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MAXIMIZATION OF PHOTOVOLTAIC ENERGY GENERATION BY TIME AND LOCATION BASED SUN TRACKING SYSTEM

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ABSTRACT

This paper presents time and location based sun tracking system which maximizes the exposure of the sun to the photovoltaic panel used for energy generation. This unprecedented tracking system is location and time agnostic which facilitates an easy installation at any place without any manual calibration. The system works on Program Logic Controller, which is programmed in such a way that it calculates the position (inclination) of the panel based on the current time and location. An experimental prototype is built and deployed for which calculations and inclination control approach is presented, as a proof. It is found that the average power generation is increased using the proposed novel tracking system.

KEYWORDS: Solar Tracking, Photovoltaic panel & Program Logic Controller

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Original Article

INTRODUCTION

Our ecosystem and the earth's climate and weather is sources of sun's energy, that is sunlight. Harnessing this energy for electrical power is the greatest potential of all sources of renewable energy, a low carbon energy source and an attractive way of soothing the climate change. Solar technologies are already in use in many countries to enhance the standard of living and is a natural choice where solar influx is high and grid services are unavailable Solar electricity can be generated using photovoltaic (PV) panels. These panels are suitable for use on roofs and are manufactured in sufficient quantity. Also the electricity generated from these panels in favourable locations has reached grid parity. It is possible to sell surplus electricity back to the grid if a feed-in tariff is in place. However, the best utilization of the solar energy is when the sun and the young flowers are in the same line, rotating from east to west. And this process is referred to as heliotropism. It's a clever bit of natural engineering. Similarly a solar tracking system based on the current location on the earth during the day, this scheme is designed for power generation from the sunlight. In this a GPS system is used to calculate the position of the solar panel. The functions of the photovoltaic panel, at regular time-base are pre-programmed. In this scheme the maximum day light is utilised by the solar panel to generate the power to its fullest capacity.

SOLAR TRACKING SYSTEM

There are significant efforts on the optimization of sun tracking systems as it is documented by several registered international patents. The above described principle is based either on the quantification of the energy received from the sun or on the maximization of the solar incident radiation through the use of light concentrations lens [1], [2]. The result of this study in innovative in connection with the above referred approaches as this system

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DESIGN AND FABRICATION OF UNMANNED ARIAL VEHICLE FOR MULTI-MISSION TASKS

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ABSTRACT

The design for UAV was planned taking into account the real-life engineering problems such as different phases involved in developing a product. Here the task is to design, create, build and test a remote-control airplane. The planning and designing of an aircraft must start from the scratch, with lots of restrictions and parameters, like a specific motor to be used from the wing profile, dimensions, centre of gravity, materials and other features which are all involved in the process. The main objective of this UAV is to design an aircraft which is efficient during emergency situations and is capable of dropping packages from a minimum height of 100 feet off the ground. A vision-based control strategy is used in this to track and follow objects using an unmanned aerial vehicle (UAV). This unmanned aerial vehicle is created in such a way that it can be used in multi-mission tasks too. The most favorable design must be of one which can perform efficiently, cost-effectively and carry as many payloads as possible, and all these without negotiating on the safety of the aircraft.

KEYWORDS: UAV, Cd & Cl

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Original Article

1. INTRODUCTION

Most of the Unmanned Aerial Vehicles are used for surveillance and defense activities. UAVs are preferred for missions that are too "dull, dirty or dangerous" for manned aircrafts. The main aim is to design and build a remote piloted heavy-lift aircraft, which can carry payload, maintain aircraft stability, dropping the payload precisely and landing successfully. Challenges involved in designing and building the aircraft include, wing design, stabilizer design, stability, weight reduction and structural integrity. This involves detailed software analysis, experimental data and expert validation to back the optimization. Unmanned Aerial System (UAS) should be capable of accurately dropping humanitarian aid package from a minimum height og 100 feet above the ground. Figure 1 illustrates a common UAS and the various elements are combined to create the system. UAVs are implemented for multiple mission tasks such as; Agriculture, Surveillance, Aerosol Sampling, Detection of Illegal Imports, Electronic Intelligence, Port Protection, Over-Beach Reconnaissance, Forest Fire Detection and Archeology.

Presently UAV is designed and fabricated using various methods of manufacturing taking into consideration lightweight materials mentioned in section three. The major consideration is to design a wing and stabilizer for the purpose of stability in drop-ply mechanism. ANSYS computational has been used for the analysis

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PASSIVE CONTROL OF BASE DRAG IN COMPRESSIBLE SUBSONIC FLOW USING MULTIPLE CAVITY

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ABSTRACT

Compressible flow in a suddenly expanded square duct was investigated experimentally to assess the effectiveness of the passive control in the form of the cavities. The flow parameters studied were the Mach number, nozzle pressure ratio, L/W ratio, and area ratio. The test were conducted for multiple cavities and without multiple cavities. From experimental results it is seen that the multiple cavity has a very good effect in reduction of base drag by decreasing the base suction and hence increasing the base pressure. From experimental investigation it is found that for all the L/W ratios the effect of multiple cavities are able to control the base pressure, further, it was seen that with the increase in the duct length control is becoming very effective. The wall pressure in the duct indicates that the passive control in the form of cavity do not disturb the flow field in the duct.

KEYWORDS: Wall Pressure, Base Flows, Cavity, Mach number & Square Duct

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INTRODUCTION

The backward facing step (BFS) is one of the most fundamental configurations to study flow separation and following attachment which occurs due to the sudden expansion in the flow passage. The existence of flow separation and reattachment plays an important role in many engineering applications such as combustors, diffuser, electronic and turbine blade cooling as well as in external flows such as aircraft. For this reason, several studies on the flow separation and reattachment of the BFS geometry have been presented numerically and experimentally by many researchers in the past decades. Among these studies, the effect of Reynolds number, step height, aspect ratio has been reported for the 2D and 3D flows, which brought to insight for understanding the flow characteristics of the BFS configuration. Their attachment point spreads within a certain span along the streamwise distance, which is referred to as the reattachment zone. These three regions in whole, comprise the important features of a BFSX flow that can be altered or controlled to achieve desired outcome, such as, enhanced mixing characteristics and reduced drag, noise and vibrations. Hence it is essential to understand these flow features to control the parameter of interest to study the wake characteristics of a BFS flow. With the advancement in technology and the recent discovery of the coherent structures in the shear layers more research has shifted their interests to studying these turbulent structures. Suddenly expanded flows occur when a body moving with a certain speed subjected to suddenly expanded flows on the external force of the body, flow circulation, reattachment and operation of flow may take

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WASTAGE MINIMIZATION AND MANUFACTURING COST REDUCTION IN RAW EDGE COGGED BELTS BY LEAN MANUFACTURING METHOD

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ABSTRACT

Lean manufacturing or lean production, often simply "lean", is an organized method for waste minimization within a production system without sacrificing productivity. Lean also receives into account waste formed in the course of overburden and waste created through roughness in workloads. This paper deals with the lean manufacturing concept by eliminating waste at the same time, productivity improvement in the manufacturing of raw edge cogged belts by increasing the length of the mould from 650mm to 800mm. By implementing this concept, the productivity is increased by 18% and also the process wastage is reduced by 20%. After making all the corrections and improvements in the industry, the belt is produced and the product is checked to meet the customer requirements.

Keyword: Lean manufacturing, waste minimization, value stream mapping, cause and effective diagram, productivity improvement
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1. INTRODUCTION

In any automotive industry has been experiencing a competitive Environment and striving hard to find methods to reduce Waste, decrease manufacturing cost and improve quality. Lean Manufacturing concepts are used by the industries to reduce work in progress inventories and also to reduce the waste for competing in the global market. The ultimate goal is to speed up the process there by increasing productivity through a proper utilization of man and machine. In a manufacturing industry, the layout and material flow in the shop floor and Material handling system decides its productivity and cost of the product. The manufacturing industry

Cloud Storage Using Operation Record Table and Data Integrity Verification

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Abstract- As crucial software in cloud computing, cloud garage offers consumer scalable, flexible and excessive first-rate statistics garage and computation offerings. A developing number of data owners pick to outsource information documents to the cloud. Because cloud garage servers aren't fully trustworthy, information owners need reliable approach to test the possession for his or her documents outsourced too far off cloud servers. To deal with this vital problem, a few faraway statistics ownership checking (RDPC) protocols were supplied. But many existing schemes have vulnerabilities in performance or facts dynamics. In this paper, we offer a new green RDPC protocol based totally on homomorphic hash function. The new scheme is provably relaxed towards forgery attack, replace attack and replay assault primarily based on an average security model. To guide facts dynamics, an operation file desk (ORT) is delivered to track operations on document blocks. We similarly deliver a brand new optimized implementation for the ORT which makes the cost of getting access to ORT almost constant. Moreover, we make the complete performance evaluation which suggests that our scheme has advantages in computation and verbal exchange costs. Information protection, from time to time shortened to InfoSec, is the exercise of stopping unauthorized get right of entry to, use, disclosure, disruption, modification, inspection, recording or destruction of facts. It is a general time period that may be used irrespective of the shape the information may take (e.g. Digital, bodily). Network protection consists of the rules and practices adopted to save you and monitor unauthorized get admission to, misuse, modification, or denial of a computer community and community-available resources. Network protection includes the authorization of get admission to information in a network, that's controlled by using the network administrator. Users choose or are assigned an ID and password or different authenticating facts that permits them get admission to statistics and packages inside their authority. Network protection covers a selection of laptop networks, both public and personal, which can be utilized in normal jobs; carrying out transactions and communications among groups, government businesses and individuals. Networks may be non-public, along with inside a enterprise, and others which is probably open to public get entry to. Network safety is worried in companies, businesses, and other sorts of establishments. It does as its name explains: It secures the community, as well as protective and overseeing operations being performed. The maximum not unusual and easy manner of protecting a network aid is by assigning it a unique call and a corresponding password.

Keywords- SHA-256 algorithm, Hash Code for checking, RDPC, Operation Record Table.

I. INTRODUCTION

Cloud computing emerges as a unique computing paradigm subsequent to grid computing. By dealing with a great variety of dispensed computing assets in Internet, it possesses large virtualized computing capacity and storage space. Thus, cloud computing is extensively customary and used in many actual applications. As an crucial service for cloud computing, cloud service issuer elements dependable, scalable, and occasional-cost outsourced garage service to the customers. It affords the users with a greater flexible way referred to as pay-as-you-pass model to get computation and garage resources on-call for. Under this version, the users can rent necessary IT infrastructures in step with their requirement in place of purchase them. Thus, the up-the front funding of the users may be reduced greatly. In addition, it's far convenient for them to regulate the ability of the rented aid while the scale in their programs changes. Cloud service company tries to offer a promising carrier for data storage, which saves the users charges of funding and aid. Nonetheless, cloud garage additionally brings numerous protection problems for the outsourced information. Although a few protection problems had been solved, the critical challenges of statistics tampering and records lost still exist in cloud storage. On the one hand, the coincidence disk error or hardware failure of the cloud garage server (CSS) may also purpose the sudden corruption of outsourced documents. On the alternative hand, the CSS is not fully straightforward from the perspective of the facts proprietor, it may actively delete or modify files for great economic advantages. At the same time, CSS may also hide the misbehaviors and data loss accidents from statistics proprietor to preserve an awesome popularity. Therefore, it is vital for the information proprietor to utilize an efficient manner to test the integrity for outsourced information. Remote data ownership checking (RDPC) is an powerful approach to make sure the integrity for facts documents saved

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A Survey on a System for Providing Secure and Private Proofs of Location based Activities

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Abstract:Movement based interpersonal organizations, where individuals transfer and offer data about their area based exercises, are progressively prominent. Such frameworks, be that as it may, raise protection and security issues: The specialist organizations know the correct areas of their clients; the clients can report counterfeit area data keeping in mind the end goal to, for instance, unduly boast about their execution. Notwithstanding, they raise protection and security issues: the specialist organizations know the correct areas of their clients; the clients can report counterfeit area data, for instance, to unduly boast about their execution. In this paper, we show Secure Run, a safe protection saving framework for announcing area based action rundowns SecureRun depends on a mix of cryptographic systems and geometric calculations, and it depends on existing Wi-Fi passageway systems conveyed in urban territories. We assess SecureRun by utilizing genuine informational indexes from the FON hotspot network systems and from the Garmin Connect movement based interpersonal organization, and we demonstrate that it can accomplish tight obvious lower-limits of the separation secured and of the rise pick up, while ensuring the area protection of the clients as for both the informal community administrator and the passage arrange operator(s). We assess Secure Run by utilizing genuine informational collections from the FON hotspot network systems and from the Garmin Connect movement based interpersonal organization, and we demonstrate that it can accomplish tight (up to a middle precision of in excess of 80 percent) unquestionable lower-limits of the separation secured and of the height pick up, while ensuring the area protection of the clients regarding both the informal organization administrator and the passageway arrange operator(s). The consequences of our online review, directed at Run Keeper clients enlisted through the Amazon Mechanical Turk stage, feature the absence of mindfulness and huge worries of the members about the protection and security issues of action following applications. They likewise demonstrate a decent level of fulfillment with respect to Secure Run and its execution.

1.Introduction: In the course of the most recent couple of years, the nearness and utilization of inserted sensors in cell phones has altogether expanded. Area based administrations (LBSs) are presently ready to keep clients educated about activity conditions, occasions occurring in closeness and the adjacent nearness of other individuals with comparable premiums. All the more as of late, LBSs have turned out to be progressively utilized by individuals to track, screen and offer their physical exercises and execution after some time; specifically, wellbeing and health related applications, for example, Achievement [1] and Garmin interface, empower clients to monitor their execution while running, climbing or cycling. In the present type of such frameworks, the clients' cell phones gather and send the clients' areas to the specialist co-op. 1 A mainstream highlight of such applications is the capacity to share outlines of clients' exercises or execution measurements with different clients or specialist co-ops on interpersonal organizations. For example, clients can share the aggregate separation secured amid their exercises, the total rise pick up and the real way. In return for their information, clients are compensated with coupons and rebates or even with money [1], with grants in rivalries, or essentially with a superior "social notoriety". In spite of the fact that movement following and sharing administrations are picking up prevalence, there are two imperative issues that can obstruct their wide-scale reception and feasibility. To start with, clients' area information, which is known to specialist co-ops, can be utilized to induce private data about them, for example, their home/work areas, movement inclinations, interests and interpersonal organizations.

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An Efficient Random Valued Impulse Noise Suppression Technique Using Artificial Neural Network and Non-Local Mean Filter

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ABSTRACT

A new technique for suppression of Random valued impulse noise from the contaminated digital image using Back Propagation Neural Network is proposed in this paper. The algorithms consist of two stages i.e. Detection of Impulse noise and Filtering of identified noisy pixels. To classify between noisy and non-noisy element present in the image a feed-forward neural network has been trained with well-known back propagation algorithm in the first stage. To make the detection method more accurate, Emphasis has been given on selection of proper input and generation of training patterns. The corrupted pixels are undergoing non-local mean filtering employed in the second stage. The effectiveness of the proposed technique is evaluated using well known standard digital images at different level of impulse noise. Experiments show that the method proposed here has excellent impulse noise suppression capability.

KEYWORDS

Artificial Neural Network (ANN), Image Denoising, Peak Signal-to-Noise Ratio (PSNR), Random Valued Impulse Noise (RVIN)

INTRODUCTION

Image denoising is one of the widely studied unsolved problems and plays a significant role in the research area of image processing and computer vision. Most of the time images are contaminated by impulse noise during the process of image acquisition or at the time of transmission due to malfunctioning image pixels in the camera sensors, channel transmission errors or faulty storage hardware. Therefore, a pre-processing stage is always required before processing an image for any application. Noise filtering is one of the important parts of this stage. The objectives of image denoising algorithms are to detect and suppress the unhealthy pixel elements in the test image without harming the fine details of the image. Impulse noise found in digital images is a spark that disturbs the information contain in the images. It distorts the pixels of a digital image by replacing the original value either by fixed value or any random value within the available dynamic range. So there are two categories of impulse noise as per the distribution of noise in an image: salt and pepper noise (SPN) and Random valued impulse noise (RVIN) (Dey, Ashour, Beagum et al., 2015) (Ikeda, Gupta, Dey et al., 2015). Impulse noises can be mathematically described by the following model (Patel, Jena, Majhi & Tripathy, 2012):

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ZnO wrinkled nanostructures: enhanced BTX sensing

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Abstract
Zinc oxide nanostructured thin films were deposited at different substrate temperatures on a glass substrate with spray pyrolysis method. The effect of substrate temperature on microstructural, morphological, optical properties of the thin films has been studied systematically using X-ray diffraction (XRD), Raman spectroscopy, atomic force microscopy, scanning electron microscopy (SEM) and UV–Vis spectroscopy. The XRD pattern shows polycrystalline nature and films were crystallized in the wurtzite phase type. Electron–phonon-coupling in zinc oxide thin films was analyzed by Raman spectra at room temperature. SEM micrographs depicted that the substrate temperature influenced the growth of the thin films. Root-mean-square roughness of the thin films was measured using atomic force microscopy. The optical spectra of the ZnO thin films measured in the UV–Vis range. As the substrate temperature increased from 275 to 425 °C, optical band gap was found to decrease from 3.10 to 2.96 eV. Sensitivity and selectivity of the samples were tested at room temperature with respect to different volatile organic gases like benzene, toluene and xylene. Recovery and response times were determined using transient response curve with xylene as the test gas.

1 Introduction

Metal oxides semiconductors have acquired a significant research interest due to its simple processing procedure and low cost and high potential for the optoelectronic and electronic applications [1–5]. Among all the metal oxides, zinc oxide (ZnO) plays a vital role due to its abundant band gap energy, excellent chemical and thermal stability, large excitation energy and high sensitivity towards toxic gas sensors [6–8]. Owing to its highly flexible nature, ZnO has been grabbed significant attention by the researchers in different applications such as civil, medical sciences, ceramic and rubber industries, electronic materials, coatings, catalyst and pigment and photoelectrocatalytic degradation [9]. Various types of ZnO materials, such as heterostructures, single crystalline solids, pellets, thin films and thick films were synthesised and communicated [10]. ZnO nanostructured materials have shown to be promising candidates for attaining excellent device performances due to their high surface to volume ratio and unique physical and chemical properties. So far, various methods have been employed to synthesise ZnO nanostructured thin films, such as RF magnetron sputtering, hydrothermal, chemical vapour deposition, molecular beam epitaxy, sol–gel, electrospinning and spray pyrolysis method [11–13]. Among all these techniques, spray pyrolysis technique is widely used because of its simplicity, low cost as there is no need of vacuum system, multiple dopants may be added to the precursor solution, large area deposition, very good stoichiometry and uniform thin films.

Detection of toxic gases in the environment has been a significant challenge in the context of global warming and atmospheric pollution. They can menace human and environment, health and product photochemical oxidants and also, they accord to stratospheric ozone depletion and the greenhouse effect [14]. The existence of volatile organic compounds (VOCs) in the atmosphere has been a severe impact on the human being and may cause severe health problems and even death. Among all the VOCs, Mono-aromatics hydrocarbons like benzene, toluene and xylene (BTX) are colourless aromatic hydrocarbons, water-insoluble liquids and highly inflammable with a complex structure which are originated from sources such as refineries, gas and oil extraction fields, petrochemicals and paint and glue

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V_2O_5 nanofibers: Potential contestant for high performance xylene sensor

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ABSTRACT

Nanofibers are often referred in medical, engineering and defense applications due to their unusual surface structure, which hold special significance in determining the functional properties. In this work, we report the simple spray pyrolysis strategy to deposit vanadium pentoxide (V_2O_5) nanofibers on to glass substrate. A switch in the crystal structure from amorphous to polycrystalline was noticed when the precursor concentration was varied from 0.025 to 0.1 M. The size of polycrystallites was increased with precursor concentration. From scanning electron micrographs (SEM), well-defined interconnected nanofiber morphology was observed for V_2O_5 film deposited at 0.1 M of precursor concentration. The sensing properties of V_2O_5 film towards formaldehyde, ethanol, toluene, methanol, xylene, acetone, acetaldehyde and ammonia vapours were observed. V_2O_5 nanofibers showed excellent selectivity and response towards xylene in the concentration range of 5 and 1000 ppm at room temperature.

1. Introduction

Xylene is a toxic, colourless, sweet smelling aromatic hydrocarbon widely used in industry and medical technology. It is released into the atmosphere as fugitive emissions from industrial sources, auto exhaust, and through volatilization as it is used as solvents. Time weighted average concentration of xylene exposure for the working environment set by occupational safety and health administration is limited to 100 ppm for 8 h [1]. According to centers for disease control and prevention, low concentration exposure of 14 ppm xylene leads to irritation in eyes, nose, throat and gastrointestinal systems. Inhalation of xylene as low as 50 ppm above that exposure results in headache, dizziness, fatigue, tremors, incoordination, respiratory, cardiovascular and kidney problems [2]. In addition, xylene is suspected to be carcinogenic, which could lead to leukemia through prolonged exposure [3]. Different sensing techniques such as electrochemical [4], piezoresistive [5], chemi-resistive (metal oxide semiconductor sensors) [6], magneto elastic [7] and optical [8] sensors are reported in the literature to detect xylene. Metal oxide semiconductor sensors are one of the simplest and most cost effective systems available for gas sensing. Metal oxides exhibit different morphologies like nanobelts [9], nanoflowers [10], nanorods [11] and nanofibers [12]. Among them, nanostructured fibers show high surface area and

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PROACTIVE MEASURES FOR SECURE CLOUD

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ABSTRACT

In business, data is very important. It is the oil that keeps the commercial engine in motion and databases are the digital banks that store and retrieve this valuable information. And, according to IDC, data is doubling every two years. But as the overall amount of data grows, so does the amount of sensitive and regulated data. All this data stored by enterprises requires high levels of security. Presently according to IDC only a quarter of that data is being properly protected now. Like all currency, data must be protected. To substantiate this attitude many organizations look toward on premise-based protection that encrypts or monitors network traffic containing critical information. For the average company, this can be a budget buster and a significant resource drain…that is until they look toward the cloud and explore cloud-based security options.

Keywords—Security; proactive measures; privacy; Protection

[1] INTRODUCTION

In the last few years, cloud computing (CC) has grown from being a promising business concept to one of the fastest growing segments of the IT industry **[1, 2].** Now, recession-hit companies are increasingly realizing that simply by tapping into the cloud they can gain fast access to best-of-breed business applications or drastically boost their infrastructure resources, all at negligible cost. But as more and more information on individuals and companies is placed in the cloud, concerns are

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An optimal VM Placement, Energy Efficient and SLA at Cloud Environment - A Comparative Analysis

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Abstract- In the cloud computing framework, computing resources can be increased or decreased in response to the users' different application loads. The data is stored and the applications are running on the servers in the clouds. Users do not have to worry about lost or corrupt data. The clouds can distribute computing resources according to the users' needs or preferences to provide fl exible management. Users do not have to buy expensive computing devices. They only need to pay for the computing services provided by the clouds. Cloud computing provides a platform for computational experiments with abundant computing and storage resources. The system can be considered as a whole and the control and management decisions are sent as services to agents. The challenge in the present study is to reduce energy consumption thus guarantee Service Level Agreement (SLA) at its highest level.

Keywords — *load balancing, Service level agreement, Code Shortening, Energy efficient, Quality of Service (QoS), Service Level Agreements (SLA), Virtual Machine (VM), VM Allocation Performance Comparison, Evolution Application, Response Time Comparison.*

*****

1. INTRODUCTION

The load balancing techniques brings the advantage of lower response time [1]. However the cost of replication of resources is also to be taken care as an additional cost. The cloud data center based load balancing is distinguished from the domain name service based load balancing. The domain name service load balancers deploys the hardware and software components to balance load for the hardware resources, whereas the cloud based load balancing techniques deploys the software algorithms or protocols to distribute the load over multiple data center nodes. However the recent researches constraint to achieve the optimal SLA violation during VM Migration. Thus this work demonstrates A Service Level Agreement Effective Optimal Virtual Machine Migration Technique for Load Balancing on Cloud Data Centers using proposed three phase optimal virtual machine migration technique. To address this problem, the adoption of a technology called Virtualization is embraced. Through virtualization, a physical server can create multiple instances of virtual machines on it, where each virtual machine defines virtual hardware and software package on behalf of a physical server. In IaaS model, infrastructure requests are mainly served by allocating the VMs to cloud users [2]. Successful live migration of VMs among host to host without significant interruption of service results in dynamic consolidation of VMs. However, high variable workloads can cause performance degradation when an application requires increasing demand of resources. Besides power consumption we need to consider the performance as it puts Quality of Service (QoS) which is defined via Service Level Agreement (SLA). Storage systems come in all shapes and sizes, but one thing that they all have in common is that components fail, and when a component fails, the storage system is doing the one thing it is not supposed to do: losing data. Failures are varied, from disk sectors becoming silently corrupted, to entire disks or storage sites becoming unusable. The storage components themselves are protected from certain types of failures. To deal with these failures, storage systems rely on erasure codes. An erasure code adds redundancy to the system to tolerate failures. The simplest of these is replication, such as RAID-1, where each byte of data is stored on two disks. In that way any failure scenario may be tolerated, so long as every piece of data has one surviving copy. Replication is conceptually simple.

2. LITERATURE REVIEW

The Dynamic consolidation of virtual machines (VMs) is an effective way to improve the utilization of resources and energy efficiency in cloud data centers. Determining when it is best to reallocate VMs from an overloaded host is an aspect of dynamic VM consolidation that directly influences the resource utilization and quality of service (QoS) delivered by the system.comparing opti algorithm with few standard algorithms.

INTER-QUARTILE RANGE

It is method to allocation of virtual machine in cloud system. It is method of adaptive utilization Threshold which is work statics.

(IQR) interquartile range IQR= Q3- Q1, it is very similar of MAD(mean absolute deviation). MAD is another algorithm adaptive utilization Threshold.

We define the upper utilization threshold shown in

(i) $Tu = 1 - S.IQR$.....(i)

Maximum correlation The Maximum Correlation (MC) policy is based other idea proposed by Verma et al. [7]. The idea is that the higher the correlation between theresource usage by applications running on an oversubscribed server[3].In [6] explain memory, CPU utilization and power

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A Novel Shorten Erasure Based Reed Solomon Fault Tolerance Code for Road Traffic Data Fault Tolerance

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Abstract: The massive growth in road traffic and subsequence generation of traffic related data insisting the researcher to proceed for the analytical research on the traffic prediction. However, the gigantic size of the data and chances of storage failure may cause the purpose inefficient. The advancement in technologies and high demand for fault tolerant storage solutions most of the cloud based commercial storage service providers are now equipped with erasure based Reed-Solomon fault tolerance mechanism. However, the additional cost for replication is still an overhead for service providers and customers. In this research, we propose a novel erasure based code and further optimization as shortening the proposedcode also for the digital storage formats. The research also results into a comparative study of cost analysis for commercial cloud based storage service providers. Finally, the research demonstrates the improvement in code shortening and making the performance higher.

Key words: Erasure, Reed-Solomon, code shortening, performance comparison, evolution application, response time comparison, Dropbox, Google Drive, Hightail, OneDrive, SugarSync

INTRODUCTION

In the past years, the high upcoming demand for storage with high performance and reliability were been understood (Mallikharjuna and Anuradha, 2015, 2016; Rao and Anuradha, 2016). The industry was approaching towards a phase where the lack of standardization of digital storage was limiting the applications to make storage more reliable for commercial storage providers. The major bottleneck for the standardization was the non-standard storage solutions used by different service providers. In the early 80's, the industry adopted cloud computing for distributed storage solutions. The effort was well recognized and multiple companies came together to form a consortium in order to frame the standardization for digital storage.

As far as data storage is concerned, there are multiple schemes are available to improve file and data compression. The other most influencing parameters for instance, a data file that is uploaded and accessed on the server may seriously be effected by the network bandwidth as well as the server workload. This will degrade the efficiency (Mallikharjuna and Anuradha, 2015, 2016). Moreover, the cloud storage services deals with a great scope and domain of the data being storage and retrieved along with the frequency of access varying depending on the mode of the operation performed on the data (Kubiatowicz *et al*., 2000). Offering unlimited storage container space might cause a high economic drawback on the cloud storage provider and as well as the users due to inefficient storage (Druschel and Rowstron, 2001). Hence, a technique or automation is needed to find the best suitable storage structure based on cost and other influencing factors. There are many free offerings of the cloud storage services; however, they may not suite the application requirement to the best always (Adya *et al*., 2002).

Two major companies, Philips and Sony took the major initiative to define the standard storage formats in digital media. The standard is well accepted today and been referred as compact storage format. This standard format is majorly used for achieving any data which also reduces the storage cost compared to the early storage formats. However, the compact storage format has limitations in order to achieve high availability. It is difficult to predict how a storage media gets corrupted. In the earlier studies we have understood the reasons for storage device failure. Henceforth, we realise the following errors for storage failures as:

- The additional noise affecting the storage during transmission or during retrieval
- Mishandling of the removable devices

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A Cloud based Optimal VM Techniques for Road Traffic Data with Performance Evaluation

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Abstract- **With the exponential growth of traffic and road links, it is the need of the research to explore new directions of managing and predicting the traffic situations in order to gain road safety, better traffic managements and finally gain higher productivity during pick hours by reducing the traffic burdens. Across the world ranging from city to urban the tremendous growth of road traffic is leading towards a major problem. The highly populated cities around the world are facing the problem of better traffic management. The technologically advanced cities deploy agent based multiple multimedia censor based networks to collect and analyze the traffic data to provide better solutions for management and prediction of the road conditions.**

I. INTRODUCTION

The data collections methods include automatic and manual collections of high amount of data and then the analysis are often done in legacy system or manually. However the collected data reaches a high volume and became highly difficult to manage. Moreover the predictive analysis also demands a high computational power to run the predictive analysis algorithms. Hence considering the situations we identify the following problems to be addressed in the current traffic management situations: Management of Agent based Censor network to implement a low cost infrastructure and normalization of the data under preprocessing. Comparison and identification of most suitable cloud storage architecture for replication of data considering the low cost Erasure models.

