oceans. 3% of all fresh water is in ground water, lakes and rivers, which supply most of that needed by humans and animals.

However, rapid industrial-growth and the population explosion world-wide have resulted in a large escalation of the demand for fresh water. Added to this is the problem of pollution of rivers and lakes by industrial wastes and the large amounts of sewage discharged. On a global scale, man-made pollution of natural sources of water is becoming the single largest cause for fresh-water shortages. Besides the only inexhaustible sources of water are the oceans. Their main drawback, however, is the high salinity of such water. It would be attractive to tackle the water-shortage problem with desalination of this water, which may be mixed with brackish water increase the amount of fresh water and reduce the concentration of salts to around500 ppm .

Solar distillation has been practiced for many generations. All desalination methods require fossil fuel or electrical energy but solar distillation is one of many processes that can be used to produce fresh water by using the heat of the sun directly in a simple equipment to purify water. The equipment, commonly called a solar still . Solar still is most simple device to get potable/fresh distilled water from impure water. Among other available designs of solar still, the Double Slope Solar Still is most popular. The construction and design of this solar still is simple. The problem is poor productivity. A large number of attempts are made to improve the productivity from solar still. Studies are performed to predict the performance of solar still [5]. Effect of variation of parameters on the total output is also studied by various researchers.They have analyzed the effect of water depth on the performance of DSS. Due to intermittent nature of solar energy, distillate production is not continuous and night time production is almost nil. By using energy storage mediums, distillate may be produced during non-Sunshine hours. These energy storage systems may store heat energy in two ways (i) Sensible Heat (ii) Latent Heat. Thermal energy can be stored as a change in internal energy of a material as sensible heat, latent heat or combination of these two. In sensible heat storage (SHS), thermal energy is stored by raising the temperature of a solid or liquid. SHS utilizes the heat capacity and the change in temperature of the material during the process of charging and discharging. The amount of heat stored depends on the specific heat of the medium, the temperature change and the amount of storage material .

Storage media. Latent Heat storage systems are having advantage of their isothermal nature of storing heat energy. Kuznik et. has given a good explanation of how PCM stores and releases latent heat. The external heat supplied to a PCM is spent in breaking the internal bonds of lattice and thereby it absorbs a huge amount of latent heat at phase temperature. Abhat et.al. has given a detailed classification of PCMs along with their properties. Dinser and Rosen have also exercised the same. A large number of phase change materials (organic, inorganic and eutectic) are available in any required temperature

HEAT TRANSFER ALONG VERTICAL INSULATED CHIMNEY

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ABSTRACT

Chimney, which form the last component of a system using a flue gas such as boiler, play a vital role in maintaining efficiency, draft, etc, of a system and also in minimizing the atmospheric pollution. The hot gases occupy larger volume than before. The weight of gases per cubic meter becomes less. For the purpose of the structural design of the steel chimney, the height and diameter of chimney. Chimneys are required to carry vertically and discharge, gaseous products of combustion, chemical waste gases, and exhaust air from an industry to the atmosphere In this thesis, chimney will be designed considering with insulation and without insulation. 3D model of the chimney is done in CREO Parametric software and fluid-structural and thermal analysis is done on the chimney in ANSYS software. A simplified model of chimneys with various insulation materials (concrete and carbon epoxy).Static analysis is to determine the deformation, stress and strain for chimney with insulation and without insulation. Thermal analysis to determine the heat flux of the chimney with different materials to different models.CFD analysis to determine the pressure drop, velocity, heat transfer coefficient, mass flow rate and heat transfer rate.

Keywords

Chimney, Flue Gases, Heat transfer rate.

I. Introduction

A chimney is a structure that provides ventilation for hot flue gases or smoke from a boiler, stove, furnace or fireplace to the outside atmosphere. Chimneys are typically vertical, or as near as possible to vertical, to ensure that the gases flow smoothly, drawing air into the combustion in what is known as the stack, or chimney effect. The space inside a chimney is called a flue. Chimneys may be found in buildings, steam locomotives and ships. In the United States, the term smokestack (colloquially, stack) is also used when referring to locomotive chimneys or ship chimneys, and the term funnel can also be used.

The height of a chimney influences its ability to transfer flue gases to the external environment via stack effect. Additionally, the dispersion of pollutants at higher altitudes can reduce their impact on the immediate surroundings. In the case of chemically aggressive output, a sufficiently tall chimney can allow for partial or complete self-neutralization of airborne chemicals before they reach ground level. The dispersion of pollutants over a greater area can reduce their concentrations and facilitate compliance with regulatory limits.

fig:1.1 chimney diagram

II. Literature Review

1.Seismic Analysis and Design of Industrial Chimneys: Slenderness ratio H/Dinf, radius ratio Rsup/Rinf, thickness ratio Esup/Einf and thickness diameter ratio Dinf/Einf

2. Analysis of Self Supported Steel Chimney as Per Indian Standard: To ensure a desired failure mode design code (IS-6533: 1989 Part 2)

3. Analysis and Computational Study of a High Chimney Tower for Solar Energy the "Autodesk Robot structural analysis professional"

4. Dynamic Soil-Structure Interaction Analysis of Tall Multy-Flue Chimneys under Aerodynamic and Seismic Force: . JEEVAN T, SOWJANYA G. V (2014

III. Problem Description & Methodology

The objective of this project is to make a 3D model of the chimney and study the thermal and static behavior of the chimney by performing the finite element analysis. 3D modelling software (PRO-Engineer) was used for designing different geometrics and analysis software (ANSYS) was used for thermal and static analysis.

The methodology followed in the project is as follows:

1.During pre-processing

The geometry (physical bounds) of the problem is defined.

The volume occupied by the fluid is divided into discrete cells (the mesh). The mesh may be uniform or non-uniform.

PERFORMANCE ANALYSIS OF TWO STROKE PETROL ENGINE ON BASIS OF VARIATION IN CARBURETTOR MAIN JET DAIMETER

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Abstract- **2s cars are the use of for cars walking. We maximum gain is that 2s engine has revolutions for every rev it's has one running stroke. Because of that working stroke it gives extra pickup and electricity, with that power we are the usage of in mechanical devices to utilise that power. Mainly we are the use of right here fuel engines to work efficient and overall performance to examine how a whole lot it's miles imparting and therefore changing the diameter of car by Gasoline will deliver less carbon particles as compared to different fuel based totally vehicles. Mostly I am used right here the 2s fuel engine for higher end result and estimate the warmth analysis and speed and mass transfer rate.**

In this project, a main jet of carburettor is intended and sculptured in 3D modelling software package CREO constant quantity. Since the planning of main jet of carburettor is advanced, and potency is directly associated with material performance, material choice is of prime importance. During this project, totally different materials and different nozzle diameters (15,20 and 25mm) by acting thermal analysis on the most jet of carburetor for each the styles with Sir Joshua Reynolds numbers (4000& 6000).

In this project, CFD technique is used to research the flow the fluid over the rotary engine blade. Analysis is completed in ANSYS

1. Introduction

Here the car by introduced for the charge entering so that it gives to combustion chamber and it sucks and make compression to give enough work stroke. Every motorbike engine, from the easy single-cylinder two-stroke, to the foremost subtle multi-cylinder four-stroke, depends on 2 terribly precise items of accessory instrumentation. the primary of those, the ignition, is of obvious importance as a result of it provides the exactly-timed spark that ensures that combustion happens at exactly the correct moment. The second piece of kit will fairly be thought of to be of even larger importance, for while not it, the engine can't be run or controlled. It is, in fact the carburetor. Throughout each engine cycle, be it two- or four-stroke, the carburetor should feed the engine with an exact quantity of fuel, mixed with Associate in Nursing equally precise quantity of air. Moreover, as loading on the engine varies, this fuel mixture should be varied to compensate. Once the engine is cold the quantitative relation of fuel to air should be altered radically; once inactivity, the carburetor should perform automatically; and once it's wanted to extend the speed of the engine, some suggests that of dominant the carburetor's operation to fine limits should be contrived. it'll already be apparent that the carburetor should be capable of acting a large vary of functions with nice accuracy and consistency, permitting induction to require place as usually as 10 thousand-fold each minute or perhaps additional. Equally vital, it should be sturdy, to endure

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DESIGN AND CFD ANALYSIS OF HAIR PIN HEAT EXCHANGERS AT DIFFERENT NANO FLUIDS

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ABSTRACT

Heat exchanger is equipment where the heat transfer takes place. In general the hedat flows from hot bodies to cold bodies. To mention a few commonly used applications

    Space heating
    Refrigeration
    Air conditioning
    Power stations
  Sewage treatment etc

Our Hairpin Exchangers are available in single tube (Double Pipe) or multiple tubes within a hairpin shell (Multitude), bare tubes, finned tubes, U-tubes, straight tubes (with rod-thru capability), fixed tube sheets and removable bundle.

In this thesis, Aluminium Oxide and Titanium carbide is mixed with base fluid water for two volume fractions 0.4, 0.5 and are analyzed for their performance in the hair pin heat exchanger. Calculations is done to find out the properties and obtained values is used as input for CFD analysis and Thermal analysis is done to find out suited material from Aluminum alloy and Copper.

Key words: Hair pin heat exchanger, CFD analysis, thermal analysis.

INTRODUCTION

Heat exchangers are one of the important devices in many industries. Heat Exchangers are used to transfer heat from hot streams to cold streams. Thermal process such as cooling, heating, condensation, boiling or evaporation of a fluid will require a heat exchanger for these purposes. The Heat exchanger is named different based on their application. For example, it is also called as boiler, condenser etc., Performance and efficiency parameters of heat exchanger which are of utmost importance are measured through the amount of heat transfer using least area of heat transfer and pressure drop. The measured values will provide an insight to calculate the capital cost and power requirements of a heat exchanger. Representation of its efficiency is done by calculating the overall heat transfer coefficient. Designer as to go through lots of literature and theories to design a H.E based on the requirements.

1.1 Classification of Heat Exchangers:-
1) Transfer Process
2) Number of fluids
3) Flow Arrangements
4) Heat Transfer Mechanism
5) Surface Compactness
6) Construction

Transfer Process: When heat is transmitted in-between fluids that are in direct contact with one other is direct or open contact heat

Study on Design of solar buildings

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ABSTRACT-**Dynamic—Houses for the most part allude to an asylum or building that is implied as an abode or place for residence by people. "Houses" incorporate numerous sorts of abiding going from simple cottages or migrant clans to skyscraper flat structures. A noteworthy imperative in taking care of this demand is the spiraling expense of vitality and different changes in atmosphere. Detached sunlight based structures intend to keep up inside warm solace all through the sun's day by day and yearly cycles while diminishing the necessity for dynamic warming and cooling framework Passive sun powered building configuration is one a player in green building plan, The logical reason for latent sun oriented building configuration has been produced from a blend of climatology (especially warm exchange), and human warm solace (for structures to be occupied by people). Particular consideration is coordinated to the site and area of the home, the overarching atmosphere, outline and development, sun powered introduction, situation of coating and-shading components, and consolidation of warm mass. While these contemplations might be coordinated to any building, accomplishing a perfect arrangement requires watchful joining of these standards.**

KEYWORDS- Climatology, Skyscraper, Green Building Plan

INTRODUCTION

New construction offers the greatest opportunity for incorporating passive solar design, Passive solar system make use of natural energy flows as the primary means of harvesting solar energy, Passive solar system can provide space heating, cooling load avoidance, natural ventilation and day lighting. Passive solar design refers to the use of the sun's energy for the heating and cooling of living spaces. In this approach, the building itself or some element of it takes advantage of natural energy characteristics in materials and air created by exposure to the sun. Passive systems are simple, have few moving parts, and require minimal maintenance and require no mechanical systems Passive solar design refers to the use of the sun's energy for the heating and cooling of living spaces. In this approach, the building itself or some element of it takes advantage of natural energy characteristics in materials and air created by exposure to the sun. Passive systems are simple, have few moving parts, and require minimal maintenance and require no mechanical systems Sun light can provide ample heat, light, and shade and induce summertime ventilation into the well designed home. Passive solar design can reduce heating and cooling energy bills,increase spatial vitality, and improve comfort.Solar energy is a radiant heat source that causes natural processes upon which all life depends. Some of the natural processes can be managed through building design in a manner that helps heat and cool the building. The basic natural processes that are used in passive solar energy are the thermal energy

MODELING AND ANALYSIS OF MACHINE TOOL STRUCTURES

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ABSTRACT

The objective of this present work is to estimate the deflections and stresses that are induced in the machine tool structure. The emphasis in this project is on the application of computer aided analysis using finite element concept. A machine tool is a machine for shaping or machining metal or other rigid materials, usually by cutting, boring, grinding, shearing, or other forms of deformation. Machine tools employ some sort of tool that does the cutting or shaping. All machine tools have some means of constraining the work piece and provide a guided movement of the parts of the machine.

In analysis part the finite element of hollow machine member is created using solid tetrahedron elements, appropriate boundary conditions are applied, material properties are given and loads are applied as per its design, the resultant deformation and stresses obtained are reported and discussed.

1.INTRODUCTION

Beds, bases, columns and box type housings are called "structures" in machine tools. In machine tools, 70-90% of the total weight of the machine is due to the weight of the structure. In this chapter classification and functions of machine tool structure is described. Researchers have worked with different types of materials like cast iron, mild steel, granite and epoxy concrete for machine tool structure for different applications. Profile of the machine tool and selection of different stiffeners/ribs are suggested by researchers. Quality of the job produced on these machine tools depends directly on the quality and performance of machine tools. To develop good products, design engineers need to study how their designs will behave in real-world conditions.

The limitations of physical model techniques have led to the development of mathematical models representing a variety of mechanical structures. As in this approach, whole structure is divided into finite elements, it is known as 'Finite Element Analysis'.

2. METHODOLGY

Generic Steps of Solving any Problem in ANSYS

Like solving any problem analytically, you need to define (1) your solution domain, (2) the physical model, (3) boundary conditions and (4) the physical properties. You then solve the problem and present the results. In numerical methods, the main difference is an extra step called mesh generation. This is the step that divides the complex model into small elements that become solvable in an otherwise too complex situation. Below describes the processes in terminology slightly more attune to the software.

A. Build Geometry

Construct a two or three dimensional representation of the object to be modeled and tested using the work plane coordinates system within ANSYS.

B. Define Material Properties

Now that the part exists, define a library of the necessary materials that compose the object (or project) being modeled. This includes thermal and mechanical properties.

C. Generate Mesh

At this point ANSYS understands the makeup of the part. Now define how the modeled system should be broken down into finite pieces.

D. Apply Loads

Once the system is fully designed, the last task is to burden the system with constraints, such as physical loadings or boundary conditions.

E. Obtain Solution

This is actually a step, because ANSYS needs to understand within what state (steady state, transient… etc.) the problem must be solved.

F. Present the Results

After the solution has been obtained, there are many ways to present ANSYS' results, choose from many options such as tables, graphs, and contour plots.

DESIGN AND STRUCTURAL ANALYSIS OF FORM TOOL

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ABSTRACT

A form tool is precision-ground into a pattern that resembles the part to be formed. The form tool can be used as a single operation and therefore eliminate many other operations from the slides (front, rear and/or vertical) and the turret, such as box tools. A form tool turns one or more diameters while feeding into the work. Before the use of form tools, diameters were turned by multiple slide and turret operations, and thus took more work to make the part. In this Project we model a form tool using ANSYS Modeller. The advantages of form tools are (a) cycle time, (b) it works as "POKA YOKA" (mistake proofing) (c) maintains relation between operation (d) cost optimization. This tool is modelled by using 3D modelling software. In this the design of form tool is analyzed using FEA software Ansys APDL.

INTRODUCTION

A form tool is precision-ground into a pattern that resembles the part to be formed. The form tool can be used as a single operation and therefore eliminate many other operations from the slides (front, rear and/or vertical) and the turret, such as box tools. A form tool is precision-ground into a pattern that resembles the part to be formed. A form tool has one or more cutting edges with well defined profile or contour that is to be reproduced as the desired shape on the work piece surface. Form tools are classified as flat form tools and circular form tools. Straight and flat form tools have square or rectangular cross-section with the form along its side or end.

The form tool can be used as a single operation and therefore eliminate many other operations from the slides (front, rear and/or vertical) and the turret, such as box tools. A form tool turns one or more diameters while feeding into the work. Before the use of form tools, diameters were turned by multiple slide and turret operations, and thus took more work to make the part. For example, a form tool can turn many diameters and

1) **Using a forming tool**

Various types of forming tools
1. **Flat Form Tool** -
2. **Circular Form Tool** –

Graphical method of determining profile of form tool

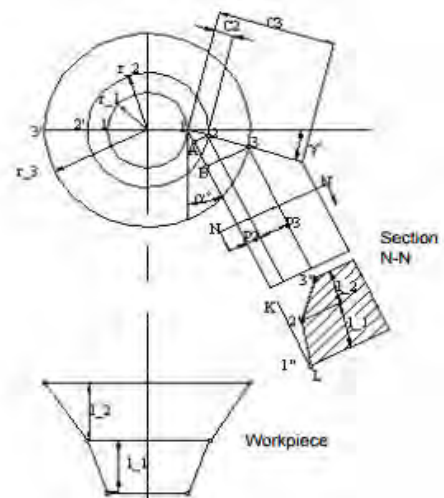**(i) Profile of Flat Form Tool**

Figure shows Graphical Method of Determining the Profile of Flat Form Tool

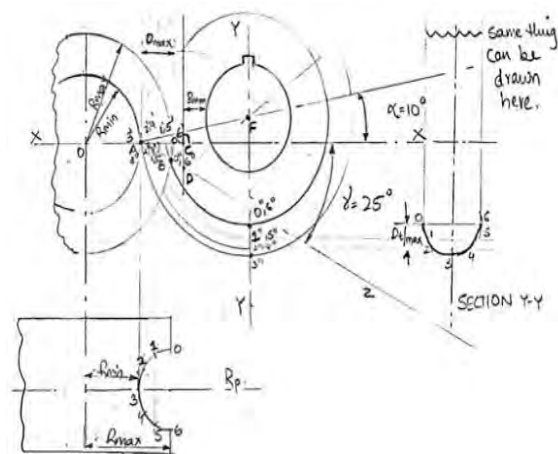**ii) Profile of Circular Form Tool**

Figure shows Graphical Method of Determining the Profile of Circular Form Tool

FINITE ELEMENT METHOD

Explanation of fem by step by step procedure:.
1. Discretization of the domain
2. Basic Element Shapes
3. Size of Elements

ANALYSIS ON CRACK PROPAGATION FINDING ITS SIF BY USING FRACTURE MECHANICS THEORY

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Abstract—The focus of this paper is to investigate how a crack propagates and grows in a rectangular plate with an elliptical crack through the centre. The finite Element Analysis tool Ansys is used to propagate the failure criteria and to compute stresses and Stress Intensity factor SIF (K). A specific object was created and central crack was investigated. This configuration was introduced since the engineers often detect Mode 1 Open type crack in object. The Stress Intensity Factor obtained theoretically is compared against same by Ansys 17.2 tool. Both of them obtained and also maximum stress zone is located at the crack tip in Ansys.

Keywords- Fracture Mechanics, ANSYS, Central Crack, Crack Propagation, Linear Elastic Fracture Mechanics (LEFM), Finite Element Method, Stress Intensity Factor, High Grade Steel C45. I.

I.INTRODUCTION

Failure of the engineering structures is caused by cracks, which is depending on the design and operating conditions that extend beyond a safe size. Cracks present to some extent in all structures, either as a result of manufacturing defects or localized damage in service [2]. The crack growth leads to a decrease in the structural strength. Fracture, the final catastrophic event takes place very rapidly and is preceded by crack growth. Damage Tolerance (DT) assessment is a procedure that defines whether a crack can be sustained safely during the projected service life of the structure. The fundamental assumption of linear elastic fracture mechanics is that the crack behavior is determined solely by the values of the stress intensity factors which area function of the applied load and the geometry of the cracked structure. Fracture mechanics deals with the study of how a crack in a structure propagates under applied loads

propagation and failure with experimental results [5]. Calculating fracture parameters such as stress intensity factor in the crack region [1], which is used to estimate the crack growth, makes the analytical predictions. Some typical parameters are: Stress intensity factors (Open mode (a) KI, Shear mode (b) KII, Tear mode (c) KIII
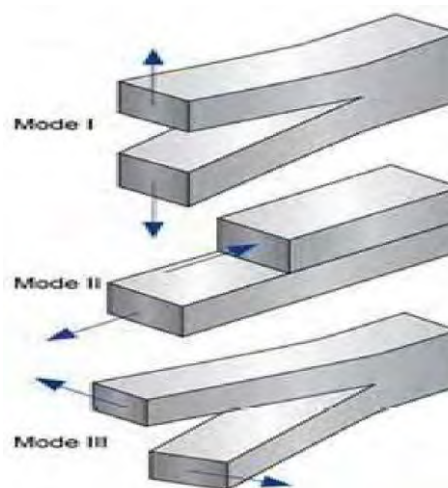

Figure 1: Three Types Of Loading On A Cracked Body; (A) Mode I; (B) Mode Ii And (C) Mode Iii

II.REVIEW

Dayal R. Parhi and Sasanka Choudhury a cantilever beam with a single crack has been taken into consideration. Finite element method is used to find out the natural frequencies of the faulty cantilever beam. A fuzzy controller has been designed using trapezoidal, Gaussian as

Coupled Field Analysis of A Chimney Used in Cement Industry

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Abstract

Chimney, which form the last component of a system using a flue gas such as boiler, play a vital role in maintaining efficiency, draft, etc, of a system and also in minimizing the atmospheric pollution. Steel chimneys are also known as steel stacks. The steel chimneys are made of steel plates and supported on foundation. The steel chimneys are used to escape and disperse the flue gases to such a height that the gases do not contaminate surrounding. In this thesis, chimney will be designed considering dead load and wind load. The Bureau of Indian Standards (BIS) design codes procedures will be used for the design of the chimney. The chimney was considered as a cantilever beam with annular cross section.

3D model of the chimney is done in Pro/Engineer and coupled field analysis is done on the chimney in ANSYS. A simplified model of chimneys with various thicknesses like 10mm, 12mm, 14mm and 16mm were modeled atmosphere.

Keywords

Chimney, Flue Gases, Coupled Field Analysis

I. Introduction

Chimneys or stacks are very important industrial structures for emission of poisonous gases to a higher elevation such that the gases do not contaminate surrounding atmosphere. These structures are tall, slender and generally with circular cross-sections. Different construction materials, such as concrete, steel or masonry, are used to build chimneys. Steel chimneys are ideally suited for process work where a short heat-up period and low thermal capacity are required. also, steel chimneys are economical for height up to 45m. Fig. 1 shows a photograph of self-supporting steel chimneys located in an industrial plant.

Fig. 1: Shows a Photograph of Self-Supporting Steel Chimneys Located in an Industrial Plant

There are many standards available for designing self supporting industrial steel chimneys: Indian Standard IS 6533: 1989 (Part-1 and Part-2), Standards of International Committee on Industrial Chimneys CICIND 1999 (rev 1), etc. Geometry of a self supporting steel chimney plays an important role in its structural behavior under lateral dynamic loading.

This is because geometry is primarily responsible for the stiffness parameters of the chimney. However, the basic geometrical parameters of the steel chimney (e.g., overall height, diameter at exit, etc.) are associated with the corresponding environmental Conditions.

II. Literature Review

1. Menon and Rao(1997) reviews the code measures to estimate the across wind response of reinforced concrete chimney. In this paper, the difficulties in the codal evaluation of across wind moments and load factor provisions are examined through reliability approach. This paper mainly suggest that it is essential to design at certain conditions for the across wind loading [3].

2. K.R.C. Reddy, O.R.Jaiswal and P.N.Godbole (2011) discusses about wind and earthquake analysis of tall reinforced concrete chimney. In this paper two reinforced concrete chimneys are analysed for wind and earth quake loads. Earth quake analysis is done as per IS 1893 (part 4): 2005 and wind analysis is done as per IS 4998 (part 1): 1992. The combination of along & across wind loads of chimney is done as per ACI 307-98 code. Finally they computed the governing load for design of chimneys.

3. B. SivaKonda Reddy, C.Srikanth, V.RohiniPadmavathi (2012) discusses about wind load effects on tall reinforced concrete chimneys. In this paper they considered 275m reinforced concrete lined chimney. The study of this paper is along & across wind effects on this RCC Chimney for I and VI wind zones of India. Finally they concluded that, for Wind zone –I across wind loads are governing and for wind zone-VI along wind loads are governing rather than the across wind loads .

III. Problem Description & Methodology

The objective of this project is to make a 3D model of the chimney and study the thermal and static behavior of the chimney by performing the finite element analysis. 3D modeling software (PRO-Engineer) was used for designing different geometries (10mm, 12mm, 14mm and 16mm thickness) and analysis software (ANSYS) was used for thermal and static analysis.

The methodology followed in the project is as follows:

- Create a 3D model of the steam chimney using parametric software pro-engineer.
- Perform thermal analysis and linear layer thermal analysis on the chimney for thermal loads, to find out the temperature distribution and heat flux
- Perform static analysis and linear layer static analysis on the chimney for thermal loads, to find out the deformation, stress and strain distribution.

IV. Introduction to CAD

Throughout the history of our industrial society, many inventions have been patented and whole new technologies have evolved. Perhaps the single development that has impacted manufacturing more quickly and significantly than any previous technology is the digital computer.

Design And Thermo Mechanical Analysis of Gas Turbine Blade Modification Using Cooling Passages

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ABSTRACT:

The present research deals with the outcomes of major geometrical changes to the interior of a convection cooled gas turbine rotor blade.The primary focus is at the flow on the leading area channels and the impact on the heat transfer. Four cooling passage geometry configurations are investigated by the use of fluid structural analysis. Turbine blades considered have internal passages that offer cooling all through operation in a high temperature engine. The cooling passages design is very important to acquire close to uniform temperature of the blade for the duration of operation of blade. The temperature of the blade is depending on the fluid dynamics of the air circulating within the cooling passages as well as the thermal properties of the blade fabric. To layout lighter and more green systems Computational optimization techniques had been efficaciously carried out for lots aerospace structures. An further extension of these techniques is been carried out to guide the thermal layout of a turbine blade by designing the layout of optimal cooling passage. Different evaluation is done for determining the optimum pattern of the cooling passages after which optimizing the size of the individual cooling passages. The intention is to make a turbine blade design which goes to produce blades with better overall performance and longer lives.

Index Terms: Gas Turbine, Computational optimization methods, Aerospace Structures, optimal cooling passage layout.

1.INTRODUCTION

Gas turbines play a vital role in the today's industrialized society, and as the demands for power increase, the power output and thermal efficiency of gas turbines must also increase. One method of increasing both the power output and thermal efficiency of the engine is to increase the temperature of the gas entering the turbine. In the advanced gas turbines of today, the turbine inlet temperature can be as high as 1500°C; however, this temperature exceeds the melting temperature of the metal airfoils. Therefore, it is imperative that the blades and vanes are cooled, so they can withstand these extreme temperatures. Cooling air around 650°C is extracted from the compressor and passes through the airfoils. With the hot gases and cooling air, the temperature of the blades can be lowered to approximately 1000°C, which is permissible for reliable operation of the engine. It is widely accepted that the life of a turbine blade can be reduced by half if the temperature prediction of the metal blade is off by only 30°C. By preventing local hot spots, the life of the turbine blades and vanes will increase. However, due to the complex flow around the airfoils it is difficult for designers to accurately predict the metal temperature. Figure 1 shows the heat flux distribution around an inlet guide vane and a rotor blade. At the leading edge of the vane, the heat transfer coefficients are very high, and as the flow splits and travels along the vane, the heat flux decreases. Along the suction side of the vane, the flow transitions from laminar to turbulent, and the heat transfer coefficients increase. As the flow accelerates along the pressure surface, the heat transfer coefficients also increase. The trends are similar for the turbine blade: the heat flux at the leading edge is very high and continues decrease as the flow travels along the blade; on the suction surface, the flow transitions from laminar to turbulent, and the heat flux sharply increases; the heat transfer on the pressure surface increases as the flow accelerates around the blade.
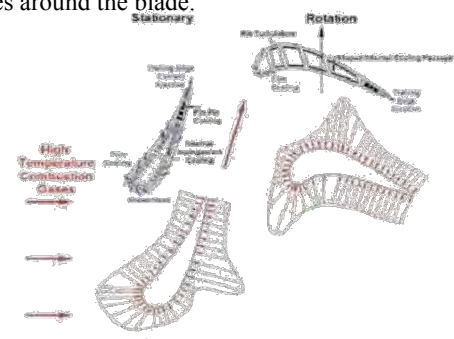
Fig. 1. Cross-Sectional View and Heat Flux Distribution of a Cooled vane and blade

DESIGN AND FLUID FLOW ANALYSIS OF HEAT EXCHANGER FIN WITH VARIOUS LOUVER FINS

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INTRODUCTION

A heat exchanger is a machine used to vary heat amongst an awesome object and a fluid, or between or additional fluids. The fluids could even be separated via using a perfect wall to preclude mixing or they are also in direct contact. They're largely utilized in residence heating, refrigeration, air conditioning, vigour stations, chemical plant life, petrochemical plant lifestyles, petroleum refineries, natural-gasoline processing, and sewage alleviation. The classic illustration of a heat exchanger is realized in an inside combustion engine the place a circulating fluid known as engine coolant flows by means of radiator coils and air flows prior the coils, which cools the coolant and heats the incoming air. One extraordinary illustration is the hot sink, that could be a passive heat exchanger that transfers the heat generated via digital or mechanical software to a fluid medium, as a rule air or a liquid coolant.

Flow arrangement
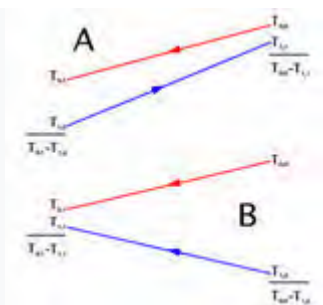
1. Counter current (A) and parallel (B) flows
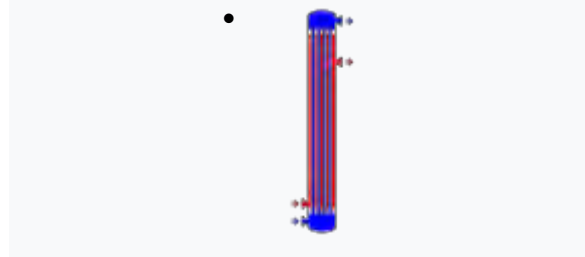
2. Shell and tube heat exchanger, single pass (1–1 parallel flow)
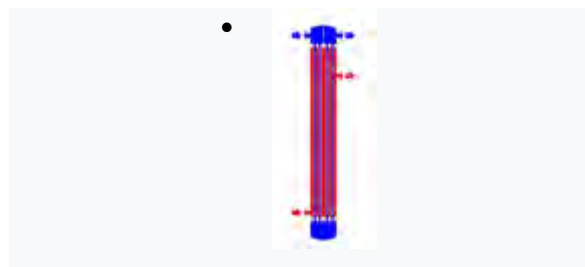
3. Shell and tube heat exchanger, 2-pass tube side (1–2 crossflow)
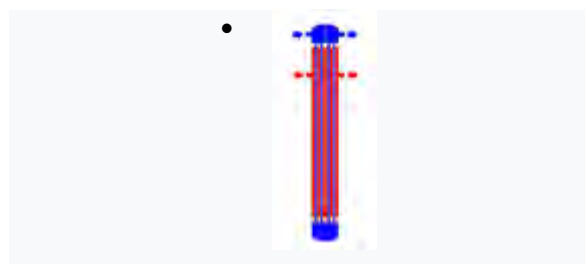
4. Shell and tube heat exchanger, 2-pass shell side, 2-pass tube side (2-2 countercurrent)

There are three quantities one classifications of heat exchangers in keeping with their go with the flow institution. In parallel-waft heat exchangers, the 2 fluids enter the exchanger on the equal quit, and tour in parallel to one more to the substitute side. In counter-flow heat exchangers, the fluids enter the

DESIGN OF AIR COOLING FINS -I.C.ENGINE USING FEA ANALYSIS

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ABSTRACT

Fins are basically mechanical structures which are used to cool various structures by the process of conduction and convection.It is important for an air-cooled engine to utilize fins for effective engine cooling to maintain uniform temperature in the cylinder periphery.

An attempt is made in this paper Design of IC Engine Air Cooling Fins with varying the fin pitch 10 mm and 20mm by modeling in Pro/E (creoparametric1.0) by taking the outer diameter of cylinder is 78 mm, inner diameter of cylinder is 62 mm, length of the cylinder is 120 mm and cylinder material as Aluminum, Fin material as copper.By using modeling procedure Assembly of cylinder & fins with surrounding airis done.

By using ANSYS software, the thermal analyses of IC engine air cooling fins is carried-out by discretization of numbers nodes are 21223. Shape of the element is Tetrahedral. By taking Ethylene Glycol Temperature Maximum of 120°C and heat release rate through the fins can be obtained by varying the Fin pitch .The heat release from Internal Combustion engine cylinder air cooling fins with six numbers of fin pitch 10 mm and 20 mm are obtained as the 21.02 W and 31.04 W. then the results are validated by comparing the Experimental and Ansys results and are with in the limits. Hence the work can be extended to Increase Rate of heat transfer by varying fin pitch. Changes like tapered fins, providing slits and holes in fins geometry can be made and the optimization of fins can be done with the help of ANSYS results.By keeping fins at an angle, changing the materials heat transfer can be improved.

ERECTION /INSTALLATION OF MECHANICAL DEVICES &COMPARATIVE STUDY OF ELECTRO STATIC PRICIPITATOR IN SUPER THERMAL POWER PLANT

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Abstract—The growth of any country is measured by the electrical power consummation for capita. In the developed countries like USA, Japan there electrical power 2400 W per capita where as in India the power consummation per capita is around 800 W In this regard the National Thermal Power Corporation (NTPC) Ltd has entered in program of power generation to the country.

The National Thermal Power Corporation (NTPC) Ltd was set up and accelerates power development in India since in 1975. National Thermal Power Corporation (NTPC) Ltd Kudgi to build the best 800 MW units of global standards promoting inclusive growth.

As an inspection of the receiving and storing of material at site to build the auxiliaries (Fenced lockable open yards and Covered lockable area in sheds inspection.) Inspection of the plant component and to control the inventory in a site. Study the plane and procedure of installation of plant components.

The plant design parameters like collection efficiency, Specific Collection Area, Aspect Ratio etc. are determine and comparing of above parameters between the NTPC Kudgi and National Thermal Power Corporation (NTPC) Ltd Ramgundam is under taken.

Test the Electro Statics Precipitators (ESP) components in a ground level testing methods, Kerosene test method, spirit and water level method, Gauge method and Alignment method etc.
The solid waste from power plant is used in making of bricks.

Keywords—ESP;super thermal power plan;NTPC;sulphuri acid plant;

I. INTRODUCTION

Coal & Hydro have been the main source of generation of electricity in power plant. A steam power plant continuously converts the energy stored in fossil fuels like coal, oil, etc. or fissile fuels like uranium, thorium etc into shaft work and ultimately into electricity.

The steam power plant work under principle of Rankine cycle. In an operation first energy release from burning of stem is transferred to water in the Generator (Boiler) to generate steam at a high pressure and high temperature, the steam leaving the turbine is condensed into water in the condenser, where cooling water from river circulates carrying away the heat released during condensation. The condensate (H_2O) is then fed back to the Boiler (Generator) by use the pumps, and cycle goes on repeating itself. The water as the working medium and coal is fossil fuels to convert the bulk energy to electrical energy.

The power plant small proportion of CO_2 is produced from the world's fossil fired in power plant by used Electro Static Precipitator (ESP) CO_2 emission can reduced.

ESPs have been carefully designed to collect more than 99.5% of particles in the flue gas from many industries. ESPs efficiently collect particles of various sizes: large particles of 3 to 10 μm in diameter, and smaller particles of less than 1 μm in diameter.

An ESP is designed for a particular industrial application. Building an ESP is a costly endeavor, so a great deal of time and effort is expended during the design stage. Manufacturers use various methods to design ESPs. They also consider a variety of operating parameters that affect collection efficiency including resistivity, specific collection area, aspect ratio, gas flow distribution, and corona power. This lesson focuses on these methods and operating parameters.

In Kudgi plant steam is generated from a once through boiler at a pressure above the critical point. If the plant incorporates reheat and several stage of feed heating, there is about 2% gain in thermal efficiency compared with corresponding subcritical cycle.

II. LITERATURE REVIEW

In 1905 Dr.F.G Cottrell are being commercially used Electrostatic Precipitator (ESP) and demonstrated to its (capture

Heat Transfer Enhancement and Thermal Performance of Extended Fins

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Abstract— **A fin is an extended surface which is used to increase the rate of heat transfer by connecting to the heating surface. The heat transfer rate can be increased by convection process and also by increasing surface area by means of extended surfaces.**

In the present analysis effect of increase in total surface area to improve the rate of heat transfer is studied. Thermal Analysis is performed for various perforated fin extensions with varied diameter. The analysis is carried out using commercially available finite element analysis software. Analysis called steady state thermal has been used to find out the temperature variations and heat flux of the fins.

Keywords—Modeling, meshing, boundry conditions, thermal analysis.

1. INTRODUCTION

In this chapter we have discussed basic heat transfer, modes of heat transfer, importantly natural convection has been discussed and heat transfer through extended surfaces or fins and various methods of increasing heat transfer are discussed.

Extended Surface (Fin) are used to enhance convective heat transfer in a wide range of engineering applications and offer a practical means for achieving a large total heat transfer surface area without the use of an excessive amount of primary surface area. Fins are commonly applied for heat management in electrical appliances, such as computer power supplies or substation transformers and other applications include IC engine cooling, Fins in Automobile radiator. Extensions on the finned surfaces is used to increases the surface area of the fin. When the surface area increase the more fluid contact to increase the rate of heat transfers from the base surface as compare to fin without the extensions provided to it. The concept of heat transfer through

perforated in fin array also one of the method to improve the heat transfer character. The efficiency and rate of heat transfer in perforated fin is compared to the fin with extension. The various types of extension provided on fin array such as (a) Rectangular fin with 20mm*5 perforation, (b) Rectangular fin with 20mm*7 perforation, (c) Rectangular fin with 3mm cutout, and (d) Rectangular fin with 20mm perforation and 3mm cutout.

A. Heat transfer and thermodynamics

Transfer of energy, mass, momentum etc has been included in the study of transfer phenomenon and these are all recognized as a single discipline of fundamental importance on the basis of thermodynamic forces and fluxes. Hence the transfer of such unified phenomena occurs due to a force of concentration gradient, temperature gradient, velocity gradient etc.

B. Heat transfer by extended surfaces or fins

The rate of heat transfer is given by

$q = hA(T_{surface} - T_{ambient})$

where q = coefficient of convective heat transfer.

 h = convective coefficient.

 A = Surface area.

 T_s = Surface temperature.

 T_a = ambient temperature.

To increase the convective heat transfer the following methods are used

- Increase the temperature difference ($T_s - T_a$)
- By increasing the coefficient of heat transfer (h).
- Increase the surface area (A).

Increasing h may require the installation of pump or fan or replacement is need for existing one with larger one. Hence alternative method for increasing the rate of heat transfer is increasing the surface area by giving extensions or perforations to the fins.

2. LITERATURE REVIEW

Nitish Kumar Jha, et. Al. (2015) Had investigated the heat transfer through extended surfaces. Fin with various extensions like fin with rectangular cavity, fin with triangular cavity, fin with trapezoidal cavity, and fin with semicircular cavity are considered for the analysis and the results are compared with the fin without cavity. About 2% to 21% of heat transfer enhancement has been recorded for fin with cavity. Fin with rectangular cavity provides more heat transfer as compared to fin without cavity. In thermal analysis the temperature variations of all the fin without cavity and fin with cavity has been analysed and the heattransfer has been calculated and percentage of variation in heat transfer has been recorded. Effectiveness of fin with rectangular cavity is more compared to fin without cavity.

V. Karthikeyan, et. al. (2015) had studied the rate of heat transfer for various extended surfaces. Fin with various extensions and different perforations are designed and analysed the results are compared with fin without extensions.

DESIGN, MODELING AND OPTIMIZATION OF PISTON

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Abstract— In this study, A piston is a disc which reciprocates within a cylinder. It is either moved by the fluid or it moves the fluid which enters the cylinder.The piston is used in reciprocating engines, pumps and gas compressors. we have taken piston in a high pressure air compressor. piston is designed by using material Cast Iron. Piston is modeled using SOLIDWORKS software.Structural and Thermal Analysis are done on the model using two materials Cast Iron and Aluminium Alloy A360 by using COSMOSWORKS.The thickness of the barrel and thickness of the piston rings is reduced to decrease the weight of the piston.Structural and Thermal Analysis are again done on the modified model.The comparison is done for the results to decide the best material for piston.

Keywords— SOLIDWORKS;PISTON; PRO E;FEA

I. INTRODUCTION

In every engine, piston plays an important role in working and producing results. Piston forms a guide and bearing for the small end of connecting rod and also transmits the force of explosion in the cylinder, to the crank shaft through connecting rod.The piston is the single, most active and very critical component of the automotive engine. The Piston is one of the most crucial, but very much behind-the-stage parts of the engine which does the critical work of passing on the energy derived from the combustion within the combustion chamber to the crankshaft. Simply said, it carries the force of explosion of the combustion process to the crankshaft.Apart from the critical job that it does above, there are certain other functions that a piston invariably does -- It forms a sort of a seal between the combustion chambers formed within the cylinders and the crankcase. The pistons do not let the high pressure mixture from the combustion chambers over to the crankcase.

II. MATERIALS FOR MANUFACTURING PISTONS:

Aluminum alloys give light pistons and for better heat dissipation, aluminum alloys are the ideal materials due to their very high thermal conductivity. Aluminum is 3 times lighter than cast iron. Its strength is good at low temperatures but is looses about 50% of its strength at temperatures above about 320 c .Its expansion is about 2 ½ times that of cast iron and the resistance to abrasion is low at height temperatures.

However these disadvantageous properties of aluminum have now been ever come by alloying it with other materials and by developing advanced designs of pistons.

The split skirt, T- sotted as well as cam ground, oval sectioned pistons made from aluminum alloys are mostly used which can be tightly fitted into the cylinder born to eliminate "piston slap". A coating of aluminum oxide or tin on aluminum alloys pistons has been found to be protective against "scuffing" or "partial seizure" during running in after overhaul.

For a cast iron piston the temperature at the centre of the piston head (Tc) is about 425c to 450c under full load conditions and the temperatures at the edges of the piston head (Tb) is about 200c to 225c.For aluminum alloy piston, Tc is about 260c to 290c and Te is about 185c to 215c.Since the aluminum alloys are aboutthree times lighter than cast iron, Therefore its mechanical strength is good at low temperatures, but they lose their strength(about 50%) at temperatures above 325c.

III. RESULTS OF FINITE ELEMENT ANALYSIS

FEA has become a solution to the task of predicting failure due to unknown stresses by showing problem areas in a material and allowing designers to see all of the theoretical stresses within. This method of product design and testing is far superior to the manufacturing costs which would accrue if each sample was actually built and tested

1.COUPLED FIELD ANALYSIS USING CAST IRON

Fig. 1 IMPORTED MODEL FROM PRO/ENGINEER(CAST IRON)

THERMAL PROPERTIES

- Element Type: Solid 20 node 90

- Material Properties: Thermal Conductivity – 50w/mmk

- Specific Heat – 540J/kg k

- Density - 0.0000071kg/mm³

Effect of Fiber Length and NaOH Treatment on the Flexural Behavior of Coir Fiber Reinforced Epoxy Composite

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Abstract **- This paper presents the study on the effect of fiber length and fiber surface modification on flexural properties of coir fiber reinforced epoxy composites. The composite sample was fabricated with three different fiber lengths namely 10, 20, and 30 mm. The fiber treatment was carried out using sodium hydroxide (NaOH) solution at five different concentrations such as 2, 4, 6, 8 & 10%. The fabrication was made by hand lay-up techniques. Mechanical interlocking between fiber and matrix was observed from the SEM (scanning electron microscope) micrographs. The study reveals that increases NaOH concentration in the fiber treatment was found to increase the flexural strength up to 4% and further increase in NaOH concentration reduce the flexural strength and also the strength increase with increasing fiber length.**

Key words - Coir fiber, epoxy matrix, fiber length, sodium hydroxide, flexural strength

I. INTRODUCTION

Natural fiber composites have become a popular new materials because of their high strength and stiffness, natural availability and environmental 'friendly' [1-2]. Additionally they are also recyclable, renewable and have a very low raw material cost [3]. The advantage of natural lignocellulosic fibers over traditional reinforcing materials such as glass fibers, talc and mica are acceptable specific strength properties, low cost, low density, non-abrasive, good thermal properties, enhanced energy recovery and bio-degradability. The main bottle necks in the broad use of these natural fibers in various polymer matrixes are poor compatibility between fiber and the matrix and the inherent high moisture abortion, which brings about dimensional changes in the lignocellulosic based fibers [4]. The efficiency of a fiber reinforced composite depends on the fiber/matrix interface and the ability to transfer stress from the matrix to fiber. This stress transfer efficiency plays a dominant role in determining the mechanical properties of the composite. Coir is an important lignocellulosic fiber obtained from coconut tree which grow extensively in tropical countries. Because of its hard wearing quality, durability and other advantages. It is used for making a wide variety of floor furnishing materials, yarns, rope etc [5]. However these traditional coir products consume only a small percentage of the potential total world production of coconut husk. Hence research and development efforts have been underway to find new use areas for coir including utilization of coir as reinforcement in polymer composite [6-11]. The alkali treatment of coir fiber for coir polyester composites. The experimental results proved that flexural strength, modulus and impact strength of treated fiber composites were 40% higher than those containing the same volume fraction of untreated fibers [12]. Rout et al. [13] have studied the influence of fiber treatment on the performance of coir fiber polyester composites. The investigation proved that the 2% alkali treated coir fiber polyester composites showed better tensile strength (26.80Mpa) whereas 5% alkali treated composites showed better flexural (60.4Mpa) and impact strength (634.6 J/m). Karthikeyan et al. [14] have studied the coconut fiber reinforced epoxy composite with alkali treatment. The results proved that treated fiber composites have better impact strength (27kJ/m2) and also impact strength was greatly influenced by the fiber lengths. Therefore, in this research the coir fibre is chosen to be the sources of fiber for producing reinforced composites and investigate the effects of fiber length and surface modification by NaOH treatment on flexural properties of epoxy resin composites.

II. MATERIALS AND METHODS

In this work, the main studies were carried out to investigate how fiber length of coir fiber reinforced epoxy composite affects flexural strength with and without NaOH treatment. The coir fibers were collected from the rural area of Erode, Tamil Nadu. Coir fibers were carefully extracted from the coconut husk. A diameter of coir fiber was in the range of 0.2743mm. After that the coir fibers were immersed in the NaOH solution (2, 4, 6, 8, & 10% concentration) for 10days. Thereafter, fibers were rinsed with water to remove the excess of NaOH sticking in the fiber. The fibers were then dried at room temperature for 5 days. After that, composites containing 30% by weight of fiber were prepared using fiber of length in the range 10, 20, and 30 mm. A matrix was created by mixing epoxy resin with its hardener in the ratio 10:1 by weight percentage. The mixture was poured into the metal mould of size 300x300x3mm. The fabrication of the composite material was carried out through the hand lay- up technique. The top & bottom surface of the mold and the

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DESIGN AND CHARACTERIZATION OF E-GLASS FIBER REINFORCED COMPOSITE MATERIAL WITH USE OF SISAL FIBER

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ABSTRACT

The present work describes the development and mechanical characterization of new polymer composites consisting of E-glass fiber[1] reinforcement, Epoxy resin, and hardener, natural fiber (Sisal fiber).The newly developed composites are characterized by their mechanical properties. Experiments like Hardness test, tensile test, Compression test, Impact test were conducted to find the significant influence of natural fiber (sisal) on mechanical characteristics of Glass fiber Reinforcement composites.

Composites are an important class of materials available to mankind. Studies of these composites play a very important role in material science, metallurgy, chemistry, solid mechanics and engineering applications. The E-glass fiber[1] reinforced polymer composite is more widely used in the automotive industry and other industrial applications, due to their advantages, like low cost, noise control, low weight and ease of processing.

Natural fibers1 are cheap and environment-friendly materials. Glass Fiber[2] composites are considered to have potential use as a reinforcing material in epoxy polymer-based composites because of their good strength, stiffness etc., in the present study, mechanical properties[3] for glass fiber composites were evaluated.

The present work describes the mechanical characterization of new polymer composites consisting of glass fiber reinforcement, epoxy resin, and sisal fiber. The newly developed composites are characterized for their mechanical properties[3]. Experiments like the tensile test, compression test, hardness test and impact test were conducted to find the significant influence of sisal fiber on mechanical characteristics of GFRP3 (Glass Fiber Reinforced Polymer) composites.

Keywords: Epoxy hybrid composites, E-glass fiber, sisal fiber

1. INTRODUCTION
1.1 INTRODUCTION TO COMPOSITE MATERIAL

This is a new generation of reinforcements and supplements for polymer[2] based materials. Fibers from plants such as cotton, hemp, jute, sisal, pineapple, ramie, bamboo, banana, etc., used as the reinforcement in polymer matrix composites[4]. Their availability, low density, and price as well as satisfactory mechanical properties, make them attractive alternative reinforcements to glass, carbon and other manmade fibers.

A composite material can be defined as a combination of two or more materials that results in better properties than those of the individual components used alone. In contrast to metallic alloys are separate chemical, physical and mechanical properties[3]. The reinforcing phase of the composites [4] provides the strength and stiffness, to make them harder, stronger and stiffer than the matrix. The reinforcement is usually in the form of a fiber or a particulate.

The length-to-diameter ratio is known as the aspect ratio and can vary greatly for fibers[5] because the length of the fiber is much greater than its diameter. Continuous fibers1 have high aspect ratios, while discontinuous fibers have low aspect ratios, and the orientation of continuous fiber composites normally is perfect, while discontinuous fibers generally have a random orientation.

Continuous fiber composites are often made into laminates by stacking single sheets of fibers in different orientations to obtain the desired strength and stiffness properties [15] with fiber volume as high as 60 to 70%. In general, the smaller the diameter of the fiber, the higher its strength [5], but the cost increases when the diameter becomes smaller.

An Analytical Study on Issues of Handloom Industry in Undivided State Of Andhra Pradesh

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Abstract

The aim of the study is to identify the issues faced by the handloom industry. The study draws the attention of master weavers from the undivided state of Andhra Pradesh, especially four districts namely, Nalgonda, Guntur, Krishna and Prakasam districts. This study adopted the quantitative methodology, where 365master weavers were selected through purposive sampling technique. The study findings reveal that the handloom industry in this district is unorganized. This reflects that there are some problems faced by the weavers. This study has limitations as it was conducted in four districts of the undivided state of Andhra Pradesh only. There may be other issues related to supply chain management practices of weavers in other districts. Therefore, the study inference can't be counted as general. Therefore, this study gives scope for conducting further research in future.

Keywords: Handloom industry, issues, Raw material, Finance, Technology, Supplies chain.

Introduction

This study attempts to analyse the issues in Indian handloom industry. In the last 100 years, the Handloom industry one of the ancient industries of India has faced a lot of changes in the form of mechanization, fibres used, refined methods of manufacturing and designing etc[1]. The Textile Industry occupies a vital place in the Indian economy and contributes substantially to its export earnings. Textiles exports represent nearly "30% of the country's total exports. It has a high weightage of over 20% in the National production. It provides direct employment to over 15 million persons in the mill, power loom and handloom sectors"[2].

