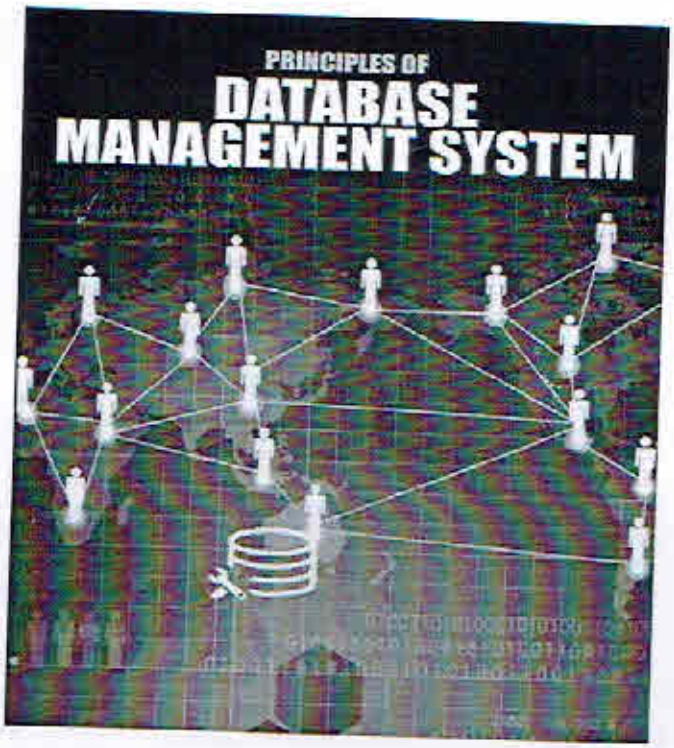

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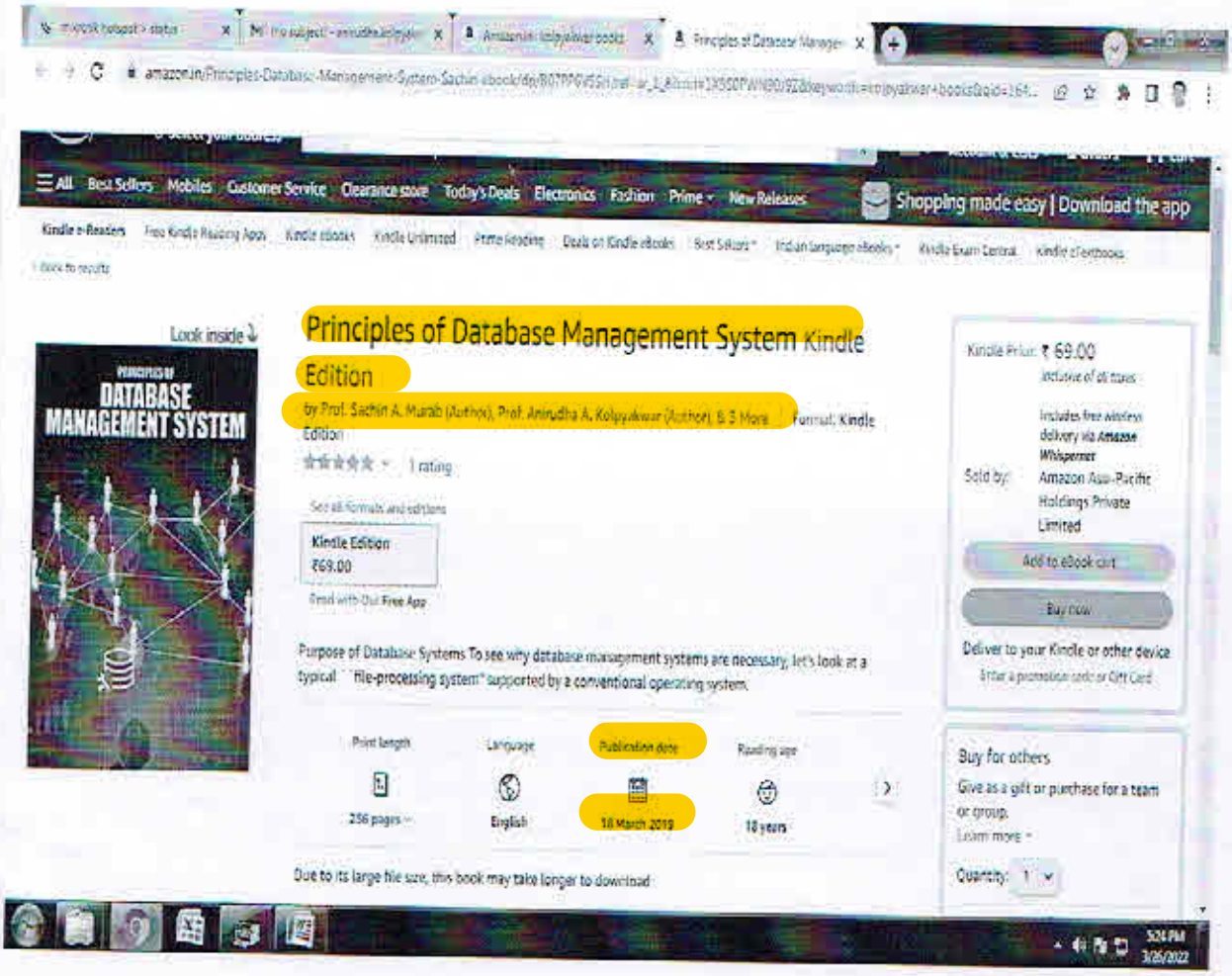

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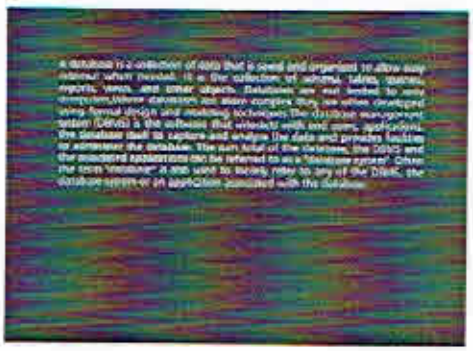

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Fundamentals of Data Structures and Algorithms

Data Structure and Algorithms

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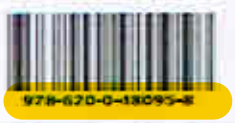

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"AN AUGUMENTED REALITY APPLICATION FOR LEARNING PRACTICAL LAB EQUIPMENTS"

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ABSTRACT: *Augmented Reality (AR) is one of the newest innovations in the electronics industry. Augmented Reality (AR) is an emerging form of experience in which the Real World (RW) is enhanced by computer-generated content tied to specific locations and/or activities. Over the last several years, AR applications have become portable and widely available on mobile devices. Augmented reality systems superimpose graphics for every perspective and adjust to every movement of the user's head and eyes. Augmented reality is the merging of synthetic sensory information into a user's perception of a real environment. Augmented reality is implemented using ARToolKit in many applications like medical, manufacturing, Robot path planning, Entertainment, annotation and visualization, education institutes and many which require heavy Head Mounted Devices along with graphics kit. So, in this paper, AR is implemented using image processing in MATLAB which even reduces hardware and easily can be used in technological institutes as MATLAB is available. This proposed method is very effective to implement AR in technological institutes i.e. in college to show campus as well as in teaching and learning activities where virtual objects can make students to learn interactively as they provide the information which we cannot detect with our own senses*

1. INTRODUCTION:

The modern world is enclosed with gigantic masses of digital visual information. To analyze and organize these devastating ocean of visual information image analysis techniques are major requisite. In particular useful would be methods that could automatically analyze the semantic contents of images or videos. The content of the image determines the significance in most of the potential uses. One important aspect of image content is the objects in the image. So there is a need for object recognition techniques. Object recognition is an important task in image processing and computer vision. It is concerned with determining the identity of an object being observed in an image from a set of known tags. Humans can recognize any object in the real world easily without any efforts; on contrary machines by itself cannot recognize objects. Algorithmic descriptions of recognition task are implemented on machines; which is an intricate task. Thus object recognition techniques need to be developed which are less complex and efficient. Many successful approaches that address the problem of general object detection use a representation of the image objects by a collection of local descriptors of the image content. Global features provide better recognition. Color and shape features can also be used. Various object recognition techniques are presented in this paper. Difficulties may arise during the process of object recognition; a range of such difficulties are discussed in this paper. The robust and efficient object recognition technique can be developed by taking into account these difficulties and overcoming them.

2. OBJECT DETECTION

Object Detection is to identify objects of interest in the video sequence and to cluster pixels of these objects. Object detection can be done by various techniques such as frame differencing, Optical flow and Background subtraction.

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"LITERATURE REVIEW ON MULTIPLE OBJECT DETECTION AND OBJECT RECOGNITION IN VIDEO"

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ABSTRACT: *The modern world is enclosed with gigantic masses of digital visual information. Increase in the images has urged for the development of robust and efficient object recognition techniques. Most work reported in the literature focuses on competent techniques for object recognition and its applications. A single object can be easily detected in an image. Multiple objects in an image can be detected by using different object detectors simultaneously. The paper discusses various techniques for object recognition and a method for multiple object detection in an image.*

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3. OBJECT RECOGNISATION:

Object recognition is a process of detecting the object present in an image or a video sequence, with the help of some recognition technique or methods. Object recognition is one of the techniques of digital image processing where we can process any image by applying some of the operation. It actually depends on human perception that what sort of output he needs, based on that, one can apply a particular technique.