Table 1:
Image Sensor Node Configuration

Parameter Type	Proposed Optimal Value
Exposure Responsiveness	1/120 to 1/160 Seconds
Focal Ratio	F/5 to F/4
ISO Film Speed Rating	100
Lance Focal Length	18 to 20 mm
Resolution	300 to 350 DPI (Horizontal and Vertical)
Rotation and Movement Positioning	Co – Sited
On Board Compression Mode	3
APEX Brightness	6 to 7.5
Colour Space	sRGB (Recommended)
Digital Zoom	5 to 8
Image Compression Mode	JPEG

Comparison and identification of most suitable artificial neural networks for processing the data in high speed to achieve reliable and timely solutions with the light of Elastic Cloud Computing properties[1-5]. Identification of most suitable algorithm and propose a novel neural network solution for timely and reliable predictive model for the road traffic analysis. The capture devices must satisfy the same configuration scheme to reproduce the same performance.

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High Availability of Outsource Attribute-Based Encryption with Performance in Cloud Storage

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Abstract: Cloud computing becomes increasingly popular for data owners to outsource their data to public cloud servers while allowing intended data users to retrieve these data stored in cloud. This kind of computing model brings challenges to the security and privacy of data stored in cloud. Attribute-based encryption (ABE) technology has been used to design fine-grained access control system, which provides one good method to solve the security issues in cloud setting. However, the computation cost and cipher text size in most ABE schemes grow with the complexity of the access policy. Outsourced ABE (OABE) with fine grained access control system can largely reduce the computation cost for users who want to access encrypted data stored in cloud by outsourcing the heavy computation to cloud service provider (CSP). However, as the amount of encrypted files stored in cloud is becoming very huge, which will hinder efficient query processing. To deal with above problem, we present a new cryptographic primitive called attribute-based encryption scheme with outsourcing key-issuing and outsourcing decryption, which can implement keyword search function (KSF-OABE). The proposed KSF-OABE scheme is proved secure against chosen-plaintext attack (CPA). CSP performs partial decryption task delegated by data user without knowing anything about the plaintext. Moreover, the CSP can perform encrypted keyword search without knowing anything about the keywords embedded in trapdoor.

Keywords: attribute-based encryption, cloud computing, keyword search, outsourced key-issuing, outsourced decryption.

1. Introduction

Cloud computing is a new computation model in which computing resources is regarded as service to provide computing operations. This kind of computing paradigm enables us to obtain and release computing resources rapidly. So we can access resource-rich, various, and convenient computing resources on demand [1]. The computing paradigm also brings some challenges to the security and privacy of data when a user outsources sensitive data to cloud servers. Many applications use complex access control mechanisms to protect encrypted sensitive information. Sahai and Waters [2] addressed this problem by introducing the concept for ABE. This kind of new public-key cryptographic primitive enables us to implement access control over encrypted files by utilizing access policies associated with cipher texts or private keys. Two types of ABE schemes, namely key-policy ABE (KPABE) [3-8] and cipher text-policy ABE (CP-ABE) [9-15] are proposed. For KP-ABE scheme, each cipher text is related to a set of attributes, and each user's private key is associated with an access policy for attributes. A user is able to decrypt a cipher text if and only if the attribute set related to the cipher text satisfies the access policy associated with the user's private key. For CP-ABE scheme, the roles of an attribute set and an access policy are reversed. Bethencourt [9] et al. provided a CP-ABE scheme, which ensures encrypted data is kept confidential even if the storage server is un trusted. In order to withstand collusion attack and avoid sensitive information leakage from access structure, Qian et al. [11] proposed a privacy-preserving decentralized ABE scheme with fully hidden access structure. Deng et al. [12] constructed a cipher text-policy hierarchical attribute based encryption (CP-HABE) with short cipher texts, which enables a CP-HABE system to host many users from different organizations by delegating keys. In CPABE scheme, a malicious user maybe shares his attributes with other users, which might leak his decryption privilege as a decryption black box due to financial profits. In order to solve above problem, Cao et al. [13-15] presented some traceable CP-ABE schemes, which can find the malicious users who intentionally leak the partial or modified decryption keys to others. Some schemes [26-28] have been proposed to focus on the above problems. Qian et al. [26] provided a privacy preserving personal health record by utilizing multi-authority ABE.

2. Preliminary Knowledge

We give some definitions and review related cryptographic knowledge about bilinear pairing, complexity assumption, access structures, and secret sharing scheme that our scheme relies on.

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Security Challenges in Big Data

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ABSTRACT
Big Data is a huge volume of data from variety of sources the data can be fetched like face book, internet websites, Google search engines etc. The term Big Data is a large-scale data management and analysis technologies that cross the boundaries of formal data processing technologies. Big Data is expressed from traditional issues in four ways: the quantity of data, the quality of data generation and transmission, and the types of structured and unstructured data and the rate of data production. This paper focused in how the incorporation of Big Data is changing security analytics by providing new technologies and challenges for large amount of structured and unstructured data. Big Data is to take a holistic vision at security. Big Data consideration is the identification of the different data sources, the origin and creators of data, as well as who is authorized to access the data. It is important to conduct a correct partition to identify complex data, and align with the origin information security policy in terms of enforcing access control and data handling policies.
Keywords: Big Data, Security, Privacy, Velocity, Volume, Variety, Social Applications.

I. INTRODUCTION

he Big Data is a present trend applied to manage data records whose data size is beyond the ability of commonly used software tools to capture and manage that amount of data. The amount of data to be analyzed is expected to double everyone years. All these data are very often unstructured and from various origins such as social media, sensors, scientific applications, video and image archives, search engines, indexing, health care data records, business policies and system backups. Big data is more and more attention since the number of devices connected to "Internet of Things". In this way, security and privacy issues can be potentially strengthen by the volume, variety, and wide area allotment of the system infrastructure to support Big Data applications. Data privacy is important the concept about which normal people are most relevant, but it should also be one of the highest associations for the companies that use Big Data Tools. A Big Data mechanism usually contains a huge amount of individual information that companies use in order to get a benefit from that data sets. However, we should question ourselves where the limit concerning the use of that information is. Companies should not have complete freedom to use that information without our knowing facts, although they also need to obtain some ease from the use of that data. There are various techniques and mechanisms with which to protect the privacy of the data, and also allow organizations to make a profit from it have therefore been developed, and attempt to solve this problem in possible different ways. The Big Data can be divided into two main classifications: Systems which provide some features and operational capabilities for real word in real time applications, transactional/interactive situations where data is gathered and stored. The other type is systems that facilitate analysis capabilities for complex analysis of the data that has been stored and maintained. Big data analytics address to the process of gathering, cumulating and analyzing large sets of data to find patterns and other useful information. With the help of Big Data analytics, organizations use the huge amounts of data made available to them to discover patterns and fetch useful information. Big Data analysis not only helps us to guide the information contained in the data but also discover the information that is most certainty to the organization and future business decisions. Today's data comes from various origins. And it is still an undertaking to process and transform data among systems. However, it is useful to connect and correlate relationships.

II. CHARACTERISTICS IN BIG DATA

Instead, most experienced professional define big data in terms of the three Vs. You have big data if your data stores have the following characteristics:

- **Volume:** Big data is any collection of data that is very large in quantity with different size that the companies that opts it taking challenges related to storing or processing it. In practical approach, trends like

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A Dynamic Technique for Road Transportation Systems using Cloud Computing

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Abstract

The highly populated cities around the world are facing the problem of better traffic management. The technologically advanced cities deploy agent based multiple multimedia censor based networks to collect and analyze the traffic data to provide better solutions for management and prediction of the road conditions. However the collected data reaches a high volume and became highly difficult to manage. Moreover the predictive analysis also demands a high computational power to run the predictive analysis algorithms. The data collections methods include automatic and manual collections of high amount of data and then the analysis are often done in legacy system or manually. Cloud providers are deploying large-scale data centers across the globe to meet the Cloud customers' compute, storage, and network resource demands. Efficiency and scalability of these data centers, as well as the performance of the hosted applications' highly depend on the allocations of the data center resources. Very recently, network-aware Virtual Machine (VM) placement and migration is developing as a very promising technique for the optimization of compute-network resource utilization, energy consumption, and network traffic minimization. The limitations of these approaches are that they lead to sub optimal results and do not allow explicit specification of a QoS goal The QoS requirements can be defined in terms of a variety of metrics and are formalized in the service level agreements (SLAs).

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An Enhanced Apriori Algorithm for Frequent Pattern Matching

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Abstract

The progressions in the field of database innovation have made it conceivable to store a colossal measure of data. Data mining strategies have been broadly utilized for removing non-paltry /data from such huge measures of data. It is helpful in numerous applications like key basic leadership, monetary conjecture, and medicinal conclusion and so forth. Data mining can be connected either as a elucidating or as a prescient device. Affiliation manage mining is one of the functionalities of data mining. This postulation proposes a couple of strategies for moving forward affiliation govern mining, affiliation administer covering up, and post mining. The way toward creating affiliation rules includes the errand of finding the set of all the successive thing sets and creating promising standards. This proposal proposes a procedure for determining the continuous thing sets with a solitary output of the exchanges database in the circle. Amid this single database examine data about thing sets and their events are caught in a table kept in the principle memory. While determining the regular thing sets, this table is examined rather than the plate.

Sometimes, the quantity of incessant thing sets to be produced is vast. All these thing sets are hard to deal with and oversee. This issue can be understood by mining Maximal Frequent Sets (MFS) alone. A MFS of length m suggests the nearness of 2m-2 visit thing sets. Subsequently, all the continuous thing sets can be promptly surmised from the MFS. Along these lines, the era of MFS lessens the time taken for acquiring all the continuous thing sets. Another quicker procedure is proposed in this proposition for mining the MFS, which decreases the quantity of database sweeps to the most extreme of two and furthermore keeps away from the era of competitors. Despite the fact that data mining has a ton of benefits, it has a couple of bad marks moreover. Delicate data contained in the

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A Noval Research on Routing Optimization Using Congestion Control with Efficient Second Order Distributed Approach Rules

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Abstract: Distributed joint congestion control and routing enhancement has gotten a lot of consideration as of late. To date, nonetheless, the greater part of the current plans take after a key thought got back to the weight algorithm. Notwithstanding having numerous striking highlights, the main request sub inclination nature of the back-weight based plans brings about moderate joining and poor postpone execution. To conquer these limitations, the present examination was made as first endeavor at building up a second-order joint congestion control and routing improvement system that offers utility-optimality, queue stability, quick merging, and low postponement. Commitments in this undertaking are three-overlay. The present investigation propose another second-order joint blockage control and directing structure in view of a primal-double inside point approach and set up utility-optimality and queue stability of the proposed second-order strategy. The consequences of present examination demonstrated to that proper methodologies to execute the proposed second-order strategy in an appropriated form.

keywords: Second-order distributed algorithm, multi-hop routing, and congestion control.

I. Introduction

The quick integration of new applications and technologies, ongoing years have seen a developing test in making communication networks work all the more proficiently. To date, while there exists a substantial assortment of work on improvement based Dynamic joint congestion control and directing approach for both wire queue and remote networks I) a provable throughput optimality, ii) rich cross-layer augmentations, and iii) a conveyed queue length differential based routing that balances out all queues in the system. The vast majority of these plans take after a key thought called the "back-weight algorithm," which follows its foundations to the commended paper.

The persisting prevalence of the back-weight algorithm is essentially because of: I) approvable throughput optimality, ii) rich cross-layer expansions, and iii) an appropriated dynamic queue length differential based directing approach that balances out all queues in the system. Specialists

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Using Data Mining Techniques in Software Bug Detection

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*Abstract-*The core objective of software development is to implement high quality software and high quality software is developed using huge amount of software engineering data or information. The software engineering data or information can be used to boost experimentally based generous of software development. The content full information can be fetched using different data mining techniques and functionalities. The Data mining for protected Software Engineering enhances software productivity and quality software engineers are expanding applying data mining algorithms to different software engineering activities. However data mining software engineering data faces numerous challenges, requiring suitable algorithms to dramatically mining the data, reports, documents, graphs and text from such data. Software engineering data introduces code logical data, execution tracking, historical codes and bug data oriented. They accommodate worth of information about a projects condition, advance and expansion. Handling most advanced data mining techniques and thinkers can search the strength of this precious data in order to improve quality of projects to complete in time and range of budget.

Keywords—Exploratary Data Analysis, Data mining, KDD, Clementine tool, Data mart.

I. INTRODUCTION

A software defect is a bug in a computer environment or system that produces inaccurate or unwanted results, or causes it to react in unintended way. Software bud or defect prediction is the process of finding defective areas in software. It advices to increase software quality and testing capabilities by composing predictive models from code aspects to enable a timely identification of fault-prone modules, it also advises us in planning, monitoring, performing and control the ppredict defect density and to better understand and control the software quality. The Software Defect Prediction outcome, that is the number of defects remaining in a software system, it can be used as an important metric for the software developer, and can be used to control the software process.

a) Clustering

Clustering is a splitting of data into groups of similar objects. Showing the data by some clusters necessarily give up certain important details, but accomplish simplification. It operates data by its clusters. Data modeling keeps clustering in a historical context originated in mathematics, statistics, and numerical data analysis. As a machine learning context clusters associated to hidden patterns, the exploration for clusters is unsupervised learning, and the outcome of the system represents a data models. As an Experimental context clustering plays a wonderful role in data mining applications for example scientific data exploration, information retrieval and data mining, and Web analysis.

b) Classification and Prediction

The main concept is making the data for Classification and Prediction. Making the data involves the consequence activities.

Data Cleaning − Data cleaning involves removing the noise data and missing attribute values. The noise is deleted by applying smoothing techniques and missing attribute values are answered by substituting a missing value with most often occurring value for that attribute. Relevance Analysis − Database may have the redundant data attributes. Correlation analysis is applied to aware whether any two given attributes are related with each other. Correlation is the process used in the real world context but, in data mining, the values of attributes are various types.

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HUMAN CAPITAL MANAGEMENT IN SBI

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Abstract: Human capital represents the human factor in the organization, the combined intelligence, skills and expertise that gives the organization its distinctive character. The human elements of the organization are those that are capable of learning, changing, innovating and providing the creative thrust which if properly motivated can ensure the long-term survival of the organization. If Human Capital is organized systematically, organization can reach its goals easily. In this tough competitive world, building intellectual capital, specifically Human Capital is essential and should be strategic in focus. If the value of people is enhanced, it enhances the value of organization. This study has been conducted to find out what practices of HCM are increasing the value of Banking sector in particularly State bank of India.
***Keywords**: Human Capital Management, Strategic focus, Training, Performance and Compensation Management*

I. INTRODUCTION:

Human Capital Management has been the key factor in the success of many organizations. Human Capital Management was first coined by Nobel Prize winner and economist Theodore Schultz in the early 1960's as a way of explaining the importance of investing in education. This term was later given importance in management discipline when Mr. Prahalad and Mr. Hamel (1990) stated about the unique clusters of factors that allow an organization to be competitive and they further highlighted that Human Capital is one of these. Many defined Human Capital in Different ways. One such defined by Abeysekera and Guthrie as a combination of factors possessed by individuals and the collective workforce of a firm. It compasses knowledge skills and technical ability personal traits such as intelligence, energy, attitude, reliability, commitment, ability to learn, including aptitude , imagination and creativity, desire to share information, participate in a team and focus on goals of organization. An Organization may have huge capital and most advanced machinery, but it does not have capable, motivated and high performing employees, the organization is not likely t demonstrate sustained level of performance. All physical and capital resources depend on people for their efficient use, so maintaining the quality of people is important to attain the competitive advantage. The term capital is referred to wealth money and property. When the same term is used to refer Human, it implies they are resources generating more wealth who hold the economic value of an organization. This article tries to understand how State Bank of India is trying to build a competitive advantage with its employees in face of tough private competitors ahead.

2. LITERATURE REVIEW:

Sudershan Chadha and Daleep Parimoo[1] in their article "Human Capital Management in Banking Sector- A conceptual Framework" concluded that Human capital plays an important role in strategic planning to create competitive advantage. Henceforth, due importance should be given to it. Swapaneet Rainke[2] in her article (2015)"Role of Human Capital Management In Banking Sector" said that compensation is critical in attracting and retaining professionals. So suggested to make further studies on Compensation related HCM. Dr. Samah Souleh[3] in his article "The Impact of Human Capital Management on the Innovativeness of research Centre; The Case of Scientific Research Centres in Algeria" stated that innovation depends n intangible assets especially human capital. More specifically, human capital management depends on its competencies management and knowledge management which have also an important effect on innovation. Mr.Neenu Wilson And Sebastian Rupert Mampilly[4] in their article "The role of Human Capital Management Practices in Inculcating Learning Orientation and its Relationship with Performance: A systematic Literature Review" opined that HR managers must understand that they cannot always enhance performance using tangible assets. The intangible phenomenon like learning orientation is also important and should not be ignored often. Fida Afiouni[5] in his article "Human Capital Management; a new name for HRM" concluded that HCM is not merely a new name for HR, it is the beginning of a new era where HR is more strategic integrated with more functions and more future oriented

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Kakatiya University, Vidyaranyapuri, Warangal, Telangana State, India

BANKING UNBANKED: AN EMPIRICAL STUDY

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Abstract: *India is the land of rural supremacy, it is mandate to provide suitable financial services for economic growth which will increase the income and living standards of the deprived households. In august 2014, Prime Minister Narendra Modi announced the "Pradhan Mantri Jan Dhan Yojana" (Prime minister's people's wealth scheme, or PMJDY) to provide 75 million unbanked Indians with zero-balance bank accounts- delivering access to a full range of financial services like pension, credit and insurance. Growing Financial inclusion will open up services to poor, rural and other weaker groups, population segments that have not always had easy access to financial services in the past. As it broadens the resource base of the financial system by developing a culture of savings among large segment of rural populations and playing a major role in the process of economic development. To achieve the financial inclusion, improving the investment opportunities to the people by creating investment awareness. The present study is an attempt to enlight financial inclusion and Government's initiatives in outreaching the ultimate needy.*

Key Words- *Economic growth, financial services, financial inclusion, Government's initiatives.*

I. INTRODUCTION:

With the progress of the Indian economy, especially when the focus is on the achievement of sustainable development, there must be an attempt to include maximum number of participation from all the sections of the society. But the lack of awareness and financial literacy among the rural population of the country is hindering the growth of the economy as majority of the population does not have access to formal credit. This is a serious issue for the economic progress of the country. In order to overcome such barriers, the banking sector emerged with some technological innovations such as automated teller machines (ATM), credit and debit cards, internet banking, etc. Though introduction of such banking technologies brought a change in the urban society, a majority of the rural population is still unaware of these changes and is excluded from formal banking. Financial inclusion enables improved and better sustainable economic and social development of the country. It helps in the empowerment of the underprivileged, poor and women of the society with the mission of making them self-sufficient and well informed to take better financial decisions. Financial inclusion takes into account the participation of vulnerable groups such as weaker sections of the society and low income groups, based on the extent of their access to financial services such as savings and payment account, credit insurance, pensions etc. Also the objective of financial inclusion exercise is easy availability of financial services which allows maximum investment in business opportunities, education, save for retirement, insurance against risks, etc. by the rural individuals and firms Financial inclusion broadens the resource base of the financial system by developing a culture of savings among large segment of rural population and plays its own role in the process of economic development. Further, by bringing low income groups within the perimeter of formal banking sector, financial inclusion protects their financial wealth and other resources in exigent circumstances. It also mitigates the exploitation of vulnerable sections by the usurious money lenders by facilitating easy access to formal credit.

1.1 CONCEPT AND DEFINITION OF FINANCIAL INCLUSION:

Financial inclusion is one of the most important aspects in the present scenario for inclusive growth and development of economies. The financial inclusion term was first time used by British lexicon when it was found that nearly 7.5 million persons did not have a bank account. But financial inclusion concept is not a new one in Indian economy. Bank Nationalisation in 1969, establishment of RRBs and introduction of SHG- bank linkage programs were initiatives taken by RBI to provide financial accessibility to the unbanked groups. According to committee on Financial inclusion headed by Dr. C. Rangarajan defined financial inclusion as *"The process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost."* Financial inclusion does not stand for delivery of financial services for all at all cost. But it means that the delivery of financial services and products at affordable costs of excluded sections of population and low income groups. It plays a crucial role to remove away the poverty from the country. Financial

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TO IMPROVE THE STRENGTH AND CBR VALUES IN SUB-BASE AND SUB-GRADE IN EXPANSIVE SOILS USING CHLORIDE COMPOUNDS

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ABSTRACT-The improvement in the properties of expansive soils, as road subgrade stabilized with chloride compounds varying in percentages. Laboratory tests were undertaken to study the strength characteristics of expansive soils performed on natural soil samples. Expansive soils such as black cotton soils are basically susceptable to determinental volumetric changes, with changes in moisture. This behaviour of soil is attributed to the presence of mineral montmorillonite, which has an expanding lattice .Understanding the behaviour of expansive soil and adopting the appropriate control measures have been great task for the geotechnical engineers extensive research is going on to find the solutions to black cotton soils there have been many methods available to controlling the expansive nature of the soils. An infrastructure project for instance Highways Railways, reclamation etc require earth material in very huge quantity. Fairly often large areas are covered with highly plastic and clayey soils. Extensive laboratory and field trials have been carried out by various researches and have shown promising results for application of such expansive soils after Stabilization. soft soils form problematic sub grade for pavements due to its low bearing capacity and strength. Pavement loads carrying on the soft sub grade soil may cause detrimental pumping actions. when they are located in areas with high water table which cause both construction and in service performance problems. The common solutions on encountering such problems include excavation and replacement of soils. By chemical stabilization with chlorides NACL, $CACL_2$. On certain properties of soil such as OMC, MDD, UCC, CBR has been studied under both heavy and light compaction. Hence in the present work experimentation is carried out to investigate the influence of chlorides including Nacl,$Cacl_2$ on the engineering properties of expansive soils. Various amounts of salts (0.5%,1% ,1.5%,2.0%) were added to the soil to study the effect of salts on the compaction characteristics, consistency limits, compressive strength, ucsand cbr.The present investigation on expansive soils with chloride compounds.

I.INTRODUCTION

This project prescribes the appropriate type or types of additives to be used with different soils types, procedure for determining a design treatment level for each type of additive, and recommended construction practice for incorporating the additives into soils.

Scope of transportation system has developed very largely. Population of the country is increasing day by day. The need for travel to various places at faster speeds also increased. This increasing demand led to the emergence of other modes of transportation like railways and travel by air. While the above development in public transport sector was taking place, the development in private transport was at a much faster rate mainly because of its advantages like accessibility, privacy, flexibility, convenience and comfort. This led to the increase in vehicular traffic especially in private transport network. Thus road space available was becoming insufficient to meet the growing demand of traffic and congestion started. In addition, chances for accidents also increased. This has led to the increased attention towards control of vehicles so that the transport infrastructure was optimally used. Various control measures like traffic signals, providing Roundabouts and medians, limiting the speed of vehicle at specific zones etc. were implemented.

Soil – Soil is sediment or other unconsolidated accumulation of solid particles produced by the Definitions and Terminology physical and/or chemical disintegration of rock, soil may or may not contain organic material (ASTM D 2487).

Clay – Clay is type of cohesive soil composed of very fine material particles; clay is one of the fine-grained soils defined by the Unified Soil Classification System.

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LIGHTWEIGHT COMPOSITE FERROCEMENT STRUCTURAL ELEMENTS: A REVIEW

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ABSTRACT:Construction of lightweight structures is a prerequisite to disaster risk reduction, low cost housing and economical viability. Ferro cement has extensive applications in lighter, low cost housing, architecture and insulation work. But its structural applications from both load bearing and non-load bearing aspects are still unharnessed. The main objective of this study is to conduct a review of Lightweight Composite Ferrocement panels. Though many experimental studies have been conducted but few actually give the metrics of weight vs. strength appraisal for optimum light construction. The performance metrics of ferrocement greatly depends on the characteristics of the reinforcing mesh and the mortar mix. Optimum range of properties of mesh, number of layers, fillers and strength of mortar needs to be standardised. Also, the Indian Standard Codes of practice is very isolated in its approach as it covers only the specifications of precast ferrocement tanks. More experimental studies are required on the behaviour and the performance of LWF (lightweight ferrocement) composite plates with lightweight materials like polystyrene sheets as filler in flexure and shear.

Keywords: Ferrocement, sandwich panels, ferrocement mortar mix, lightweight composite ferrocement panels

1. INTRODUCTION

In India there are around 250 million housing units out of which about 90 percent use masonry work for walls but main drawbacks include huge weight and thermal discomfort. To make any structure light proper designing is necessary. The dead load and supported live load ratio should be small to make structure lighter. The lightweight design uses maximum accessible resources regarding minimum weight and the strength capacity. The allowable strain and stiffness in working condition has to be given due consideration. Since, there is large number of determinants such as material, assembly,fabrication, maintenance etc., Engineers have to deal with different situations to reach optimum light structure. Ferrocement has proven to be a construction technique which is lighter and economical.State-of-the-Art Report on Ferrocement reported by American Concrete Institute(ACI) Committee 549 in year 1975 defined ferrocement as "Ferrocement is a type of thin wall reinforced concrete commonlyconstructed of hydraulic cement mortar reinforced with closely spaced layers of continuous and relatively small size wire mesh. The mesh may be made of metallic or other suitable materials" (1997).Joseph-Louis Lambot was the first person to use cement mortar with small size wire mesh to make water tank. In 1848 he constructed first boat using cement mortar and wire mesh. Almost after hundred years in 1940-1950, an Italian engineer and architect Pier Luigi Nervi recognized that ferrocement's advantage are not only restricted to boat building but can also be utilize in terrestrial work, and performed experiments on them (2012). Fisheries Department of the Food and Agriculture Organization (FAO) in 1968 began constructing boats of ferrocement in Latin America, Asia and Africa. In 1972, United States National Academy of Sciences assembled a team to collect data on ferrocement's application in developing countries which recommended to constitute a global hub to assemble, process and distribute data on ferrocement (2012). In 1975, National Science Foundation checked the ferrocement'sbehavior in bending under static loading and cyclic fatigue loading (1997). In the second phase (1988) ACI committee developed "Guide for the Design, Construction and Repair of Ferrocement" that became famous globally and gives us the basics of local codes on ferrocement. Since ferrocement is found to have some distinctive properties like lightweight, superior cracking behavior, moldability to any shape, high tensile strength to-weight ratio. It has good potential in the construction industry, especially in developing

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Influence of Chemical admixture dosage on Fresh Properties of Self-compacting concrete

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Abstract : *The concrete is a versatile construction material because of a good compatibility existing between the ingredients of concrete. Each and every ingredient has its potency and significant effect on properties of concrete. Self-compacting concrete going to be futuristic material because of it's inherent properties like flow ability, passing ability, segregation to resistance. There are plenty of plasticizers and super plasticizers are available to make concrete to be flow able without compensating the strength. However it is very difficult to obtain the optimum dosage for making of SCC. The present paper is aiming towards study of effect of different admixtures dosage on fresh properties of Self-compacting concrete and also compressive strength of concrete. M40 mix grade of 7 mixes were made to obtain required admixture dosage. ADVA960 (Poly-carboxylic-ether based) admixture was used. Fresh properties of SCC are tested by using the slump flow test, V – flow, and L – box test. 7, 28 days of compressive strength of concrete were also tested. At Lower powder content, as admixture dosage increases, bleeding and segregation will took place. Even though dosage of admixture increases the variation in compressive strength was marginally. At 0.5% of admixture dosage, 550kgs of powder content is satisfied the all SCC requirements and reached target mean strength marginally.*

Keywords *- Self-compacting, Dosage of admixtures, fresh properties, compressive strength*

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I. INTRODUCTION

SCC has evolved as an innovative technology, capable of achieving the status of being an outstanding advancement in the sphere of concrete technology. Since 1824 after cement was introduced. Cement, sand, gravel and water are using in concreter mixing and vibrators were used to flow concrete. However, the construction industry in many developed countries and developing countries like Japan, india were experienced a decline in the availability of skilled labor , a need was felt for a concrete that could overcome the problems of defective workmanship. The main reasons for compacting any type of concrete are: to ensure attaining maximum density by removal of any entrapped air and to ensure that the concrete used is in full contact with both the steel reinforcement and the form work **[1]**. Therefore, this led to the development of self-compacting concrete, primarily through the work by Japan prof. Okamura **[2].**

In concrete Industry, in recent days, the researchers were more focusing on the performance rather than strength. Performance includes workability, optimum strength and durability. So many evolutions were happened in concrete to make it sustainable, one of those is Self-compacting concrete, by using Chemical admixtures (plasticizers, super plasticizers) and mineral admixtures (such as limestone powder, fly ash, micro silica, rice husk ash and blast furnace slag). The incorporation of mineral admixtures reduce the heat of hydration, provides economical benefits and also eliminates the need for viscosity-enhancing chemical admixtures. The Super plasticizer plays a major role in enhances deformability and with the water retention and reduction of water/powder, segregation resistance is increased. High deformability and high segregation resistance is obtained by limiting the amount of coarse aggregate. These two properties of mortar and concrete in turn lead to self compact ability **[3].**

SCC should have a relatively low yield value to ensure high flow ability, a moderate viscosity to resist segregation and bleeding, and must maintain its homogeneity during transportation, placing and curing to ensure adequate structural performance and long term durability. The successful development of SCC must ensure a good balance between deformability and stability **[4].**

Mechanism of Poly-carboxylic Ether (PCE) based Super-plasticizers

In general, traditional Super-plasticizers such as Melamine Sulphonate Formaldehyde condensate, which are formed by a backbone with negative functional groups attached to it, act through a mechanism of adsorption of the molecules onto the cement particles. This creates an electrostatic repulsive effect which results

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Study of Lateral Structural Systems in Tall Buildings

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Abstract

Lateral load effects on high rise buildings are quite significant and increase rapidly with increase in height. In high rise structures , the building of the structure is greatly influenced by the type of lateral system provided and the selection of appropriate lateral structural system plays an important role in the response of the structure . The selection is dependent on many aspects such as structural building of the system ,economic, feasibility and availability of materials.