The structure of the Indian textile and garment industry is full of variability having the players at every level of their supply chain with a lot of structural, operational and performance differences[3]. The supply chain consists of all the activities associated with the flow and transformation of goods from the raw material stage, through to the end user, as well as the associated information flow.

However, the supply chain management process involved in handloom sector is haphazard, i.e. there is lack adequate mechanism to procure the raw product and produce them, then to sell the

Generalized Fixed Point Theorem of pal and Maiti

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Abstract: In this paper, we extend a unique fixed point of Pal and Maiti for any positive power of two self mappings in 2- metric space

AMS Subject Classification: 4785, 47H10

Key words: Fixed point, 2- metric space, Contractive mappings

Introduction: The notion of 2-metric was introduced by Gahler in 1963 as an abstract generalization of the concept of area function for Euclidean triangles. The concept of 2-metric attracted the attention of many researchers. Many authors like Iseki, Khan, Rhoades, Lal and Singh etc. probed deeply into this area and established several fixed point theorems in 2- metric space setting as generalizations or extensions to the metric fixed point theorems. Several fixed point theorems appeared in 2-metric spaces analogous to the fixed point theorems in metric space setting. In this present work we generalize the fixed point theorems that are proved by pal and maiti[4]. In 1977 Rhoades [6] proved some fixed point theorems by using contractive type mappings for 2-metric spaces.

1. Preliminaries

In this section, we present some basic definitions which are needed for the further study of this paper

1.1 Definition: Let (X,d) be a 2 –metric space. A mapping $T: X \to X$ is said to be Contractive if for all x,y,a in X

$$d(Tx, Ty, a) \quad < \quad d(x, y, a)$$

1.2 Definition: A 2-metric on a non-empty set X is a function $d : X^3 \to R$, satisfying the following properties.

(a) $d(x, y, z) = 0$, if at least two of x,y,z are equal

(b) for each pair of distinct points x , y in X there exists a point $z \in X$ such that $d (x, y, z) \neq 0$

(c) $d(x, y, z) = d(x, z , y) = d(y, z , x)$ for all x, y, z in X

COMMERCIAL PRODUCTION OF BIO CONTROL AGENTS

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ABSTRACT:

Trichoderma viride is an effective biopesticide against several plant pathogenic fungi occurring usually in different crops. It is commercially produced by different organizations like government labs, NGO's and private industries and is made available to the farmer. The skills and expertise obtained in different aspects of the commercial production of these biopesticides is very important to pursue career in respective field. The general procedures involved in a commercial biopesticides production unit in sequence is maintaining the mother culture of the effective strains, sub culturing the mother culture, mass multiplication of the strain by either solid state fermentation or submerged fermentation, and downstream processing which involves formulation in to carrier material, drying, sieving and packing. Maintaining the quality of the final product is of utmost importance.

The protocols used in the production of the biopesticides and also the skills involved in handling the equipment have been acquired. Several intricate points involved in the commercial production have been thoroughly studied and gained confidence of running a commercial biopesticide unit independently and successfully.

Key words: Trichoderma viridae, biopesticides, commercial large scale production.

BACK GROUND ART OF WORK/HISTORY:

Occurrence of *Trichoderma viride*: *Trichoderma* species are found in almost all soils and all over the world. Phylogenetic analysis of the morphological species *T. viride* revealed that it comprises two or more new species, including the biocontrol species *T. asperellum*.

Taxonomic classification:

Kingdom   : Fungi
Phylum   : Ascomycota
Class   : Euascomycetes
Order   : Hypocreales
Family   : Hypocreaceae
Genus   : *Trichoderma*

Morphology: Conidia and phialides help in differentiation of species from each other. Greenish patches become visible as the conidia are formed and may form concentric rings at times, while on the reverse, the color is pale, tan, or yellowish. They are more readily visible on potato dextrose agar compared to Sabouraud dextrose agar.

Microscopic appearance: Septate hyaline hyphae, conidiophores hyaline, branched and flask shaped phialides. They may be solitary or arranged in clusters. Asexual sporulation occurs as single-celled, usually green, conidia. Conidia may occasionally display a pyramidal arrangement. Intercalary resting chlamydospores are also formed, and are single celled, although two or more chlamydospores may be fused together.

A SURVEY OF THE DEVELOPMENT OF FIXED POINT THEORY

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Abstract: In this paper, we collected the developmental history of fixed point theory. Some important results from beginning up to at the present are included in this paper.

Keywords: Fixed Point, Metric Space, Contraction mapping

Subject Classification: 54H25, 47H10

1. INTRODUCTION

The theory of fixed point is one of the most powerful tool of modern mathematical analysis. Theorem concerning the existence and properties of fixed points are known as fixed point theorem. Fixed point theory is a beautiful mixture of analysis, topology & geometry which has many applications in various fields such as mathematics engineering, physics, economics, game theory, biology, chemistry, optimization theory and approximation theory etc. Fixed point theory has its own importance and developed tremendously for the last one and half century. The purpose of the present paper is to study the development of fixed point theory

Definition: Let X be a non-empty set. A function $T : X \rightarrow X$ is called a self map on X. A point $z \in X$ is called a fixed point of a self map $T: X \rightarrow X$, if $T(z) = z$

For example the function $T : [0,1] \rightarrow [0,1]$ defined by $T(x) = x^2$ has exactly two fixed points. This function is uniformly continuous on $[0, 1]$

The function $S : R \rightarrow R$ defined by $S(x) = x + 1$ has no fixed point in R.

2. HISTORY OF FIXED POINT THEORY

In the 19th century The study of fixed point theory was initiated by Poincare and in 20th century developed by many mathematicians like Brouwer, Schauder, Kakutani, Banach, Kannan ,Tarski , and others

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Brouwer fixed point theorem

In 1912, Brouwer published his famous fixed point theorem. The theorem states that

Theorem 1. If B is a closed unit ball in R^n and if $T: B \rightarrow B$ is continuous then T has a fixed point in B.

Remark: The Brouwer's fixed point theorem guarantees the existence of fixed point. But it does

KINETICS AND MECHANISM OF CINNAMYL ALCOHOL BY BENZYLTRIMETHYL AMMONIUMDICHLOROIODATE

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ABSTRACT

BENZYLTRIMETHYL AMMONIUM DICHLORO IODATE is used as a reagent for iodination and chloro iodination for many organic compounds because of its stable nature. However, the oxidation of alcohols, in particular unsaturated alcohols in the presence of BTMACI is not much known. In the present study, the oxidation of unsaturated alcohol, cinnamyl alcohol is carried out. The corresponding aldehyde is identified and kinetics of the oxidation reaction which is studied and found to be a first order reaction with respect to BTMACI. The effect of concentration of alcohol, oxidant and temperature on reaction rate is also studied. Depending on kinetics and activation parameters, a suitable mechanism is proposed for cinnamyl alcohol by the formation of intermediate active species between BTMACI and $ZnCl_2$.

INTRODUCTION

Synthesized BTMACI is known as a good halogenating agent (1-3). Among various Benzyltrimethyl ammonium polyhalides, BTMACI is widely used because of its stable character. Addition of Zinc Chloride makes BTMACI more soluble in acetic acid, generating a complex which serves as an excellent halogenating agent. Moriwaki et.al (4) have reported successful halogenation of aromatic acetyl derivatives by BTMACI in acetic acid in the presence of $ZnCl_2$. Fujisaki et.al (5) used BTMACI in the formation of chloroiodo adducts of alkenes. Auria et.al (5,6) reported the use of BTMACI as iodinating agent of Thiophene derivatives. The use of BTMACI in the oxidation of some Thioacids was reported by Suri et.al (7). The reaction was found to be first order with respect to Thio acids and BTMACI.

Oxidation of primary alcohols (8), hydroxy acids (9) and organic sulphides by BTMACI was studied by Jai Narain Vyas University, JODHPUR. However the use of BTMACI has not been extended to unsaturated alcohols. In the present study, the oxidation of cinnamyl alcohol in the presence of BTMACI is taken up. It is also aimed to study the effect of concentration of Substrate and oxidant and the effect of termperature on reaction rate. Based on kinetics and activation parameters a suitable mechanism is proposed for the oxidation of cinnamyl alcohol.

EXPERIMENTAL

Cinnamyl alcohol (FLUKA) is purified by recrystalisation, is used. BTMACI is dissolved in acetic acid in the presence of $ZnCl_2$ BTMACI is prepared in the following way. A solution of Benzyl Trimethyl ammonium chloride (18.6 g, 0.1 mol) in water is added to a solution of Iodine monochloride (16.2 g, 0.1 mol) in Dichloromethane (200 ml) with continuous stirring. A layer of BTMACI is separated and dried. This is recrystalised for dichloromethane – Ether mixture (3:1) to get BTMACI, yellow needle shaped crystals.

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DETERMINANTS FOR CUSTOMER INTENDED USE OF SELF SERVICE TECHNOLOGIES

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Abstract: The last decade has seen an increased focus by business world on using modern technologies to deliver their services. The introduction of self-service technologies (SSTs) opens for businesses for the potential of improving productivity and service quality while cutting costs. In fact, introduction of self-service technologies has not been proven to be quite successful. Research on the usage of technology based self services has mainly focuses on antecedents of attitude towards and corresponding behavior intentions to use Focusing on the moderating effects of age, education and gender as key demographic variable. Finally, the conceptual paper is taking support from the literature to exploring the determinants for intended usage and perceived behavior of consumers towards the self-service technologies.

Keywords: Self-Service Technologies, Customer Determinants, Technology Interfaces, Perceived Bahaviour etc.

1. INTRODUCTION:

The Rapid acceptance of modern information and communication technologies in day to day business activity is an important for long term trend in the business world given byRust (2001). Consequently, business environment has increasingly considered innovative options for delivering services to their customers (Bobbitt and Dabholkar 2001, Dabholkar, Bobitt and Lee 2003, Quinn 1996). As a result, the mode of service provision and production is increasingly turned towards the use of self service technologies (SSTs), thereby Meuter et al (2005) explained enabling customers to produce a service encounter independent of direct service employee involvement.The infusion of technology is dramatically changing the

IMPORTANCE OF A TEACHER AND TEACHING PROFESSION

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ABSTRACT:

This article illuminates the importance of the person who occupies the role of teacher by focusing On well-regarded teachers and showing how important it is for teachers to develop a sense of community and of trust in the classroom. Finally, their work sheds light on why a teacher's intellectual and moral sensibility plays a significant role in his or her influence on students. Teachers are an extremely important facet of any society for a number of reasons and their role in society is both significant and valuable. Teachers play an extraordinary part in the lives of children for the formative years of their development and the importance of teachers is something that cannot be understated. A teacher is a person who helps others to acquire knowledge, competences or values. Informally the role of teacher may be taken on by anyone In some countries, teaching young people of school age may be carried out in an informal setting, such as within the family, (homeschooling) rather than in a formal setting such as a school or college. Some other professions may involve a significant amount of teaching (e.g. youth worker, pastor). In most countries, formal teaching of students is usually carried out by paid professional teachers.

Key words: Teacher, Teacher Qualities, Teacher Communication, Barriers, Duties.

Duties and functions of a Teacher:

A teacher's role may vary among cultures. Teachers may provide instruction in literacy and numeracy, craftsmanship or vocational training, the arts, religion, civics, community roles, or life skills. Formal teaching tasks include preparing lessons according to agreed curricula, giving lessons, and assessing pupil progress. A teacher's professional duties may extend beyond formal teaching. Outside of the classroom teachers may accompany students on field trips, supervise study halls, help with the organization of school functions, and serve as supervisors for extracurricular activities. In some education systems, teachers may have responsibility for student discipline.

Competencies and qualities of teacher:

Teaching is a highly complex activity. This is in part because teaching is a social practice that takes place in a specific context (time, place, culture, socio-political-economic situation etc.) and therefore reflects the values of that specific context. Factors that influence what is expected (or required) of teachers include history and tradition, social views about the purpose of education, accepted theories about learning etc.

CUSTOMER EXPERIENCE MANAGEMENT [CEM] – A CRITICAL OVERVIEW

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ABSTRACT:

The aim of Customer relationship management is to enhance relationship with customers and builds customer loyalty. Research suggests, however, that service quality and customer satisfaction may be declining as customer often receives service and quality that falls well below their expectations, in this concern creating customer experience is bound to play vital role in business environment for getting competitive advantage over market competitors and enhances companies long run profitability and sustainable development. Many companies have seen customer experience management (CEM), as a successor to customer relationship management (CRM). This conceptual paper is critically overview the concept of Customer experience management.

Keywords: Customer Experience, Customer Satisfaction, Consumer Behaviour etc.

1. INTRODUCTION:

Present business scenario the term Customer experience has been so widely used; according to academicians and practitioner's opinion, customer relationship management has not created the expecting levels of value for customers and profitability for organizations. So, Customer experience management may be an integrating framework that overcomes the theoretical and practical limitations of customer relationship management. The term customer experience has been receiving increased attention from practitioners and

Importance of English Language in India: It's Role in Present Scenario

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Abstract: In the present scenario, English is a widely spoken language. It is referred to 'global language', the Multi- lingua franca of the modern era. It is the language most often taught as a second language around the world. In India English is used in the process of communication with the outside world, It is also used for inter-state and intrastate communication. India does have great ethnic and linguistic diversity and we can therefore find English acting as an indispensable 'link' language. With the advanced development in Information Technology, Science, Medical, Irrigation, Education, Mass communication, software and operating systems, a new utility for written and oral communication in the English language has emerged. English is said to be the world's most important language which has communicative and educative value. English is used all over the world not out of any compulsion but because of the realization that it has certain advantages.

Key Words: global language, Multi- lingua franca, indispensable link language.

INTRODUCTION

One of the major problems that has grabbed our attention in the recent years is the role of English in the different fields of our life. Since Britishers invaded our country, English has been playing a dominating role in our daily and professional life. Today it has become a symbol of people's aspirations for quality in education and a fuller

Participation at national and international life and it's no wonder to say that it is the symbol of elite people. The visible impact of this presence of English is that it is today being demanded by everyone at the initial stage of schooling which has it's importance even at the higher level of education.

Consequently, the role and importance of English language in our national curriculum has increased to a greater extent.

The present writing is an attempt to highlight the importance of English language in today's Indian society and the role it plays in present national and international set up.

ROLE OF ENGLISH;

English plays quite a multi dimensional role in day to day life. It is used as a medium of communication in banks, railway stations, bus stations, airways, educational sector, medical, private sector, etc. English is a link language and is used in trade and business both at national and international level. Students who fly abroad for education and jobs would be at ease if they have efficient communication skills. We are aware of the fact that students are prime learners of English as it helps in designing their career and accomplish their goals. If the students are proficient in interactive skills, they would have confidence to face most of the

GREEN BUILDING CONCEPT

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Abstract: Green Building is becoming emerging adoption method to have sustainable building. The main objective of the green building is to reduce the effect of CO_2 caused to environment. Constructing industry is the one of the major industry which is emitting CO_2 in to atmosphere. To reduce the adverse effects which cause to environment, by the usage of non-renewable resource, .It is an opportunity to use the resources efficiently while creating healthier buildings that improve human health, build a better environment, and provide cost savings. All the development projects lead to over-consumption of natural resources. This leads to serious environmental problems.

Green building deals with the optimum use of natural resources for the development of infrastructure. The low cost eco-friendly house is the modern construction method which uses locally available material and unskilled labor and also reduces the construction time. Similarly, use of recycled plastic, recycled aggregates and municipal wastes for the construction of pavement has considerable effect on the environment of earth.

Another advanced method is the construction of low carbon building which uses sustainable materials like blended cement, compacted fly ash blocks, low energy intensity floor and roofing system, rammed earth walls and stabilized mud blocks etc. This ultimately results in reduction of green house gases which will help to reduce green house effect. This paper presents an overview of application of modern green infrastructure construction technology which makes a significant impact on conservation/proper utilization of resources like land, water, energy, air, material etc

Keywords: Green Building, Sustainable Building, Renewable resources, Non-Renewable Resources, Eco Friendly Material.

INTRODUCTION

Green building (also known as green construction or sustainable building) refers to both a structure and the application of processes that are environmentally responsible and resource - officient throughout a building's life-cycle: from planning to design, construction, operation, maintenance, renovation, and demolition. This requires close cooperation of the contractor, the architects, the engineers, and the client at all project stages. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

Green building (also known as **green construction** or **sustainable building**) refers to both a structure and the application of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle: from planning to design, construction, operation, maintenance, renovation, and demolition. This

A STUDY OF THE CRITICAL ISSUES INVOLVED IN PROVIDING NECESSARY TOOLS IN ENGLISH LANGUAGE FOR STANDARDISED TEST TAKERS

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Abstract: I propose to make a study of the critical issues involved in providing necessary tools in English language for students who prepare for some of the standardised tests such as GRE, TOEFL, IELTS and etc. Standardised test is any form of test that requires all test takers to answer the same questions or a selection of questions from common bank of questions, in the same way, and that is scored in a standard or consistent manner, which make it possible to compare the relative performance of individual students or group of students. While different types of tests and assessments may be standardised in this way.

Standardised test is defined by Cohen and Wollack (2006: 358) in the following way. "Tests are standardised when the directions, conditions of administration, and scoring are clearly defined and fixed for all examinees, administrations, and forms.

Standardised tests can include true-false questions, short-answer questions, essay questions, or a mix of question types. These tests may come in a variety of forms, multiple-choice and true-false formats are widely used for large-scale testing situations because computers can score them quickly, consistently, and inexpensively. In contrast, open-ended essay questions need to be scored by humans using a common set of guidelines to promote consistent evaluations from essay to essay—a less efficient and more time-intensive and costly option that is also considered to be more subjective. These standardised tests are generally taken by engineering graduates who want to pursue their further education - M.S. in the U.S.A. In this regard, the students of Engineering and Technology require a specific set of language skills for success in their education and career.

Keywords: Standardised test, consistent manner, inexpensively

BACKGROUND OF THE STUDY

Language testing like all educational assessments is a complex social phenomenon. It has involved to fulfill a number of functions in the classroom, and society at large. Today the use of language of testing is endemic in contexts as diverse as education, employment, international mobility and language planning.

The act of giving a test always has a purpose. In one of the founding documents of modern language testing is Carroll (1961: 341) states "The purpose of language is always to render information to aid in making intelligent decisions about possible courses of action. But these decisions are diverse and need to be make very specific for each intended use of a test.

It has been found that a number of technically-sound students have not been successful in job interviews just because of their lack of communication skills and there are cases of rank holders in engineering studies who could not go for higher studies to the United States and other English-speaking countries because of their lack of proficiency in English. Just because those students did not get score / band on their Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS), they could not make their dream of going to the countries for studies come true.

The components of the aforementioned tests are:
- Advanced Vocabulary
- Advanced Reading Comprehension Skills
- Critical Reasoning Skills
- Integrated tasks in Speaking and Writing
- Listening comprehension, etc.

Unfortunately, most of the engineering colleges prescribe the syllabus in English that does not fulfill the requirements of the aspirants who prepare for the standardised tests. On the other hand, the syllabus just focuses on the basic communication skills development. This point will be clear if the prescribed english text books/syllabus for Engineering Colleges by JNTU, O.U. and other universities are referred to. As a result, English in standardised tests poses a challenge to most of the students.

A Study on Performance of Indian Mutual Fund Schemes based on Risk Adjusted Performance Indices: Treynor, Sharpe and Jensen Approaches

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ABSTRACT: The assessment and performance of mutual funds have become a fascinating exploration research topic both for academic researchers, managers of financial, banking and investment institutions. Thus, this study focused on the best and least Scheme based on the ranks provided by risk adjusted performance indices from the period from April 2010 to March 2015 available to investors in India.

The collected data are analyzed by using MS Excel package. The study Treynor, Sharpe and Jensen Indices for Secondary Data analysis by followed Benchmark S&P BSE Sensex to grant best possible accurate output for the financial period from 2010 to 2015. 33 Equity Diversified Mutual fund Schemes from top 10 Mutual fund Companies (based on AUM) were chosen for the study. This study concludes that UTI - MNC Fund (UGS 10000)-Growth Option, UTI - MNC Fund (UGS 10000)-Growth Option and ICICI Prudential Exports and Other Services Fund - Regular Plan – Growth are the best ranking schemes based on Treynor, Shapre and Jensen Ratios respectively. Moreover, SBI Magnum Multiplier Fund - REGULAR PLAN –Growth, Birla Sun Life Equity Fund - Growth - Regular Plan and SBI Magnum Multiplier Fund - REGULAR PLAN – Growth is the least ranked schemes respectively.

Keywords: Treynor Index, Sharpe Index, Jensen Index

1. INTRODUCTION

Mutual funds are institutions which pool the money from the public, invest in securities on behalf of investors and distribute the returns to the investors. They collect money from the public by issuing units. Investors are panic when they have many alternatives. Identifying the best scheme among the many alternatives (in terms of Risk and Return) is the biggest challenge to the mutual fund investors. Standard Deviation (σ) is the indicator of Measuring Risk (Volatility), which shows the tendency of an asset to fluctuate in price. Beyond the Standard Deviation (σ), the investors have to monitor various risk levels. Market Beta also considered for comparing the fund's returns.

A Study on Human Resource Hiring Process at Planman Pvt. Co. Ltd

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Abstract: Employees are the assets of any organization. Nowadays, every organization necessitates personnel planning as one of the most vital activities. Human Resource Planning is, by far, an essential ingredient for the success of any organization in the long run. To understand the Internal/ External Recruitment process and to identify areas where there can be scope for improvement.

Keywords: Human Resource, Recruitment, Selection

1. INTRODUCTION

Employees are the assets of any organization. Nowadays, every organization necessitates personnel planning as one of the most vital activities. Human Resource Planning is, by far, an essential ingredient for the success of any organization in the long run. There are a number of techniques that need to be followed by every organization that guarantees that it possesses the right number and type of people, at the right time and right place, so as to enable the organization to achieve its planned objectives. Commonly, the objectives of Human Resource Planning department include resource, planning, recruitment and selection, career planning, training and development, promotions, risk management, performance appraisal, to name a few. Each of these objectives requires special attention and accurate planning and execution.

It is of utmost importance for every organization to employ a right person on a right position. And recruitment and selection plays a pivotal role during such situations. With shortage of skills and the rapid spread of new technology exerting considerable pressure on how employers perform recruitment and selection activities, it is recommended to conduct a step-by-step strategic analysis of recruitment and selection processes. With reference to the current context, this paper presents an incisive review of previous literature on the recruitment and selection process. This paper is primarily based on an analysis of six pieces of literature conducted by practitioners and researchers in the field of Human Resource management.

Various researchers have contributed to the field of HRM, and have offered intensive and profound knowledge on the branches of HRM such as scientific recruitment and Selection, Manpower management, Job analysis, Need and purpose of Recruitment, and so on.

Recruitment and selection forms a core part of the central activities underlying human resource management: namely, the acquisition, development and reward of workers. Planmanhr mostly out sources the Recruitment to several companies. It frequently forms an important part of the work of human resource managers – or designated specialists within work organizations. However, and importantly, recruitment and selection decisions are

IMPORTANCE OF LISTENING SKILLS OVER OTHER SKILLS

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ABSTRACT: One of the important causes for miscommunication is poor listening skills. It is a fact that if a person does not listen to the speaker effectively, then there are more chances that he is not communicating properly; as a result, he may not understand the speaker's message. The same applies with the second language learning. Of the four linguistic activities, Listening, Speaking, Reading, Writing; Listening is the most important skill to be acquired but it is ironical to note that this is only the skill being overlooked. Records say that Listening occupies 45 per cent of the time spent in communication where speaking accounts for 30 per cent, and reading and writing, which make up 16 per cent and nine per cent respectively. Despite its importance, students (and even teachers) often fail to pay attention to Listening. . This is all the more remarkable as learners often say that listening is the most challenging of all the skills in any language. Unfortunately the tasks for Listening are not practiced in the labs unlike for the speaking skills. More emphasis should be given on Listening skills which can be taught through direct, integrated, incidental, eclectic and dialogue approaches.

KEYWORDS: Listening skills; language learners; listening practice

INTRODUCTION

Language is a social activity comprising speaking, listening, writing and reading. Of the four linguistic activities, it is listening that most learners ignore. Listening plays a pivotal role in efficient communication. Importance of listening lies in the fact that it enables students become aware of the use of the language both grammatically and contextually. It should be noted that the learner of a language could not excel in other skills until and unless he/she has good Listening skills..Listening skills are not confined to a single area like learning second language, but its importance lies in different fields like Medicine, Science, IT, Agriculture, Trade, etc along with the personal life. Therefore a learner has to be aware of the fact that in order to have efficient communication skills one has to par 'take listening skills. A teacher should also take precautionary steps to use a variety of techniques to help students acquire effective listening skills.

Why Listening Is Vital for Language Learners

Listening unlike Hearing is a complex process which involves identifying, understanding and analyzing spoken languages.It also helps students to identify the accent of the speakers and thus helps them motivate to learn the accent and acquire detailed comprehension and makes them aware how language is used contextually and grammatically. It assists students learn a foreign language with greater confidence and expectation of success. Activities in listening stimulate the learner's imagination, motivate them to think and inspire them to speak. Students highly involved in listening learn better and faster and have sounder judgments and take good decisions about what is heard. If listening skills are improved then there is gradual development in speaking skills.

A STUDY ON GREEN MARKETING PRACTICES IN HOSPITALS TOWARDS A SUSTAINABLE HEALTHCARE

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ABSTRACT

Healthcare is one of the India's largest and fastest-growing sectors comprising of Hospitals, Medical Infrastructure, Medical Devices, clinical Trials, Outsourcing, Telemedicine, Health Insurance all of which delivers goods and services to treat patients on preventive, curative, rehabilitative, and palliative care basis. The Indian Healthcare industry is expected to reach US$ 160 billion by 2018. Emerging trends in Healthcare industry includes the rise of medical tourism, emerging health insurance market, the growth of telemedicine, expansion of healthcare infrastructure, rising opportunities in pharmaceutical industry, rise of clinical trials and the Green Management concept. Green hospital concepts will play an important part in the curative process, and as the issue of Global Warming is rapidly evolving, every Healthcare facility requires the Green Building concepts. In the present study to discuss Green Marketing practices in Healthcare sector, select Green Marketing Initiatives were considered and how it leads to a sustainable healthcare has been discussed, as sustainability is becoming widely adopted and this industry has begun to embrace a sustainability mindset as the linkage between the greener operations, improved healthcare and lower operating costs is becoming more apparent. Hospitals are starting to place greater emphasis on greener products for use in delivering patient care as well as the materials used throughout their facilities, such as cleaning products and office supplies. Hence the present research paper is an attempt to revisit the literature that is intended to highlight the relevance of green management practices in healthcare and to inform healthcare procurement professionals, executives, administrators and providers about the importance of sustainable and greener products in the healthcare industry.

Keywords: **Green Marketing, Global warming, Healthcare, Sustainability**.

INTRODUCTION

The Health Care industry is composed of multiple segments pertaining to different practices in medicine that provide different services. These services deal with different procedures and methods that address a variety of medical needs. The Health Care sector, in India, is at an inflection point and is poised for rapid growth in the medium term. Indian Healthcare Industry is currently estimated at USD 40 Billion. The industry is expected to grow to ~USD 79 Billion by 2012 and USD 280 Billion by 2020.The average CAGR for the next 10 years, has been estimated at 21

Improvement of resonance frequency in Sub woofer Driver

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Abstract—**Present days reproducing of sound with high quality has demand and increasing day by day ,Ideally, the high-fidelity equipment,like high end audio systems,power amplifiers,audiophile,home audio system must produce less noise and distortion and a flat frequency response within the human listening frequency range.A lot of research is going on to develop popular type of system for reproducing music since from 1970's.the audio equipment must be able to produce the sound of audioable rang i.e,for healthy young person it ranges from 20Hz to 20,000Hz.the electrical technology is so developed that audio receivers can produce humans range quite easily.the out put of audio signal generated by high-fidelity systems should be again feed into the suitable audio drivers which can reproduce the sound,because of this reason the demands of production of loudspeakers has increased producing human range frequency drivers is not that easy and it is very expensive.miniature has great demand.in the present paper the parameters that influence the production of low frequency is presented.The thiele parameters that influences for the production of low frequency drivers is discussed ,they are Peak Diaphragm Displacement Volume (V_d),suspension compliance (C_{ms}),Displacement-Limited acoustic power output rating(P_{AR}),the voice coil movement in one direction without leaving the magnetic zone (X_{max}),the compliance of the air inside the box(V_{as}),excursion limit (X_{lim}),the effective surface area of the diaphragm (S_D) and the weight of the cone assembly plus the 'driver radiation mass load'(M_{ms}).the resonance frequency of any driver generally depends on the reciprocal of stiffness and effective mechanical mass of the driver these in turn depends on other parameters.by improving these we can construct drivers for producing low frequency.**

Key words—**thiele parameters, resonance frequency , suspension compliance, excursion limit, Total mechanical mass of driver,maximum linear peak excursion, Displacement-Limited acoustic power output rating**

1.INTRODUCTION:

There is a great demand for studio monitors,bookshelf speakers,sub woofer systems which are useful for the production of sound radio studios,film making,recording studios and television studios.If we want to design these we should know and have a sound knowledge of the performance data of every individual loud speaker while constructing enclosure for them.many affordable methods was proposed and several technical papers was presented to audio engineering society.Thiele and small made many efforts and discovered the parameters which can give the relation between enclosures and speakers.they named it as "thiele-small parameter" thiele was a senior engineer of design and development for Australian broadcasting commission and small is a common wealth post graduate research student in the school of electrical engineering at university of Sydney.the general parameters which give the performance data are

S_d - Total piston radiating area of driver [m^2].
X_{max} - Maximum peak linear excursion of driver [mm].
Re - DC resistance of voice coil [ohms].
Le - Inductance of voice coil [H].
F_s - Driver free air resonance [Hz]. Point at which driver impedance is maximum.
F_3 - -3 dB cutoff frequency [Hz].
V_{as} - It is the volume of air that has the same stiffness as the driver's suspension when acted on by a piston of the same area (S_D) as the cone.
V_d - Maximum linear volume of displacement of the driver [m^3].
Q_{ms} - Q of driver due to mechanical losses at resonance[dimensionless].
Q_{es} - Q of driver due to electrical losses at resonance [dimensionless].
Q_{ts} - Q of driver due to all losses at resonance [dimensionless].
C_{ms} - Mechanical compliance which is reciprocal of stiffness of driver [m/N].
M_{ms} - total mechanical mass of driver which including air load and measured in [mg] or total moving mass of a driver including air loads
Rms - Mechanical losses of driver [kg/s]
B - Magnetic flux density in gap [T].
l - Length of wire immersed in magnetic field [m].
c - Propagation velocity of sound [~342 m/s].

Role Plays in Teaching Language through Literature

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Abstract: This paper looks at how literature can be effectively utilized as a rich source for teaching language, especially in the context of engineering students. Communication skills in life are of utmost importance starting with establishing social contact to achieve success in one's professional life. Literature comes in handy when looked at from linguistic point of view. Role plays as a technique is crucial in getting students involved actively in the process of learning and language can be taught effectively through. In fact, my paper lays more focus on effective teaching of more advance communicative aspects of language like politeness. Because the students with engineering background, it is observed, usually lack behind the skill of politeness when it comes to English as a second language. Bataineh (2014: 139) opines that language learning can become productive when we combine it with literature in the course of teaching.

1. Introduction

Research in inter-language pragmatics and communication studies suggest that students with considerable grammatical and language competence in an SL seriously face problems when it comes to the aspects like polite language behavior and reaching goals of interaction. Therefore, it is imperative to teach pragmatic aspects of communication like speech acts, implicature and maxims and principles of cooperative and polite communication (Locastro, 2003, Kasper, 1993, Blum-Kulka & Olhstain 1984, Kasper, Blum-Kulka and House 1993). The above researchers found out that different techniques were prevalent among native and non-native speakers of a language like English. Naturally, native English speakers, on the one hand, had different resources to convey politeness and convey indirect meaning or conduct a conversation. Non-native speakers, however, had limited resources of conveying politeness or derived them from politeness models of their own languages, on the other. Consequently, non-native speakers were taken to be rude and cooperative by the native speakers of English. Especially, when they made request and sought apologies they sounded very direct and less polite. They were new to the linguistic and cultural background of the language and geographical space. And their conversations with native speakers suffered

DETERMINATION OF PANTOPRAZOLE IN BULK AND PHARMACEUTICAL FORMULATIONS BY VALIDATED RP-HPLC METHOD

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Abstract

A sensitive, highly specific validated, stability indicating RP-HPLC method for the determination of Pantoprazole in bulk and pharmaceutical dosage forms. The method was developed using Luna CN (250×4.6 mm,5µm) and a mixture of Water: Acetonitrile in the ratio of 30:70 v/v was used as mobile phase at a flow rate of 1.0 mL/min with UV detection at 215 nm for Pantoprazole. The retention time of the drug was 3.7 minutes. The developed method was validated for specificity, linearity, precision, accuracy and robustness as per ICH guidelines. Linearity was found in the range of 10-150 µg/ml. The mean recovery of the drug was 102.0 %. The proposed method could be used for routine analysis of Pantoprazole in their dosage forms and the method is accurate, precise, simple, sensitive and rapid and can be applied successfully for the estimation of Pantoprazole in bulk and in pharmaceutical formulations without interference and with good sensitivity.

Keywords: Liquid Chromatography, Pantoprazole, dosage forms, determination, Validation

A Study on Futures and Options

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Abstract: The emergence of the market for derivative products, most notably forwards, futures and options, can be traced back to the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices.

Keywords: Derivatives, Futures, Options

Introduction:

The emergence of the market for derivative products, most notably forwards, futures and options, can be traced back to the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices. By their very nature, the financial markets are marked by a very high degree of volatility. Through the use of derivative products, it is possible to partially or fully transfer price risks by locking–in asset prices. As instruments of risk management, these generally do not influence the fluctuations in the underlying asset prices. However, by locking-in asset prices, derivative products minimize the impact of fluctuations in asset prices on the profitability and cash flow situation of risk-averse investors.

Definitions:

Derivatives are risk management instruments, which derive their value from an underlying asset. The underlying asset can be bullion, index, share, bonds, currency, interest etc. Banks, securities firms, companies and investors to hedge risks, to gain access to cheaper money and to make profit, use derivatives. Derivatives are likely to grow even at a faster rate in future.

Derivative is a product whose value is derived from the value of an underlying asset in a contractual manner. The underlying asset can be equity, forex, commodity or any other asset.

Securities Contracts (Regulation) Act, 1956 (SC(R) A) defines "derivative" to include –

1. A security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.

2. A contract which derives its value from the prices, or index of prices, of underlying securities.

Participants

Role of Joint Ventures in Profitability Strategies

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Abstract: The logistics operations in India is gearing up in India due to many reasons like FDI, Increase in Manufacturing in line with Make in India Initiatives etc., which has created a tremendous demand for trucks, tippers with wide range of capacities, models etc., In this case study Eicher which is an Indian Company based out of Gurgaon which has a strategic alliance with Swedish based truck manufacturer Volvo in capturing business demand in India with technological and strategically aspects by protecting their individual business objectives and profitability getting ahead of competition.

Introduction:

Profitable Growth, a term most often used by CEOs when describing their firm's strategic objective. Profitable growth is the combination of profitability and growth, more   precisely   the   combination of Economic   Profitability and   Growth of Free cash flows. Profitable growth is aimed at reducing the financial community; it   emerged   in   the   early   80's when shareholder   value creation   became firms' main objective. Profitable Growth stresses that Profitability and Growth should be jointly achieved. It is a break from previous firms' development models which advocated growth at first to achieve economies of scale and then profitability (see BCG Growth-share matrix).

Objectives of the case study:

To understand the Logistics & Supply Chain Management Industry trend in India.

A STUDY ON GREEN MARKETING PRACTICES IN HOSPITALS TOWARDS A SUSTAINABLE HEALTHCARE

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ABSTRACT

Healthcare is one of the India's largest and fastest-growing sectors comprising of Hospitals, Medical Infrastructure, Medical Devices, clinical Trials, Outsourcing, Telemedicine, Health Insurance all of which delivers goods and services to treat patients on preventive, curative, rehabilitative, and palliative care basis. The Indian Healthcare industry is expected to reach US$ 160 billion by 2018. Emerging trends in Healthcare industry includes the rise of medical tourism, emerging health insurance market, the growth of telemedicine, expansion of healthcare infrastructure, rising opportunities in pharmaceutical industry, rise of clinical trials and the Green Management concept. Green hospital concepts will play an important part in the curative process, and as the issue of Global Warming is rapidly evolving, every Healthcare facility requires the Green Building concepts. In the present study to discuss Green Marketing practices in Healthcare sector, select Green Marketing Initiatives were considered and how it leads to a sustainable healthcare has been discussed, as sustainability is becoming widely adopted and this industry has begun to embrace a sustainability mindset as the linkage between the greener operations, improved healthcare and lower operating costs is becoming more apparent. Hospitals are starting to place greater emphasis on greener products for use in delivering patient care as well as the materials used throughout their facilities, such as cleaning products and office supplies. Hence the present research paper is an attempt to revisit the literature that is intended to highlight the relevance of green management practices in healthcare and to inform healthcare procurement professionals, executives, administrators and providers about the importance of sustainable and greener products in the healthcare industry.

Keywords: **Green Marketing, Global warming, Healthcare, Sustainability**.

INTRODUCTION

The Health Care industry is composed of multiple segments pertaining to different practices in medicine that provide different services. These services deal with different procedures and methods that address a variety of medical needs. The Health Care sector, in India, is at an inflection point and is poised for rapid growth in the medium term. Indian Healthcare Industry is currently estimated at USD 40 Billion. The industry is expected to grow to ~USD 79 Billion by 2012 and USD 280 Billion by 2020.The average CAGR for the next 10 years, has been estimated at 21

COMPARATIVE ANALYSIS OF CAPITAL STRUCTURE OF SME'S AT NSIC

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ABSTRACT: One of the most critical areas of the finance function is to make decisions about the firm's capital structure. Capital is required to finance investments in plant and machinery, inventory, accounts receivable and so on. Capital structure is the part of financial structure, which represents long term sources. It is the permanent financing of the company represented primarily by shareholders' funds and long term debt and excluding all short-term credit. To quote Walker, "The term capital structure is generally defined to include only long term debt and total stockholder's investment" (Walker).It refers to the Capitalization of long term sources of funds such as debentures, preference share capital, long term debt and equity share capital including reserves and surplus (retained earnings). According to Bogen, "The capital structure may consist of a single class of stock, or it may be complicated by several issues of bonds and preferred stock, the characteristics of which may vary considerably". In other words, "capital structure refers to the composition of capitalization i.e., to the proportion between debt and equity that make up capitalization.

1. Introduction

The financing decisions occupy a pivotal role in the overall finance function in a corporate firm which mainly concerns itself with an efficient utilization of the funds provided by the owners or obtained from external sources together with those retained or ploughed back out of surplus or undistributed profits. These decisions are mainly in the nature of planning capital structure, working capital and mechanism through which funds can be raised from the

ROLE OF TECHNOLOGY AS A SERVICE ENABLER-THE CASE OF RAILWAY TICKET BOOKING THROUGH IRCTC (Indian Railway Catering and Tourism Corporation) WEBSITE

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Abstract: The last decade has witnessed deployment of information technology in the delivery of numerous services. The role played by technology is increasingly becoming a key component in delivering superior services to customers in various industries like Banking, Airlines (ticket booking), Rail and Road travel (ticket booking), Insurance, Stock Trading etc. Technology is fast replacing the role played by humans in certain areas of service delivery. In certain cases, technology has the capability to deliver the core service and in other cases technology enables the delivery of core service. Self Service Technologies (SSTs) like ATMs, mobile banking, online banking, online ticket booking etc have resulted in reduced stress and strain for the customers and offered them benefits like convenience, time saving etc. The establishment of Indian Railway Catering and Tourism Corporation (IRCTC) website for online Train ticket booking is changing the face of railway ticket booking in India. Indian Railways has pioneered internet based rail ticket booking through its website, as well as from the mobile phones via GPRS (General Packet Radio Service) or SMS (Short Message Service). This paper attempts to present the case of railway ticket booking through IRCTC website.

Keywords: Service delivery, Customer Convenience, Self Service Technologies (SSTs), Online Ticket Booking, IRCTC, Indian Railway, etc.

1. INDIAN RAILWAYS - AN INTRODUCTION

Indian Railways is one of the largest and busiest rail networks in the world and an important mode of public transportation in India. Since its inception (16th April 1853), 161 years ago, the Indian Railways has contributed significantly to India's transport needs and economic growth. Today, Indian Railways ranks among the top five National Railway Systems in terms of size and scale and is poised to emerge as a world class railway system. The developmental role of the railways is particularly important in India, in both passenger and freight sectors. It has been performing a valuable social role in passenger sector

A Study on Brand Equity and Media Efficiency

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Abstract: This Study Essentially Is About How A Brand Equity And Media Efficiency Trying To Establish For Itself An Identity And Image. It Studied Further As To What Obstacles And Shortcomings It Faces As It Tries To Create For Itself A Modern Image. This Study Further Ascertains The Advertising And Marketing Mechanisms That Saint-Gobain Has Adopted To Date And Then With The Help Of External Customers. This Study Also Aims At Finding The Gaps Between The Perception Of The Management And The Customers. With The Help Of The Above, In Consultation And Continuous Interaction With The Saint-Gobain Management, We Have Attempted To Provide Suggestions As Regard Both Advertising Techniques And Practices As Well As What Kind Of An Advertising Campaign The Company May Undertake. Finally, We Have Taken A Close Look At The Customer Retention And Loyalty Programs Of The Company And Have Suggested For The Improvements Of The Same.

Introduction: Advertising Is The Promotion Of Goods, Services, Companies And Ideas, Usually By An Identified Sponsor. Marketer See Advertising As Part Of An Overall Promotional Strategy. Other Components Of The Promotional Mix Include Publicity, Public Relations, Personal Selling And Sales Promotion. Advertising Is A Management Function. While Advertising Is The Event, Advertising Management Is The Whole Process A Function Of Marketing Starting From Market Research Continuing Through Advertising Leading To Actual Sales Or Achievement Of Objective. But Advertising Management Does Not Stop Here. It Goes Further In Regard To Evaluation Of The Whole Cost Benefits That Were Involved In The Whole Exercise. This Means That If There Is A Public Service Advertising With An Objective To Increase Domestic Saving, The Evaluation Would Take Place In Terms Of The Actual Increase In Domestic Savings As Can Be Found From Banks And Other Financial Institutions. If It's About A Launch Of A New Product, Then The Evaluation Would Be In Terms Of Benefits Derived From The Cost Sunk In The Advertising Campaign.

Advertising Management Incorporates Various Specialized Sub-Functions Like Media Strategy, Message Strategy, Media Planning, Media Buying Etc.While Advertising Management Is An Inseparable Part Of The Marketing Department, Usually, And The Marketing Department Of An Organization Is Concerned More With Market Research And Evaluation Of Results. Every Element Of An Advertising Campaign Is Different. A Company's Advertising Campaign May Be Carried Out With The Help Of The Following:

1. Brochures 2. Catalogs 3. Print Projects 4. Direct Mail 5. Sales Letters 6. Television And Radio 7. Online Advertising

Research Methodology

The Methodology Adopted To Conduct The Research (Primary And Secondary) For This Study Is As Follows:

Primary Research Work:

- Initial Step Was To Have An Extensive Discussion With The Saint-Gobain Management Regarding The Strategies That They Follow In Order To Build And Maintain Their Brand In The Market.

- Based On The Discussions, Customer Satisfaction Survey Questionnaires Were Designed In Order To Carry Out The Surveys.

- Questions Regarding The Brand Equity Among The Customers And Media Efficiency Towards The Brand Were Asked From The Dealers Of Saint-Gobain.

- After The Surveys Were Conducted, The Results Of The Same Were Analyzed And Interpreted Which Can Be Seen In The Latter Part Of This Project Report.

Secondary Research Work:

- This Entailed Collection Of Available Data And Information

- The Primary Sources Of This Data Was Saint-Gobain Office Located At Hyderabad.

- The Other Source Was The Company's Website, I.E.,

- The Material Collected Included In-House And External Promotional Material, Along With The Company's Annual Report, Basic Policy Documents Etc.

A Comparative Study of Life Insurance Corporation of India and Selected Private Life Insurance Companies in India

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Abstract: The Indian life insurance industry has its own origin and history, since its inception. It has passed through many obstacles, hindrances to attain the present status. The objectives of the study are to understand the concept and mechanism of insurance, to compare and analyze the financial performance of selected private sector life insurance companies and Life Insurance Corporation of India and Comparison of Capital Structure, Earning per Shares of the Companies, Claims and Premiums of LIC, HDFC and Max life.

Introduction

The Indian life insurance industry has its own origin and history, since its inception. It has passed through many obstacles, hindrances to attain the present status. Insurance owes its existence to 17th century England. In fact, it took shape in 1688 at a rather interesting place called Lloyd's Coffee House in London, where merchants, ship-owners and underwriters met to discuss and transact business. The first stock companies to get into the business of insurance were chartered in England in 1720. The year 1735 saw the birth of the first insurance company in the American colonies in Charleston. In 1759, the Presbyterian Synod of Philadelphia sponsored the first life insurance corporation in America for the benefit of ministers and their dependents.

Life insurance in its modern form came to India from England in 1818 with the formation of Oriental Life Insurance Company (OLIC) in Kolkata. Indians were also covered by the company. However, it was after 1840 that life insurance really took off in a big way. By1868,
285 companies were doing business of insurance in India. Earlier these companies were governed by Indian company Act 1866, by 1870, 174 companies ceased to exist, when British Parliament enacted Insurance Act 1870. These companies however, insured European lives. Those Indians who were offered insurance cover were treated as sub-standard lives and were accepted with an extra premium of 15% to 20%. By the end of the 18th century, Lloyd's had brewed enough business to become one of the first modern insurance companies. Life is a roller coaster ride and is full of twists and turns. Insurance policies area safeguard against the uncertainties of

life. As in all insurance, the insured transfers a risk to the insurer, receiving a policy and paying a premium in exchange. The risk assumed by the insurer is the risk of death of the insured in case of life insurance. Insurance policies cover the risk of life as well as other assets and valuables such as home, automobiles, jewelry etc. On the basis of the risk they cover, insurance policies can be classified into two categories:

(a) Life Insurance
(b) General Insurance

Life insurance products cover risk for the insurer against eventualities like death or disability. Non-life insurance products cover risks against natural calamities, burglary; etc. Insurance is system by which the losses suffered by a few are spread over many, exposed to similar risks. With the help of Insurance, large numbers of people exposed to a similar risk make contributions to a common fund out of which the losses suffered by the unfortunate few, due to accidental events, are made good. Insurance is a protection against financial loss arising on the happening of an unexpected event. Insurance policy helps in not only mitigating risks but also provides a financial cushion against adverse financial burdens suffered.

Insurance is defined as a co-operative device to spread the loss caused by a particular risk over a number of persons who are exposed to it and who agree to ensure themselves against that risk. Risk is uncertainty of a financial loss. Insurance is also defined as a social device to accumulate funds to meet the uncertain losses arising through a certain risk to a person injured against the risk. Insurance provides financial protection against a loss arising out of happening of an uncertain event. A person can avail this protection by paying premium to an insurance company.

Insurance is a contract between two parties whereby one party agrees to undertake the risk of another in exchange for consideration known as premium and promises to pay a fixed sum of money to the other party on happening of an uncertain event (death) or after the expiry of a certain period in case of life insurance or to indemnify the other party on happening of an uncertain event in case of general insurance. The party bearing the risk is known as the 'insurer' or 'assurer' and the party whose risk is covered is known as the 'insured' or 'assured'.

Effect of Fiber Length and NaOH Treatment on the Flexural Behavior of Coir Fiber Reinforced Epoxy Composite

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Abstract - **This paper presents the study on the effect of fiber length and fiber surface modification on flexural properties of coir fiber reinforced epoxy composites. The composite sample was fabricated with three different fiber lengths namely 10, 20, and 30 mm. The fiber treatment was carried out using sodium hydroxide (NaOH) solution at five different concentrations such as 2, 4, 6, 8 & 10%. The fabrication was made by hand lay-up techniques. Mechanical interlocking between fiber and matrix was observed from the SEM (scanning electron microscope) micrographs. The study reveals that increases NaOH concentration in the fiber treatment was found to increase the flexural strength up to 4% and further increase in NaOH concentration reduce the flexural strength and also the strength increase with increasing fiber length.**

Key words - Coir fiber, epoxy matrix, fiber length, sodium hydroxide, flexural strength

I. INTRODUCTION

Natural fiber composites have become a popular new materials because of their high strength and stiffness, natural availability and environmental 'friendly' [1-2]. Additionally they are also recyclable, renewable and have a very low raw material cost [3]. The advantage of natural lignocellulosic fibers over traditional reinforcing materials such as glass fibers, talc and mica are acceptable specific strength properties, low cost, low density, non-abrasive, good thermal properties, enhanced energy recovery and bio-degradability. The main bottle necks in the broad use of these natural fibers in various polymer matrixes are poor compatibility between fiber and the matrix and the inherent high moisture abortion, which brings about dimensional changes in the lignocellulosic based fibers [4]. The efficiency of a fiber reinforced composite depends on the fiber/matrix interface and the ability to transfer stress from the matrix to fiber. This stress transfer efficiency plays a dominant role in determining the mechanical properties of the composite. Coir is an important lignocellulosic fiber obtained from coconut tree which grow extensively in tropical countries. Because of its hard wearing quality, durability and other advantages. It is used for making a wide variety of floor furnishing materials, yarns, rope etc [5]. However these traditional coir products consume only a small percentage of the potential total world production of coconut husk. Hence research and development efforts have been underway to find new use areas for coir including utilization of coir as reinforcement in polymer composite [6-11]. The alkali treatment of coir fiber for coir polyester composites. The experimental results proved that flexural strength, modulus and impact strength of treated fiber composites were 40% higher than those containing the same volume fraction of untreated fibers [12]. Rout et al. [13] have studied the influence of fiber treatment on the performance of coir fiber polyester composites. The investigation proved that the 2% alkali treated coir fiber polyester composites showed better tensile strength (26.80Mpa) whereas 5% alkali treated composites showed better flexural (60.4Mpa) and impact strength (634.6 J/m). Karthikeyan et al. [14] have studied the coconut fiber reinforced epoxy composite with alkali treatment. The results proved that treated fiber composites have better impact strength (27kJ/m2) and also impact strength was greatly influenced by the fiber lengths. Therefore, in this research the coir fibre is chosen to be the sources of fiber for producing reinforced composites and investigate the effects of fiber length and surface modification by NaOH treatment on flexural properties of epoxy resin composites.