4. REVIEW ON OBJECT DETECTION

Object detection is an important and challenging tasks in many computer vision applications such as surveillance, vehicle

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"REVIEW PAPER ON DEVELOPMENT OF SMART STICK FOR BLIND PEOPLE USING GPS & GSM MODULE WITHOUT ANY HUMAN ASSISTANCE"

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ABSTRACT: *Mobility of visually impaired people is restricted by their incapability to recognize their surroundings. According to the World Health Organization (WHO) in 2011, over 285 million visually impaired people and 39 million were totally blind out of which 19 million are children (below 15 years). This means that someone in our world goes blind in every five seconds and a child in every minute. In this paper, we present a survey of navigation system of visually impaired people highlighting various technologies with their practical usefulness, design and working challenges and requirements of blind people. We are going to develop an intelligent system that works efficiently in both indoor and outdoor environment. The current device is for the visually impaired focus on travelling from one location to another. Our paper focuses on designing a device for visually impaired people that help them to travelling independently also it must be comfortable to use. The aim of this paper is to provide a better understanding to identify important research directions in this increasingly important social area for future research.*

Keywords: Microcontroller, ultrasonic sensor, water sensor, panic switch, GSM and GPS Module.

1. INTRODUCTION

Visually impaired person faces many challenges in independent mobility and navigation. Mobility means the possibility of liberally moving, without support of any supplementary person, at home and unfamiliar scenarios. People with visual impairment tackle enormous limitation in terms of mobility.

They are usually left behind the ignorant crowds of people. They can't do the normal things that an average man does during his daily schedule. They can't climb upstairs, or cross the road or travel the world or anything that usually people do easily. They always search for external assistance for doing these petty things. Hence, there must be some assistive things to be provided to them. The ever increasing number of blind persons attracts the development of many assistive devices around the world. Most of these technologies have limitations as its challenge involves accuracy, usability, interoperability, coverage which is not easy to overcome with current technology for both indoor and outdoor navigation.

So we are designing a new system which is simple, cheap, user friendly, virtual eye is implemented to improve the mobility of both blind and visually impaired people in a specific area. This system include a mini hand stick to help the blind person to navigate alone safely and to avoid any obstacles that may be encountered, whether fixed or mobile, to prevent any possible accident. The main component of this system is the ultrasonic sensor which is used to scan a predetermined area around blind by emitting-reflecting waves.

2. LITERATURE REVIEW

Visually impaired people find difficulties detecting obstacles during travelling independently which makes it dangerous for them. The Smart stick is best solution for blind people to identify the obstacle. Various scientists and researchers have tried to develop various helping system for the blind people. In this section, we have given analysis of various systems that are developed to assist blind peoples.

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Power and Area Efficient Design of Reconfigurable Crossbar Switch for BiNoC Router

Mr. Ashish Khodwe, Mrs. V. K. Rajput, Prof.C.N.Bhoyar, Prof. Priya M. Nerkar

Abstract—Network-on-Chip (NOC) has been proposed as an attractive alternative to traditional dedicated wire to achieve high performance and modularity. Power and Area efficiency is the most important concern in NOC design. Small optimizations in NoC router architecture can show a significant improvement in the overall performance of NoC based systems. Power consumption, area overhead and the entire NoC performance is influenced by the router crossbar switch. This paper presents implementation of 10x10 reconfigurable crossbar switch (RCS) architecture for Dynamic Self-Reconfigurable BiNoC Architecture for Network On Chip. Its main purpose is to increase the performance, flexibility. We implemented a parameterized register transfer level design of reconfigurable crossbar switch (RCS) architecture. The design is parameterized on (i) size of packets, (ii) length and width of physical links, (iii) number, and depth of arbiters, and (iv) switching technique. The paper discusses in detail the architecture and characterization of the various reconfigurable crossbar switch (RCS) architecture components. The characterized values were integrated into the VHDL based RTL design to build the cycle accurate performance model. In this paper we show the result of simple 4 x4 as well as 10x10 crossbar switch .The results include VHDL simulation of RCS on ModelSim tool for 4 x4 crossbar switch and Xilinx ISE 13.1 software tool for 10x10 crossbar switch.

Index Terms— Interconnection networks, on-chip communication, Reconfigurable, crossbar switch networks-on-chip (NoCs)

1. Introduction

Modern Systems contain multiple processors, dedicated hardware processing units and peripherals. As technology advances with ever increasing processor speed, global wires spanning across significant portion of board size will dominate the propagation delay [1], which becomes a performance bottleneck for systems design. In recent years, significant research has demonstrated that an on-chip packet interconnection network is a better candidate for handling on chip communication [2]. System modules communicate to one another by sending packets across the network. This approach has the advantages of both performance and modularity. In another example [3], researchers implemented such a reconfigurable interconnection network on FPGA for improved hardware-software multitasking. The system level components include, besides the on-chip network, also embedded software. Some communication networks that target general-purpose multi processors are the J-Machine [4] and Smart Memory [5]. However, very little research has been done on modeling the on-chip communication architecture and integrating the communication network with processor units in a single environment.

As the industry builds multi-core architecture involving tens and hundreds of cores in the future, on-chip interconnection networks have emerged as a promising candidate for solving the wire-delay problem facing current chip multiprocessors (CMPs) [6], [2]. However, one of the major research challenges currently faced by on-chip interconnection network designers is that of power dissipation [12]. NoC architectures are characterized by the links for data transmission and the routers for storing, arbitration and switching functions performed by input buffers, arbiters and the crossbar respectively. Power is dissipated both for communicating data across links as well as for switching and storage within the routers [12]. With the increasing need for low power architectures, NoC research has focused on optimizing buffer design [9], [10], [11], minimizing crossbar power [8], [12], and utilizing 3D interconnects [13]. Modular router design ensures that the network bandwidth and storage is shared evenly among all the input channels and packets. This effective sharing of resources (buffer and channel) is achieved by implementing routing, crossbar switch and switch allocation functionalities within the router on a hop-by-hop basis. Additionally, broadcasting of communication information across every node adds power (0.6 mW/TX and 0.4 mW/RX). Reducing the size of the input router crossbar switch is a natural approach to reduce the power to read/write a flit and area overhead of the router. However, the network performance and flow control is primarily characterized by the input buffers [15].

However, at high loads, blocking probability increases due to wire-to-wire transfers. Therefore, we design a larger crossbar 10 × 10 to provide bypass path at all loads. Although a larger crossbar occupies more area, recent work on high-radix routers show that these designs are feasible for on-chip networks [16]. Moreover, double-

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CLOUD SEEDING THECHNOLOGY

Hitesh Ashok Bhutwani, Pradnya Gautam Wasnik, Akash Shrikrishna Singhaniya, Prof. Amol Rode

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Abstract

Water is one of the most basic commodities on earth sustaining human life. A modeling method for evaluating rain enhancement of cloud seeding with liquid carbon dioxide coolant and silver iodide (AgI) ice nuclei has been developed. The method has been used to stimulate a field experiment. Modeling results indicate that cloud seeding with carbon dioxide coolant and silver iodide in appropriate part of can induce notable change to cloud micro physical and dynamical processes, accelerating updraft velocity, seeding up formation of rain water. The mechanism of seeding to increase rainfall is analyzed this has prompted scientist and engineers to explore the possibility of augmenting water supplies by means of cloud seeding. This warm could seeding technique would enhance could albedo.

Keywords: *rain enhancement, cloud seeding, liquid carbon dioxid*

1.INTRODUCTION

For sometime glycogenic cloud seeding had been proposed as an efficient technique for inducing artificial rainfall in super cooled clouds. The results of many such experiments have been varied, however. Enhancement of existing clouds accompanied by increases in precipitation has been reported in several case studies whereas others have reported decreased or no precipitation due to an increased number of ice particles (eg. Hobbs and polytovich 1980). In addition, randomized experiments have been carried out with inconclusive results. Thus many researchers have some doubts to the efficiency of cloud seeding or artificial rainfall.

The above mentioned studies that focused on demonstrating the efficiency of artificial cloud seeding have involved statistical and physical analysis on an observational basis. One statistical method is to compare the results obtained in randomized experiments from both artificially seeded and unseeded clouds. Over a long period in which large samples sizes can accumulate. Because there are numerous variations (cloud vertical and horizontal scales, cloud life, entrainment, etc) among natural clouds even if the weather conditions are homogeneous in a seeding target region, however, it is difficult to obtain samples with an even distribution of storm intensities, that is, that are lacking bias in storms between seeded and non-seeded days.

2. WHAT IS CLOUD SEEDING?

Cloud seeding is a technique for increasing precipitation (e.g. Rain or Snow) using naturally occurring clouds. It involves the introduction of addition particles into suitable clouds to encourage the formation and growth of ice crystals or raindrops and thus increase the amount of precipitation that will fall from the cloud. Cloud seeding only occurs when the bureau of meteorology forecasts rain and even then only if conditions are favorable for cloud seeding to be successful. Cloud seeding is only effective if suitable clouds are present. There are regions in west Asia that could potentially benefit from this technology, including the coastal mountains in the eastern Mediterranean, Yemen and Saudi Arabia along the Red Sea and some internal regions. Despite the diversity of opinions on the feasibility of the technology, primarily because of difficulties in assessing its results, the prevailing opinion is that it has reached a relatively advanced stage of application and it can be considered one of the technologies capable of contributing to the augmentation of fresh water supplied in semi arid regions.

2.1TYPES OF CLOUD SEEDING

There are two main types of cloud seeding

A. Dynamic

B. Static seeding

Dynamic – It is more commonly used for worm latitude clouds that are more capable of releasing the latent heat to add the freezing process of the ice nuclei in clouds.