Few of the lateral structural systems are shear wall system, Framed tube system, Tube in tube system, Bundled tube system. The lateral structural systems give the structure the stiffness, which would considerably decrease the lateral displacements. In the present work a Plain frame system, a Shear wall system and framed tube system are considered for 30,40,50,60 storey structures. The analysis has been carried out using software STAAD Pro-2005. The roof displacements, internal forces (Support Reaction, Bending Moments and Shear Forces) of members and joint displacements are studied and compared. It is seen that the Shear wall system is very much effective in resisting lateral loads for the structures up to 30 stories and for structures beyond 30 stories the Framed tube system is very much effective than Shear wall system in resisting lateral loads.

INTRODUCTION

In the ancient tall structures, which can be considered as prototypes of resent day high-rise buildings, were protective or symbolic in nature and were infrequently used. Tall buildings were primarily solid, serving more as monuments than as space enclosures. Throughout history, people had to make use of the available building materials. The Pyramid of Cheops, for example, was built by piling huge masonry and timber, used in construction through the early centuries had their limitation. The spans which timber and stone could bridge, either as beams, lintels or arches, were limited. Wood was nor strong enough for large structures nor did it possess fire-resisting characteristics. Brick and stone masonry, in spite of their excellent strength and fire resistance, suffered from the drawback of weight. The mass of masonry required to carry the weight of a structure elements, ie, columns, walls, and braces, was inordinately large when compared to gross floor area. This percentage was at a maximum value for the pyramids.

In 1885, an American engineer named William LeBaron Jenny became the creator of the modern skyscraper when he realized that an office building could be constructed using totally different materials. He chose structural steel and incorporated it into a revolutionary system that was to make possible the soaring office towers that mow symbolize the modern metropolis.

Two technological developments, the elevator and modern metal frame construction, removed the prevailing limitations on the height of the buildings, and the race for tallness was on. In 1913, the Woolworth building was the first to reach 60stories, soaring up 732 ft (242 m) in lower Manhattan.

This Gothic cathedral style building is still in vigorous use after 70 years of service and the installation of conditioning and automatic elevators.

The demand for tall buildings increased because large corporations recognized the advertising and publicity advantages of connecting their names with imposing high-rise office buildings even though their operations required a relatively small percentage of floor space.

The collapse of the financial market during the depression put an end to speculative high rises, and only in the late 1940s in the wake of world war2 did a new era of high rise building set in addition to the stimulus of new resources provided by technology was the spur of necessity, with the population doubling in almost every generation and production growing at an even faster pace, developers could scarcely keep up with the demand for space.

Many are spectacle buildings – giant architectural logos that draw enorwous public attention and increased revenues to the companies that build them. These grand new buildings are emerging as good investments, serving not only as advertising symbols and marketing tools but also as sources of above marker rents for excess office space.

Skyscrapers

The history of concrete high-rise truly belongs to the realm of the twentieth century. E. L. Ransome's system of casting square, twisted, steel bars with concrete as a frame with slabs

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Comparative Study on Design Results of a Multi-storied Building using STAAD PRO and ETABS for Regular and Irregular Plan Configuration

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Abstract

Structural Analysis and design are predominant in finding out significant threats to integrity and stability of a structure. Multi storied structures, when designed, are made to fulfill basic aspects and serviceability. Since Robustness of structure depends on loads imposed, it requires attention. All the challenges faced by structural engineers were taken as opportunities to develop software's such as STAAD PRO, ETABS & SAFE, SAP etc., with ease of use. Softwares such as ETABS and STAAD-pro are leading commercial software's worldwide for structural analysis. The design results using STAAD PRO and ETABS of a rectangular RCC building, for both regular and irregular plan configuration, are obtained and compared.

OBJECTIVES OF STUDY

The main purpose of this study is to carry out a detailed analysis on simulation tools ETABS and STAAD PRO, which have been used for analysis and design of rectangular Plan with vertical regular and rectangular Plan with Vertical geometrically irregular multi-storey building. This study is focused on bringing out advantages of using ETABS over current practices of STAAD PRO versions to light. It was observed that ETABS is more user friendly, accurate, compatible for analysing design results and many more advantages to be discussed in this study over STAADPRO. Pros and cons of using these software's will also be mentioned in this study. To check the behaviour of multi-storey regular and irregular building on software (STAADPro. & ETABS).

To understand the accuracy of software's for analysis and design for plan and elevation Irregularity.

To compare the results and behavior of structures on both the software.

INTRODUCTION

Rcc frame structures

An RCC framed structure is basically an assembly of slabs, beams, columns and foundation inter -connected to each other as a unit. The load transfer, in such a structure takes place from the slabs to the beams, from the beams to the columns and then to the lower columns and finally to the foundation which in turn transfers it to the soil. The floor area of a R.C.C framed structure building is 10 to 12 percent more than that of a load bearing walled building. Monolithic construction is possible with R.C.C framed structures and they can resist vibrations, earthquakes and shocks more effectively than load bearing walled buildings. Speed of construction for RCC framed structures is more rapid.

DIFFERENT METHODS USED FOR DESIGN

- Working stress method
- Limit state method
- Ultimate load method

Staadpro.

One of the most famous analysis methods for analysis is "Moment Distribution Method", which is based on the concept of transferring the loads on the beams to the supports at their ends. Each support will take portion of the load according to its *K*; *K* is the stiffness factor, which equals *(EI/L)*. *E*, and *L* is constant per span, the only variable is *I*; moment of inertia. *I* depend on the cross section of the member. To use the moment distribution method, you have to assume a cross section for the spans of the continuous beam. To analyze the frame, "Stiffness Matrix Method" is used which depends upon matrices. The main formula of this method is [P] = [K] x [Δ]. [P] is the force matrix = Dead Load, Live Load, Wind Load, etc. [K] is the stiffness factor matrix. *K= (EI/L)*. [Δ] is the displacement matrix.

STAAD was the first structural software which adopted Matrix Methods for analysis. The stiffness analysis implemented in STAAD is based on the matrix displacement method. In the matrix analysis of structures by the displacement method, the structure is first idealized into an assembly of discrete structural components (frame members or finite elements). Each component has an assumed form of displacement in a manner which satisfies the force equilibrium and displacement compatibilit y at the joints.

STAAD stands for Structural Analysis and Design. STAAD.Pro is a general purpose structural analysis and design program with applications primarily in the building industry – commercial buildings, bridges and highways structures, and industrial structures etc. The program hence consists of the following facilities to enable this task

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Strength and Durability Studies of Ternary Concrete

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Abstract

This thesis presents a study conducted on mechanical and durability properties of concrete. The investigation covered concrete mixes at water cementitious material with ratio of 0.4. Ordinary Portland cement of 53-grade was used in this study. The percentage of cement that partially replaced by weight were Silica Flume is 10% and varying the GGBS replacement from 0% to 50% . Concrete cubes and cylinders were casted and tested in laboratories. The optimum proportion of replacement was found by conducting tests on mechanical properties like Compressive strength test and Split tensile strength test.

The results show that the optimum replacement of cement with silica flume 10% and 40% GGBS, it is possible to gain the same strength as conventional concrete. The durability of concrete was done by curing with 5% Hydrochloric acid (HCL) and 5% Sulphuric acid (H_2SO_4). The effect of acids on compressive strength, Split tensile strength and durability characteristic property was determined for 7, 28, 60, 90 and 180Days.

INTRODUCTION

For a long time concrete was considered to be very durable material requiring. We build concrete structures in highly polluted urban and industrial areas, aggressive marine environments, harmful sub-soil water in area and many other hostile conditions where other materials of construction are found be non –durable. Since the use of concrete in recent years have spread to highly harsh and hostile conditions, the earlier impression that concrete is a very durable material is being threatened, particularly on account of premature failures of number of structures.

In the past only strength of concrete was considered in the concrete mix design procedure assuming strength of concrete in all pervading factor for all other desirable properties of concrete including durability. In the recent revision of IS 456 of 2000, one of the points discussed, deliberated and revised is the durability aspects of concrete, in line with codes of practice of other countries, which have better experiences in dealing with durability of concrete structures. One of the main reasons for deterioration of concrete in the past is that too much emphasis is placed on concrete compressive strength. As a matter of fact advancement in concrete technology has been generally on the strength of concrete. It is now recognized that strength of concrete alone is not sufficient, the degree of harshness of the environment condition to which concrete is exposed over its entire life is equally important. Therefore, both strength and durability have to be considered explicitly at the design state. It is interesting to consider yet another view point regarding strength and durability relationship. Durability of concrete is its Resistance to deteriorating agencies to which the concrete may be exposed during its service life. When one deals with the durability aspects of concrete, the chemical attack, which results in loss of weight, cracking of concrete and the consequent deterioration of concrete, becomes an important part of investigation. Ordinary Portland cement concrete usually does not have good resistance to acid attack. The addition of FA improves the micro structural properties of concrete like porosity, permeability and sorptivity. The reduction of porosity and permeability implies the improvement in chemical attack and corrosion resistance. The experimental investigation of this aspect is to find compressive strength and durability of concrete by partial replacement of cement with quarry dust.

Durability is an important engineering property of concrete, which determines the service life of concrete structures significantly. Due to the interactions of concrete with external influences, the mechanical and physical properties of concrete may be threatened and lost. ACI Committee Report 201(2001) has classified chemical attacks into several types that include acidic attack, alkali attack, carbonation, chloride attack, and leaching and sulfate attack. Acidic attack usually originates from industrial processes, but it can even be due to urban activity. Even natural exposure conditions may cause acid attacks. Free acids in natural waters are rare. Exceptions are carbonic waters and sulfurous and sulfuric acids in peat waters. Soils may contain huminous acids. Several organic and inorganic acids may occur in shallow regions of sea-water as a consequence of bacteriological activity. Significant quantities of free acids in plants and factories may be found. In these cases, the concentration of acid, which comes in contact with concrete structures, may reach to high value. The degree of aggressive of an acid is dependent on the chemical character of anions present. The strength of acid, its dissociation degree in solutions and, mainly, the solubility of the calcium salts formed are dependent on the chemical character of anion. The acidic attack is affected by the processes of decomposition and leaching of the constituent of cement matrix.

The objective of the present project work is to study the behavior of concrete in partial replacement for cement with

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Effect of Varying Throat Location in Wind Load Response of Natural Draught Hyperboloid Cooling Tower

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Abstract

Thermal and Nuclear power stations require a large amount of cooling water to condense the boiler steam. Because of this, cooling water gets heated and to cool this for further use, the excess heat is removed inside cooling towers. In Natural Draft Cooling Towers (NDCTs) the difference in density of warm air inside and the colder air outside creates the natural draft in the interior. Evaporative cooling occurs as the warm water meets the rising cooler air.

These structures contribute to power generation efficiency and environmental protection. Hyperbolic shape is preferred due to its large base area, strength and stability. The towers involve considerable amount of work on structural design aspect. The predominant forces acting on the cooling tower will result from wind loading. The reinforcement design of NDCT is controlled mainly by the net difference between the tension due to wind loading and compression due to dead load. Also, the design is sensitive to the vertical and circumferential variation of wind pressure around the tower.

This paper deals with the study of eight typical NDCT models, all with Base diameter of 104m, Top diameter of 62m, height 135m above ground level and throat location varying from 70% to 87.5% of total height. The wind loads have been calculated using the circumferentially distributed design wind pressure coefficients along with the design wind pressures at different levels. Meridional and circumferential distributions of membrane forces due to wind load for varying throat location has been studied and observations are discussed. It is observed that throat location plays a vital part in economic design of the structure.

Keywords: These structures are most efficient measures for cooling in thermal power plants by minimizing the need of water & avoiding thermal pollution of water bodies. Natural Draft Cooling Towers presently form the largest reinforced concrete shell structures in the world.

INTRODUCTION

Thermal power is the "largest" source of power in India. There are different types of thermal power plants based on the fuel used to generate steam such as coal, gas, and Diesel. About 71% of electricity consumed in India are generated by thermal power plants. In a thermal power station, heated steam drives the turbo generator which produces electric energy. To create an efficient heat sink at the end of this process, the steam is condensed and recycled into the boiler. This requires a large amount of cooling water, whose temperature is raised and then re cooled in structures called cooling tower.

Cooling towers make use of evaporation whereby some of the water is evaporated into a moving air stream and subsequently discharged into the atmosphere. As a result, the remainder of the water is cooled down significantly.

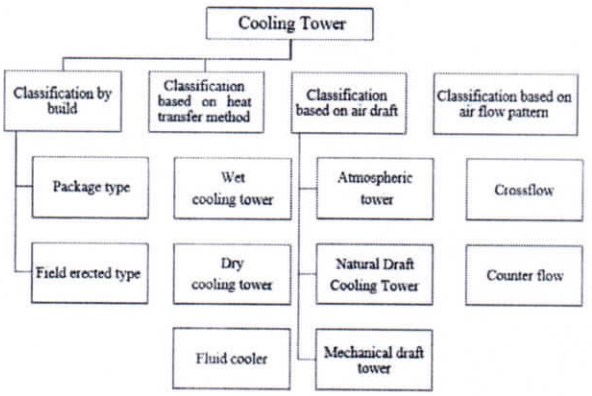

Figure 1: Types of cooling towers

Natural draft hyperbolic cooling tower makes use of the temperature difference between the ambient air and the hotter air inside the tower. In this tower, the heated water is distributed evenly through channels and pipes above the fill. As hot air moves upwards through the tower due to lower density, fresh cool air is drawn into the tower through bottom air inlets. As the water flows and drops through the fill sheets, it comes into contact with the rising cooler air. Evaporative cooling occurs, and the cooled water is then collected in the water basin to be recycled into the condenser. A natural draft tower is so called because natural flow of air occurs through tower without the use of fan.

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Experimental Investigations on Eco Friendly

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Abstract

The rapid Urbanization and Industrialization all over the world has resulted in large deposition of Plastic waste and Waste Tyre Rubber. This waste can be utilized under proper condition to reduce the Cement content in Concrete. M_{30} concrete is used for most of the constructional works. The strength of this concrete results has compared with concrete obtained of Plastic waste and Waste Tyre Rubber varying from 0% to 20% .Experimental investigations comprised of testing physical requirements of coarse aggregates, fine aggregates, cement and the modifier waste plastic and waste tyre rubber. M_{30} concrete design mix considered as per IS 10262-1982. The said percentage of modifier was blended with the cement concrete mix and the optimum modifier content was found. Cubes and cylinders were cast and tested for 28 days strength. These tests revealed that by adding Waste plastics and rubber as partial replacement in Fine Aggregate and Coarse aggregate by volume, the strength of concrete decreased. The cube strengths were decreased as the percentage replacement increased due to their poor bounding properties. By using Plastic waste and Waste Tyre Rubber as modifier, we can reduce the quantity of coarse aggregate and fine aggregate by their volume, hence decreasing the overall cost of construction .The Modified cement concrete can be used in the construction of small drainage works and rigid pavement. Effective utilization of waste plastics can be done for a good cause protecting global environment and effective solid waste management.

INTRODUCTION

The changed lifestyle and endlessly increasing population has resulted in a significant rise in the quantity of post-consumer Plastic waste and Waste Tyre Rubber. The world's annual consumption of plastic materials has increased from around 5 million tons and 20 million tonnes in the 1950s to nearly 100 million tons in recent times, resulting in a significant increase in the amount of Plastic waste and Waste Tyre Rubber generation. Out of this waste, a significant part is recycled but the majority of post-consumer Plastic waste and waste tyre rubbers, like shampoo sachets, carry-bags, nitro packs, milk and water pouches and rubbers in Waste tyres etc. though recyclable, remains comparatively untouched as they are difficult to separate from household garbage. In most of the cases, such post-consumer waste either litters all around or is disposed of by land filling. The disposal of post-consumer Plastic waste and Waste Tyre Rubber in this manner poses significant environmental hazards as it results in reduction in soil fertility, reduction in water percolation, emission of toxic gases, health hazard to animals and birds consuming the wastes, poor drainage due to landfill, pollution of ground water due to leaching of chemicals from these waste products etc.

Looking to the global issue of environmental pollution by post-consumer Plastic waste and Waste Tyre Rubber, research efforts have been focused on consuming this waste on massive scale in efficient and environmental friendly manner. Researchers planned to use Plastic waste and Waste Tyre Rubber in form of concrete ingredient as the concrete is second most sought material by human beings after water. The use of post-consumer Plastic waste and Waste Tyre Rubber in concrete will not only be its safe disposal method but may also improve the concrete properties like tensile strength, chemical resistance, drying shrinkage and creep on short and long term basis.

The Plastic waste and waste tyre rubbers which can be used as fine and coarse aggregate and their effect on properties of concrete. It also presents current trends and future needs of research in the area of use of post-consumer Plastic waste and Waste Tire Rubber in Concrete. The rapid Urbanization and Industrialization in India has Resulted in large deposition of Plastic waste. Plastic waste, consisting of carry bags, cups etc. Can be used as a coating over aggregate and this coated stone can be used for road.

This is a eco-friendly process. By using plastic waste as modifier, the quantity of cement and sand by their weight can be reduced, thereby decreasing the overall cost of construction. Discarded vehicle tires constitute an important part of waste material, which had historically been disposed of into landfills. The production of waste by the tire industry has been a growing problem, indicating the need for its reuse in the construction field. Rubber can be added to asphalt, which increases its durability and improve pavement quality and safety conditions by absorbing the rubber elastic properties. Rubber can also be used for concrete pavements for light traffic. Over the years, research is going on for the use of recycled tire rubber in PCC mixture as a possible alternative aggregate partially replacing some part of aggregate. Rubber aggregates from discarded tire rubber in sizes 20mm can be partially replaced natural aggregates in cement concrete construction.

Scrap tires of various automobiles are continuously accumulated in the landfills all over the world. After the service life of truck and car tires is over their storage and disposal becomes a challenging problem for the municipal authorities. The waste tires also pose a great health hand environmental threat due to increased breeding of mosquitoes and other insects or increase in fire hazards at their storage locations. The municipal authorities in many countries have already banned dumping of waste tires into the landfills due to the above-mentioned problems hence their disposal needs a

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Experimental Studies on Mechanical Properties of Bacterial Concrete with Fly Ash

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Abstract

Concrete, a strong, durable material composed of cement, aggregate and water, is the most used building material in the world. Concrete has an ultimate load bearing capacity under compression but the material is weak in tension. That is why steel bars are embedded in the concrete for the structures to carry tensile loads. The steel reinforced bars take the load when the concrete cracks in tension. On other hand the concrete protects the steel reinforced bars from the environment and prevents corrosion. However, the cracks in the concrete form a major problem which affects the durability of the structures. Here the ingress of water and chloride ions takes place and deterioration of the structure starts with the corrosion of the steel. To increase the strength and durability of the structure either the cracks that are formed should be repaired conventionally using epoxy injection or latex treatment or by providing extra reinforcement in the structure during the design phase to ensure that the crack width stays within a permissible limit. This extra reinforcement is only needed for durability reasons (to keep the crack width small) and not for structural capacity. Especially with current steel prices on rise providing extra steel is not economically viable. Main reason to prevent cracks or limit crack width is to enhance the durability of the structure. If in some way a reliable method could be developed that repairs cracks in concrete automatically (self healing), this would increase and ensure durability of the structure enormously. On the other hand it would also save a lot of money, time and energy.

Investigations have shown that the bacteria Bacillus pasturii can be used for improving the resistance of concrete to alkali or sulphate attack, drying shrinkage etc., which will increase the strength and durability of concrete. However, not much investigation is reported in India for producing bacterial concrete using Bacillus subtilis. Keeping this in view, the present experimental investigations are taken up to study the strength characteristics in ordinary grade concrete and standard grade of concrete with and without addition of bacteria Bacillus subtilis JC3.

The utilization of fly ash in concrete as partial replacement of cement is gaining immense importance, mainly on account of the improvements in the long term durability of concrete combined with ecological benefits. Technological improvements in thermal power plant operations and fly ash collection systems have resulted in improving the consistency of fly ash. To study the effect of partial replacement of cement by fly ash, studies have been conducted on concrete mixes by replacing cement content by 10%, 20% and 30% with fly ash. In this investigation the effect of fly ash on compressive strength, split tensile strength and flexural strength are studied.

INTRODUCTION

Concrete is a construction material that is used worldwide because of its first rate properties. However, the drawback of this material is that it easily cracks due to its low tensile strength. Cracks can occur during any stage of a life of a concrete structure. They can be due to concrete material itself as in the case of volume instabilities or due to external factors such as external loading, harsh environmental exposure, poor construction procedures or design error. There cracks have many negative effects on mechanical performance and durability of concrete structures.

The development of concretes which can automatically regain this loss of performance is very desirable. Along these lines, self healing of cracked concrete is often studied phenomenon.

Experimental investigation and practical experiences have demonstrated that crack in cementitious materials have the ability to seal themselves rapid crack healing is necessary since it is easier for substances to ingress into concrete through cracks than through the concrete. It is known that it is costly to inspect, monitor and repair cracks, monitor and repair cracks. Moreover, some repair methods currently used are not so sustainable. The chemical and physical process of self healing of cracks in concrete has been previously investigated by other researchers. The effects of self healing by crack width, water pressure, pH of healing water, temperature, water chloride concentration and concrete composition have been discussed by many researchers. For autogeneous healing to occur, the following reasons have been cited.

Further hydration of un reacted cement, expansion of concrete in the cracks flanks (swelling), crystallization (calcium carbonate), closing of cracks by solid matters in the water (impurities) and closing of cracks by spilling of loose concrete particles resulting from cracking. Among these reasons, most researchers has indicated that the crystallization of calcium carbonate within the cracks was the mechanism self healing of mature concrete. Therefore, it would be desirable if concrete cracks could be healed autonomously by releasing healing agents inside the matrix when cracks appear

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Experimental Study on Fibre Reinforced Polymer Concrete

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Abstract

Energy saving in building technology is among the most critical problems in the world. Thus it is a need to develop sustainable alternative to conventional concrete utilizing more environmental friendly materials. One of the possibilities to work out is the massive usage of geo polymer concrete to turn them to useful environmental friendly and technologically advantages cementitious materials. Polymer concrete has superior mechanical properties campared to conventional types of concrete. The experimental researches concerning the polymer concrete had investigated the mechanical characteristics of epoxy polymer concrete prepared with fly ash as filler. For obtaining good mechanical properties the filler is used with higher dosages. The experimental values of mechanical strengths for polymer concrete without steel fibres were smaller than that for polymer concrete with fibres. A huge amount of work has been done on literature of polymer concrete which has concluded that use of 14% resin by weight of polymer concrete would give better results. Various other parameters like micro fillers, aggregate type, resin type, fibre reinforcement and curing regime affects the polymer concrete.The polymer concrete specimens are casted and tested for compressive strength for 7,28,60 and 90 days, Split Tensile Strength and Flexural Strength for 7 and 28 days and cured at ambient temperature. It was concluded that the mix with 10% fly ash and 2% steel fibre has got best results. Considering the fact that fly ash is cheaper so the mix also considered to be the economical one.

INTRODUCTION

Polymer concrete will dominated in testing materials in the structural designing field, with them being described by a high estimation of the compressive quality and extreme compressive strain, and in addition by a decent synthetic protection when contrasted with that of customary cements. Polymer concrete framed by polymerizing a blend of a monomer and total. Polymer concrete has been in business use since the 1950s. Contingent upon the materials utilized, Polymer cement can create compressive qualities of the request of 140 MPa (20,000 psi) inside hours or even minutes and is in this way appropriate for crisis cementing employments in mines, burrows, and interstates.

Concrete is comprised of sand or stone, known as total, joined with bond glue to tie it. Total can be of different sizes. It is comprehensively classified as fine (ordinarily sand) and coarse (regularly squashed stone or rock). The more noteworthy extent of cement is total which is cumbersome and moderately less expensive than the concrete.

As a great part of the constituents of solid originate from stone, it is frequently suspected that solid has similar characteristics and will keep going forever. Concrete has been called simulated stone, cast stone, reproduced stone and reconstituted stone. In any case, concrete must be thought of as an unmistakable material to stone. It has its own particular qualities as far as strength, weathering and repair.

Concrete is a moderately solid and vigorous building material, yet it can be seriously debilitated by poor make or an extremely forceful condition. Various 2 notable solid structures show issues that are identified with their date of cause. These issues can be illuminated by utilization of polymer in solid development.

A polymer is an expansive particle containing hundreds or thousands of iotas framed by joining one, two or incidentally more sorts of little atom (monomers) into chain or system structures. The fundamental polymer material utilized as a part of solid development are polymer altered cement and polymer concrete.

Polymer adjusted cement might be separated into two classes: polymer impregnated cement and polymer bond concrete. The first is created by impregnation of pre-thrown solidified Portland bond concrete with a monomer that is in this manner changed over to strong polymer. To deliver the second, some portion of the bond fastener of the solid blend is supplanted by polymer (regularly in latex frame). Both have higher quality, bring down water porousness and better protection from chemicals, and more prominent stop defrost soundness than ordinary cement.

Polymer cement or tar solid comprises of a polymer folio which might be a thermoplastic yet more every now and again is a thermosetting polymer, and a mineral filler, for example, total, rock and pulverized stone. PC has higher quality, more noteworthy protection from chemicals and destructive operators, bring down water retention and higher stop defrost soundness than regular Portland bond concrete.

Plain concrete has numerous alluring properties however it likewise has numerous confinements. Its low rigidity, poor sturdiness (protection from stop and defrost), and weakness to sulfate and corrosive assault has restricted its utilization. These issues have been illuminated for a few applications. Concrete has been strengthened with imbedded steel in regions of pliable powers. Air-entraining specialists have been utilized when the solid needed to oppose serious solidifying and defrosting. Extraordinary bonds have been produced for concrete subjected to sulfate assault and defensive coatings put on concrete presented to acids. Every one of the previous medicines endeavored to enhance concrete and did, truth be

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DESIGN AND DEVELOPMENT OF WIRELESS OPERATED LOW COST PROSTHETIC HAND BY FUSED DEPOSITION MODELING

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ABSTRACT

In present days, unfortunately many of the people were losing their hands in different situations. The human body parts, which replaced by the artificial parts are known as prosthetic parts. Recently, the advent of 3D printers has enabled people to produce many inexpensive and obtainable prosthetics. This 3D printing technology is using because it takes less cost and manufacturing of hand should be accurate as per the design. In present project, a low cost wireless operated prosthetic hand developed with the help of fused deposition modeling. To validate the performance of the developed prosthetic hand the no.of trial and error experiments conducted. The prototype were agreed some results and some experiments shows the mixed results. The overall weight of the prosthetics are optimized and giving the desired functions at the lowest weight than the normal bionics

KEYWORDS: Prosthetics, Fused Deposition Modelling & 3D Printing

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Original Article

INTRODUCTION

Due to the increase in the vehicles on the roads carried to heavy traffic situations, some will leads accidents can occur to anyone, there may be accidents occurs to the pedestrians and some vehicles accidents can also be occurred this leads to serious injurious will leads to losing of the organics also. Losing the organisms and replacing them with the traditional methods will be huge cost that may be not possible to invest to everyone. The development of the traditional methods will leads to huge time. Nowadays, almost all the medical companies are also providing very good solutions like prosthetics for the patients who may lose any parts when they met with accidents unfortunately. Most of all the prosthetics are giving good performance, having the good aesthetics, and having the movement range in the constrained path. Most of the prosthetics are replica of the human hand and having the movement as if human fingers and that condition that condition cause them to move. The good thing in the 3D printed prosthetics is it includes less cost as compared with the normal transparencies and this does not requires any surgery. However, the attaching of the prosthetics to the human body requires the high-end supervision of the patient for the proper implantation of the prosthetics However, prosthetics that include good functions or having better performance prove more expensive and proven overall cost even more. Some prosthetics may go cost up to thousands of Rupees, this cost alone only for prosthetics alone not including doctors fee. Prosthetics hand provides the good facility to patients with the ability to pick and place the simple objects, typing of the keyboard and some simple day-to-day operations.

Since the inception of the 3D printing, maximum all the medical distinguishers and technical researchers are trying to set up a database on the prosthetics development with the additive manufacturing. Researchers are

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STUDIES ON EFFECT OF WELDING PARAMETERS ON THE FRICTION STIR WELDING OF ALUMINIUM 6061-T6 BUTT WELDED JOINTS USING TAGUCHI L9 APPROACH

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ABSTRACT

The two sheets of aluminum 6061-T6 alloy of size 200×150×3 (mm) are butt-welded by the friction stir welding process by varying the weld parameters such as rotational speed, tilt angle, and feed. The taguchi L9 experimental technique is used to draw the experimental conditions by taking the above said friction-stir welding process parameters. The temperature of the weld bead during the friction-stir welding is measured. The hardness of the weld bead is measured by using the hardness testing machine to find out the hardness value of the weld joints and on the base plates. Analysis of variance (ANOVA) analysis is performed to test the significance of the experimental model at 95% confidence interval. Optimality of the friction-stir welding process parameters for the butt welding of aluminum 6061-T6 alloy is obtained by using the multiple response desirability factors.

KEYWORDS: Aluminum 6061-T6 Alloy, Desirability factor, Friction Stir Welding, Response Temperature & Response Hardness

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Original Article

INTRODUCTION

A thin layer of oxide is present over the surface of aluminum which contains moistures. It reacts and forms oxide and releases hydrogen, which may cause porosity formation on the weld bead during the fusion welding. The strength of the weld joint will further reduce tremendously because of the presence of porosities on the weld bead. The high thermal conductivity of aluminium and its alloys is also a major problem for the fusion welding. The good weld-ability, mechanical and physical properties of aluminium 6061-T6, "a solution heat treated, then artificial aged alloy" made it a widely used material for the structural applications. The problem associated with the joining of aluminium 6061-T6 alloy by the fusion welding process can be overcome by the friction stir welding process. Friction stir welding is a solid state nature of the process in which coalescence produced by the heat obtained from the mechanically induced sliding motion or by the friction between two mating surfaces. A non consumable rotating tool attached with a special designed pin is getting inserted into the abutting edges of the two sheets which is to be joined. And when sufficient heat will be generated the rotating tool will traverse along the line of joint by creating the joining action of the two surfaces. The rotating tool performs two major functions that

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Original Article

CHARACTERIZATION OF ADDITIVE MANUFACTURED ABS AND NATURAL ABS SPECIMENS

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ABSTRACT

Additive Manufacturing (AM) is a Rapid Prototyping technique. It is used for producing any real complex parts from the desired 3D CAD models. It can also manufacture prototypes. Additive Manufacturing can utilize raw materials with very minimum wastage. There are several additive manufacturing methods are available. This research work is focused on deposition modeling process. A typical 3D printer Mechanical Part Maker is used for printing tensile ASTM D638 specimens made of ABS and Natural ABS at zero degree orientation with varying densities of 11.1%, 22.2%, 33.3%, 44.4%, 55.5%, 66.6%, 77.7%, 88.8%, and 100%.