II. MATERIALS AND METHODS

In this work, the main studies were carried out to investigate how fiber length of coir fiber reinforced epoxy composite affects flexural strength with and without NaOH treatment. The coir fibers were collected from the rural area of Erode, Tamil Nadu. Coir fibers were carefully extracted from the coconut husk. A diameter of coir fiber was in the range of 0.2743mm. After that the coir fibers were immersed in the NaOH solution (2, 4, 6, 8, & 10% concentration) for 10days. Thereafter, fibers were rinsed with water to remove the excess of NaOH sticking in the fiber. The fibers were then dried at room temperature for 5 days. After that, composites containing 30% by weight of fiber were prepared using fiber of length in the range 10, 20, and 30 mm. A matrix was created by mixing epoxy resin with its hardener in the ratio 10:1 by weight percentage. The mixture was poured into the metal mould of size 300x300x3mm. The fabrication of the composite material was carried out through the hand lay- up technique. The top & bottom surface of the mold and the

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Skill Development Necessities to Achieve Employability in the States of AP & Telangana – A Review

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Abstract: *Globalization has increased international competition between companies and countries in providing products and services; and in terms of their design, distribution and cost. As a consequence to that, it has placed a premium on developing and improving a high-quality of workforce in India. It is very important to attain necessary skills before placement since the changing skills need in industry have to match with the candidate skills set. Along with attaining necessary skills it is required to maintain specific skills during hiring process like communication, teamwork, initiative skill, problem solving skill and self management skills. The State Government of Andhra Pradesh & Telangana was looking for the long term implementation policy to empower their human capital with good quality of education and necessary skills to strengthen the employability.*

Key Words: Skill Development, Employability, Competence

Introduction:

Globalization has increased international competition between companies and countries in providing products and services; and in terms of their design, distribution and cost. As a consequence to that, it has placed a premium on developing and improving a high-quality of workforce in India. There is a large demand for professionals, technicians, managerial staff and skilled and educated production workers and office staff able to perform tasks to standards, continuously innovate and improve processes and products through the application of new technologies. Informal workers and contractual staff are being focused on acquiring certification for the trained skills; so as to improve their work standards. At the same time, new thinking about how people learn them is being used to adapt education and training systems and *improve the competencies and employability of the workforce*. Competence is a broader concept than skilling,

because it depends on embracing the abilities of each individual to apply and adapt their knowledge, understanding the skills in a particular occupation and in the given working environment. Thus it aims to "bridge the gaps between knowledge acquired in formal education and that learnt in work, a long-standing but now ever more acute problem in many countries." In this 21st century, children are growing up in an environment where social media, online communities and mobile technologies are fundamental and basic requirements for them to communicate as well as to learn and develop. *To develop employability skills, consider the following steps for new approach:* involve young students in designing and decision-making from the beginning; have a clear purpose and thorough implementation plan; identify and secure the necessary resources; empower young people by offering them meaningful roles that align with their skills, experience, and

The Point of view in Khushwant Singh's "Posthumous''

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Abstract: This paper is concerned with the analysis of 'Point of view' in Khushwant Singh's Short story "Posthumous". It makes an attempt to investigate how Khushwant Singh achieves his spatio-temporal, ideological and psychological perspectives through his language. He continuously interferes with the comprehension of the readers by guiding them in terms of locating the places and time through his spatio-temporal perspective. He also influences the feelings of the readers by communicating his ideas through his psychological perspective. He also presents the mindset of his characters by describing the commonly accepted social practices in the society through his ideological perspective. Point of view on spatio-temporal, ideological and psychological planes helps the narrator achieve his purpose effectively. Point of view is a much discussed and rigorously explored area in fiction studies, whether in the stylistics framework or any other framework of literary criticism and theory. Point of view basically refers to the way a story is told, the mode of its narration. Point of view concerns, produces, results in, perspectives on, evaluations of, events and characters. It is about influencing readers to form certain opinions, or not to form certain opinions.

Keywords: Ideological, Psychological, spatio-temporal

Introduction: This paper presents the stylistic analysis of the short story "Posthumous" written by Khushwant Singh. Khushwant Singh is a well-known Indian English Writer and a famous essayist. He got well equipped by background, education, exposure and experience to view the Indian scene from a wider angle without any sentimental attachment. He is known more for his books of jokes and his column *With Malice Towards All.* He has penned books on religion, Sikhism, and history of Sikhs and Delhi. He is a man who loves life fully and deeply as is evident in his books. The ironic mode that he adopted also enabled him to look at the human scene with detachment.

The Summary of "The Mark of Vishnu":

In "Posthumous" the author is ill in bed, and he fancies that he is dead. He is curious to know the responses and reactions of his friends and acquaintances to his supposed death. Perhaps the

headline in the *Tribune* would read; "Sardar Khushwant Singh Dead". The obituary notices would perhaps be adulatory and public men of eminence would call at his house to pay their last respects. Wreaths would be laid by ministers and judges on his body. Generous tributes would be paid to the high qualities of head and heart of the departed personality, and his funeral would be attended by large number of people. Thus, his imagination created all kinds of situations, and he visualized a series of scenes of persons consoling his widow and children for their irreparable loss. As this process became operative, he wrote; "I feel very sorry for myself and for all my friends. With difficulty I check the tears which want to express sorrow at my own death. " But it actually transpired that the 'Tribune' published only a very brief obituary notice at the bottom of page three, column one about the Sardar. Shafi, the reporter, perhaps tried to settle old scores

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The Role of Demographics Variables in Online Shopping- An Exploratory Study

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Abstract: Online shopping is a phenomenon in the wake of the emergence of Electronic Retailing and is considered to influence the future of shopping. The internet is fast becoming an integral feature of our day-to-day lives. Online shopping allows users to perform transactions 24 hours a day, all round the year, from almost any place. Vast amounts of product information on the web, increasing internet penetration, availability of multiple payment options, increasing usage of smartphones and changing lifestyles of customers are some of the factors that have contributed to the growth of electronic retailing in India. In addition to that online shopping is affected by factors like features of online shopping sites, policies of e-retailers, technological factors, and security factors.

The present research paper has carried out an exploratory study to depict and highlight the relationship between various demographic characteristics like age, gender, income, education, marital status and occupation of consumers and online shopping in the Indian context. The study is purely empirical in nature

Keywords: Demographics, Online Shopping, Technology factors, internet penetration and payments options.

Introduction

Online shopping is a growing phenomenon developing due to the emergence of Electronic Retailing influencing the future of shopping. The Internet is fast becoming an integral feature of our day-to-day lives. There is a huge potential to purchase goods and services through the Internet (Cheung and Lee, 2006). On the one hand, Internet shopping allows users to perform transactions 24 hours a day, all year round, from almost any place, while on the contrary, the vast amount of product information on the web presents significant challenges to users (Huang et al., 2003). Most of the

Corporate Social Responsibility for Livelihood Development in Rural India

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Abstract: Over 68% of the aggregate populace of India live in rustic ranges and relies upon agribusiness. Today provincial India is experiencing a few issues like horticulture, infrastructural improvement, financial conditions .it is imperative to deliver the issues identified with foundation, correspondence, and other open utility administrations over the rustic India. Country advancement in India pivots issues identified with agribusiness, financial measures, and framework. Thus, it is important to deliver the issues identified with Infrastructure, Public utility administrations, and Communication. The foremost to enhance Health, Education and clean living space are building up the infrastructural office, open utility administrations, and correspondence. The primary point of this sort of improvement is to produce potential work openings in country zones. Since India is a horticultural nation thus, over 60% of provincial individuals rely upon it for work. Henceforth, a feasible agribusiness advancement is important to build up a stable financial action. The significant issues in country advancement are absence of infrastructural offices, open comfort administrations and correspondence. Because of this the advance in training and work is impeding reliably. Poor financial status and un-clean living spots and principles are prompting wellbeing related debate. Henceforth, social venture is fundamental in country zone as corporate social obligation.

Keywords: Social Responsibility, Livelihood Development, Corporate Social Responsibility

Problems in Teaching and Learning English for Students

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Abstract:- It is a known fact that all of us prefer to get educated from an English Medium Institution. This system of imparting education through English Medium has been a constant practice since britishers invaded India. Despite such conscious efforts we find students although receiving education from his/her Kindergarten to P.G or Ph.d may not have command over the language(English).Why do you think such kind of situation prevails in the society? You must be very well arriving at some conclusions; Basically, the problem lies in the whole Education Pattern. Researchers have conducted a large number of studies to solve problems and help teachers to overcome their difficulties. Learning English as a second language has received a lot of attention since it is a multi-lingua-franca, so teachers have to find some well-planned and organized ways to facilitate the process of learning and teaching. This paper is a brief review on the problems encountered by the teachers in teaching of English and the different measures to be adopted to facilitate efficient teaching process. It shows the relationship between language pedagogy and research as well as research and teaching. It also deals with a set of strategies and methods that teachers can apply as instruments to improve their students' learning English.

Keywords: Teaching English, Education Pattern, Methods and strategies,efficient teaching

INTRODUCTION:

English language is a global language. Learning English improves individual's skills& status and increases opportunities in education, technology, global trades, and business which are not only confined to a single state but all over the world. Communication skills are basically tested in any job interview despite the students' academic performance. The teachers should be aware of the fact that unlike other subjects which are knowledge oriented, English is a skill oriented subject where it demands learning along with practical application so that the student uses the same in real life situations. Despite good planning, curriculum, textbooks, qualified teachers and effective administration, the teaching-learning process sometimes seems to be futile when the actual skill development is not up to the mark The teachers face challenges due to the following: their qualification, training as an EFL teacher, experience as a bilingual teacher, psychology of the learners, language policy, status of English, methods and strategies, assessment etc. The learners face challenges mainly due to the following: the differences between the past and present style, technique of teaching, workload, more focus on EFL, and focused teaching, stricter evaluation system, hard work, lack of proper motivation and attitude etc.

Management of such pedagogic challenges is inevitable.

There are still problems lingering like cultural and linguistic diversity among students and educating this population remains a challenge for teachers. These problems should not be ignored ,However through conscious efforts the problems can be solved gradually and second language learning can be made easy Therefore, teachers should always look for useful strategies to reduce the difficulties of teaching English language and they have to deal with many challenges and often have questions about the best ways to teach. Some problems of Language teaching is brought into light in this paper where if tried to minimize the consequences,English Language teaching and learning can be made effective.

Lack of competent teachers:

This is the curse of the whole problem. Though We can find highly qualified teachers, they are offered training along with some other subjects (B.ED Colleges) and the same are employed to teach both English and the trained subject by many of the institutions. Hence it is unlikely that they would be able to teach English in a methodical or systematic way. There are however number of institutions like the EFLU which take up training of English teachers, but again, a serious attitude to improving standard of English has not set in, there by making it a programme for a prividged few.

Use of Other Languages

A noticeable issue for English language teachers is making students rely on their native language for communication which is easy rather than English which tends to be hard for them .If the student is not properly guided and imparted the skills by a teacher, it is usually frustrating for students to rethink and reward their thoughts into the new language clearly. Diversifying the student groups so that not all of the students in one group speak the same native language will discourage students from reverting to their native language to communicate and encourage them to use the one they have in common.

Less time alloted for English Language Teaching

Time alloted for English Language teaching is comparatively less than other subjects .While in the Secondary schools time alloted to teach the basics is two hours per week ,the junior colleges abandon teaching of English half the academic Year, Here English is merely taught for the students to score marks

2018-2019

Booster In High Dimensional Data Classification

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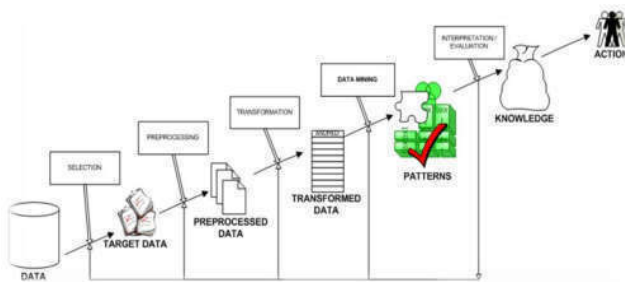Maisammaguda, Dullapally
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Abstract— **Classification problems in high dimensional data with a small number of observations are becoming more common especially in microarray data. During the last two decades, lots of efficient classification models and feature selection (FS) algorithms have been proposed for higher prediction accuracies. However, the result of an FS algorithm based on the prediction accuracy will be unstable over the variations in the training set, especially in high dimensional data. This paper proposes a new evaluation measure Q-statistic that incorporates the stability of the selected feature subset in addition to the prediction accuracy. Then, we propose the Booster of an FS algorithm that boosts the value of the Q-statistic of the algorithm applied. Empirical studies based on synthetic data and 14 microarray data sets show that Booster boosts not only the value of the Q-statistic but also the prediction accuracy of the algorithm applied unless the data set is intrinsically difficult to predict with the given algorithm.**

INTRODUCTION

Structure of Data Mining

Generally, data mining (sometimes called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information - information that can be used to increase revenue, cuts costs, or both. Data mining software is one of a number of analytical tools for analyzing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases..

Data mining consists of five major elements:

1) Extract, transform, and load transaction data onto the data warehouse system.

2) Store and manage the data in a multidimensional database system.

3) Provide data access to business analysts and information technology professionals.

4) Analyze the data by application software.

5) Present the data in a useful format, such as a graph or table.

Different levels of analysis are available:

- **Artificial neural networks**: Non-linear predictive models that learn through training and resemble biological neural networks in structure.

- **Genetic algorithms**: Optimization techniques that use process such as genetic combination, mutation, and natural selection in a design based on the concepts of natural evolution.

- **Decision trees**: Tree-shaped structures that represent sets of decisions. These decisions generate rules for the classification of a dataset. Specific decision tree methods include Classification and Regression Trees (CART) and Chi Square Automatic Interaction Detection (CHAID). CART and CHAID are decision tree techniques used for classification of a dataset. They provide a set of rules that you can apply to a new (unclassified) dataset to predict which records will have a given outcome. CART segments a dataset by creating 2-way splits while CHAID segments using chi square tests to create multi-way splits. CART typically requires less data preparation than CHAID.

- **Nearest neighbor method**: A technique that classifies each record in a dataset based on a combination of the classes of the k record(s) most similar to it in a historical

An Overlay Architecture for Throughput

Optimal Multipath Routing

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Abstract— **Legacy networks are often designed to operate with simple single-path routing, like the shortest path, which is known to be throughput suboptimal. On the other hand, previously proposed throughput optimal policies (i.e., backpressure) require every device in the network to make dynamic routing decisions. In this paper, we study an overlay architecture for dynamic routing, such that only a subset of devices (overlay nodes) need to make the dynamic routing decisions. We determine the essential collection of nodes that must bifurcate traffic for achieving the maximum multi-commodity network throughput. We apply our optimal node placement algorithm to severalgraphs and the results show that a small fraction of overlay nodes is sufficient for achieving maximum throughput. Finally, we a propose threshold-based policy (BP-T) and a heuristic policy (OBP), which dynamically control traffic bifurcations at overlay nodes. Policy BP-T is proved to maximize throughput for the case when underlay paths do no overlap. In all studied simulation scenarios, OBP not only achieves full throughput but also reduces delay in comparison to the throughput optimal back-pressure routing .**

INTRODUCTION

An optimal routing in networks where some legacy nodes are replaced with overlay nodes. While the legacy nodes perform only forwarding on pre-specified paths, the overlay nodes are able to dynamically route packets. *Dynamic backpressure* is known to be an optimal routing policy, but it typically requires a homogeneous network, where all nodes participate in control decisions. Instead, we assume that only a subset of the nodes are controllable; these nodes form a network overlay within the legacy network.
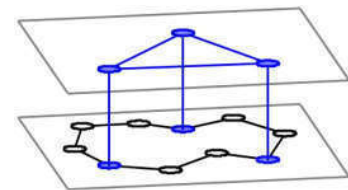
A first finding is that ring networks require exactly 3 controllable (overlay) nodes to enable the same throughput region as when all nodes are controllable, independent of the total number of nodes in the network. Motivated by this, we develop an algorithm for choosing the minimum number of controllable nodes required to enable the full throughput region. We evaluate our algorithm on several classes of regular and random graphs. In the case of random networks with a power-law degree distribution, which is a common model for the Internet, we find that fewer than 80 out of 1000 nodes are required to be controllable to enable the full throughput region.

A. Motivation and Related Work

Backpressure (BP) routing, first proposed in, is a throughput optimal routing policy that has been studied for decades. Its strength lies in discovering multipath routes and utilizing them optimally without knowledge of the network parameters, such as arrival rates, link capacities, mobility, fading, etc. Nevertheless, the adoption of this

SWEET: Serving the Web by Exploiting Email Tunnels

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Abstract— **Open communications over the Internet pose serious threats to countries with repressive regimes, leading them to develop and deploy censorship mechanisms within their networks. Unfortunately, existing censorship circumvention systems do not provide high** *availability* **guarantees to their users, as censors can easily identify, hence disrupt, the traffic belonging to these systems using today's advanced censorship technologies. In this paper, we propose Serving the Web by Exploiting Email Tunnels (SWEET), a highly available censorship-resistant infrastructure. SWEET works by encapsulating a censored user's traffic inside email messages that are carried over public email services like Gmail and Yahoo Mail. As the operation of SWEET is not bound to any specific email provider, we argue that a censor will need to block email communications all together in order to disrupt SWEET, which is unlikely as email constitutes an important part of today's Internet. Through experiments with a prototype of our system, we find that SWEET's performance is sufficient for Web browsing. In particular, regular Websites are downloaded within couple of seconds.**

Index Terms— **Censorship circumvention, email communications, traffic encapsulation.**

I. INTRODUCTION

The Internet provides users from around the world with an environment to freely communicate, exchange ideas and information. However, free communication continues to
threaten repressive regimes, as the open circulation of information and speech among their citizens can pose serious threats to their existence. Recent unrest in the middle east demonstrates that the Internet can be widely used by citizens under these regimes as a very powerful tool to spread censored news and information, inspire dissent, and organize events and protests. As a result, repressive regimes extensively monitor their citizens' access to the Internet and restrict open access to public networks by using different technologies, ranging from simple IP address blocking and DNS hijacking to the more complicated and resource-intensive Deep Packet Inspection (DPI).

With the use of censorship technologies, a number of different systems were developed to retain the openness of the Internet for the users living under repressive

Regimes. The earliest circumvention tools are HTTP proxies that simply intercept and manipulate a client's HTTP requests, defeating IP address blocking and DNS hijacking techniques. The use of more advanced censorship technologies such as DPI,

rendered the use of HTTP proxies ineffective for circumvention. This led to the advent of more advanced tools such as Ultra surf and Psiphon, designed to evade content filtering. While these circumvention tools have helped, they face several challenges. We believe that the biggest one is their lack of *availability*, meaning that a censor can disrupt their service frequently or even disable them completely. The common reason is that the network traffic made by these systems can be distinguished from regular Internet traffic by censors, i.e., such systems are not unobservable For example, the popular Tor network works by having users connect to an ensemble of nodes with public IP addresses, which proxy users' traffic to the requested, censored destinations. This public knowledge about Tor's IP addresses, which is required to make Tor usable by users globally, can be and is being used by censors to block their citizens from accessing Tor. To improve availability, recent proposals for circumvention aim to make their traffic unobservable to the censors by pre-sharing secrets with their clients. Others suggest to conceal circumvention by making infrastructure modifications to the Internet. Nevertheless, deploying and scaling these systems is a challenging problem, as discussed in Section II.

A more recent approach in designing unobservable circumvention systems is to imitate popular applications like Skype and HTTP, as suggested by Skype-Morph, Censor Spoofer, and StegoTorus. However, it has recently been shown [29] that these systems' unobservability is breakable; this is because a comprehensive imitation of today's complex protocols is sophisticated and infeasible in many cases. A promising alternative suggested, is to not mimic protocols, but run the actual protocols and find clever ways to tunnel the hidden content into their genuine traffic; this is the main motivation of the approach taken in this paper.

In this paper, we design and implement SWEET, a censorship circumvention system that provides high availability by leveraging the openness of email communications. Fig. 1 shows the main architecture. A SWEET client, confined by a censoring ISP, tunnels its network traffic inside a series of email messages that are exchanged between herself and an email server operated by SWEET's server. The SWEET server acts as an Internet prox

Nearest Keyword Set Search Queries on Multi-Dimensional Datasets

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Abstract – **Data mining is an important aspect in refining the data, this makes the data simpler and easy to use and it is a widely used technique to extract the useful information from huge chunks of data. The application developed is a user friendly application which helps to extract the informative keywords from text files and associates keywords with the file and the searching and retrieval of file is made easier with nearest keywords in a multidimensional data set of files. The integration of data mining concepts along with the cloud storage security techniques lead to the development of an efficient search application to retrieve files from the repository using easily remembered keywords.**

Keywords: Data security, keyword extraction, multidimensional data set.

I.INTRODUCTION

Present world is a technology centric world where each and every small works carried out in day to day life is dependent on the technology. Technology is rapidly growing such that it has occupied major portion in human routine. In this technological era the dependency of people over the information is growing hand in hand with the technology. Each and every activity is dependent on accessing the information and processing with it to get the required result. Starting from a small home to large organisation storing and retrieving of information has become an inseparable part of one's routine. Researches' have stated that on a whole the collection of data includes 10% of structured data and the remaining 90% are unstructured data. Information retrieval from structured data set is simpler compared to information retrieval from unstructured datasets. In order to discover the hidden patterns in the unstructured dataset data mining techniques are used.

Data mining is the process in which the patterns are extracted from the data set and the discovered patterns are analysed and used in studies. Machine learning, statistical analysis are some of the domains which uses the data mining techniques. In this application the data mining is applied over the text documents. The text documents with varied contents without any specific patterns to extract are being considered. A multidimensional data is the type of data in which there is heterogeneous data type objects that are grouped under certain attributes. But when the text document with no specified patterns are considered the pattern recognition becomes impossible, in such cases the

Keywords extracted from every document is one dimension of the document that describes the feature of the document.

II. MOTIVATION

Over time the collection of documents increases and remembering all file names is impossible for normal human brains and retrieval of file is impossible if file name is unknown, but one can actually be aware of the searching content that is present in a file. In this application the searching based on the keywords document with the associated keywords are easier to search as data consumer can easily interpret about the content of the document rather than the file name. An application to search the documents along with the secured storage for documents is very necessary in every organisation and its implementation is shown in section four and the literature study is shown in section three, design in section four and conclusion in section six.

III. LITERATURE SURVEY

First technique is and it mainly on computing exact nearest and farthest neighbour which is a challenging task, especially in the case of high-dimensional data. Many techniques are used to solve the nearest neighbour problem but not much importance is on farthest neighbour problem. By the calculation of the farthest neighbour a clear idea is obtained for the elimination of unrelated objects to the query there by it helps in giving the result more accurately.[1]

Multidimensional text cube analysis is another technique which is used to analyse the textual documents and the analysis is done by applying the data mining technique over the documents in order to extract the hidden patterns out of it.[2]

Collective spatial keyword technique is another technique which is used to derive the result such that more than one object is required to satisfy the user's query in such cases one node is being considered as owner and other two nodes as sub objects that matches closely with query keyword. This is helpful in developing navigational search query applications where more than one object is necessary to satisfy the user's need.[3]

Cloud computing being one of the blooming technologies provides various services one such facility is the storage at minimum cost which makes most of the

AchievingEfficientandSecureDataAcquisition for Cloud-supportedInternetofThingsinSmart Grid

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Abstract— **Cloud-supported Internet of Things (Cloud-IoT) has been broadly deployed in smart grid systems. The IoT front-ends are responsible for data acquisition and status supervision, while the substantial amount of data is stored and managed in the cloud server. Achieving data security and system efficiency in the data acquisition and transmission process are of great significance and challenging, because the power grid-related data is sensitive and in huge amount. In this paper, we present an efficient and secure data acquisition scheme based on CP-ABE (Ciphertext Policy Attribute Based Encryption). Data acquired from the terminals will be partitioned into blocks and encrypted with its corresponding access sub-tree in sequence, thereby the data encryption and data transmission can be processed in parallel. Furthermore, we protect the information about the access tree with threshold secret sharing method, which can preserve the data privacy and integrity from users with the unauthorized sets of attributes. The formal analysis demonstrates that the proposed scheme can fulfill the security requirements of the Cloud-supported IoT in smart grid. The numerical analysis and experimental results indicate that our scheme can effectively reduce the time cost compared with other popular approaches.**

I. INTRODUCTION

with the support of modern information technologies like the Internet of Things (IoT) and cloud computing, smart gridhasemergedasthenext-generationpowersupplynetwork, in which the electricity is generated according to the real-time demands of electric equipment or household appliances [1,2]. Tomakethesmartgridmoreintelligent,agreatnumberofIoT terminals are deployed to gather the status of the power grid timely for the control center.

such as the power transmission line monitoring, power generation monitoring, substation state monitoring, smart metering, electric energy data acquisition, smart home. For instance, in power transmission line monitoring scenario, using preplaced sensors, the status parameters of the transmission line and power towers can be gathered in real time, so that any fault can be diagnosed and locatedinatimelymanner. In smart grid, the different kinds of applications mentioned above all generate an enormous amount of data, which needs tobestoredandmanagedefficiently.Cloud-IoTisproposedto addressthisissue[2,3].AsshowninFig.1,withthesupportof cloud computing, mass data from different IoT terminals can be collected and processed by local front-end servers, then transferred and stored in the cloud servers. The data in cloud canbeaccessedbyvarioustypesofdatausers.Thepowergrid staff can continually monitor the status of power grid. Researchers andgovernment agencies cananalyzethe datafor researchorpolicymaking.

Fig.1Illustrationofcloud-supportedIoTinsmart grid Actually, some works on Wireless Sensor Networks can be used for reference, such as [4-9]. However, there are still severalproblemsandchallengesinsmartgriddataacquisition. First, the efficiency of data acquisition should be considered due to the large amount of data to be encrypted/decrypted and transferred. It's critical to ensure an acceptable the data acquisition time. Second, the protection of data security and privacymustbekeptinmind.Todealwiththesetwoproblems

simultaneously, in this paper, we present an efficient and secure data acquisition scheme based on CP-ABE. The main contributionsofourworkcanbesummarizedasthefollowing:

EXISTING SYSTEM

With the support of modern information technologies like the Internet of Things (IoT) and cloud computing, smart grid has emerged as the next-generation power supply network, in which the electricity is generated according to the real-time demands of electric equipment or household appliances.To make the smart grid more intelligent, a great number of IoT terminals are deployed to gather the status of the power grid timely for the control center. Some sample applications are such as the power transmission line

Privacy and Integrity Preserving Top-*k* Query Processing for Two-Tiered Sensor Networks

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Abstract— **Privacy and integrity have been the main road block to the applications of two-tiered sensor networks. The storage nodes, which act as a middle tier between the sensors and the sink, could be compromised and allow attackers to learn sensitive data and manipulate query results. Prior schemes on secure query processing are weak, because they reveal non-negligible information, and therefore, attackers can statistically estimate the data values using domain knowledge and the history of query results. In this paper, we propose the first top-*k* query processing scheme that protects the privacy of sensor data and the integrity of query results. To preserve privacy, we build an index for each sensor collected data item using pseudo-random hash function and Bloom filters and transform top-*k* queries into top-range queries. To preserve integrity, we propose a data partition algorithm to partition each data item into an interval and attach the partition information with the data. The attached information ensures that the sink can verify the integrity of query results. We formally prove that our scheme is secure under IND-CKA security model. Our experimental results on real-life data show that our approach is accurate and practical for large network sizes.**

Index Terms— **Two-tiered sensor networks, privacy preserving, top-k queries.**

I. INTRODUCTION

A. Motivation

TWO-TIERED sensor networks have been widely adopted for their scalability and energy efficiency. A large number of sensors [1]-[5], equipped with limited storage and computing capacity, are deployed in fields. Some storage nodes, equipped with large storage and powerful computing capacity, are deployed among sensors for storing measurement data from the neighboring sensors, as shown in Figure 1. A sink serves as a terminal device that sends queries to the storage nodes and retrieves the sensor data of interest. Due to the importance of two-tiered sensor network architecture, several commercial storage nodes, such as StarGate [6] and RISE [7], have also been developed.

The storage nodes offer two major benefits compared to an unstructured sensor network model. First, the storage nodes are responsible for the collection, storage and transmission of the sensory data from the sensors to the sink. The sensors save a significant amount of energy by eliminating sensor to sensor relay transmissions towards the sink and prolong the life of the network. Second, the storage nodes have more computing power and storage capacity than the sensors. Therefore, the sink can issue complex queries, such as the range or top-*k* queries, to retrieve several data items in a single query. This saves the sensor nodes' energy and network bandwidth required for answering the sink queries. However, due to their importance in network operations, the storage nodes are more vulnerable to attack and compromise. Attackers can not only steal the sensitive information on the storage node, but also leverage the query processing functionality of the storage node to feed false information to the sink.
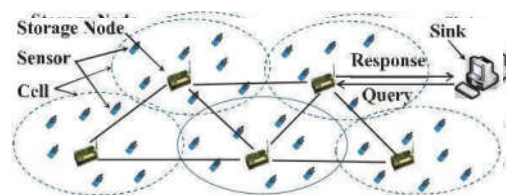

Fig. 1. Architecture of two-tired sensor networks.

B. Problem Statement

We address the problem of privacy and integrity preserving top-*k* queries in two-tiered sensor networks to protect against storage node compromise. Our goal is to design scheme to enable storage nodes to process top-k queries correctly without knowing the actual value of

Privacy Protection based Access Control Scheme in Cloud-based Services

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Abstract— With the quick advancement of PC innovation, cloud-based administrations have turned into a hotly debated issue. They furnish clients with comfort, as well as bring numerous security issues, for example, information sharing and protection issue. In this paper, we show an entrance control framework with benefit detachment in view of security insurance (PS-ACS). In the PS-ACS plot, we isolate clients into a private area (PRD) and open space (PUD) legitimately. In PRD, to accomplish read get to authorization and compose get to consent, we embrace the Key-Aggregate Encryption (KAE) and the Improved Attribute-based Signature (IBS) separately. In PUD, we build another multi-specialist ciphertext approach quality based encryption (CP-ABE) conspire with productive decoding to stay away from the issues of single purpose of disappointment and entangled key conveyance, and plan a proficient property repudiation strategy for it. The investigation and reproduction result demonstrates that our plan is practical and better than ensure clients' security in cloud-based administrations.

Introduction (*Heading 1*)

With the rapid development of cloud computing, big data and public cloud services have been widely used. The user can store his data in the cloud service. Although cloud computing brings great convenience to enterprises and users, the cloud computing security has always been a major hazard. For users, it is necessary to take full advantage of cloud storage service, and also to ensure data privacy. Therefore, we need to develop an effective access control solution. Since the traditional access control strategy [1] cannot effectively solve the security problems that exist in data sharing. Data security issues brought by data sharing have seriously hindered the development of cloud computing, various solutions to achieve encryption and decryption of data sharing have been proposed. In 2007, Bethencourt et al. [2] first proposed the ciphertext policy attribute-based encryption (CP-ABE). However, this scheme does not consider the revocation of access permissions. In 2011, Hur et al. [3] put forward a fine-grained revocation scheme but it can easily cause key escrow issue. Lewko et al.

LITERATURE SURVEY

1. Cipher text-Policy Attribute-Based Encryption

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In several distributed systems a user should only be able to access data if a user posses a certain set of credentials or attributes. Currently, the only method for enforcing such policies is to employ a trusted server to store the data and mediate access control. However, if any server storing the data is compromised, then the confidentiality of the data will be compromised. In this paper we present a system for realizing complex access control on encrypted data that we call Ciphertext-Policy Attribute-Based Encryption. By using our techniques encrypted data can be kept confidential even if the storage server is untrusted; moreover, our methods are secure against collusion attacks. Previous AttributeBased Encryption systems used attributes to describe the encrypted data and built policies into user's keys; while in our system attributes are used to describe a user's credentials, and a party encrypting data determines a policy for who can decrypt. Thus, our methods are conceptually closer to traditional access control methods such as Role-Based Access Control (RBAC). In addition, we provide an implementation of our system and give performance measurements.

2. Multi-authority attribute based encryption with honest-but-curious central authority

AUTHORS: Vladimir Boˇzovi´c1 , Daniel Socek2? , Rainer Steinwandt1 , and Vikt´oria I. Vill´anyi

An attribute based encryption scheme capable of handling multiple authorities was recently proposed by Chase. The scheme is built upon a single-authority attribute based encryption scheme presented earlier by Sahai and Waters. Chase's construction uses a trusted central authority that is inherently capable of decrypting arbitrary ciphertexts created within the system. We present a multi-authority attribute based encryption scheme in which only the set of recipients defined by the encrypting party can decrypt a corresponding ciphertext. The central authority is viewed as "honest-but-curious": on the one hand it honestly follows the protocol, and on the other hand it is curious to decrypt arbitrary ciphertexts thus violating the intent of the encrypting party. The

SENTIMENT EMBEDDINGS WITH APPLICATINS TO APPLICATIN SENTIMENT ANALYSIS

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Abstract— **We propose learning sentiment-specific word embeddings dubbed sentiment embeddings in this paper. Existing word embedding learning algorithms typically only use the contexts of words but ignore the sentiment of texts. It is problematic for sentiment analysis because the words with similar contexts but opposite sentiment polarity, such as good and bad, are mapped to neighboring word vectors. We address this issue by encoding sentiment information of texts (e.g., sentences and words) together with contexts of words in sentiment embeddings. By combining context and sentiment level evidences, the nearest neighbors in sentiment embedding space are semantically similar and it favors words with the same sentiment polarity. In order to learn sentiment embeddings effectively, we develop a number of neural networks with tailoring loss functions, and collect massive texts automatically with sentiment signals like emoticons as the training data. Sentiment embeddings can be naturally used as word features for a variety of sentiment analysis tasks without feature engineering. We apply sentiment embeddings to word-level sentiment analysis, sentence level sentiment classification, and building sentiment lexicons. Experimental results show that sentiment embeddings consistently outperform context-based embeddings on several benchmark datasets of these tasks. This work provides insights on the design of neural networks for learning task-specific word embeddings in other natural language processing tasks.**

Introduction (*Heading 1*)

Generally, data mining (sometimes called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information - information that can be used to increase revenue, cuts costs, or both. Data mining software is one of a number of analytical tools for analyzing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases.

How Data Mining Works?

While large-scale information technology has been evolving separate transaction and analytical systems, data mining provides the link between the two. Data mining software analyzes relationships and patterns in stored transaction data based on open-ended user queries. Several types of analytical software are available: statistical, machine learning, and neural networks.

LITERATURE SURVEY

1) Learning Sentiment-specific word embedding for twitter sentiment classification

AUTHORS: D. Tang, F. Wei, N. Yang, M. Zhou, T. Liu, and B.

We present a method that learns word embedding for Twitter sentiment classification in this paper. Most existing algorithms for learning continuous word representations typically only model the syntactic context of words but ignore the sentiment of text. This is problematic for sentiment analysis as they usually map words with similar syntactic context but opposite sentiment polarity, such as good and bad, to neighboring word vectors. We address this issue by learning sentimentspecific word embedding (SSWE), which encodes sentiment information in the continuous representation of words. Specifically, we develop three neural networks to effectively incorporate the supervision from sentiment polarity of

Multi Disease Prediction using Data Mining Techniques

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ABSTRACT

Data mining techniques are used for a variety of applications. In healthcare industry, data mining plays an important role in predicting diseases. For detecting a disease number of tests should be required from the patient. But using data mining technique the number of tests can be reduced. This reduced test plays an important role in time and performance. This paper analyzes data mining techniques which can be used for predicting different types of diseases. This paper reviewed the research papers which mainly concentrate on predicting heart disease, Diabetes and Breast cancer etc.

Keywords: Data Mining, Classification, Naive Bayes, J48, Decision tree.

INTRODUCTION

Data mining is the process of selecting, discovering and modeling huge amounts of data. This process has become an increasingly insidious activity in all areas of medical science research. Data mining has resulted in the discovery of useful hidden patterns from huge databases. Data mining problems are often solved using different approaches from both computer sciences, such as multi-dimensional databases, machine learning, soft computing and data visualization; and includes classification and regression techniques. Some of the research works are done in this side, but all of them are focusing on a few methods of analysis, diagnosis or prediction of this disease by using different tools and techniques, this work is focused on the early prediction of various diseases by using WEKA tool.

HEART DISEASE

Heart disease is the leading cause of death in the U.S. At any point in your life, either you or one of your loved ones will be forced to make decisions about some aspect of heart disease. Knowing about the structure and functioning of the heart, in particular how angina and heart attacks work, will enable to make informed decisions about your health. Heart disease can strike suddenly and need to make decisions quickly.

Several factors contribute to this damage. They include:

1. Smoking, including secondhand smoke
2. High amounts of certain fats and cholesterol in the blood
3. High blood pressure
4. High amounts of sugar in the blood due to insulin resistance or diabetes
5. Blood vessel inflammation

DIABETICS

Diabetes mellitus, or simply diabetes, is a chronic disease that occurs when the pancreas is no longer able to make insulin, or when the body cannot make good use of the insulin it produces. Insulin is a hormone made by

Energy Efficient Resource Allocation in Cloud Computing

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Abstract:

Cloud service provider in cloud environment will provide or provision resource based on demand from the user. The cloud service provider (CSP) will provide resources as and when required or demanded by the user for execution of the job on the cloud environment. The CSP will perform this in a static and dynamic manner. The CSP should also consider various other factors in order to provide the resources to the user, the prime among that will be the Service Level Agreement (SLA), which is normally signed by the user and cloud service provider during the inception phase of service. There are many algorithm which are used in order to allocate resources to the user in cloud environment. The algorithm which is proposed will be used to reduce the amount of energy utilized in performing various job execution in cloud environment. Here the energy utilized for execution of various jobs are taken into account by increasing the number of virtual machines that are used on a single physical host system. There is no thumb rule to calculate the number of virtual machines to be executed on a single host. The same can be derived by calculating the amount of space, speed required along with the time to execute the job on a virtual machine. Based up on this we can derive the number of

Virtual machine on a single host system. There can be 10 virtual machines on a single system or even 20 number of virtual machines on single physical system. But if the same is calculated by the equation then the result will be exactly matching with the threshold capacity of the physical system. If more number of physical systems are used to execute fewer virtual machines on each then the amount of energy consumed will be very high. So in order to reduce the energy consumption , the algorithm can be used will not only will help to calculate the number of virtual machines on single physical system , but also will help to reduce the energy as less number of physical systems will be in need.

Keywords: Virtual, machine, energy, physical, host, system, SLA.

Introduction:

Usage of various services such as software service, platform services and infrastructure service or hardware service in order to make an application run on internet from an external

Reorganization of DFA based prototype Matchers

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ABSTRACT

This paper presents an efficient algorithm for finding matches to a given regular expression in given text using optimization of DFA. To match a regular expression of length n, a serial machine requires $0(2^n)$ memory and takes $0(1)$ time per text character. The proposed approach requires only $0(n^2)$ space and still process a text character in $0(1)$ time (one clock cycle).The improvement is due to the optimization of DFA that means without converting it into the NFA, directly convert into the DFA. Finite Automaton (DFA) used to perform the matching. Furthermore, the paper presents a simple, fast algorithm that quickly constructs the DFA for the given regular expression.

Keywords

DFA, NFA , Regular Expression

I.   INTRODUCTION

A regular expression, often called a pattern, is an expression used to specify a set of strings required for a particular purpose. Regular expressions are widely supported in programming languages, text processing programs (particular lexers), advanced text editors, and some other programs. A regular expression processor translates a regular expression into a nondeterministic finite automaton (NFA), which is then made deterministic and run on the target text string to

recognize substrings that match the regular expression. The pattern sequence itself is an expression that is a statement in a language designed specifically to represent prescribed targets in the most concise and flexible way to direct the automation of text processing of general text files, specific textual forms, or of random input strings.This paper presents an efficient algorithm for finding matches to a given regular expression in given text using optimization of DFA.

II.   BACKGROUND

followpos(i) : is the set of positions which can follow the position i in the strings generated by the augmented regular expression.

followpos is just defined for leaves,it is not defined for inner nodes.

Computing Followpos:

A position of a regular expression can follow another position in two ways:

Rule 1: if n is a cat-nodec_1c_2

For every position in lastpos(c1) all positions in firstpos(c2) are in followpos(i).

$followpos(i)=\{firstpos(C_2)\}$

Cat-

$i\epsilon lastpos(C_1)$ ... $firstpos(C_2)$
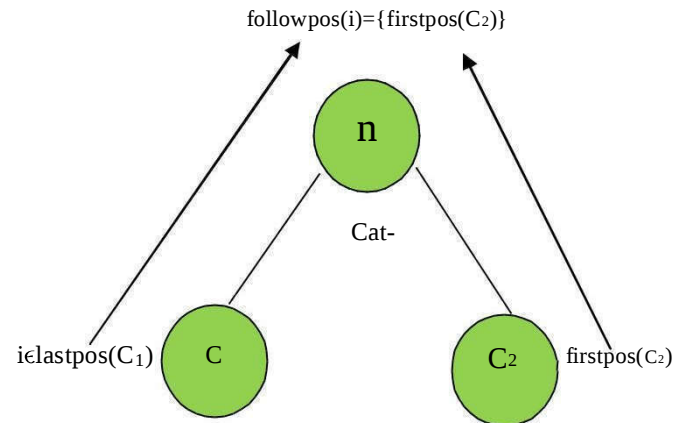
Figure 1: Cat -Node

Rule 2:if n is a star-node

If i is a position in lastpos(n) then all positions in firstpos(n) are in followpos(i).

$followpos(i)=\{firstpos(n)\}$

firstpos(n) ... $i\epsilon lastpos(n)$
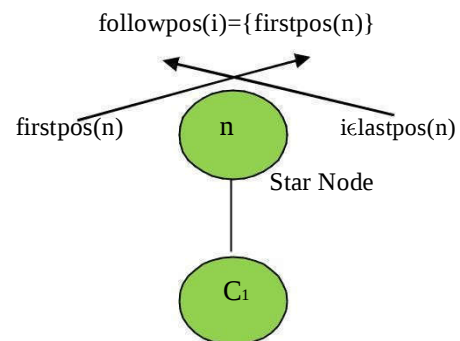
Star Node

Figure 2: Star-Node

Evaluation of firstpos, lastpos, nullable

To evaluate followpos, three more functions are to be definedfor the nodes (not just for leaves) of the syntax tree.

nullable(n) true if the empty string is a member of strings generated by the sub-expression rooted by n false otherwise

firstpos(n)the set of the positions of the first symbols of strings generated by the sub-expression rooted at n.

lastpos(n) the set of the positions of the last symbols of strings generated by the sub-expression rooted at n.

Protected and Flexible Multi-Keyword Search model over Encoded Cloud Data

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Abstract: Cloud computing is modern technology as a new computing model in number of business domains. Large numbers of large scale departments are starting to shift the data on to the cloud environment. With the benefit of storage as a service many enterprises are moving their valuable data to the cloud, since it costs less, easily scalable and can be accessed from anywhere any time. Improved dynamic multi-keyword ranking search scheme with top key via encrypted cloud data that simultaneously supports dynamic update operations as deleting and inserting documents. Greedy depth first search algorithm is provided for efficiency multi keywords on place and index structure. Cryptography is one of the establishing trust models. Searchable security is a cryptographic method to provide security. In number of researchers have been working on developing privacy and efficient searchable encryptiontypes. We take new effective cryptographic techniques based on data structures like CRSA and B-Tree to enhance the level of privacy. We propose new multi-keyword search query over encrypted cloud information in retrieving top k scored documents. The vector space model and TFIDF model are used to build index and query generation. This paper focuses on multi keyword search based on ranking over an encrypted cloud data. The search uses the feature of similarity and inner product similarity matching. We propose to support the top-k Multi-full-text search for security and performance analysis show that the proposed model guarantees a high safety and practicality and dynamic update operations, such as deleting and adding documents. The experimental results show that the overhead in computation and communication is low.

Index Terms: *Advanced Symmetric Encryption Certified Authority, Cloud data, -Multi keyword Retrieval, Cloud data, Data security, Ranked Search, Similarity Matching.*

1. INTRODUCTION

Cloud computing is a term used to describe a set of IT services that are provided to a customer over a network on a leased basis and with the ability to scale up or down their service requirements. Clouds are large pools of easily usable and accessible virtualized resources. These resources can be dynamically reconfigured to adjust to a variable load (scale), permitting optimum resource utilization. It is a pay-per-use model in which the Infrastructure Provider

Oruta: Privacy-Maintaining Public Scrutinize for Shared Data in the Cloud

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Abstract

cloud information services, it's commonplace for information to be not solely hold on within the cloud, however conjointly shared across multiple users. sadly, the integrity of cloud information is subject to skepticism because of the existence of hardware/software failures and human errors. many mechanisms are designed to permit each information homeowners and public verifiers to expeditiously audit cloud information integrity while not retrieving the complete information from the cloud server. However, public auditing on the integrity of shared information with these existing mechanisms can inevitably reveal confidential information—identity privacy—to public verifiers. during this paper, we tend to propose a completely unique privacy-preserving mechanism that supports public auditing on shared information hold on within the cloud. above all, we tend to exploit ring signatures to work out verification information required to audit the correctness of shared information. With our mechanism, the identity of the signer on every block in shared information is unbroken personal from public verifiers, United Nations agency area unit able to expeditiously verify shared information integrity while not retrieving the complete file. additionally, our mechanism is ready to perform multiple auditing tasks at the same time rather than collateral them one by one. Our experimental results demonstrate the effectiveness and potency of our mechanism once auditing shared information integrity

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Index Terms—Public scrutinizing, privacy-maintaining, shared data, cloud computing

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1 INTRODUCTION

CLOUD service suppliers supply users economical and scal-ready information storage services with a far lower marginal cost than ancient approaches [2]. it's routine for users to leverage cloud storage services to share information with others in a very cluster, as information sharing becomes a regular feature in most cloud storage offerings, together with Dropbox, iCloud and Google Drive. The integrity of information in cloud storage, however, is subject to skepticism and scrutiny, as information keep within the cloud will simply be lost or corrupted thanks to the inevitable hardware/ computer code failures and human errors [3], [4]. to create this matter even worse, cloud service suppliers is also reluc- tant to tell users regarding these information errors so as to keep up the name of their services and avoid losing profits [5]. Therefore, the integrity of cloud information ought to be verified before any information utilization, like search or com- putation over cloud information [6]. The traditional approach for checking information correctness is to retrieve the complete information from the cloud, so ver- ify information integrity by checking the correctness of signatures (e.g., RSA [7]) or hash values (e.g., MD5 [8]) of the complete information. Certainly, this typical approach is ready to suc- cessfully check the correctness of cloud information. However

the potency of victimization this ancient approach on cloud knowledge is doubtful[9] The main reason is that the scale of cloud knowledge is massive normally. Downloading the whole cloud knowledge to verify knowledge integrity can value or maybe waste users amounts of computation and communication

resources, particularly once knowledge are corrupted within the cloud. Besides, several uses of cloud knowledge (e.g., data processing and machine learning) don't essentially want users to transfer the entire cloud knowledge to native devices [2]. it's as a result of cloud suppliers, like Amazon, offers users computation services directly on large-scale knowledge that already existed within the cloud.

Recently, several mechanisms [9], [10], [11], [12], [13], [14], [15], [16], [17] are projected to permit not solely {a knowledge|a knowledge|an information} owner itself however conjointly a public admirer to with efficiency perform integrity checking while not downloading the entire data from the cloud, that is cited as public auditing [5]. In these mechanisms, knowledge is split into several little blocks, wherever every block is severally signed by the owner; and a random combination of all the blocks rather than the entire knowledge is retrieved throughout integrity checking [9]. A public admirer might be a knowledge user (e.g., researcher) United Nations agency would really like to utilize the own- er's knowledge via the cloud or a third-party auditor (TPA) United Nations agency will give professional integrity checking services [18]. Mov- ing a revolution, Wang et al. designed a complicated auditing mechanism [5] (named as WWRL during this paper), so throughout public auditing on cloud knowledge, the content of personal knowledge happiness to a private user isn't dis-closed to any public verifiers. sadly, current pub- lic auditing solutions mentioned higher than solely target personal knowledge within the cloud [1]. We believe that sharing knowledge among multiple users is maybe one in every of the foremost participating options that motivates cloud storage. Therefore, it's conjointly necessary to make sure the integrity of shared knowledge within the cloud is correct. Existing

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Providing Security for Outsourced Data in Cloud Storage

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ABSTRACT —

To protect outsourced data in cloud storage against corruptions, adding fault tolerance to cloud storage together with data integrity checking and failure reparation becomes critical. Recently, regenerating codes have gained popularity due to their lower repair bandwidth while providing fault tolerance. Existing remote checking methods for regenerating-coded data only provide private auditing, requiring data owners to always stay online and handle auditing, as well as repairing, which is sometimes impractical. In this paper, we propose a public auditing scheme for the regenerating-code-based cloud storage. To solve the regeneration problem of failed authenticators in the absence of data owners, we introduce a proxy, which is privileged to regenerate the authenticators, into the traditional public auditing system model. Moreover, we Design a novel public verifiable authenticator, which is generated by a couple of keys and can be regenerated using partial keys. Thus, our scheme can completely release data owners from online burden. In addition, we randomize the encode coefficients with a pseudorandom function to preserve data privacy. Extensive security analysis shows that our scheme is provable secure under random oracle model and experimental evaluation indicates that our scheme is highly efficient and can be feasibly integrated into the regenerating-code-based cloud storage.

Keywords- Cloud storage, regenerating codes, public audit, privacy preserving, authenticator regeneration, proxy, privileged, provable secure.

Different Types of Machine Learning Techniques in Python programming

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Abstract: - **When we hear "Machine learning", We will probably imagine a robot or something like the deadly Terminator as we see in movies. But, machine learning is involved not only in robotics[1], but also in many other applications. Now it is not just a futuristic fantasy, its already here. In fact, it has been around for decades in some specialized applications, such as Optical Character Recognition (OCR). But the first Machine Learning application that really became mainstream, improving the lives of hundreds of millions of people, took over the world back in the 1990s. It was the spam[2] filter. It does have all technical qualities to qualify as Machine Learning. It has, learned so well that you seldom need to flag an email as spam anymore. It was followed by hundreds of Machine Learning applications that now quietly power hundreds of products and features that you use regularly, from better recommendations to face recognition and voice search. This paper focuses on Explaining What is Machine Learning, why we need Machine Learning, Types of Machine Learning, Various Technologies available to implement Machine learning and how to use Python[3] as development environment for developing Machine Learning.**

Keywords: Machine Learning, training set, clustering, reinforcement, python, NumPy, SciPy, Scikit-learn, Python, pip, Spam, OCR, robotics.

I. INTRODUCTION

Machine learning is a subfield of artificial intelligence (AI). The goal of machine learning generally is to understand the structure of data and fit that data into models that can be understood and utilized by people [1]. Although machine learning is a field within computer science, it differs from traditional computational approaches. In traditional computing, algorithms are sets of explicitly programmed instructions used by computers to calculate or problem solve. Machine learning algorithms instead allow for computers to train on data inputs and use statistical analysis to output

values that fall will within a specific range of given output values. [4]
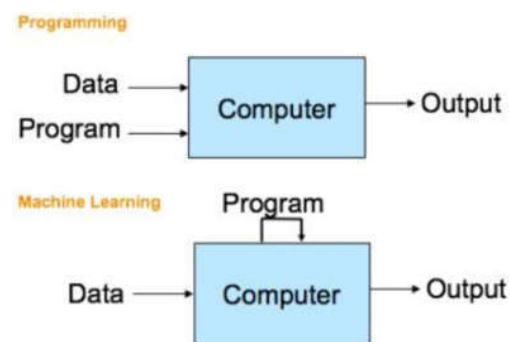
Fig. 1. Programming vs Machine Learning

In this age of modern technology, there is one resource that we have in abundance is large amount of structured and unstructured data. In the second half of the twentieth century, machine learning has evolved that involved the development of self-learning algorithms to gain knowledge from that data to make predictions. Instead of requiring humans to manually derive rules and build models from analysing large amounts of data, machine learning offers a more efficient alternative for capturing the knowledge in data to gradually improve the performance of predictive models and make data-driven decisions. Not only is machine learning becoming increasingly important in computer science research, but it also plays an ever-greater role in our everyday life. Thanks to machine learning, we enjoy robust e-mail spam filters, convenient text and voice recognition software, reliable Web search engines, challenging chess players, and, hopefully soon, safe and efficient self-driving cars.