Static – Involves cumulous clouds travelling west to east through mountain ranges that are picking up water and other microscopic particles like soil, dust, smoke, that

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Investigation on Biogas Generation and Waste Minimization from Cow Dung by Anaerobic Digestion

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Abstract- A three anaerobic digesters having capacity of 20 liters each for different proportions of cow dung and waste water like as 1:1, 1:1.5, and 1:2 respectively utilized for assessment of cow dung in the form of energy and reduction in parameters like as BOD and COD for retention period of 30 days. The proportion (1:1) gives better value in reduction of BOD and COD value and also in production of Biogas in the form of energy. Reduction in BOD and COD value found to be 43.01% and 19.64% respectively also biogas of about 106.89 lit has found to be generated through anaerobic digester.

Index Terms- Anaerobic digester, Biogas, BOD & COD, digested slurry, volumetric method

1. INTRODUCTION

Livestock manure, like cow dung in the absence of appropriate disposal methods can cause adverse environmental and health problems such as pathogen contamination, odour, air born ammonia, green house gases etc [1]. Anaerobic digestion has been considered as waste-to-energy technology, and is widely used in the treatment of organic wastes, for example: organic fraction of municipal solid waste, sewage sludge, food waste, animal manure etc [2]. Recently, large amount of cow dung generated from feedlot farming increases annually, most of which are disposed into landfills or are applied to the land without treatment. Anaerobic digestion provides an alternative option for energy recovery and waste treatment [3]. Biogas production has been attracting increasing attention as a bio-fuel of the future because biogas technology not only constitutes a bio-fuel source, but also can be applied in the various environmental pollutants. In this paper, Cow dung has assessed to study the reduction in parameters of digested slurry as well as energy recovered through anaerobic digester with consideration of three different proportions of cow dung and waste water as 1:1, 1:1.5, and 1:2 for 30 days of retention period. A three anaerobic digester each of 20 liters capacity has considered for every proportion of cow dung slurry. The digestion performance of cow dung has evaluated in the form reduction in BOD and COD value after 30 days of retention time for each proportion. The proportion of 1:1 given better values than other proportions towards reduction in BOD and COD value as 43.01% and 19.64% respectively. Similarly, the cumulative biogas production found to be 106.89 lit. at the end of 30 days of retention period.

2. MATERIALS AND METHODS

2.1. Waste Collection

Fresh cow dung and waste water collected from JAGDAMBHA DAIRY FARM, KINHI. The cow dung was diluted in waste water for different proportions as 1:1, 1:1.5, and 1:2.

2.2. Experimental Setup

Three digesters of 20 liters capacity has prepared for every proportion of cow dung slurry. Digester has been prepared with proper arrangement of Inlet, outlet and gas pipe and set up at farm in proper manner and shown in **[fig 2.1]**.Details of digesters operations are given in **[Table 2.1]**. Also details of mix masses of charge stock and waste water depicted in **[Table 2.2]**

Fig. 2.1 Actual Model and Set up of Anaerobic Digester at farm

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PERFORMANCE BASED SEISMIC DESIGN OF RCC BUILDING

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Abstract: Every Civil Engineering structure or building is inimitable in nature unlike other engineering products which are constructed in a massive scale using the same technique repeatedly. The present Project is an attempt to understand Performance Based Design Approach. The performance-based seismic design approach enables us to design new structures more efficiently and to assess existing structures more realistically. The promise of performance-based seismic engineering is to construct structures with expected seismic performance. Performance based seismic design precisely evaluates how building is likely to perform in given possible earthquake threat. In performance based design identifying and assessing performance capacity of structure in an important part of design process, and guide the many decisions that must be made. Present study based on performance based seismic design and non-linear analysis of multi-storey RCC building. Performance based seismic design is an iterative process, begins with choice of performance objective followed by preliminary design, an evaluation whether or not the design meets the performance objective and finally redesign and reassessment, until desired performance level is achieved. In this project work we have carried out performance based seismic design of multi-storey (G+5) RCC building. Once design is complete, non-linear analysis is carried out to study seismic performance of building and found out whether selected objective is satisfied or not. In this work (G+5) RCC building is designed as per IS code (IS 1893 (Part 1): 2002, IS 456: 2000) for zone 5, 4 and 3 for Maximum Considered Earthquake (MCE) and Design based Earthquake (DBE) and a nonlinear static analysis is carried out using auto plastic hinges. After the building is designed it is imported to ETABS platform in order to carry out Pushover Analysis. The Displacement controlled Pushover Analysis was carried out and the Pushover Curve were obtained for the building as per guidelines mentioned in ATC 40. The Capacity Spectrum, Storey Displacement, Storey Drift, Demand Spectrum and Performance point of the building was found using the analysis carried out in ETABS 2015. These results were compared for each zone from which we can find out how the building will perform in different zones. From the Performance point it was found that the Building designed as per Indian standards was found to be well above Life safety performance level considering Designed Based Earthquake.

Keywords: Performance based seismic design, Performance objective, Capacity, Demand.

1. Introduction

The concept of performance based design evolved when designers started realizing that conventional code design method was not always the most appropriate method. Different structures have different performance requirements and it is not appropriate that the same prescriptive criteria be used for designing different structures. According to the code guidelines base shear is calculated on the basis of Importance factor ("I"), Zone factor ("Z") and Average response acceleration coefficient (S_a/g). Calculated base shear is distributed to floor levels which depend on amount of mass present at storey level and its height. After the analysis for lateral forces gives design forces and moments and combined with forces and moments due to dead load and live loads according to load combinations stated in IS 1893(Part 1) : 2002 according to that we stabilize the structure by using IS 456:2000 followed by pushover analysis. Performance based seismic design suggest how a building will perform for given seismic hazard. Performance based design begins with the selection of performance objective then preliminary design and check whether the building meets the performance objective if not than redesign and reassessment if required.

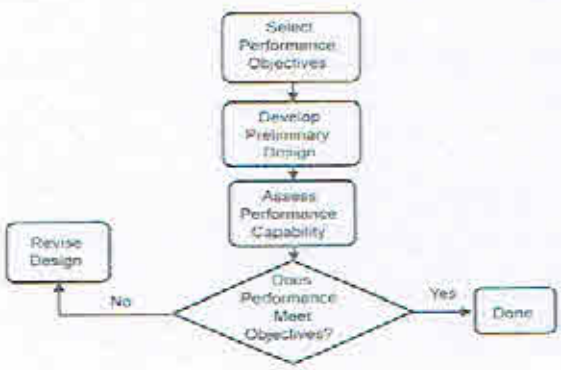

Fig.1 Performance based seismic design

Performance levels: In general, performance requirement can be categorized into four classes as operational (functioning fully after earthquake), immediate occupancy (slightly damaged but any minor repair could be done without disrupting the function of the building), immediate occupancy (slightly damaged but any minor repair could be done without disrupting the function of the building), life

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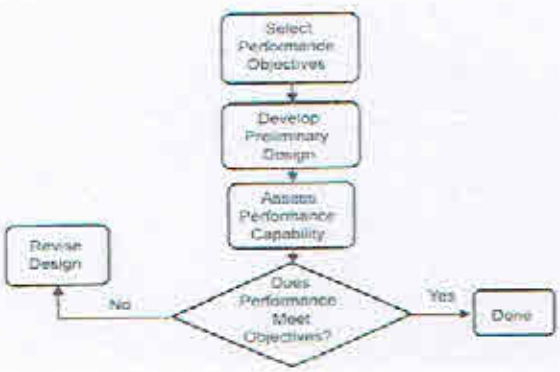

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Comparative Study of RCC And Prestressed Concrete Beams For Various Spans

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Abstract- *This paper presents the Comparative Study Of R.C.C. And Prestressed Concrete Beams, which include the design and estimates of R.C.C. and Pre-stressed concrete beams of various spans. The aim of this work is to design large span R.C.C. beam as well as prestressed concrete portal beams variety and then compare the results. The idea is to reach a superior conclusion regarding the superiority of the two techniques over one another. A couple of cases were comprehensively analyses by ETABS 2015 software and designed manually of both the R.C.C. and Prestressed concrete beams. Based on the manual design procedure, a computer program in MS EXCEL was developed for designing both R.C.C. and prestressed concrete portal beam. A separate program was developed for estimating. A number of cases were studied from 10m, 12m, 15m and 18m span. In India R.C.C structures are commonly used for residential as well as commercial buildings or we can say for short span buildings. In R.C.C. beams depth of beam increases with increase with span because of deflection limitation. To surmise, R.C.C beams shall be the suitable for small to medium span but the superiority of prestressed concrete beam undisputable for longer spans.*

Keywords- Beams, R.C.C, Prestressed concrete, ETABS, MS EXCEL

I. INTRODUCTION

A. Importance & Necessity:

Concrete frame structures are a very common or perhaps the most common type of modern building internationally. As the name suggests, this type of building consist of a frame or skeleton of concrete. Horizontal members of this frame are called beams, and vertical members are called columns. A human walks on flat planes of concrete called slab. To construct a frame we used Reinforced Cement Concrete commonly called as RCC, this is one of the construction technique that made construction very easy and brought a boom to field of construction. In RCC structure cement concrete can take up immense compression but weak in tension whereas steel is good in withstanding both tension and compression. No doubt, RCC framed structure is very easy to construct when the span ranging from 3 m to 7.5 m but it is not suitable when the span is large and it becomes very cumbersome for large span as the span increased the cross sectional dimension of member is also increases and it directly increases the self-weight of the member.

Prestressed concrete is the most recent major form of construction introduced in the structural engineering because it has its own advantage like, the size or dimension of structural members are reduced, which may increase the clearances or reduce storey heights. It also permits the use of large spans (greater than 30 m) with shallow members, even when heavy load are encountered. The prestressing technique has eliminated the weakness of concrete in tension and hence crack free members of structure are obtained.