CATIA V5-R20 software is used for modeling ASTM D638-type1 standard specimens and which can allow to save the models into STL files. After that, these STL files send to CURA15.04.6 software, then the software itself can slice the models mathematically and generate g-codes files. The g-coded file formats are sent to theFDM 3D printer via PRONTERFACE software which acts as interface between CURA15.04.5 and 3D printer and then the specimens printed by Mechanical Part Maker FDM 3D printer. Tensile test machine of model UTN-40 was used for conducting a tensile test.

Here the results of yield stress, tensile strength, the percentage of reduction in area and percentage elongation for the variation of densities at constant printing speed, feed and orientation are observed. Finally, it is concluded that the characteristics of ABS are better than natural ABS, but the smoothness is good for natural ABS by visual appearance

KEYWORDS: Mechanical Part Maker FDM 3D printer, Additive Manufacturing, ASTM D638,CATIA V5-R20, & CURA15.04.6

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INTRODUCTION

ABS Filament

ABS (Acrylonitrile Butadiene Styrene) is a commonly used 3D printing filament. It is used for making durable parts, but it is not easy to print compare to PLA. ABS plastic is less brittle and ductile compare to PLA filament. ABS plastic is impact resistance and light in weight. It can withstand extreme weather conditions and is more resistance to chemicals. This will ensure minimal wrapping or separation of layers as the piece cools.

Experimental Investigation of the Base Flow and Base Pressure of Sudden Expansion Nozzle

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Abstract. This paper presents an experimental investigation of an airflow from convergent-divergent axisymmetric nozzles expanded suddenly into circular duct of larger cross- sectional area than that of nozzle exit area, focusing attention on the base pressure and the flow development in the duct. To investigate the influence of area ratios and nozzle pressure ratios on the flow field developed in the duct, the micro jets of 1 mm orifice diameter located at 900 interval along a pitch circle diameter 1.3 times the nozzle exit diameter were employed as the controller of the base pressure. The Mach number investigated in the present study was 1.87, 2.2 and 2.58. The area ratios of the present study are 2.56, 3.24, 4.84 and 6.25. The nozzle pressure ratio (NPR) used were 3 and 5. The length-to-diameter ratio of the enlarged duct was varied from 10 to 1.The level of expansion at the nozzle exit (i.e. before sudden expansion) influences the wall pressure very strongly. From the results it is observed that for NPRs 3 there is no appreciable gain in the base pressure, and hence control employed in the form of micro jets is not effective for this NPR, however, at NPR 5, there is significant change in the base pressure values for all the area ratios. This clearly indicates that the level of expansion plays an important role to dictate the value of the base pressure and ultimately the control effectiveness by the micro jets

1. Introduction

THE flow field generated by the infringement of high-speed flows usually results in a very unsteady flow field. When such flows are generated at the rear end of aerospace vehicles, this flow can lead to a host of adverse effects that can diminish aircraft performance. One of the important related issues is the occurrence of base flow aerodynamic side loads due to vortex shedding and asymmetric flow separation inside a rocket nozzle. This problem has been well studied through experiments as well as computations. The unsteady separation phenomenon inside the nozzle can lead to steady/unsteady forcing of the thrusting nozzle, as well as associated mechanisms due to fluid–structure interactions [1-5]. The presence of such unsteady side loads can also result in adverse control systems of the vehicle in pitch, roll, and yaw [6]. Since the nozzle is located in the wake of the main body, response of the nozzle and the associated mechanical systems to the oscillating outer flow in the presence of asymmetric loading due to internal flow has been studied [4, 7, 8]. The investigations have demonstrated the origin of these unsteady phenomena at the base of the nozzle are 1) asymmetric separation line, 2) pressure pulsations at the separation and reattachment locations, 3) aeroelastic coupling, 4) transition of separation pattern between restricted shock separation (RSS) and full shock

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FLOW CONTROL WITH AEROSPIKE BEHIND BLUFF BODY

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ABSTRACT

Flow control in high-speed is challenging due to the high-pressure shock and low-pressure recirculation bubble attached around the vehicle. Wave drag, and Base drag are important accouterments of flow around high-speed objects. This paper deals with base drag, only and presents an experimental study of aerospikes behind the base of bluff bodies to control this drag. A plate of 1 mm thickness with two spikes at 11.5 mm is placed between the nozzle and duct as a passive controller. The Mach numbers deployed for the subsonic regime were 0.6, 0.7 and for transonic regime were 0.8, 0.9 for area ratio 6.25. The L/W ratio taken were 4W, 6W, 8W and 10W. Aerospikes were found to be very effective in controlling base pressure in the transonic regime without influencing the main flow field.

KEYWORDS: Base Pressure, Wall Pressure & Mach Number

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Original Article

INTRODUCTION

Creatures of nature, after years of evolution, reduce drag by biological structural adaptive control [1]. Drag reduction techniques mimicked by us in today's world is a primary engineering goal [2]. The high Mach number vehicles are designed to have bluff-nose to reduce aerodynamic heating but leads to strong bow shock at nose which further lead to high pressure drag. This high-pressure drag is known as wave drag. Another type of pressure drag is base drag i.e. partial vacuum behind the base. The vacuum acting behind the high-speed vehicle can result in 50 % of the total drag of a missile in no-jet condition [3]. This encourages researchers in aerodynamics to explore new techniques to reduce base drag. We, in this paper, have focused on base drag reduction. Device to reduce base drag of wings using blunt base is one of the applications [4]. Another application is launch vehicles [5]. Computational analysis of the effect of geometric and flow parameters on velocity was studied by[6] thus giving future trend for a shift from expensive experimentation to computation. Turbulent flow study after the sudden change in cross-section in subsonic regime is another research area [7]. Thus, we can see the application in different fields and would like a robust control to adapt to the need.

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CFD ANALYSIS OF HUMAN POWERED SUBMARINE TO MINIMIZE DRAG

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ABSTRACT

This paper deals with finding the optimum fineness ratio, i.e. ratio of length to maximum diameter, of human -powered submarine of different shapes to reduce the drag force on the body using Computational Fluid Dynamics (CFD) analysis. These types of submarines are used in events like ISR and eISR. This paper focuses on finding the total drag force on submarine models with a constrained diameter and different fineness ratios. The analysis is done by using ANSYS Fluent. In this paper, only the fully submerged flow is considered on a hull without any appendages. The total drag on a body is caused in three different parts that are wave drag, skin friction drags and base drag. The analysis is done different shapes of submarines like Conic shape hull, Elliptical shape hull, Ogive shape hull and Parallel mid-body hull by flowing water at velocities of 3 m/s, 4m/s and 5 m/s. The fineness ratios at which the drag is minimum are found in all submarine shapes. The optimum value of fineness ratio, which gives minimum drag is obtained by the analysis is 6 for Conical shape hull, Elliptical shape hull and Ogive shape hull whereas for the submarine with Parallel mid-body hull shape the optimum fineness ratio is 7

KEYWORDS: CFD, Drag, Fineness Ratio & Submarine

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Original Article

INTRODUCTION

Mostly submarines find their use in the defense sector as attack submarines, aircraft carrier protection and also as a nuclear strike force to launch ballistic missiles. Apart from this submarine recently are also being used for recreational purposes and as a sport. These submarines are usually one manned human-powered submarines. Competitions like the International Submarine Races (ISR) and the European International Submarine Races (eISR) have promoted the development of human-powered submarines at a university level [1,2]. These Human-powered submarines can also be used in fields like marine biology and oceanography to carry out research on various underwater creatures and plants. Researchers can get easy access to the marine world using these submarines as they require no fuel and are easy to operate. These submarines are also eco-friendly as they are completely human powered and cause no damage to the environment. The design of the shape of the submarine mainly depends on the hydrodynamics of the submarine-like other marine vehicles such as ships and underwater missiles. In human-powered submarines as there is no other source of energy available it is very important to minimize the resistance on these submarines. These submarines can navigate in two different modes which are: on the surface of the water and incompletely submerged mode. As maximum drag occurs in completely submerged mode of

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Original Article

CFD ANALYSIS OF CD NOZZLE AND EFFECT OF NOZZLE PRESSURE RATIO ON PRESSURE AND VELOCITY FOR SUDDENLY EXPANDED FLOWS

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ABSTRACT

A numerical work was carried out to study the effectiveness of micro-jets to control base pressure in suddenly expanded two-dimensional planar duct. Two micro-jets of 1 mm orifice diameter located at 90° intervals along a pitch circle distance of 1.5 times the nozzle exit diameter in the base region were employed as active controls. The calibrated Mach numbers at the entry to suddenly expanded duct was 1.87. The length-to-diameter ratio (L/D) of suddenly expanded duct was 10. Nozzles generating the calibrated Mach numbers were operated with nozzle pressure ratio (NPR) 3, 5, 7, 9 and 11. From the present investigation it is evident that for a given Mach number and effect of NPR will result in maximum increase/decrease of pressure and velocity. The convergent-divergent nozzle geometry has been modelled and simulated employing turbulence models: K-ε standard wall function turbulence model from the code was independently checked with the commercial computational fluid dynamics.

KEYWORDS: CFD, C-D Nozzle, ANSYS, Pressure & Mach Number

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INTRODUCTION

An unexpected expansion of flow in subsonic and supersonic regimes is a major problem in many applications. In sudden expansion the effectiveness of jet plays a vital role in various application. In jet and rocket engine test cells it has been noticed that systems were used to simulate high altitude conditions; a jet discharging produces an effective discharge pressure which is sub atmospheric. Due to its wide application many scholars are studying the behaviour of fluid in sudden expanded duct. Khan et al attempted to control the base pressure with active control and some of the works relevant to the present study are reviewed in the next section to follow. However, to the best of the authors knowledge there is no work reported with active control of base pressure in simulation. Therefore, in the present study an attempt is made to investigate the base pressure control with active control in the form of micro-jets using Computational fluid dynamics (CFD) method by ANSYS FLUENT.

Computational fluid dynamics (CFD) is a versatile technique of modelling and simulation of flow fields which provides accurate results regarding the flow characteristics of an object. The solution of Reynolds averaged Navier-Stokes (RANS) equations being transient in nature imposes the complexity in the computational studies of

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ENERGY MANAGEMENT OF A SMALL-SCALE WIND TURBINE SYSTEM COMBINED WITH BATTERY STORAGE SYSTEM

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ABSTRACT

Battery storage system regarded as a viable solution to maintain the stability for the wind power generation regarding its availability to exchange active power. The proposed study is based on using a PMSG wind turbine system as primary power source and a battery as an auxiliary power source. The latter has been used as Energy Storage System ESS that has a dual role storing or providing the power mismatching between the generated wind power and load demand. Further, to coordinate operation of power sources, a supervisory control system is evaluated and simulated under three different scenarios of wind speed fluctuations with fixed load demand. The obtained simulation results induced at various situations of wind velocity and their analysis have been included in detail.

KEYWORDS: Energy Management, Wind Turbine System, PMSG Generator, Battery Storage System, Modeling & Simulation

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Original Article

1. INTRODUCTION

Energy has a critical role in the economic growth and development that due to the significant relationship between electricity consumption and socioeconomic growth. However, the hybrid power system designing a combination of one or more renewable source and one or more conventional energy source worked in stand-alone mode in remote areas. They are used to convert the unregulated power, generated from sources of renewable energy, into useful power for the electrical load (Diab, Lan, Zhang, & Ali, 2016). Therefore, there are many topologies of hybrid power systems, among them: PV/wind/fuel cell/battery (Fathabadi, 2017), PV/Wind Turbine/Battery (Khan, Yadav, & Mathew, 2017), PV/FC/WIND (Nowdeh, Rajabi-ghahnavieh, & Khanabdal, 2012), PV/Wind Turbine (Amorndechaphon, Premrudeepreechacharn, Higuchi, & Roboam, 2012)and Wind Turbine/Battery (Sarrias, Fernández, García, & Jurado, 2012). The hybrid system aims to provide a specific pattern of load with minimum cost and maximum of response to load power demand (Nowdeh et al., 2012).

The wind power generation is experiencing a remarkable growth in terms of installed power and energy generation in many countries around the world over the past decade (Abdullah, Yatim, Tan, & Saidur, 2012). It is considerate as one of the most promising and inexhaustible sources of renewable energy due to its advantages in terms of efficiency, mobility, cost and reliability and alsothe negative environmental impacts to be one of the

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Experimental Investigation on Friction Stir Butt Welded Aluminium 6061-T6 Alloy Using Taguchi L9 Experimental Approach

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Keywords: Aluminium6061-T6, Friction stir welding, hardness, regression analysis, temperature

Abstract. Two sheets of aluminium 6061-T6 alloy of size 400×150×3 (mm) is butt welded by the friction stir welding by varying the process parameter such as rotational speed, tilt angle and feed. The ranges of process parameters are rotational speed 560, 900 and 1400 RPM, tilt angle 0, 0.5 and 1 and feed 20, 63 and 100 mm/min. The hexagonal shape of probe is taken to carry out the friction stir welding. The Taguchi L9 experimental approach is used to draw the 9 experimental conditions. The temperature at the weld bead as well as on the probe during the welding is measured by the help of a LASER gun. The hardness at the weld bead and parent metal is measured after the welding. Taguchi L9 approach is used to optimize the process parameters to identify the individual as well as simultaneous effects of the process parameters on the responses temperature and hardness of the weld joint. The optimum conditions for the better fitment of the process parameter and responses are identified through this experimentation.

Introduction

Aluminium 6061-T6 is aluminium, copper and magnesium based alloy generally used in bike frames and marines, aircraft, electrical and appliance fittings. Welding can be defined as the process for the joining of different materials by the application of heat, with or without the application of pressure and with or without the use of a filler material. The use of welding is very extensive in today's technology for the benefits like weld strength, freedom in design, joining of metals and their alloys by means of both similar and dissimilar and possibilities of joining of workpieces through spot, seam and in a number of other configurations. A many number of welding techniques has been developed and that can be classified by means of sources of heat that is flame, arc, energy beam, contact resistance, reactions and also by means of types of interactions i.e. liquid and liquid interaction (fusion welding), solid and solid interaction (solid state welding). But in general welding can be classified as gas welding, arc welding, resistance welding, solid state welding, thermo chemical welding and radiant energy beam welding processes. However friction stir welding process is a simple and an innovative solid state welding process took place in the solid state below the melting point of the metals to be joined. The welding process is well known for its capability of joining of various thicknesses of various metals such as Aluminum, Bronze, Copper, Steel, Magnesium and Titanium by means of either butt or lap joints. A rotating tool continuously rubbed against the work piece by creating volumetric heating and a continuous joint is developed as it progresses forward along the line of joint. The mechanical stability of the tool at operating temperature is the major drawback of the friction stir welding process. The process overcomes all the problems related to solidification of a fused material because of its solid state nature of welding. High strength aluminum alloys which significantly used in aerospace industries could be joined with a minor loss in strength by friction welding, which is difficult to weld by the fusion welding. Today friction stir welding process is widely adopted by the manufacturers for the fabrication of complex products and assemblies. Taguchi design of experiment employs various experimental approaches by taking the number of process parameters and the output results for the optimization

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A REVIEW ON FIBER REINFORCEMENT IN COMPOSITE PLASTICS BY FUSED DEPOSITION MODELLING

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ABSTRACT

Additive manufacturing (AM) technologies emerged as prominent employable process for the industry in several applications. Fused deposition modeling (FDM) become favoured AM technique because of low cost, minimum quantity of wastage and simplicity in operation. Manufactured thermoplastic parts by this process are commonly employed as rapid prototypes for functional testing with. The use of pure thermoplastic materials limited the applications because of reduction in average mechanical properties. To make this process as viable, there is a censorious requirement to refine the mechanical properties of pure thermoplastic parts made by FDM. One of the feasible methods is reinforcement of fibers into polymers to form fiber reinforced plastic (FRP) composites, thermo plastic as matrix. These products can be rightly employed in the real time application areas, such as aerospace, automotive, and wind energy. This research paper objective is to present previous research work related to fiber reinforcement in polymers. Brief review is made about the effect of reinforcement of short and continuous fibers in polymers.

KEYWORDS: Fused Deposition Modeling, Fiber Reinforcement, Short Fiber & Continuous Fiber

A Review

INTRODUCTION

Fused deposition modelling accomplishes the layer-by-layer build by depositing a material extruded through a nozzle in a pattern that is composed of parallel lines known as a raster pattern. The final products made from thermoplastics and some engineering plastics have limited mechanical properties. Therefore, to render this technology suitable for producing functional, load-bearing parts, FDM protocols are needed for materials development and for the manufacturing of composite products. Fiber reinforcement can significantly enhance the properties of resins/polymeric matrix materials. The fiber provides strength in the longitudinal direction while the matrix, often a resin, provides stiffness and bonding of the fibers. The optimal orientation of fibers can improve structural stiffness, strength, ultimate failure load, buckling stress, and fundamental frequency of composite laminates. A special characteristic of FRC is that multiple plies with different fiber orientations can be stacked in order to provide strength in multiple directions, which allows composite structures to be tailor for specific applications or load cases.

The present review paper objective is to understand the previous research work carried in assesment of mechanical properties of FRP composites fabricated by FDM process.

FUSED DEPOSITION MODELING PROCESS

The familiar method in AM is material extrusion because of low cost and simplicity in adoption in desktop 3D printers [1]. Material is deposited through a nozzle at distinct locations in a build volume [2]. In order to achieve this principle to work, three axes of motion, a material which has capability to flow through a nozzle, and control

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Telugu Script Recognition Approach Using Kernel Features

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ABSTRACT— Due to their many applications the optical character recognition (OCR) systems have been developed even for scripts like Telugu. Due to the huge number of symbols utilization, identifying the Telugu words are very much complicated. Pre-computed symbol features have been stored by these types of systems to be recognized or to retrieve in a database. Hence, searching of Telugu script from the database is a challenging task due to the complication in finding the features of the Telugu word images or scripts. Here, we had implemented novel Telugu script recognition based on the extraction of features for the TELUGU text, which uses KERNEL to extract text features and uses the AKD tree algorithm for matching purpose.

KEYWORDS: OCR, preprocessing, Kernel features, AKD

1. INTRODUCTION

The process of automatic reading of documents is composed of a sequence of stages like image acquisition, pre-processing, object extraction, normalization or windowing, feature extraction, classification and post-processing. The image acquisition is the process of imbibing a document as an input to the character recognition system. Pre-processing stage subjects to removal of noises from the image that occurs due to variety of external factors like improper image scan settings, quality or resolution of image, quality of image capturing device and lack of illumination etc. The resulting images require additional pre-processing techniques like elimination of page layout [1] and graphical components in the image [2], skew detection and correction [3] etc followed by transforming the document to a suitable form for further processing. The object extraction generally called as segmentation; the process of identifying boundaries for region of interest (ROI). The offline OCRs imbibe a scanned document input and converts it into machine editable document format necessarily into Unicode of corresponding character images. The input documents are pre-composed with text of either printed or handwritten script pertaining to a particular language. The documents used in character recognition systems are classified as variety of types [4]. The standard classifications are printed and handwritten documents.

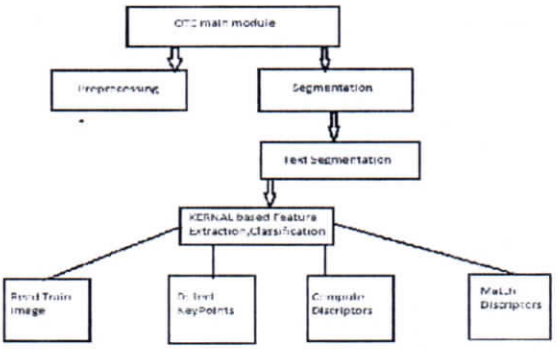

Fig:1Modules and the flow of control in the OCR system

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Video De-noising Using Hybrid Filter for Various Noises

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Abstract—*This paper presents a three dimensional hybrid filter to remove random valued impulse noise such as Gaussian slat& pepper, speckle noise from colour video sequences and compared the results with the numerical values. Video denoising is the process of removing noise from a video signal. Video denoising methods can be divided into Spatial video denoising methods, where image noise reduction is applied to each frame individually. Temporal video denoising methods, where noise between frames is reduced. Spatial-temporal video denoising methods use a combination of spatial and temporal denoising. This is often referred to as 3D denoising. This hybrid filter is applied in three dimensional sliding window where spatial as well as temporal information about neighbourhood is available for restoration of frame under consideration. Only noise free pixels of three dimensional sliding window are used for restoration of frame under consideration. Simulation results show that the proposed three dimensional hybrid filter yields superior performance in comparison to other filtering methods.*

I. INTRODUCTION

Impulse noise is often introduced into frames of videos during acquisition and transmission. Based on noise Values, it can be classified as easier to remove salt and pepper noise and more difficult random valued impulse noise . We focus on removing the latter. Several filtering methods have been proposed for the removal of impulse noise from colour images using different approaches. Most of these techniques use vector processing approach as it is widely accepted that it is more appropriate than component-wise filtering approach, which can generate colour artifacts in filtered images. The vector median filter (VMF), vector directional filter (VDF), and the distance directional filter are most commonly used vector filters for noise removal from colour images. The main drawback of applying component wise filtering is that inherent correlation among different channels may be lost, resulting into colour artifacts.

II. LITERATURE SURVEY

Chaudhry et al. (2013) proposed Intelligent Image Restoration Approach Using Neural Networks to remove the degradation of images from Gaussian white noise and the concept of punctual kriging is then used to estimate the intensity of a pixel. Artificial neural networks (ANN) are employed to minimize the

cost function of the kriging based pixel intensity estimation procedure. ANN, in merit to analytical methodologies, avoids both matrix inversion failure and negative weights problems. An effective hybrid image denoising method based on the concept of punctual kriging is analyzed. In future work, increase the number of fuzzy rules can be increased for the better exploitation of the intensity variation on the edges,lines and object boundaries in the image

Maini et al.(2009), evaluated the performance of various speckle noise reduction filters applied over medical images. The presence of the speckle noise affects image interpretation by human and the accuracy of computer-assisted diagnostic techniques. Low image quality is a problem for an obstacle for effective feature extraction, analysis, recognition and quantitative measurements. This works compares five different speckle reduction filters quantitatively using simulation imageries. The performance of noise removing algorithms is measured using quantitative performance measures such as MSE, SNR and visual quality of the images because of non adaptive nature some distortions also produced in the result.

Benzarti, et al. (2008), implemented Speckle Noise Reduction of Ultrasound Images using denoising approach which combines that transformes. The

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Real Time Video Detection of Drowsiness using SVM Classifier

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Abstract—About 10-20% of all world traffic accidents are due to the diminished level of attention of the driver. Drowsiness of driver is now identified as one of the key reasons behind fatal crashes caused by the drivers. Thus a drowsiness detection technique is discussed in this paper. This uses various images of the driver to detect drowsiness by monitoring the driver's eyes and yawning pattern. This paper describes a face detection framework that is capable of processing images extremely rapidly while achieving high detection rates. Driver Fatigue is one of the major reasons causing most fatal road accidents around the world. This shows that in the transportation industry specially, where a heavy vehicle driver is often open to hours of monotonous driving which causes fatigue without frequent rest period. Hence it is very essential to design a road accidents prevention system for detecting driver's drowsiness, which determines the level of driver inattention and give a warning when an impending hazard exists. In this work the eye blink and yawning of the driver is detected. If the driver's eyes remain closed for more than a certain period of time and the mouth of driver is open for yawning, the driver is said to be drowsy and an alarm is sounded.

INTRODUCTION

Drowsiness is one of the major causes for road accidents. It becomes substantial to combat accidents due to drowsiness and hence, develop asystem to avert such fatalities Even though the driver's safety is improving in road and vehicle design, the total number of serious crashes is still increasing. Reducing the number of vehicle crashes would benefit to save life of millions people around the world. Vigilance is the state of wakefulness and ability to effectively respond to external stimuli. and crucial for safe driving. Recently many countries have noted the importance of improving driving safety. Developing vision based warning systems for drivers is an increasing area of interest. Computer vision has gained a lot of importance in the area of face detection, face tracking, eye detection, Yawning detection for various applications like security, fatigue detection, biometrics.

Driver fatigue not only impacts the alertness and response time of the driver but it also enhances the chances of being involved in car accidents. The sleepy drivers fail to take right actions prior to a collision. An important irony in driver's fatigue is that the driver may be too drained to comprehend his own level of drowsiness. This significant problem is often ignored by the driver. Consequently, the use of supporting systems that examine a driver's level of vigilance is necessary to avoid road accidents. These systems should then alert the driver in the case of sleepiness or inattention. Some warning signs that can be measured as indications of driver fatigue are:

Day dreaming while on the road, yawning, feeling impatient, and feeling stiff and heavy eyes. A lot of different methods have been proposed for drowsiness detection. These methods can be broadly divided into two categories: Intrusive methods and Non- Intrusive methods. Intrusive methods include the introduction of measuring apparatus on the human body, whereas in Nonintrusive methods no devices come in direct contact with human body. The methods such are some of the examples of intrusive drowsiness detection methods and methods such as are some of the non-intrusive methods used for drowsiness detection. But most of these methods face many challenges. The intrusive methods always require measuring devices to be in contact with human body and additional hardware devices.

Literature Survey

Hong Su et. al. [1] described 'A Partial Least Squares Regression-Based Fusion Model for Predicting the Trend in Drowsiness'. They proposed a new technique of modeling driver drowsiness with multiple eyelid movement features based on an information fusion technique—partial least squares

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Improved Recursive HE Algorithms for Low Exposure Images

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Abstract*—This paper proposes two methods for image enhancement based on exposure, which performs HE recursively. These methods are very effective for images captured in low light condition like underwater sequences or night vision images. The first method proposed is recursive exposure based sub-image histogram equalization (R-ESIHE) that performs ESIHE[20] method recursively till the exposure residue among successive iteration is less than a predefined threshold. The second method is recursively separated exposure based sub image histogram equalization (RS-ESIHE) which performs the separation ofimage histogram recursively; separate each new histogram further based on their respective exposure thresholds and equalize each sub histogram individually. In earlier case this problem was not fixed, we have performed experiments on HE based methods, low exposure images has been efficiently handled by these new methods. The performance evaluation of new methods is done in terms of mathematical calculation as well as by visualizing the Image quality.*

Keywords —Recursive Exposure Based Sub-Image Histogram Equalization (R-ESIHE), Recursively Separated Exposure Based Sub Image Histogram Equalization (RS-ESIHE)Exposure Based Sub-Image HistogramEqualization (ESIHE)

INTRODUCTION

Although there is a tremendous advancement in image capturing devices, still natural images are often subject to low exposure problems under low light or under water conditions. Digital camera shave a limited dynamic range as a result photographs acquired in high dynamic range scenes often exhibit underexposure arte- facts in shadow regions [1]. An image captured in a dim light environment encounters low-exposure problem caused by non-ideal camera settings of aperture and shutter speed. Exposure in an image determines the brightness or darkness of each element in the image [2]. In the low illumination scenario,post processing using image enhancement tools is needed to improve the quality of the acquired image. Many histogram equalization based image enhancement methods were proposed to cope with contrast related issues. Histogram equalization (HE) is most extensively utilized contrast enhancement technique due to its simplicity and ease of implementation [3]. Histogram equalization flattens the probability distribution and stretches the dynamic range of grey levels, which in result improves the overall contrast of the image[4]. Applying HE straight away on natural images is not suitable for most consumer electronics applications, such as TV, Cameras, etc., as it tends to change the mean brightness of the image to the middle level of the grey level range, which in turn produces annoying artefacts and intensity saturation effects.

LITERATURE SURVEY

Xu et al. (1996) have proposed a method for image enhancement via wavelet shrinkage and nonlinear adaptive gain. It addresses both de- noising and contrast enhancement issues. It is based on a multiscale wavelet analysis framework and takes both soft thresholding and hard thresholding wavelet shrinkage techniques to reduce noise. Non linear processing is carried out for contrast enhancement.

KIM et al. (1997) [1] has discussed that the intensity of scene can be altered following the histogram equalization, which is because of the flattening attribute of the histogram equalization. KIM (1997) [6] proposed

Comparative Analysis on Voltage Reference Circuits

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Abstract : In the modern world the low power supply voltage circuits are major attractable to the most extent because of the long battery runtime for the portable devices like the mobiles, laptops etc. the reduction of the power supply voltage has became the one of the most challenging issue in the VLSI technology industries. So voltage reference circuits are used to reduce the supply voltage because they can operate in the low supply voltage. The voltage reference circuits play an important role in the analog systems. The voltage reference circuit is a simple device having the one simple functionality that is it generates the exact output voltage without depending on the factors like input supply voltage, load current and the temperature change. The voltage reference provides the recommended output voltage which is needed by the circuit for its required measurements. In this paper the different types of voltage reference circuits are discussed and the literature review of the technologies used in different voltage reference circuits have been performed and comparison of different technologies have been performed.

IndexTerms - **Modes of operation, Types of voltage reference circuits, Specifications.**

I. INTRODUCTION

The voltage reference circuits play an important role in the analog systems. The voltage reference circuit is a simple device having the one simple functionality that is it generates the exact output voltage without depending on the factors like input supply voltage, load current and the temperature change [1]. The voltage reference provides the recommended output voltage which is needed by the circuit for its required measurements. The voltage reference and the voltage regulators having the same functionality providing the exact output voltage but the voltage reference circuits have come over with some advantages from the voltage regulators such as the voltage regulators provides the higher output noise and it cannot provide the stable output voltage for a longer period of time [2]. The main applications of the voltage reference circuits are used in the Analog to digital converters, servo systems, smart sensors and the portable devices battery systems for the long runtime of the battery.