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[1] Technology dealing with design of robots
[2] Irrelevant or unwanted messages

[3] Python is an interpreted, object-oriented, high-level programming language with dynamic semantics.

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Timing Enabled Proxy Re-Encryption Technique for E-Health Care Clouds in Keyword Search by Delegate

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Abstract— **An electronic health (e-health) record system is a novel application that will bring great convenience in healthcare. The privacy and security of the sensitive personal information are the major concerns of the users, which could hinder further development and widely adoption of the systems. The searchable encryption (SE) scheme is a technology to incorporate security protection and favorable operability functions together, which can play an important role in the e-health record system. In this paper, we introduce a novel cryptographic primitive named as conjunctive keyword search with designated tester and timing enabled proxy reencryption function (Re-dtPECK), which is a kind of a time-dependent SE scheme. It could enable patients to delegate partial access rights to others to operate search functions over their records in a limited time period. The length of the time period for the delegatee to search and decrypt the delegator's encrypted documents can be controlled. Moreover, the delegatee could be automatically deprived of the access and search authority after a specified period of effective time. It can also support the conjunctive keywords search and resist the keyword guessing attacks. By the solution, only the designated tester is able to test the existence of certain keywords. We formulate a system model and a security model for the proposed Re-dtPECK scheme to show that it is an efficient scheme proved secure in the standard model. The comparison and extensive simulations demonstrate that it has a low computation and storage overhead.**

I. INTRODUCTION

What is Secure Computing?

Computer security (Also known as cyber security or IT Security) is information security as applied to computers and networks. The field covers all the processes and mechanisms by which computer-based equipment, information and services are protected from unintended or unauthorized access, change or destruction. Computer security also includes protection from unplanned events and natural disasters. Otherwise, in the computer industry, the term security -- or the phrase computer security -- refers to techniques for ensuring that data stored in a computer cannot be read or compromised by any individuals without authorization. Most computer security measures involve data encryption and passwords. Data encryption is the translation of data into a form that is unintelligible without a deciphering mechanism. A password is a secret word or phrase that gives a user access to a particular program or system.

Diagram clearly explain the about the secure computing

Working conditions and basic needs in the secure computing:

If you don't take basic steps to protect your work computer, you put it and all the information on it at risk. You can potentially compromise the operation of other computers on your organization's network, or even the functioning of the network as a whole.

1. Physical security:

Technical measures like login passwords, anti-virus are essential. (More about those below) However, a secure physical space is the first and more important line of defense.

Is the place you keep your workplace computer secure enough to prevent theft or access to it while you are away? While the Security Department provides coverage across the Medical center, it only takes seconds to steal a computer, particularly a portable device like a laptop or a PDA. A computer should be secured like any other valuable possession when you are not present.

Human threats are not the only concern. Computers can be compromised by environmental mishaps (e.g., water, coffee) or physical trauma. Make sure the physical location of your computer takes account of those risks as well.

2. Access passwords:

Classify the Peer-To-Peer Networks Videos and Video Servers Using AODE Algorithm

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Abstract: **As one of the wildest emerging technologies P2P has been enticing attention in the field of live streaming and VoD (Video-on-Demand).Video plays an energetic part for communication and any kind of relaxation activity for entertainment. In order to provide reasonable service across all seasons, two machine learning techniques are used wherein availability of server depends on ratios of the season's hits. Popular videos are sorted out based on most number of hits initially, the retrieve phase chooses one or more related cases from the preceding Popularity videos that are stored. The updated / modified video records are reused as per query. In the revise phase, the present popularity record is updated. Finally, updated popularity records are preserved in the retain phase. Seasonal and non-seasonal video server is grouped by applying AODE algorithm. The content of the video categorized on the basis of listener's test at the commencing is additionally examined emerging in 90% clarity of classification.**

Keywords: Averaged One-Dependence Estimators, Case-Based Reasoning, Categorizing Video Server, Peer-to-Peer Networks, Sessional Based Videos, Video-on-Demand,

I. INTRODUCTION

Video is believed as a kind of amusement that provides the vision of steady movement of a report across the portrayal of a sequence of pictures and is recognized as a movie. Until 19th century, the world couldn't unravel its mystery though the origin dates back to 2nd century in China. Slowly, television became the predominant source of entertainment, replacing newspaper and radio. One of the reasons for its popularity above newspaper and wireless is the discernible charm that enables viewers to investigate deeper and be engrossed in the experience.

Towards the conclude of the 20th century, advancing pictures appeared alongside the progress of the Internet and World Wide Web. The two foremost services endowed via the Internet are Web browsing and file transfer. But, requirement of the clients is no longer fulfilled with these services offering information about text, images and document exchange.

The inspiration behind the research for finding ways of conveying live media over the Internet to a personal computer is the success of radio and television broadcasting. Consequently, multimedia data like sound and video above the web are transmitted. Like each supplementary usual text and executable files, the whole multimedia contents were distributed in the alike and sent as files by employing file downloading protocols. The finished file transfer in the download form is spread on the basis of variations in the size of the mass media file and the bandwidth of the channel across that it is carried.

Case-Based Reasoning (CBR) algorithm is utilized for categorizing well recognized videos and Averaged One-Dependence Estimators (AODE) algorithm is utilized for categorizing video server into seasonal and non-seasonal. Literature review of P2P networks is included in Section 2, followed by proposed work in section 3. Implementation is explained in section 4 and finally section 5 comprises of the conclusion.

II. LITERATURE SURVEY

In overlay network distribution system, P2P (Peer-to-Peer) computing is the most sought-after. In P2P systems, super peer network depicts a modern centralized topology design. Hence this overlay helps in enhancing the presentation of P2P requests, exceptionally live streaming. The problem of node failure is addressed in this work by applying gossip protocol based on Firefly algorithm. From a group of peers, it selects the fail over node in super peer network to maintain the overall performance of the network. In order to achieve this, a PeerSim simulator was used to simulate this network model [1], [2].

P2P Networks presenting services on the basis of seasonal and non-seasonal video is the main focus of this work. Case-Based Reasoning algorithm is utilized for categorizing acquainted videos and Averaged One-Dependence Estimators (AODE) algorithm is utilized to categorize video server into seasonal and non-seasonal. Adult and regional domains are classified as non-seasonal with maximum hits in every season. On this basis, the video service forwards specific server for providing service to clients. Hence, by using this type of algorithms, the P2P network offers quality service during all seasons and depending upon the hits of the season the server is made available [3].

A Neighbor Coverage Protocol with Broadcasting Mechanism for Data Dissemination in Mobile IoT Networks

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Abstract **- In recent technology developments, IoT(Internet of Things) has become major role playing in our day-to-day lives. The implementation of IoT applications is the communication between the devices that contain electronics, software, actuators and connectivity that help in the exchanging of data. This paper discusses about the spreading of data among the nodes in the mobile IoT networks. The mechanism is all about having knowledge about the nodes whether they are within the range but have not received any packet and to know whether the packet has to be discarded or to be rebroadcasted to other nodes.**

Key Words: Wireless Sensor Networks, Sensor Nodes, Energy – Efficiency.

I. INTRODUCTION

The world around us is of completely smart way which is of Internet of things (IoT) technology. The communication that was usually among the humans initially but now with the electronic devices, vehicles, computers etc. The intention of these IoT technologies is to sense the data or gather the data from the IoT systems and transmit them to the desired destiny to get processed and analyzed. It is not only to sense the data but to know whether all the communicating nodes are within the range to send the data and to know whether the entire data has been received by the nodes correctly and to know any packet of data has to be rebroadcasted to the nodes. It is important in the communication that knowing all the neighbor nodes to transmit the data. Many mechanisms have been proposed to discover the neighbor nodes in the communication. The figure depicted in Figure 1, shows the various applications where Internet of Things (IoT) have been widely implemented.
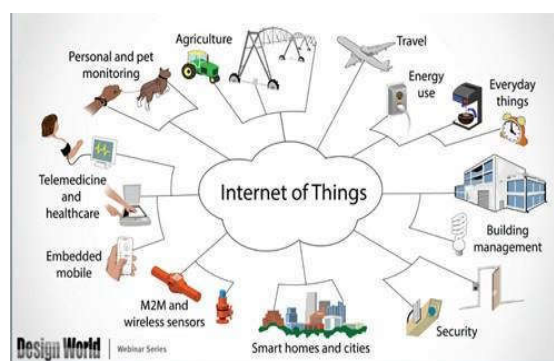
Figure 1: Various Applications of Internet of Things

The following paper discusses about the neighbor discovery and their coverage and also a scheme has been proposed to whether rebroadcast any packet to any node. The rest of the paper is organized as follows: Section II reviews the related works. Section III describes the Proposed mechanisms. Section IV shows the simulation results and the comparisons made. Section V briefly concludes the work done and the future works to be done.

II. RELATED WORKS

In order to send the packets from one node to another node there must be some cooperative mechanisms associated between the nodes and also routing the data from one node to another also shows that whether the nodes are in active state(connected properly) to receive the data. Also some neighbor discovery mechanisms have been implemented to know the nodes are within the network.

2.1 Role of Co-Operative Mechanisms

Need of Co-operative Mechanisms: In order to have proper transportation of data among the nodes

CONTENT BASED CONFIDENTIALITY DETECTION METHOD FOR DATA LEAKAGE PREVENTION

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Abstract— P**rotecting confidential data became a challenge for all private and public organizations. According to Gartner report, the majority of data leakages in organizations are due to internal factors. Data Leakage Prevention Systems can protect monitor and identify the confidential data at-rest, in-use and in-motion. This paper presents Data Leakage Prevention system, to prevent confidential data from leakages using the Term Based Confidentiality Detection Method .The proposed method consists of two phases: training and testing phase. The training phase identifies confidential terms from the documents and testing phase detects the confidentiality of the document.**

Keywords— confidential, data, data leakages, security, organizations.

I. INTRODUCTION

Now a day's modern enterprises depends on data sharing in both inside and outside the organization. Data sharing increased the data leakages [1]. The data which causes data leakages are SSN (social security numbers), medical records, organization financial information and trade secrets. In order to prevent confidential data from the leakages, organizations should focus of their internal hosts and network parameters. Organization security measures can also prevent confidential data from classic threats like viruses, Trojan horses, worms, D/Dos attack and intrusions. In addition organizations are required to meet the terms and regulations of the state and central government.

Data leakage is defined as the accidental or unintentional distribution confidential data to an unauthorized entity [2].In information security, identification of data leakage attack has become a critical issue for every organization [2]. Most of the data leakage attacks are caused from employees of the organization.

Organization must keep a close monitor to secure their confidential data. Data Leakage Prevention (DLP) solution is one of the recent methodology and technical solution for confidential data security .Data leakage prevention solution provides security to the confidential data from the inside and outside the network.
Content-aware DLP solution is a data leakage prevention solution that involves awareness of the content that is being protected. The content-aware DLP solution protects organizations from data leakage threats.

Content-aware DLP solutions are able to read the entire content of the document and identify confidential data, including the text found in the organization's documents. Content-aware DLP solutions detect and prevent the confidential data which is available in motion, in use and at rest [13].

II. RELATED WORK

Different types of DLP solutions are available in the market, some of the solutions protecting confidential data by providing tag to the data i.e. the organization documents are classified in to confidential and non-confidential with tags(confidential and non-confidential), if any employee in the organization sends a new document then identify the tag of the document. The document is blocked, when the document contains a confidential tag otherwise forwarded to the network.

DLP solutions are categorized based on the state of the data. In a DLP the data is available in three states [3]: DAR(Data-At-Rest), DIU(Data-In-Use) and DIM(Data-In-Motion). DAR is defined as the whole amount of data available in the organization's data centers. The following table represents the summary of the DLP solutions for Data-At-Rest.

TABLE 1. SUMMARY OF THE DLP SOLUTIONS FOR DATA-AT-REST

Category	Method	Proposed by, year	Issues	References
Misuse detection in Information retrieval system	User profiling based on query results and relevance feedback	Rebecca Cathey, Nazil Goharian and David Grossman ,2003	Requires huge amount of profiling	[4]
	User profiling based on keyword in queries and search	Ling Ma and Nazil Goharian, 2005	Requires regular administrative referen	[5]

Identity-Based Encryption with Cloud Revocation Authority and Its Applications

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Abstract—Identity-based encryption (IBE) is a public key cryptosystem and eliminates the demands of public key infrastructure (PKI) and certificate administration in conventional public key settings. Due to the absence of PKI, the revocation problem is a critical issue in IBE settings. Several revocable IBE schemes have been proposed regarding this issue. Quite recently, by embedding an outsourcing computation technique into IBE, Li *et al.* proposed a revocable IBE scheme with a key-update cloud service provider (KU-CSP). However, their scheme has two shortcomings. One is that the computation and communication costs are higher than previous revocable IBE schemes. The other shortcoming is lack of scalability in the sense that the KU-CSP must keep a secret value for each user. In the article, we propose a new revocable IBE scheme with a cloud revocation authority (CRA) to solve the two shortcomings, namely, the performance is significantly improved and the CRA holds only a system secret for all the users. For security analysis, we demonstrate that the proposed scheme is semantically secure under the decisional bilinear Diffie-Hellman (DBDH) assumption. Finally, we extend the proposed revocable IBE scheme to present a CRA-aided authentication scheme with period-limited privileges for managing a large number of various cloud services.

Index Terms—Encryption, authentication, cloud computing, outsourcing computation, revocation authority.

1 INTRODUCTION

IDENTITY (ID)-based public key system [1], [2] is an attractive alternative for public key cryptography. ID-PKS setting eliminates the demands of public key infrastructure (PKI) and certificate administration in conventional public key settings. An ID-PKS setting consists of users and a trusted third party (i.e. private key generator, PKG). The PKG is responsible to generate each user's private key by using the associated ID information (e.g. e-mail address, name or social security number). Therefore, no certificate and PKI are required in the associated cryptographic mechanisms under ID-PKS settings. In such a case, ID-based encryption (IBE) allows a sender to encrypt message directly by using a receiver's ID without checking the validation of public key certificate. Accordingly, the receiver uses the private key associated with her/his ID to decrypt such ciphertext. Since a public key setting has to provide a user revocation mechanism, the research issue on how to revoke misbehaving/compromised users in an ID-PKS setting is naturally raised.

Related Work

In 2001, Boneh and Franklin [2] proposed the first practical IBE scheme from the Weil pairing and suggested a simple revocation method in which each non-revoked user receives a new private key generated by the PKG periodically. A pe- riod can be set as a day, a week, a month, etc. A sender uses a designated receiver's ID and current period to encrypt mes- sages while the designated receiver decrypts the ciphertext using the current private key. Hence, it is necessary for the users to update new private keys periodically. To revoke a user, the PKG simply stops providing the new private key for the user. It is obvious that a secure channel must be established between the PKG and each user to transmit the new private key and this would result in heavy load for the PKG.

In order to alleviate the load of the PKG in Boneh and Franklin's scheme, Boneh *et al.* [9] proposed another revocation method, called immediate revocation. Immediate revocation method employs a designated semi-trusted and online authority (i.e. mediator) to mitigate the management load of the PKG and assist users to decrypt ciphertext [10], [11], [12], [13]. In such a case, the online mediator must hold shares of all the users' private keys. Since the decryption operation must involve both parties, neither the user nor the online mediator can cheat one another. When a user was

revoked, the online mediator is instructed to stop assisting the user. However, the online mediator must help users to decrypt each ciphertext so that it becomes

Evaluating Reliable Node in Wireless Sensor Network using ERLEN model

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Abstract-In Wireless Sensor Networks (WSN), many sensors will be scattered in the environment. The main objective of the sensors is to collect the information and pass the information to the sink node. From the sender to sink node the information/packet will be forwarded by the number of intermediate nodes. If the intermediate node is malicious or dead, an information/message will not be passed or forwarded to the sink node. In this paper, we propose ERELN: Evaluating Reliable Node in a network by node's characteristics and neighboring nodes commend. The proposed new technique will find the reliable node for packet routing and the other malicious /compromised node will be eliminated automatically from the packet routing.

Keywords: Wireless Sensor Network, Reliable node, compromised node, malicious node.

1 Introduction

Wireless sensor network consists of large number of sensors, distributed in an environment to monitor environmental conditions such as habitat monitoring, temperature, forest fire, earthquake, flood etc. Events occurred in the environment should be monitored by the sensors and it will send the information to the sink node on time. If the intermediate node will not send the message to the sink node or it will misroute the message to somewhere, the message will not be received by the sink node on time. Problems cannot be identified and rectified by the sink node. In this paper, our ERLEN model will find out the reliable node to route the message and eliminate the malicious node from packet routing.

A decision-making process of the network is supported by trust management system of WSNs [1]. It helps the nodes of WSN to deal with doubt about the upcoming actions of other nodes. As WSNs are highly application oriented, these applications bring various security needs. Existence of WSN is dependent on the cooperative and trusting nature of its nodes. Hence the trust establishment between nodes is must.

Reliable nodes in a network are evaluated by ERELN technique. Before sending a packet to the neighboring node, every sender node should check the database whether the node is reliable or not. Reliability of a node will be calculated by the node's characteristic and commends given by the superior and inferior neighboring node.

In the existing models reliability is calculated only from the neighbors who directly connected with a node. A node maintains trust above the threshold level; it will be a trusted node. If a trusted node drops a packet or misroute the packet means its reliability will get low but the trust will not reduce below the threshold level. For ex: A trusted node maintains 88% of trust, but the given threshold level is 55% , if a trusted node drops a packet means its trust will be reduced to 78%.In this paper we evaluated reliability from nodes which is superior and also inferior in the network. Reliability of a node will be increased or decreased with time based on the available evidence through direct interaction with node or commends from other reliable nodes. Reliability can also be stated as a level of confidence can be taken out from the history of transactions.

2 Related Work

[2] Reliability is evaluated on component based software system. [3] Reliability estimated for GNU complier components. [4] Evaluated reliability using communication variable for object oriented software systems using communication variables. [5] Examines and compare the protocols which support reliability for transferring information from sensor node to sink node. [6] A trust metrics is proposed to improve reliability during sink hole attack. [7] Proposed a reliability model based on the energy factor and time delay factor of a node in wireless sensor network. [8] Different methods are proposed for modeling and managing trust, it enable a WSN to be secure and reduce the communication overhead. [9] Detects neighbor based malicious node in wireless sensor network. [11] evaluated a weighted trust for a three-layer hierarchical architecture. [12] Detects node failure and link failure and find a shortest reliable path to forward a message from sensor node to sink node. [13]proposed vigilant node to detect compromised node and compared existing model with EERN model. [14] proposed to find smallest distance for path Optimization in Wireless Sensor Network. [15] proposed to predict sink node using mining algorithm for path optimization in wireless sensor network. [16] proposed advanced search in wireless network using search engines.

Survey on women safety based on IOT

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Abstract:

Sexual abuse is a major problem in India. Now a day's crime against female children has been increased to great extent, security and safeties are major issues of female. According to survey has found that more than 53% of female children in India subjected to sexual abuse and those in the age group of 5-12 years reported higher level of abuse. In this paper we survey about various type of women safety wearable band based on IOT application.

Keywords: *IOT, Safety wearable band, sexual abuse.*

Introduction

Day to day woman has been facing lot of security challenges in the world. In last few years victims against women in India were increased.[1] In India the survey revealed that one in every two children is a victim of child sexual abuse.[2],Even though female child were not allowed to move alone anywhere like streets, tuition, travelling by bus etc. current global scenario, the prime question in every girl's mind, considering the ever rising increase of issues on women harassment in recent past is mostly about her safety and security. 848 Indian Women Are Harassed, Raped, Killed Every Day!!" That's a way beyond HUGE number. In this paper discussed with various smart and efficient intelligent security system for women, the system can be built that can detect the location and health condition of person that will enable us to take action accordingly based on electronic gadgets like GPS, body temperature sensor , pulse rate sensor ,motion sensor and IOT. [3]

Literature survey

(Roryyev A et al, 2011.)[4] Present a fuzzy-based indoor tracking sys- tem for localizing object in an environment characterized by Wireless Sensor Network (WSN). WSN sensor node detects if there is any target node and receives a response. Upon the receipt of the reply, the sensor node calculates the times for receiving signal and the return trip to the target as well as the strength of the signal received. Fuzzy logic model was applied for obtaining the x-y coordinates of the different nodes. The major limitation of the system is its failure to explicitly define the identity of the object.

(Harshitha et al)[2016][3] proposed smart band connected to smart phone

Solving Data Mining Challenge through Link Mining

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ABSTRACT

A key challenge for data mining is tackling the problem of mining richly structured datasets, where the objects are linked in some way. Links among the objects may demonstrate certain patterns, which can be helpful for many data mining tasks and are usually hard to capture with traditional statistical mod-els. Recently there has been a surge of interest in this area, fueled largely by interest in web and hypertext mining, but also by interest in mining social networks, security and law enforcement data, bibliographic citations and epidemiological records.

1.   INTRODUCTION

Traditional data mining tasks such as association rule min-ing, market basket analysis and cluster analysis commonly attempt to find patterns in a dataset characterized by a collection of independent instances of a single relation. This is consistent with the classical statistical inference problem of trying to identify a model given a random sample from a common underlying distribution.

A key challenge for data mining is tackling the problem of mining richly structured, heterogeneous datasets. These datasets are typically multi-relational; they may be described by a rela-tional database, a semi-structured representations such as XML, or using relational or first-order logic. However, the key com-monalities are that the domain consists of a variety of object types and objects can be linked in some manner. In this case, the instances in our dataset are linked in some way, either by an explicit link, such as a URL, or by a constructed link, such as a join operation between tables stored in a database. Naively applying traditional statistical inference procedures, which assume that instances are independent, can lead to in-appropriate conclusions [24]. Care must be taken that poten-tial correlations due to links are handled appropriately. In fact, record linkage is knowledge that should be exploited. Clearly, this is information that can be used to improve the predictive accuracy of the learned models: attributes of linked objects are often correlated and links are more likely to exist between objects that have some commonality.

Link mining is a newly emerging research area that is at the in-tersection of the work in link analysis [25; 14], hypertext and web mining [3], relational learning and inductive logic pro- gramming [13] and graph mining [8]. Link mining is an in-

stance of multi-relational data mining (in its broadest sense); however, we use the term *link mining* to put an additional em-phasis on the links—moving them up to first-class citizens in the data analysis endeavor.

Link mining encompasses a range of tasks including descrip-tive and predictive modeling. Both classification and cluster-ing in linked relational domains require new data mining algo-rithms. But with the introduction of links, new tasks also come to light. Examples include predicting the numbers of links, predicting the type of link between two objects, inferring the existence of a link, inferring the identity of an object, finding co-references, and discovering subgraph patterns. We define these tasks and describe them in more detail in Section 3.

2.   BACKGROUND

Probably the most famous example of exploiting link struc-ture is the use of links to improve information retrieval results. Both the well known page rank measure [35] and hubs and au-thority scores [27] are based on the link structure of the web. These algorithms are based on the citation relation between web pages. Recently, many algorithms have been proposed which examine other relations, for example, Dean and Hen-zinger [9] proposed an algorithm based on co-citations to find related web pages, or finer-grained representation of the web pages [5]. Richardson and Domingos [40] combined content and link information with a relevance model to improve per-formance.

A closely related line of work is hypertext and web page clas-sification. This work has its roots in the information retrieval (IR) community. A hypertext collection has a rich structure that should be exploited to improve classification accuracy. In addition to words, hypertext has both incoming and outgoing links. Traditional IR document models do not make full use of the link structure of hypertext. In the web page classifi-cation problem, the web is viewed as a large directed graph. Our objective is to label the category of a web page, based on features of the current page and features of linked neighbors. With the use of linkage information, such as anchor text and neighboring text around each incoming link, better categoriza- tion results can be achieved. Chakrabarti et al. [4] proposed a probabilistic model to utilize both text and linkage information to classify a database of patents and a small web collection. They showed that naively incorporating words from neighbor-ing pages reduces performance, while incorporating category information, such as hierarchical category prefixes, improves performance. Oh et al. [34] reported similar results on a col-

Secured Data - Mobile Cloud Computing

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Abstract—Cloud computing is an Internet-based computing pattern through which shared resources are provided to devices on-demand. Its an emerging but promising paradigm to integrating mobile devices into cloud computing, and the integration performs in the cloud based hierarchical multi-user data-shared environment. With integrating into cloud computing, security issues such as data confidentiality and user authority may arise in the mobile cloud computing system, and it is concerned as the main constraints to the developments of mobile cloud computing. In order to provide safe and secure operation, a hierarchical access control method u sing modified hierarchical attribute-based encryption (M-HABE) and a modified three-layer structure is proposed in this paper. In a specific mobile cloud computing model, enormous data which may be from all kinds of mobile devices, such as smart phones, functioned phones and PDAs and so on can be controlled and monitored by the system, and the data can be sensitive to unauthorized third party and constraint to legal users as well. The novel scheme mainly focuses on the data processing, storing and accessing, which is designed to ensure the users with legal authorities to get corresponding classified data and to restrict illegal users and unauthorized legal users get access to the data, which makes it extremely suitable for the mobile cloud computing paradigms.

I. INTRODUCTION

With explosive growth of mobile devices including smart phones, PDAs, and tablet computers and the applications installed in them, the mobile-Internet will maintain the development growth trend as 4G communication network is extensively promoted to our lives. What users of the mobile devices and applications need is that mobile-Internet can provide them with the service which is user-friendly, high- speed, and steady. In addition, the security issues of mobile terminals and the Internet access are attached importance to. And as a combination of cloud computing, mobile devices and wireless networks, mobile cloud computing is an emerging but very promising paradigm which brings rich computational resources to mobile users, network operators, as well as cloud computing providers [1] [2] [3]. The flaws of data storing and data computing in mobile-Internet applications can be overcome by mobile cloud computing while the new paradigm can also accomplish cloud based multi-user data sharing, end geographical service limitation, and process real-time tasks efficiently at the same time.

There is no accurate definition of mobile cloud computing, several concepts were proposed, and two most popular schemes can be described as follows:

1) Mobile cloud computing is a kind of scheme which could run an application such as a weather monitor application on remote cloud servers as displayed in Figure 1, while the mobile devices just act like normal PCs except that the mobile devices connect to cloud servers via 3G or 4G while PCs through Internet. And this concept is considered as the most popular definition of mobile cloud computing [4].

2) Taking advantages of leisure resources such as CPU, memory, and storing disks, another model of mobile

A TSM Mechanism to Enhance Node Trustworthiness and Using Asymmetric Key with Ant Intelligence to Secure DSR in Wireless Ad hoc Network.

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Abstract: In this paper, a novel approach for node selection for communication in mobile Ad hoc networks is used. Ad hoc networks has limited resources and hence the selection of the trustworthy nodes is one of the most challenging task.. So the TSM mechanism was used and helps to understand the trustworthiness of the node involved in transmitting packets. There are various protocols used in these types of networks and one of the most common protocol being DSR. In this paper, we also introduces a mechanism for securing DSR using asymmetric keys(RSA) and Ant Intelligence(mobile agent).Ant intelligence is a promising technology used in diverse fields of network applications. We found that DSR using ant intelligence/mobile agents with RSA in TSM mechanism can ensure confidentiality to a greater extent.

Keywords -Ad Hoc Networks, DSR,TSM mechanism, RSA, Ant Agents.

I. INTRODUCTION:

An ad hoc network can be defined in different ways. It typically refers to any set of networks where all devices have equal status on a network and are free to associate with any other Ad hoc network devices which is in link range. The meaning of Ad hoc is "for this" which means "for this special purpose". The above said networks will need to be based on an open environment and hence it is necessary that we have to select the appropriate nodes for communication. Each node will behave differently in an open environment. In Ad hoc network, each node has its own resources and due to the scarcity of the resources, the behavior of the nodes keeps changing as well. The selfish manner causes the node to be depleting in nature that does not worth in this open environment. So we must be careful of transferring the content from only the well behaving node. Interacting with misbehaving neighbors can be costly for the mobile devices which have limited resources .This problem can be solved by Trust-based solutions.

In this paper, we come up with a mechanism to finding the trust value of node. (The value is calculated based on certain criteria's). However, these solutions usually select the neighbors with the highest trust value. The most trustworthy nodes have to perform

A NOVEL PATH INFERENCE APPROACH TO RECONSTRUCTING THE PACKET ROUTING PATHS IN DYNAMIC AND LARGE SCALE NETWORKS.

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Abstract: **Recent wireless sensor networks (WSNs) are becoming increasingly complex with the growing network scale and the dynamic nature of wireless communications. Many measurement and diagnostic approaches depend on per-packet routing paths for accurate and fine-grained analysis of the complex network behaviors. In this paper, we propose I PATH, a novel path inference approach to reconstructing the per-packet routing paths in dynamic and large-scale networks. The basic idea of I PATH is to exploit high path similarity to iteratively infer long paths from short ones. I PATH starts with an initial known set of paths and performs path inference iteratively. I PATH includes a novel design of a lightweight hash function for verification of the inferred paths. In order to further improve the inference capability as well as the execution efficiency, I PATH includes a fast bootstrapping algorithm to reconstruct the initial set of paths. We also implement I PATH and evaluate its performance using traces from large-scale WSN deployments as well as extensive simulations. Results show that I PATH achieves much higher reconstruction ratios under different network settings compared to other state-of-the-art approaches.**
In this paper, we propose I PATH, a novel path inference approach to reconstructing the routing path for each received packet. I PATH exploits the path similarity and uses the iterative boosting algorithm to reconstruct the routing path effectively. Furthermore, the fast bootstrapping algorithm provides an initial set of paths for the iterative algorithm. We formally analyze the reconstruction performance of I PATH as well as two related approaches. The analysis results show that I PATH achieves higher reconstruction ratio when the network setting varies.

I.INTRODUCTION

WIRELESS sensor networks (WSNs) can be applied in many application scenarios, e.g., structural protection [1], ecosystem management [2], and urban CO monitoring [3]. In a typical WSN, a number of self-organized sensor nodes report the sensing data periodically to a central sink via multi hop wireless. Recent years have witnessed a rapid growth of sensor network scale. Some sensor networks include hundreds even thousands of sensor nodes [2], [3]. These networks often employ dynamic routing protocols [4]– [6] to achieve fast adaptation to the dynamic wireless channel conditions. The growing network scale and the dynamic nature of wireless channel make WSNs become increasingly complex and hard to manage. M Reconstructing the routing path of each received packet at the sink side is an effective way to understand the network's complex internal behaviors [7], [8]. With the routing path of each packet, many measurement and

network manager can easily find out the nodes with a lot of packets diagnostic approaches [9]–[13] are able to conduct effective management and protocol optimizations for deployed WSNs consisting of a large number of unattended sensor nodes. For example, PAD [10] depends on the routing path information to build a Bayesian network for inferring the root causes of abnormal phenomena. Path information is also important for a network manager to effectively manage a sensor network. For example, given the per-packet path information, a forwarded by them, i.e., network hop spots. Then, the manager can take actions to deal with that problem, such as deploying more nodes to that area and modifying the routing layer protocols. Furthermore, per-packet path information is essential to monitor the fine-grained per-link metrics. For example, most existing delay and loss measurement approaches [9], [14] assume that the routing topology is given as *a priori*. The time-varying routing topology can be effectively obtained by per-packet routing path, significantly improving the values of existing WSN delay and loss tomography approaches. A straightforward approach is to attach the entire routing path in each packet. The problem of this approach is that its message overhead can be large for packets with long routing paths. Considering the limited communication resources of WSNs, this approach is usually not desirable in practice. In this paper, we propose I Path, a novel path inference approach to reconstruct routing paths at the sink side. Based on a real-world complex urban sensing network with all node generating local packets, we find a key observation: It is highly probable that a packet from node and *one of* the packets from 's parent will follow the same path starting from 's parent toward the sink. We refer to this observation as *high path similarity*. Fig. 1 shows a simple example where S is the sink node. Denotes a packet from A, and denotes packets from B (A's parent). *High path similarity* states that it is highly probable that will follow the same path (i.e., , which means the subpath by removing node A from) as one of B's packet, say , i.e., . The basic idea of I PATH is to exploit high path similarity to iteratively infer long paths from short ones. I PATH starts with a known set of paths (e.g., the one-hop paths are already known) and performs path inference iteratively. During each iteration, it tries to infer paths one hop longer until no paths can be inferred. In order to ensure correct inference, I PATH needs to verify whether a short path can be used for inferring a long path. For this purpose, I PATH includes a novel design of a lightweight hash function. Each data packet attaches a hash value that is updated hop by hop. This *recorded hash value* is compared against the *calculated hash value* of an inferred path. If these two values match, the path is correctly inferred with a very high probability. In order to further improve the inference capability as well as its execution efficiency, I PATH includes a fast bootstrapping algorithm to reconstruct a known set of paths. I PATH achieves a much higher reconstruction ratio in networks with relatively low packet delivery ratio and high routing dynamics.

Aggressive and Community Auditing System with Clear Agreement for Cloud Data

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Abstract— **Cloud users no longer physically possess their data, so how to ensure the integrity of their outsourced data becomes a Challenging task. Recently proposed schemes such as "provable data possession" and "proofs of retrievability" are designed to address this problem, but they are designed to audit static archive data and therefore lack of data dynamics support. Moreover, threat models in these schemes usually assume an honest data owner and focus on detecting a dishonest cloud service provider despite the fact that clients may also misbehave. This paper proposes a public auditing scheme with data dynamics support and fairness arbitration of potential disputes. In particular, we design an index switcher to eliminate the limitation of index usage in tag computation in current schemes and achieve efficient handling of data dynamics**.

Keywords— *Integrity, auditing, verifiability, arbitration, fairness.*

I. INTRODUCTION

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced software applications and high-end networks of server computers.

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games. The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

A. Characteristics and Services Models:

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

On-demand self-service: A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider[9].

Broad network access: Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

B. Characteristics and Services Models:

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

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Broad network access: Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

Resource pooling: The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

Rapid elasticity: Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

Measured service: Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

C. Services Models:

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layer are completed by an end user layer that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications

IOT in Rural India

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Abstract: Rural India is the base of our Country. In Rural India, Harvesting and Agriculture is top bread-wining activity. In India about 70% of population depends upon farming and one third of the nation's capital comes from farming. Issues concerning agriculture have been always hindering the development of the country. The only solution to this problem is smart agriculture by modernizing the current traditional methods of agriculture. Hence the project aims at making agriculture smart using automation and IoT technologies. The highlighting features of this project includes smart GPS based remote controlled robot to perform tasks like weeding, spraying, moisture sensing, bird and animal scaring, keeping vigilance, etc. Secondly it includes smart irrigation with smart control and intelligent decision making based on accurate real time field data. Thirdly, smart warehouse management which includes temperature maintenance, humidity maintenance and theft detection in the warehouse. Controlling of all these operations will be through any remote smart device or computer connected to Internet and the operations will be performed by interfacing sensors, Wi-Fi or ZigBee modules, camera and actuators with micro-controller and raspberry pi.

Keywords: IoT, automation, Wi-Fi

I. INTRODUCTION

Agriculture is considered as the basis of life for the human species as it is the main source of food grains and other raw materials. It plays vital role in the growth of country's economy. It also provides large ample employment opportunities to the people. Growth in agricultural sector is necessary for the development of economic condition of the country. Unfortunately, many farmers still use the traditional methods of farming which results in low yielding of crops and fruits. But wherever automation had been implemented and human beings had been replaced by automatic machineries, the yield has been improved. Hence there is need to implement modern science and technology in the agriculture sector for increasing the yield. Most of the papers signifies the use of wireless sensor network which collects the data from different types of sensors and then send it to main server using wireless protocol. The collected data provides the information about different environmental factors which in turns helps to monitor the system. Monitoring environmental factors is not enough and complete solution to improve the yield of the crops. There are number of other factors that affect the productivity to great extent. These factors include attack of insects and pests which can be controlled by spraying the crop with proper insecticide and pesticides. Secondly, attack of wild animals and birds when the crop grows up. There is also possibility of thefts when crop is at the stage of harvesting. Even after harvesting, farmers also face problems in storage of harvested crop. So, in order to provide solutions to all such problems, it is necessary to develop integrated system which will take care of all factors affecting the productivity in every stages like; cultivation, harvesting and post harvesting storage. This paper therefore proposes a system which is useful in monitoring the field data as well as controlling the field operations which provides the

flexibility. The paper aims at making agriculture smart using automation and IoT technologies. The highlighting features of this paper includes smart GPS based remote controlled robot to perform tasks like; weeding, spraying, moisture sensing, bird and animal scaring, keeping vigilance, etc. Secondly, it includes smart irrigation with smart control based on real time field data. Thirdly, smart warehouse management which includes; temperature maintenance, humidity maintenance and theft detection in the warehouse. Controlling of all these operations will be through any remote smart device or computer connected to Internet and the operations will be performed by interfacing sensors, Wi-Fi or ZigBee modules, camera and actuators with micro-controller and raspberry pi.

II. LITERATURE REVIEW

The newer scenario of decreasing water tables, drying up of rivers and tanks, unpredictable environment present an urgent need of proper utilization of water. To cope up with this use of temperature and moisture sensor at suitable locations for monitoring of crops is implemented in. [1] An algorithm developed with threshold values of temperature and soil moisture can be programmed into a microcontroller-based gateway to control water quantity. The system can be powered by photovoltaic panels and can have a duplex communication link based on a cellular-Internet interface that allows data inspection and irrigation scheduling to be programmed through a web page. [2] The technological development in Wireless Sensor Networks made it possible to use in monitoring and control of greenhouse parameter in precision agriculture. [3] After the research in the agricultural field, researchers found that the yield of agriculture is decreasing day by day. However, use of technology in the field of agriculture

IoT BASED SMART VILLAGE FOR THE RURAL DEVELOPMENT

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Abstract:

In this paper, IoT based smart village system is developed to support value-added services for various attributes of the village and for the people, while it still being a broad and complex category that are characterized by specific application domain. Rural developments are designed to support the Smart village mission, which aims at exploiting the most advanced communication technologies. The global focus on waste, energy and water management and conservation and the cloud based system plays a key role in extending the connected benefits of the smart village beyond the distribution, automation and monitoring being done by utility. IoT based Monitoring system will help consumers to monitor their own usage and adjust behaviours. The proposed systems will eventually regulate automatically by operating during off-peak energy hours and connect to sensors to monitor occupancy, lighting conditions, and also optimized irrigation management for those attributes are incorporated. This paper will address and discuss the technical solutions for the energy management and smart irrigation system which can be adopted in the rural development mission

Keywords: Cloud system, Energy management, IoT, Smart village, Smart irrigation system, Demand response (DR)

1. INTRODUCTION

There are huge challenges in realization of a rural development that monitors and integrates all of the village infrastructure and services to leverage the collective intelligence. The development of a IoT based smart village includes Cloud based network which can provide a virtual infrastructure to process and integrate the analysis tools monitoring equipment, storage, and visualization platform within the system.IT- OT convergence which intend to smart billing and data analytics in energy management. Waste collection system enhanced with cloud based IoT services which enable dynamic scheduling and routing in a waste collection system seems to be an efficient system.

The access to sustainable energy services acts as a basic catalyst for smart village development extending the provision of efficient management of energy, water, waste and various other attributes. Major parts of rural areas are not stand-alone system it remains a part of a cluster, which are related to each other. These clusters explains the potential for development and it possess economic drivers, derive

Location and competitive advantages. Urban is named after the development of these clusters which aims to strengthen the rural areas by provisioning of physical infrastructure, economic and social facilities. The envisaged
components in each cluster are listed below:

- ✓ Education system.
- ✓ Sanitation
- ✓ Waste management.
- ✓ Road system Inter village connectivity.
- ✓ Lighting control
- ✓ Fleet management
- ✓ Digital Literacy and People Service Centres.
- ✓ Economic activity based Skill development programme
- ✓ Agro Processing, Agri Services, Storage and development.

IoT based smart village can help to reduce cost through improved process efficiency, asset utilization

PROPOSE OF COAL MINE WEATHER CONDITIONS MONITORING SYSTEM IN UNDERGROUND USING IOT PLATFORM

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Abstract— Just recently, the regular coal mine security mishaps have actually triggered major casualties and also significant financial losses. It is immediate for the international mining market to raise functional effectiveness and also boost general mining safety and security. This paper recommends a light-weight mash up middleware to attain remote surveillance and also control automation of below ground physical sensing unit tools. Initially, the collection tree based upon Wireless Sensor Network (WSN) is released in a below ground coal mine, as well as suggests an Open Service Gateway campaign (OSGi)-based consistent tools accessibility structure. After that, recommend a consistent message area and also information circulation design, as well as, a light-weight solutions mash up method is carried out. With the aid of visualization innovation, the icon of various below ground physical sensing unit tools might be produced, which permits the sensing units to incorporate with various other sources quickly. Besides, 4 kinds of coal mine safety and security surveillance and also control automation situations are detailed, and also the efficiency has actually likewise been gauged as well as assessed. It has actually been verified that our light-weight mash up middleware could lower the prices effectively to develop coal mine security tracking as well as control automation applications.

Index Terms—— **coal mine safety, mining operations, underground mining and weather conditions, IOT**

I. INTRODUCTION

Below Ground mines are normally considerable mazes, which the passages are usually lengthy as well as slim with a couple of kilometres in size and also a couple of meters in size. Thousands of mining workers should function under several problems in accordance with the building and construction needs, as well as number of miners pass away from mining crashes yearly. It is extensively accepted that the below ground mining procedures are of high threat. In sight of this, a surveillance as well as control system should be realised as one crucial framework in order to guarantee the mining security as well as coordinates different jobs.

Nevertheless, below ground coal mines primarily contain arbitrary flows and also branch passages, as well as this chaotic framework makes it really tough to realise any kind of networking system. In such an instance, the usage of wireless sensor network (WSN) as well as various other picking up tools could have unique benefits for recognizing the automation of below ground tracking as well as control because of the fast as well as adaptable implementation. Furthermore, the multihop transferring approach could well adjust to the passage framework as well as therefore supply adequate scalability for the building and construction of a mining system.

Typically, coal mine safety and security surveillance as well as automation systems were generally developed to fulfil the demands of a solitary surveillance application. The coal mine application has actually currently exceeded the affiliation of a couple of huge back-end systems, as well as a growing number of below ground physical tools make the state of things as well as their environments effortlessly obtainable to software application systems. In fact, a lot of jobs are based upon monolithic system styles, which are challenging to adjust. A required action to coal mine tracking as well as control automation is to give prompt and equivalent disposal procedure. It is required to make sure that it enables the customers to recognize the degrees for coal mine safety and security, and also potentially to readjust tracking as well as control regulations to make sure the coal mine security.

Moreover, the individual could likewise regulate the physical gadgets from another location by means of the Web. Presently offered coal mine security surveillance and also control systems that concentrate on the real-time info collection serve, yet could not fulfil the individual requires totally with a really high use barrier and also typically needs an intricate procedure meaning and also setup for tracking and also control automation applications, as well as could not satisfy the need for ad-hoc solutions by the end individuals.

THE DEVELOPMENT OF A REMOTELY CONTROLLED HOME AUTOMATION SYSTEM FOR ENERGY SAVING

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ABSTRACT

The purpose of this study is to showcase the design and development of a web-enabled home automation system prototype. The unit was developed using low-cost components such as the ubiquitous Arduino microcontroller. One of the features of the developed unit is the ability to monitor the power consumed by electrical loads. The unit also has the ability to control the status of individual loads through the internet using a web-enabled mobile application. This feature enables load management that could contribute to energy saving.

1. INTRODUCTION

The aim of this project is focused on the development of a prototype for an internet based home automation system. The focus is to establish a platform that allows communication between the web-enabled mobile application and the microcontroller situated at a remote location anywhere in the world.

1.1 BACKGROUND

Over the year's humans have learned to rely on technology, the use of technology has thus developed tremendously over the years. This is evident in the telecommunication stream, previously communication was done face to face or through the postcard or letter. In some cultures, it was tradition to play the drum as a form of communication to warn, invite or express a celebration in the neighboring villages. However, today communication takes place relatively fast, easier and without a lot of hassles through the usage of cell phones. A cell phone's function is not limited to calling and texting; it can be used for various functions. Cell phones have become a necessity in people lives, communication and entertainment are all possible with the smartphones.

Automation is the backbone of modern industries, it is the key to global economic growth as it allows for increasing productivity and accuracy by cutting out the human intervention while reducing costs.

Home automation is the extension of industrial process automation to households' appliances. Among others home automation may include the remote control of lights (Centralized or individual), air conditioning, security system (remote power monitoring) and other systems such as those used for entertainment. Home automation provides improved comfort and security, increases energy efficiency and convenience for users.

Today automation is introduced in homes through the connectivity of house appliances and smartphones, tablets, and PCs.

1.2 PROBLEM STATEMENT

Energy consumption can be measured through its environmental impact and usage; the measure of the amount of power consumed by the load side of an electrical circuit is termed energy consumption. The maximum power that a load can consume is equal to the total power generated by the source minus the power lost in the transmission line. When the load requires more energy than what the source can provide, this becomes a major issue, which results in load shedding and blackouts. Energy consumption is a major issue in the modern world. Inefficient power monitoring and controlling techniques in the households, businesses, and institutions are the main cause of power consumption.

1.3 LITERATURE REVIEW

A home automation system is a channel by which homeowners and occupants have remote control over different types of electrical and electronics appliances in their home.

The home automation system is the use of robotics and computer technologies to household appliances by defining the home automation as domestics. Energy saving is the advantage that a home automation system gives to all its clients and especially forgetful ones, in that they can now track energy usage at home or while being away to ensure that unnecessary appliances are turned off as needed to reduce energy consumption [1, 2, 3].

Convenience is what makes the internet based home automation interesting in that one does not have to go home and turn ON the geyser and wait for the water to get warm, while still at work one can turn ON the geyser to ensure that once they're home the water is warm enough and ready to be used. This saves time and it is very convenient. While security issues arise, the emphasis is that through surveillance cameras a user can remotely monitor the house. This should monitor incidents of property intrusion. With the home entertainment section, a user can control the distribution of sound throughout the house depending on the room occupancy or control light intensity from the couch while watching an interesting movie.

With an increase in energy consumption and population, there is an inevitable need to conserve energy with the means possible. The major cause of energy consumption is the inability to remotely monitor and control appliances.

OPTIMIZING THE CONVOLUTION OPERATION TO ACCELERATE DEEP NEURAL NETWORKS ON FPGA

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ABSTRACT**:—As convolution contributes most operations in convolutional neural network (CNN), the convolution acceleration scheme significantly affects the efficiency and performance of a hardware CNN accelerator. Convolution involves multiply and accumulate operations with four levels of loops, which results in a large design space. Prior works either employ limited loop optimization techniques, e.g., loop unrolling, tiling, and interchange, or only tune some of the design variables after the accelerator architecture and dataflow are already fixed. Without fully studying the convolution loop optimization before the hardware design phase, the resulting accelerator can hardly exploit the data reuse and manage data movement efficiently. This paper overcomes these barriers by quantitatively analyzing and optimizing the design objectives (e.g., memory access) of the CNN accelerator based on multiple design variables. Then, we propose a specific dataflow of hardware CNN acceleration to minimize the data communication while maximizing the resource utilization to achieve high performance. The proposed CNN acceleration scheme and architecture are demonstrated by implementing endto-end CNNs including NiN, VGG-16, and ResNet-50/ResNet152 for inference. For VGG-16 CNN, the overall throughputs achieve 348 GOPS and 715 GOPS on Intel Stratix V and Arria 10 FPGAs, respectively.

Keywords:—**Accelerator architectures, convolutional neural networks (CNNs), field-programmable gate array (FPGA), neural network hardware.**

I.INTRODUCTION

The field-programmable gate arrays (FPGA) are fast becoming the platform of choice for accelerating the inference phase of deep convolutional neural networks (CNNs). In addition to their conventional advantages of reconfigurability and shorter design time over application-specific integrated circuits (ASICs) [20], [21] to catch up with the rapid evolving of CNNs, FPGA can realize low latency inference with competitive energy efficiency (∼10–50 GOP/s/W)

when compared to software implementations on multicore processors with GPUs [10], [12], [13], [17]. This is due to the fact that modern FPGAs allow customization of the architecture and can exploit the availability of hundreds to thousands of on-chip DSP blocks. However, significant challenges remain in mapping CNNs onto FPGAs. The stateof-the-art CNNs require a large number (>1 billion) of computationally intensive task (e.g., matrix multiplications on large numbers), involving a very large number of weights (>50 million) [4], [5]. Deep CNN algorithms have tens to hundreds of layers, with significant differences between layers in terms of sizes and configurations.

More than 90% of the operations in a CNN involve convolutions [2]–[4]. Therefore, it stands to reason that acceleration schemes should focus on the management of parallel computations and the organization of data storage and access across multiple levels of memories, e.g., off-chip dynamic random access memory (DRAM), on-chip memory, and local registers. In CNNs, convolutions are performed by four levels of loops that slide along both kernel and feature maps as shown in Fig. 1. This gives rise to a large design space consisting of various choices for implementing parallelism, sequencing of computations, and partitioning the large data set into smaller chunks to fit into on-chip memory. These problems can be handled by the existing loop optimization techniques [6], [9], such as loop unrolling, tiling, and interchange. Although some CNN accelerators have adopted these techniques [9], [11], [13], [19], the impact of these techniques on design efficiency and performance has not been systematically and sufficiently studied. Without fully studying the loop operations of convolutions, it is difficult to efficiently customize the dataflow and architecture for highthroughput CNN   implementations.

An Approach to reduce Self Transitions with Quadro Coding Technique in Very Large Scale Integration

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Abstract—**A large number of logic gates are interconnected with each other which together perform a logical operation with given input signal. When an input signal changes from 0 1 or vice-versa, this change results in Power dissipation. Power dissipation is majorly due to dynamic power dissipation in charging and discharging of the capacitive load of CMOS circuits. Power is very important constraints with digital circuits by reducing power dissipation in CMOS VLSI circuits. The proposed coding technique reduces the transition activity in the input signals and will consequently result in the reduction of power consumption. A new bus coding technique has been proposed to achieve less power reduction in transmission. In this paper, the main target of VLSI designers is to minimize the switching activity of self transitions on the on-chip bus lines which is called as Quadro coding. In this process, the applied input data is coded in four different ways and the coding resulting in maximum reduction in transition activity is selected. By this coding scheme the average transition activity is reduced by approximately 36% for 8-bit wide data bus, 23% for 16-bit wide data bus, 15% for 32-bit wide data bus. The coding technique gives better results for shorter bus width.**

Keywords— *transition activity; dynamic power dissipation; self transitions; Interconnect; on-chip bus.*

I. INTRODUCTION

As nanometer scale is the trending technology, the wires are packed closer and the inter-wire coupling capacitance dominates the total capacitance. Interconnects plays an important role in overall performance of the chip Digital circuits consists of a number of interconnected logic gates which together perform a logic operation with more input signals. Crosstalk and Power consumption is a major concern in design of VLSI circuits as the technology is moving towards reduced chip size. A very popular method among them is the Bus Invert method, which does a conditional inversion of the bus lines to reduce the self transitions and thereby reducing the self energy. Crosstalk is mastering the nanometer technology which causes changes on interconnects. Crosstalk is an important design factor on total power consumption and delay of on-chip data buses. Transition activity on bus can be reduced by employing various bus encoding techniques.

A new coding technique 'Quadro coding' which minimizes both coupling and self transition activities in the bus lines have been evolved which focuses on reducing transition activities on bus which minimizes crosstalk and power consumption on on-chip data bus but with some increase in area overhead. The main focus of this technique is reduction in dynamic power dissipation. The capacitance of interconnect can be classified as coupling capacitance and self capacitance. The coupling capacitance is the capacitance between the adjacent data lines while the self capacitance refers to the capacitance between the substrate and the wire itself [6].The dynamic power in VLSI chip decides the behavior of chip and is highly dependent on the load capacitance and the coupling capacitance i.e. bus line signal transitions [7]. Dynamic power dissipation on a coded bus in a CMOS VLSI circuit is given by

$$P_{dynamic} = Į*VDD^2*CL*f \qquad …(1)$$

Where

VDD is the supply voltage,
CL is the load capacitance,
f is the clock frequency,
$Į = Įs*Cs + Įc*CC$.
Įs is the self transition activity factor
and Įc is the coupling transition factor.