High strength concrete is necessary in prestressed concrete, as the material offers high resistance in tension, shear, bond and bearing. In the zone of anchorages, the bearing stresses being higher, high strength concrete is invariably preferred to minimize costs. High strength concrete is less liable to shrinkage cracks, and has a higher modulus of elasticity and smaller ultimate creep strain, resulting in smaller loss of prestress in steel. The use of high strength concrete results in a reduction in the cross sectional dimensions of prestressed concrete structural elements. With a reduced deadweight of the material, longer span become technically and economically practicable. As we considered the high rise structure which is in the case of large floor and roof covering using prestressed concrete as material, there are several types of structural forms for adoption. The aim of this work is to design a frame of RCC as well as prestressed concrete variety for various spans and then compare the results. This idea is to reach a definite conclusion regarding the superiority of the two techniques over each other.

B. Scope :

This work include the design and estimate for beams of various spans, ranging from 10 m, 12 m, 15 m, 18 m by R.C.C and Prestressed concrete techniques. For smaller spans, associated with normal building works, prestressed concrete construction become too cumbersome, irrespective of the economics involved. Post- tensioning is preferred as it is popular in construction for large span slabs.

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IJFEAT

INTERNATIONAL JOURNAL FOR ENGINEERING APPLICATIONS AND TECHNOLOGY

CRITICAL STUDY OF SEISMIC ANALYSIS OF MULTISTOREY BUILDING WITH AND WITHOUT FLOATING COLUMN

Priyank D. Rathi[1], Prof. V. R. Bankar[2], Yogesh R. Dudhe[3], Lokesh A. Harsulkar[4]

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Abstract

This paper presents critical study of seismic analysis of multistory building with floating and without floating columns. This work includes the analysis and design of the floating column and non-floating column structures by using software ETABS-2015. The best way is to select the type of construction, depending on the circumstances and type of structure. Load transfer path has a great importance in case of structural stability in very major earthquake. There are numerous observations of damages caused by irregularity in buildings such as vertical irregularity is predominant to structure while earthquake excitation, the earthquake forces developed at different floor levels in building need to be brought down along the height to the ground by the shortest path, any deviation or discontinuity such as floating columns results in poor performance of building. The aim of this work is to compare the response of RC frame buildings with and without floating columns under earthquake loading and under normal loading. The idea is to reach a definite conclusion regarding the superiority of the two structures over one another. Finally, analysis results in the building such as storey drifts, storey displacement

Keywords: dynamic analysis, floating column, ETABS, response spectrum method

***

INTRODUCTION:

The term floating column is also a vertical member which at its lower level rests on a beam which is a horizontal member. The beams in turn transfer the load to other columns below it. The building can be categorized into two type, regular building and irregular building. Building containing floating column comes into irregular type of building. This type of building is mainly known as irregular building. So building with floating column, there will be discontinuity in load transfer path. The forces which are generated will be transferred to the ground through the shortest possible path. In order to convert it into a building with floating column, some of the columns at storey one is removed and two cases are considered. These buildings were analysed for two different zones i.e. zone III

FLOATING COLUMN

The floating column is a vertical member which rest on a beam and doesn't have a foundation. The floating column act as a point load on the beam and this beam transfers the load to the columns below it.

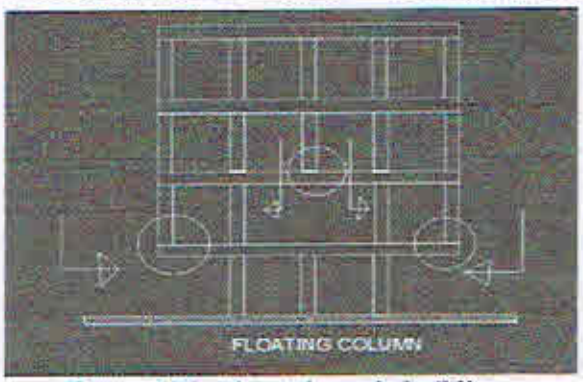

Figure 1 Floating column in building.

The main objectives of the proposed work are: 1. To compare the modal response of all the models (Mode shapes, Time period, Frequency). 2. To compare the Base shear, Storey drift, Storey displacement and maximum displacement of each storey

MODELLING DETAILS:

In present study, seven storey normal building is considered and in normal building columns of storey one

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IJFEAT

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REVIEW ON SELF CURING CONCRETE USING POLY-ETHYLENE GLYCOL (PEG-400) IN CEMENT CONCRETE

Abdul Siddique Shaikh[1], Sagar R. Raut[2], Payal M. Tanwar[3], Zainab A. Bharmal[4]

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Abstract

As we know that water is becoming a scarce material, there is an urgent need to do research work to saving of water in making concrete and in constructions. As some areas has a scarcity of work for construction work.Curing of concrete is maintaining satisfactory moisture content in concrete during its early stages in order to develop the desired properties. Curing of concrete plays a vital role in developing the construction and hence improves its durability and performance. Curing is the process of maintaining the proper moisture content to promote optimum cement hydration immediately after placement. The main objective of this experimental investigation is to find out behavior of self-curing concrete. The experiments are designed by adding an admixture(POLYETHYLENE GLYCOL-400)at different percentages such as 0%, 0.5%, 1%, 1.5%, 2% of cement content. .The specimens are cured without water for 28 days and later different strength characteristics such as compressive strength, tensile strength are studied.

Index Terms: *self-curing concrete; self-curing agent; PEG-400.*

***

1. INTRODUCTION

Concrete is the basic engineering material used in most of the civil engineering structures. Its popularity as basic building material in construction is because of its economy of use, good durability and ease with which it can be manufactured at site. Concrete like other engineering materials needs to be designed for properties like strength, durability, workability. With advent of new generation admixtures, it is possible to achieve higher grades of concrete with high workability levels economically. Curing is the maintaining of a satisfactory moisture content and temperature in concrete during its early stages so that desired properties (of concrete) may develop.

As we know that the concrete gains the strength only in presence of water and this water is provided after placing the concrete in formwork with the help of appropriate curing method. In places where scarcity of water is there and availability of water is less for the construction activity purpose some chemical admixture is use for effective curing. Many researcher has invented the effectiveness of Poly-ethylene Glycol as a self-curing agent.

In this work we are going to study the effect of polyethylene glycol on cement concrete and to estimate the optimum dose of Polyethylene glycol in concrete.

Polyethylene-Glycol (PEG): Polyethylene glycol is produced by the interaction of ethylene oxide with water, ethylene glycol, or ethylene glycol oligomers. The reaction is catalyzed by acidic or basic catalysts. It is used as water reducing agent.

1.1Need and scope of study

Curing of concrete is maintaining satisfactory moisture content in concrete during its early stages in order to develop the desired properties. However good curing is not always practical in many cases. The aim of this investigation is to evaluate the use of water-soluble polymeric glycol as self-curing agents. The use of self-curing admixture curing admixtures is very important from the point of view that the water resources are getting valuable every day. The benefit of self -curing admixtures is more significant in desert areas where water is not adequately available .In this study the

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EXPERIMENTAL STUDY ON UTILIZATION OF E -WASTE IN CEMENT CONCRETE

Sagar R. Raut[1], Monali G. Mandaokar[2], Anurag K. Gahalod[3]

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Abstract

At present demand of infrastructure is increasing day by day. The basic fundamental component for construction of any infrastructure is concrete. Due to large use of concrete as the basic construction material availability of raw materials is being questioned. The ratio of demand vs. Supply of material is increasing rapidly. Thus to overcome the demand of natural materials such as aggregate and cement, it is necessary to find alternatives of these materials. On the other hand electronic waste (e-waste) generation is also an emerging issue posing serious problems to the environment. Generation of e-waste is a very serious issue in the world. In year 2014 produce near about 650000 MT of e-waste in India that includes all electronic wastes and electrical wastes (TVs, computers, sound system etc). For solving the disposal of large amount of e-waste material, partial use of e-waste in concrete industry is considered as the most feasible application. The e-waste like non-metallic parts of PCB plates can be recovered and can be use as an ingredient in concrete. So we can use this e-waste to achieve desire concrete in terms of their properties. In this paper the coarse aggregate is replaced by e-waste and the research strongly shows possibility of e-waste being used as substitute of fine and coarse aggregate. More use of this waste material tends to reduce the demand of natural resources used in concrete and it is of prime importance that substitute of coarse aggregate can be explored.

Index Terms: *e-waste, workability, compressive strength, split tensile strength.*

***

1. INTRODUCTION

We cannot imagine civil engineering structures without concrete. Concrete is a backbone of infrastructural development and hence manufactured in large quantity. At the other hand large amount of e-waste is generated every year and out of which a very small percentage e-waste is treated by either recycling it or reusing it. From the study it is found that only 12.5% of e-waste is recycled. E-waste like non-metal parts in PCB's (printed circuit boards) can be recovered & used as an ingredient in concrete. So, partial replacement of aggregate by e-waste has been experimentally carried out in various part of the world. With the use of e-waste we can overcome many environmental problems as it reduces the landfill due to e-waste and reduced the use of natural resources like aggregates. In this paper comparative study is made by replacing the coarse aggregate by e-waste in different percentages and to find the behaviour of concrete with these replacements and to find the optimum percentage replacement.

2. LITERATURE REVIEW

Many researchers gave some conclusion on effect of use of e-waste on the physical properties of concrete. Out of which some researches I would like to include in this paper.