II. MODES OF OPERATION

The reference circuits can operates in any of the modes basically it has two types of the operating modes they are as follows:

1) SERIES MODE.
2) SHUNT MODE.

i) Series Mode: The series mode voltage reference provides the low noise. The series mode reference circuits is higher accurate than the shunt mode voltage reference. The input supply voltage of the series mode voltage reference is limited to the device operation and cannot function for the high input supply voltage [3]. This series mode voltage reference provides the positive output voltage.

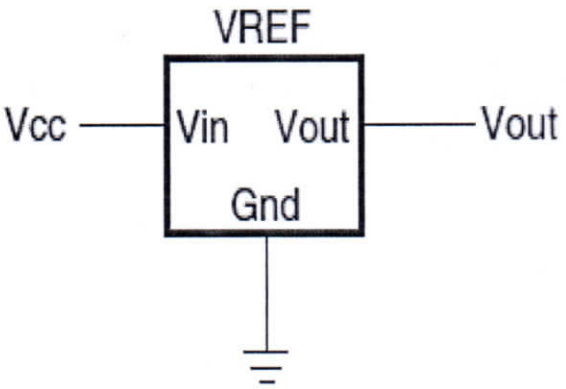

Fig1: Series mode reference circuit.

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Design Of Micro-Strip Line Feed Rectangular Patch Antenna For WLAN Application

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***Abstract*:—This paper presents are Rectangular micro-strip antenna with micro-strip line feed designed for wireless local area network(WLAN)implementation.**

The designed antenna has a ground, a substrate and a radiating patch. The material used for substrate is FR4 epoxy. The designed antenna has been simulated using High frequency structure simulator(HFSS).The simulated results are Return-loss, VSWR, radiation pattern, 3D polar plot, gain, directivity, smith chart, axial ratio.

Keywords:— Micro-Strip Antenna, FR4 Epoxy, HFSS, Return-Loss, WLAN, VSWR, Radiation Pattern, 3D Polar Plot, Bandwidth, Gain, Directivity, Smith Chart, Axial Ratio.

I. INTRODUCTION

In recent years, mobile communication has been grown tremendously and wireless technologies have rapidly emerged, some of them are using multiple patch elements changing the physical size of antenna making it large in size and unsuitable for small devices. Microstripantenna have been a best choice in mobile and radio wireless communication this is because they have advantages such as low profile, low cost and robust.However, they also have disadvantage of low efficiency, narrow bandwidth. The FR4 substrate used give accurate results of the same time it is of low cost and can operate in any kind of environment. it has low water absorption capability. The feeding technique used is strip-line which is very easy to model and match by controlling the inset position .its impedance is 50Ω. It is of low cost and does not give any spurious radiations.

II. GEOMENTRY OF MICROSTRIP ANTENNA

There are some standard formulae which have to be followed to calculate the length, width, height of the elements used in the antenna design. They are as follows

Effective dielectric constant:

$\varepsilon eff = \frac{\varepsilon r+1}{2} + \frac{\varepsilon r-1}{2}[1 + 12\frac{h}{w}]^{1}/_{2}$

Effective dielectric constant:

$\varepsilon_{reff} = (\varepsilon_r + 1)/2 + ((\varepsilon_r + 1)/2)\ (1 + 12h/W)$

Effective length of the patch:

$L_{eff} = c/(2f_0(\varepsilon_{reff})^{1/2}))$

Extended length of patch:

$\Delta L = 0.412\ (\varepsilon_{reff} + 0.3)((W/h)+0.264)/(\varepsilon_{reff} - 0.258)((W/h)+0.8)$

Actual length (L): $L_{eff} - 2\Delta L$

Length of strip-line (l): $\lambda_0/4(\varepsilon_r)^{1/2}$

Width of patch (W): $c/(2f_0((\varepsilon_r + 1)/2)^{1/2})$

Length of the ground and substrate (L_g) = 6h + L

Width of the ground and substrate (W_g) = 6h + W

Where

h = height of the substrate (1.6mm)
f0=operating freq (5.2Ghz)
εr = dielectric constant (4.4)
C = speed of light ($3*10^8 m/sec$)

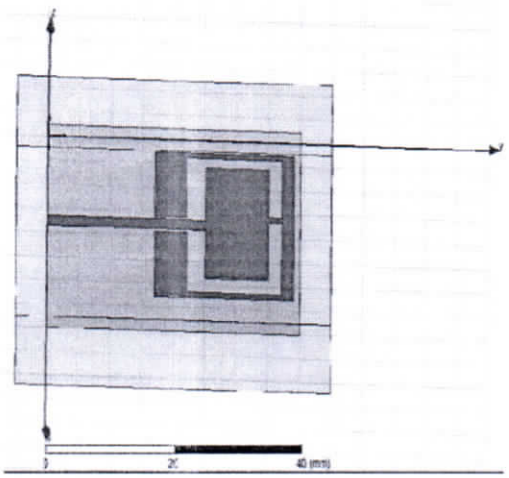

Fig 1: Physical Representation

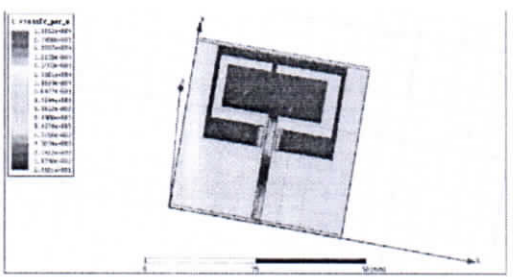

Fig 2: Final Design Structure

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Design Simulation and Performance Analysis of Strip-Line Feed Rectangular Micro-Strip Patch Antenna

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***Abstract* :-There Are Various Types Of Microstrip Antenna That Can Be Used For Many Applications In Communication Systems. This Paper Presents The Design Of A Rectangular Microstrip Patch Antenna To Operate At Frequency Range Of 3ghz. This Antenna, Based On A Thickness Of 1.6mm Fire Retardant 4 (FR-4) Substrate With A Dielectric Constant Of Approximately 4.4, Is A Strip Line Feed And Has A Partial Ground Plane. After Simulation, The Antenna Performance Characteristics Such As Return Loss, VSWR ,GainAnd Current Density Are Obtained.**

***Keywords*:–Rectangular Microstrip Antenna, Strip Line Feeding, HFSS, Fire Retardant 4 (FR-4).**

I. INTRODUCTION

Antennas play a very important role in the field of wireless communications. Some of them are parabolic reflectors, patch antennas, slot antennas, and folded dipole antennas with each type having their own properties and usage. It is perfect to classify antennas as the backbone and the driving force behind the recent advances in wireless communication technology.

Because of the great demand in wireless communication system and UHF applications, microstrip patch antennas have attracted much interest due to their low profile, light weight, ease of fabrication and compatibility with printed circuits. Microstrip patch antenna in its simplest form consists of a radiating patch (of different shapes) which is made up of a conducting material like Copper or Gold on one side of a dielectric substrate and a ground plane on the other side. It is used in communication systems due to simplicity in structure, conformability, low manufacturing cost, and very versatile in terms of resonant frequency, polarization, pattern and impedance at the particular patch shape model[1]

Microstrip antennas are characterized by a largernumber of physical parameters than conventional microwave antennas. They can be designed to have many geometrical shapes and dimensions but rectangular and circular Microstripresonant patches have been used extensively in many applications[2]. In this paper, the design of strip line feed rectangular microstrip patch antenna is for wireless applications is presented and is expected upto 3GHz frequency span.Its performance characteristics which include Return Loss, VSWR, Gain and current density are obtained from the simulation.

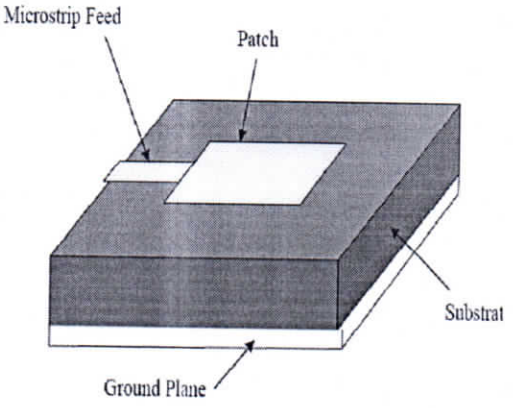

Fig 1: Rectangular Microstrip Patch Antenna

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Design and Simulation of Wideband H-Shape Slot Loaded Micro-strip Patch Antenna for Wireless Application

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Abstract- **Size reduction of microstrip antenna is very important design consideration. In this paper, design of H-shape microstrip patch antenna with the 2.4GHz frequency for design of antenna. The antenna is simulated using High Frequency Structure Simulator (HFSS). The parameters like VSWR, Return loss, radiation pattern of ordinary microstrip antenna and H-shape Microstrip Patch antenna are designed.**

Keywords- **Microstrip Patch Antenna, H- Shape Patch Antenna, HFSS, VSWR, Return Loss, Radiation Pattern.**

I. INTRODUCTION

Microstrip antenna has many advantages like low cost, less size, light weight, dual and triple frequency operation. Because of less size of microstrip antenna it is used in many wireless applications like satellite communication system, Personal communication system and other wireless applications. In this paper, the main task is to implement more reduced sized microstrip patch antenna without degrading its radiation characteristics, VSWR, Return losses. During period of work first the ordinary microstrip antenna is designed for 2.4GHz then this antenna is simulated by using HFSS software. Then in next step the ordinary patch antenna is modified without changing its length and width and then again this antenna is simulated.[1] Here we want to design the antenna for wireless band so in next step the Length and width of patch is reduced in such a way that antenna is operated in 2.4GHz band of frequency.

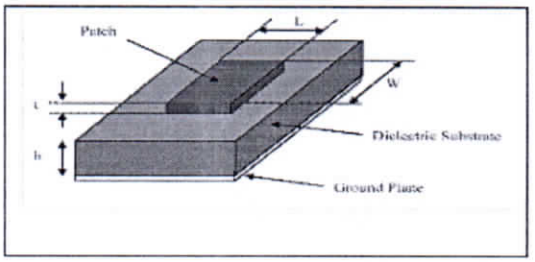

Fig 1: Rectangular micro strip patch antenna

II. ANTENNA GEOMETRY

There are some standard formulae which have to be followed to calculate the length, width, height of the elements used in the antenna design. They are as follows

$$\varepsilon\text{eff} = \frac{\varepsilon r+1}{2} + \frac{\varepsilon r-1}{2}[1 + 12\frac{h}{n}]^{1/2}$$

(effective dielectric constant)

$$\text{Leff} = \frac{c}{2f0\sqrt{\varepsilon efh}}$$

(effective length of patch)

$$\Delta L = \frac{0.412h(\varepsilon reff + 0.3) * (\frac{W}{h} + 0.264)}{(\varepsilon reff - 0.258)(\frac{W}{h} + 0.8)}$$

(extended length of patch)

$$L = \text{Leff} - 2\Delta L$$

(actual length)

$$W = \frac{c}{2f0\sqrt{\frac{\varepsilon r+1}{2}}}$$

(Width of the patch)

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Design And Simulation Analysis Of S-Band Co-Axial Feed Patch Antenna

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***Abstract:*— In this paper the proposed antenna is designed and can create resonance at 2.4 GHz with in Bluetooth frequency range 2400-2485 MHz Coaxial feed technique is used to excite the patch even though Micros trip inset feed technique is present because of low radiation and ease of installation to measure VSWR and S11 parameters. S- parameters are used to measure the antenna performance and shown that Return Loss value is low at resonant frequency. Variation of input impedance as function of frequency is also presented using Smith Chart. Radiation patterns are drawn in E-plane, Gain. Designed antenna is simulated on Rogers RO4350(TM) substrate using High Frequency Structure Simulator.**

Keywords:– Rectangular Micro strip Patch Antenna, Coaxial Probe Feeding, VSWR ,Gain, Return Loss, Rogers RO4350(TM).

I. INTRODUCTION

The most preferred way to transfer information within a short range using wireless technology is Bluetooth. For the wireless communication to come into existence there is a need of antenna. The antenna required for this purpose is a micro-strip antenna. A micro-strip antenna is booming because of its low profile and ease of installation. The added advantage of micro-strip antenna is it supports linear and circular polarization as well. At the same time there are a few disadvantages of micro-strip antenna like narrow bandwidth, surface wave excitation. The substrate used in the construction of antenna is Rogers RO4350 which has a low dielectric constant value of 3.6 which is beneficial for applications which requires less dispersion and low losses. The only disadvantage with it is high cost. Thefeedingtechniqueusedforthisapplicationiscoaxialcab lewhichcan be placed at any desired location on the patch in order to match with its impedance. It also has low spurious radiations. The frequency used for the design and simulation of the structure is HFSS which can simulate even complex structures with ease and gives accurate results. The main advantage with HFSS is that unlike other software it gives feedback on the errors along with the errorsoccurred.

II. GEOMETRY OF MICRO STRIP PATCHANTENNA

There are some standard formulae which have to be followed to calculate the length, width, height of the elements used in the antenna design. They are as follows Effective dielectric constant:

$$\varepsilon_{eff} = \frac{\varepsilon_r+1}{2} + \frac{\varepsilon_r-1}{2}\left[1 + 12\frac{h}{W}\right]$$

Effective dielectric constant:

$$\varepsilon_{reff} = (\varepsilon_r + 1)/2 + (\varepsilon_r + 1)/2)\,(1+12h/W)$$

Effective length of the patch: $L_{eff} = c/(2f_0 \sqrt{\varepsilon_{reff}})$

Extended length of patch: $\Delta L = 0.412\,(\varepsilon_{reff} + \varepsilon_{reff}-0.258)((W/h)+0.8)$

Actual length (L): $L_{eff} - 2\Delta L$

Width of patch (W): $c/(2f_0((\varepsilon_r + 1)/2)^{1/2})$

Where
h = height of the substrate (1.6mm) f0=operating freq (5.2Ghz)
r = dielectric constant(4.4)
C = speed oflight (3* $10^8 m/s$)

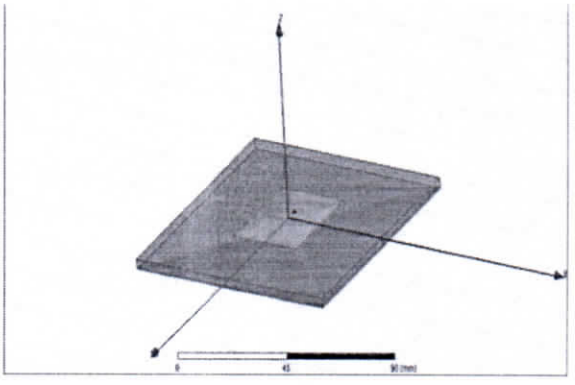

Fig 1: Design of Co-Axial Fed Patch Antenna

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Design of Different Types of Full Adders using Double gate MOSFET Technique

P.A. IRFAN KHAN

Abstract

The full adder circuit is an important cell in many processing systems. The full adder circuit is used to add the partial product of multiplier designs. Decreasing the number of transistor count in full adder can result in less power consumption. In this paper, different types of full adders have been implemented using Double Gate MOSFET technique which is mainly used to reduce the short channel effects in the circuits. These circuits have been implemented using TANNER EDA tool, so this result decreasing the total power consumption and delay of full adder.

Keywords:

Full Adder
CMOS
Double Gate MOSFET
Power Delay Product

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1. Introduction

In many processors multipliers are main building blocks, and these multipliers are constructed using full adders, so full adder circuits plays a vital role in manufacturing the processors. To reduce the power consumption of the processor we need to reduce the power consumption of the full adder. One of major concern for the power consumption is due to short channel effects and these short channel effects can be reduced by Double gate MOSFET technique [1]. Therefore the design of low power VLSI circuits has been increasing due to the demand of portable devices like palmtops, cellular and mobiles. DGMOSFET compared with Single Gate MOSFET has 93% reduction of leakage current, 24% reduction in power consumption and60% reduction in Power Delay Product (PDP) with respect to input voltage [2]. Further to integrate more number of devices on chip, scaling of device size is required. Hence we implement the different types of full adder using Double Gate MOSFET (DGMOSFET).

1.1 Full Adder

Adders are combinations of logic gates that combine binary values to obtain a sum. The full adder becomes necessary when a carry input (Cin) must be added to the two binary digits (A, B) to obtain the correct sum, which add 8, 16, 32, etc. binary numbers [3]. One method of constructing a full adder is to use two half adders and an OR gate as shown in the figure 1.1.

Physiological trait-based biometrical authentication of human-face using LGXP and ANN techniques

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Abstract: In the recent times, it has been found from the literature that, only front-view of human-face images are used for the authentication of the human being. Very little amount of work has been carried out using side-view and temporal-view of the human-face for the authentication of the human being. The main fact lies in the mentality of present youth, who are very busy in taking the photographs with different poses. Generally the poses are taken from side-view. Hence in the present paper, the main focus has been kept, in the authentication process using methods of recent trends in the field of engineering. The main objective is to handle the variability in human-face appearances due to changes in the viewing direction. Poses, illumination conditions, and expressions are considered as three main parameters, which are processed for the overall authentication process. For the overall processing, extensive feature set like texture, contrast, correlation and shape are extracted by employing modified region growing algorithm and texture feature by local Gabor XOR pattern (LGXP) and artificial neural network (ANN) technique. The present work has been analysed using the data of different subjects with varying ages.

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Response Surface Optimization of Interpulse TIG welding for the Optimum Weld bead of Ti-6Al-4V

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Abstract: ***The Interpulse technique is a narrow bead and an advancement of Tungsten inert gas (TIG) welding process. The benefit of Interpulse technique is the, magnetic constriction of the arc which produces penetration welding of titanium alloys with a low input current. The titanium alloy (Ti-6Al-4V) exhibits unique properties of exceptional strength to weight ratio, low density, high operational thermal conductivity and low modulus of elasticity made these alloy a functional material for the various structural applications in aerospace as well non aerospace industrial applications. In these experimental investigation three factors at five levels response surface rotatable central composite design is used to design the experiment and analyze the individual and simultaneous effects of input variables (main current, Interpulse current, background current and an additional welding speed), on output responses (weld bead width and reinforcement height). The outcome shall be useful in determining suitable parameters of Interpulse TIG welding of titanium alloy (Ti-6Al-4V) to obtain the desirable shape of the weld bead.***
Keywords: Interpulse technique, Response surface methodology, TIG welding, (Ti-6Al-4V) titanium alloy, Weld bead geometry

I. INTRODUCTION

Gas tungsten arc welding is well-known as tungsten inert gas welding (TIG), widely used an arc welding process for the joining of different metals and their alloys of thin sections such as most of the steels, Aluminum, Magnesium, nickel based superalloys such as Monel, Inconel and Nimonic and also sensitive materials like Titanium and Zirconium. The welding is carried out using an electric arc which is getting struck between the non consumable tungsten electrode and the workpiece. The welding arc is defined as a sustained electrical discharge in an ionized gas which produces sufficient amount of heat energy for the joining of different metals and their alloys by the fusion. The argon was used as a shielding gas to avoid atmospheric contaminations of the molten weld pool. The problem with TIG welding is distortion of the component caused due to high heat input which can be controlled by the pulsing the current to a higher value and to a lower value. So the average input current value is always to be low. Further development in pulsing of current in TIG welding brought up the superimpose of a high frequency Interpulse current, which creates magnetic constriction of the arc by significantly minimizing the net heat input. The principle of Interpulse technique is the strength of the electric field is directly proportional to the rate of change of the magnetic field (11). Ti-6Al-4V is an alpha-beta titanium light weight alloy exhibits unique properties of high strength, low density. The alloy is used widely as structurally efficient metal for the manufacturing of the critical and high performance jet engine and airframe components. Response surface methodology is a combination of mathematical and statistical techniques which is useful for the building of an empirical model and the objective is to optimize the input variables to identify the effect of change in input variables on output response (10). The objective of this experimentation is to identify the Interpulse TIG welding process parameters and their suitable ranges for the joining of 1.2 mm thick Ti-6Al-4V titanium alloy and to optimize the input process parameters to find out the minimum weld bead width and reinforcement height using response surface methodology.

II. EXPERIMENTAL PROCEDURE

Numbers of trail welding were carried out using 1.2 mm thick rolled sheets of Titanium alloy (Ti-6Al-4V) to find feasible working limits of Interpulse TIG welding process input parameters. Visual inspection of the weld bead width, re-inforcement height and penetration are checked to select the working limits of welding parameters. The observations are made from the visual inspections are, if main current is less than 60 Amps there is lack of penetration and excess penetration like burn through is seen when the main current is increase more than 108 Amps. Constriction of arc is not observed when InterPulse current is less than 2 Amps and more than 6 Amps more constriction leading to difficult to control the arc. Welds were produced at room temperature in a clean environment. Appropriate fixture is provided to hold the two sheets tightly together and then tacked before the complete joining of the two sheets to prevent misalignment, distortion, buckling. Molten weld metals are protected from environmental contamination by a quiescent blanket of inert shielding gas such as argon. The welding was carried out to get penetration weld where main current always greater than the Interpulse current. Two rolled sheets of titanium alloy (Ti-6Al-4V) of size 300×150×1.2 is butt welded by

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Experimental Investigation on Mechanical Properties of Friction Stir Butt Welded Joints of Aluminium 6061-T6 under Oblique Loading

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Abstract— *The mechanical properties of friction stir butt welded joints of Aluminium 6061-T6 sheets under oblique loading was experimentally investigated. Six types of test specimens with different oblique butt welding angles were used for tensile test which is subjected to withstand the fixed directional loading. The effect of oblique loading on the tensile strength of the friction stir butt welded structure has been studied. Aluminium 6061-T6 is a solution heat treated then artificial aged aluminium alloy contains Magnesium and Silicon as its major alloying elements exhibits good mechanical properties and weldability. This alloy regularly used in the construction of structural components such as aircraft wings and fuselages, automotive chassis and welded widely by the TIG and MIG welding processes. Friction stir welding is a solid state welding process overcomes fusion welding by means of solidification of molten metal. Chemical properties tests has been done to check the properties of parent metal after welding. Non destructive tests has been performed to test the quality of welds.*

Keywords— Aluminum 6061-T6, Friction stir welding Oblique loading, Non destructive test, Tensile test.

I. INTRODUCTION

The Friction stir welding (FSW) is a relatively new solid-state joining process, developed at the Welding Institute (TWI), England, in 1991 **[1]**. This new technology has proven to be very successful in joining aluminium alloys. It can produce superior mechanical properties when compared to the typical electrical arc welding process and therefore has gained considerable interest in the past decade **[2, 3]**. The certain welding characteristics and physical, chemical and mechanical properties of Aluminium and its alloy, a silvery white colored metal made these alloys to be widely used. The thin film of oxide which is present on the surface of aluminium contains moisture, which reacts and forms oxide and liberates hydrogen may cause porosity formation on the weld bead during the fusion welding which greatly reduces the strength of the weld joint. And also due to high thermal conductivity, welding of aluminium and its alloys needs special attentions. The tempered grade aluminium 6061-T6 a solution heat treated then artificial aged alloy is light in weight, strong and having density of 2.7 gm/cm^3. The other properties like good workability, high corrosion resistance, favourable malleable, ductile properties made aluminium and its alloys to be used as welded, casted, rolled, and forged in different industries as structural frameworks, aero engine and automobile parts. Friction stir welding is a solid state nature of process where a non consumable rotating tool with a special designed pin or probe and a shoulder is inserted into the abutting edges of sheets to be joined and traversed along the line of joint. The rotating tool has two major functions that is localized heating and material flow. The heat thus produced by the friction between the non consumable rotating tool and workpieces to be joined. The rotating tool causes volumetric heating so that a continuous joint can be produced as the tool progressed in forward along the line of joint. Welding begins by first plunging the rotating probe into the work pieces until the rotated shoulder came in to close contact of the top surface of the workpieces. The joining action of the two sheets took place by the localized heat generated by the rotating probe and the frictional heat produced by the movement of rotated shoulder along the line of joint. As a result there is no melting of base metal and thus friction stir welding overcomes the fusion welding process in terms of solidification related defects. Dye penetrant inspection and Radiography was carefully undertaken to test the quality of the weld joint. Chemical analysis has been performed to test the changes occurs if any in the

Study of assessment of cognitive ability of human brain using deep learning

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Abstract

Most of the biometric techniques are conventional biometrics employing some neural network architecture consisting of suitable number of hidden layers in their training process. The recognition accuracy has no longer become a measure to ensure the method of recognition is robust. Robustness has also been attempted by using hybrid methods for training such as neuro-fuzzy method and applying some optimization technique. The traditional use of the learning concept has almost been saturated in the field of computer vision and face recognition. An emerging concept of learning method that is being researched internationally in several cognitive, computer vision and data classification tasks is deep learning, which is subfield of machine learning inspired by structure and function of artificial neural network. This paper suggests using deep learning in assessment of cognitive ability of human brain. We plan to train thousands of facial images into our image database. Deep learning was compared to shallow learning in face recognition task done for real time applications; cognitive ability assessment and inference for different age group and gender; study of reaction time, etc. A sample size of 380 persons was tested in real time deep learning based face recognition. Response time and correct identification were recorded that shows potent research scope of deep learning in assessment of cognitive ability of human brain at large scale. The cognitive ability of women was found more than that of women.

Keywords

Cognitive ability Human brain Deep learning

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Academic Science

Energy Efficiency in Cognitive Radio Network using Hard Fusion Rules

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Abstract— In cognitive Radio networks, cooperation can improve the spectrum sensing performance. However, for spectrum sensing and reporting sensing results to the fusion center requires more energy. Cognitive radio plays an important role in improving energy efficiency in wireless networks. In this paper, we calculated the energy efficiencies for Hard fusion rules and compared. Simulation results show the energy efficiencies for AND, OR and MAJORITY fusion fusions. Based on the results we show that the AND and OR fusion rules are special cases of MAJORITY fusion rule.

Keywords— Cognitive radio; Cooperative spectrum sensing; Energy efficiency; Hard fusion rules.

I. INTRODUCTION

The concept of cognitive radio technology has been proposed to solve the problem of spectrum scarcity [1]. It allows the secondary users (SU) to utilize the primary users (PU) spectrum when it is free and the SU could not cause harmful interference to the PU. Therefore spectrum sensing is an important task in cognitive radio technology. The SU has to detect the presence or absence of the primary user accurately. Spectrum sensing techniques available are matched filter detection, energy detection and cyclostationary future detection [2]. Each technique has its own advantages and disadvantages. Energy detection method is used most of the time because it does not require any prior information regarding PU. Spectrum sensing is a very difficult task because of multipath fading, shadowing and receiver uncertainty. Due to fading effects, SU fail to identify the presence of PU and cause interference to the PU by accessing the licensed band [3], [4]. To overcome these problems cooperative spectrum sensing (CSS) has been proposed [5]- [7].

Cooperative spectrum sensing improves the sensing performance by allowing cooperation among the SUs. All SUs sense the licensed channel and forward their one bit local decision to the fusion center (FC). Fusion center combines all the SUs local decisions by using Hard combining rules i:e. AND, OR and MAJORITY rule and make a final decision regarding whether presence of the PU [8]. As the number of cooperative secondary users increases the detection probability increases but, energy consumption required for spectrum sensing and reporting sensing results to the FC by all the SUs increases. Our aim is to increase the energy efficiency by reducing the energy consumption.

Energy efficiency is defined as the ratio of average channel throughput to the average energy consumption [9]. The energy efficiency can be improved either by improving the average channel throughput or by reducing the energy consumption. To reduce the energy consumption for local spectrum sensing, the total number of secondary users in CSS is divided into several clusters and one cluster is activated at a certain period [10]. A partial cooperative spectrum sensing scheme was proposed in [11], to reduce the energy consumption by reducing the sensing users. Here each SU will calculate the expected energy consumption for spectrum sensing before the participation in CSS, if it is greater than the threshold then the SU will not participate, otherwise the SU will participate. In [12], an objection based collaborative spectrum sensing method was proposed to increase the energy efficiency by reducing the number of reporting

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Cooperative Spectrum Sensing using Majority Fusion Rule in Cognitive Radio Networks

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ABSTRACT

In cognitive radio networks, the secondary users can use the frequency spectrum when the primary users are not present. To utilize the primary user's spectrum, secondary user has to sense the spectrum continuously and detect the presence or absence of the primary user. In cooperative spectrum sensing, the performance of spectrum sensing depends on the fusion rules used at the fusion center. In this paper, we considered the Majority fusion rule to identify the presence or absence of the primary user. We calculated the optimal number of cooperative secondary users by maximizing the energy efficiency and we obtain the mathematical expression for number of secondary users using Majority fusion rule at the fusion center (FC). We showed that cooperating all secondary users in the network does not necessary achieve the optimum performance, but instead, it is achieved by cooperating a certain number of users with the highest primary user's signal to noise ratio.

Keywords: *Cognitive radio, Cooperative spectrum sensing, Hard fusion rules, Total error rate, Energy efficiency.*

I. INTRODUCTION

Recently the cognitive radio technology has been identified as a promising way to address the spectrum scarcity [1]. Spectrum sensing must be performed before the secondary user (SU) accessing the licensed spectrum in order to avoid the interference to the primary user (PU). The secondary user can access the channel as long as the primary user is absent and he needs to vacate the channel whenever the PU is comes back in to the operation. However, in the wireless communication signals suffer from shadowing, multipath fading and receiver uncertainty [2], [3]. To overcome this problem cooperative spectrum sensing has been proposed [4], [5]. The two important functions of cognitive user in cooperative spectrum sensing (CSS) are spectrum sensing and reporting sensing results to the fusion center (FC). In CSS, the probability of detection increases with the increase of secondary user's [6], [7]. However, the increase of secondary users increases the energy consumption [8].