Here, RHS of (1) is to be reduced for reducing dynamic power dissipation. In this paper, the main objective is to reduce dynamic power dissipation by reducing transition activity on the bus. The rest of the paper is organized as follows: Definitions of some of the important terms are given in section II, Literature survey and Bus model is explained in section III, proposed bus coding is explained in section IV, Simulation and comparison of proposed coding scheme with previous techniques shown in section V, finally conclusion are made in section VI.

II. BASIC DEFINITIONS

1. **Coupling transitions**: Transition of data from 0 ➔1 or vice-versa between adjacent bus lines.
2. **Self transitions**: Transition of data from 0➔1 or vice-versa on bus wire with reference to previous data on it.
3. **Bus width**: Number of bits in data is defined as bus width.

Design of Nano-Calculator Using Quantum Dot Cellular Automata (QCA)

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Abstract— **CMOS technology over junction transistor is a very important contribution in terribly massive Scale Integrated technique for the last 20 years. Quantum Dot Cellular Automata (QCA) brings as a replacement answer to the elemental limits of CMOS technology. This paper could be a proposal of creating Quantum dot cellular automata (QCA) based mostly Nano-calculator. In this Calculator we've simulated four basic operations: addition, subtraction, multiplication and division. QCA is associate degree advance technology that overcomes some limitations of CMOS like change speed. QCA generated circuits operates within the order of THz frequency vary wherever circuits doesn't need any additional power provide for operation.**

Keywords— Clocksignal; Adder; Subtractor; Multiplier; Demultiplexer; nano Calculator.

I. INTRODUCTION

Quantum Dot Cellular Automata (QCA) is enforced by quadratic cells within which four potential wells reside in four corners of the cell connected by electron tunnel junctions. within the QCA cells specifically 2 electrons will reside within the potential wells. because of repulsion of their columbic forces, they occupy 2 opposite corners. so there will be 2 configurations, one for binary zero and another one for binary one. elementary analysis on Quantum dot cellular automata was planned by the authors in [1].
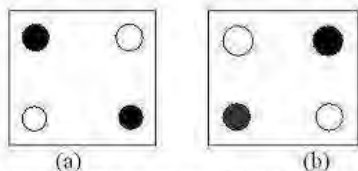

Fig.1. QCA cells with four quantum dots (a) cell with polarization p= -1(Logic '0') (b) cell with polarization p = 1 (Logic '1')

II. CLOCKING

The Quantum Dot Cellular Automata based circuits operate in four clock phases such as Switch, Hold, Release and Relax.

In **Switch** phase, extra electrons within a cell are polarized under the influence of neighboring cells. In this phase, a cell attains a definite binary value. Tunnel wants to get closed and potential barrier keeps on rising. In **Hold** phase, the potential barrier is maximum and tunnel gets closed so that electrons do not switch and retain their polarity. In **Release** phase, the potential barrier keeps on lowering and tunnel tends to get opened. As a result cells lose their polarity. In **Relax** phase, the potential barrier is minimum and tunnel stays open. As a result a cell has no influence on its neighbors. In QCA cells having different colors means that they are under different clocks and having same color means they are under same clock. In QCA, Green refers to clock 0, Violet refers to clock 1, Blue refers to clock 2 and White refers to clock 3. The clocking of is proposed in [1-2].
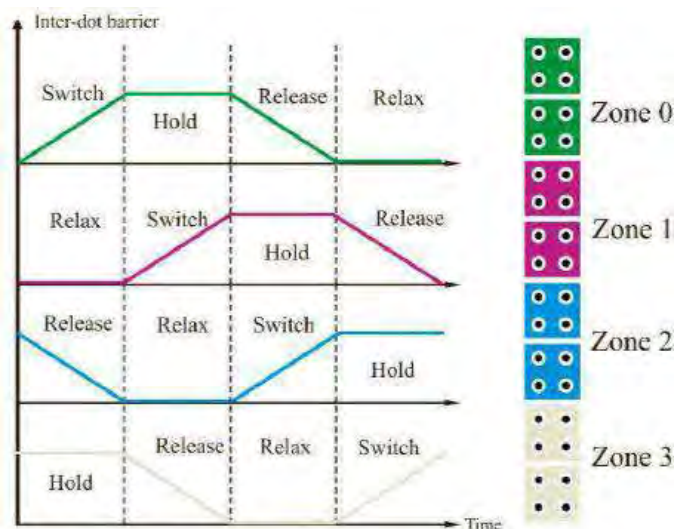

Fig.2 Clocking in QCA

III. NANO CALCULATOR

The calculator has completely been simulated using QCA technology. As compared to CMOS, QCA has taken

IoT TECHNOLOGY BASED MEASUREMENT OF WATER QUALITY

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ABSTRACT:

At present, unique sites use Internet technology (IoT) techniques as well as remote sensing techniques (RS) to monitor, create and test statistics from remote locations. Water consumption is a useful tool for all people, because the energy consumption of water in alcohol consumption is facing new scenarios that require new procedures in real time. These irritating scenarios come from limited water sources, population growth, aging equipment, and many other facilities. Later, several methods are needed to discover premium water. In order to ensure a convenient supply of water, real-time requirements must be

checked. In this article, we plan to offer a model plus a refined low-cost tool to provide real-time control over the wonderful water in the Internet. Specifications can be indicated with temperature, pH, turbidity, water float sensor module. The measured values of the sensor units can be improved by the central control unit. The ARM 7 variance can be used as the main controller. After all, the sensor module's facts can appear on the network using WI-FI devices.

Keywords: IoT (Internet of things), water quality, PH sensor, Wifi, Turbidity, water level sensor.

1. INTRODUCTION

Water is a scarce useful source as well as an important agricultural market as well as an animal way of life on the planet, which involves people. Great individual offers do not indicate how important it is to eat enough water every day. More water is discharged using several control methods. This problem was quietly associated with the amount of negative water, ineffective use, as well as a pleasant scarcity and buried in water. For this reason, environmental friendliness, as well as water control measures, are limitations on the ability of living or working water controls. Every creature in the world wants to keep water for survival. A person forms our bodies of more than 60 percent of the water. We use clean water for consumption, plant food, and operate equipment, as well as

Design and Implementation of Remotely Located Energy Meter Monitoring with Load Control and Mobile Billing System through GSM

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Abstract— **Electricity, the most usable form of energy is used widely through the whole world. With the evolution of modern technology, the usage of electricity is escalating gradually. But the production of electricity is confined due to deficiency of resources. So power must be used in a concise way. In many countries, electrical energy is measured by energy meter which is inspected by a human. According to their inspection, the electric bills are prepared and most often these are prepared on the basis of assumption which could be inaccurate, costly, time-consuming as well as error prone. Due to the absence of regular monitoring system, sometimes consumer use electrical energy month after month without paying any bill. Energy meter monitoring and digital billing system is a kind of system which would be able to avoid traditional meter reading, save human resources, improve the accuracy and prevent the power theft. In this paper, a remote monitoring of energy meter and digital billing system is inaugurated through GSM 900. For monitoring server, major programming languages had been introduced to relate the methodologies, execute logical functions, store data in a database and send the monthly bill to the consumer cell phone number and finally disconnect the unpaid consumer.**

Keywords—GSM 900, Server, Bill, Energy meter, Electricity

I. INTRODUCTION

Electricity, one of the most important sectors for the economic development of a country is used for the various purposes. In the perspective of Bangladesh; energy infrastructure is quite small, insufficient and poorly managed. The installed electric generation capacity was 10289 MW in January 2014 only three-fourth *of* which is considered to be available. Problems in the Bangladesh's electric power sector are included many technical and non-technical losses. Meter tampering, illegal means of electricity bill payment and so on are included in the non-technical loss. Due to this non-technical reasons 5-7% power losses of total generated power.

Besides this, the residential meter billing system is not appropriate due to the irregular inspection of the meter data and most often these bills are prepared from assumption. That's why consumer has to suffer for this inconsistent billing though they use the approximately same energy in each month. Based on the above requirements, the network meter-reading management system is developed. This system is based on network technology, automatic meter-reading technology, and modern management ideas, which can realize

the energy consumption management to be controllable, adjustable and predictable [1]. A prior billing is bound to do away with the problems of unpaid bills and human error in meter readings, thereby ensuring justified revenue for the utility [2].

To resolve this issue, digital energy metering system has been introduced but this technology is not capable of removing all the problems mentioned earlier. There needs modification of this system where instantaneous monitoring and digital billing system have to be added.

In the traditional electro-mechanical and digital metering system, electric energy is inspected by person and most often they prepared the bill through assumption based on his history of electricity consumption. Maybe the consumer has not utilized the similar amount of electricity in the current month as in the previous months for reasons such as, holidaying elsewhere or being in the hospital, etc. This method of billing is also not suitable for the electricity supply company because it gives an inaccurate account of the overall power consumption in the consumer's area and may ultimately result in errors in future planning by the company [3]. Over the past years, metering devices have gone through many improvements and become more complicated with more features and functions. Electromechanical Meter has very little accuracy and lack of reconfigurability. There are so many problems require utility companies to overcome such as electricity theft, meter modifications and more. Furthermore, meters are limited to provide the amount of energy consumption on consumer's premises [4]. Though there were introduced pre-paid metering system in several areas in Bangladesh, the monitoring system is not available and as the unit has to buy before the usage, the consumers may not fix the amount of unit which they have to buy and that's why uninterrupted power is not ascertained[5]. Today most of the utilities companies are looking for solutions to overcome these disadvantages. The proposed system replaces traditional meter reading methods and enables remote access to existing energy meter by the authority. Also, it can monitor the meter readings regularly without the person visiting each house. A GSM 900 module is integrated with electronic energy meter of each entity to have remote access to the usage of electricity and create a wireless network shown in *Fig. 1.*

OBSERVING OPERATING ACTIVITIES OF WORK VEHICLES BY USING ZIGBEE NETWORK SYSTEM

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Abstract—: **Observing activities of working vehicles on a work site, such as a factory, is important in regard to managing the lifetime of vehicles and achieving high operational availability. However, it is a problem that an administrator cannot completely grasp the activities of a working vehicle. Existing systems cannot cover a large area, particularly in an indoor environment. A system is proposed for monitoring operating activities of working vehicles, regardless of whether they are operating indoors or outdoors. The system calculates the activity rate of a vehicle by analyzing the topology of a network configured by the wireless technology ZigBee. In addition, it was experimentally verified that network topology and RSSI can be used to estimate activities of working vehicles.**

Keywords— ZigBee; Sensor Network; Activity; Status;

1.INTRODUCTION

EMBEDDED SYSTEMS: Each day, our lives become more dependent on 'embedded systems', digital information technology that is embedded in our environment. More than 98% of processors applied today are in embedded systems, and are no longer visible to the customer as 'computers' in the ordinary sense. An Embedded System is a special-purpose system in which the computer is completely encapsulated by or dedicated to the device or system it controls. Unlike a general-purpose computer, such as a personal computer, an embedded system performs one or a few pre-defined tasks, usually with very specific requirements. Since the system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product. Embedded systems are often mass-produced, benefiting from economies of scale. The increasing use of PC hardware is one of the most important developments in high-end embedded systems in recent years. Hardware costs of high-end systems have dropped dramatically as a result of this trend, making feasible some projects which previously would not have been done because of the high cost of non-PC-based embedded hardware. But software choices for the embedded PC platform are not nearly as attractive as the hardware.

Typically, an embedded system is housed on a single microprocessor board with the programs stored in ROM. Virtually all appliances that have a digital interface -- watches, microwaves, VCRs, cars -- utilize embedded systems. Some embedded systems include an operating system, but many are so specialized that the entire logic can be implemented as a single program
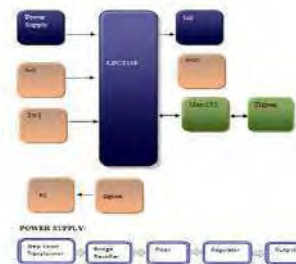
1.Overview of an Embedded System Architecture

Every Embedded system consists of a custom-built hardware built around a central processing unit. This hardware also contains memory chips onto which the software is loaded.
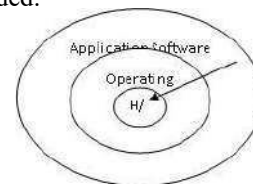
The operating system runs above the hardware and the application software runs above the operating system. The same architecture is applicable to any computer including desktop computer. However these are significant differences. It is not compulsory to have an operating system in every embedded system. For small applications such as remote control units, air conditioners, toys etc.

2. ARM LPC2148: The LPC2141/42/44/46/48 microcontrollers are based on a 16-bit/32-bit ARM7TDMI-S CPU with real-time emulation and embedded trace support, that combine microcontroller with embedded high speed flash memory ranging from 32kB to 512 kB. . For critical code size applications, the alternative 16-bit Thumb mode reduces code by more than 30 % with minimal performance penalty. Due to their tiny size and low power consumption, LPC2141/42/44/46/48 are ideal for applications where miniaturization is a key requirement, such as access control and point-of-sale. Serial communications interfaces ranging from a USB 2.00 Full-speed device, multiple UARTs, SPI, SSP to I2C-bus and on-chip SRAM of 8 kB up to 40 kB, make these devices very well suited for communication gateways and protocol converters, soft modems, voice

RoBA Multiplier: A Rounding-Based Approximate Multiplier for High-Speed yet Energy-Efficient Digital Signal Processing

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ABSTRACT

We propose a correct multiplier that is quick yet essentialness viable. The methodology is to round the operands to the nearest case of two. Thusly the computational concentrated bit of the duplication is disposed of improving pace and essentialness usage at the expense of a little mix-up. The proposed approach is material to both stamped and unsigned increments. We propose three hardware utilization of the exact multiplier that joins one for the unsigned and two for the checked errands. The capability of the proposed multiplier is surveyed by differentiating its execution and those of some exact and correct multipliers using assorted diagram parameters. Besides, the sufficiency of the proposed exact multiplier is considered in two picture getting ready applications.

Keywords — Accuracy, approximate computing, energy efficient, error analysis, high speed, multiplier**.**

I. INTRODUCTION

Imperativeness minimization is one of the standard arrangement necessities in any electronic structures, especially the adaptable ones, for instance, propelled cells, tablets, and particular contraptions. It is exceedingly needed to achieve this minimization with irrelevant execution (speed) discipline. Propelled hail dealing with (DSP) squares are key portions of these minimized devices for recognizing diverse blended media applications. The computational focus of these squares is the math basis unit where duplications have the best offer among each calculating movement performed in these DSP systems. Thusly, improving the speed and power/imperativeness capability characteristics of multipliers expect a key part in upgrading the adequacy of processors.

A. Conversion from RBR

This table exhibits the logical estimation of each possible match of bits. As in conventional parallel depiction, the entire number estimation of a given depiction is a weighted whole of the estimations of the digits. The weight starts at 1 for the furthest right position and goes up by a factor of 2 for each next position. Generally, a RBR grants negative characteristics. There is no single sign piece that advises if a RBR addressed number is sure or negative. Most numbers have a couple of possible depictions in a RBR.

Propelled multipliers are for the most part used in number juggling units of chip, intuitive media, and electronic banner processors. Various counts and structures have been proposed to design quick and low power multipliers. A first methodology uses 4-2 blowers, while a second system uses overabundance combined (RB) numbers [1,

Energy-Efficient Hybrid TDMA/CDMA Protocol for Wireless Sensor Networks

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Abstract—**Smart city is a great promise to boost the living standards through effective management and utilization of scarce resources such as power, bandwidth, energy etc, in this paper, we review existing research endeavours and develop a smart energy efficient tool for the smart city. We also conduct some simulations and evaluations in smart energy, which will be an important application in smart cities. An energy Efficient and Effective Protocol for Wireless Networks which provide a novel low power guaranteed delay for wireless sensor networks (WSNs) is presented in this paper. The protocol used in this method is a Hybrid MAC protocol. It is a combination of TDMA and CDMA. This technique permits the network to work in a collision-free manner thereby boosting the smart city communications**.

Keywords— **CDMA, TDMA, MAC, WSN.**

1. INTRODUCTION

A wireless sensor network are of paramount interest for a smart city is a spatially distributed large network of sensor nodes [1].The constraint with the sensors network in smart city is that the wireless sensors and devices have limited resources.

Since WSNs are deployed in unmanned and hazardous environment, replacement or recharging of the batteries is difficult when it is depleted. A major problem with WSN is to determining a most efficient protocol for conserving energy in order to have a smart city.

Therefore, to make a city smart and big city, smart and strong communication infrastructure is required for connecting sensors with the smart objects or people. For performance enhancement and decision-making, the Smart cities also have to deal with a Big Data.

A Medium Access Control (MAC) protocol enables the sensor nodes access to the shared medium [3]. MAC protocol plays a major role in energy conservation.

Two important problems in MAC layer are message collision and idle listening [5]. The MAC protocols for WSN can be broadly classified into two categories [6], they are contention based and schedule based protocol. To deal with the problems aroused in MAC protocol, many MAC protocols have been proposed [7]. Few typical protocols are SMAC, DMAC, BMAC, ZMAC and HMAC.

The idea behind the Sensor- MAC [8] (S-MAC) protocol is: based on synchronizations. A drawback of the S-MAC algorithm is of two different schedules results in more energy consumption due to idle listening and overhearing.

The aim of DMAC [9] is to achieve low latency, but still to be energy efficient. Collision avoidance methods are not utilized is the major drawback.

The B-MAC utilizes an adaptive preamble to reduce idle listening. The disadvantage is that the performance creates large overhead.

ZMAC [10] uses CSMA basically but follows TDMA and it depends on the contention level.

HMAC [13] is based on the IEEE 802.11 Power Saving Mechanism (PSM) and slotted aloha. When nodes are in back off procedure and in idle mode, the energy consumption using CSMA/CA is high.

Hybrid TDMA/CDMA MAC protocols for WSN [14] merge the strengths of TDMA and CDMA while nullifying their weaknesses.

Based on the above hybrid MAC protocols, this presents a hybrid TDMA/CDMA MAC protocol for WSN that merge the strengths of TDMA and CDMA while alleviating their weaknesses and also allowing the network to operate in a collision-free manner. By merging the strengths of both the protocol, it helps to improve the network lifetime more efficiently, thereby a key success for a smart city

2. PROPOSED SYSTEM

In this section, TDMA and CDMA protocols are first briefly described and then the hybrid TDMA/CDMA MAC protocol is described.

Wireless Health Monitoring System using ZIGBEE

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Abstract— Remote health care monitoring system (RHCMS) has drawn considerable attentions for the last decade. As the aging population is increasing and at the same time the health care cost is skyrocketing there has been a need to monitor a patient from a remote location. Moreover, many people of the World are out of the reach of existing health- care systems. To solve these problems many research and commercial versions of RHCMS have been proposed and implemented till now. In these systems the performance was the main issue in order to accurately measure, record, and analyze patients' data. With the ascent of wireless network RHCMS can be widely deployed to monitor the health condition of a patient inside and outside of the hospitals. In this work we present a ZigBee based wireless healthcare monitoring system that can provide real time online information about the health condition of a patient. The proposed system is able to send alarming messages to the healthcare professional about the patient's critical condition. In addition the proposed system can send re- ports to a patient monitoring system, which can be used by the healthcare professionals to make necessary medical advices from anywhere of the World at any time.

Keywords: *ARM processor, ZIGBEE module, heartbeat sensor, temperature sensor, LED's, and LCD.*

Introduction

Over the recent years remote health care monitoring systems for the elderly people have drawn considerable attentions. According to UNFPA, the global population is no longer young for the first time in the history [1]. Population ageing is affecting the entire world and is happening in all regions. But, it is progressing at a faster rate in the developing countries. Seven out of the fifteen countries in the developing world have more than 10 million old people. By the year 2050 another fifteen developing countries are expected to have 10 million old people.

Communication Technologies for Industrial Systems

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Abstract— **In case of industrial sites located in isolated geographical areas, access to wired internet connection can be a challenge. This paper presents an evaluation of possible configurations for a remote monitoring and control of a wastewater plant. The plant does not have a public IP and the internet is acquired using a mobile connection on a router directly connected to the plant PLC. Two possible solutions are presented, using a VPN router and through an OPC tunnel.**

Keywords— *data transmission, GSM communication, SCADA, remote control, VPN tunnel.*

I. INTRODUCTION

In today's economic environment, every major producer of goods, like national utility companies from the water or energy sector, oil extraction and processing companies, renewable energy etc., has their production and supply chain geographically situated all over the country, continent or world. This situation shows a necessity for the companies and brings a new problem for the system integrators to solve, the communication between geographically scattered sites.

What started as a simple human to human communication between sites, using telephone lines and later, using the internet for communication between plant managers, evolved in accordance with the new technologies and standard communication protocols, to machine to machine, plant to plant communication and data and information transfer using industrial internet protocols, GSM, GPRS, satellite communication, telecontrol, radio or Wi-Fi.

The new means of communication increase the availability of plant data and allow the implementation of new applications that can reduce the involvement of the human operator, allow direct data integration in ERP or asset management applications, and, by use of mobile application or alarming modules, can raise the speed in which the plants or the dispatcher is informed regarding process operation [1].

Another usage for remote data acquisition is maintenance and data analysis of the plant. This allows remote supervisor applications to analyze information that is acquired from the target plants. The information is analyzed and decisions can be made if human intervention or predictive maintenance is needed. The remote data acquisition is a key requirement for

unmanned remote plants, like distributed wind farms, water supply pumps, wastewater pumps, gas supply installations etc. In case of industrial sites located in isolated geographical areas, access to wired internet connection can be a challenge. While satellite connections are highly expensive, the most accessible solution is represented by GSM/GPRS networks. At the same time, to ensure there are no security breaches, only certain areas of a plant can be accessed remotely. The correlation between requirements from the process control engineer points of view, plant network security, service provider and implementation cost must be taken into consideration in identifying a best solution.

This paper presents a typical case of a plant that must be connected to a remote Decision Support System and evaluates possible interconnection solutions considering there is no current internet connection available. Our objectives are to research potential methods of implementing the communication component of a wastewater plant, and to present and analyze the method applied in our situation that was implemented within the project.

The rest of the paper is structured as follows: section II presents existing technologies and architectures for remote plant connection. Section III describes the plant used as case-study, existing limitations and data connection requirements. Section IV presents two possible connection solutions for accessing remote plant data without the need of a fix IP address. Section V concludes this paper.

II. AVAILABLE COMMUNICATION TECHNOLOGIES

A. Previous Related Work

Remote control is the kind most facility technology up to date, as it allows us to do things from a distance, in a short period, and with minimal effort. Combined with the acquisition of production-related information and process state, remote control can help implement the digital enterprise concept at the plant level [2]. This topic has been addressed previously in several research papers.

In [3] the authors present the remote control of a pumping station in the water supply system by using monitoring systems installed in the entire building and assisted by alarm

An Energy-Efficient Cooperative Spectrum Sensing for Cognitive Radio: A Review

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Abstract - Cognitive radio (CR) is a promising solution for improving spectral utilization. Those bands of frequencies which are allocated to primary users (PU) or licensed users, can be used by secondary users (SU) or cognitive users, when PU are not present. Hence, spectrum sensing is necessary to identify the available spectrum and to prevent harmful interference with licensed users. Cooperative spectrum sensing (CSS) is used commonly because spectrum sensing of individual nodes cannot achieve high detection accuracy. The drawback of CSS scheme is that there exists a tradeoff between energy consumption and sensing performance. A more accurate sensing procedure requires minimizing energy consumption without degrading detection performance. In this paper, a survey of various works which aims to maximize the energy efficiency without degrading sensing performance is done.

Keywords – primary users; secondary users; cooperative spectrum sensing; energy efficiency; detection performance.

INTRODUCTION

Spectrum resources are required for the purpose of communication. The frequency spectrum has been divided into different parts and each part is assigned for specific use. The electromagnetic radio spectrum is a natural resource, the use of which by transmitters and receivers is licensed by governments [1]. The following observations can be made about the spectrum:-

- Some frequency bands in the spectrum are sparsely occupied.

- Some other frequency bands are partially used

- The remaining frequency bands are heavily occupied.

This underutilization of the electromagnetic spectrum leads to spectrum holes or white spaces. A spectrum hole is a band of frequencies assigned to PU, but the band is not being utilized by that user. CR has been proposed to promote the efficient use of spectrum by exploiting the existence of spectrum holes. CR is an intelligent wireless communication system that senses its operational electromagnetic environment and adjusts its radio operating parameters like modulation type, power output, frequency etc to modify system operations such as maximizing throughput, mitigating interference, etc. SUs are the CR entities that uses spectrum hole. These SUs should not cause any interference to the PU. Hence, it is important to detect the PU correctly.

Spectrum sensing is the key function of CR. It is the process of monitoring the spectrum to detect the presence of PU on a specific channel. If the PU is absent (not utilizing spectrum) then, SU can utilize spectrum. Otherwise, SU cannot use the spectrum. Spectrum sensing techniques include energy detection, matched filter detection, cyclostationary feature detection, waveform detection etc [2]. A matched filter is a linear filter designed to maximize the output signal to noise ratio (SNR) for a given input signal. In matched filter detection technique, an unknown signal is correlated with a time shifted version of impulse response of the matched filter. Cyclostationary feature detection technique is the best method for detecting modulated signal with high levels of noise. PU signal is periodic in nature and hence they will exhibit

IOT BASED CHILD SAFETY WEARABLE DEVICE

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Abstract— **This paper discusses the concept of a smart wearable device for little children. The major advantage of this wearable over other wearable is that it can be used in any cellphone and doesn't necessarily require an expensive smartphone and not a very tech savvy individual to operate. The purpose of this device is to help parents locate their children with ease. At the moment there are many wearables in the market which help track the daily activity of children and also help find the child using Wi-Fi and Bluetooth services present on the device. But Wi-Fi and Bluetooth appear to be an unreliable medium of communication between the parent and child. Therefore, the focus of this paper is to have an SMS text enabled communication medium between the child's wearable and the parent as the environment for GSM mobile communication is almost present everywhere. The parent can send a text with specific keywords such as "LOCATION" "TEMPERA TURE" "UV" "SOS" "BUZZ", etc., the wearable device will reply back with a text containing the real time accurate location of the child which upon tapping will provide directions to the child's location on google maps app and will also provide the surrounding temperature, UV radiation index so that the parents can keep track if the temperature or UV radiation is not suitable for the child. The prime motivation behind this paper is that we know how important technology is in our lives but it can sometimes can't be trusted, and we always need to have a secondary measure at hand. The secondary measure used in this project is the people present in the surrounding of the child who could instantly react for the child's safety till the parents arrive or they could contact the parents and help locate them. The secondary measure implemented was using a bright SOS Light and distress alarm buzzer present on the wearable device which when activated by the parents via SMS text should display the SOS signal brightly and sound an alarm which a bystander can easily spot as a sign of distress. Hence this paper aims at providing parents with a sense of security for their child in today's time.**

Keywords—, Children, Arduino, Safety, Wearable.

1.INTRODUCTION

The Internet of Things System (loT) [1] refers to the set of devices and systems that stay interconnected with real-world sensors and actuators to the Internet. loT includes many different systems like smart cars, wearable devices [2] and even human implanted devices, home automation systems [3] and lighting controls; smart phones which are increasingly being used to measure the world around them. Similarly, wireless sensor networks [4] that measure weather, flood defenses, tides and more. There are two key aspects to the loT: the devices themselves and the server-side architecture that supports them The motivation for this wearable comes from the increasing need for safety for little children in current times as there could be scenarios of the child getting lost in the major crowded areas. This paper focusses on the key aspect that lost child can be helped by the people around the child and can play a significant role in the child's safety until reunited with the parents. Most of the wearables available today are focused on providing the location, activity, etc. of the child to the parents via Wi-Fi [8] and Bluetooth [9]. But Wi- Fi and Bluetooth seem a very unreliable source to transfer information. Therefore it is intended to use SMS as the mode of communication between the parent and child's wearable device, as this has fewer chances of failing compared to Wi-Fi and Bluetooth. The platform on which this project will be running on is the Arduino [10] Uno microcontroller board based on the ATmega328P, and the functions of sending and receiving SMS, calls and connecting to the internet which is provided by the Arduino GSM shield using the GSM network [11]. Also, additional modules employed which will provide the current location of the child to the parents via SMS. The second measure added is SOS Light indicator that will be programmed with Arduino UNO board to display the SOS signal using Morse code. The different modules stay enclosed in a custom designed 3D printed case [12]. In the scenario, a lost child can be located by the parent could send an SMS to the wearable device which would activate the SOS light feature on the wearable. Therefore alerting the people around the child that the child is in some distress and needs assistance as the SOS signal is universally known as the signal for help needed. Additionally, the wearable comes equipped with a distress alarm buzzer which sets to active by sending the SMS keyword "BUZZ" to the wearable. Hence the buzzer is loud and can be heard by the parent from very considerable distance. Also the parents via SMS can receive accurate coordinates of the child, which can help them locate the child with pinpoint accuracy. Some of the existing work done on these similar lines are for example the low-cost, lightweight Wristband Vital [2] which senses and reports hazardous surroundings for people who need immediate assistance such as children and seniors. It is based on a multi-

THE FinFET TECHNOLOGY

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Abstract: The Integrated Circuit(IC) is become an integral part in all aspects of Industrial growth and modifying Its Characteristics as per updated technology. The semiconductor industries are emerging with new ideas which goes beyond the Moore's law predictions which predicted that "The number of transistor per chip would quadruple for every three years". But this "Physical law" does not hold forever and gave a final conclusion that "another metric will be needed to chosen to allow the future trend to be mapped and predicted". Even the Moore's law was very old Prediction, Most of the industries comparing the its standards with it .Now a days ,Transistor Technology is going towards the low technology node the reason is there is shrinking the transistor size, automatically its driving performance will be improved. So, this paper is discussing on the new proposed technology architectures of Dual gate and tri gate MOSFET.

Keywords: *Transistors, Bulk MOSFET,FD- Silicon On Insulator(SOI),3DLithiography, High dielectric spacer material/Metal Gate*

I.INTRODUCTION

1. History of Transistor

In view of difficulty in Planar CMOS Technology scaling to preserve an acceptable Gate to Channel control Fin FET Multi gate Devices have been proposed as a Technology option For replacing existing Technology. As devices shrink further, the problems with conventional (planar) MOSFETs are on rise. The electronic industries are designing the chip with a perfect logic and finishing up with fabrication verification tests. But , the major concerns lies in the patterning the wafer(Substrate) as per the requirement that The research in technology of Field Effect Transistor has began several centuries ago[1],[2]. Even the name is given as Transistor, several war time efforts was made for the device to show its originality at the times of "developing age" of Technology. Transistor was named as Surface states Triode, Semiconductor Triode, Crystal Triode, Solid Triode and Iotatron prior to the name given as Transistor by John r Pierce. At present , the designing the circuit was made easy by utilizing the resources available to us. So one couldimagine ,how old the roots of transistor Technology is and how many inventions and efforts made by the scientists at those times had still stood behind the Ancient Techniques.

1. Prior to the invention of Transistors, there are
2. Devices existed which are 30-40 years ago before the Transistor was invented.
3. The research in technology of Field Effect Transistor has began several centuries ago.
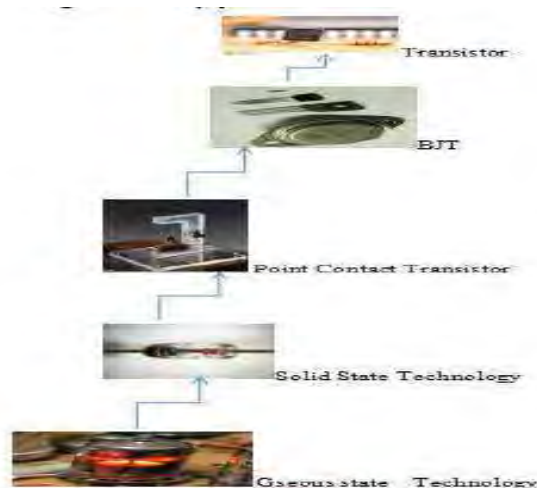
Fig.1. Evolution of Transistor Technologies

At present ,the designing the circuit was made easy by utilizing the resources available to us. So one could imagine how old the roots of transistor Technology is and how many inventions and efforts made by the scientists at those times.

Methods of designing a chip:

Fig.2. IC Chip Fabrication

A circuit/design which is used in any domain pertained to some common strategies like low cost, high speed ,low power consumption, less heat discippiation, small area. In the scence, what are scaling issues in Bulk MOSFETS and how they are minimized by using accessed technology like Fin FET[3].

SUPER ACTIVE MATRIX OLED

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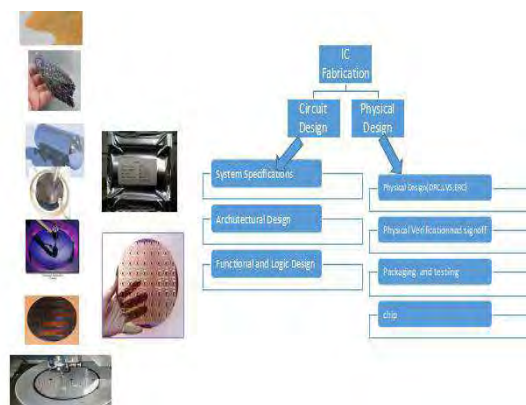Malla Reddy College Of Engineering
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Abstract: **In modern technology, typically use active matrix which contain thin film transistor (TFT's) display. In this TFT's transistor include capacitors that enable individual pixel to active. By using TFT's the active matrix is more efficient then OLED. These active matrices mainly used in mobiles phones i.e., in touch screen for high resolution. But newly Samsung introduced super AMOLED with better brighter screen, low power consumption less sunlight reflection, high resolution and very high-speed refresh rate i.e., speed up the response time. Super AMOLED also called as SAM AMOLED. Samsung adopted diamond PenTile technology for high resolution in mobiles.**

*Keywords***: electro luminescence, pixel, pixel per inch, self-emission, thin film transistor.**

I.INTRODUCTION

ACTIVE Matrix Light Emitting diode is a display technology used in mobile as screen. AMOLED describes a specific type of display i.e., thin-film display technology in which organic compounds form the electroluminescent material, and active matrix refers to the technology behind the addressing of pixels. The basic principle behind the working of AMOLED is Electroluminescence. Electroluminescence (EL) is an optical phenomenon and electrical phenomenon in which a material emits light in response to the passage the electric current or by a strong electric field [1]. Electroluminescence is the result of excitation of electrons which releases their energy as photons which produce light [2]. For recombination, electrons and holes may be separated by doping the material to form a p-n junction (in semiconductor electroluminescent devices such as light-emitting diodes) or through excitation by impact of high-energy electrons accelerated by a strong electric field (as with the phosphors in electroluminescent displays) [3]. AMOLED has expresses pure colours when electric current stimulates the relevant pixels. The primary colour matrix is arranged in red, green and blue pixels which are mounted directly to print on board. By using specific colours can improves overall colour contrast. Active-matrix OLEDs (AMOLED) require a thin-film transistor as backplane to switch each and every individual pixel on or off. This layer of organic semiconductor material is situated between two electrodes. Generally, at least one of these electrodes is transparent. AMOLED used in mobiles phones, media players and digital cameras [5]. OLEDs are light weight, durable, power efficient and ideal for portable applications. According to Samsung, Super AMOLED reflects one-fifth as much sunlight as the first-generation AMOLED. Super AMOLED is part of the Pen tile matrix family, sometimes abbreviated as SAMOLED [6][7].

II.EXISTING METHOD

Super-AMOLED (Active-Matrix Organic Light-Emitting Diode) displays are AMOLED displays for mobile devices (such as smartphones, wearables) with an integrated touch function. Samsung's latest Super AMOLED displays adopt a new sub pixel arrangement called Diamond shaped Pixel by replacing the previous PenTile scheme. Modern PenTile OLED displays reach very high pixel densities Samsung are using PenTile for high-resolution (over 230 pixels per inch) OLED. In 2012, AMOLED technology used in mobiles, tv screen display and digital display cameras with low power. AMOLED display contains OLED pixel to generate light by integrated on a thin film transistor (TFT)array which controls electric flowing to each individual pixel. These TFT black plane technologies are polycrystalline silicon and andamorphase silicon are used in AMOLED's. The first EL introduced by pope and coworker in 1963 from an organic molecule, anthracene and its thickness 10μm -5mm when a bias of several hundred volts was applied across it. P. S. Vincent achieved bright blue EL from vacuum which was deposited by 0.6μm thickness and its anthracene crystal films applied with bias of less than 100V. The breakthrough was achieved by Tang and VanSlykein 1987, he made a bilayer structure by using thermally evaporating with the small molecular weight organic materials. In 1989, Tang developed a laser-dye doped Alq3multilayer structure, in which the fluorescent efficiency was increased and the emission color varied from the original green to the dopant emission color. As of 2008, AMOLED technology was used as screen in mobile phones, media players and digital cameras and they continued to make progress for low-power, low-cost. Super-AMOLED displays are AMOLED displays for mobile devices (such as smartphones, wearables) with an integrated touch function. Samsung's latest Super AMOLED displays adopt a new sub pixel arrangement called Diamond shaped Pixel by replacing the previous PenTile scheme. Modern PenTile OLED displays reach very high pixel densities Samsung are using PenTile for high-resolution (over 230 pixels per inch) OLED. In January, it was reported that Samsung will adopt a new sub pixel scheme that uses diamond sub-pixels.

III.PROPOSED METHOD

Super AMOLED is Samsung's own version of AMOLED display which is enhanced for a better output [9]. With Super AMOLED display, a phone can be thinner, consume less battery and offer higher contrast and better touch sensitivity among other benefits. Super-AMOLED is identical to AMOLED. Thus, these two technologies are same but there is only one difference in the layer that detects touch called the digitizer or also known capacitive touchscreen layer. SAM AMOLED is embedded directly

DESIGN OF POWER AND AREA EFFICIENT APPROXIMATE   MULTIPLIERS

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Abstract- **Inferred preparing can decrease the arrangement multifaceted nature with an extension in execution and power profitability for screw up adaptable applications The proposed gauge is utilized in two varieties of 16-bit multipliers. Mix results reveal that two proposed multipliers achieve control save assets of 72% and 38%, separately, appeared differently in relation to a right multiplier. They have better precision when diverged from existing estimated multipliers. Mean relative botch figures are as low as 7.6% and 0.02% for the proposed assessed multipliers, which are better than the past works. Execution of the proposed multipliers is surveyed with a photo planning application, where one of the proposed models achieves the most astonishing zenith banner to clatter extent.**

 Keywords: **Approximate computing, error analysis, low error, low power, multipliers.**
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I.INTRODUCTION

In applications like multimedia signal processing and data mining which can tolerate error, exact computing units are not always necessary. Research on approximate computing for error tolerant applications is on the rise. Adders and multipliers form the key components in these applications. In [1], approximate full adders are proposed at transistor level and they are utilized in digital signal processing   applications. Their proposed full adders are used in accumulation of partial products in multipliers .To reduce hardware complexity of multipliers, truncation is widely employed in fixed-width multiplier designs. Then a constant or variable correction term is added to compensate for the quantization error introduced by the truncated part [2], [3]. Approximation techniques in multipliers focus on accumulation of partial products, which is crucial in terms of power consumption. Broken array multiplier is implemented in [4], where the least significant bits of inputs are truncated, while forming partial products to reduce hardware complexity. The proposed multiplier in [4] saves few adder circuits in partial product accumulation. In [5], two designs of approximate 4-2 compressors are presented and used in partial product reduction tree of four variants of 8×8 added multiplier. The major drawback of the proposed compressors in [5] is that they give nonzero output for zero valued inputs, which largely affects the mean relative error (MRE) as discussed later. f overcomes the existing drawback. This leads to better precision. In , inaccurate counter design has been proposed for use in power efficient Wallace tree multiplier. A new approximate adder is presented in [10] which is utilized for partial product accumulation of the multiplier. For 16-bit approximate multiplier in [10], 26% of reduction in power is accomplished   compared to exact

multiplier. Approximation of 8-bit Wallace tree multiplier voltage over-scaling (VOS) is discussed in [11]. Lowering Bleading to error. Previous works on logic complexity reduction focus on straightforward application of approximate adders and compressors to the partial products. In this brief, the partial products are altered to introduce terms with different probabilities. Probability statistics of the altered partial products are analyzed, which is followed systematic approximation. Simplified arithmetic units (half-adder, full-adder, and 4-2 compressor) are proposed for approximation. The arithmetic units are not only reduced in complexity, but care is also taken that error value is maintained low. While systemic approximation helps in achieving better accuracy, reduced logic complexity of approximate arithmetic units consumes less power and area. The proposed multipliers outperforms the existing multiplier designs in terms of area, power, and error, and achieves better peak signal to noise ratio (PSNR) values in image processing application. Error distance (ED) can be defined as the arithmetic distance between a correct output and approximate output for a given input. In [12], approximate adders are evaluated and normalized ED (NED) is proposed as nearly invariant metric independent of the size of the approximate circuit. Also, traditional error analysis, MRE is found for existing and proposed multiplier designs. The rest of this brief is organized as follows. Section II details the proposed architecture. Section III provides extensive result analysis of design and error metrics of the proposed and existing approximate multipliers. The proposed multipliers are utilized in image processing application.

II.EXISTING METHOD

In applications like sight and sound banner getting ready and data mining which can persevere through error, remedy figuring units are not continually major. They can be supplanted with their construed accomplices. Research on deduced enlisting for screw up tolerant applications is on the rising. Adders and multipliers outline the key fragments in these applications. In [1], inaccurate full adders are proposed at transistor level and they are utilized in cutting edge signal taking care of utilizations. Their proposed full adders are used in social affair of deficient things in multipliers. To diminish hardware multifaceted design of multipliers, truncation is comprehensively used in settled width multiplier designs.

Disdvantages of existing system are given underneath
- More Logic multifaceted nature
- More power and more deferral

DESIGN AND IMPLEMENTATION OF COMBINATIONAL AND SEQUENTIAL CIRCUITS USING REVERSIBLE LOGIC

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Abstract: **Reversible logic is the emerging Field now a days in research area. The aim of this Paper is to realize the different types of combinational And sequential circuits like 1- bit full adder/fullsubtractor , 2-bit comparator and d=Latch , D-Flipflop 4-bit Johnson counter using reversible logic gates with minimum Quantum cost.there are many reversible logical gates like Feynman , fredkin , peares , TR , BJN , Toffoli gates etc. Reversible logic is nothing but If the number of inputs are equal to the number of outputs i.e., if there is B-number of inputs and M-number of outputs are present than B=M and there is must be a unique mapping. Between the inputs and outputs.**

Keywords: *Reversible logic Full adder/full subtractor, quantum cost, D-flip flop, Johnson counter.*

I.INTRODUCTION

This research paper focuses on implementation of reversible logic circuits in which main aim is to optimize speed of the design. A Reversible adder is designed using basic reversible gates. Using this adder, an N-bit reversible adder is devised and then compared with the conventional N-bit adder in terms of speed, critical paths, hardware used. And also a 2- bit comparator is developed in Reversible logic is widely used in low power VLSI. Reversible circuits are capable of back-computation and reduction in dissipated power, as there is no loss of information. Basic reversible gates are employed to achieve the required functionality of a reversible circuit[1]. The uniqueness of reversible logic is that, there is no loss of information since there is one-to-one correspondence between inputs and outputs. This enables the system to run backwards and while doing so, any intermediate design stage can be thoroughly examined. The fan-out combinational circuits. With the known fact that sequential circuits are the heart of digital designing, so here two sequential circuits are developed by using master slave combination of D-latch we developed a D-flip flop. And a Johnson counter is developed by using the D-flip flop[2].

II.REVERSIBLE LOGIC

Boolean logic is said to be reversible if the set of inputs are equal to the set of outputs.There is unique correspondence between the inputs and outputs.

THEME OF REVERSIBLE LOGIC:
A.QUANTUM COST: The implementation cost of a quantum circuits is more precise, Quantum cost is defined as the number of elementary quantum operations needed to realize a gate.
B.SPEED OF COMPUTATION: While designing any system the computation speed is very important and it must be high speed that is achieved by the reversible logic.

C.GARBAGE OUTPUTS: Garbage outputs are not useful for further block designing in a circuit hence for better efficiency it is necessary to minimize the number of garbage outputs[3].

III. REVERSIBLE LOGICAL GATES

There are many reversible logic gates are present such as Feynman , peares , fredkin, TR,BJN gate etc. In Boolean logic the universal gates are NAND,NOR gates coming to reversible logic Feynman and toffoli are the universal gates
A.FEYNMAN GATE: Feynman gate is 2x2 universal reversible logic gate[4]. the Quantum cost of FG gate is given by 1.
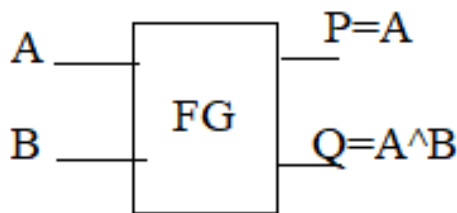

Fig. 1. Feynman gate

B.PERES GATE: Peres gate is a 3x3 reversible gate. The Quantum cost of PG gate is given by 4.
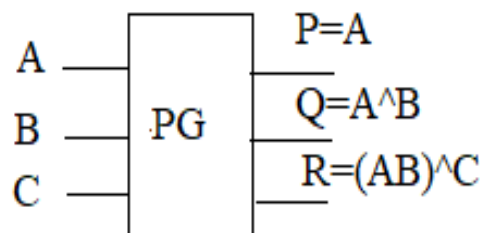

Fig. 2. Peres gate

C.FREDKIN GATE: Fredkin gate also a 3x3 reversible gate with minimum Quantum cost is given by 5.
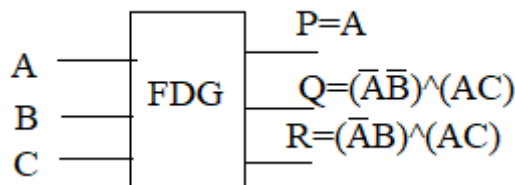

Fig .3. Fredkin gate

VLSI DESIGN OF N x N BIT HIGH PERFORMANCE MULTIPLIER WITH REDUNDANT BINARY ENCODING

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Abstract- **Due to its high modularity and carry-free addition, a redundant binary (RB) representation can be used when designing high performance multipliers. The conventional RB multiplier requires an additional RB partial product (RBPP) row, because an error-correcting word (ECW) is generated by both the radix-4 Modified Booth encoding (MBE) and the RB encoding. This incurs in an additional RBPP accumulation stage for the MBE multiplier. In this paper, a new RB modified partial product generator (RBMPPG) is proposed; it removes the extra ECW and hence, it saves one RBPP accumulation stage. Therefore, the proposed RBMPPG generates fewer partial product rows than a conventional RB MBE multiplier. Simulation results show that the proposed RBMPPG based designs significantly improve the area and power consumption when the word length of each operand in the multiplier is at least 32 bits; these reductions over previous NB multiplier designs incur in a modest delay increase (approximately 5%). The power-delay product can be reduced by up to 59% using the proposed RB multipliers when compared with existing RB multipliers.**

Keywords: *Redundant binary, Modified Booth encoding, Redundant binary encoding, Redundant binary Modified partial product generator (RBMPPG), Redundant binary to normal binary converter*

I.INTRODUCTION

DIGITAL multipliers are widely used in arithmetic units of microprocessors, digital signal processors and multimedia. Many algorithms and architectures have been proposed to design high-speed and low-power multipliers [1], [2]. A normal binary (NB) multiplication by digital circuits includes three steps. In the first step, partial products are generated; in the second step, all partial products are added by a partial product reduction tree until two partial product rows remain. In the third step, the two partial product rows are added by a fast carry propagation adder. Two methods have been used to perform the second step for the partial product reduction. A first method uses four-two compressors, while a second method uses redundant binary (RB) numbers [5], [6]. Both methods allow the partial product reduction tree to be reduced at a rate of 2:1.

This paper focuses on the RBPP generator for designing a 2n-bit RB multiplier with fewer partial product rows by eliminating the extra ECW. A new RB modified partial product generator based on MBE (RBMPPG-2) is proposed. In the proposed RBMPPG-2, the ECW of each row is moved to its next neighbour row. Furthermore, the extra ECW generated by the last partial product row is combined with both the two most significant bits (MSBs) of the first partial product row and the two least significant bits (LSBs) of the last partial product row by logic simplification. Therefore, the proposed method reduces the number of RBPP rows from N=4 þ 1 to N=4, i.e., a RBPP accumulation stage is saved. The proposed method is applied to 8x8-, 16x16-, 32x32-, and 64x64-bit RB multiplier designs; the designs are synthesized using the Nan- Gate 45 nm Open Cell Library. The proposed designs achieve significant reductions in area and power consumption compared with existing multipliers when the word length of each of the operands is at least 32 bits. While a modest increase in delay is encountered (approximately 5 percent), the power-delay product (PDP) at word lengths of at least 32 bits confirms that the proposed designs are the best also by this figure of merit.

This paper is organized as follows. Section 2 introduces radix-4 Booth encoding. The design of the conventional RBPP generator is also reviewed. Section 3 presents the proposed RBMPPG. This section also demonstrates the adoption of the proposed RBMPPG into various word-length RB multipliers. Section 4 provides the evaluation results of the new RB multipliers using the proposed RBMPPG for different word lengths and compares them to previous best designs found in the technical literature.

TABLE:1 MODIFIED BOOTH ENCODING SCHEME

b_{2i+1}	b_{2i+1}	b_{2i-1}	Operation
0	0	0	0
0	0	1	+A
0	1	0	+A
0	1	1	+2A
1	0	0	-2A
1	0	1	-A
1	1	0	-A
1	1	1	0

II. REVIEW OF BOOTH ENCODING AND RB PARTIAL PRODUCT GENERATOR

Radix-4 Booth Encoding

Booth encoding has been proposed to facilitate the multiplication of two's complement binary numbers [17]. It was revised as modified Booth encoding or radix-4 Booth encoding [18]. The MBE scheme is summarized in Table 1. The multiplier bits are grouped in sets of three adjacent bits. The two side bits are overlapped with neighbouring groups except the first multiplier bits group in which it is {b1, b0, 0}. Each group is decoded by selecting the partial product shown in Table 1, where 2A indicates twice the multiplicand, which can be obtained by left shifting. Negation operation is achieved by inverting each bit of A and adding '1' (defined as correction bit) to the LSB [10], [11]. Methods have been proposed to solve the problem of correction bits for NB radix-4 Booth encoding (NBBE-2)

A Privacy-Preserving Pay-by-Phone Parking System

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ABSTRACT—Most cities around the world require drivers to pay for the time they occupy a parking spot. In this way, drivers are encouraged to shorten parking time so that other drivers are given a reasonable chance of finding parking. The traditional way, based on moving to a pay station and placing the issued parking ticket on the dashboard of the car, presents several drawbacks like having to predict in advance the duration of parking or the need to move to the car in case the parking time has to be extended. Over the last few years, several applications permitting to pay through the mobile phone have appeared. Such applications manage detailed information about parking operations so that accurate profiles of parking habits of car owners can be created. In this paper we propose a system to pay for parking by phone which preserves the privacy of drivers in the sense that the information managed by the system is proven not to help an attacker with full access to it to do better that she would do by patrolling the city for collecting information about parked cars.