Johan Sohail in his paper "Optimizing Non-Metallic Printed Circuit Board Waste in Cement Concrete", mentioned that the non-metallic parts of Printed Circuit Board can be Successfully used in the concrete. Also he presented a study on reclamation and reuse of non metallic material recovered from waste PCB`S.

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Abstract

At present demand of infrastructure is increasing day by day. The basic fundamental component for construction of any infrastructure is concrete. Due to large use of concrete as the basic construction material availability of raw materials is being questioned. The ratio of demand vs. Supply of material is increasing rapidly. Thus to overcome the demand of natural materials such as aggregate and cement, it is necessary to find alternatives of these materials. On the other hand electronic waste (e-waste) generation is also an emerging issue posing serious problems to the environment. Generation of e-waste is a very serious issue in the world. In year 2014 produce near about 650000 MT of e-waste in India that includes all electronic wastes and electrical wastes (TVs, computers, sound system etc). For solving the disposal of large amount of e-waste material, partial use of e-waste in concrete industry is considered as the most feasible application. The e-waste like non-metallic parts of PCB plates can be recovered and can be use as an ingredient in concrete. So we can use this e-waste to achieve desire concrete in terms of their properties. In this paper the coarse aggregate is replaced by e-waste and the research strongly shows possibility of e-waste being used as substitute of fine and coarse aggregate. More use of this waste material tends to reduce the demand of natural resources used in concrete and it is of prime importance that substitute of coarse aggregate can be explored.

Index Terms: *e-waste, workability, compressive strength, split tensile strength.*

***

1. INTRODUCTION

We cannot imagine civil engineering structures without concrete. Concrete is a backbone of infrastructural development and hence manufactured in large quantity. At the other hand large amount of e-waste is generated every year and out of which a very small percentage e-waste is treated by either recycling it or reusing it. From the study it is found that only 12.5% of e-waste is recycled. E-waste like non-metal parts in PCB's (printed circuit boards) can be recovered & used as an ingredient in concrete. So, partial replacement of aggregate by e-waste has been experimentally carried out in various part of the world. With the use of e-waste we can overcome many environmental problems as it reduces the landfill due to e-waste and reduced the use of natural resources like aggregates. In this paper comparative study is made by replacing the coarse aggregate by e-waste in different percentages and to find the behaviour of concrete with these replacements and to find the optimum percentage replacement.

2. LITERATURE REVIEW

Many researchers gave some conclusion on effect of use of e-waste on the physical properties of concrete. Out of which some researches I would like to include in this paper.

Johan Sohail in his paper "Optimizing Non-Metallic Printed Circuit Board Waste in Cement Concrete", mentioned that the non-metallic parts of Printed Circuit Board can be Successfully used in the concrete. Also he presented a study on reclamation and reuse of non metallic material recovered from waste PCB'S.

Suchithra S.et.al. in their paper "Study on Replacement of Aggregate By E-Waste In Concrete", mentioned when E-waste as a coarse aggregate replacement, 28 days strength is found to marginally increase up to 15% replacement level. Increase in split tensile strength is almost insignificant where as gain in flexural strength have occurred even up to 15% replacement. E-waste seems to have a more pronounce effect

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USE OF INDUSTRIAL WASTE IN FLEXIBLE PAVEMENT CONSTRUCTION

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Abstract

In present era, safe disposal of Industrial wastes is a great problem. These waste materials create environmental pollution because many of them are non-biodegradable. India has large network of industrial which are located in different parts of the country and many more are to come in the near future. Million metric tons of industrial wastes are produced in this industries. The pollution and disposal problems and minimized by utilizing these materials in highway construction. It is essential to test these materials and to find a new methodology and specification to increase the use of these industrial waste in road construction in India. A review of various Industrial wastes to be used in the construction of highway has been discussed in this paper. The common waste materials are used are construction and demolition waste and tiles waste causing problems in the disposal.

keywords: *C & D (Construction and Demolition) waste, Tiles waste, Ceramic waste, Industrial waste.*

INTRODUCTION

We know that the India is developing country which means that industrialization is growing day by day.Disposal issue of the waste products is a challenge now a day. Some of these waste materials are not biodegradable and often leads to waste disposal crisis and environmental pollution. Due to increasing in waste volume and a shortage of landfill, waste management is becoming a more significant and important subject. The use of these materials in road making is based on technical, economic, and ecological criteria. India has vast network of industries located in different parts of country. Traditional soil, stone aggregate sand, bitumen, cement etc. are used for road construction. Natural materials being exhaustible in nature, its quantity is declining gradually. Also, cost of extracting good quality of natural material is increasing.

If this materials can be suitably utilized in highway construction, the disposal problem of the waste may be get reduced it will also help to reduce pollution. Keeping in mind the need for bulk use of these solid wastes in India, it was thought expedient to test these materials and to developed specifications to enhance the use of these industrial wastes in road making, in which higher economic returns may be possible.

MATERIAL EMPLOYED

Since construction and demolition waste are producing on large scale and ceramic (Tiles) wastes are also generating on large scale. Management of these waste is big problem that world is facing now. Here is the best way to manage these utilizing it in road construction. Hence we are using these two materials.

1. **Sampling:-**

Sampling is the process of collection of materials from their resources. Sampling of C and D waste and Tiles waste can be done as follows.

C and D - due to urbanization of construction domain is increasing drastically along with that environmental issue like landfill due to illegal dumping etc are also increasing and every man made structure has a certain year of life span. Due to demolition construction waste is produce and due to less land availability disposing is a problem. So C and D waste is collected from the site where the demolition process is going.

Fig.-1: Various sources of Construction and Demolition waste

Tiles waste:- Tiles are produced in ceramic industry by metallurgical process. Tiles is composed of various materials and some of them are chemically hazardous which may cause a problem to environment if are not properly manage.

2. **Grading of material:-**

C and D waste and Tiles waste collected from resources are of irregular grading. It is obvious things that they are waste material so they don't have required shape and size. The aggregate which are used in road construction are consisting of a standard grading. This grading of aggregate is specified by various agencies like **ASTM, BSI, IS, IRC** and **MORTH.**

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STABILIZATION OF BLACK COTTON SOIL BY USING WASTE FIBRE AND LIME

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Abstract

Soil stabilization has been introduced into the field geotechnical engineering for many years in order to improve the property of ground soil in specific it is the one of the most popular techniques used for the improvement of poor soil. Further, soil stabilization causes significant improvement in shear strength, bearing capacity, as well as economy. The main objective of this study is to investigate the use of waste fibre materials and lime in geotechnical applications and to evaluate the effect of waste polypropylene fibre and lime on shear strength of unsaturated soil by carrying out direct shear test and unconfined compression tests on two different soil sample the result obtained are compared for the two sample and inferences are drawn towards the usability and effectiveness of fibre reinforcement and lime as a replacement for deep foundation or raft foundation ,as cost effective approach.

Keywords:-*Waste fibre material, California Bearing ratio (CBR),unconfined compressive strength(UCS)*

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INTRODUCTION

For any land-based structure, the foundation is very important and has to be strong to support the entire structure. In order for the foundation to be strong ,the soil around it plays a very critical role. So, to work with soil, we need to have proper knowledge about their properties and factor which affect their behaviour work. The process of soil stabilization helps to achieve the required properties in soil needed for the construction work.

Keeping in mind the large geographical area of India (3,287,240 sq.km) and population of India (125 million approximate) the vast network of structure and roads are required. The land available for construction is very less because of increasing urbanization and modernization. Everywhere land is being utilize for various structure from an ordinary house to sky scrapers, from bridges to airport and from village road to highway or expressway. Soil being cheapest and readily available construction material, has been popular with the Civil Engineers, even though it being poor properties.

From the beginning of construction work, the necessity of enhancing soil properties has come to light. Ancient civilization of the Chinese, Romans and Incas utilized various method to improve soil strength etc., some thus method so effective that their building and road still exist.

In India, the modern era of soil stabilization began in early 1970"s , with a general shortage of petroleum and aggregates , becomes necessary for the engineers to look at means to improve soil other than replacing the poor soil at the building site. Soil stabilization was use but due to the use of obsolete methods and also due to absence of proper technique, Soil Stabilization lost favour. In recent time, with the increase in demand for infrastructure, row materials and fuel, Soil Stabilization has started to take a new shape. With the availability of better research, materials and equipment, it is emerging as a popular and cost-effective method for Soil improvement.

Here, in this project, Soil Stabilization has been done with the help of randomly distributed fibres obtained from waste materials. The improvement in the shear strength parameters has been stressed upon and comparative studies have been carried out using different method of shear resistance measurement.

For all he above reason, expansive are generally poor materials for construction so to improve the soil properties stabilization or reinforcement of soil is done. Soil reinforcement is defined as a technique to improve the engineering characteristics of soils. In this way, using natural fibres to reinforced soil is an old an ancient idea .

OBJECTIVE

1. The prime objective of soil stabilization is to be improving the California bearing ratio of in-situ soil by 4 to 6 times. The other prime objective of soil stabilization is to improve on site materials to create solid and strong sub base and base course. In certain regions of the world, typically developing countries

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UTILIZATION OF PHASE CHANGE MATERIAL IN BUILDING CONSTRUCTION

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Abstract

One of the important issue's today's scientific worlds is in the topic of sustainable development and sustainable architecture which is followed. The building sector accounts more thermal energy.It is necessary to reduce the amount of energy in Buildings which causes toward sustainable development which consistent with the needs of today's generation which put future generation . This paper gives the review over the such kinds of materials from which thermal energy stored such materials now a days recognized as a PHASE CHANGE MATERIALS.PCM plays an important role as a thermal energy storage device by utilizing its high storage density and also latent heat property. One of the potential applications for Phase change material is in buildings by incorporating.in the building envelope for energy conservation.During the summer season, the advantages are a decrease in overall energy consumption by the air conditioning unit and a time shift in peak load during the day. The integration of a Phase change material layer into an external building wall diminished the amplitude of the instantaneous heat flux through the wall. The effects of a layer of PCM mounted on the internal vertical and horizontal opaque walls are investigate.So in these paper three-dimensional transient heat transfer model has been developed and solved numerically using the commercial Thermal analysis package.