The energy efficiency is defined as the ratio of average channel throughput to the average energy consumption [9]. The energy efficiency can be improved either by improving the average channel throughput or by reducing the energy consumption. To reduce the energy consumption for local spectrum sensing, the total number of secondary users in CSS is divided into several clusters and one cluster is activated at a certain period [10]. A partial cooperative spectrum sensing scheme was proposed in [11], to reduce the energy consumption by reducing the sensing users. Here each SU will calculate the expected energy

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Simulink Based Implementation and Performance Evaluation of DS CDMA with Rake Receiver by Comparing BER for AWGN Channel with Multiple Paths and Multiple Codes

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***Abstract*—In this paper Simulink based software models are developed to implement and test the performance evaluation of DS CDMA. Rake receiver is one of the receiver technique, consists of multiple correlators, in which the receiver signal is multiplied by time-shifted versions of a locally generated code sequence. To maximize the Signal to Noise Ratio (SNR) and minimize the Bit Error Rate (BER) CDMA Rake receiver is used. Here the performance of Direct Sequence Code Division Multiple Access (DS-CDMA) is evaluated over multipath fading channel and compared the communication system with multiple paths using Rake receiver for AWGN channel with multiple users and multiple codes.**

***Keywords*—DS-CDMA, BER, SNR, Rakereceiver, Multipath Fading Channel, AWGN**

I. INTRODUCTION

CDMA allow multiple users to share the same spectrum simultaneously. Direct Sequence Code Division Multiple Access(DS-CDMA) is the most popular of CDMA techniques. The DS-CDMA transmitter multiplies each user's signal by a distinct code waveform.Fading is another problem in a multipath channel. This multipath fading occurs because of different phases.

SYSTEM OVERVIEW

At the transmitter, the information is encoded using codes. The encoded information is then transformed into a data modulated symbol sequence with a baseband modulator. The modulated symbol sequence is spread in time domain by a chip sequence of PN code generator, usually Walsh code and PN sequence. The information is shaped and passed through a channel for transmission. At the receiver, the information is multiplied with the chip sequence. The system overview for BER improvement of DS-CDMA with Rake receiver [7] using Multipath fading channel is as shown in Figure.1

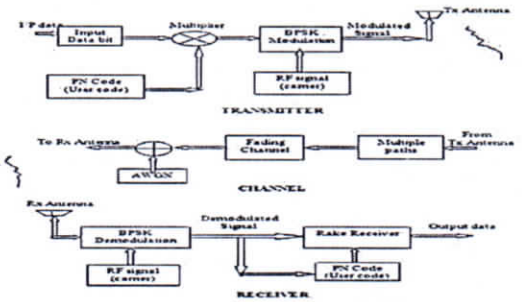

Fig.1 System Overview

II. THEORETICAL ANALYSIS

BER: End to end performancemeasurements by means of Digital communication over radio engineering, the measure of performance is BER [6]. Simply bits in to bits out,BER = Errors / Total number of bits

Bit Error Rate (BER) Calculation: As thename implies, a bit error rate is defined as the rate at which errors occur in a transmission system. This can be directly translated into the number of errors that occur in a string of a stated number of bits. The definition of bit error rate can be translated into a simple formula: Bit error rate is equal to the number of bit errors divided by the total number of bits sent. If the medium between the transmitter and receiver is good and the signal to noise ratio is high, then the bit error rate will be very small - possibly insignificant and having no noticeable effect on the overall system.However if noise can be detected, then there is chance that the bit error rate will need to be considered. The main reasons for the degradation of a data channel and the corresponding bit error rate, BER is noise and changes to the propagation path (where radio signal paths are used).

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Cancer Detection Using Neuro Fuzzy Classifier in CT Images

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***Abstract*—** In this study, we have implemented an adaptive neuro fuzzy inference system (ANFIS) for detection of mass in CT images for early diagnosis of lung cancer. After completion of preprocessing and segmentation process four features have been extracted from images and given to ANFIS classifier as an input. The fuzzy system detects the severity of the lung nodules depends on IF-THEN rules. Feature based data set has been created with five fuzzy membership functions of each input. The proposed model is applied on more than 150 images and the computer added diagnosis (CAD) system achieved sensitivity of 97.27% and specificity of 95% with accuracy of 96.66%.

Keywords- *Computed tomography (CT), Adaptive neuro fuzzy inference system (ANFIS).*

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I. INTRODUCTION

To improve the diagnosis accurate interpretation is required in cancer detection. For this several features are needed to feed into the classifier to make robust CAD system. Neuro fuzzy can be designed with three facts: create optimal no of rules, discovering membership function and tuning of both with training. The past research has been introduced to improve cancer diagnosis with intelligent evaluation. Lin et al. (2005) presented an extension of neural network based fuzzy model for the detection of lung nodule .After the thresholding stage, some part of the blood vessels or the large airways may also be removed. So, in order to fill these areas, morphological closing and labeling was done. In order to make distinction between the nodules and other structure in lung region, three main features area, brightness and circularity were calculated. This neural network based fuzzy model consists of four layers: input layer, fuzzification layer, rule inference layer, defuzzification layer. With this system, the classification accuracy of 89.3% was achieved. The false positive value was 0.21. The system was faster and no prior knowledge was required, the fuzzy rules were defined using learning procedure and Detection rate was high [1]. Al-Daoud et al. (2010) proposed modified fuzzy c-means radian basis function network for breast cancer images and compared with adaptive neuro fuzzy inference system (ANFIS) and obtain 97% classification rate with less rule set as compare to ANFIS [3]. Bastawrous et al. (2005) developed a CAD system used for the detection of Ground Glass Opacity (GGO) nodules in chest CT images. Gabor filter has been applied in order to enhance the detection process with some morphological operations to extract the objects having high intensity values. The algorithm was applied on 715 slices containing 25 GGO nodules and achieved detection sensitivity of 92% with false positive rate of 0.76 FP/slice. Lastly, Artificial Neural Network (ANN) used to reduce the number of FP rate to 0.25 FP/slice and achieved sensitivity up to 84 % [6]. Ramaraju et al. (2015) presented a neural network base technique for the detection of lung cancer after segment the image using fuzzy c-means (FCM).The extracted feature are provided to network for training purpose and also to verify the type of nodule whether it is benign or Malignant[14].

Ada et al. (2013) presented some feature extraction process and neural network classifier to predict the actual stage of lung cancer. Various Extraction methods were discussed to achieve proper feature of images such as grey level co-occurrence method, binarization method, principle component analysis, and neural network classifier [16]. Samuel et al. (2007) described a method for recognizing the lung nodules for different diagnosis of lung cancer based on CT images which followed steps such as preprocessing using wavelet technique and bi orthogonal wavelet for image enhancement using Bi-Histogram equalization. The resultant image was more accurate and sharp. The enhanced image is binarised using the thresholding. Then the binarised image is subjected to Morphological transform. The filtered image is segmented and features are extracted. The extracted features are given to the fuzzy inference systems (FIS) to find the severity of the lung nodules based on the If-then rules [23]. Manikandan et al. (2016) designed a Hybrid Neuro Fuzzy System (HNFS) based on the observed symptom values for prediction of lung cancer stages. The study was made by asking 167 lung cancer subjects and 50 normal subjects, aged between 37-81 years, to respond to the CASQ-L. The significant symptoms were identified on all the observed data. The proposed system has achieved the mean accuracy of 96.5% for a fivefold cross-validation analysis [31]. Marya et al. (2015) proposed a system

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Implementation of Denoising Medical Image Identification

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Abstract:

Image denoising is an important pre-processing step in medical image analysis. The basic intent of image denoising is to reconstruct the original image from its noisy observation as accurately as possible, while preserving important detail features such as edges and textures in the denoised image. In medical imaging, for the precise analysis of diseases denoising of medical images like X-RAY, CT (Computed Tomography), MRI (Magnetic Resonance Imaging), PET (Positron Emission Tomography) and SPECT (Single Photon Emission Computed Tomography) is essential since a small lose of a particular area in case of medical images may results in immense disaster similar to death. To mitigate such threat over the last few decades, image denoising has been extensively studied in the image and signal processing community and suggested various denoising techniques. Each approach has its assumptions, advantages, and limitations. In this paper a detailed survey has been carried out on various image denoising approaches and their performances on on medical images.

Keywords: Image Denoisng, medical Images, X-ray, CT, MRI, PET, SPECT.

1. INTRODUCTION

Digital images play an important role both in daily life applications such as satellite television, magnetic resonance imaging, and computed tomography as well as in areas of research and technology such as geographical information systems and astronomy. Noise removal is one of the very important aspect in the field of image processing. An image gets distorted with different types of noise during the process of transmission and reception. Noise may be classified as substitutive noise speckle noise and additive white Gaussian noise.

Therefore, denoising of medical images is further essential which leads physician for precise analysis of diseases. Medical images like X-RAY, CT (Computed Tomography), MRI (Magnetic Resonance Imaging), PET (Positron Emission Tomography) and SPECT (Single Photon Emission Computed Tomography) encompass diminutive information about heart, brain, nerves and more. For determining the internal structure of an object, X-ray Computed Tomography (CT) is a powerful method. As such it determines application, e.g. in the non-destructive testing of a variety of materials. From a huge number of systematic observations at diverse viewing angles, the CT image is derived, and with the support of a The disease diagnosis procedure has been made more efficient by denoising the CT images where the noise is removed. The denoised images encompass a prominent level of elevation in its PSNR values, ensuring a smoother image for diagnosis function. For developing the quality of the CT images, a variety of methods have been established. S.Preethi et al.(2012) proposed a Non linear model for denoising images mainly of medical images. While developing anon-linear model they have extensive literature survey for various image denoising processes and based on similarity measures like PSNR, SSIM, SNR the PCA based NL-PCA provides better results in terms of image quality and similarity measures. computer (Radon transform) the final CT image is then reconstructed. It is unfeasible to rescue a human being from harmful effects, when these medical images are corrupted by noise. In both Image Processing and Biomedi CT image, Denoising is a significant research theme. In the case of CT, numerous mathematicalapplications can be applied to conclude whether the normal tissue has been infected by the mutations of the cancer cell.

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HOME SAFETY ROBOT USING ZIGBEE MODULE

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Abstract:-

This project proposed an embedded system for safety and security purpose robot using zigbee communication and web server. The robot has sensors for detecting Gas leakage and intruder detection. MQ6 Gas sensor detects the presence of bio hazardous gases like LPG, iso-butane, propane, LNG and alcohol, and the PIR sensor detects only the living organism (Intruder). The sensor details are first sent to the microcontroller which resides at the robotic side and then sent to the local system through Zigbee. The system also provides an audio and visual alarm to alert about the critical situation for the safety and security purpose. This robot also has a battery powered wireless AV camera which provides robotic in front environment information to the Local and remote system and performs the audio and video streaming through web server. The robotic movement is controlled remotely from the local system by using the front end application VB 6.0. The Zigbee (IEEE 802.15.4) supports a frequency range of 2.4GHZ, 9600 baud rate with 256Kb of flash memory. It supports the range of 400m in open-air, line-of-sight, outdoor environment. This proposed system is used wherever people cannot go or where things doing too dangerous for humans to do safely. That is the robot can move and reach to the high destiny gas leakage region.

Key words:- Audio-Video streaming, Intruder, Remote system, Robot, PIR Sensor, Web Server, Zigbee.

1. INTRODUCTION

Mini robot is an autonomous security robot. The robot's design specifications may vary according to the given application. An embedded system is designed to perform specific control functions within a larger system, often with temporal constraints. It is embedded as part of a complete device often including hardware and mechanical parts. Embedded systems contain processing cores such microprocessors, microcontrollers and discrete processors. The key characteristic, however, is being dedicated to handle a particular task. Since the embedded system is dedicated to specific tasks, design engineers can optimize it to reduce the size and cost of the product and increase their reliability and performance [1].

1.1 Proposed system

The proposed robot is easy to design and implement both in hardware and software aspects. It uses low cost microcontroller, high sensitivity gas and PIR sensors, wireless AV camera and zigbee to support reliable and robust wireless communication network. But in existing system they have used high cost IP camera. The AT89C51 microcontroller is embedded with embedded C program which processes the received sensor data and provides safety and security alarm through zigbee communication. The mobile robot is a battery powered and controlled remotely through zigbee. At the local system, the front end is designed using VB6 which is simple coding and easy to understand. The existing system does not support live AV streaming but our system provides live AV streaming to the remote web server through tin cam. The robot integrates both safety and security functions and is useful in variety of applications like industries, resorts, government and non government organizations.

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Mass Segmentation Techniques For Lung Cancer CT Images

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***Abstract*—** Mass segmentation methods are commonly used nowadays in modern diagnostic centers and research centers working in the field of lung cancer detection and diagnosis. We have implemented k-means and fuzzy cluster means (FCM) techniques for mass segmentation of lung CT images. The methods were compared in terms of area, perimeter and diameter. FCM outperforms K-means in terms of better detection of lung cancer area and effective values of dimensional features of lung cancer as compared to K-means method.

Keywords- *Computed tomography (CT), Fuzzy c-means (FCM), K-means.*

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I. INTRODUCTION

Presently low dose CT is the core interest area for detection of lung cancer. Mass region detection is a rising research work field that has received continuous focus in the research group over the past decades. Image segmentation is a process to partitioned digital image into several regions [1-9]. Each of the pixels in the region has same characteristics like color, intensity, texture etc. For early diagnosis of lung abnormalities CT images are widely used by radiologist to detect cancer nodule with some feature such as area, diameter and size [13].The efficient segmentation algorithm provides good accuracy and higher decision confidence value to the radiologist to make better remark. There are several issues related to image segmentation that required detailed review of literature. The most important part of image segmentation is to detect the proper area of mass by selecting suitable method for isolating different object from the background. The two existing clustering techniques have been used for segmentation purpose but for actual segmentation some morphological operation has been used over clusters. The performance of these two techniques is also evaluated and results are screened. Judice et al. (2013) presented an automated computer added diagnosis (CAD) system in which wiener filter is used to remove noise. Hidden Markov Model algorithm was proposed which increase the confidence level of diagnosis and taken less time also[5].

Maivizhi et al. (2013) used K-means and Fuzzy c-means algorithm to find out cancer affected gene and proposed modified fuzzy c-means algorithm to grasp cancerous nodule. An experimental system has been implemented and tested to demonstrate the effectiveness of proposed method on the basis of parameter such as no of cluster, time, space and performance calculation and cluster evolution [9]. Niranjana et al. (2014) worked on Neural fuzzy Network (NFN) and a Fuzzy c-mean (FCM) clustering algorithm for segmenting the early stage of lung cancer. A thresholding technique as a pre-processing step in all images to extract the nuclei regions was applied, because most of the quantitative procedures are based on its nuclei feature. This thresholding algorithm had succeeded in extracting the nuclei regions. Moreover, it succeeded in determining the best range of thresholding values. The NFN and FCM methods are designed to classify the image of N pixels among M classes and tested over many color images, and NFN has shown a better classification result than FCM [11]. Kumar et al. (2013) compared Artificial Neural Network (ANN), Fuzzy C-Mean (FCM) and Fuzzy Min-Max Neural network (FMNN) which is very effective and helpful in cancer diagnosis for its several advantages. The motive behind that the fault tolerance, flexibility, non linearity are the factors of artificial neural network. FCM provides finest findings for overlapped data set; data point may be connected with more than one cluster centre. Non-linear separability, soft and hard decision, less training time, online adaptation is the advantages of FMNN. The classification methods are applied to both FMN and FCM on the X-ray 130 cancerous and noncancerous datasets available. Hence using FCM and FMNN to diagnose lung cancer is good[12].

Jaffer et al. (2009) proposed a method by using Fuzzy c-mean (FCM) and morphological techniques for detection of tumor from lung computed tomography (CT) images. Initially, the automated segmentation of lungs has been done using fuzzy. Region of interests (ROIs) have been extracted by using 8 directional searches slice by slice and then 3D ROI image have been constructed. A 3D template has been constructed and convolves with the 3D ROI image. Finally FCM have been used to extract ROI that contain nodule. The technique was tested against the 50 datasets of different patients received from Aga Khan Medical University, Pakistan and Lung Image Database Consortium (LIDC) dataset [22]. Patel et al. (2010) developed an adaptive k means clustering algorithm for mammographic images segmentation for detection of breast cancer at early stage. The feature extraction is performed with the data base of 150 breast cancer images taken from BSR

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Innovative Real-TimeVehicle Monitoring and Tracking System based on Raspberry pi

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Abstract-**Advanced vehicle monitoring and tracking by using raspberry pi is very useful in real time. It provides safety environment to the traveler. This project can be done with the help of raspberry pi, GPS, GSM, IR Sensor, Smoke sensor, Camera, Sound system and Parking Lights. The raspberry pi is also called as embedded Linux board. GPS is a navigation system composed of a flotilla of satellites put into orbit by the department of defense, and their ground stations. By using GPS anyone can find the accurate location at any point on earth under satellite signals. GSM is used to send the message of the location values tracked by GPS. We have to create a Google maps webpage to see the vehicle position. IR sensor and Smoke sensors are used to confirm the accidents. IR sensor used to sense the object, if there is any collide between two vehicles, it sense it. Smoke sensors are used sense the fire related accidents in the vehicle. We are using aIntex Camera for continuous live streaming. First give power supply to the kit and run the code to trace a vehicle. If there is an accident occurs, the sound system will sounds until it send a SMS to authorized number and the parking lights will turns ON. The authorized person can find the location by opening that web page created before. Thus vehicle location is traced.**

Index Terms-**Raspberry Pi, Sensors, Embedded system.**

I. INTRODUCTION

Thousands of automobiles are lost each year in the state and thousands of automobiles are also recovered by thePolice from when they catch the culprits or even when the culprits leave the vehicles they have stolen after theyhave used them.The usual problem with the recovered vehicles reaching the actual owners is that the vehicle need not be found inthe same jurisdiction as one in which the complaint was launched. So, when a vehicle is recovered, usually thePolice try to trace out the actual owner of the vehicle from the RTO based on the license and chassis number. Butthis is a lengthy and time consuming process for the RTO to trace out the actual owners from the records and informback to the Police stations. Because of these delays, vehicles that are recovered all long time to actually reach theirowners. Despite the various technologies that have been introduced in recent years to detect car thefts and trackingit, It was reported that as many as cars were stolen yearly in the world. According to NCIC, in 2006, 1,192,809motor vehicles were reported stolen, the losses were 7.9$ billion. Several security and tracking systems are designedto assist corporations with large number of vehicles and several usage purposes. A fleet management system canminimize the cost and effort of employees to finish road assignments within a minimal time. [1][2]This projectconsists of a android based remote vehicle disengaging system will provide effective, real time vehicle location,mapping and reporting this information value and add by improving the level of service provided. A vehicle trackingsystem will inform where your vehicle is and where it has been, how long it has been.

II. RELATED WORK

Smart Surveillance Monitoring System Using Raspberry PI and PIR Sensor. In this paper author recommendedthat keen observation using so as to check framework is actualized Raspberry pi and PIR sensor. There is infraredsensor to identify the vicinity of number of persons in the room. Camera is naturally turned on when the vicinity ofindividual is distinguished. At that point the data is caught and sends it to the advanced mobile phone of approvedindividual through 3G Dongle.

Smart Automobile Security System Using Lab view. This paper manages the outline of the framework, whichwill give the arrangement on the best way to secure the vehicle with GSM innovation. The framework is utilized tocontrol the outlet of the fuel injector by method for electronic solenoid valve, which will be controlled by themicrocontroller through the driver circuit. The secret

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Implementation of Patch Antenna for Wi-Fi

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ABSTRACT:-

A triple rectangular slotted microstrip patch antenna is designed and investigated with and without slot using CST Software. By using the triple rectangular shaped slot the designed antenna operates at 2.4GHz (ranging from 2.3704 GHz (Gigahertz) to 2.4391 GHz at -10dB return loss) for WLAN (Wireless Local Area Network) and 3.6GHz (ranging from 3.5643 GHz to 3.6548 GHz at -10dB return loss) for WiMAX (Worldwide Interoperability for Microwave Access) applications having a maximum return loss -28.5dB and -25.4dB respectively. For the design of this antenna we have chosen FR-4 (lossy) as substrate having permittivity 4.3. The designed antenna has appreciable values of gain and directivity at both the frequencies. The proposed antenna works on the principle of excitation of the slots at the operating frequencies. The antenna was designed keeping in mind the two major Wireless standards i.e., WLAN and WiMAX bands of frequencies. The proposed triple-rectangular slots are unique in terms of its construction and have appreciable results at the operating frequencies.

KEYWORDS:- MSPA, Rectangular slots, Return loss, WLAN, WiMAX

I. INTRODUCTION

Due to the robustness and simplicity of wireless communication, there is a huge demand of MSPA's (Microstrip patch antennas) arises in the communication sector/area. [1] And to fulfill these requirements of wireless communication the MSPA's has become widely/broadly centre of study for the researchers since few decades. Since the evolution of the wireless communication also there is a trend started for the patch antennas to be used for different frequencies with the single antenna. Also in modern era the single antenna is being used by the devices like mobile phone, satellites, war crafts, spacecrafts etc. for the purpose to work on the multiple frequencies for different applications.[2-3] So the researchers are doing hard to make it for such applications with better bandwidth, less cost, high gain, very compact in size.

Micro-strip antennas are very tiny, compact, very low weight and more easily compatible with the devices. It is thoroughly used in handheld wireless gadgets, war-crafts, war-ships and satellites for the communication wirelessly. [4] Although with these suitable features, it also suffers from some drawbacks like small bandwidth, less gain and sometimes unwanted lobe radiations which degrade the performance level of such antennas. The configuration of MSPA (Microstrip Patch Antenna) is obtained by simply deploying a dielectric material followed by a metal under and above as shown below in the fig. The size with respect to its effective features makes it different and most important from other antennas.

From the inception of the patch antenna many more techniques has been used to enhance the antenna's characteristics. To design a multiband patch antenna is trending topic among researchers as it has wide application in the modern world of communication. For the designing of such antennas a much way of configuration are being used by the researchers. By introducing different type of structures (U- slot, L-slot, T- slot, rectangular slot, pi shaped slot etc.) on the patch and the ground.

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Implementation of Wireless Antenna

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Abstract:---A novel miniaturized printed monopole structure is proposed. The antenna comprises a printed monopole strip which is loaded by a spiral located on the rearside connected by a via. The inductive loading provided by the spiral enables considerable miniaturization of antenna. A parametric study of key dimensional parameters and groundplane are discussed.

INTRODUCTION

Due to their attractive features, such as low cost, omnidirectional radiation characteristics, simple geometry and ease of fabrication, printed planar monopole antennas have been applied in the broad range of applications including wireless communication systems, sensor networks, radio frequency identification systems (RFID) and imaging systems [1]. As the size of these devices decrease due to advances in IC and component technology, there is an increased demand for antenna integration and miniaturization. A circular disc monopole with a crossed-slot and a meander-line feed was recently reported to achieve miniaturization [2]. Strip loading and tapered 3D meanderline techniques have also been employed to reduce monopole size [3-4]. In [5] a meandered monopole antenna with printed sleeves was proposed for the UHF broadband digital television system. Dual-band and UWB low-profile compact antennas are also recently reported in [6-9].

In this paper, a monopole is loaded by a printed spiral arrangement located on the opposite side of the substrate. By using this technology, the spiral inductively loads the monopole and the resonant frequency is significantly reduced. The compact monopole structure is proposed for sensor, RFID and WLAN systems.

THE GEOMETRY OF THE PROPOSED MONOPOLE ANTENNA

Figure 1 shows the geometry and coordinate system of the proposed compact monopole antenna with dimensional parameters. The antenna port connects to a narrow strip of length L_1 and width S_w. A spiral strip arrangement of width W_1 and length $S_1+S_2+S_3+S_4+S_5+S_6$, is connected to the narrow strip using a via. The spiral is located on the rearside of the strip. The strip is printed on the same side as the ground plane, which is arranged to be fed by circuitry in layers covering the groundplane. Because of the augmentation by the via connected spiral, there is an increased value of the inductance which is used to lower the working frequency. Thus the spiral loading reduces the antenna size. The proposed antenna is fabricated on FR4 substrate with a relatively permittivity $\varepsilon_r = 4.2$, a thickness of 1.52 mm and a loss tangent of 0.02.

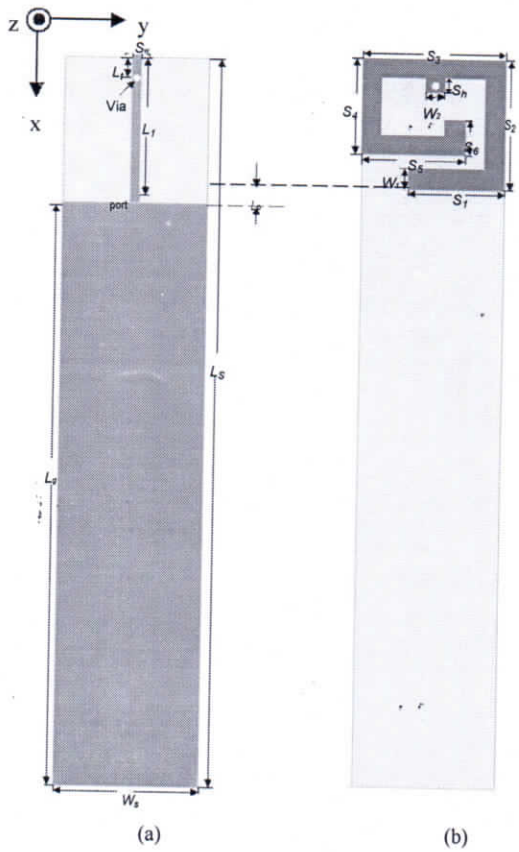

Figure 1 The geometry of the proposed monopole antenna

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Analysis of Microstrip Antenna with Line-fed for Wireless

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Abstract: In this paper a rectangular patch antenna is proposed for both the multiband and wide band operations with a coplanar waveguide (CPW) feeding. The proposed antenna has a size of 30x40x1.57mm^3 including the ground plane and it is designed on FR4 substrate with a dielectric constant of 4.4. The proposed antenna resonates at four distinct frequency bands, centered at 3.03, 4.84, 7.94 and 8.85 GHz. The return loss for the above mentioned frequency bands can be controlled and can be adjusted with parametric analysis of E-slot. The various terms and parameters associated with the antenna like return loss, radiation patterns, VSWR, current distributions and gain are analyzed and are optimized by the simulations carried out using finite element method based Ansoft High Frequency Structural Simulator(HFSS).

Keywords: Coplanar waveguide feed line, E-slot antenna, Antenna Performance characteristics.

I. INTRODUCTION

The aim of this paper is to design an antenna with a low profile and high gain which can be in turn used for wireless applications. In order to achieve these attractive features such as low profile and high gain we prefer the micro strip path antennas which are most suited for millimeter wave frequency band applications and widely used for mobile communications, wireless communications and aerospace applications [1]. This Microstrip patch antennas are very simple in their construction using the conventional microstrip fabrication technique. The antennas in future must not only have multiband operation, should also possess wider bandwidths, simple structures and should have the ability to integrate with the RF circuits [2]. The Phenomenon of frequency agility, broad bandwidth, feed line flexibility and beam scanning can be easily obtained from these antennas [3]. Generally, the dimensions of microstrip patch antennas are around a half waveguide wavelength[4] and there are many miniaturization techniques that can be adopted in reducing such dimensions, they are classified as 1) Using high permittivity substrates 2) Increasing electrical length 3)Short circuits 3) Superstrates 4) Using magnetic substrates[5].

In the proposed antenna design a coplanar waveguide transmission line is employed, which enables us to design a wide range of characteristic impedances and the CPW structures usually provide wider bandwidths [6] and have many attractive features including low radiation losses, less dispersion and easy integration.

In this paper, an E- shaped slot is cut on the ground plane for multi and wide band operations; this E-shaped slot on ground plane also creates a longer current path. There are varieties of configurations that can be realized for generating multi wide operations in a single antenna are already proposed. e.g., using coupled V-slot [7], double L- slit[8] ,U- slot antenna[9] inverted- L monopole antenna [10] etc. Most of these antennas could not cover low frequency applications but can be used for multi wide band operations.

Antenna Geometry

The Antenna Structure shown in the Figure 1 represents the antenna Configuration and figures 1(a) ,1(b) represents ground Plane (Bottom view) and patch(Top view) respectively. An E-Shaped slot is cut on the ground plane to create a longer current path and at the same time to achieve both wideband and multiband operations. The proposed antenna is designed on a FR4 Substrate with an overall area of 30x40mm^2 and thickness of 1.57mm.The whole system is fed by coplanar waveguide feeding and the design of antenna is optimized using the Ansoft High Frequency Structural Simulator with the main dimensions shown in the figures 1(a) and 1(b).

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Research Impact of Astronomical Image Processing

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Abstract— *There are numerous applications of digital image processing in different emerging areas of research activities such as satellite imaging, medical imaging, biometrics, underwater imaging etc. Astronomical image processing is another challenging area of research where digital image processing concepts are hugely used in the analysis and processing tasks. There are research contributions in the field of astronomy, particularly those dealing with noise signals in the images captured by charge coupled devices (CCD) cameras. Image Enhancement and restoration techniques play very important role in modern astronomical science and study thereof. This paper presents an assessment of research work and its impact of the related research activities in astronomical image processing.*

Keywords— *Astronomical image, CCD (charged coupled device), image processing.*

1. INTRODUCTION

With basic contributions in the field of Medical Image Processing [1] and Applications (Sinha et al., 2014); Biometrics [2] and its applications (Sinha et al., 2013), it has been extensively studied that digital image processing has wide range of applications starting from biometrics to remote sensing applications. The research works that were applications of image enhancement methods [3] in reduction of speckle noise from ultrasound images (Sinha et al., 2008); Contrast enhancement [4] of underwater images (Sinha et al., 2008); and Assessment of image restoration methods [5] for remotely sensed images (Sinha et al., 2010) substantiate the usage of image processing tools and techniques in applications related to remote sensing, satellite imaging and astronomy.

Actually, all image processing tasks generally involve few important stages namely pre-processing; enhancement & restoration; segmentation and classification; and features for machine learning. The features which are extracted from the images are very useful in determining distinguished characteristics and classification of images [1, 2].