I. INTRODUCTION

THE amount of vehicles in cities is growing every day while it is hardly impossible to increase the amount of on-street parking bays. Restricting the maximum time a vehicle can occupy a parking spot is required to encourage a regular turnover of parking bays and give drivers a reasonable chance of finding parking. An accurate monitoring can only be carried out by installing in-ground sensors that send a notification to a parking officer when a car exceeds the parking time limit. In-ground sensors have been installed in several cities like Melbourne, Westminster or San Francisco. These systems are expensive to install and maintain. In San Francisco, maintenance of a single parking space is beyond $20 per month [5].

A cheaper solution is implemented by requiring drivers to pay for the time they occupy a parking bay. After parking her car, a driver moves to the closest pay station and makes a payment. Some parking machines provide credit card facilities as an additional option to coins. After that, the machine issues a parking ticket that has to be placed on the dashboard of the car. Parking enforcement officers patrol parking zones and monitor for violations which will be punished. Time restrictions are included by limiting the parking duration in a parking ticket. This way of limiting parking time is not accurate since a ticket which is about to expire can simply be replaced with a new one. Nevertheless, paying for parking time encourages most drivers to move their cars as soon as possible.

These systems present several drawbacks:

Drivers must ensure to have sufficient coins prior to parking (if credit cards are not supported).
Drivers have to predict (and pay for) the duration of parking in advance. If parking takes less time than predicted, the money corresponding to unused time is lost. If parking time has to be extended, the driver is required to move to the car.
Moving to the pay station and coming back to the car to place the parking ticket takes time.

Many towns and cities provide the possibility to pay for parking by phone [8], [12]–[16], [19], [21]. A driver installs an app in her mobile phone and creates an account in which she indicates a source for funding such as a credit card number. Upon parking, the driver logs in her account, indicates her car license plate number, the area of the city she has parked in, and the expected duration. After that, a payment for the corresponding amount is performed. Some of these applications permit to interrupt a parking session so that the money corresponding to unused time is refunded. Also, a driver can extend parking time without the need to move to her car.

Parking officers are provided with a mobile device where they can type a car license plate number and check whether a payment for that car is in effect. In such a system, a system server that collects information of all the parking operations is required so that parking officers can query it. Data provided to pay-for-parking applications give rise to privacy concerns since all the parking operations performed by the same car can be linked through the car license plate number. Hence, the information collected by these applications permits to infer the parking habits of car owners.

A. Privacy in car technology

The European Union directive 2010/40/EU (7 July 2010) defines Intelligent Transportation Systems (ITS) as advanced applications which, without embodying intelligence as such, aim to provide innovative services relating to different modes of transport and traffic management and enable various users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks.

The inclusion of intelligent devices and radio interfaces on vehicles opens the door to automatic data collection for tracking and monitoring of drivers' behaviour. Security and privacy has been widely addressed in the design of vehicular technology solutions by making use of advanced cryptography.

Privacy-preserving solutions have been proposed for Vehic-ular Ad-Hoc Networks (VANETs). In [7] the authors present a privacy-preserving system for vehicle-generated announce-ments based on the use of threshold digital signatures which

A SURVEY ON LOW POWER WIRELESS BODY MOUNTED SENSORS FOR HEALTH MONITORING

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Abstract—This paper describes the design of a custom LSI which operated at less power nearly 0.5 µW for wireless sensor nodes used in animal health monitoring systems. A wireless sensor network system is composed of sensors, signal processing units, receiver and other components. There is a huge requirement to monitor body temperature and activity of animal or human with low power consumption, low power sensors and ultra-low power signal processing are essential. This presentation depicts low power technologies of wireless sensor network system developed for chicken health monitoring system. The average power consumption calculated of the wireless sensor node is less than 1**µW.** Here the Measurement method with bimetal type and piezoelectric type MEMS sensors which need almost no electrical power and on chip circuits of multistep selectable voltage reference generator for comparators to detect the output signal of the sensors. The piezoelectric sensor which generates even 1 mV of output voltage can be utilized by this method. The LSI consists of CMOS combination logic circuits and works at low frequency and RC oscillator to decrease the power Utilization.

Index Terms— LSI, MEMS, ultra low power, sensor network, health monitoring, chicken.

I. INTRODUCTION

Wireless sensor networks which consist of a lot of wireless sensor nodes distributed in our surrounding and linked together are expected to be used for health and medical monitoring applications as well as environmental monitoring[1], control and security .In general a wireless sensor node, consisting of sensors, a transceiver (or transmitter), a battery. In addition to this the sensor node functions, miniaturized and performance improved by using Micro electro mechanical systems (MEMS) technology. The MEMS technology is contribute to realization of autonomous sensor nodes without batteries by providing a small high-efficient energy harvesting device. Recent research has focused on hen productivity, feed consumption, health, or the quality and investigating the dynamic behavior and activity of hens housed in indoor non-cage environments. In this paper we report the results of a lightweight wireless body mounted wireless sensor system used monitor the activity of laying hens within non-cage housing systems. As an application of wireless sensor network, our group has been developing a global avian influenza surveillance system by monitoring the health of chickens with wireless sensor nodes in poultry farms[3]. The highly pathogenic avian influenza (HPAI) virus (H5N1) infection in birds has continued, and has acquired pathogenicity not only in birds but also in

LUT OPTIMIZATION TECHNIQUES FOR DIGITAL FILTERS

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ABSTRACT-As technology improves day by day wide and vast, we were expecting to get the things in the reduced size. Multiplication is major arithmetic operation in signal processing. In ALU's the multiplier uses lookup-table (LUT) as memory for their computations and it consume much hardware area, to reduce the size of the LUT, we present the antisymmetric product coding (APC) and odd-multiple-storage (OMS) techniques for lookup-table (LUT) design for memory-based multipliers to be used in digital signal processing applications. This LUT–memory based multiplication implements in Finite Impulse Response (FIR) filter where the filter outputs are computed as inner-product of input-sample vectors and filter-coefficient vector. It is found that the proposed LUT-based multiplier involves comparable area and time complexity for a word size of 8 bits, 16- and 32-bits, respectively, it offers more than 16% and 20% of saving in area–delay product.

Keywords: Digital Signal Processing, FIR, Look-Up-Table (LUT)-Based Computing, Memory-Based Computing, Digital Filters, Digital Signal Processing, FIR, VLSI.

I. INTRODUCTION

In most of the DSP processors the memory based computing structures are of primary concern than the multiply accumulate structures. Computational or functional operations performed in the DSP blocks of an FPGA for implementing a particular task are time consuming and require more components like adders, multipliers. In the processors like DSP core in FPGAs multiply and accumulate structures are replaced with Look Up Tables. Instead of using conventional multipliers for complex multiplication, operations are simplified with the usage of LUTs that are used for the direct storage of the complex computational values. Further optimization of Look-up-tables provides better performance in terms of speed and effective area utilization. In this paper, LUT optimization using the APC coding and OMS methodology are the primary concern.

In this paper, APC-OMS LUT based FIR filter is designed for DSP applications. A combined approach of the two methods is defined (i.e, Antisymmetric product coding and Odd Multiple Storage that are used previously to optimize LUTs with in a DSP cores for their related operations). The input address and LUT output could always be transformed into odd integers. Previously it is observed that, when an Antisymmetric product coding approach is combined with the

Odd multiple storage technique, the two's complement operations could be very much simplified since the input

address and LUT output could always be transformed into odd integers, and both cannot be combined since the words generated are odd numbers.

II. PROPOSED APC FOR LUT OPTIMIZATION

For simplicity of presentation, we assume both X and A to be positive integers. The product words for different values of X for L = 5 are shown in Table 1. It may be observed in this table that the input word X on the first column of each row is the two's complement of that on the third column of the same row. In addition, the sum of product values corresponding to these two input values on the same row is 32A. Let the product values on the second and fourth columns of a row be u and v, respectively.

Input, x	Product values	Input, x	Product values	Address $X_3 X_2 X_1 X_0$	Apc words
00001	A	11111	31A	1111	15A
00010	2A	11110	30A	1110	14A
00011	3A	11101	29A	1101	13A
00100	4A	11100	28A	1100	12A
00101	5A	11011	27A	1011	11A
00110	6A	11010	26A	1010	10A
00111	7A	11001	25A	1001	9A
01000	8A	11000	24A	1000	8A
01001	9A	10111	23A	0111	7A
01010	10A	10110	22A	0110	6A
01011	11A	10101	21A	0101	5A
01100	12A	10100	20A	0100	4A
01101	13A	10011	19A	0011	3A
01110	14A	10010	18A	0010	2A
01111	15A	10001	17A	0001	1A
10000	16A	10000	16A	0000	0A

Table.1. APC words for different input values for L = 5
Since one can write,

Coupling Faults Detection in Memories using with Finite State Machine and Microcode based and Microcode based Memory Built In Self Test(MBIST)

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Abstract— **Built-in Self-Test, or BIST, is the technique of designing additional hardware and software features into integrated circuits to allow them to perform self-testing, testing of their own operation using their own circuits, thereby reducing dependence on external automated test equipment (ATE). BIST is also the solution to the testing of critical circuits that have no direct connections to external pins, such as embedded memories used internally by the devices. In the near future, even the most advanced tester may no longer be adequate for the fastest chip, a situation wherein self-testing may be the best solution. Microcode-based and FSM-based controllers are two widely known architectures used for programmable memory built-in self-test. These techniques are popular because of their flexibility of programming new test algorithms. In this paper, the architectures for both controllers are designed to implement a new test algorithm MARCH SAM that gives a better fault coverage in detecting single-cell fault and all intra-word coupling fault (CF).The components of each controllers are studied and designed. The both of the controller are written using Verilog HDL and implemented FPGA. The simulation and synthesis results of both architectures are presented.**

Keywords—Built in self test , FSM, Coupling faults, march Sam, fault, FPGA.

I. INTRODUCTION

Now a days techniques are improved to detecting the errors towards to Static Random Access Memory. many effective algorithms are integrated in Memory Built In Self-Test Architecture[1]. The MBIST is technique played a major role as embedded memories for System On Chip[2]. The constellation of this component is tremendous and crowded due to the large number of data to be stored [3]. However the complexity because of the embedded memories are making challenge among the problems are encountered while testing the memories. Memory BIST has been used successfully for years to solve the test issues of embedded memories. In addition to testing embedded memories using expensive external memory tester, BIST is considered a good alternative solution[4]. MBIST Architecture has is proposed for memory testing in itself. But the thing is limited data patterns are generated and memory accessing schemes also. Large number of programmable architectures has been proposed to solve the problems[5].

II. LITERATURE SURVEY

Facing achieve optimal System on Chip (SOC),the mechanism must be implemented to test the embedded memories[3]. To achieve optimal SOC yield, an at-speed testing mechanism must be implemented to test these embedded memories[6]. Consequently the only practical solution is derivable from Built In Self-Test. BIST is having two patterns those are 1. Pseudorandom Pattern 2. Deterministic pattern Pseudorandom pattern usually preowned to test with logical test sequences and the other one deterministic pattern is used to test memories with MARCH Algorithm. Hence the only practical solution available is by employing built-in-self-test (BIST). BISTs have either two patterns; pseudorandom pattern or deterministic pattern. Pseudorandom pattern is usually used to test logic circuits while the deterministic pattern is applied to test memories. MARCH. The below table 01. Is showing binary code corresponding with algorithms and March Elements.

TABLE 01: TEST PATTERNS OF BUILT IN SELF TEST

Code	Algorithm	March Elements
000	MATS+ (3n)	$\updownarrow$ (w0); $\uparrow$ (r0,w1); $\downarrow$ (r1,w0)
001	MARCH X (4n)	$\updownarrow$ (w0); $\uparrow$ (r0,w1); $\downarrow$ (r1,w0); $\updownarrow$ (r0)
010	MARCH C- (6n)	$\updownarrow$ (w0); $\uparrow$ (r0,w1); $\uparrow$ (r1,w0); $\downarrow$ (r0,w1); $\downarrow$ (r1,w0); $\updownarrow$ (r0)
011	MARCH A (5n)	$\updownarrow$ (w0); $\uparrow$ (r0,w1,w0,w1); $\uparrow$ (r1,w0,w1); $\downarrow$ (r1,w0,w1,w0); $\downarrow$ (r0,w1,w0)
100	MARCH B (5n)	$\updownarrow$ (w0); $\uparrow$ (r0,w1,r1,w0,r0,w1); $\uparrow$ (r1,w0,w1); $\downarrow$ (r1,w0,w1,w0); $\downarrow$ (r0;w1,w0)
101	MARCH U (5n)	$\updownarrow$ (w0); $\uparrow$ (r0,w1,r1,w0); $\uparrow$ (r0,w1); $\downarrow$ (r1,w0,r0,w1); $\updownarrow$ (r0)
110	MARCH LR (6n)	$\updownarrow$ (w0); (r0,w1); $\uparrow$ (r1,w0,r0,w1); $\uparrow$ (r1,w0); $\uparrow$ (r0,w1,r1,w0); $\updownarrow$ (r0)
111	MARCH SS (6n)	$\updownarrow$ (w0); $\uparrow$ (r0,r0,w0,r0,w1); $\uparrow$ (r1,r1,w1,r1,w0); $\downarrow$ (r0,r0,w0,r0,w1); $\downarrow$ (r1,r1,w1,r1,w0); $\updownarrow$ (r0)

Look Up Table Optimization for Memory Based Computation Techniques

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Abstract— **Recently, we have proposed the antisymmetric item coding (APC) and odd-multiple storage (OMS) methods for query table (LUT) outline for memory-based multipliers to be utilized as a part of advanced flag preparing applications. Each of these systems brings about the decrease of the LUT measure by a factor of two. In this short, we show an alternate type of APC and a changed OMS conspire, keeping in mind the end goal to join them for proficient memory-based augmentation. The proposed joined approach gives a lessening in LUT size to one-fourth of the customary LUT. We have likewise recommended a basic system for particular sign inversion to be utilized as a part of the proposed plan. It is demonstrated that the proposed LUT outline for little information sizes can be utilized for productive execution of high-exactness augmentation by input operand decay. It is discovered that the proposed LUT-based multiplier includes practically identical range and time many-sided quality for a word size of 8 bits, however for higher word sizes, it includes altogether less territory and less augmentation time than the sanctioned marked digit (CSD)- based multipliers. For 16-and 32-bit word sizes, individually, it offers over 30% and half of sparing in area– defer item finished the comparing CSD multipliers.**

Index Terms—*Digital signal processing (DSP) chip, lookuptable (LUT)-based computing, memory-based computing.*

I. INTRODUCTION

Digital signal processing algorithms typically require a large number of mathematical operations[1,2,3] to be performed quickly and repetitively on a set of data. Signals are constantly converted from analog to digital, manipulated digitally, and then converted again to analog form, as diagrammed below. Many DSP applications have constraints on latency; that is, for the system to work, the DSP operation must be completed within some fixed time, and deferred processing is not viable. Digital signal processing[5-7}:

Fig. 1 Basic Block diagram of digital signal processing

In-order to reach a certain criteria memory based computation plays a vital role in dsp (digital signal processing) application.

A. FILTER DESIGNING :

Finite impulse response (FIR) digital filter is widely used as a basic tool in various signal processing and image processing applications[7,8,9]. The order of an FIR filter primarily determines the width of the transition-band, such that the higher the filter order, the sharper is the transition between a pass-band and adjacent stop-band. Many applications in digital Communication (channel equalization, frequency channelization), speech processing (adaptive noise cancelation), seismic signal processing (noise elimination), and several other areas of signal processing require largeorder FIR filters. Since the number of multiply-accumulate[12,13,14] (MAC) operations required per filter output increases linearly with the filter order, real-time implementation of these filters of large orders is a challenging task. Several attempts have, therefore, been made and continued to develop low-complexity dedicated VLSI systems for these filters. As the scaling in silicon devices has progressed over the last four decades,[11]semiconductor memory has become cheaper, faster and more power-efficient. According to the projections of the international technology roadmap for semiconductors (ITRS) , embedded memories will continue to have dominating presence in the system-on-chip (SoC), which may exceed 90% of total SoC content. It has also been found thatthe transistor packing density of SRAM is not only high, but also increasing much faster than the transistor density of logic devices[15] .

B. BINARY MULTIPLICATION:

Multiplication in binary is similar to its decimal counterpart. Two numbers A and B can be multiplied by partial products: for each digit in B, the product of that digit in A is calculated and written on a new line, shifted leftward so that its rightmost digit lines up with the digit in B that was used. The sum of all these partial products gives the final result.

C. MEMORY BASED MULTIPLICATION :

The input-output relationship of an N-tap FIR filter in time-domain is given by

$$Y(n)= h(0).x(n) + h(1).x(n-1)-------h(N-1).x(n-N+1) \quad …(1)$$

where h(n), for n = 0,1,2,--------N-1, represent the filter coefficients x(n-i), while for i== 0,1,2,--------N-1, for x(n) , represent recent input samples y(n), and represents the current output sample. Memory-based multipliers can be implemented for signed as well as unsigned operands

The objectives of this work are:

- Multiplying two binary numbers one number is fixed X[4:0] and another variable ‗A'
- Using APC–OMS combined LUT design for the multiplication of W-bit fixed coefficient A with 5-bit input X.
- Number of calculations reduced and memory required is less to perform multiplication.

For 16- and 32-bit word sizes, respectively, it offers more than 30% and 50% of saving in area–delay product over the corresponding CSD multipliers.

High Frequency AC Link Dual Active Bridge Isolated Bidirectional Dc–Dc Converter for PV Application

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ABSTRACT: In this paper, high repeat cooling association twofold dynamic platform separated bidirectional dc –dc converter for PV application is proposed. The proposed converter beats most of the issues associated with at present open PV converters. Dual active bridge (DAB) converters have been standard in high voltage, low and medium power DC-DC applications, further more a center high repeat interface in solid state transformers. The proposed DAB has the upside of being used as a piece of high walk up/down converters, which oversee higher voltages, when diverged from normal two -level DABs.

Index Terms: Bidirectional converters, dc–dc conversion, and dual active bridge.

I. INTRODUCTION

For the present, power transformation frameworks (PCSs) essentially utilize line-recurrence (LF) transformers to accomplish galvanic detachment and voltage coordinating [1]–[5]. Apid improvement of appropriated era and vitality stockpiling has prompted the expanding prevalence of PCSs as a continually enduring key interface [6].

Be that as it may, massive, substantial, misfortunes, and boisterous LF transformers impede the effectiveness and influence thickness of PCSs. Lately, the utilization of high- recurrence (HF) transformers set up of conventional LF transformers is thought to be the creating pattern of cutting edge power transformation. Fig. 1 demonstrates a similar photograph of 50-Hz LF and 20-kHz HF transformers. The upsides of HF transformers are low volume, light weight, and ease. Furthermore, high-recurrence join (HFL) PCSs in light of HF transformers can likewise maintain a strategic distance from voltage and current waveform bending brought about by the center immersion of LF

transformers. Furthermore, when the exchanging recurrence is over 20 kHz, PCS commotion can be significantly decreased. Particularly, out of sight of fast extend of PCS; HFL-PCSs have wide application prospects.

In the exploration of HFL-PCSs, disengaged bidirectional dc–dc converters (IBDCs) generally serve as the key circuit. By and large, all of IBDCs can be developed from conventional secluded unidirectional dc–dc converters (IUDCs, for example, fly back IUDC can make double fly back IBDC, half-connect or push–pull IUDC can form double half-connect or double push–pull IBDC, and full- connect IUDC can create double dynamic scaffold IBDC. Actually, other than the IBDCs made out of IUDCs with the same sort, the IUDCs with distinctive sorts likewise can create IBDCs, for example, half-connect IUDC and push– pull IUDC can make a half-scaffold push-pull IBDC in light of the fact that the half-extension and push force structures can withstand high- and low-source voltages, separately, so this kind of IBDC can be utilized as a part of the application with a wide voltage extent and a bidirectional force stream.

Fig. 1. Comparative photo of 50-Hz LF and 20-kHz HF transformers

Like the order of conventional dc–dc converters in force gadgets, this paper introduces an arrangement of IBDC topology

INTEND INNOVATIVE TECHNOLOGY FOR RECOGNITION OF SEAT VACANCY IN BUS

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Abstract— **Contemporary comes close to readily available to locate the bus area do not anticipate the seat accessibility in bus when it gets to the boarding factor. In the active globe, waiting on a public transportation without recognition of either seat schedule. An individual waiting on bus needs to know the present seats accessibility of the following readily available bus as well as the offered ability to take a trip. It is worthless to await a bus without expertise of existing readily available capability of bus. The suggested system will certainly give the offered seats when it gets to the individual's terminal. This system could inspire travelers to take a trip in bus instead of investing for cars or taxis. By making use of WIFI component for information interaction objective. That information, openings information will be upgraded. This android system would certainly aid the guests to have a sufficient traveling by capturing the best bus at the correct time with much less initiative..**

Keywords—Face detection, Haar-like features, Morphological image processing, Contrast limited adaptive histogram equalization

I. INTRODUCTION

By comprehending the future extent of modern technologies offered today we will certainly have a numerous kinds of application and also enhancement of bus stand tracking and also control. Previous deal with bus radar there is an as well substantial. Yet could " To do numerous applications at the very same time in previous job. In bus stand tracking as well as control carries out complete bus stand task on basis of 2 components „ In bus component " as well as „ bus stand component ". Supply accessibility to live info pertaining to bus timetables, Expected Time of Arrival (ETA), Estimated Time of Departure (ETD), and so on, with Display at Bus stands, Self-service Short Messaging Service (SMS) along with the Internet. Showing uninhabited seats and also uninhabited systems for buses in bus stops. Counting of the individuals existing in the bus in bus side as well as counting the uninhabited placements of the system on system side.

Nowadays, most people use public vehicle instead of personal car due to the rising of fuel price and traffic jams. Public company has been developing the system for displaying the position of the passenger vehicle for convenience of customers. However, those systems only indicate the position of the vehicle but not show the availability of seats in the vehicle. Customers will waste a time for waiting the next passenger vehicle and cannot manage the time travel or activities correctly. If customers know both of the position of the passenger vehicle and vacancy of seats, customers can use the time to other activities before the passenger vehicle arrives. Customers can plan their travel better.

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In this research, the seat vacancy identification system is designed by using image processing technique. Webcam is connected with Raspberry Pi 2 in the electric vehicle for detecting the object on vehicle and sending the data to the server via 3G communication.This system use Open Source Computer Vision (OpenCV) to analyze and process the data then calculated the vacancy of the electric vehicle by using the maximum face detection data.

II. LITERATURE REVIEW AND RELATED THEORY

"Real-Time Integrated CCTV using Face and Pedestrian Detection Image Processing Algorithm for Automatic Traffic Light Transitions", this research deals with the traffic light for pedestrian who wants to cross the road. If the pedestrian cross the road they press the button and wait for traffic light. This system use CCTV instead the button and use image processing for detecting the face of pedestrian. If CCTV detects the face of pedestrian, the system will set the red light to show for 45 second. On the other hand if CCTV does not detect the face, the red light will show for only 30 second. [1] "To Analyze the Impact of Image Scaling Algorithms on Viola – Jones Face Detection Framework", this research deals with the Viola – Jones algorithm about the problem from low quality of the image and find the optimum solution from Viola – Jones algorithm. The system uses two methods to scaled image that are window scaling and image scaling. The image scaling has 5 techniques that is Nearest Neighbor, Bi-Linear, Bi-Cubic, Extended Linear, and Piece-Wise Extended Linear. The system uses 5 difference face database for analyzing the performance of 5 different image scaling techniques. The system was developed by using C++, Visual studio 2010, and Open Source Computer Vision (OpenCV). They used confusion matrix that compose of True Positive, False Positive, and False Negative to compute the performance of each technique. From the result, they found that the analysis in format of the window scaling is better than image scaling. [2] "FACE DETECTION USING COMBINATION OF SKIN COLOR PIXEL DETECTION AND VIOLA-JONES FACE DETECTOR", this research studies the detection of the human skin. It uses a combination of two techniques that are a novel hybrid color models and Viola – Jones algorithms. Its purpose is to identify the object is human or not. The system is designed in MATLAB and use ECU face and skin database to evaluate the accuracy. From the results, this method has high performance more than the other. When use this method with Viola – Jones face detector, it will be more efficient. [3]

Reversible Adder/Subtractor Circuits: A Study

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Abstract— **The Reversible logic is a unconventional form of computing where the computational process is reversible. The study of this technology is to implement reversible computing where they offer what is predicted to be the only potential way to improve the energy efficiency of computers beyond von Neumann- Lindauer limit. This is new and emerging area in the field of computing that taught us to think physically about computation. Quantum Computing will bring a total change in how the computer will operate and function. The reversible arithmetic circuits are efficient in terms of number of reversible gates, garbage output and quantum cost. Study of Reversible Binary Adder Subtractor- Mux, Adder- Subtracter - TR Gate., Adder-Subtractor- Hybrid is studied in this paper. In all the three design approaches, the Adder and Subtractor are realized in a single unit as compared to only full adder/subtractor in the existing design.**

Index Terms— **Reversible gates, Fredkin gate, Feynman gate, Toffoli Gate, Peres gate**

I. INTRODUCTION

RERVERSIBLE logic is generally used in Nanotechnology, quantum computing, Low power CMOS, Optical computing and DNA computing, etc. Quantum computation generally uses reversible logic. Basically, reversible gates are used to perform reversible computations [1-4]. These circuits do not lose information and reversible computation in a system that can be performed only when system comprises of reversible gates. The gates that are used in digital design are not reversible (i.e) AND, OR and EXOR gates does not perform reversible operation.

A reversible gate can generate a unique output from each input vector, and vice versa, hence one to one mapping between the input and output vectors are obtained. Among all the gates only the NOT gate is reversible. Loss of energy is important criteria in digital design. The energy dissipation is related to non ideality of switches and materials. Two reversible gates are generally used to design a reversible circuit. Reversible gates acts as building blocks for reversible circuits [5-7].

The following are the characteristics of Reversible gates.
- A reversible gate has input and output with a one to one correspondence. i.e. the inputs of a reversible gate is uniquely determined from there outputs.
- The number of inputs and outputs should be equal in reversible logic gate.
- The fan out of every signal including primary inputs in a reversible gate must be one.

In design of reversible logic circuit, the Classical logic synthesis methods cannot be applied directly.

II. REVERSIBLE GATES

Reversible logic types:
- The basic reversible gate is NOT gate and is a 1x1 gate, Controlled NOT (CNOT) gate is a 2x2 gate.
- Fredkin gate, Toffoli gate, Peres gate and TR gate are all 3x3 reversible gates.
- Each reversible gate has a cost associated with it called quantum cost. The quantum cost of 1x1 reversible gates is '0', and quantum cost of 2x2 reversible gates is '1'.
- Reversible gates is identified by using 1x1 NOT gates and 2x2 reversible gates, i.e. V and V+ [where V is square root of NOT gate and V+ is its Hermitian] and Feynman gate (CNOT gate).

The property of V and V+ gate is :
$$V \times V = NOT$$
$$V \times V^+ = V^+ \times V = I$$
$$V^+ \times V^+ = NOT$$

The quantum cost of a reversible gate is calculated by counting the number V, V+ and CNOT gates used in implementing it except in some cases.

A. NOT Gate

Among all the conventional logic gates, **Not gate** is the only reversible gate (1x1 gate). The quantum cost of NOT GATE is zero.
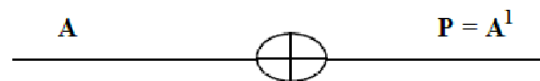

Fig.1 NOT gate

B. Feynman Gate (CNOT gate):

This is a 2x2 gate having mapping (A, B) to (P=A, Q=A B) where A, B are inputs and P, Q are outputs respectively. Feynman gate can be used as a copying gate. Since a fan-out is

FPGA based Auto Correction of Hard Faults

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Abstract— **Multi-core systems have more functional units fabricated in to a single chip and they are more vulnerable to faults. These faults have to be handled efficiently without substantial loss of overall performance. In this paper a self repairing approach for hard faults using Field Programmable Gate Array (FPGA) is proposed. The proposed multi-core system will have a reconfigurable hardware unit and a fault look-up table included to individual cores of the multi-core system. The faulty unit details are updated in the fault look-up table as a result of fault detection phase. The faulty unit details are given as input to the decoder unit along with the usual inputs. Depending on these, the decoder unit will decide to choose either the Arithmetic and Logic Unit (without fault) or the Reconfigurable hardware unit (Faulty unit reconfiguration).**

Index Terms— **Self Reparing, Hard faults, Field Programmable Gate Arrays, Reliability, Online Fault Repair**

I. INTRODUCTION

WITH the advancements in the VLSI technology, more and more functional units are fabricated in a single chip. With more number of circuits in the chip, the probability of occurrence of faults in the circuit is also high. The faults can be classified in to a) Transient (or soft) errors, [1] caused by environmental disturbances, b) Permanent (or hard) errors[2], caused by latent manufacturing defects as well as aging (wear out phenomena) and c) Verification inefficiencies that allow important design bugs to escape in the system.
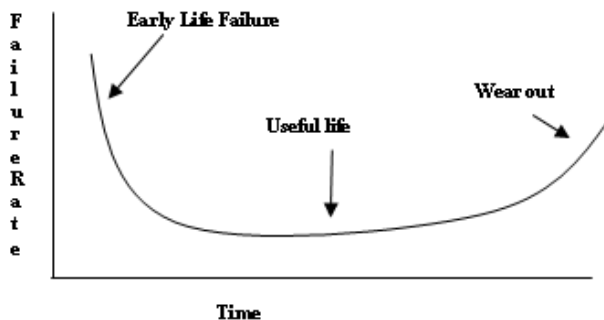

Figure 1. Product reliability [1]

Any type of fault in the system has to be taken care off, for graceful degradation of the system. The hard faults can occur during any stage of the chip's life cycle. The following figure 1 shows the trend in a chip's failure rate [3]. From the above diagram it is clear that the faults can happen at early life of the product or during its useful period or can wear out after a long time. Early life failures are also called as infant mortalities and they are the faults that escape during design verification process. Ideally, the early life failure should have a brief region in the figure 1. Even with today's advanced design verification and testing tools, early aging in multi-core processors is high because of their high transistor density [4]. For handling hardware failure during the early life or useful life, a post silicon fault repairing technique that can be done on the field is essential. Self-repairing of hardware fault is the capability of the processor to handle the hardware fault by itself. This paper proposes the idea of using FPGA for self-repairing of hardware faults in an ASIC design. The following section explains the existing post silicon self-repairing techniques.

II. PROBLEM FORMULATION

Self-repairing is an emerging field that will have a major impact on increasing the reliability of the system. The importance of failure prediction is emphasized in [5]. Circuit failure prediction in [5] predicts the occurrence of hard faults even before it surfaces on the system's state or data. This prediction is made possible by collecting information about various system parameters over time and comparing them with the fault free signatures. Other available self-testing techniques includes Built In Self-Test(BIST) for failure prediction[6], Concurrent self-test[7] for failure prediction and Genetic algorithm based BIST [8].

After a fault has been detected in the system, it has to be repaired effectively. The use of Triple Modular Redundancy (TMR) for self-repair of transient faults is described in [14]. The use of TMR also does not guarantee fault repair on all the three systems involved. For repairing faults in any of the three system involved in the TMR using FPGA is proposed in [11]. FPGA is the most suitable for self-repairing and lots of work has already been proposed to heal a FPGA. The use of an autonomous self-healing architecture proposed in [15] uses FPGA. Fault tolerant FPGA processor architecture proposed in [17] considers a FPGA architecture on which faults are handled efficiently by reconfiguration. Software based self-repair discussed in [10] uses software based micro architecture

DESIGN AND OPTIMIZATION OF HIGH-SPEED MOTORIZED SPINDLE

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Abstract:-The geometric quality of high-precision parts is highly dependent on the dynamic performance of the entire machining system, which is determined by the interrelated dynamics of machine tool mechanical structure and cutting process. This performance is of great importance in advanced, high-precision manufacturing processes. The state-of-the-art in machine tool main spindle units is focus on motorized spindle units for high-speed and high performance cutting. In this thesis, high speed motorized spindle is designed and analyzed under the given load conditions. The spindle used in this thesis is that used in a milling machine. The 3D modeling of spindle is designed in Pro/Engineer. The material used for spindles is Steel. In this thesis, different materials are analyzed for spindle. Aluminum alloy 6061 and 7075 are replaced with steel. By replacing the steel with aluminum alloys, the weight of the spindle decreases. Structural and Dynamic analyses is done using Ansys software. Modal analysis also is done to determine the frequencies.

Key Words: *FEA, ANSYS, Thermal Deformation, Failure*.

1. INTRODUCTION TO SPINDLE

In machine tools, a spindle is a rotating axis of the machine, which often has a shaft at its heart. The shaft itself is called a spindle, but also, in shop-floor practice, the word often is used metonymically to refer to the entire rotary unit, including not only the shaft itself, but its bearings and anything attached to it (chuck, etc.).

A machine tool may have several spindles, such as the headstock and tailstock spindles on a bench lathe. The main spindle is usually the biggest one. References to "the spindle" without further qualification imply the main spindle. Some machine tools that specialize in high-volume mass production have a group of 4, 6, or even more main spindles. These are called multi spindle machines. For example, gang drills and many screw machines are multi spindle machines. Although a bench lathe has more than one spindle (counting the tailstock), it is not called a multi spindle machine; it has one main spindle.

Examples of spindles include:
On a lathe (whether wood lathe or metal lathe), the spindle is the heart of the headstock.
In rotating-cutter woodworking machinery, the spindle is the part on which shaped milling cutters are mounted for cutting features (such as rebates, beads, and curves) into mouldings and similar millwork.
Similarly, in rotating-cutter metalworking machine tools (such as milling machines and drill presses), the spindle is the shaft to which the tool (such as a drill bit or milling cutter) is attached (for example, via a chuck).
Varieties of spindles include grinding spindles, electric spindles, machine tool spindles, low-speed spindles, high speed spindles, and more.

Fig: 1. Lathe headstock: H4 - Spindle

Fig: 2. Lathe tailstock: T5 - Spindle

Vibration Analysis of Two Wheeler Suspension System under Various Loading Conditions (An Analytical Approach)

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Abstract - - *It is evident that there is a constantly growing interest in providing acceptable system performances of vehicle suspension systems, especially in the past two decades as vehicle suspension systems have many vital functions: for instance, to support the vehicle weight, to provide effective isolation of the chassis from road excitations, to keep tyre contact with the ground, and to maintain the wheels in appropriate position on the road surface. Vehicle suspension systems play an important role in guaranteeing the stability and improving suspension performances of vehicles. In this Research a Suspension System is Analyzed by considering load. Vibration Analysis is done to validate the strength of suspension system. The Deformation of suspension system is checked under various loading conditions. Acceleration and Velocity of Suspension system is checked under various Road Conditions. For the Analysis purpose, Honda Passion is Chosen as a Base Model.*

***Key Words*:   Suspension System, Vibration Analysis, Deformation, Acceleration, Velocity, Road Condition, Honda Passion**

NOMENCLATURE:

A	Amplitude
C	Spring Index
C	Damping co efficient
C_c	Critical Damping Co efficient
D	Mean Diameter of coil
D	Wire Diameter
D_o	Outer Diameter of spring
G	Modulus of rigidity
h	Height of spring

K	Spring stiffness
L_s	Solid Length
m	Mass
n	Number of Turns
r	Frequency ratio
V	Velocity
ω	Frequency
ω_n	Natural Frequency
X_1	Displacement
$\dot{X}_1$	Velocity of Vehicle
$\ddot{X}_1$	Acceleration
Z	Damping ratio
$\dfrac{X_1}{Y}$	Amplitude Ratio

1. INTRODUCTION

Vehicle suspension systems play an important role in guaranteeing the stability and improving suspension performances of vehicles. It is worth noting that the problem of control design for active suspension systems should be paid considerable attention[1]. In addition, the vehicle suspension systems can provide as much comfort as possible for the passengers and ensure the other suspension performance by serving the basic function of isolating passengers from road-induced vibration and shocks. Hence, the control design problem of proper active suspension systems is always an important research topic for achieving the desired vehicle suspension performances.

THERMAL ANALYSIS OF DISC BRAKE TO MINIMIZING THE TEMPERATURE BY USING ANSYS

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Abstract – *These day technologies go beyond us. For automotive field, the technology of engine develops very fast even the system of the bike, car, luxury or comforts everything that develops by the innovation of engineer. Thus, safety is the first important thing we must focus. This paper is presented with "Design and Thermal analysis of disc brake for minimizing temperature" which studies about on disc brake rotor by analysis of different shapes of slot of different vehicles Disc brake rotor. Therefore, we can optimize number of shapes of slot to estimate the good thermal conductivity of the disc brake rotor. In this paper, Thermal analysis done on real model of disc brake rotor of Bajaj Pulsar 220 and Thermal analysis of disc brake rotor. Different shapes of slot are because of to reduce the weight of disc rotor and for good thermal conductivity. Hopefully this paper will help everyone to understand Thermal analysis of disc brake rotor and how disc brake work more efficiently, which can help to reduce the accident that may happen in each day. Modeling was done using CATIA V5R21 software and Static and Transient Thermal Analysis was done using ANSYS 15 software.*

Key Words: Disc brake rotor, Thermal analysis etc

1.INTRODUCTION

A brake is a device used to generate an artificial frictional which is applied to moving member of machine, for stopping motion. For execution of braking operation, the brakes pad and disc absorb the kinetic energy from wheel. The energy absorbed by brake is generating heat. This heat is passing in to the atmosphere and stops the vehicle, so the braking system should have the following ability;

1. The brake disc having ability to transfer heat to atmosphere and maintain constant temperature to improve performance of disc.
2. Anti-wear property of the brakes must be good.
3. The driver must have have proper control on the vehicle during brake applied and the vehicle should not skid.
4. The brakes must be having enough power to stop the vehicle with in a minimum distance in case emergency.

1.1 CLASSIFICATION OF BRAKES

The classification of mechanical braking system in 2 subgroups according to the direction of acting forces are

Axial brake

Radial brake

Axial brake: In this brake, the force acting on the braking system is only in the axial direction to the brake. For example, Disc brake is acting in axial direction.

Radial brake: In this brake, the force acting on the braking system is in perpendicular to axial direction. The radial brakes subdivided into internal and external brake.

2. PROBLEM DEFINATION AND OBJECTIVES

Extreme thermal environments are an important issue in the design of sliding contact systems such as brakes and clutches. Thermal stresses due to high temperatures may induce a number of unfavorable conditions such as surface cracks and permanent distortions. Frictional heating, thermal deformation and elastic contact in sliding contact systems affect the contact pressure and temperature on the friction surfaces. If the sliding speed is excessively high, these coupled thermal and mechanical behaviors can be unstable leading to localized high temperature contact regions called "hot spots" on the sliding interface.

The appearance of these hot spots is known as frictionally excited thermo elastic instability or TEI and is observed in many practical applications, especially brakes and clutches. Hot spots can cause material damage and thermal crack, and induce an undesirable frictional vibration known as "hot judder" in automotive disk brake systems.

NATURAL CONVECTIVE HEAT TRANSFER FROM INCLINED NARROW PLATES

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Abstract— Natural Convection flow in a vertical channel with internal objects is encountered in several technological applications of particular interest of heat dissipation from electronic circuits, refrigerators, heat exchangers, nuclear reactors fuel elements, dry cooling towers, and home ventilation etc.

In this thesis the air flow through vertical narrow plates is modeled using CREO design software. The thesis will focus on thermal and CFD analysis with different Reynolds number (2×10^6 & 4×10^6) and different angles ($0^0,30^0,45^0$ & 60^0) of the vertical narrow plates. Thermal analysis done for the vertical narrow plates by steel, aluminum & copper at different heat transfer coefficient values. These values are taken from CFD analysis at different Reynolds numbers.

In this thesis the CFD analysis to determine the heat transfer coefficient, heat transfer rate, mass flow rate, pressure drop and thermal analysis to determine the temperature distribution, heat flux with different materials.
3D modeled in parametric software Pro-Engineer and analysis done in ANSYS.

Keywords— Types of convection, Natural convection, inclined plates, copper material.

I. INTRODUCTION

Natural Convection

In natural convection, the fluid motion occurs by natural means such as buoyancy. Since the fluid velocity associated with natural convection is relatively low, the heat transfer coefficient encountered in natural convection is also low.

Mechanisms of Natural Convection

Consider a hot object exposed to cold air. The temperature of the outside of the object will drop (as a result of heat transfer with cold air), and the temperature of adjacent air to the object will rise. Cons

equently, the object is surrounded with a thin layer of warmer air and heat will be transferred from this layer to the outer layers of air.The temperature of the air adjacent to the hot object is higher, thus its density is lower. As a resut, the heated air rises. This movement is called the natural convection current. Note that in the absence of this movement, heat transfer would be by conduction only and its rate would be much lower. In a gravitational field, there is a net force that pushes a light fluid placed in a heavier fluid upwards. This force is called the buoyancy force.

Natural convection is a mechanism, or type of heat transport, in which the fluid motion is not generated by any external source (like a pump, fan, suction device, etc.) but only by density differences in the fluid occurring due to temperature gradients. In natural convection, fluid surrounding a heat source receives heat, becomes less dense and rises. The surrounding, cooler fluid then moves to replace it. This cooler fluid is then heated and the process continues, forming convection current; this process transfers heat energy from the bottom of the convection cell to top. The driving force for natural convection is buoyancy, a result of differences in fluid density. Because of this, the presence of a proper acceleration such as arises from resistance to gravity, or an equivalent force (arising from acceleration, centrifugal force or Coriolis effect), is essential for natural convection. For example, natural convection essentially does not operate in free-fall (inertial) environments, such as that of the orbiting International Space Station, where other heat transfer mechanisms are required to prevent electronic components from overheating.

Natural Convection from a Vertical Plate

In this system heat is transferred from a vertical plate to a fluid moving parallel to it by natural convection. This will occur in any system wherein the density of the moving fluid varies with position.

$Nu_m = 0.478(Gr^{0.25})$

MODELING AND MANUFACTURING OF A CENTRIFUGAL BLOWER

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Abstract: Diffusive blowers are utilized widely for on-board maritime applications have high clamor levels. The commotion delivered by a pivoting segment is fundamentally because of irregular stacking power on the cutting edges and intermittent cycle of approaching are with the edges of the rotor. The contemporary cutting edges in maritime applications are comprised of aluminum or steel and create commotion that makes unsettling influence the general population working close to the blower.

The present work goes for analyzing the selection of composites as a choice to metal for better vibration control. Composites, known for their prevalent damping attributes are all the more encouraging in vibration decrease contrasted with metals. The demonstrating of the blower was finished by utilizing strong displaying programming, CATIA V5 R19. The blower is fit with a three dimensional hex8 work is done using HYPERMESH 10

Keywords: centrifugal blower Aluminium and steel

CATIA V5 R21 ANSYS hypermesh10

1. Introduction

Blowers are one of the components utilized consistently in submarines. They are introduced in ventilation and cooling frameworks in every submarine compartment. Ventilation frameworks ordinarily introduced by focal frameworks incorporate supply and fumes fans, serve for ventilation of settlement and other than convenience territories with air with concurrent ventilation of capacity batteries and for air cooling and cleaning from unsafe and smelling pollutions. Cooling frameworks are introduced by nearby, compartment gathering and single pipe frameworks. These frameworks are utilized to give agreeable conditions as far as

air temperature and stickiness for the team in settlement territories and other convenience regions, air cleaning in galleys, arrangement rooms, and sterile zones and furthermore for air blending in compartments.

All blowers planned for submarine establishment vary from mechanical ones not just for their high unwavering quality and quality under powerful effects yet additionally for low clamor

and vibration levels. As blower speaks to an expansive piece of submarine instruments, they should normally meet the accompanying necessary prerequisites for all systems:

1.Minimum weight-dimensional parameters. Dependable activity at submarine movements. Vibration and effect opposition.

2.Convenience of mountings, fixes and simple access to oil focuses. Keeping of administration life at transportation and changes in atmosphere.

1.1 CAUSES OF NOISE GENERATION IN CENTRIFUGAL BLOWER

Tonal clamor caused by rotational recurrence and fan sharp edge passing recurrence (BPF) and their sounds. These are generally the prevailing clamor source. Broadband streamlined clamor created via wind stream at the channel and outlet of the cooling fan. Mechanical clamor caused by erosion in heading and seals, vibration because of engine fan static and dynamic lopsided turning masses, resounding vibration of engine fan housings, engine fan mounting and misalignment, and so forth. Electromagnetically created clamor caused by changing of electromagnetic field in the electric engine.radiating machines, ill-advised establishment of couplings frequently causes mechanical clamor at twice siphon speed (misalignment). In the event that siphon speed is close or goes through the parallel basic speed, commotion can be created by high vibrations

coming about because of awkwardness or by rubbing of heading, seals, or impellers. In the case of rubbing happens, it might be portrayed by a sharp screeches. Wind age commotion might be created engine fans, shaft keys, and coupling jolts.

As a rule, throb sources are of four kinds

1. Discrete-recurrence parts created by the impeller.

DESIGN OF ABSORPTION REFRIGERATION SYSTEM DRIVEN BY ENGINE EXHAUST GAS FOR VEHICLES

-A REVIEW PAPER

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Abstract— As we tend to all recognize that absorption refrigeration has no moving elements,Air conditioning is that the method of sterilisation the properties of air (primarily temperature and humidity) to additional favorable onditions. additional usually, air con will talk to any style of technological cooling, heating, ventilation, or medical care that modifies the condition of air. it's a widely known indisputable fact that an outsized quantity of warmth energy related to the exhaust gases from Associate in Nursing engine is wasted.

In this thesis, energy from the exhaust gas of an internal combustion engine is used to power an absorption refrigeration system to air-condition an ordinary passenger car. All the required parts for the absorption refrigeration system is designed and modeled in 3D modeling software CREO parametric software. Thermal analysis is done on the main parts of the refrigeration system to determine the thermal behavior of the system.

Keywords—refrigeration, vapour, absorption, refigerent,CAD,CREO

I. INTRODUCTION

Refrigeration is the process of casting off warmness from an enclosed or controlled space, or from a substance, and transferring it to an area in which it's miles unobjectionable. The number one cause of refrigeration is lowering the temperature of the enclosed area or substance after which keeping that decrease temperature as evaluate to surroundings. Cold is the absence of heat, therefore on the way to lower a temperature, one "removes warmness", rather than "including cold." The basic objective of growing a vapour absorption refrigerant system for vehicles is to cool the distance inside the automobile through making use of waste heat and exhaust gases from engine. The air con gadget of motors in these days's world makes use of "Vapour Compression Refrigerant System" (VCRS) which absorbs and gets rid of heat from the interior of the car that's the space to be cooled and in addition rejects the heat to be somewhere else. Now to increase an performance of vehicle past a sure restriction vapour compression refrigerant device resists it because it can't employ the exhaust gases from the engine. The heat required for running the Vapour Absorption Refrigeration System can be obtained from that which is wasted into the atmosphere from an IC engine. G. Vicatos[4] observed that in the exhaust gases of motor vehicles, there is enough heat energy that can be utilized to power an air conditioning system. Once a secondary fluid such as water or glycol is used, the aqua ammonia combination appears to be a good candidate as a working fluid for an absorption car air conditioning system. In the paper, the waste heat from gas engine turbine can be used as the heat source for the absorption refrigeration system. The experimental analysis showed that performance of the integrated refrigerating system was greatly improved by using the waste heat of gas engine. Colbourne [5] summarized a study analyzing over 50 published technical documents comparing the performance of fluorinated refrigerants and HCs. A significantly higher number of tests showed an increase in performance when using HCs as compared to using fluorinated refrigerants (Colbourne and Suen,)[6].Similarly, Colbourne and Ritter[7] investigated the compatibility of non-metallic materials with HC refrigerant and lubricant mixtures. They performed experiments in compliance with European standards for the testing of elastomeric materials and ASHRAE material compatibility test standards. Setaro et al. [8] tested and compared the heat transfer and pressure drop through a brazed plate heat exchanger and a tube-andfin coil for two different refrigerants, R22 and R290 in an air-to water heat pump system. Qin et al. [9] developed an exhaust gasdriven automotive air conditioning working on a new hydride pair. The results showed that cooling power and system coefficient of performance increase while the minimum refrigeration temperature decreases with growth of the heat source temperature. System heat transfer properties still needed to be

HEAT TRANSFER ENHANCEMENT

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Abstract—**Heat Transfer enhancement used to enhance the heat transfer rate. It is categorized into passive and active methods. Active methods require external power while passive methods do not require any external power to improve the thermohydraulic performance of the system. Passive methods are widely used in both experimental and numerical applications. Passive methods include various components which are located in the fluid flow path such as twisted tapes, coiled wires.**

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Keywords—*heat transfer enhancement, coiled wire, thermohydraulic, heat transfer, twisted tape.*

I. INTRODUCTION

Heat transfer enhancement is a process of increasing heat transfer rate and thermohydraulic performance of the system using various methods. Heat transfer enhancement technique are commonly used in areas such as process industries, heating and cooling in evaporators, refrigerators, radiators, automobiles etc.

Heat transfer enhancement methods are classified into three categories which include active method, passive method, and compound method. Active method require external power to input the process while passive method don't require any external power. Two or more active and passive method can be compound together that is called compound method which is used to produce a higher enhancement.

Active Techniques

Active technique is used to enhance the heat transfer transfer rate by using an external power source to adjust the flow field so as to obtain an improvement in thermal efficiency. Providing an external power in most application is not easy for this reason use of active techniques is limited.

Passive techniques

Passive techniques does not require any external power; rather geometry or surface of the flow channel is modified to increase the thermohydraulic performance of the systems. The inserts, ribs, and rough surface are utilized to promote fluid mixing and turbulence flow, which results in an increment of the overall heat transfer rate.

Compound technique

A compound technique consist of the combination of more than one heat transfer enhancement method to increase the thermohydraulic performance of heat exchangers. It can be employed simultaneously to generate an augmentation that promotes the performance of the system either of the techniques operating independently.

Passive technique

Rough surface

They may be either integral to the base surface or made by placing a roughness adjacent to the surface.

Integral roughness is formed by machining or restructuring the surface. For single phase flow the configuration is generally chosen to promote mixing in the boundary layer near the surface, rather than to increase the heat transfer surface area.

ANALYTICAL INVESTIGATION OF HEAT TRANSFER ENHANCEMENT IN A MICRO TUBE USING NANO FLUIDS

-A REVIEW PAPER

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ABSTRACT

In the last few years, the fast growth of research in the heat transfer area was improved by using new kind of heat transfer fluids called nanofluids which have nanosized particles. Forced convective laminar flow of different types of nanofluids such as (TiCand MgO), with different volume fractions 0.4 and 0.5 using water as base fluids was investigating by using CFD analysis.

The Micro tube (MT) with 0.01 cm diameter and 20 cm length is using in this investigation. This investigation covers Reynolds number in the range of 90 to 800.

CFD analysis to determine the heat transfer coefficient, heat transfer rate, pressure drop and mass flow rate at different NANO fluids(MgO and TiC) at different volume fractions 0.4 &0.5.

Thermal analysis to determine the temperature distribution and heat flux with different materials. present used material for micro tube copper, replaced with composite materials.

INTRODUCTION TO CAD

Computer-aided design (CAD) is the use of computer systems (or workstations) to aid in the creation, modification, analysis, or optimization of a design. CAD software is used to increase the productivity of the designer, improve the quality of design, improve communications through documentation, and to create a database for manufacturing. CAD output is often in the form of electronic files for print, machining, or other manufacturing operations. The term **CADD** (for Computer Aided Design and Drafting) is also used.

Its use in designing electronic systems is known as electronic design automation, or **EDA**. In mechanical design it is known as mechanical design automation (**MDA**) or **computer-aided drafting** (**CAD**), which includes the process of creating a technical drawing with the use of computer software.