Keywords: *phase change material, wallboard, energy storage, experimental investigation, temperature fluctuation.*

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1. INTRODUCTION

Energy storage is a key issue to be addressed to allow intermittent energy sources, typically renewable sources, to match energy supply with demand.latent heat is the amount of heat released or stored by a substance during a change of state that occurs without much change in temperature. Latent heat storage can occur as solid-liquid phase change, liquid-vapor phase change, and solid-solid phase change. For solid-liquid phase change material, the latent heat stored is equal to the enthalpy difference between the solid and the liquid phase. There are numerous storage technologies that are capable of storing energy in various forms including kinetic energy, chemical solutions, magnetic fields, or other novel approaches. Phase-change material (PCM) is a substance with a high heat of fusion which, on melting and solidifying at a certain temperature, is capable of storing and releasing large amounts of energy. PCMs are regarded as a possible solution for reducing the energy consumption of buildings. For raising the building inertia and stabilizing the indoor climate, PCMs are more useful because of its nature of storing and releasing heat within a certain temperature range. Experimental work was carried out by Arizona Public Service (APS) in collaboration with Phase Change Energy Solutions (PCES) Inc. with a new class of organic-based PCM. PCM has non-flammable properties and can be safely used in buildings. The experimental setup showed maximum energy savings of about 30%, a maximum peak load shift of ~ 60 min, and maximum cost savings of about 30%.

2. METHOD AND MATERIAL

CLASSIFICATION OF PHASE CHANGE MATERIALS

PCM are classified in two types are:these are Organic PCMs e.g. Paraffin Wax and Inorganic PCMs

It is the efforts in the development of latent TES materials used in inorganic PCMs.So in these materials are salt hydrates, including Glauber's salt (sodium sulphate decahydrate), which was studied extensively in the early stages of research into Phase change materials

The phase change properties of inorganic PCMs are below the table and the most promising selection of organic PCMs

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Modelling and Simulation of Torque Hysteresis Controller for Brushless D.C Motor Drive

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ABSTRACT: Modelling and simulation of a torque hysteresis controller for brushless DC motors. Brushless DC (BLDC) motors can offer great advantageous compared to other machines used in industrial applications due to its compactness, high torque density, simpler controller and lower maintenance. At first the mathematical modelling of BLDC motor that is suitable to analyse the dynamic performance will be given. A method of torque hysteresis controller will be adapted to drive the motor such that the current (or torque) ripple can be restricted within the predefined band-gap. Moreover, a new current blocking strategy is proposed to prevent the current drained from DC supply when the torque demand is set to zero, that can prolong the capacity voltage of batteries. Some simulation results were carried out using MATLAB/ Simulink to verify the proper modelling as well as functionality of the controller.

KEYWORDS: component; brushless DC motor; hall effect; simulation, torque hysteresis controller.

I. INTRODUCTION

Several years ago, brushes DC motors were regularly used in many applications since it has a simple construction, easy to control and can give superior dynamic performance. However, this type of the motor that equipped with commutator and brush requires frequently maintenance, cannot be performed at dirty or explosive environment and at very high speed operations. Due to these reasons, many types of motors were developed to minimize or solve the problems such as induction motor, switched reluctance motor and permanent magnet synchronous motor. Among these types of motors, the use of permanent magnet synchronous machine (PMSM) has recently received much attention, particularly for electric vehicle applications. This mainly due to the fact that the PMSM offers higher efficiency and torque density (i.e. Nm/kg). In general, the PMSM can be classified into two types depending on back-emf wave shape production, i.e. sinusoidal and trapezoidal wave shapes. The one that is operated in sinusoidal is normally referred to as permanent magnet AC motor or brushless AC motor. The latter one that produces trapezoidal back-emf wave shape is normally called as brushless DC motor (BLDC). It can be shown that the production of torque in BLDC is quite similar to that of brushes DC motor with simple control algorithm and comparable performance .In many electrical drive applications, it is desirable to achieve fast torque dynamic response as produced in brushes DC motor, whereby the torque can be directly controlled by regulating the armature current. Several papers were reported to achieve this requirement, for examples : fully utilized the available DC link voltage through over modulation strategy and generated the maximum possible voltage vector that is tangential to the flux component to have a quick change of torque dynamic. Ultimately, all these methods used a vector control which is complicated to be implemented. This paper will discuss the principle of torque hysteresis controller for BLDC motor to provide naturally current protection, reliable and fast torque dynamic control. In fact the hysteresis controller is known to provide high control bandwidth and robust control. It will also present a new current blocking strategy once a torque

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"POWER QUALITY IMPROVEMENT BY USING UPQC IN GRID CONNECTED SOLAR PV PANEL & DFIG WIND FARM"

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ABSTRACT: *In this paper we introduce a UPQC in a grid connected DFIG wind farm distribution system improving the power quality on the source and load side. The UPQC is further developed with integration of a solar panel (PVA- Photo Voltaic Array) of specific capacity in parallel with DC link capacitor. The PVA injects power into the series and shunt converters which helps the distribution system to maintain the voltage at 1 pu and current of the source with lower harmonic distortion. Results of the test system without UPQC, with UPQC and UPQC with PVA are compared by applying FFT (Fast Fourier Transformation) analysis to depict the THD of the source voltage, source current and load voltage. Effect of UPQC with PVA on DFIG wind farm is also observed with comparative analysis and study. The complete design and analysis is modeled in MATLAB software with self explanatory graphical representations. A tabular comparison of the THD values will be shown as a final result and performance of the system is determined.*

Keywords: Wind Energy, Power Quality, UPQC,DFIG.

1. INTRODUCTION

Now-a-days, our technological world has become completely dependent upon the continues availability of electrical power. In most of the countries, the electrical power is provided via nationwide grids interconnecting various generating stations to the loads. The grid must supply the basic power demands of residential, industrial, commercial, medical organizations etc.[8] But Electrical power generation systems are facing major problems like deficiency of fossil fuel, the need to reduce emissions and power losses in Long transmission lines. And to reduce these losses nonconventional energy generating systems used into the grid by means of Distributed Generation (DG) networks. In the power transmission system some power quality issues are raised, with the integration of nonconventional energy systems into grid. With the help of power electronic converters, Almost all nonconventional energy systems are integrated into grid takes place.[9] PV and wind energy systems are most widely used with power grid, their integration with the grid also increases. Also the integration of large wind farms to power grid yield power quality (PQ) problems such as voltage sag, swell, harmonics flicker, etc. The outcome of PQ problems are data error, equipment failure. Most industrial and commercial load are nonlinear and they produces the harmonics. For the reduction of both voltage sag and current harmonics, custom power technology uses. For reducing voltage related problems Dynamic Voltage Restorer (DVR) is well suited to protect sensitive load from short duration voltage swell. But DVR doesn't take care of load current harmonics, so the device STATCOM is widely used for the prevention of load current harmonics in addition to the addition of reactive power control, but it doesn't take care of voltage related problems. UPQC is only device easily used for the mitigation of both voltage sag and load current harmonics. the selection of suitable controller plays a main role to improve the performance of UPQC. [1]

2. UNIFIED POWER QUALITY CONDITIONER

The Unified Power Quality Conditioner (UPQC) one of the best solutions to solve problems related to both current and voltage in power system.

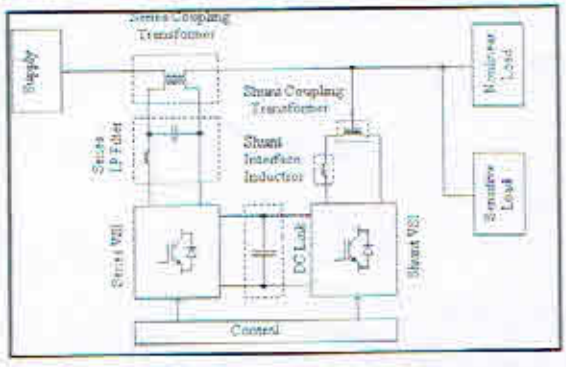

Figure 1: Unified power quality conditioner (UPQC) system configuration

Now a day, with the advancement in complex electronics industries, there are lots of problems associated with the power system and it has become necessary to provide a dynamic solution with high degree of accuracy and fast speed of response in order to mitigate and deals with these kind of issues. Recently, The UPQC which is integration of shunt and series APF is one of the most suitable as well as effective device in this concern. A comprehensive review on the UPQC to enhance the electric power quality at distribution and transmission levels for various type of power generation system has been reported in. The main purpose of UPQC is to solve the problems coming from both source side and load side, such as voltage sag, voltage swell, distortion in the supply voltage, harmonic currents, reactive currents etc. Consists of two series and shunt inverter connected back to

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Design of Automatic Solar Based Grass Cutter by Using Android Application

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Abstract— *The present technology commonly used manually operated device to cut the grass, which creates pollution and loss of energy. In this project we introduce the automatic grass cutter for cutting grass. Automatic grass cutter will reduce the effort required for cutting grass in the law. Also solar power will be used to provide the driving force for the cutter, sensors and crane mechanism will be used to detect and avoid the unnecessary object in the field during the operation. It consist of microcontroller, grass collector, obstacle lifting crane, solar panel and android application, adjustable level of grass cutter and gear wire blade. Also, the design parameters are discussed in this paper.*

Keywords— cutter; sensors; microcontroller; android application.