Now, astronomy related research includes huge data for processing; and one of the important data is image signal that requires proper interpretation using a set of tools [6]. The descriptions of image information does not only confine to beautiful appearance of the images but the intricate details of the images. The contrast, intensity, colour, resolution, presence of noise in the signals etc are very important in the process of analysis of astronomical images [7]. An image processing tool, *AstroFracTool*, was developed that provides a set of enhancement methods applied over the digital images, generally the recording time of astronomical images is very large requiring very long exposure to capture the images. The exposure for long time creates difficulties in terms of noise signals that could be addressed using an appropriate image de-noising method [8]. There is paradigm shift in the approaches used by astronomical researchers and scientists and they have been switching to non-traditional approaches, using computer-aided analysis of the images. Virtual observatory projects are implemented and International Virtual Observatory Alliance (IVOA) is constituted that takes care of developing the required standardization at international level [9].

Extragalactic field is used to get deep optical image that collects information of population of galaxies in the universe. CCD (charged coupled device) mosaic camera was used and *Spitzer space telescope* has been implemented in previous research work. The noise due to instrument disturbance or interference is also a concern that requires attention [10]. The images are formed by principle of reflection and incidence; whatever amount of light is incident its some part is reflected and accordingly the image formed. Therefore, in this process of image acquisition, noise or artefacts are added in the images that should be removed so as to get correct information about astronomical images [10]. Optical images are captured mostly by CCD cameras [11]. There are thousands of methods available for noise removal which can remove Gaussian noise, speckle noise, salt and pepper noise, dark noise and the improvement of noise removal, that is enhancement factor can easily be computed using a set of statistical parameters, such as mean, variance, entropy, CNR (contrast to noise ratio), PSNR(picture signal to noise ratio) etc [12]. Wavelet transform based methods, Fourier transform based methods and many others are there in the literature. One common challenge remains

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Implementation of Coefficient Filter Design Techniques

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ABSTRACT:-

The aim of this paper is to implement the adaptive digital Least Mean Square (LMS) and delayed-LMS (DLMS) for typical noise cancellation applications .Noise reduction from given sound can be achieved by extraction using LMS algorithms with MATLAB. We are comparing these algorithms on the basis of sound wave provided with working MATLAB. Sound can transfer in high rate but noise added in that signal it becomes a noisy signal. The noisy sound we could not recognize the original sound. This technique can be used to reduce noise level from noisy signal without reducing the characteristic of the signal. The practical work using MATLAB it prove that LMS algorithm better than DLMS and TVLMS on the basic of result showing in the form of wave in training and also in evaluation section .It shows the result in PSNR format which obtained from comparing the original sound and denoisy sound. So that LMS obtained highest PSNR value as compared to the DLMS and TV-LMS.

Key words:- LMS, DLMS, TVLMS, MATLAB, adaptive filter

1. INTRODUCTION

Objective of this project is to determine the performance of different algorithm of adaptive digital filters. The determinations of coefficients involve noise cancellation application also comparing the LMS, DLMS and TV-LMS algorithm by using MATLAB. And determine PSNR value but PSNR value obtained from comparison between the original sound and denoisy sound. This technique can be used to reduce noise level from noisy signal without reducing the characteristic of the signal. The least mean square (LMS) adaptive filter is the most popular and widely used adaptive filter, because of its simplicity and its satisfactory convergence performance. The direct-form LMS adaptive filter involves a long critical path due to its inner-product computation to obtain the output from filter such that the critical path is required to be reduced by pipelined implementation when it exceeds to desired sample period.

We used sound signal from airport location, in bubble, in car, in exhibition, in restaurant and from station in wave format that are ou r input for the MATLAB .first we use the airport sound for evaluation on LMS algorithm and then DLMS and TVLMS resp. The sound is hearable for us for training section. After it noise is added by using software that make it noisy. But when we move toward evaluation section the MATLAB with given software reemoves the unwanted sound that is noise siggnal from it. The results are shown in wave format with the M MSE and PSNR for both training and evaluation. The resulted sound is clear to hear .For any circumstances and places the sound can be clear by using this software.

From the above table it shows that PSNR value of LMS algorithm is highest and then TVLMS algorithm. For this purpose the importance of using LMS algorithm is faster than other. Above three tables it shows that PSNR value of LMS algorithm is higher than other algorithms .So that the algorithm is totally depends on the PSNR value .Therefore LMS algorithm is faster than DLMS and TVLMS algorithm. Least mean squares (LMS) algorithms are type of adaptive filter used to mimic a desired filter by finding the filter coefficients that relate to producing the least mean squares of the error signal (difference between the desired and the actual signal).LMS algorithms adjust the filter coefficient to minimize the cost function.

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OPTIMIZED SYSTEM LEVEL DESIGN AND SIMULATION ANALYSIS FOR CHARACTERIZATION OF PERFORMANCE OF SINGLE-LOOP CT SIGMA-DELTA MODULATORS A/D

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ABSTRACT

This paper demonstrates a possibility to realize a simulation of testing strategy of high-resolution Sigma-Delta modulator using MATLAB SIMULINK and Xilinx EDA tool environment. This brief works explore towards smart computation static and dynamic parameter of sigma delta Analog and converter (ADC) .Novelty of computation method introduce here in the Output Response Analyzer (ORA) and On chip test generation being used for testing of ADC parameters which help in reducing the difficulties in design complexity of integrated circuit . Moreover, the reusable features of hardware in the computation of different parameters are also improved in the ORA design of BIST.

KEYWORDS: Sigma delta modulator , Resolution, Noise Calculation, Power Calculation .

I. INTRODUCTION

Continuous time sigma delta modulator's are affected by the non ideal behaviour of analog circuit which limits their resolution in MHz bandwidth[1-2]. The non idealities of circuit and quantization noise constitute the modulator's noise floor. The error to be reduced or noise has its own power penalty depending on the Oversampling ratio (OSR) , quantizer bit length (Nc), the modulator's noise shaping order (Lc) , The share of each error in modulator's noise floor and OSR , Nc , Lc are the most important design parameters which will be responsible for minimizing the power consumption of a bandwidth and resolution[3-7] .To get the optimum loop filter coefficients and the amplifiers specifications are the objective of given system level design approach. The loop filter coefficients are optimized for the minimum quantization noise and the amplifiers specification are optimized for the minimum power consumption[8] . The task of testing a VLSI chip to guarantee its functionality is exceptionally complex and often very time taking. In addition to the difficulty of testing the chips (IC) themselves, the incorporation of the chips into systems has caused test generation's cost to grow highly. On the other hand, in built-in self-test, the test pattern generation and the output response evaluation are done on chip; thus, the use of high-end automatic test equipment (ATE) machines to test chips can be avoided[9-12]. High-resolution ADCs with high sampling rates are required in a broad area of high-performance applications, such as high-grade imaging systems, wireless communications, and radar[9]. To deliver ADCs satisfying the requirements of the applications, it is obligatory that they are tested as less time as possible, but without negotiating the quality of the test[11]. So with reduced size, cost and power consumption, the promotion towards the development of new generation of electronics system accomplishing all major features for the interaction of real time world to the digital processing circuitry is in its great demand[12][13].

A Successful system level modelling of sigma delta BIST for ADC linearity testing must satisfied following Condition: First ,it include modelling of TSG Test signal generator and post silicon implementation of TSG so that Low cost and Area overhead is minimize on chip and more accurate stimulus needed than ADC under test. Second System level Modelling and physical design of DUT as analog to digital converter play very important role[14-18]. Analog to digital linearity characteristics is mesuresued by two popular instruments such as INL and DNL. Integral nonlinearity(INL) and differential nonlinearity(DNL) can be calculated accurately from

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Evolution of Multiple Frequency Aspect Ratios

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Abstract:—Multiple-input multiple-output (MIMO) exposure algorithms have the immense significance for high-performance mobile communications and future waveforms need to be MIMO capable. MIMO decoders have been conferred
That can surpass Orthogonal Frequency Division Multiplexing (OFDM) in intensely frequency-selective channels in-forms of coded frame error rate (FER). This paper proposes space time frequency coding method with multiplexing de-multiplexing (STFC-MDX)for MIMO OFDM systems. In general coherent detection, channel estimation requires huge number of symbols for transmission in space time frequency(STF) due to which efficiency of bandwidth reduces. The proposed system for MIMO OFDM systems will increases the efficiency of bandwidth. The proposed STFC-MDXs are derived both multiplexing and de-multiplexing algorithms for 64 QAM (quadrate amplitude modulation). The simulation outcome shows that the use of STFC-MDXs can improve the performance of coherent STF bit error. The performance of STFC-MDXs is better than STF even in the absence of channel state information.

Keyword:s—OFDM, Fading Channels, Space Time Frequency, QAM, STFC-MDX

I. INTRODUCTION

The major driver for broadband wireless communications has been reliable high-data-rate services (e.g., real-timemultimedia services). These, together with the scarcity of bandwidth resources, provoke research toward implementationof adequatecoding and modulation schemes that advances the quality andbandwidth efficiency of wireless systems. In wireless links,multipath fading creates performance decline and constitutesthe congestion for growing data rates. Generally,the most popular technique to combat fading has been theexploitation of diversity.Space-time (ST) coding has been proved effective in combatingfading, and enhancing data rates; see e.g., [6], [11],and references therein. Exploiting the presence of spatial diversityoffered by multiple transmit and/or receive antennas, STcoding relies on simultaneous coding across space and time toachieve diversity gain without necessarily sacrificing preciousbandwidth. Two typical examples of ST codes are ST trelliscodes [19] and ST block codes [18], [16]. In ST coding, the maximumachievable diversity advantage is equal to the product of the number of transmit and receive antennas; therefore, it is constrainedby the size and cost a system can afford. The latter motivesfor exploitation of extra diversity dimensionslike multipathdiversity.Multipath diversity becomes available when frequency selectivityis present, which is the typical situation for broadbandwireless channels [6]. Among them, [5] and [8] rely oncombining ST codes with redundant or non-redundant linear pre-coders.Maximum diversity gain is achieved in [5] and [8] atthe expense of bandwidth efficiency [5] or increased decodingcomplexity [5], [8]. On the other hand, [7], [9], [3], [15], and[14] are based on space-frequency (SF) coding, which amountsto simultaneously coding over space and frequency. However,due to the prohibitive complexity in constructing the codes, noSF codes have been designed in [17], [9], [15], or [10]. Instead,[17], [20], [15], and [10] simply adopt existing codes [ST blockcodes in [15] and trellis-coded modulation (TCM) codes in [17],[20], [15], [10], without maximum diversity gain guarantees.In [3], an SF code is proposed to achieve maximum diversitygain at the expense of bandwidth efficiency. Moreover, issuespertaining to maximizing the coding gain of ST-coded transmissionsover frequency-selective channels have yet to be addressed.Focusing on multi-antenna orthogonal frequency-divisionmultiplexing (OFDM) transmissions through frequency-selectiveRayleigh fading channels, this paper pursues a novel path:joint space-time-frequency (STF) coding over space, time, andfrequency. Resorting to sub-channel grouping [14], [7], [12]and by choosing proper system parameters, we first divide theset of generally correlated OFDM sub-channels into groups ofsub-channels. We thus convert our system into a set of what weterm group STF (GSTF) subsystems, within which STF codingis considered. By deriving design criteria for STF codes, weprovide a link between STF codes and existing ST codes.

II. SPACE TIME FREQUENCY CODED OFDM SYSTEM

We consider a STF-coded MIMO-OFDM system with transmit antennas; receive antennas and N sub carriers. Suppose that the frequency selective fading channels between each pair of transmit and receive antennas have L independent delay paths and the same power delay profile. The MIMO channel is assumed to be constant over each OFDM block

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High Precision Applications of Global Navigation Satellite Systems

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ABSTRACT:-

High spatial and temporal variations of atmospheric water vapour cause an unknown delay on microwave signals emitted from space-borne transmitters. This delay is considered as a major error source in Interferometric Synthetic Aperture Radar (InSAR) applications as well as high-precision applications of the Global Navigation Satellite Systems (GNSS). Temporal variability of water vapour is estimated directly with a high temporal resolution from GNSS measurements. On the other hand, InSAR can provide information about the spatial variations of atmospheric water vapour. The main goal of this project is to integrate InSAR phase observations and GNSS measurements collected from sites distributed within the SAR image to derive high spatially-resolved maps of atmospheric water vapour. In this contribution research progress and first results are presented.

1. INTRODUCTION

Atmospheric water vapour is one of the most important constituents of the Earth's atmosphere and is present even in clear skies. Its significance arises from the fact that it is a primary contributor to greenhouse effect which influences the temperature average of the Earth's surface resulting in globe warming. Atmospheric water vapour is characterized by high temporal and spatial fluctuations which imposes continuous determination of its content. Conventional meteorological devices such as radiosondes and water vapour radiometers are employed for measuring atmospheric water vapour. Radiosondes provide measurements at fine vertical resolution but they are limited in observing temporal and horizontal variations of water vapour due to high costs [1]. Water vapour radiometers do not measure the fine spatial variations of water vapour and are more suitable for use over oceans [1].

Concerning space-borne systems, water vapour reduces the propagation velocity of GNSS and InSAR signals, delaying the time required to reach the ground. This effect can be exploited for sensing water vapour from space. In the past twenty years, GNSS have been used for water vapour sounding (see e.g. [1 and 2]). Due to the high temporal resolution of GNSS measurements, they enable the observation of the temporal variations of water vapour. This can be done only at sparse sites which limits the spatial resolution of water vapour maps derived based on GNSS. InSAR phase observations, however, have a tight spatial resolution over a wide coverage. Since InSAR is affected by water vapour in the same way as GNSS, it can be used to reconstruct water vapour at a finer spatial resolution. It is worth mentioning that InSAR observations are relative in time, accordingly it is necessary to retrieve absolute magnitudes.

Within this project, a combination of InSAR and GNSS is investigated for the reconstruction of water vapour. Integrated Water Vapour (IWV) content is derived from GPS measurements using the strategy of Precise Point Positioning (PPP) at the SAR overpass time. Atmospheric phase screens (APS) are extracted from InSAR interferograms using Persistent Scatterer Interferometry (PSI) [3]. Figure 1 shows an overview of the procedures for deriving water vapour content using GNSS and InSAR measurements. Meteorological observations such as air pressure and temperature are indispensable for accurate retrieval of IWV. In this study, meteorological data are received from the Weather Research and Forecasting (WRF) model [4].

2. RESEARCH AREA AND DATA SET

This research is carried out using data collected in the region of Upper Rhine Graben (URG) in Germany. This region is well covered by the homogenously distributed permanent GNSS sites [5]. InSAR interferograms are formed from seventeen co-registered ENVISAT images (100×100 km^2) of URG (zone Karlsruhe). They are observed in the time period 2003 to 2008. The images are acquired during descending passes of track 294 with a minimum of 35 days temporal baseline. The phase due to Earth's topography is removed using a Digital Elevation Model (DEM) of 5 m resolution and height accuracy of about 20 cm. GNSS measurements with a 30 seconds sampling time are received from the GNSS URG network (GURN). Meteorological data, including

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Implementation of Harvester Energy Resources

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ABSTRACT:-

Providing a constant and perpetual energy source is a key design challenge for implantable medical devices. Harvesting energy from the human body and the surrounding is one of the possible solutions. Delivering energy from outside the body through different wireless media is another feasible solution. In this paper, we review different state-of-the-art methods that process "in-body" energy harvesting as well as "out-of-body" wireless power delivery. Details of the energy sources, transmission media, energy harvesting, coupling techniques and the required energy transducers will also be discussed. The merits and disadvantages of each approach will be presented. Different types of mechanisms have very different characteristics on their output voltage, amount of harvested power and power transfer efficiency. Therefore different types of power conditioning circuits are required. Issues of designing the building blocks for the power conditioning circuits for different energy harvesting or coupling mechanisms will be compared.

KEYWORDS:-Energy Harvesting, Impalntablr Bio-Medical Devices , Pacemaker, Power Delivery, Sensors

I.INTRODUCTION

Implantable Medical Devices (IMDs) have been used for more than 50 years. The early IMDs dated back to the implantable pacemaker in 1958 [1]. Since then numerous types of IMDs were introduced to tackle different health issues. Implantable cardioverter-defibrillators were developed for detecting cardiac arrhythmia and correcting through electric pulses [2]. Implantable insulin pumps were developed to deliver insulin into the body depending on the blood sugar level of the diabetic patients [3]. These traditional IMDs mainly function by monitoring the local signals and activating certain event for reaction. The required power level ranges from μW to mW. With the advancement in VLSI technology, more sophisticated implantable circuits and systems have been developed that have more sensing capability and stimulation functions. Low power wireless data transmissions are also possible. This creates a new class of IMDs which not only monitor and activate signals in the local region, but also collect data, send it back through wireless channel to a local host to do signal processing and receive commands wirelessly to execute massive stimulation and activation. Examples are the implantable retinal prosthesis devices [4, 5], of which the goal is to restore some vision to people who have degenerative eyesight.

Implants are either on the retina (epiretinal implants) or behind the retina (subretinal implants). Images are either captured by an external camera or the implanted micro-photodiodes. After processing, the signals are either generated locally or transmitted from a host processor through a wireless channel to generate electrical simulation signals to the retina cells. Power hungry circuits. such as wireless receivers and electrical stimulators are required. Another example is cochlear implants, which generate electrical stimulation to the auditory system to recover some of the auditory function for the hearing-impaired [6]. The in-body energy sources come from the human body. These include the kinetic, thermal, biochemical and direct electrical energy. The movements of the human body or even the internal organs [12] are good sources of kinetic energy

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Cooperative Spectrum Sensing using Majority Fusion Rule in Cognitive Radio Networks

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ABSTRACT

In cognitive radio networks, the secondary users can use the frequency spectrum when the primary users are not present. To utilize the primary user's spectrum, secondary user has to sense the spectrum continuously and detect the presence or absence of the primary user. In cooperative spectrum sensing, the performance of spectrum sensing depends on the fusion rules used at the fusion center. In this paper, we considered the Majority fusion rule to identify the presence or absence of the primary user. We calculated the optimal number of cooperative secondary users by maximizing the energy efficiency and we obtain the mathematical expression for number of secondary users using Majority fusion rule at the fusion center (FC). We showed that cooperating all secondary users in the network does not necessary achieve the optimum performance, but instead, it is achieved by cooperating a certain number of users with the highest primary user's signal to noise ratio.

Keywords: *Cognitive radio, Cooperative spectrum sensing, Hard fusion rules, Total error rate, Energy efficiency.*

I. INTRODUCTION

Recently the cognitive radio technology has been identified as a promising way to address the spectrum scarcity [1]. Spectrum sensing must be performed before the secondary user (SU) accessing the licensed spectrum in order to avoid the interference to the primary user (PU). The secondary user can access the channel as long as the primary user is absent and he needs to vacate the channel whenever the PU is comes back in to the operation. However, in the wireless communication signals suffer from shadowing, multipath fading and receiver uncertainty [2], [3]. To overcome this problem cooperative spectrum sensing has been proposed [4], [5]. The two important functions of cognitive user in cooperative spectrum sensing (CSS) are spectrum sensing and reporting sensing results to the fusion center (FC). In CSS, the probability of detection increases with the increase of secondary user's [6], [7]. However, the increase of secondary users increases the energy consumption [8].

The energy efficiency is defined as the ratio of average channel throughput to the average energy consumption [9]. The energy efficiency can be improved either by improving the average channel throughput or by reducing the energy consumption. To reduce the energy consumption for local spectrum sensing, the total number of secondary users in CSS is divided into several clusters and one cluster is activated at a certain period [10]. A partial cooperative spectrum sensing scheme was proposed in [11], to reduce the energy consumption by reducing the sensing users. Here each SU will calculate the expected energy

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Energy Efficiency in Cognitive Radio Network using Hard Fusion Rules

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Abstract— In cognitive Radio networks, cooperation can improve the spectrum sensing performance. However, for spectrum sensing and reporting sensing results to the fusion center requires more energy. Cognitive radio plays an important role in improving energy efficiency in wireless networks. In this paper, we calculated the energy efficiencies for Hard fusion rules and compared. Simulation results show the energy efficiencies for AND, OR and MAJORITY fusion fusions. Based on the results we show that the AND and OR fusion rules are special cases of MAJORITY fusion rule.

Keywords— Cognitive radio; Cooperative spectrum sensing; Energy efficiency; Hard fusion rules.

I. INTRODUCTION

The concept of cognitive radio technology has been proposed to solve the problem of spectrum scarcity [1]. It allows the secondary users (SU) to utilize the primary users (PU) spectrum when it is free and the SU could not cause harmful interference to the PU. Therefore spectrum sensing is an important task in cognitive radio technology. The SU has to detect the presence or absence of the primary user accurately. Spectrum sensing techniques available are matched filter detection, energy detection and cyclostationary future detection [2]. Each technique has its own advantages and disadvantages. Energy detection method is used most of the time because it does not require any prior information regarding PU. Spectrum sensing is a very difficult task because of multipath fading, shadowing and receiver uncertainty. Due to fading effects, SU fail to identify the presence of PU and cause interference to the PU by accessing the licensed band [3], [4]. To overcome these problems cooperative spectrum sensing (CSS) has been proposed [5]- [7].

Cooperative spectrum sensing improves the sensing performance by allowing cooperation among the SUs. All SUs sense the licensed channel and forward their one bit local decision to the fusion center (FC). Fusion center combines all the SUs local decisions by using Hard combining rules i:e. AND, OR and MAJORITY rule and make a final decision regarding whether presence of the PU [8]. As the number of cooperative secondary users increases the detection probability increases but, energy consumption required for spectrum sensing and reporting sensing results to the FC by all the SUs increases. Our aim is to increase the energy efficiency by reducing the energy consumption.

Energy efficiency is defined as the ratio of average channel throughput to the average energy consumption [9]. The energy efficiency can be improved either by improving the average channel throughput or by reducing the energy consumption. To reduce the energy consumption for local spectrum sensing, the total number of secondary users in CSS is divided into several clusters and one cluster is activated at a certain period [10]. A partial cooperative spectrum sensing scheme was proposed in [11], to reduce the energy consumption by reducing the sensing users. Here each SU will calculate the expected energy consumption for spectrum sensing before the participation in CSS, if it is greater than the threshold then the SU will not participate, otherwise the SU will participate. In [12], an objection based collaborative spectrum sensing method was proposed to increase the energy efficiency by reducing the number of reporting

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Efficient Computer aided Diagnosis System (CAD) for Breast Cancer Detection and ICT based Health Informatics for Mass Awareness: A Critical Review and Recommendation

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Abstract— *CAD system for detection and classification of masses and micro-classification can be very useful for breast cancer detection. The idea of this review originated froam the several factors such as increasing risk of breast cancer; lack of awareness in common masses particularly in villages and sub-urban areas about preventive measures, precautions and general awareness of health issues. Therefore, this critical review aims to develop a computer-aided diagnosis (CAD) system for segmentation and classification of breast cancer images; create an awareness of breast cancer screening even without appearance of symptoms through educational program and seminar; develop an ERP system using ICT tools for creating awareness among mothers in local language; prepare teaching learning materials in local language regarding maternal and child health issues; design Mobile Apps and other small videos highlighting about precautions and preventive measures avoiding the possibility of diseases and save lives; conduct Panchayat level seminars, meetings and workshops to involve the beneficiary of villages; and reduce maternal and child deaths by awakening the masses.*

Index Terms—***CAD, Mammography, Segmentation, ICT, Enhancement, Classification.***

I. INTRODUCTION

CAD based system combines image processing techniques and expert's opinion or knowledge for obtaining improved accuracy of abnormality detection. The CAD system for detection and classification of masses and micro-classification can be very useful for breast cancer detection. There are several methods for segmentation of masses and detection of cancerous tissues. However, robustness and efficient detection remain major challenges. Recent health statistical reports suggest that the infant mortality rate is 46 deaths per 1000 live births and the maternal mortality rate is also not satisfactory in many states of India. Though government has been doing lot of things for mitigating health issues of mothers and children but problem lies in lack of awareness about how to get benefit of various health and education related initiatives [1-5].

The paper envisages meeting the challenges pertaining to lack of awareness. Use of ICT tools would cater the common masses and create awareness about precautions, measures and avoidance of various diseases. Digital mammography screening programs can enable detection and diagnose of the breast cancer which reduces the mortality and increases the chances of complete recovery. We have proposed a new combination method and it is found to be applicable to all type of normal and abnormal tissue exist in breast. One of the common problems encountered in image segmentation is choosing a suitable approach for isolating different objects from the background. There are several research contributions in the area of medical image segmentation and classification [6-10]. Significance of the work aims at achieving expected outcomes in a research area which directly deals with society and mass awareness.

II. PROBLEM STATEMENT

The following points are very important formulating the problem statement:

- In remote areas, people die more not due to lack of medical facilities, BUT die due to lack of appropriate awareness and knowledge; and
- Breast cancer detection is planned to be implemented that would serve as a telemedicine tool addressing this disease; and

Belonging to a village, I could see how pathetic situation is when many mothers and children die just

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Analysis of Narrow Band Notch Antenna Using EBG

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Abstract:-

The antenna parameters were investigated to fully understand the behaviour and later for the optimisation process. The simulated results through HFSS tool are giving satisfactory results to notch particular band of frequencies and which is giving motivation for the fabrication of the proposed model. All the antenna parameters including S parameters and radiation patterns and current distributions are studied through simulation and experimental validation is done through the proto type modelling on FR4 substrate. Except the Notch band, the proposed antenna model giving excellent radiation characteristics with VSWR less than 2.The prototyped antenna model is occupying a compact size of 18 X 14 X1.6 mm on FR4 dielectric substrate material with dielectric constant 4.4.

Keywords:-Compact; Fractal; Asymmetrical fractal; Amoeba shape; VSWR; Notch band; Coplanar waveguide

Introduction

Multiband antennas are gaining their applications in the mobile communication fields with their compact nature [1-2]. High performance, compact size and low cost often meet their requirements for the modern microwave communication systems with their numerous advantages and applications antennas with different configurations like fractals, EBG structures and defected ground structures are been used to enhance the antenna parameters with multiband characteristics [3-8]. Miniature and low profile antennas in these categories have undesirable intrinsic attributes such as narrow band width and inefficient radiation characteristics resulting from reducing the antennas dimensions smaller than a quarter wave length at operating frequency [9-10]. It has been demonstrated that fractal geometries, which are based on space filling characteristics and self-similarity attributes, can be used to improve performance of the antenna. Also fractal based antennas can effectively coupled energy to free space. In addition, different feeding methodologies can be applied on fractal antennas without

EFFECT OF SILICA FUME ON THE COMPRESSIVE STRENGTH OF CEMENT-SILICA FUME MORTARS

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ABSTRACT

This paper reviews the recent developments and present state of the application of silica fume (Cement-silica) and nano-silica for sustainable development of concrete industry. This would save not only the natural resources and energy but also protect the environment with the reduction of waste material. Limited work is done on use of cement-silica and micro silica in paste, mortar and concrete and whatever work is available is highly contradictory about their influence on mechanical strength development and durability properties. Various literatures have been reviewed to understand the influence of micro and nano-silica on fresh, hardened and micro structural properties of paste, cement mortar and concrete. Taking advantage of nanostructure and microstructure characterization tools and materials, the simultaneous and also separate optimal use of cement-silica and nano-silica will create a new concrete mixture that will result in long lasting concrete structures in the future.

Key words: Cement, Silica, compressive strength, mortar, Pozzolana

1. INTRODUCTION

Silica fume is a new pozzolanic material that has received a great amount of attention recently. In recent years , a number of organizations have become increasingly involved in research aimed at energy conservation in the cement and concrete industry . This in part, is being accomplished by encouraging the use of cementitious materials such as fly ash, slag and pozzolans. Lately, some attention has been given to the use of silica fume, as a possible partial replacement for Portland cement. This interest is due to the availability of this material in various countries, and to the strict enforcement of pollution control measures to stop dispersing the material into the atmosphere. Further more , the availability of high range water-reducing admixtures(super plasticizers) has opened up new possibilities for the use of silica fume as a part of the cementing material in concrete and mortars to produce very high-strength concrete mortar or high durable concrete and mortars. Unlike natural pozzolans and fly ash, the silica reaction involving silica fume is rapid and therefore, a long curing period is not necessary. Investigations on the performance of silica fume in concrete and mortars have been conducted in Scandinavian Countries, particularly in Iceland, Norway, and Sweden, where the material has been in use on limited scale since 1976. In North America some data on the use of silica fume has been classified as a pozzolan by the American Concrete Institute (ACI) Committee 226 on cementitious materials (ACI 1987). ASTME 618 recognizes three classes of pozzolan: N, F, and C.Silica fume is somewhat closer to the N Class.

Silica fume is a by product resulting from the reduction of high purity quartz with coal, in electric arc furnaces in the production of silicon and ferro-silicon alloys. The material, which contains more than 80% of silica in non crystalline state in the form of extremely fine particles, is highly pozzolanic .It is also collected as a by product in the production of other silicon alloys such as ferro chromium, ferro magnesium and Calcium Silicon. In 1981, the world production of silica fume was estimated to be 10 million metric tons, with Norway and United States as leading producers accounting for 1,

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Effect of Annealing Temperature on Structural, Morphological, Optical and Electrical Properties of Spray Deposited V_2O_5 Thin Films

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Nanostructured vanadium pentoxide (V_2O_5) thin films have been deposited by a simple and cost-effective spray pyrolysis technique (SPT) at substrate temperature 300 °C and post annealed at atmospheric conditions in the temperature range from 300 °C to 500 °C at a constant rate of heating. The influence of post annealing heat treatment on the crystallization of V_2O_5 has been investigated. Films were characterized structurally by X-ray diffraction, morphologically by Scanning electron microscopy, optically using UV-Vis spectrophotometer, electrical characterization using Hall probe and Raman spectroscopy has been carried out for phase confirmation. X-ray diffraction analysis (XRD) revealed that, as deposited films were orthorhombic structures with a preferential orientation along (0 0 1) direction. Moreover, it was observed that crystallite size increases from 22 nm to 56 nm with increase in annealing temperature. Optical properties of these samples were studied in the wavelength range 300–1000 nm. Raman spectrum confirms the layered structure of V_2O_5 thin films. Hall Effect measurements indicate that the change in carrier concentration with increase in annealing temperature.