CAD software for mechanical design uses either vector-based graphics to depict the objects of traditional drafting, or may also produce raster graphics showing the overall appearance of designed objects. However, it involves more than just shapes. As in the manual drafting of technical and engineering drawings, the output of CAD must convey information,suchas materials, processes, dimensions, and tolerances, according to application-specific conventions.

CAD may be used to design curves and figures in two-dimensional (2D) space; or curves, surfaces, and solids in three-dimensional (3D) space.

INTRODUCTION TO CREO

PTC CREO, formerly known as Pro/ENGINEER, is 3D modeling software used in mechanical engineering, design, manufacturing, and in CAD drafting service firms. It was one of the first 3D CAD modeling

HEAT TRANSFER ALONG VERTICAL CHIMNEY

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Abstract—

Chimney, which form the last component of a system using a flue gas such as boiler, play a vital role in maintaining efficiency, draft, etc, of a system and also in minimizing the atmospheric pollution. Steel chimneys are also known as steel stacks. The steel chimneys are made of steel plates and supported on foundation. The steel chimneys are used to escape and disperse the flue gases to such a height that the gases do not contaminate surrounding atmosphere. The hot gases occupy. For the purpose of the structural design of steel the chimney, the height and diameter of chimney. Chimneys are required larger volume than before. The weight of gases per cubic meter becomes less to carry vertically and discharge, gaseous products of combustion, chemical waste gases, and exhaust air from an industry to the atmosphere. In this thesis, chimney materials (concrete used for the design of the chimney. The chimney was considered as a cantilever beam with annular will be designed considering with insulation and without insulation. The Bureau of Indian Standards (BIS) design codes procedures will be the chimney is done in CREO Parametric software and fluid- structural and thermal analysis is done on the chimney in ANSYS software. A simplified model of chimneys with various insulation cross section. 3D model of and carbon epoxy). Static analysis is to determine the deformation, stress and strain for chimney with insulation and without insulation. Thermal analysis to determine the heat flux of the chimney with different materials to different models. CFD analysis to determine the pressure drop, velocity, heat transfer coefficient, mass flow rate and heat transfer rate.

Keywords: **Combustion,insulation,CFD,Heat transfer coeffecient**

I. INTRODUCTION

A chimney is a structure that provides ventilation for hot flue gases or smoke from a boiler, stove, furnace or fireplace to the outside atmosphere. Chimneys are typically vertical, or as near as possible to vertical, to ensure that the gases flow smoothly, drawing air into the combustion in what is known as the stack, or chimney effect. The space inside a chimney is called a flue. Chimneys may be found in buildings, steam locomotives and ships. In the United States, the term smokestack (colloquially, stack) is also used when referring to locomotive chimneys or ship chimneys, and the term funnel can also be used. The height of a chimney influences its ability to transfer flue gases to the external environment via stack effect. Additionally, the dispersion of pollutants at higher altitudes can reduce their impact on the immediate surroundings. In the case of chemically aggressive output, a sufficiently tall chimney can allow for partial or complete self-neutralization of airborne chemicals before they reach ground level. The dispersion of pollutants over a greater area can reduce their concentrations and facilitate compliance with regulatory limits.

RESIDENTIAL FLUE LINERS: A flue liner is a secondary barrier in a chimney that protects the masonry from the acidic products of combustion, helps prevent flue gas from entering the house, and reduces the size of an oversized flue. Newly built chimneys have been required by building codes to have a flue liner in many locations since the 1950s. Chimneys built without a liner can usually have a liner added, but the type of liner needs to match the type of appliance it is servicing. Flue liners may be clay tile, metal, concrete tiles, or poured in place concrete. Clay tile flue liners are very common in the United States. However, this is the only liner which does not meet Underwriters Laboratories 1777 approval and frequently have problems such as cracked tiles and improper installation. Clay tiles are usually about 2 feet (0.61 m) long, various sizes and shapes, and are installed in new construction as the chimney is built. A refractory cement is used between each tile.Metal liners may be stainless steel, aluminum, or galvanized iron and may be flexible or rigid pipes. Stainless steel is made in several types

History:

A smoke hood in the Netherlands. Image: Cultural Heritage Agency of the Netherlands

CHIMNEY POTS, CAPS AND TOPS:

A chimney pot is placed on top of the chimney to expand the length of the chimney inexpensively, and to improve the

PERFORMANCE ANALYSIS OF BOILER IN POWER PLANT
-A REVIEW PAPER

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Abstract— **In India, coal is the dominant source of energy generation. Efficiency of any conventional coal fired unit ranges from 34-38%. This paper presents the efficiency calculation of boiler, turbine and condenser of a 210 MW unit. The study focuses on evaluation of various parameters like dry flue gas loss, wet flue gas loss, moisture in fuel and hydrogen, condenser back pressure, turbine cylinder efficiency, soot formation, etc. and some optimization techniques are mentioned to minimize the same. The benefits of these techniques are considerable fuel saving, emission reduction, heat rate improvement, cost minimization, increased equipment life cycle, etc. Cost analysis through heat rate deviation has been done to determine annual fuel savings. Lastly various critical parameters are mentioned for further improvement of plant performance**

Index Terms— Coal fired power plant, rankine cycle, boiler efficiency, turbine efficiency, condenser efficiency, heat rate

I. INTRODUCTION

A boiler is an enclosed vessel that provides a means for Combustion heat to be transferred into water until it becomes heated water or steam. The hot water or steam under pressure is then usable for transferring the heat to a process. Water is a useful and cheap medium for transferring heat to a process. When water is boiled into steam its volume increases about 1,600 times, producing a force that is almost as explosive as gunpowder. This causes the boiler to be extremely dangerous equipment that must be treated with utmost care. The process of heating a liquid until it reaches its gaseous state is called evaporation. Heat is transferred from one body to another by means of radiation, which is the transfer of heat from a hot body to a cold body without a conveying medium, convection, the transfer of heat by a conveying medium, such as air or water and conduction, transfer of heat by actual physical contact, molecule to molecule.

Boiler Specification: The heating surface is any part of the boiler metal that has hot gases of combustion on one side and water on the other. Any part of the boiler metal that actually contributes to making steam is heating surface. The amount of heating surface of a boiler is expressed in square meters. The larger the heating surface a boiler has, the more efficient it becomes. The quantity of the steam produced is indicated in tons of water evaporated to steam per hour. Maximum continuous rating is the hourly evaporation that can be maintained for 24 hours. F & A means the amount of steam Generated from water at 100 0C to saturated steam at 100

This condensate is then sent back to boiler through boiler feed pump via low pressure and high pressure heaters.
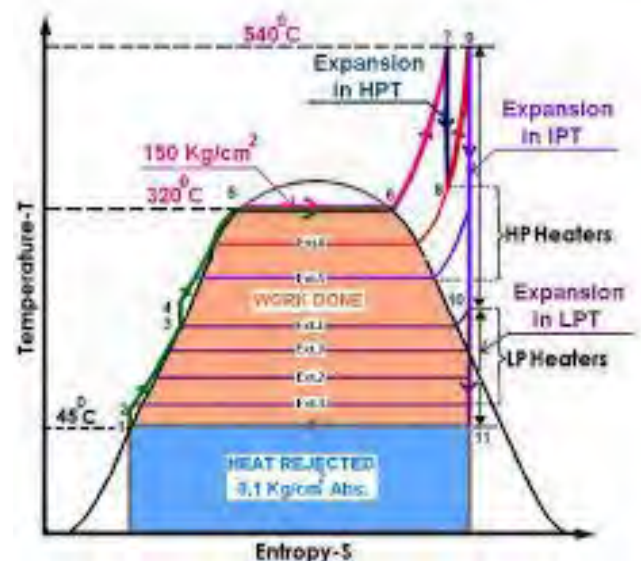
It works on the principle of modified rankine

Improvement of an Automobile Radiator using Thermal Analysis

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Abstract: Radiators are used to transfer thermal energy from one medium to another for the purpose of cooling. Radiators are used for cooling internal combustion engines, mainly in automobiles but also in pistonengine aircraft, railway locomotives, motorcycles, stationary generating plant. The radiator transfers the heat from the fluid inside to the air outside, thereby cooling the fluid, which in turn cools the engine. Research is being carried out for several decades now, in improving the performance of the heat exchangers, having high degree of surface compactness and higher heat transfer abilities in automotive industry. These compact heat exchangers have fins, louvers and tubes. In this project we are designing a radiator without louver fins and with louver fins. The original radiator has no louver fins, we are modifying that by giving louver fins. 3D model is done in Pro/Engineer.
Keywords: Ansys Milling, Taguchi, H13 Steel.

I. INTRODUCTION

A. Introduction to Automobile Radiator

Radiators are heat exchangers used to transfer thermal energy from one medium to another for the purpose of cooling and heating. The majority of radiators are constructed to function in automobiles, buildings, and electronics. The radiator is always a source of heat to its environment, although this may be for either the purpose of heating this environment, or for cooling the fluid or coolant supplied to it, as for engine cooling. Despite the name, radiators generally transfer the bulk of their heat via convection, not by thermal radiation, though the term "convector" is used more narrowly; see radiation and convection, below. The Roman hypocaust, a type of radiator for building space heating, was described in 15 AD. The heating radiator was invented by Franz San Galli, a Polish-born Russian businessman living in St. Petersburg, between 1855 and 1857.

B. Radiation and Convection

One might expect the term "radiator" to apply to devices that transfer heat primarily by thermal radiation (see: infrared heating), while a device which relied primarily on natural or forced convection would be called a "convector". In practice, the term "radiator" refers to any of a number of devices in which a liquid circulates through exposed pipes (often with fins or other means of increasing surface area),

Not withstanding that such devices tend to transfer heat mainly by convection and might logically be called convectors. The term "convector" refers to a class of devices in which the source of heat is not directly exposed.

Fig.1. Water-air convective cooling radiator.

C. Introduction To Pro/Engineer

Pro/ENGINEER, PTC's parametric, **integrated** 3D CAD/CAM/CAE solution, is used by discrete manufacturers for mechanical engineering, design and manufacturing. Created by Dr. Samuel P. Geisberg in the mid-1980s, Pro/ENGINEER was the industry's first successful parametric, 3D CAD modeling system as shown in Fig.1. The parametric modeling approach uses parameters, dimensions, features, and relationships to capture intended product behavior and create a recipe which enables design automation and the optimization of design and product development processes. This powerful and rich design approach is used by companies whose product strategy is family-based or platform-driven, where a prescriptive design strategy is critical to the success of the design process by embedding engineering constraints and relationships to quickly optimize the design, or where the resulting geometry may be complex or based upon equations. Pro/ENGINEER provides a complete set of design, analysis and manufacturing capabilities on one, integral, scalable platform. These capabilities, include Solid Modeling, Surfacing, Rendering, Data Interoper-

DESIGN AND CFD ANALYSIS OF HAIR PIN HEAT EXCHANGER AT DIFF NANO FLUIDS

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ABSTRACT

Heat exchanger is a device used to transfer heat between one or more fluids. The fluids may be separated by a solid wall to prevent mixing or they may be in direct contact. In this thesis, glycerin(40%) fluid is mixed with base fluid water(60%) are calculated for their combination properties. The nano fluid is titanium carbide, magnesium Oxide and silver nano particle for weight percentage0.2%, 0.5%, 0.7% & 1.0%. Theoretical calculations are done determine the properties for nano fluids and those properties are used as inputs for analysis. Hair pin Exchangers are available in single tube(double pipe) or multiple tubes within a hairpin shall (multi tube),bare tubes,finnrd tubes,U-tubes,straight tubes,fixed tube sheets and removable bundle.

INTRODUCTION

Heat exchangers are one of the mostly used equipment in the process industries. Heat Exchangers are used to transfer heat between two process streams. One can realize their usage that any process which involve cooling, heating, condensation, boiling or evaporation will require a heat exchanger for these purpose. Process fluids, usually are heated or cooled before the process or undergo a phase change. Different heat exchangers are named according to their application. For example, heat exchangers being used to condense are known as condensers, similarly heat exchanger for boiling purposes are called boilers Usually, there is lots of literature and theories to design a heat exchanger according to the requirements.

Heat exchangers are of two types:-

Where both media between which heat is exchanged are in direct contact with each other is Direct contact heat exchanger, Where both media are separated by a wall through which heat is transferred so that they never mix, Indirect contact heat exchanger.

A typical heat exchanger, usually for higher pressure applications up to 552 bars, is the shell and tube heat exchanger. Shell and tube type heat exchanger, indirect contact type heat exchanger. It consists of a series of tubes, through which one of the fluids runs. The shell is the container for the shell fluid. Generally, it is cylindrical in shape with a circular cross section, although shells of different shape are used in specific applications. For this

ANALYSIS OF HEAT TRANSFER RATE BY VARYING COOLING FLUID FOR ENGINE CYLINDER FINS

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ABSTRCT:

The Engine cylinder is one of the major automobile components, which is subjected to high temperature variations and thermal stresses. In order to cool the cylinder, fins are provided on the cylinder to increase the rate of heat transfer. By doing thermal analysis on the engine cylinder fins, it is helpful to know the heat dissipation inside the cylinder.

The principle implemented in this project is to increase the heat dissipation rate by using the invisible working fluid, nothing but air. We know that, by increasing the surface area we can increase the heat dissipation rate, so designing such a large complex engine is very difficult. The main purpose of using these cooling fins is to cool the engine cylinder by air.

The main aim of the project is to analyze the thermal properties by varying cooling fluid, material and thickness of cylinder fins.

Parametric models of cylinder with fins have been developed to predict the thermal behavior. The models are created by the geometry, rectangular and also by varying thickness of the fins for both geometries. Cooling fluids used in this thesis is air, oil. The 3D modeling software used is Pro/Engineer.

Thermal analysis is done on the cylinder fins to determine variation in temperature distribution. The analysis is done using ANSYS. Transient thermal analysis determines temperatures and other thermal quantities that vary over time.

KEY WORDS:

FINS, CYINDER, AIR, LIQUID-OIL, TEMPARATURE, CFD MODELINS,ANSYS

Introduction:

Internal combustion engine cooling uses either air or a liquid to remove the waste heat from an internal combustion engine. For small or special purpose engines, air cooling makes for a lightweight and relatively simple system. The more complex circulating liquid-cooled engines also ultimately reject waste heat to the air, but circulating liquid improves heat transfer from internal parts of the engine. Engines for watercraft may use open-loop

cooling, but air and surface vehicles must recirculate a fixed volume of liquid.

The main aim of the project is to design cylinder with fins for a 150cc engine, by changing the thickness of the fins, changing the cooling fluid and to analyze the transient thermal properties of the fins. Analyzation is also done by varying the materials of fins. Present used material for cylinder fin body is Aluminum alloy 204 which has thermal conductivity of 110 – 150 w/mk.

DESIGN AND ANALYSIS OF HEAVY VEHICLE CHASSIS FOR DIFFERENT ALLOY MATERIALS

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*Abstract:-*The chassis forms the main structure of the modern automobile. A large number of designs in pressed-steel frame form a skeleton on which the engine, wheels, axle assemblies, transmission, steering mechanism, brakes, and suspension members are mounted. During the manufacturing process the body is flexibly bolted to the chassis. For vehicles, chassis consists of an assembly of all the essential parts of a truck (without the body) to be ready for operation on the road.

Keyword: heavy vehicle chassis, Static analysis

1. INTRODUCTION TO CHASSIS

The chassis forms the main structure of the modern automobile. A large number of designs in pressed-steel frame form a skeleton on which the engine, wheels, axle assemblies, transmission, steering mechanism, brakes, and suspension members are mounted. During the manufacturing process the body is flexibly bolted to the chassis.

This combination of the body and frame performs variety of functions. It absorbs the reactions from the movements of the engine and axle, receives there action forces of the wheels in acceleration and braking, absorbs aerodynamic wind forces and road shocks through the suspension, and absorbs the major energy of impact in the event of an accident.

There has been a gradual shift in modern small car designs. There has been a trend toward combining the chassis frame and the body into a single structural element. In this grouping, the steel body shell is reinforced with braces that make it rigid enough to resist the forces that are applied to it. To achieve better noise-isolation characteristics, separate frames are used for other cars. The presence of heavier-gauge steel components in modern separate frame designs also tends to limit intrusion in accidents.

Layout of Chassis and Its Main Components:
The following main components of the Chassis are
1. Frame: it is made up of long two members called side members riveted together with the help of number of cross members.
2. Engine or Power plant: It provides the source ofpower

3. Clutch: It connects and disconnects the power from the engine flywheel to the transmission system.
4. Gear Box
5. U Joint
6. Propeller Shaft
7. Differential
Functions of the Chassis Frame:
1. To carry load of the passengers or goods carried in the body.
2. To support the load of the body, engine, gear box etc.
3. To withstand the forces caused due to the sudden braking or acceleration
4. To withstand the stresses caused due to the bad road condition.
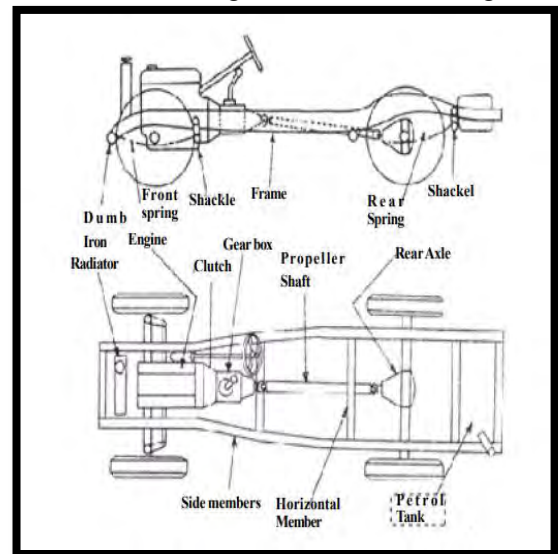5. To withstand centrifugal force while cornering

Fig:1. Line diagram

The loads acting on the chassis frame are as follow
1. Stationary loads namely the loads of permanent attachment like all the parts of the chassis, body etc.
2. Short duration loads while turning, braking etc.
3. Momentary loads while quick acceleration, sudden braking etc.

DESIGN AND ANALYSIS OF PRESSURE VESSEL WITH FRP MATERIAL

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Abstract

Long life of component is paramount. Today's lot of money is wasted to prevent the component from corrosion. The present project work is aimed at designing pressure vessel using composite material by which it is protected from corrosion and to increase life time. The present project work aimed at establishing design, analysis and manufacturing process for making pressure vessel with FIBER RENIFORCED PLASTIC. Design process consists of implementing FEM for the selection design. Analyzing design is done using CATIA-V5 software. As the pre component design and development requires use investments in the design of die and break ever number of components to be manufactured is very high. To come out of this problems as to reduce the project cost the advanced FRP based manufacturing technique were adopted to reduce the break ever batch number of components a thorough investigation in the form of pilot project report for the product development. Present project work is aimed at advanced composite material for the component manufacturing so as to exploit the advantage of failure behavior of FRP for Presents Design and Establishing a Design and Manufacturing Process for the Created Component.

KEY WORDS: Pressure vessel, FRP material.

1. INTRODUCTION

Composites are able to meet diverse design requirements with significant weight savings as well as "high strength –to-weight ratio" as compared to conventional materials.

Composite material is a material system composed of two or more dissimilar materials, differing in forms and insoluble in each other, physically distinct and chemically inhomogeneous. The resulting product properties are much different from the properties of constituent materials.

Composite are combination of two materials in which one of the materials, called reinforce, is in the form of fiber sheets, or particles, and is embedded in the other materials called matrix. There in forcing material and matrix material ceramic or polymer. Composites are used because overall properties of the composite are superior are used because overall properties of the composite are superior to those of the individual components. For example: polymer ceramic composite have a great modulus than the polymer component, but are not as ceramics.

2. LITERATURE REVIEW

2.1 MOISTURE ABSORPTION BEHAVIOR FOR GLASS-FIBER COMPOSITES

Weitzman recently gave a comprehensive review on this subject. In general, the moisture absorption behavior of composite materials can be categorized into several types. Glass fiber reinforced plastic (gfrp) exhibit such behavior under specified conditions. For instance, e-glass/vinyl ester with acryl-silent or epoxy Silone surface treatment follows linear fickianbehavior for water absorption up to 80 c .in fact periodic change in the aforementioned environments will results in many such jumps. For example fiber/matrix debones and matrix cracking which is often irreversible? Also an irreversible process causes of leaching out of the material from the bulk following chemical or physical breakdown. Sorption process involving severe circumstances such as elevated temperatures external load and high solvent concentration will often results in behavior. In general the moisture absorption behavior depends on temperature, applied load type of media time and material system and is inseparable from other performance aspects concerning durability.

Moisture absorption will results in development of residual stress plasticizing the resin and accelerate time-dependent behavior .data on visco elastic behavior for pultruded gfrp under the influence of fluid absorption are rare, although there are data on creep-rupture of the material in fluids (i.e., stress corrosion). As pointed out by some investigators that moisture absorption level in history –dependent, and therefore sorption behavior under temperature cycles is not the same as under constant humidity and temperature level. However, for pultruded gfrp this kind of data does not exist.

Evaluation of Overall Heat Transfer Coefficient for a Composite 3d Panel Using FEM

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Abstract- **The overall heat transfer coefficient (overall) of an object is a measure of heat ability to flow taking into consideration both conductive part of material and convective part of liquid surrounded. The value of overall indicates how much heat can enter the system from the surroundings. Evaluating the overall heat transfer coefficient is very easy for 2D planes with simple heat transfer equations , but when two or three materials are sandwiched to form a complex object, it is difficult to evaluate the overall heat transfer coefficient by hand calculations and simplifying the system from 3D to 2D plane also involves more generalization and assumptions there by ending up with inaccurate results of overall heat transfer coefficient. This paper throws a light on how to accurately and easily evaluate the overall of system through FEM concepts using Solid Works Simulation.**

Keywords- Overall Heat Transfer Coefficient, Solid Works, Solid Works Simulation, Thermal Analysis, FEM

I. INTRODUCTION

[1]The overall heat transfer coefficient represents the total resistance to heat transfer from one fluid to another. SI units of Overall Heat transfer Coefficient is W/m^2K. In a control flow system [2] Both the overall heat transfer coefficient (OHTC) and local heat transfer coefficient (LHTC) of increase with increasing inlet mass flow rates. The general heat transfer *equation which relates heat flux (Q'in W/m2) , overall heat* transfer coefficient($U_{overall}$in W/m^2K) and temperature difference (ΔT in Kelvin) is

$$Q' = U_{overall}\Delta T$$

In this paper a composite panel of 200 mm x 200 mm X 20 mm is considered, the panel is made up of three metals , for finding out the overall heat transfer coefficient, air of convective heat transfer coefficient of 25 W/m^2K is considered as fluid medium on both sides of the panel.

II. MODELLING

S.No	Material	Colour
1	Steel (Top and bottom covers)	Blue
2	Aluminium (Vertical brackets)	Green
3	Copper (Horizontal brackets)	Brown

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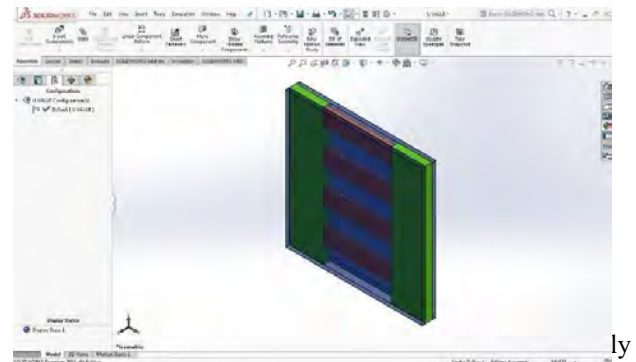
CAD software Solid Works, the deigned model and is detailed in 1a and its components with material are detailed in table 1.

EFFECT OF WELDING SPEED AND GROOVE ANGLE ON STRENGTH OF BUTT WELD JOINT USING TIG WELDING

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Abstract: **Welding is the metal joining process in which two or more metal having same material or different can be joined by heating to a plastic state .It is mostly used for joining metals in process industry, in fabrication, maintenance, repair of parts and structures. The metal plates and pipes used in process industry and they have welding strength as their important parameter. In this thesis, the welding speed and geometry to find out tensile and impact strength in case of butt weld joint will be done. For V-groove geometry different models of plate with various included angles from 35^0, 45^0, 50^0 will be made from structural steel (A633 Grade E).Currently different welding speeds are used in precision welding applications such as nuclear reactor pressure vessels, boilers etc. where welding accuracy as well as quality with strength is an important parameter. So in this project experimentation will be done on different welding speed such as 0.4 cm/sec, 0.8 cm/sec and 1.20cm/sec to prepare a V-groove butt weld joint. Generally the V-groove geometry with included angle up to 60^0 is in use.**

Keywords: *metal, welding, joint*

1. INTRODUCTION:

Welding is, at its center, merely the way of bonding 2 objects of metallic. Whereas there are opportunity approaches in which to affix metallic (riveting, brazing and bonding, as an example), attachment has turn out to be the strategy of selection for its electricity, potency and flexibility.

There are loads of completely special attachment methods, and a number of are being unreal all of the time. Some methods use warmth to generally melt 2 objects of metal along, commonly including „filler steel" into the joint to behave as a binding agent. Opportunity methods deem pressure to bind metal along, and still others use a mixture of each heat and stress. No longer like bonding and brazing, anywhere the metal gadgets being joined stay unaltered, the approach of attachment continually adjustments the work items. This may appear to be a trivial

reason; however it is certainly vital to know-how why attachment Produces such robust bonds. In the approaches of soldering and brazing, portions of steel are joined with the aid of introducing a third material (with a decrease melting factor) into the mixture. Melting this 0.33 material among the surfaces of the unique portions binds the portions together. The bond, but, is handiest as robust as the becoming a member of material. Welding, then again, cuts out the intermediary and joins the original portions immediately to each other. The result is a strong, cohesive bond that's regularly as strong as the fabric itself.

2.METHODOLOGY:

Objective of the work In this thesis, materials V-groove geometry distinct models of plate with diverse included angles from 350, 450, 500will be crafted from structural metal (A633 Grade E).Currently special welding speeds are including zero.Four cm/sec, zero.Eight cm/sec and 1.20cm/sec to put together a V-groove butt weld joint. Effect of method current on the tensile power of weld joint may be analyzed.

EXPERIMENTAL PROCEDURE: In this thesis, experiments are made to understand the effect of TIG welding parameters welding speed and groove angle on output parameters such as hardness of welding, tensile strength of welding.

Finished components For the experiment, welding parameters selected are shown in table.

The welding current and electrodes considered are

EXPERIMENTAL INVESTIGATIONS OF TUBE CONFIGURATION IN HORIZONTAL SURFACE CONDENSER

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ABSTRACT

This study presents the analyses of the effect of the arrangement of tubes in a tube bundle in a horizontal, two-pass condenser on the amount of heat transferred to the circulating water in the tubes. The tube bundle is assumed to act as a staggered tube bank in cross- flow with downward superheated steam flow. The saturated circulating water is assumed to be turbulent flow. Previously defined relationships for heat transfer through tube banks, including condensate inundation, vapor shear, and the effect of tube surface geometry are used in analyzing six tube configurations to determine the largest change in temperature of the circulating water. The heat flux in the system is defined as a function of the condenser and tube material properties, tube geometry, tube spacing, condensate inundation and steam velocity. Numerical modeling of the six tube configurations using a Reynolds- averaged Navier- Stokes (RANS) approach is presented to confirm the analytical results. Analyses of the analytical and numerical results from the six configurations examined provide the optimal tube arrangement for maximum heat transfer to the circulating water. It is found that the circulating water temperature is dependent. tubes rows where the steam-air mixture velocities are the highest. Furthermore, the magnitude of the velocity profile is proportional to the magnitude of the change in circulating water temperature.

Keywords: condenser; boiler; CFD.
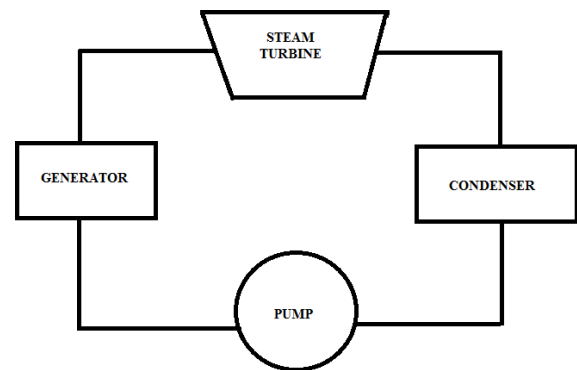
1. INTRODUCTION
RANKINE CYCLE

Fig.1.1 Rankine cycle

FUNCTION OF STEAM CONDENSER The function of a surface condenser is to create the lowest possible turbine or process operating back pressure while condensing steam. The condensate generated is usually recalculated back into the boiler and reused. Both of these operations are accomplished at the best efficiency consistent with the ever- present problem of economy. Surface Condenser also provides a convenient point for make up water entry and expelling point for non condensable gases.

"PRODUCTION OF METHYL ESTERS FROM MILK SCUM, PERFORMANCE AND EMISSION ANALYSIS ON CI ENGINE"

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ABSTRACT

The present scenario of world fuel consumption is massive and still increasing. The main source of fuel is fossil fuel. Today with the rise in prices of crude oil, petroleum products are becoming increasingly difficult for a average man to reach, also with alarming levels of pollution and the fear of depletion of petroleum products it's become inevitable to explore new possibilities in fuel production sector. Initiating from this view point various sources were looked at for production of alternative fuels .Most of the raw materials like seeds, grass, bio mass have been in the line of successful experimentation. Hence a unique raw material that is the milk dairy wash water scum has been selected. By trans-esterification methyl ester can be obtained from the scum which can be blended with diesel to get a new form of bio diesel and the further study of its properties and performance on IC engines can be obtained.

Keywords: Biodiesel, milkscum, transesterification

1. INTRODUCTION

Due to decrease in petroleum resources and increase in pollution problems there is a need in increasing the fuels like electricity, natural gas, and biodiesel. As there is a Continuous reduction in the fossil fuel day by day it has become more attractive to trap renewable energy sources. Currently biodiesel is prepared from oil like palm, sunflower soybean, canola, etc. throughout the world, which results in the food crisis of using food crops for producing biodiesel. In India around 150 million tons of Scum oil is produced per year. Thousands of large dairies are engaged in handling this milk across the country. Generally, a large diary process 5 lakh litres of milk per day, which produce approximately 200-350 kg of scum per day.

2. METHODOLOGY

2.1 TRANS-ESTERIFICATION PROCESS

The 5 kg of scum collected and first purified by hand picking of coarse and floating impurities from milk dairy. Later heated till it reaches 100^0C to lose all it moisture contents and was strained which in turn filtered it. After the filtration process 3.9kgs of purified scum/clarified butter obtained. Figure 1 shown the Stages Of Scum Filtration and one kg of purified scum was used for experimentation.

(A)Raw milk scum   (B)Heating

(C)Removing floating impurities (D) Heating

(E) Separation of oil & solid waste (F)Filtering

(E) Pure milk scum   (G)Heated refined milkscum
Figure 1: Stages Of Scum Filtration

The Trans-esterification process was carried out for the purified scum by a 2 stage process which involves that is Acid catalyzed esterification and Base catalyzed esterification.

Design and experimental study on Solar dish collector for stirling engine

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Abstract:

Solar energy is the most promising energy in today's world as it is most abundant and ecofriendly. It is an important source of renewable energy resource. To utilize such energy, we require a concentrating solar collector. It optically reflects and focuses the suns incident solar energy onto a small receiving area using mirrors or lenses is called a **Solar Dish Collector.** The Parabolic Dish Solar Collector technology is very useful as it is used for approximately all solar energy applications such as steam and power generation, water heating, air heating etc. In this paper, design of a parabolic solar dish collector is accomplished and performs experimental study of concentrating solar collector used in Stirling engine.

Keywords: Solar energy, solar dish collector, stirling engine.

1. INTRODUCTION

The world energy requirements are now completely depend on non-renewable energy resources such as oil, coal and natural gas. As these were going to depleted in near future, we need to search for an alternative energy resources such as renewable energy sources. Renewable resources are an important aspect of sustainability, the most frequently used renewable resources are biomass, water, geothermal, wind and solar. Unlike fossil fuels, we can regenerate or replenish these resources. The selection of type of energy source depends on economic, environmental and safety considerations. Solar energy is considered to be more suitable on the basis of environmental and safety considerations. The solar energy is the most abundant, permanent and free of cost. The energy from the sun cannot be used directly such as for air heating, hot water generation, electricity and in drying applications. Solar collector is one of the main components in a solar thermal system. It absorbs the solar radiation as heat and transfers it to the heat transport fluid. The collected solar energy will be transferred either for hot water generation or space heating or to a thermal storage tank etc.

Based on the way of solar collection, the solar collectors are classified into non concentrated or stationary solar collector and concentrated type. A non-concentrated solar collector has the same area for intercepting and absorbing solar radiation. They are permanently fixed in position and do not track the sun, three set of collectors fall in this category: the flat plate collectors (FPC), compound parabolic collectors (CPC), and the evacuated tube collectors (ETC) single axis tracking and two axis tracking. While concentrated type will have a concave shaped reflective surface for intercepting radiation and it will be focused to a small area and thus increases radiation flux. Another advantage of concentrated collectors is that higher temperature can be achieved than that of non- concentrated collectors.

The three main types of concentrated collectors are parabolic dish, parabolic trough and tower receiver. Among them, parabolic dish collector is one of the developing technologies. Since it has small absorber area, it has less radiation losses.

Stirling engines are a type of reciprocating external heat engine that

Improvement of an Automobile Radiator using Thermal Analysis

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Abstract: Radiators are used to transfer thermal energy from one medium to another for the purpose of cooling. Radiators are used for cooling internal combustion engines, mainly in automobiles but also in pistonengine aircraft, railway locomotives, motorcycles, stationary generating plant. The radiator transfers the heat from the fluid inside to the air outside, thereby cooling the fluid, which in turn cools the engine. Research is being carried out for several decades now, in improving the performance of the heat exchangers, having high degree of surface compactness and higher heat transfer abilities in automotive industry. These compact heat exchangers have fins, louvers and tubes. In this project we are designing a radiator without louver fins and with louver fins. The original radiator has no louver fins, we are modifying that by giving louver fins. 3D model is done in Pro/Engineer.
Keywords: Ansys Milling, Taguchi, H13 Steel.

I. INTRODUCTION

A. Introduction to Automobile Radiator

Radiators are heat exchangers used to transfer thermal energy from one medium to another for the purpose of cooling and heating. The majority of radiators are constructed to function in automobiles, buildings, and electronics. The radiator is always a source of heat to its environment, although this may be for either the purpose of heating this environment, or for cooling the fluid or coolant supplied to it, as for engine cooling. Despite the name, radiators generally transfer the bulk of their heat via convection, not by thermal radiation, though the term "convector" is used more narrowly; see radiation and convection, below. The Roman hypocaust, a type of radiator for building space heating, was described in 15 AD. The heating radiator was invented by Franz San Galli, a Polish-born Russian businessman living in St. Petersburg, between 1855 and 1857.

B. Radiation and Convection

One might expect the term "radiator" to apply to devices that transfer heat primarily by thermal radiation (see: infrared heating), while a device which relied primarily on natural or forced convection would be called a "convector". In practice, the term "radiator" refers to any of a number of devices in which a liquid circulates through exposed pipes (often with fins or other means of increasing surface area),

Not withstanding that such devices tend to transfer heat mainly by convection and might logically be called convectors. The term "convector" refers to a class of devices in which the source of heat is not directly exposed.

Fig.1. Water-air convective cooling radiator.

C. Introduction To Pro/Engineer

Pro/ENGINEER, PTC's parametric, **integrated** 3D CAD/CAM/CAE solution, is used by discrete manufacturers for mechanical engineering, design and manufacturing. Created by Dr. Samuel P. Geisberg in the mid-1980s, Pro/ENGINEER was the industry's first successful parametric, 3D CAD modeling system as shown in Fig.1. The parametric modeling approach uses parameters, dimensions, features, and relationships to capture intended product behavior and create a recipe which enables design automation and the optimization of design and product development processes. This powerful and rich design approach is used by companies whose product strategy is family-based or platform-driven, where a prescriptive design strategy is critical to the success of the design process by embedding engineering constraints and relationships to quickly optimize the design, or where the resulting geometry may be complex or based upon equations. Pro/ENGINEER provides a complete set of design, analysis and manufacturing capabilities on one, integral, scalable platform. These capabilities, include Solid Modeling, Surfacing, Rendering, Data Interoper-

Effect of Geometrical and Roughness Parameters on Artificially Roughened Solar Air Heater

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ABSTRACT

Artificial roughness employed on the absorber plate of SAHs is the most effective method to augment the rate of heat transfer to flowing fluid in the roughened duct of solar air heater. Artificial roughness provided is of various forms like ribs, dimples, baffles, wire mesh, delta winglets, etc. The objective of this paper is to analyze the various roughness geometries used on absorber plate in order to improve the heat transfer and friction characteristics. Augmentation in heat transfer for roughened SAHs is obtained by destroying laminar sub-layer in the vicinityof the absorbing surface. However, this gain is accomplished at the expense of increase in pressure drop. The main aim of this paper is to determine the optimum roughness geometry parameter at which maximum heat transfer is obtained at minimum frictional losses.

Keywords: Solar air heater, Artificial roughness, roughness pitch, roughness height

1. INTRODUCTION

Solar air heaters works on solar thermal technology in which the energy from the sun is captured by an absorbing medium and used to heat air. Solar air heating is a renewable energy heating technology used to heat or condition air for buildings or process heat applications. It is typically the most cost-effective out of all the solar technologies, especially in commercial and industrial applications, and it addresses the largest usage of building energy in heating climates, which is space heating and industrial process heating [34]. The value of heat transfer coefficient and heat capacity for air is low which reduces the heat transfer rate and thus increases the heat loss to the surroundings. A large number of researchers have used solar air heaters of different configurations to remove these drawbacks associated with solar air heaters to better serve the purpose of air heating [35]. Simple flat plate collector is the simplest and most commonly used type of collector. It is composed of one, two or three glazing over a flat plate which is backed by insulation. In flat plate collectors, the area absorbing the solar radiation is the same as the area capturing solar radiation. The collector are oriented towards the equator facing north in the southern hemisphere and facing south in the northern hemisphere [21]. Different types of artificially roughened solar collectors used are shown in Fig. 1.

1.1 Artificially roughened solar air heaters

In order to attain higher convective heat transfer coefficient, turbulent flow at the heat transfer surface is required. The artificial roughness has been used extensively for the enhancement of forced convective heat transfer coefficient in solar air heaters. It is found that the use of artificial roughness on heat transferring surface breaks the viscous sub-layer in the proximity of the surface. However, creating turbulence requires energy that comes from the fan or the blower. Hence, it is desirable to create the turbulence very close to the surface only where the heat transfer takes place and the core of the flow is not disturbed to avoid excessive losses. This can be achieved by using roughened surfaces on the air side. Use of artificial roughness seems to be an attractive proposition for improving the heat transfer coefficient [55]. The artificial roughness is one of the most effective methods considering heat
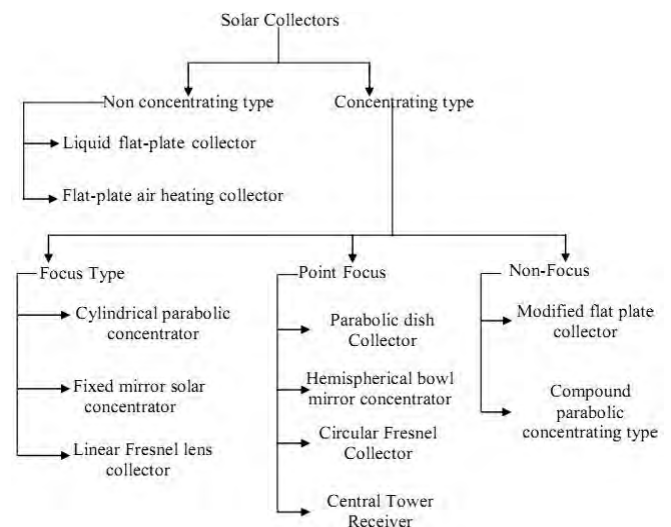

Fig. 1. Different types of solar collectors

transfer coefficient enhancement with limited frictional losses. Several investigators have used different

ANALYSIS OF SINGLE STRAP HYBRID BUTT JOINT IN LAMINATED FRP COMPOSITES

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ABSTRACT

The present investigation deals with the static analysis of adhesively bonded single strap hybrid butt joint in laminated FRP composites using three-dimensional theory of elasticity based finite element method. The finite element model is validated and is extended for the analysis of a single strap hybrid butt joint made of generally and specially orthotropic laminates subjected to longitudinal load with C-F end condition. The stresses are computed in adherends and adhesive. The results of the present analysis reveals that the three-dimensional stress analysis is required for the analysis of single strap hybrid butt joint in laminated FRP composites.

Keywords: SSHBJ, FEM, FRP, C-F

1. INTRODUCTION

Fiber reinforced plastic (FRP) materials have proven to be very successful in structural applications. They are widely used in the aerospace, automotive and marine industries. FRP materials or composites behave differently than typical metals such as steel or aluminum. A typical composite contains layers of aligned fibers oriented at different angles held together by a resin matrix, giving high strength and stiffness in different directions. This anisotropy can cause difficulties when joining two parts together, especially if the two pieces have different stiffness and strength characteristics. The joint can potentially become the weakest link in the structure due to the large amount of load it must transfer. There are wide varieties of ways to join different parts together. Two major methods include mechanical fastening and adhesive bonding. Adhesive bonding of structures has significant advantages over conventional fastening systems. Bonded joints are considerably more fatigue resistant than mechanically fastened structures because of the absence of stress concentrations that occur at fasteners. Joints may be lighter due to the

Roy et.al (4) employed shear specimens and butt-joint specimens to measure the shear and tensile strengths of five types of adhesive bonds for brittle and Homalite polymers. In order to examine the possible stress singularities, they have employed two optical techniques, photo elasticity and coherent gradient sensing to record fringe pattern until specimens failed.

2. PROBLEM MODELING

Geometry.

The geometry of the single strap hybrid butt joint used for the validation is as shown in Fig.1. Where the dimensions are taken as t =20 mm, t_1=5 mm, t_2 = 5 mm, t_3 = 2 mm, l = 100 mm . The width of the plate in the Z-direction is taken as 25 mm.
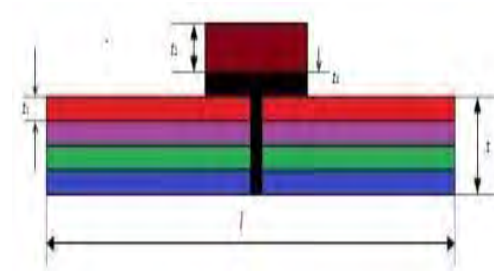
All dimensions are in mm
Fig. 1 Geometry of the single strap hybrid butt joint

Finite Element Model
The finite element mesh is generated using a three-dimensional brick element 'SOLID 45' of ANSYS [8]. This element (Fig. 2) is a structural solid element designed based on three-dimensional elasticity theory and is used to model thick orthotropic solids. The element is defined by 8

Recent Trends in Biodegredable Polylactitde

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Abstract—**Polylactide is the polymer of lactic acid which is obtained from the natural source of starch, sugarcane, corn, cassava roots etc., is one of the alternatives for petroleum based polymer material. Nowadays we are facing much problem in solid waste, main think is to reduce SW and environment have to sustain for future generation through eco-friendly activities. So that polylactide can be substituted in place of non-biodegradable polymer, by increasing its mechanical, chemical & biological properties. In recent year much more research were done in order to meet the eco-friendly requirement based on PLA. Nowadays there is a need for intended consumers & biomedical applications ,however the demand have been increasing significantly in the last decade. In the first part of review we discuss about advantages, limitations and applications of unmodified PLA and in the second part the major drawbacks, while preparing bulk PLA and whatever the research had been proceed to overcome the issues.**

Keywords - polylactide ,biodegradability, eco-friendly,

Solid waste management &biomedical.

I. INTRODUCTION

In the recent years we are facing much trouble over the solid waste management that too highly by means of petroleum based polymer. From the last 70 years tones and tones of non biodegradable polymers are produced. Plastic polymer although it is simple small molecule combines to form large polymer and having properties of resistance to corrosion ,light weight ,high strength, transparency, low toxicity. Out of that some of them are recycled and most of them are disposed in the ecosystem as a waste. So that huge amount of solid waste is produced by means of non-biodegradable plastic. Generally plastics are resistance to microbial activity and the plastic will take much time to degrade. But in case of enzyme microbes also it is short term living organism so that microbes can't easily destroy the non-biodegradable polymer. Disposal of this type of waste also produces carbon dioxide which also contributes to global warming and some of them release toxic gases also. Nowadays each and every place say like, industry, research, food packing markets etc., plastic is an important ultimate commodity of convenience .Alongside a solution to the existing plastic waste problem, a new plastic future is also required.

Reduce; reuse & recycle have been embraced as the common approach to combat the escalating plastic waste problem. The dream is to create a circular plastic economy where products are 100% recyclable, used for as long as possible and their waste has to be minimized.

Therefore in addition to these three solutions to the plastic waste problem (Reduce, reuse& recycle) we need a fundamental change in order to make a noticeable change in the environment .So a new plastic future is introduced in which biodegradable polymers replace conventional plastics. The common synthetic biodegradable polymers are polylactide, polyglycolide, polycaprolactone. Etc., these polymers come under 'environment biodegradable polymer'. Under that for several years application of biodegradable polymers in different areas where studied. In such a case high molecular weight PLA polymer have been obtained by ring opening polymerisation of lactic acid monomer which in turn obtain form sugarcane stocks, corn etc. There are no toxic or global warming gases are emitted. Globally biopolymers make up nearly up to 3,00,000 metric in the plastic market. Nevertheless even the biopolymer market has been going increase in 20-30% every year. Polylactide contains α-hydroxyacid with chiral atoms and existing two enantiomers L-lactic acid and D-lactic acid.

A large number of investigation are made in PLA and its future application might be in biomedical applications like tissue engineering, drug delivery, pesticides in agriculture and to replace of plastic water bottles etc., The commercial attractive is, it can be synthesised by natural availability. It includes production from renewable resources and while disposal it easily biodegraded able .But main problem as easy brittle in thicker character .So PLA is one of the commercial overcoming the product in market with its use and decrease in bulk price. According to Bogaert and coszach suggested PLA price could decreases with increase in market potential by factor 10. So that while utilization increases automatically the production will be in bulker and the production cost can be compensated. The natural material whatever we are utilising it has to be undergo some compensation with their physical & chemical properties. So will have discussion over polylactide structure and its properties. Polylactide generally have bio-degradability, toughness heat resistance, tensile stress partially, even though we are in need of some other property like antibacterial, resistance to reaction , reduction in green house gases, etc., So, this can be attained by doing some modification in PLA either by using some physical treatments like using, modifiers ,blending co polymerisation, etc.,

Generally it is preferable it having following advantages when we go with alternatives because ,a) renewable energy b)significant energy savings) ability to recycled) improves the agricultural economize)production of hybrid paper-packing matter and f)it physical property can be improved by material modifications.

1.1General properties

It is colourless and made up of alpha hydroxyl group and it can be prepared from natural as well as synthetic method. It has L-lactic acid & D-lactic acid as well as racemic

Importance of Reading & Comprehension for Engineering Students

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Abstract:

In today‟s competitive life everyone has to have the command over the English language and communication. In the period of learning the subject knowledge engineering students stopped focusing on the communication and English Language. This lack of communication activities leads them for struggle in job search. In this paper we are trying to put a light on certain type of skill which can guide and motivate them to learn the English accurately that is „The Reading Skill‟. Its helps them to develop vocabulary as well as the „Business Communication‟.

Keywords:

English Language, Reading Skills, Types of Reading and its Techniques, Methodology, Example Reading Test.

Introduction:

Reading Skills is an ability to recognize and comprehend the printing words. According to Michael West "Reading is the shortest way to learn a language". Reading skill is also known as receptive skill. Reading is a mediator between sounds and prints.

Students need to understand types and techniques of reading for better comprehension and they must have an idea which type of reading they should use in their learning process as well as in their practical/professional life. On the basis of test result we can understand the level of student‟s in reading skills.

Types of Reading:

Reading is a method of communication that enables a person to turn writing into meaning. It allows the reader to convert a written text into a meaningful language with independence, comprehension, and fluency, and to interact with the message. (7 Reading Techniques for Increasing Learning & Knowledge)

Generally there are five types of reading.
1. Silent Reading
2. Loud Reading
3. Intensive

4. Extensive
5. Critical reading
   (Konda Nageshwar Rao)
1- Silent Reading:
   It is a process of learning through reading silently, where reader will not create a sound but he will focus to understand the central theme of the text. According to Reborn and Dollman it‟s a major part of academic learning, it is **sense orientated** and it comes under intensive and extensive reading.
   They have given the idea that a person can read 400-500 words per minute therefore reading skills develop the speed of understanding the written text. Eye span will be high.
   Example: competitive exams and academic exams.

2- Loud Reading:

Mathematical model of Business Analytics for decision making and business growth

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ABSTRACT

Business analytics is an emerging big data technology, and has become a mainstream market adopted broadly across industries, organizations, and geographic regions and among individuals to facilitate data-driven decision making for business and individual's hedonism. Big data analytics service requestors also include business information systems and e-commerce systems. Business analytics service requestors require big data analytics services including information analytics services, knowledge analytics services, and business analytics services with visualization techniques to provide knowledge patterns and Information for decision making in a form of figure or table or report
Key words: Business analytics, Variation analysis, Mathematical Model, Key parameter indicators

I.INTRODUCTION

The advancement in information technology has also made it possible for organizations to hoard large volumes of data from multiple sources through their business processes. Such data will be in the crude form. The data has to undergo lot of stages to prepare it for the analysis. The number of stages required depends on the type of sources and variation of the data. To understand the correctness of the data, most of the business analysts perform "Variation Analysis". The term Variation Analysis means the deviation of the data, both in quantity and quality of the data from the previous year/quarter data. However, most of the organizations have set a cut-off variation of the data should not deviate by 20% for better decision making and saving opportunities. If the deviation is more than the cut-off, the businesses go back to the source and identify the correct data. Further the data has to go through the stages of consolidation of the data from various sources, enrichment of the data, assignment of the appropriate classification and select a suitable tool to analyze the data. By analyzing the data, business recommendations were drawn for business growth. Big data analytics and BI are the top priorities of chief information officers (CIOs) and comprise a $12.2 billion market [4].

Delivering the right decision support to the right people at the right time.

The term decision support, because business analytics gives you, the business user, data, information, or knowledge, which you can choose to act upon or not. Business analytics is not a new phenomenon—it's been around for the past 20 years—but with a firm anchoring in the technically oriented environment. Only recently is it making its breakthrough as the business is assuming ownership. We are seeing more and more companies, especially in the financial and the telecom sector, set up actual business analytics departments, designed to support business processes and improve performance.

Currently, BI is based on four cutting-age technology pillars of cloud, mobile, big data and social technologies [8] [6], each of these pillars corresponds to a special kind of web services, that is, cloud services, mobile services, big data services and social networking services; all these constitute modern web services [6]. Each of these services has been supported by analytics services and technologies [2].

Business analytics as information systems, consisting of three elements:

1. A characteristic of the technological element is that it can be used to collect, store, and deliver information. In the present days, talking about the electronic data, which can be collected, merged,

Enhancing Air Compliance of loud speaker cabinet by using Activated Carbon Felts.