I. INTRODUCTION

The first grass cutter was invented in 1830 by Edwin Beard Budding. He was said to obtain the idea after watching a machine in a local mill. which used a cutting cylinder mounted on a bench to cut the extra material for a sooth finisher after weaving. Budding realized that a similar concept could be used to cut the grass if the machine is mounted on a wheel. Farm to enable the blades rotate closer to the surface. In 1832,Ransoms of Ipswich (under license) began the making of Budding mover .this company is today the world's manufacture of grass cutter care equipment. By mid-1850,Thomas Green developed a cutter which used chains to transmit power from rear roller to the cutting cylinder. It was called 'SilensMessor' means silent cutter. The machine were found comparatively lighter and quieter than the gear driven machines that produced them.

Today, the recent innovation is the rotary hover mower. There are primarily to type of mowers namely the reel mowers, and the rotary movers. Made of blade on revolving cylinder, they achieve clean cut by scissors action. As the movers move forward, the rotating blades come in contact with a stationary bar called the bed and place parallel to the ground. Grass is held by the shearing action of the blades against the bed knife. The over is adjust at various cutting heights. Rotary mowers are often powered either by an internal combustion engine or electric motor are generally moved manually, with the engine only spinning the cutting blades. The most common type are fitted with wheels, but a never innovation is the hover model in which the spinning blade also acts as a fan that provides a lift force, lifting the over body clear of the ground on the same principle with hover craft [1].This device is present for the grass cutting, but major drawbacks are sound pollution, air pollution is the major issue in the universe. Pollution is manmade and can be seen own house, lawn, farm etc. In case of diesel powered grass cutter due to the emission of gases it is responsible for air pollution. Also the cost of the fuel is increasing hence it is not efficient. In diesel powered grass cutter labor cost is to high as well as maintenance cost also high[2].So as to overcome this problem we are try to include such a device in our machine, which is capable to cut the grass in lawn, playing ground and farm etc with better efficiency . Machine perform totally automatic operation toward recognition of obstacle. Solar panel is mounted on top of the machine so as to get maximum solar radiation for providing the solar energy to battery. Battery is also mounted on top of the machine and below the solar panel to store the power efficiently. Widely available energy is solar energy which is renewable energy, by using solar panel we can store the charges in battery. The main part of the grass cutter machine are dc motor, microcontroller, wheel, battery, solar panel, sensor. PMMC Motor consisting maximum torque which is used for driving the wheel of motor at a desire speed, and PMMC DC Motor used for the cutter which have speed of 12000 rpm with maximum torque connected with gear wire cutter motor cut the grass at excellent speed, another

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A Game Theoretical Approach for Intrusion Detection Technique in Mobile Ad Hoc Networks

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Abstract: Mobile Ad hoc Networks (MANET) are self-configuring, infrastructureless, dynamic wireless networks in which the nodes are resource constrained. Intrusion Detection Systems (IDS) are used in MANETs to monitor activities so as to detect any intrusion in the otherwise vulnerable network. In this paper, we present efficient schemes for analyzing and optimizing the time duration for which the intrusion detection systems need to remain active in a mobile ad hoc network. A probabilistic model is proposed that makes use of cooperation between IDSs among neighborhood nodes to reduce their individual active time. Usually, an IDS has to run all the time on every node to oversee the network behavior. This can turn out to be a costly overhead for a battery-powered mobile device in terms of power and computational resources. Hence, in this work our aim is to reduce the duration of active time of the IDSs without compromising on their effectiveness. To validate our proposed approach, we model the interactions between IDSs as a multi-player cooperative game in which the players have partially cooperative and partially conflicting goals. We theoretically analyze this game and support it with simulation results.

Keyword- self-configuration, intrusion detection system, probabilistic, conflicting goals.

1 INTRODUCTION:

The term MANET (Mobile Ad hoc Network) refers to a multi hop packet based wireless network composed of a set of mobile nodes that can communicate and move at the same time, without using any kind of fixed wired infrastructure. MANET is actually self organizing and adaptive networks that can be formed and deformed on-the-fly without the need of any centralized administration. Otherwise, a stand for "Mobile Ad Hoc Network" A MANET is a type of ad hoc network that can change locations and configure itself on the fly. Because MANETS are mobile, they use wireless connections to connect to various networks. This can be a standard Wi-Fi connection, or another medium, such as a cellular or satellite transmission.

Fig 1 Structure of MANET

The purpose of the MANET working group is to standardize IP routing protocol functionality suitable for wireless routing application within both static and dynamic topologies with increased dynamics due to no demotion and other factors. Approaches are intended to be relatively lightweight in nature, suitable for multiple hardware and wireless environments, and address scenarios where MANETs are deployed at the edges of an IP infrastructure. Hybrid mesh infrastructures (e.g., a mixture of fixed and mobile routers) should also be supported by MANET specifications and management features. Using mature components from previous work on experimental reactive and proactive protocols, the WG will develop two Standards track routing protocol specifications:

- Reactive MANET Protocol(RMP)
- Proactive MANET Protocol(PMP)

If significant commonality between RMRP and PMRP protocol modules is observed, the WG may decide to go with a converged approach. Both IPv4 and IPv6 will be supported. Routing security requirements an dissues will also be addressed. The MANET WG will also develop a scoped forwarding protocol that can efficiently flood data packets to all participating MANET nodes. The primary purpose of this mechanism is a simplified best effort multicast forwarding function. The use of this protocol is intended

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A NOVEL TECHNIQUE FOR EFFICIENT USAGE OF INTRUSION DETECTION SYSTEM IN MOBILE AD HOC NETWORKS

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ABSTRACT

Mobile Ad hoc Networks (MANET) are selfconfiguring, infrastructureless, dynamic wireless networks in which the nodes are resource constrained. Intrusion Detection Systems (IDS) are used in MANETs to monitor activities so as to detect any intrusion in the otherwise vulnerable network in this paper; we present efficient Schemes for analyzing and optimizing the time duration for which the intrusion detection systems need to remain active in a mobile ad hoc network. A probabilistic model is proposed that makes use of cooperation between IDSs among neighborhood nodes to reduce their individual active time. Usually, AN ID has to run all the time on every node to oversee the network behavior. This can turn out to be a costly overhead for a battery-powered mobile device in terms of power and computational resources. Hence, in this work our aim is to reduce the duration of active time of the IDSs without compromising on their effectiveness. To validate our proposed approach, we model the interactions between IDSs as a multi-player cooperative game in which the players have partially cooperative and partially conflicting goals. We theoretically analyze this game and support it with simulation results.

KEYWORDS: A *mobile ad hoc network* (MANET) is a self-organized collection of mobile nodes.

INTRODUCTION

A *mobile ad hoc network* (MANET) is a self-organized collection of mobile nodes which communicate with each other without the help of any fixed infrastructure or central

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A Case Study on Reducing Coal Consumption of Cogeneration Power Plant

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Abstract-This case study is carried out at M/s Raymond UCO Denim Private Limited Yavatmal for 6 MW cogeneration power plant. The aim of this work is to reduce the coal consumption of cogeneration power plant by recovering some amount of heat of steam which is actually wasted in current cogeneration power plant system. This loss of heat takes as steam is condensed in condenser. This heat can be recovered by circulating DM water as a cooling water in condenser thus extracting the heat of steam and then using this DM water as feed water of boiler. Due to this the amount of coal required for heating the boiler water to a desired temperature is reduced. We have calculated the annual savings of coal which we will obtain if we use DM water as a cooling water in the condenser. Also in current system the pressure reducing and desuperheating system is used for reducing pressure and temperature of steam. The same objective can be obtained if we replace this system by a turbine and in addition to this we also get power as steam is expanded in turbine.

Index Terms- Raymond UCO Denim Pvt. Ltd, coal, DM water and PRDS system.

1. INTRODUCTION

Raymond is one of the leading group in the Indian textiles market. Denim plant ofYavatmal is one of the largest Denim fabric producer in India. Raymond UCO Denim is well recognized in India and created a favourable image in international market. Raymond Yavatmal has been very keen on energy conservation from the beginning and has adopted all the latest technology available for Energy conservation. Raymond has its own power plant and produces its own power for the operations carried out in the Raymond. The power plant is of cogeneration type from which the heat is utilized for processing of clothes and cotton materials. Steam power plants are producing about half of the total power requirement in India. In a steam Power plant, thermal energy is used to raise steam that is used to run steam turbines to produce mechanical energy. This mechanical energy is converted into electrical energy in a generator. Steam power plants are suitable for large scale production of electrical power and supply of process steam for denim cloth manufacturing.

2. LITERATURE REVIEWS

Darshan H Bhalodia, Darshit B Parikh in his paper on "A case study of thermodynamic analysis of cogeneration power plant" in IRJET journal used the first law of thermodynamics in order to determine various losses occurring in the plant in order to improve the performance of the power plant . They have studied Energy flows in a boiler. They calculate the boiler efficiency using indirect method after estimating various heat losses in the boilers. From results they find the overall thermal efficiency of the plant by computing the individual efficiency of the boiler (79.4%), steam turbine (33.57%), and generator (98%) appears to be 26.2 %.