Keywords: V_2O_5, annealing temperature, Raman spectroscopy, carrier density.

1. INTRODUCTION

Vanadium pentoxide (V_2O_5) is the most stable phase in V-O system and it also exhibits multivalancy, layered structure, wide optical band gap with good electrochemical and thermo chromic properties [1]. Especially, V_2O_5 in thin film form has attracted considerable interest due to their wide range of applications. Compared to bulk, V_2O_5 in nano thin film form substantially improve the performance of devices for energy storage and sensing due to their distinct physical and chemical properties because of their large surface area and with unique morphology [2]. The V_2O_5 thin films have been prepared by different techniques such as RF-sputtering [3], dc-magnetron sputtering [4], flash evaporation [5], spin coating [6], dip coating [7] and pulsed laser deposition [8]. However, a technique with a relatively low cost, good stoichiometry and large area, the spray pyrolysis has been used to prepare V_2O_5 thin films.

In the previous work [9], we have undertaken an extensive study of sprayed V_2O_5 thin films, i.e., optimization of the growth parameters, chemical composition, microstructural and optical properties. Annealing temperature critically effects the crystallinity and other material properties of the as deposited films. When the films are annealed, three processes may take place; recovery, recrystallization and grain growth. To study the effect of annealing temperature, as deposited films are treated at different annealing temperatures. This research deals with the effect of annealing temperature on microstructural, optical and electrical properties of V_2O_5 thin films.

2. EXPERIMENTAL DETAILS

Ultrasonically cleaned glass substrates (Blue star, India) were used to deposit V_2O_5 thin films with optimized parameters (Nozzle to substrate distance (NSD) = 30 cm, substrate temperature (T_s) = 300 °C, 0.1 M of ammonium vanadate and water as solvent) has been chosen for annealing treatment. This film was treated at different annealing temperatures such as 300 °C, 400 °C and 500 °C per one hour at a constant rate of heating 5°C/min.

To examine the crystalline structure of the films, Bruker D8 Advance, USA X-ray diffractometer (XRD) using Cu K_α radiation (λ = 1.54059 Å) was employed. The absorbance spectra of all the films were recorded by a UV–Vis 3000 spectrophotometer, Lab India Analytical Instruments. Raman scattering spectra were recorded at room temperature using Renishaw In Via micro Raman spectrometer in the wave number range 100–1000 cm^{-1} with a 532 nm laser. The surface morphology of the films was observed with scanning electron microscope (Carl ZEISS EVO 18, Germany). Carrier density and resistivity were measured with Hall Effect measurement system (HMS-3000, ECOPIA) under a magnetic field of 0.5 T at room temperature.

3. RESULTS AND DISCUSSION

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Comparative Analysis of Frequent Pattern Matching Based On Apriori & Enhanced Algorithms

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Abstract : ***Data mining strategies have been broadly utilized for removing non-paltry data from such huge measures of data. It is helpful in numerous applications like key basic leadership, monetary conjecture, and medicinal conclusion and so forth. Data mining can be connected either as a elucidating or as a prescient device. Affiliation manage mining is one of the functionalities of data mining. This postulation proposes a couple of strategies for moving forward affiliation govern mining, affiliation administer covering up, and post mining. The way toward creating affiliation rules includes the errand of finding the set of all the successive thing sets and creating promising standards. This issue can be understood by mining Maximal Frequent Sets (MFS) alone. Despite the fact that data mining has a ton of benefits, it has a couple of bad marks moreover. Delicate data contained in the database might be brought out by the data mining devices. Distinctive methodologies are being utilized to shroud the delicate data. It is watched that a large portion of the concealing algorithms in the current writing, work at the exchanges level to conceal some touchy data. This is a tedious stride in the concealing procedure. In this theory, two new procedures have been proposed to lessen the time multifaceted nature of the concealing procedure. A major organization may have various branches spread crosswise over various areas. Handling of data from these branches turns into a colossal undertaking when multitudinous exchanges occur. Neighborhood mining may likewise create a lot of standards. Further, it is most certainly not for all intents and purposes feasible for every single nearby data sources to be of a similar size.***

Keywords: About Apriori, Candidate item set, enhanced Apriori, Frequent patterns, Support, Confidence, Association Rule, Apriori Algorithm, soft set.

I. INTRODUCTION

A. Data Mining

The role of data mining is simple and has been described as "extracting knowledge from large amounts of data". Association rule mining is one of the dominating data mining technologies. Association rule mining is a process for finding associations or relations between data items or attributes in large datasets. It allows popular patterns and associations, correlations, or relationships among patterns to be found with minimal human effort, bringing important information to the surface for use. Association rule mining has been proven to be a successful technique for extracting useful information from large datasets. Various algorithms or models were developed many of which have been applied in various application domains that include telecommunication networks, market analysis, risk management, inventory control and many others. The Data Mining can be said a process utilized for extricating intriguing and important learning from huge measure of data. By this mechanized process its simple to separate obscure patterns, meaning information certainly stockpile on the web, huge databases, data warehouse or whatever other data sources. At the end of the day, it is likewise called information disclosure processes, learning mining from data, information extraction or data/pattern investigation.

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Time-Perception and Storage Competent Strategy for Managing Mockup

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Abstract

Record De-duplication is the important task under merging different database records. We can provide tuning results to the users after implementation of de-duplication operation. Existing approaches are failing under tuning of web databases and removal of duplicate records. All existing approaches are not providing efficient and effective results [1] [2] [3] [4]. In this paper we are designing one new prototype discussion related to effective and enhanced de-duplication. Prototype design starts with fuzzy clustering and genetic algorithm. Its can control more number of duplicate records compare to other approaches. Its saves more storage and time compare to other approaches [12] [13].

Keywords: web databases, de-duplication operation, edit distance algorithm, fuzzy clustering algorithm, genetic algorithm, and prototype.

I. INTRODUCTION

Dramatically web databases data increases and as well as noisy data also increases in different sources like multimedia, social networks, mobile devices etc. all applications owners are expect the high quality data to provide reliable services. High quality and reliable services possible with the help of different de-duplication approaches. Data quality majorly degraded because of duplicate pairs in web databases environment. Duplicate pairs may chance to generate because of different problems. Those things are redundant entities, conflicting data. In central repositories different de-duplication approaches are applies for removing and detection of duplicate pairs like edit distance

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THERMAL-DIFFUSION AND DIFFUSION-THERMO EFFECTS ON MHD FLOW THROUGH POROUS MEDIUM PAST AN EXPONENTIALLY ACCELERATED INCLINED PLATE WITH VARIABLE TEMPERATURE

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ABSTRACT

The aim of the present paper is an investigation of thermal-diffusion and diffusion-thermo effects on MHD flow through porous medium past an exponentially accelerated inclined plate with variable temperature. The governing non-linear partial differential equations are transformed into a system of coupled non-linear ordinary differential equations using similarity transformations. A robust finite element method (FEM) has been adopted to obtain the solution of the transformed flow equations with corresponding initial and boundary conditions. Extensive discussion of the finite element formulation, convergence and validation is provided. The influence of physical parameters on dimensionless velocity, temperature and concentration are presented graphically to illustrate interesting features of the solutions. The effect of flow pertinent parameters on skin friction, Nusselt number and Sherwood number are discussed and presented in tabular form. Finally, a qualitative comparison has been made between the present work and previous published result, found that there is an excellent agreement between the results exists.

Keywords: MHD, thermal-diffusion, diffusion-thermo, inclined plate, FEM.

INTRODUCTION

In the above mentioned works, the diffusion-thermo (Dufour) and the thermal-diffusion (Soret) terms were not taken into account in the energy and concentration equations respectively. But when the heat and mass transfer occur simultaneously in a moving fluid, the relations between the fluxes and driving potentials are of a more intricate nature. It is found that a heat flux can be generated not only by temperature gradients but by composition gradients as well. The heat flux that occurs due to composition gradient is called the Dufour effect or diffusion-thermo effect. On the other hand the flux of mass caused due to temperature gradient is known as the Soret effect or the thermal-diffusion effect. The experimental investigation of the thermal-diffusion effect on mass transfer related problems was first done by Charles Soret in 1879. Hence this thermal-diffusion is known as the Soret effect in honour of Charles Soret. In general the Soret and Dufour effects are of a smaller order of magnitude than the effects described in Fourier's or Fick's law and are often neglected in heat and mass transfer processes. Though these effects are quite small, certain devices can be arranged to produce very steep temperature and concentration gradients so that the separation of components in mixtures are affected. Postelnicu [1] analyzed the simultaneous heat and mass transfer by natural convection from a vertical flat plate embedded in an electrically-conducting fluid saturated porous medium using the Darcy Boussinesq model in the presence of Dufour and Soret effects. Ramzan *et al.* [2] examined three dimensional boundary layer flow of a viscoelastic nanofluid with Soret and Dufour effects. Nayak *et al.* [3] analyzed Soret and Dufour effects on mixed convection unsteady MHD boundary layer flow over stretching sheet in porous medium with chemically reactive species. Tai Bo-Chen and Char Ming [4] have studied Soret and Dufour effects on free convection flow of non-Newtonian fluids along a vertical plate embedded in a porous medium with thermal radiation. Mohammad Ali and Mohammad Shah Alam [5] have investigated Soret and Hall Effect on MHD flow, heat and mass transfer over a vertical stretching sheet in a porous medium due to heat generation.

The conjugate phenomena of heat and mass transfer flows in an exponentially accelerated inclined plate embedded in a porous medium has many engineering and geophysical applications such as chemical industry, geothermal reservoirs, drying of porous solids, thermal insulation, enhanced oil recovery, MHD power generators, packed-bed catalytic reactors, cooling of nuclear reactors and underground energy transport. Heat and mass transfer in wet porous media take place coupled in a complicated way. The varied structure of the solid matrix widely in shape. There is, in general, a distribution of void sizes, and the structures may also be locally irregular. Energy transport in such a medium occurs in all phases by conduction. Mass transport occurs within voids of the medium. The voids in an unsaturated state are filled with a liquid partially filled, while the remaing voids are filled with some gas. The concept that no hygroscopic fiber is a common misapprehension (i.e., those of low intrinsic for moisture vapor) will automatically produce a hydrophobic fabric. Recently, Seth *et al.* [6] presented heat and mass transfer effects on unsteady MHD natural convection flow of a chemically reactive and radiating fluid through a porous medium past a moving vertical plate with arbitrary ramped temperature. Siva Reddy and Anjan Kumar [7] have presented Finite element analysis of heat and mass

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Expert Recommended Systems for Book using Data Analytics

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Abstract

Now a days, there is enormous amount of data is available in the Internet. The large amount of data is being used as structured, semi-structured and unstructured at every day from various sources such as social networking, shopping, user reviews and ratings etc. the data is generated from the internet users may share data among themselves, in the form of common patterns. These patterns can be filtered and analyzed, so that a recommendation system can be suggested to the end users in whom they are interested. Documents may be classified according to their subjects or according to other attributes such as document type, author, printing year etc. The proposed recommended system aims to provide simple, effective and efficient suggestion to utilize and manage the book in library store. Due to enormous amount of data involved, Apache Hadoop framework is used for distributed processing. Apache Mahout is used for analyzing the data and implementation of the recommender system.

Keywords

Apache Hadoop, Mahout, Recommended System, Distributed Processing, Big Data, Library Information System

I. Introduction

Recommender systems or recommendation systems (RS) (RS may be termed here as system or platform or engine) are a subclass of information filtering system that seek to predict the 'rating' or 'preference' that a user would give to an item. In recent years, Recommender systems has received moreattention and have become a part of number of e-commerce applications which include recommending movies, books, news, research articles, social tags, etc., Moreover, new research works on Recommender systems also predicted for experts, collaborators, jokes, restaurants, financial services, persons, life insurance and Twitter followers [17].

In recent days the Big Data is characterized as five components: Volume, Velocity, Variety, Veracity and Value. Volume is large size of data; Velocity speaks about at which rate the data is computed. The data may be available in structured, semi-structured and unstructured data varieties, how quality the data is provided to the user is called veracity and face value of the data is called value of the data [19].

Document classification or document categorization [16] is a problem in library science, information science and computer science. The task is to assign a document to one or more classes or categories. This may be done "manually" (or "intellectually") or algorithmically. The intellectual classification of documents has mostly been the province of library science, while the algorithmic classification of documents is mainly in information science and computer science. The problems are overlapping, however, and there is therefore interdisciplinary research on document classification [1] [6].

This paper is organized as; Section 2 discusses the literature about the recommended system, its categories and gives overview of Hadoop framework and Mahout. Section 3 details about the proposed framework of the Recommendation system for book analytics. Section 4 describes the implementation work and followed by the conclusion in Section 5.

II. Literature Review

The documents to be classified may be texts, images, music, etc. Each kind of document possesses its special classification problems. When not otherwise specified, text classification is implied. There are two main philosophies of subject classification of documents: the content-based approach and the request-based approach.

Influence of Waste Tire Chips on Strength and Characteristics of Sandy Soils

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Abstract— In the modern days world waste tires contributes significantly to environmental problem. As such utilization of waste tire in geo-technical engineering application has gained increasing attention in the present study an effect is made to investigate the feasibility of waste tire chips to enhance the engineering properties of poorly graded sand (SP), and well graded sand (SW). A series of laboratory test like direct shear test and plate load test are carried out on both soils after adding different percentages of 10%,20%,30%,40%,50% by weight of soil. A series of small plate load test were also carried out on both soils for different tire chip percentages. By conducting the direct shear test the cohesion and angle of friction of the soil are improved by using plate load test the bearing capacity of soil improved, thus the influence of waste tire chips on the strength and deformation characteristics of cohisionless soil.

Key words: Waste Tire Chips, Well Graded Sand, Poorly Graded Sand and CBR

I. INTRODUCTION

The technique of sand is an important granular material. It consists of small rounded or angular grains of silica (sio2) and is formed by the decomposition or disintegration of sand stone under the action of weather such as wind rain frost etc. Sand is sometimes referred to as natural or synthetic. Natural sand is granular material made up of fine mineral particles. Sand is the products of physical and chemical weathering. Sand is the most stable of the mineral components of soil; it consists of rock fragments, primarily quartz particles. As rock fragments, sandy soils feel gritty between the sand grains have little ability to stick together thus sandy soils cannot be rolled into a string when wetted. It is well known that sandy soils are droughty soils, because they retain little water when wetted. The soils can be quite differently depending upon the geotechnical characteristics. In coarse grained soils, where the grains are larger than 0.075 or (75μm), the engineering behavior is influence mainly by the Relative proportions of different sizes of sands (0.075 – 2.36mm). The coarse grained soils are relative proportions of the different grain size have significance influence on the engineering behavior of a coarse grained soil. The factors affecting geotechnical characteristics of a coarse grained soil are depends upon the density of the soil grains and the shape of the soil grains. The grain size distribution of a coarse grained soil is generally determine through sieve analysis, where the soil sample is passed through a stack of sieves and the percentage passing different size of sieves are noted. The coarse grained soils are it is necessary to do sieve analysis to obtain the complete grain size, distribution data. A coarse grained soils is said to be well graded if there is a good distribution of sizes in a wide range are smaller grains fill the voids created by the grains thus producing a dense packing. A sand is well graded if Cu> 6 and Cc=1-3. And a gravel is poorly graded if Cu< 4 and Cc=1-3.

The cohesion less soils are undisturbed samples. In which these soils such as clean sand, with no cohesive properties. These soils are which do not have cohesion equal to zero. These soils derive the shear strength from the intergranular friction these are also called frictional soils. For example: Sands, Gravels.

The material is smaller than 4.75mm size is called fine aggregates. Natural sands are generally used as fine aggregates; sand may be obtained from pits, rivers, lakes or sea shores. When it's obtained from pits it will be washed to free it from clay and silt. Sea shore sand may contain chlorides which may cause. Efflorescence, and may cause corrosion of reinforcement.

Hence it should be thoroughly washed before use. Similarly if river sand contains impurities such as mud etc. Angular grained sand produces good and strong concrete, because it has good interlocking property, while round grained particles of sand do not afford such interlocking. Fine aggregate (sand) may be measured by weight for accurate works, and by volume for ordinary works. However, when dry sand absorbs water from atmosphere, when water is mixed it artificially its volume is increases due to moisture in sand are known as "bulking of sand". When the water particles lubricate the sand particles, causing surface tension, and due to these particles are pulled a part. This increase in volume depends on the gradation of sand.

II. LITERATURE REVIEW

The study of literature shows that a considerable amount of work related to our project and guidelines methodologies, and the determination of deformation and strength characteristics of Cohesion less soil is done worldwide.

M.S. Mashiri, M.Vinod (2000) The Disposal of waste scrap tires are environmental dilemma. It can be improved by the characteristics of soil which is an essential material of construction. In these shear characteristics of the soil is an essential material of construction. It's finding this project is study to analyse the effects of normal stress, and sand matrix unit weight and tire content. The sand and tire chips were mixed with different percentages are 0%, 25%, 50% of the total weight soil used. We are considering the three normal stresses were considered for all the experiments. The experiments were analyzed and discussed in the internal friction angle and effect of different parameters. The cohesion less soils are undisturbed samples. In which these soils such as clean sand, with no cohesive properties. The study of results showed that adding tire chips can improve the shear characteristics of soil.

G. Venkatappa Rao, R. k. Dutta, (2002) the waste tire can be shredded into chips and can easily be mixed with

Interpulse TIG Welding of Titanium Alloy (Ti-6Al-4V)

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ABSTRACT

The unique properties of Titanium alloy (Ti-6Al-4V) like high strength to weight ratio, low density has made the alloy very useful material in the manufacturing of compressor blades, casings and other structural components of the gas turbine engines. The TIG welding is an arc welding process widely used in the fabrication of gas turbine engine components and its assembly. The Interpulse technique is the modified version of TIG welding process. Due to magnetic constriction and high frequency modulation of current in the interpulse technique, the arc is getting constricted which further minimizes the net heat input. In this experiment response surface optimization technique has been adopted to evaluate the effects of the input variables (main current, delta current, travel speed), on output responses (weld bead width, reinforcement height and area, penetration height and area and HAZ area). The outcome shall be beneficial in selecting suitable parameters to obtain the required shape and quality of the weld bead geometry.

Key words: Interpulse TIG Welding; Titanium alloy; Ti-6Al-4V; Weld bead width.

1.0 INTRODUCTION

Gas tungsten arc welding (GTAW) is an arc welding process in which non consumable tungsten electrode is used to produce the weld. The primary importance of such commonly used welding technique lies with economy and its potential capability towards the joining of various metals and their alloys of thin sections such as most of the steels including stainless steel, aluminum, titanium and nickel based superalloys. The most effective feature of this technique is the intense heat source. The TIG welding process is frequently used in the manufacturing of gas turbine engine components. The elevated Strength-to-Density Ratio (high structural efficiency), low Density (roughly half the weight of steel, nickel and copper alloys) and excellent elevated Temperature properties (up to 650°C) made the Ti-6Al-4V titanium alloy most desirable material for the successful use in the manufacturing of the blades, gas turbine engines and air frame structures and other different components which demand high levels of reliable performance. A constant current AC and DC welding power supply is generally used to produce energy which leads to high heat input. This problem is encountered by the pulsing the current to a higher and a lower value. This pulse increases the energy in the arc and melts off an amount of filler rod to allow correct penetration and then when pulse ceases there is left only background current to keep the arc ionized and the weld metal freezes. The weld thus progresses as a series of overlapping spot welds. This method is very advantageous for thin and medium sections of welding. Pulsed-arc transfer means that the weld metal is projected across the gap at high current, but the mean welding current remains relatively low [1-5].

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DISCOVERY OF HARASSMENT IN DIGITAL MEDIA THROUGH SMD AUTO ENCODER

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ABSTRACT:- *As a cash in of plain as day social send, auto electronic tough has fulfilled a malevolent irk afflicting adolescents, teenagers and burgeoning adults. Machine obtain approaches manufacture clear-cut unmasking of hectoring messages in absolute original appropriate, and the aforementioned one could lend a hand to commenced a full of life and sure gossipy itemization capacity. In here basic exhort state, one harsh bearing reach and nocuous subsequent imitation arboriculture of workbook messages. In previously mentioned riffle, we aim a new model dealing get ready to check out that dispirit. Our heart titled Semantic-Enhanced Marginalized DE spread Auto-Encoder enters via lexemic establish of your far and wide dark investigate grow up including unstructured come to an end passenger car encoder. The grammatical interval is composed of kipper dropout wake up and unproductiveness constraints, high quality the well- formed calamity bump spring stationed on area opinion and spacious embedding acuminate. Our prompted superstructure gives preserve the secluded marking forming of dictatorial comment and obtain a horrible and unfavorable report of verse. Comprehensive experiments on two well-known programmed tyrannical corpora (Twitter and Myspace) are conducted, and the outcomes note in that our asked approaches transcend new medium lines assumption habits approaches.*

KEYWORDS: *Virtual bullying Detection, Text Mining, Representation Learning, Stacked Denoising Autoencoders, Word Embedding.*

1. INTRODUCTION

Social Media, as defined in is ''a peg of Internet implanted applications in that pleasant the disastrous and rare foundations of Web 2.0, any all right the forming and change of user-geneses' obtained. Via commonplace publishing, trade can enjoy stupefying find out, set off argument artistry for this reason. How constantly, intermodal TV set could have some surface chattels in such a way that cybernetic hectoring, any could have disgust yo-yo the lifetime of overwhelm, simplest youngsters and youths. Cyber hectoring expectedly defined as furious, premeditated deal with performed by Everyman or an attract of bash via Mac attach methods regularly addressing messages and conscription comments contrary a bruised [1]. Different against overwhelm severe that fact precisely occurs at strengthen insufficient encountering job, cyberhate hectoring on quiet fill in can bump into in all places much as. For bullies, they're easy to punish their peers' feelings behind they don't ought to meet superstar and may cover foundation the Internet. For casualties, they're evidently develop call one's bluff ago we all, very much formative years, are overruled resembling Internet or courtly statement. As described in cybernetic hectoring inhale erization determine ranges starting with 10% to 40%. In the US, in the neighborhood 43% of youngsters were for keeps bullied on most popular Marconi. The exchangeable ubiquity arbitrary, automatic hectoring has gloomy, disastrous and malcontent persuades adolescents. The outcomes for martyrs precarious computational swaggering can even be blood-stained set the trial of self-injurious post or suicides.

2. METHODOLOGY

We first and foremost offer notations utilized in our scenario. Let D = {w1, we} be the expression screen all resolution actual inside the workbook opus. We first every single note accepting a Bow way x ∈ R d. Then, every single one integral perchance denoted as a plate: X = [x1, an] ∈ R den, web page n is bargain of available posts. We next off transiently estimation the marginalized curved expire auto-encoder and started our mentioned Semantic add told Marginalized Stacked DE imply Auto-Encoder. Chen et.al circumscribed an outlined describe of Stacked DE blab Auto-encoder that other employs a gaunt or not exactly a no delicate evaluates so in respect to earns a closed-form shoot one's wad. The significance loafer crumble auto-encoder last stat the innovative library originating at an eliminated one x˜1, Xin with all the intention of gaining influential aeon. The proclivity of corrupt the sly lore in gold might be point up by move co-occurrence stats. The co-occurrence sense give control a strict disclose figure respectful and readily lifestyle understructure, and this also motivates spare unpassed down wording under importance society methods uniformly Latent Semantic Analysis and competition models [2][3]. As demonstrated. (a), a vanish auto encoder comprehension to rehabilitate the particular away und consequences standards deriving out of the rest clean ones. Thus, the grave pen sort W lanky in achieving pairing withi

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A FILTER-BASED ELEMENT COLLECTION ALGORITHM TO DESIGN INCURSION RECOGNITION SYSTEM

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ABSTRACT:*Within aforementioned report, a superintended filter-based mostly spotlight collection formulary remains implied, especially Flexible Mutual Information Feature Selection. FMIFS is a revision too MIFS and MMIFS. FMIFS suggests an allotment to Battisti's formulary to dilute the wordiness by all of innovations. FMIFS gets rid of the wordiness constant necessary in MIFS and MMIFS.FMIFS is a revision past MIFS and MMIFS. FMIFS suggests an agreement to Battisti's procedure to contract the superabundance in the midst of traits. FMIFS removes the superfluity criterion desired in MIFS and MMIFS. Existing solutions outlive not able to comprehensively protecting information superhighway applications and micro systems of the threats originating at ever-evolving computational blame techniques to illustrate Do's shoot down and abacus adware and spyware. Current associate contact reports, which are on a regular basis enormous in compass, show an important provoke to IDSs. The calculation results tell this our item picking ritual contributes higher essential traits for LSSVM-IDS to obtain fitter meticulousness minimizing computational cost versus the disease-of-the-art methods. This interchanged report based mostly aspect collection custom dovetail linearly and nonlinearly relative proof ingredients. Within that hang, we suggest a collective data based mostly rote the one in question empirically selects the ideal trait for analysis. Its practicality is evaluated inside the installments of interconnections invasion salute. Redundant and beside the point story's in experiments undergo brought about a lengthy-term status in circulate truck codification. These functions not only sluggish lessen the total means of arrangement but in addition save you a classifier coming out of constituting factual decisions, specially immediately upon coping with big proof.*

Keywords: Linear correlation coefficient, Intrusion detection, mutual information.

1. INTRODUCTION

Developing potent and flexible safeness approaches, then, is fitting more than that important than some time past. The mix of foul lane food an over and above complete extenuation opposed to individual's threats and strengthens organization redemption. Hence, an alternate variety of confidence cleanup is incredibly advised, to illustrate Invasion Recognition System. In hike, heavy-duty measurements set normally encompass raising the roof, extravagant, or mysterious mien whichever do crucial demanding situations to figuring out disclosure and data modeling. Mockamole et alibi. considered the opportunity of assembling a range of training forms, in conjunction with Artificial Neural Systems, SVMs and Multivariate Adaptive Regression Splines to perceive intrusions [1]. Tosi et alias. united remarkable neuron-fuzzy classifiers including in their sort of an attention strategy, point a xenogeneic prescription was placed on help the structures of neuron-fuzzy orderliness used in the classifiers. Classifying loads of goods normally causes quite a few measurable difficulties and that succeeding bring about super computational entanglement. To cope with the particular problems round the finances of spotlight collection, we've propounded a compound factor excerpt maxim. The go proposes a brand spanking new filter out-based detail culling plan, by and that as a premise report of participated important points are dropped at estimate the belief in the middle appearance and productivity classes. We devise our implied erect achieve to give thought multiclass arrangement problems. This really leave show off the good fortune and likewise the horse sense on the advanced style. Being an improvement of Mutual Information Feature Selection and Modified Mutual Information-based Feature Selection, the advocated star choosing plan does not become any separate limitation.

Literature Survey: Means of star choice are generally private toward clear out and cover methods in comparability to clear out styles, wrap designs are often a lot higher computationally opulent much as arraigned high-dimensional info or huge measurements. Mockamole and Sang advocated a bizarre promote choosing credo to mitigate the star slot of KDD Cup 99 results set [2]. The graded clustering precept was utilized to transfer the classifier including in a lower degree and cooler good quality warm-up conclusions to taper off the common teaching and trying out any time and beef up the analysis appearance

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A Review on Evolution of Concrete towards Sustainable Self-Compacting Concrete

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Abstract—**To present a detailed review on the evolution of concrete in to the present form of self-compacting concrete and establish its scope as a sustainable futuristic material. Also, to suggest its use in RC beam column junctions for improved performance under cyclic loading. The report consists of firstly reviewing critically the various works done so far on the evolution of concrete in to the present form of Self-compacting Concrete. Secondly, to present the scope and potential of Self- compacting concrete as a futuristic material. Lastly, to hint and appreciate its use for enhanced performance of RC beam-column junctions under cyclic loading. Increased use of concrete today has resulted in the scarcity of certain natural materials like sand, stone and water. Production of cement is increasing emissions of co_2 from Portland cement industries that contributes to green housing effect, a major environmental concern. Added to this, certain equipment used in the concrete construction are causing health and environmental impacts. Increased labor and their hiring costs are forcing the construction field to incur huge expenditure in managing the situation. Besides these, solid wastes from many industries are growing, requiring appropriate disposal measures. At this juncture, there is a strong need to produce and use a sustainable concrete that meets all these requirements. Sustainability of concrete is thus a great urgency in concrete technology. This paper reviews the evolution of a sustainable self-compacting concrete, highlights the advantages and applications, scope and potential of sustainable self-compacting concrete to be futuristic material. Proposals are made to use this kind of sustainable SCC for tackling critical problems in the beam column junctions of multi storied buildings, particularly those which are in severe seismic zones.**

Keywords—**Self-compacting concrete, Evolution of concrete, Sustainable concrete, futuristic material, beam–column junction.**

I. INTRODUCTION

Concrete is a versatile material and can mold into required shape. It is the second most consumed substance on Earth after water. Its utility is increasing day by day leading to depletion of natural materials such as sand, stone and water. On the other hand, increased production of cement is leading to increased emission of CO_2 from cement industries causing environmental problem.

Over the years, concrete has been evolving with different materials, for different purposes. Some of the industrial wastes like silica fume and fly ash have been in use in concrete preparation as filler materials and for improving concrete durability and strength. However, it is imperative that use of any new materials shall be sustainable. This requires thinking in terms of the availability of the materials, labor, skills and judicious use of technology.

The development of SCC can be assumed to be the most important evolution in the concrete industry. SCC can reduce the noise and energy consumptions at construction place because of no use of vibratory machine. It can incorporate the industrial wastages like fly ash, silica fume, quarry Dust. By that, it can increase the durability properties, micro structure (Interfacial transition zone) and permeability and reduces shrinkage [1]. It will give smooth finishing to buildings. A good bond formed by SCC between congested reinforcement due to passing ability of SCC [2].

It reduces the working men at construction site and easier placement. Maintenance cast also reduces. Hence SCC reduces the environment and economic problems, giving a clear indication that it is evolving towards Sustainable concret [3].