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ABSTRACT:-

At present Fiber glass material is used as stuffing material in sub-woofer cabinet enclosures,It increases Air Compliance and increase the apparent volume of the cabinets because it has properties of sound absorption and insulation. Air Compliance has direct impact on frequency response of the cabinet.by changing air Compliance we can optimize the response.Activated carbon felt can be used in the place of fiber glass because of large absorption coefficient at lower frequency due to adsorption property,ACF have large porosity and large surface area.It is observed Activated carbon felt of range 10 to 15 mm has large absorption coefficient at lower frequencies.the excess absorption of sound energy is due to surface reactance.

Keyword:-Adsorption,Compliance,Surface Reactance, Activated carbon felt.

I.INTRODUCTION.

Designing miniature Subwoofer enclosure has a great demand.One need to understand and should have a sound knowledge over the thiele/small parameters while designing the enclosures.the system resonance frequency and bass response depends on the volume of the enclosure.By reducing the enclosure volume it is difficult to increase bass response of the system.the best option is enhance the air compliance of the enclosure by any other means.Air compliance is the springiness associated by the Driver enclosure to that of the springiness of the Driver suspension.by stuffing the enclosure by sound absorbing material air compliance can be increased.

II.THEORY OF INFLUENCING FACTORS.

Air compliance,the quality factor of loud speaker and the stuffing material influences to obtain lower resonance of the cabinets

Air compliance of loud speaker

To bring close relation between the air compliance and resonance frequency we need to introduce the compliance ratio α , α is simply the ratio between the equivalent volume and the volume of the enclosure which the driver is mounted in.

$$\alpha = \frac{V_{as}}{V_b}$$

Resonance frequency $f_c = \sqrt{1+\alpha}\, f_s$

Air compliance based on volume of box ,density of air and velocity of sound in air [2]

$$C = \frac{V_b}{2}$$

.Further

compliance can also be

$$AC = \left(\frac{f_b}{J_s}\right)^{\frac{1}{0.31}} .V$$

This equation suggest that Air compliance depends on the volume of the enclosure.more volume more air compliance.the acoustic compliance of air in the loud speaker cabinet depends on density of air and its speed.compliance can be enhanced by reducing the air density in the cabinet.

DETERMINATION OF OLMESARTAN MEDOXOMIL IN BULK AND PHARMACEUTICAL FORMULATIONS BY VALIDATED RP-HPLC METHOD

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Abstract

Analytical method was developed for the estimation of Olmesartan medoxomil drug substance by liquid chromatography. The chromatographic separation was achieved on Ascentris express C18 100*4.5um at ambient temperature. The separation was achieved by employing a mobile phase consisting of 0.1%v/v formic acid in water: Acetonitrile (50:50). The flow rate was 0.6 ml/ minute and UV detector was set at 230nm. The average retention time for Olmesartan medoxomil was found to be 1.9 min and the proposed method was validated for selectivity, precision, linearity and accuracy. All validation parameters were within the acceptable range. The assay methods were found to be linear in the range of 50-150μg/ml for Olmesartan medoxomil .

Key words: Olmesartan medoxomil, Isocratic, HPLC, Trifluoro acetic acid, and Acetonitrile

INTRODUCTION
Drug Profile

Olmesartan (4-(2-hydroxypropan-2-yl)-2-propyl-1-({4-[2-(1H-1,2,3,4-tetrazol-5-yl)phenyl] phe nyl} methyl)-1H-imidazole-5-carboxylic acid) is an antihypertensive agent, which belongs to the class of medications called angiotensin II receptor blockers (ARB[1-13]. It is indicated for the treatment of high blood pressure and is marketed under the name Olmetec®. The FDA label includes a black-box warning of injury and death to the fetus, so women of child-bearing age need to be warned and take the necessary precautions. Olmesartan is also contraindicated in diabetes mellitus patients taking aliskiren.

Olmesartan is an ARB that selectively inhibits the binding of angiotensin II to AT1, which is found in many tissues such as vascular smooth muscle and the adrenal glands. This effectively inhibits the AT1-mediated vasoconstrictive and aldosterone-secreting effects of angiotensin II and results in a decrease in vascular resistance and blood pressure. Olmesartan is selective for AT1 and has a 12,500 times greater affinity for

TUNGSTEN TRIOXIDE (WO3) BASED PHOTO ELECTRO CHEMICAL (PEC) CELL IN THE PRESENCE OF N-METHYL FORMAMIDE

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ABSTRA

TUNGSTEN TRIOXIDE (WO_3) is an n-type semiconductor which may be used as photo sensitive electrode and photo catalyst in the presence of organic substrates. WO3 photoelectrochemical (PEC) cell is constructed in the presence of N-methyl formamide (NMF). In oxygen atmosphere, WO3 electrode produces cathodic photocurrent which is attributed to the reduction of O2 and anodic photocurrent is due to oxidation of NMF in the presence of N2. A suitable mechanism is proposed for the electrode reactions.

Keywords: PEC CELL, WO3, NMF

INTRODUCTION

Using semi conductor materials like ZnO, TiO2, WO_3 in the construction of PEC Cells received considerable attention. Any semi conductor to be effective in a PEC cell must be chemically inert and make use of solar energy in the visible region. WO_3 is an n-type semi conductor with a band gap of 2.7 eV. This corresponds to utilization of 11.8% solar energy. WO_3 is reported (1) as a stable semi conductor for electrolysis of water in the presence of light. Photo catalytic activity of WO3 is also reported (2).

In the present study WO_3 is used as a photo electrode in a PEC cell consisting of NMF Aqueous solution as electrolyte. Photo voltages and photo currents are measured. WO_3 in the powder state is used as photo catalyst and the products are identified.

EXPERIMENTAL

PEC cell is constructed using polycrystalline WO_3 paste. A thin layer of WO_3 is deposited on a platinum foil and used as photo electrode. A platinum foil is used as counter electrode. A 1500W halogen lamp is used as light source.

Electrolyte solution is a mixture of 0.1M KCl and 0.1M NMF.

WO_3,Pt/0.1 M NMF//0.1 M KCl/Pt
    0.1 M KCl

RESULTS AND DISCUSSION

The sign of the open circuit voltage is found to depend upon gaseous atmosphere present at the electrode. In the absence of light the voltages are more positive in N2 than in O2. PEC cell produces a negative photo voltage and cathodic current in the presence of visible light and O2. In the presence of N2 a positive voltage is developed and anodic current is noted (table.1). If N2 atmosphere is not maintained properly, the adsorbed O2 on WO_3 electrode surface initially produces cathodic current and then anodic current as shown in (Fig.1 & 2).

Table 1-Effect Of Gaseoius Atmosphere On Photo
Voltage And Photo Current
Electrolyte: 0.1 M NMF in 0.1 M KCl
(40ml) Area of the electrode: 3 cm^2
Light source: 1000 watt halogen lamp

Gaseous atmosphere at		Open circuit photo- Voltage (mV)	Short circuit photo current (µA)	Nature of the photo- current
WO3 Electrode	Counter Electrode			
O2	O2	-160	4.1	Cathodic
O2	N2	-150	3.9	Cathodic
N2	O2	+55	1.5	Anodic
N2	N2	+53	1.1	Anodic

Photo voltage in O2 reaches a limiting value within 15 minutes. It takes longer times, 150 minutes in N2. When the light is switched off, the photo voltage of the cell in O2 decays fast while in N2 the decay is slow (Fig. 1).

The cathodic photocurrent in O2 increases steeply on illumination. It reaches a maximum value, then

Brand Heritage

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Abstract—Purpose – Brand heritage is acknowledged as one of the future priorities in branding research. Adopting it in an international context is challenging. In order to maximise its use it is necessary to know how strong it and the target country's cultural heritage are. Accordingly, the aim of the study is to construct a pioneering operationalisation of both brand and cultural heritage.

Design/methodology/approach – The study begins with a discussion on the focal concepts. Definitions are proposed and suggestions for operationalisation put forward. Thereafter, the concepts are applied in an analysis of brand heritage in different countries.

Findings – It is suggested that brand heritage is a mixture of the history as well as the consistency and continuity of core values, product brands, and visual symbols. A country's cultural heritage could be conceived of as homogeneity and endurance.

Research limitations/implications – The preliminary operationalisation of the concept needs to be further tested. Nevertheless, the clarification and suggestions offered here should open up opportunities for further research.

Practical implications – The exploitation of brand heritage in international markets is likely to be further accentuated. The operationalisations generated are easy for practitioners to apply, enabling companies to better evaluate what brand heritage means for them and to effectively plan its use in an international setting.

Originality/value – To the authors' knowledge, this study is the first to suggest operationalisations of brand heritage and cultural heritage.

Keywords: Brand heritage, Cultural heritage, International branding, Brands, Heritage Paper type Research paper

Introduction

As businesses currently face the challenge of keeping up with rapid change in areas such as technology, the brand has become one of the few resources to provide long-term competitive advantage (Lindemann, 2003). One way of dealing with the environmental turbulence is to accentuate historical elements and thereby convey stability and confidence. It has become trendy for consumers to seek consolation in the past, and brands with an image including elements such as authenticity, heritage and stability are gaining in popularity (Brown et al., 2003; Loveland et al., 2010). It has also been argued that symbolic and emotional attachment between a brand and a consumer is more probable with brands that connect heritage and authenticity to their image (Ballantyne et al., 2006).

Coincident with its current attraction to marketers, heritage is acknowledged as a key organisational resource imparting long-lasting strategic value: companies are unique in terms of their heritage, and the heritage can provide the basis for superior performance (Balmer, 2009; Balmer and Gray, 2003). Unlocking the potential hidden value of a brand's heritage may be one way of harnessing the past and the present in order to safeguard the future (Urde et al., 2007). Managers today face the challenge of marketing a brand's heritage in a way that brings out its historical reliability but does not make it appear out-dated. Indeed, it is argued that this will be the key to building successful brands in the future: due to the abundance of choice, today's marketing environment demands strong brand identities and decries imitation (Aaker, 1996; Ballantyne et al., 2006).

Coincident with the extensive research interest in brands in general is a growing fascination with nostalgia and retro brands (cf. Boutlis, 2000; Brown, 2001; Brown et al., 2003; Kessous and Roux, 2008; Loveland et al., 2010). However, research from the conceptual perspective of brand heritage is still scarce (e.g. Liebrenz-Himes et al., 2007). The studies conducted by Urde et al. (2007) and Greyser et al. (2006) are among the few thus far focusing specifically on this, whereas others only mention it in passing, and the concept still lacks operationalisation.

Despite, or perhaps because of globalisation, there is an increasing need for research on cultural differences between nations in the business context (Leung et al., 2005). There have been many attempts to measure national cultures. Most cultural mappings (e.g. Hofstede, 2001; Schwartz, 1994) emphasise differences in value priorities between individuals in a given national group in comparison with individuals inother national groups. They do not take into account how deeply rooted – or strongly inherited – these values are within a nation, however. Studies on national cultural heritage are scarce. The few that exist tend to consider heritage a cultural resource (i.e. cultural capital) and thus evaluate its benefits to a country/region (e.g. Bostedt and Lundgren, 2010), or they analyse it as a determinant of organisational behaviour (e.g. Fargher et al., 2008).

However, national cultural heritage is rarely discussed in the academic literature on marketing, except for brief references to

DIGITAL MARKETING

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Digital marketing is the marketing of products or services using digital technologies, mainly on Internet, but also including mobile phones, display advertising, and any other digital medium.

Digital marketing's development since the 1990s and 2000s has changed the way brands and businesses use technology for marketing. As digital platforms are increasingly incorporated into marketing plans and everyday life, and as people use digital devices instead of visiting physical shops, digital marketing campaigns are becoming more prevalent and efficient.

Digital marketing methods such as search engine optimization (SEO), search engine marketing (SEM), content marketing, influencer marketing, content automation, campaign marketing, data-driven marketing, e-commerce marketing, social media marketing, social media optimization, e-mail direct marketing, display advertising, e–books, and optical disks

and games are becoming more common in our advancing technology. In fact, digital marketing now extends to non-Internet channels that provide digital media, such as mobile phones (SMS and MMS), callback, and on-hold mobile ring tones. In essence, this extension to *non*-Internet channels helps to differentiate digital marketing from online marketing, another catch-all term for the marketing methods mentioned above, which strictly occur online.

History

The development of digital marketing is inseparable from technology development. One of the key points in the start of was in 1971, where Ray Tomlinson sent the very first email and his technology set the platform to allow people to send and receive files through different machines.However, the more recognisable period as being the start of Digital Marketing is 1990 as this was where the Archie search engine was created as an index for FTP sites. In the 1980s, the storage capacity of computer

Business Environment

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ABSTRACT: *Businesses do not operate in a vacuum; they operate in an environment. In this lesson, you will learn about the business environment, including what makes it up. The objectives of this paper are to develop ability to understand and scan business environment in order to analyses opportunities and take decisions under uncertainty; and to study the nature, scope and importance of business environment. Business environment is dynamic concept or a phenomenon what with emerging trends in business ethics, corporate social responsibility, corporate governance, consumer citizenship etc. Every from/manager should have a strong conceptual and policy framework to support development and use of business and environmental information in decision-making.*

Introduction

'Business and society should be setting higher horizons when considering ethical values in business. Society should not opt out from setting the framework within which business operates. Business would then be set free to generate surpluses and dispose of them within that framework, in the best possible ethical taste of human relations' - Peter Miles.

The formula for business success requires two elements – the individual and the environment. Business means an economic activity of generating income through buying and selling, manufacturing and rendering auxiliary services to trade. The term "Environment" refers to anything which surrounds a system. Therefore Business Environment means the surroundings (including human beings) in which business exists.

Every business operates in a particular environment and each business unit has its own environment. A change in environment presents opportunity to some and threats to others. Business environment is defined as the combination of internal and external factors that influence a company's operating situation, including employees, customers, management, supply and demand and business regulations. The business environment can include factors such as: clients and suppliers; its competition, and owners; improvements in technology; laws and government activities; and market, social and economic trends. Another expert has defines business environment as 'the forces, factors and institutions with which the businessman has to deal with to achieve its objectives'.

Thus, Business Environment is the sum total of all external and internal factors that influence or affect a business together. Business environment being a dynamic concept or a phenomenon what with emerging trends in business ethics, corporate social responsibility, corporate governance, consumer citizenship etc. every firm/manager

Employees Motivation and Morale Effect

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Abstract

The current study aims to examine the effect of low morale and motivation on employees' productivity and competitiveness. Low productivity and loss of competitiveness are outcomes of low morale and low motivation and may sometimes lead to further undesired symptoms such as absenteeism and sabotage.

Introduction

In general, high morale leads to high productivity; but there is not always a positive correlation between the two. Close supervision, time studies, and scientific management can be applied in order to reach a high level of productivity, but sometimes, we can reach a high productivity by low morale. We can say that managers have to work for improving the morale of their employees, as high morale makes for a better working environment, and it helps the organization to attain its goals easily.

Organizations want its employees to be more productive. But will motivation be enough to get things done? And what motivates our behavior? Employees are considered the most important resources, and the winning card in the hands of management. Low productivity may be traceable to poor employee motivation. The success and effectiveness of any firm depend to a large extent, on how well employees are motivated. Theories of human resource management, as well as theories of motivation, suggest that motivated employees tend to be more creative and productive, and it is wise for any management to use these theories in order to increase productivity and competitiveness.

Competition can be defined as a contest between individuals or groups where they strive to attain and reach particular goals. The concept of competitiveness has been linked to early socialization processes between parents and children. Parents often teach individualism to their children and this is often characterized by making distinctions between themselves and others. Motivation and competitiveness go hand in hand. Individuals who are extremely motivated are also extremely competitive as they know the way and the means to accomplish their goals. On the other hand, other individuals use competition in a negative way. These individuals use competition selfishly to achieve their goals without considering the consequences to themselves and others.

Society places great emphasis and pressure on competition. There is a controlling focus on being competitive

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SIX SIGMA –AN APPROACH

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ABSTRACT :

This concise and practical presentation will guide attendees on how to apply key principles of creating a roadmap to world class performance utilizing Operational Excellence. The presenter will explain the importance of a solid foundation or common operating picture for the organization to rally around, while driving People, Process and System engagement. Just like building a structure, it is necessary to have a solid foundation. This is no different when designing a roadmap utilizing a methodical approach the entire organization will play a part in creating and owning. Many organizations rely on Lean/Six Sigma tools and techniques alone to drive transformational results. This can initially drive efficiency gains; however, it is often not sustainable and will result in pockets of excellence, driven by a continuous improvement team and not the organizational Leadership team. Operational Excellence should be driven and owned by the entire organization to ensure transformational results, leading to world class performance. Attendees of this presentation will learn to identify a methodical approach to building a roadmap to their journey to world class performance. set of management techniques intended to improve business processes by greatly reducing the probability that an error or defect will occur.

I.   INTRODUCTION: Increasingly, healthcare work forces have begun borrowing strategies from industry to increase efficiency while improving quality. These include Six Sigma, which uses a define, measure, analyze, improve and contrl.. l n 1986, Bill Smith, a senior engineer and scientist at Motorola, introduced the concept of Six Sigma to standardize the way defects are counted.

Six Sigma provided Motorola the key to addressing quality concerns throughout the organization, from manufacturing to support functions. The application of Six Sigma also contributed to Motorola winning the Malcolm Baldrige National Quality award in 1988.

Since then, the impact of the Six Sigma process on improving business performance has been dramatic and well documented by other leading global organizations, such as General Electric, Allied Signal, and Citibank. That's why investing in Six Sigma programs is increasingly considered a mission-critical best practice, even among mid-sized and smaller firms.

Today, Motorola continues to implement Six Sigma throughout its own enterprise, and extends the benefit of its Six Sigma expertise to other organizations worldwide through Motorola University.

I. (DMAIC) methodology to address waste, system utilization, and error. In order to reduce preventable patient errors and minimize resident fatigue this methodology was introduced to a high volume surgical service.

Key Words : Balance Score Cards, Business Improvement Campaign, standard devation , Sigma level, DMADV

MICROWAVE ASSISTED ORGANIC SYNTHESIS (MAOS): A BRIEF REVIEW

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ABSTRACT:

The history of heterocyclic chemistry began in the 1800s, in step with the development of organic chemistry. Heterocycles form by far the largest of classical divisions of organic chemistry and are of immense importance biologically and industrially.

The majority of pharmaceuticals and biologically active agrochemicals are heterocyclic while countless additives and modifiers used in industrial applications ranging from cosmetics, reprography, information storage and plastics are heterocyclic in nature. For more than a century, heterocycles have constituted one the largest areas of research in organic chemistry. They have contributed to the development of society from a biological and industrial point of view as well as to the understanding of life processes and to the efforts to improve the quality of life. The presence of heterocycles in all kinds of organic compounds of interest in electronics, biology, optics, pharmacology, material sciences and so on is very well known. Between them, sulfur and nitrogen-containing heterocyclic compounds have maintained the interest of researchers through decades of historical development of organic synthesis[1]. . As an integral part of Green Chemistry, the Microwave assisted organic synthesis (MAOS) has seen tremendous development in the recent years. The microwave mediated organic reactions take place more rapidly, safely, and in an environmentally friendly manner, with high yields.

Key words: microwave, greener alternatives, recyclability, chemical entities

INTRODUCTION:

From the kitchen to the laboratory, 'microwave chemistry' has come up as a boon in disguise for the eco friendly conscious chemists, the field of Microwave assisted organic synthesis (MAOS) is much developed in the recent years. Very little solvent and even the use of water as a solvent is a big advantage of microwave chemistry. In many cases, microwave-mediated reactions are carried out in dry media on solid support, i.e. without the use of solvent. Therefore the use of toxic and expensive organic solvents can be avoided. Such reactions not only reduce the amount of waste solvent generated, but also the products often need very little or no purification. These processes will hopefully be adapted by big industries as well, thereby contributing to the betterment of the environment.[1].

Within two decades is should be possible to:

- ☐ Eliminate nearly 100% of emissions in polymer manufacturing and processing.
- ☐ Replace all solvents and acid-based catalysts that have adverse environmental effects with solids, or 'greener alternatives'.
- ☐ Achieve 30–40% reduction in waste.
- ☐ Reduce more than 50% quantity of plastics in landfills.

Heterogeneous organic reactions have proven useful to chemists in the laboratory as well as in the industrial context. These reactions are affected by the reagents immobilized on the porous solid supports and have advantages over the conventional solution phase reactions because of the good dispersion of active reagent sites, associated selectivity and easier work-up. The recyclability of some of these solid supports renders these processes into truly eco-friendly green protocols. Although the first description of surface-mediated chemistry dates back to 1924[86], it was not until the late 1970s that the technique received genuine attention with the appearance of two reviews[87], followed by a series of books and account articles[88].

Microwave reactions involve selective absorption of MW energy by polar molecules, non-polar molecules being inert to MW dielectric loss. The initial experiments with microwave techniques centered on the use of high dielectric solvents such as dimethyl sulfoxide (DMSO) and dimethylformamide (DMF).[2] The rate enhancements in such reactions are now believed to be due to rapid superheating of the polar solvents. However, in these solution-phase reactions, the development of high pressures and the use of specialized Teflon vessels and sealed containers are some of the limitations. During recent years, a practical dimension to the

RURAL MARKETING IN INDIA

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ABSTRACT :

In Indian Market structure in India is dictomous, there are two extreme end markets namely urban and rural market. The Indian rural market with its vast size and demand base offers great opportunities to Companies. In terms of number of people, the Indian rural market is arguably almost three times larger than its urban counter parts and possibly the largest untapped market in the world. The rural economy contributes nearly half of the country's GDP which is mainly agriculture driven and monsoon dependant. More than 50 percent of the sales FMCG and Durable companies come from the rural areas. The Indian market is undergoing vast changes especially after economic liberalization and globalization. The Indian rural market is grown in size and demand base offer great opportunities to the companies.

1. INTRODUCTION :

Rural Marketing - Introduction. Marketing may be described as the process of defining, anticipating and knowing customer needs, and managing all the resources of the organizing to satisfy them. The satisfaction of customer's needs and wants provides the existence for the organization. The **Rural Marketing** refers to the activities undertaken by the marketers to encourage the people, living in rural areas to convert their purchasing power into an effective demand for the goods and services and making these available in the rural areas, with the intention to improve their standard of living and achieving the company's objective, as a whole.

2. Key Words:

Urban Marketing, Rural marketing, Network Marketing, Effective demand, Consumer

3. TYPES OF MARKETING :

The Rural Marketing is a two-way process, i.e.,

- **3.1 Urban to Rural:** FMCG Goods, Agricultural fertilizers, automobiles, etc. are offered by the urban market to the rural market.

- **3.2 Rural to Urban:** The agricultural supplies viz. Fruits, vegetables, flowers, milk, etc. is offered from the rural market to the urban market.

Benchmarking Process in Organizations

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Benchmarking is a technique for assessing a firm's performance against the performance of other firms.

It is used to find the best practice and to take necessary actions to improve the firm's own performance so that it meets or exceeds that of its competitors.

The article highlights the significance of using benchmarking as performance indicators, process re-engineering and quality improvement in organizations.

The article depicts the difficulties of reaching an agreement when starting an initiative business unit and points to results and success and to problems that occurred in the benchmarking process.

The article provides useful information for organizations with existing competitive advantage and helps to find adequate methods for different purposes.

INTRODUCTION

Organizations benefit by learning from similar organizations in the industry or from other industries. They can modify their current practices in terms of the best practices available to others. This purpose is essentially served by benchmarking. Benchmarking is a comparative method where a firm finds the best practices in an area and then attempts to bring its own performance in that area in line with the best practice. It is a reference point for the purpose of measuring and when applied to work processes yields superior results. In order to excel, a firm shall have to exceed the benchmarks.

According to American productivity and quality center (APQC), "benchmarking is the process of identifying, understanding and adapting outstanding practices and processes from organization anywhere in the world by

a firm to improve its performance" (APQC, 1993). In other words, best practices are the benchmarks that should be adopted by a firm as the standards to exercise operational control. The performance of an organization can be evaluated continually till it reaches the best practice level by using benchmarking. However, benchmarking offers firms a tangible method to evaluate performance.

What is to be benchmarked?

Benchmarks are set with respect to critical areas of strategic and operational significance that influence an organization's performance. These could be well-known problem areas in an organization that could be clearly defined or activities/processes where improvements result in maximum benefits (according to Pareto's 80/20 rule). Benchmarking may be carried out with respect to activities and processes such as; strategic planning, decision processes, accounting systems, internal communication systems, manufacturing processes, reward systems, strategic HRM, employee training, distribution logistics, customer service, etc. For example, Xerox Corporation routinely buys copiers made by other firms and takes them apart to see how they work. This helps the firms to stay abreast of its competitor's improvements and changes.

Employee Relation in India – A Theoretical approach

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ABSTRACT

Employee relation is the vital in an organization for the climbing as per marketing standards because the employee's work is investment to the organization where the employee should feel to work as per the Henry Fayol's 14th Management principle Esprit decorps which means feeling pride regarding to an organization to maintain sustainability internally which reflects the output of an organization. When employee relations maintains in harmony environment then the Industrial environment will be in top ward direction. Reducing the levels of conflicts in employee working place is the main agenda of Employee relations.

KEY WORDS: Employee Relations, Workplaces, Industrial Relations, Harmony, Esprit decorps,

1.INTRODUCTION:

The success and failure of any organization is directly proportional to the labor put by each and every employee. The human beings working together towards a common goal at

Leadership & Motivation

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Abstract: Leadership & Motivation are both interrelated things where Leadership reflects in physical world and Motivation is psychological process what to execute which makes the organization to run in profit section. Motivation is a internal feeling that includes every individual in an organization to perform the specific action. To cross check the action of performance or result of an action the Leadership is needed. The Leaders guide the followers not in a coercion order to achieve the specific goals.

1. **Introduction:** Leadership is the ability of an individual to influence, motivate and enable other to contributes towards the effectiveness and success of an organization. Leaders help and Motivate the employees to carry out their tasks enthusiastically and achieve the organization objective. Leaders are mainly responsible for the success or failure of the firms. An effective leader through his leadership process encourages and motivates the employees towards high performance. Motivation can be buildup in a person or a group by providing rewards and penalties, an individual with high motivation level experience high moral.

2. **Types of Leadership:**

Behavior is regarded as most important element of leadership style and distinguishes a leader from other elements

1. Autocratic leadership,
2. Participative & Democratic leadership &
3. Free rein style of leadership – Laissez – faire leadership

2.1 Autocratic leadership: In this style, leader takes decisions by own / themselves. Leaders are very confident in decision making and they feel that group members should act accordingly. Autocratic leader concentrate on completing the task oriented leader. An autocratic leader makes independent decisions, instructs and informs the employees aboout their task and carefully supervises them.

Errors to Eradicate - To reach from College to Corporate Through Collaborative Learning

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Abstract

The specific objectives of the study is to determine the types of errors and the changes in grammatical accuracy during the duration of the English for Social Purposes course focusing on oral communication. Error analysis of oral interactions showed that the five common grammar errors made by the learners are preposition, question, and article, plural form of nouns, subject-verb agreement and tenses. The results also showed an increase in grammatical accuracy in the students' spoken English towards the end of the course. This paper would be helpful to solve the problems through collaborative learning.

Keywords: Grammatical accuracy, Collaborative learning, and Aural communication,

Introduction: Achieving effectiveness in communication requires communicative competence which is the mastery of the knowledge of language and the ability to use the knowledge in actual communication. Studies on linguistic accuracy in written texts have focused on the sources of the errors, among which is L1 (first language) interference. The studies reviewed thus far are error analysis of written student texts, and indicate some frequent types of grammatical errors but there is no common pattern across groups of learners with different characteristics. A search of literature on error analysis of spoken texts in English indicated a near absence of attention in this domain.

Studies on spoken English tend to deal with areas such as speaking skills. However, the grammatical accuracy in spoken language is different from written language. This paper sets out major benefits of collaborative learning is an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product. The benefits of learning in collaboration style, begins

With the concept of the term and continues with the advantages created by collaborative methods.

Expectations from the corporate world:

Now a day there is a lot of expectations from the corporate world. The corporate are not only looking for graduates who posses good aggregate but also for a graduate with an excellent communication skills which is the main source of the business development. The entire business runs over discussions, delegations, business emails, customer service etc where communication only plays a key role in it. The below image shows the career development of a graduate to meet the corporate standards.

The following are some of the expectations from the corporate:

- Communication Skills
- Knowledge Beyond the Textbooks
- Ability to Lead
- Positive Approach
- Willingness To Travel
- Ability to Multitask (Nair)

Massive Open Online Course (Moocs) In India: An Overview

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ABSTRACT

Massive Open Online Course (MOOCS) is an online course aimed at unlimited Participation and open access Via the Web. MOOCS Provide interactive user forums that help build a community for students, Professors and Teaching assistants. MOOCS have recently received a great deal of attention from the media, Entrepreneurial venders, Education Professionals and Technologically literate sections of the public. MOOCS will provide free to access cutting edge courses to students of higher education in India. In recent years, the enrolment in massive Open online Course (MOOCS) has increased tremendously. India after USA is dominating the global growth in enrolments. Seeing the growth of enrolment from the country and satisfy their need of education. India has started various projects for offering MOOCS courses. Currently, NPTEL, MOOKIT, IITBX and SWAYAM are the platforms used in India for offering courses. In this paper, a theoretical and Technical back ground of these platforms is provided with a discussion of their features of MOOCS. There are some challenges that are faced in implementing MOOCS in India. It finally discuss about issues address by SWAYAM.

KEY WORDS

MOOCS,NPTEL,SWAYAM,Indian MOOCS platform

I. INTRODUCTION

 Online learning uses technology for delivering the courses. Education with technology is considered as most promising development in education. With technology globalization, the concept of learning and teaching has undergone a tremendous change. Technological usage in education provides global learning environment, which allows accessing the course material anytime, anywhere, connect other learners,

THE EFFECT OF RADIALLY VARYING MHD AND MASS TRANSFER ON PERISTALTIC FLOW OF WILLIAMSON FLUID IN A VERTICAL ANNULUS

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Abstract

In the present paper, we have investigated the influence of the effects of radially varying MHD and mass transfer on peristaltic flow of Williamson fluid model in a vertical annulus. The governing equations of Williamson fluid model are simplified using the assumptions of long wavelength and low Reynold's number. An approximated analytical solution has been derived for velocity field using Perturbation method. The expressions for pressure rise are calculated using numerical integration. The graphical results are presented to interpret various physical parameters.

Keywords
Peristaltic flow, Williamson fluid, Annulus, Perturbation solution, MHD.

I. INTRODUCTION

The study of peristaltic transport has enjoyed increased interest from investigators in several engineering disciplines. From a mechanical point of view, peristalsis offers the opportunity of constructing pumps in which the transported medium does not come in direct contact with any moving parts such as valves, plungers, and rotors. This could be of great benefit in cases where the medium is either highly abrasive or decomposable under stress. This has led to the development of fingers and roller pumps which work according to the principle of peristalsis. Applications include dialysis machines, open-heart bypass pump machines, and infusion pumps. After the first investigation reported by Latham [1], several theoretical and experimental investigations [2–6] about the peristaltic flow of Newtonian and non-Newtonian fluids have been made under different conditions with reference to physiological and mechanical situations.

The peristaltic transport of magnetohydrodynamic (MHD) flow of a fluid in a channel is of interest in connection with certain problems of the movement of conductive physiological fluids, e.g., the blood, blood pump machines and with the need for experimental as well as theoretical research on the operation of a peristaltic MHD compressor. Effect of a moving magnetic field on blood flow was investigated by Sud et al. [7], and they observed that the effect of suitable moving magnetic field accelerates the speed of blood. Agrawal and Anwaruddin[8] developed a mathematical model of MHD flow of blood through an equally branched channel with flexible walls executing peristaltic waves using long wave length approximation method and observed, for the flow blood in arteries with arterial disease like arterial stenosis or arteriosclerosis, that the influence of magnetic field may be utilized as a blood pump in carrying out cardiac operations. The principle of magnetic field is successfully applied to Magnetic Resonance Imaging (MRI) when a patient under goes in a height static magnetic field. Abbasi et al.[9] developed a mathematical model on peristaltic transport of MHD fluid by considering variable viscosity. Moreover, the influence of magnetic field on peristaltic flow of a Casson fluid in an asymmetric channel was studied by Akbar[10] who has also investigated the characteristics of fluid flow in tabular harmonizes by considering long wave length and low Reynolds number approximations [11]. Mahmoud [12] et al. have also examined Effect of porous media and magnetic field on peristaltic transport of a Jeffrey fluid in an asymmetric channel..

The peristalsis in the presence of heat transfer is imperative in many processes as oxygenation and

A REVIEW ON APPLICATIONS OF GRAPH ISOMORPHISM AND DOMINATING SET

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ABSTRACT

The paper concentrates on the domination in graphs with application during a graph G = (V, E), S ⊆ V could be a dominating set of G if each vertex is either in S or joined by a grip to some vertex in S. many various kindsof domination are researched extensively this paper explores applications of dominating sets.

Graphs are thought of as a superb modeling tool that is employed to model several sort of relations amongst any physical scenario. This Paper explores totally different ideas concerned in graph theory and their applications in engineering, chemical science etc to demonstrate the utility of graph theory

Key words: Graph isomorphism, Dominating set,Isomers

I.INTRODUCTION

Graph   theory may   be   a branch of distinct arithmetic.
In arithmetic and technology graph theory is that the study of graphs that are mathematical structures wont to model try wise relations between objects. There's wide use of graphs in providing drawback finding techniques in1977 Cockayne and Hedetniemi created a noteworthy and in depth survey of the results apprehend at that point regarding dominating sets in graphs. Graph theory is one in every of the foremost

flourishing branches of recent arithmetic and pc applications. It's a awfully big selection of

applications to several fields like engineering,physical,social and chemical sciences etc.
Graph Theory – Isomorphism: A graph can exist in different forms having the same number of vertices, edges, and also the same edge connectivity. Such graphs are called isomorphic graphs.
In graph theory , a dominating set for a graph = (,) is a subset D of V such that every vertex not in D is adjacent to at least one member of D
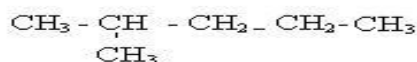
2.APPLICATION IN CHEMICAL SCIENCE

Organic chemistry is one of the sources of
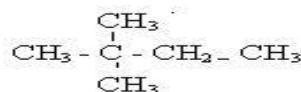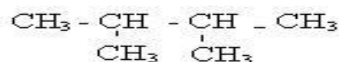graph theory. By using graph isomorphism[5] we can identify

FIGURE-1

$$CH_3 - CH_2 - CH_2 \_ CH_2 - CH_2 - CH_3$$

Hexane

$$CH_3 - CH \ - CH_2 \_ CH_2 - CH_3$$
$$CH_3$$

2-Methyl pentane

$$CH_3 - CH_2 - CH \ - CH_2 - CH_3$$
$$CH_3$$

3- Methyl pentane

$$CH_3$$
$$CH_3 - C - CH_2 \_ CH_3$$
$$CH_3$$

2.2 - Dimethylbutane

$$CH_3 - CH \ - CH \_ CH_3$$
$$CH_3 \quad CH_3$$

2,3- Dimethyl butane

STRUCTURE AND FTIR STUDIES OF Na_2O-Bi_2O_3-B_2O_3 GLASSES DOPED WITH V_2O_5

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Abstract— Alkali oxy borate glasses are well known due to their variety of applications in phosphors, solar energy converters and in a number of electronic devices. These glasses have high mechanical strength when compared with the pure borate glasses. On the other hand heavy metal oxide (Bi_2O_3) glasses going to high refractive index such glasses exhibit non-linear effects V_2O_5 is known to have a structure composed of VO_5 pyramids. Several vanadate glasses show a semi conducting behavior with the electrical conductivity of 10^{-3} to 10^{-5} (ohm-cm) which is known to be electron transfer between V^{4+} and V^{5+} ions, existing in the structure of the glass. Further the conductivity in these glasses can be explained by a small polaron hopping theory. Further vanadium glasses are identified as n-type semiconductors for the low value of V^{4+}/V^{5+} ratio. Vanadyl ions are expected to dissolve easily in borate network virtually no devoted studies on spectroscopic studies such as FTIR on alkali bismuth borate glasses doped with V_2O_5 transition metal are available. Understanding over the influence of V_2O_5 on the structural aspects of Na_2O- Bi_2O_3- B_2O_3 a systematic study of XRD, FTIR spectra. The following composition is chosen for the present study:
10   Na_2O- $(20-x)Bi_2O_3$-70 B_2O_3:x V_2O_5 with x ranging from 0 to 2.0 wt%

Keywords—FTIR,XRD,Borate Glass,Vanadium,Polaron radius

Introduction

The physical properties of the glasses is of considerable importance because of the insight it gives into the fundamental process-taking place in them. Such a study paved the way for the application of some of these glasses in technology. In fact, the physical properties of the glasses are to a large extent controlled by the structure, composition, and the nature of the bonds of the glasses. The investigation of the changes in the physical properties of glasses with controlled variation of chemical composition, doping etc., is of considerable interest in the application point of view.

Materials prepared from a melt quenching are often referred to as glasses. Unlike crystals, these materials do not possess the long-range periodicity of the arrangement of the atoms. However the building block, (AO_3^{-3} triangle, where A stands for metal) which is known as short-range order, is retained in the glass. These materials possess ionic as well as covalent bonding interaction.

When a liquid is cooled from high temperature, crystallization may take place at the melting point T_m. If the crystallization takes place, there will be abrupt change in the volume at T_m and if the glass formation takes place, there will be a gradual break in slope. The region over which the change of slope occurs is known as glass optical absorption transition temperature T_g. This process of changes in volume with temperature as a super cooled liquid is cooled through the glass transition temperature T_g is illustrated Fig. 1.1.

Why do certain materials readily form glasses on cooling a melt and why do only certain chemical compositions of materials have a greater glass-forming tendency? To the present day, the perfect knowledge on the answers of these questions is lacking. However, there are several factors which play a significant role in determining the ease of glass formation, for example, chemical or structural properties of the glass system, thermodynamic or free volume aspects of the materials, the average atomic coordination number etc.

The credit of first successful attempt to categorize the materials into glass formers and non-glass formers goes to Zachariasen[1]. He prepared the glasses with five oxide materials

INSILICO ANALYSIS OF ANTIFUNGAL EFFICACY OF CURCUMIN

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Abstract

Curcumin is one of the medicinally important phyto-ingredient present in turmeric and belongs to a class of polyphenols. Curcumin is a well known antifungal compound. In the present study, insilico analysis of antifungal efficacy of curcumin has been done by molecular docking method. Geometry of curcumin has been optimised using Gaussian 09 program, utilizing the B3LYP method and the 6-31g(d) basis set and are characterised by frequency analysis. The optimised structure of curcumin is docked with the most potential antifungal target - Glucosamine-6-phosphate synthase using Autodock tools. The binding energy is found to be -8.74 kcal/mol. The binding efficacy of curcumin with the target protein is determined by comparing the calculated binding energy (-8.74 kcal/mol) with that of an antifungal drug - Fluconazole (Diflucan) (-5.84 kcal/mol). The binding efficacy is found to be remarkable and are greater than the Fluconazole drug.

Key words: Glucosamine-6-phosphate synthase, Curcumin, antifungal, docking, binding energy.

Introduction

Medicinal plants are widely used as preventive and curative solutions against different common as well as lethal diseases in our ancient culture. Ayurveda, an ancient Indian medicinal system has therapies based on complex herbal compounds, mineral and metal substances. Among many plants, Ayurveda's golden botanical is *Curcuma longa* (Zingiberaceae family), the rhizome of which yields a golden yellow powder - turmeric, an imperative household spice of Asia (Figure 1). Curcumin (diferuloylmethane) is one of the medicinally important phyto-ingredient present in turmeric and belongs to a class of polyphenols (Figure 2).

Figure 1. *Curcuma longa*

Figure 2. The structure of curcumin.

Curcumin possesses many therapeutic properties such as anti-inflammatory, antioxidant, anticancer, antibacterial, antifungal, antimalarial and wound healing properties [1]. As a folk remedy of ancient medicinal system to current clinical trials, curcumin has though been exhausively studied and reviewed, still research on its

WRITING SKILLS A USEFUL TOOL FOR SUCCESSFUL PROFESSIONALS

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Abstract:We all know that in today's scenario getting a job is just not enough, but also we need to keep it in our hands as well as get career development in the same field or the other.To maintain the graph of success people have to constantly work on LSRW skills. Being a professional they must have to focus on Speaking and Writing. Writing is tool which can give a boost to their professional life. In this paper we will discuss how one can get command over Writing Skills, prepare and present impressive business documents.

Keywords:

Writing skills, types of writing, business documents, Strategies of business writing. Example test

I.Introduction

Writing skills are specific abilities which help writers put their thoughts into words in a meaningful form and to mentally interact with the message. (slideshare)

Writing is process of formation of acceptable words into sentences. It is also known as productive/active skills. Few linguistic gave a Psycho motor and graphic motor terms to writing skills

Writing Skills:

Writing is depending on spelling, hand writing, punctuation marks, grammar and tenses. One has to have command on these things he/she can prepare a good document.

Types of writing:

There are four main types of writing: expository, persuasive, narrative, and descriptive.Expository – Writing in which author's purpose is to inform or explain the subject to the reader.

Examples: research Oriented Articles, reviews,

1. Persuasive – Writing to influence or inspire the people and make them to know more about something.
Examples: Brochures Articles in news papers.

2. Narrative – this type of writing deals with a form of writing that may be factual or fictional(imaginary)
Examples: Novels, Plays, Short Stories, Imaginative essays
.

3. Descriptive_ It is a writing which is written to describe a person or a thing or an incident or an event, this is most common of writing in the academics. Examples: Lessons in text book.

Business Writing (BW)

The Business Writing Skills is the ability to prepare impressive, meaningful, effective, clear and precise document such as e-mail, memos, letters, proposal and reports.

Successful professionals will always prepare precise but meaningful all types of business documents.

All type of writing should have atleast 3 paragraphs.

Introduction

Main body

Conclusion

In introduction part of letters or emails writer should give clear information and reason for writing.

In main body explanations and justifications should be given in details. This part can have more than 1 paragraph, depending upon the topic. In conclusion writer must have to give the gist of the main body, and expectation for actions/reply.

Purpose of Business Writing:

Business writing has specific goals. There are clear and fixed reasons for business writing.

Reasons for Business writing:

Convey Information:

Business Writing is very useful to distribute knowledge.

Example: Research Reports, Policy Memorandums.

Deliver News:

It is often used to share the news/events, planning for future activities inside and outside of organization.

Examples: Circulars, Quick memo, business events pamphlets.

Direct Action:

BW is used by seniors or authorized person to inform about the action, to give the order and provide guideline to implement the ideas.

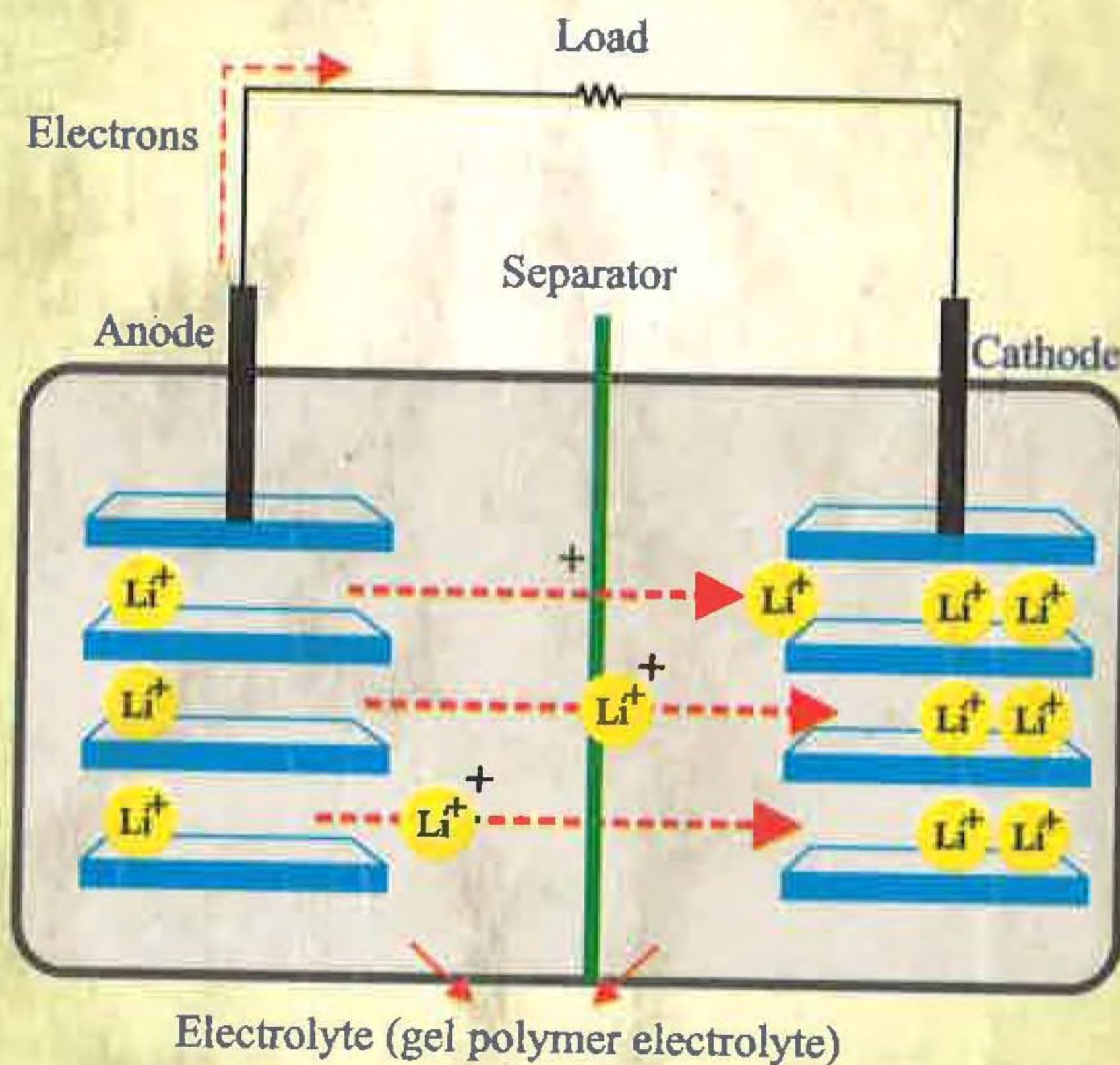Examples: CEO's, Team Leader's letter or memo for command/order.

CH102BS/CH202BS

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CHEMISTRY

As per the JNTU (Hyderabad) Syllabus

FOR
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- II Semester Civil, ME & AE Students

Load

Electrons

Separator

Anode

Cathode

Li^+ Li^+ Li^+ Li^+ Li^+ Li^+

Li^+ Li^+ Li^+ Li^+ Li^+ Li^+

Li^+ Li^+ Li^+ Li^+ Li^+

Electrolyte (gel polymer electrolyte)

With
Descriptive Questions
&
Short Q & A

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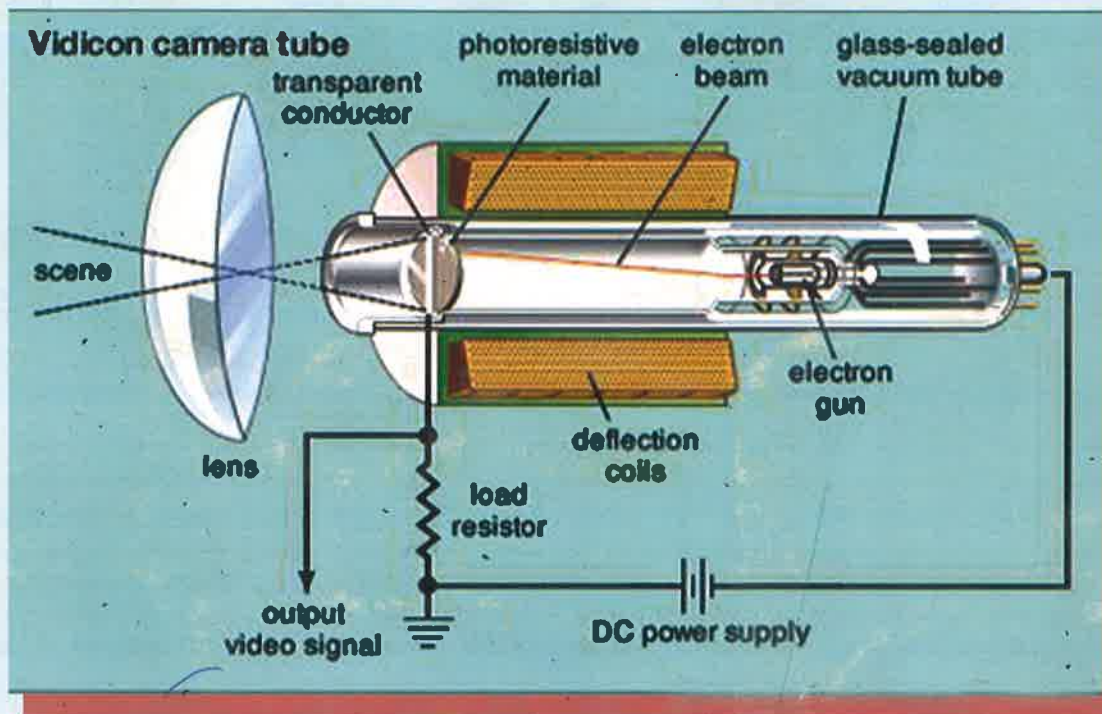
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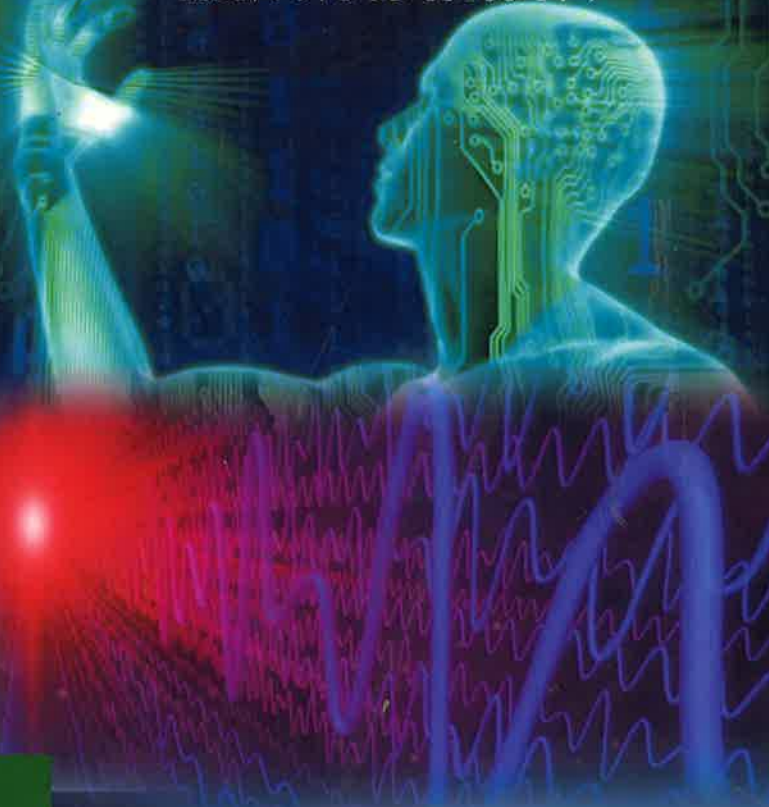
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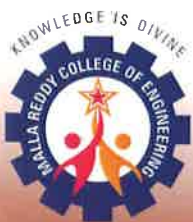
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