Anjali T H and Dr. G Kalivarathan, in his paper on " Reducing coal consumption by recovering heat" in journal IRJET has done the Thermodynamic analysis of the thermal power plant to increase the efficiency and reliability of steam power plants. Most of the power plants are designed by the energetic performance criteria based on first law of thermodynamics only.. The present work deals with the comparison of energy and exergy analysis of thermal power plant stimulated by coal. Generally, it is predicted that even a small improvement in any part of the plant will result in a significant improvement in the plant efficiency. Factors affecting efficiency of the Thermal Power Plant have been identified and analyzed for improved working of thermal power plant. Hence they use the energy analysis and exergy analysis based on the first law of thermodynamics and second law of thermodynamics respectively, to identify the locations and magnitudes of losses in order to maximize the performance of a 15 MW thermal power plant in a paper mill, to evaluate the boiler, turbine and condenser efficiencies.

P.Vivek, P. Vijayakumar, has studied the heat recovery steam generator or HRSG and found that it produces steam that can be used in a process it works

A Review on Finite Element Analysis of Curved Plate Overlapping Welded Joint

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Abstract— Basically a welded joint is a permanent joint which is obtained by fusion of the edges of the two plates to be joined together with or without application of pressure and filler material. Welding is extensively used in fabrication as an alternative method for casting or forging and as a replacement for a bolted and riveted joint. Since it is related to human being, it is necessary to design and analysis the joint with prior attention to safely of its user.A better approach to the prediction of welding deformation is using the combined technologies of experiments with numerical calculation. With modern computing facilities, the Finite Element (FE) technique has become an effective method for prediction and assessment of welding residual stress and distortions various factors, the quantitative prediction and the control of welding deformation especially for a large and complex welded structure is extremely difficult. Typical welds are done on flat surfaces and their strengths are well catalogued for reference. If a lap joint is required for longitudinal plates, the reference for taking overlap length is available. When a lap joint is required for curved plates, no reference is available for it. The objective of this project is to determine optimized overlapping angle and suitable welding configuration among single end weld joint and both end weld joint.

Key words: finite element analysis, curved plate stress and vibration analysis

I. INTRODUCTION

Welding is a fabrication process used to join materials, usually metals or thermoplastics, together. During welding, the pieces to be joined (the workpieces) are melted at the joining interface and usually a filler material is added to form a pool of molten material (the weld pool) that solidifies to become a strong joint.

A. Types of Welding:

There are many different types of welding processes and in general they can be categorized as:

B. Arc Welding:

A welding power supply is used to create and maintain an electric arc between an electrode and the base material to melt metals at the welding point. In such welding processes the power supply could be AC or DC, the electrode could be consumable or non-consumable and a filler material may or may not be added. The most common types of arc welding are:

C. Shielded Metal Arc Welding (SMAW)

SMAW is a welding process that uses a flux covered metal electrode to carry an electrical current. The current forms an arc that jumps a gap from the end of the electrode to the work. The electric arc creates enough heat to melt both the electrode and the base material(s). Molten metal from the electrode travels across the arc to the molten pool of base metal where they mix together. As the arc moves away, the mixture of molten metals solidifies and becomes one piece. The molten pool of metal is surrounded and protected by a fume cloud and a covering of slag produced as the coating of the electrode burns or vaporizes. Due to the appearance of the electrodes, SMAW is commonly known as 'stick' welding

D. Gas Metal Arc Welding (GMAW):

In the GMAW process, an arc is established between a continuous wire electrode (which is always being consumed) and the base metal. Under the correct conditions, the wire is fed at a constant rate to the arc, matching the rate at which the arc melts it. The filler metal is the thin wire that's fed automatically into the pool where it melts. Since molten metal is sensitive to oxygen in the air, good shielding with oxygen-free gases is required. This shielding gas provides a stable, inert environment to protect the weld pool as it solidifies. Consequently, GMAW is commonly known as MIG (metal inert gas) welding. Since fluxes are not used (like SMAW), the welds produced are sound, free of contaminants, and as corrosion-resistant as the parent metal. The filler material is usually the same composition (or alloy) as the base metal. GMAW is extremely fast and economical. This process is easily used for welding on thin-gauge metal as well as on heavy plate. It is most commonly performed on steel (and its alloys), aluminum and magnesium, but can be used with other metals as well. It also requires a lower level of operator skill than the other two methods of electric arc welding discussed in these notes. The high welding rate and reduced post-weld cleanup are making GMAW the fastest growing welding process.

E. Gas Tungsten Arc Welding (GTAW):

A process that uses a non-consumable tungsten electrode to produce the weld. The weld area is protected from atmospheric contamination by a shielding gas, and a filler metal that is fed manually is usually used.

F. Gas Welding:

In this method a focused high temperature flame generated by gas combustion is used to melt the workpieces (and filler) together. The most common type of gas welding is Oxy-fuel welding where acetylene is combusted in oxygen.

G. Resistance Welding:

Resistance welding involves the generation of heat by passing a high current (1000–100,000 A) through the resistance caused by the contact between two or more metal surfaces where that causes pools of molten metal to be formed at the weld area. The most common types of resistance welding are Spot-welding (using pointed

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"AN INTELLIGENT HIGHWAY VEHICULAR SYSTEMS SURVEY IN TRAFFIC CONTROLLING"

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ABSTRACT: *Traffic congestions in highway networks are one of the focal issues to tackle by recent trends in traffic management schemes. Automation is made by combining the increasing market saturation of on-line communication, navigation as well as advanced driver assistance systems which results in intelligent vehicle highway systems that deal out in between roadside infrastructure and vehicles and that are one of the most promising solutions for traffic congestion problem. This review work helps to concentrate on traffic management and control frameworks for intelligent vehicle highway systems. This work overview on current use traffic control methods for freeways. Then, we discuss intelligent vehicle highway systems based traffic control measures and various traffic management architectures for IVHS such as PATH, Dolphin, Auto21 CDS and some others.*

Keywords: Intelligent Transportation Systems (ITS), Intelligent vehicle highway systems (IVHS), Automated Highway Systems (AHS), intelligent vehicles (IVs).

1. INTRODUCTION

On growing traffic systems demand, modern societies well-planned with road management systems and made sufficient infrastructures for transportation still face the problem of traffic congestion. [1][2] This results in loss of travel time and huge societal and economic costs. Manufacturing new roads also helps for managing the traffic congestion problem, but it is less feasible due to political and environmental circumstances. In another way it could be done by the help of by the use of existing infrastructure [3] [4]. Traffic management and control approaches are used to control the traffic flows and to prevent or reduce traffic jams to improve the performance of the traffic system [5] [6]. Possible performances measures in this context are throughput, travel times, safety, fuel consumption, emissions, reliability [7] [8] [9] [10]. Implemented traffic management approaches uses of roadside-based traffic control methods such as ramp metering, traffic signals, dynamic route information panels, and dynamic speed limits and infrastructure-based equipment including sensors and traffic control centres[11] [12] [13]. These measures and the corresponding equipment will be indicated by the term "Roadside Infrastructure" [14] [15].

To improve the existing traffic control systems advance technologies in this field of communication, control, and information systems are combined with transportation infrastructure and equipment [16] [17]. This marks the emergence of a next level/next generation of traffic control and management approaches and serves as the motivation for ITS or IVHS. ITS and IVHS incorporate intelligence in both roadways infrastructure and involves in vehicles with intention to reduce congestion and environmental impact, improvement in traffic performance by exploiting the distributed nature of the system and by making use of cooperation, coordination between the various vehicles and the various elements of the roadside infrastructure[18].

In IVHS, Driver tasks include activities such as steering, braking and making control decisions about speeds and safety roadways. AHS go one step up than IVHS and completed automation of driving task. For making better coordination of traffic activities, AHS distributes intelligence between vehicles and roadside infrastructure. This work focuses on AHS, relations and interactions between the vehicles in AHS as well as roadside infrastructure. An important component of IVHS and AHS are IVs, which sense the environment around them using sensors and strive to achieve more efficient vehicle operation either by assisting the driver or by taking complete control of the vehicle. These IVs also support V to V and V to RC Based on extent to which roadside and vehicle could work together which are discussed further.

2. CONTROL DESIGN METHODS

In existing systems different control methodologies have been presented for controlling and overseeing a traffic network in where vehicles are driven by humans. Here control design methodologies for freeway traffic control that are currently most often used in practice such as

- Static feedback control,
- Optimal control and model predictive control,
- Artificial intelligence techniques.

2.1 Static feedback control

2.1.1 General concepts

Dynamical systems can be controlled in two ways: using open-loop control and using closed-loop control. In an open-loop system, the control input does not depend on the output of the system, whereas in a closed-loop system, the control action is a function of the output of the system. Feedback or closed-loop control systems are suited for applications that involve uncertainties or modelling errors. In "static 1" feedback control methods, the controller gets measurements from the system and determines control actions based on the current state of the system in such a way that the performance of the system is improved. The

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Literature Review on Image Media Diversity in a Security Survival for Digital Image Sharing Schemes

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ABSTRACT: The conventional Visual Secret Sharing Schemes (VSS schemes) hide a Secret image in shares which appear as noiseless picture. VSS schemes suffer from a transmission risk problem while sharing Secret Images because it increases interception risk during transmission of the shares. To avoid this problem, the proposed natural-image-based VSS scheme (NVSS scheme) shares secret images via various carrier media to protect the secret as well as the participants during the transmission phase and also to reduce the transmission risk problem. The NVSS scheme involves one digital secret image, n-natural images and one carrier image. The natural images can be any photo or picture in digital form. Using these natural images, key is generated. With the help of this generated key and secret digital image, a noisy share is created. The natural images are transmitted using different carrier media. Hence the transmission risk is reduced.

KEYWORDS: Visual secret sharing scheme, Extended Visual Cryptography scheme, natural images, natural shares, secret digital image, etc.

I. INTRODUCTION

Visual Cryptography (VC) is a method that hides a secret image into n number of shares and securely shares secret images in non-computer-aided environments. Butthis increases the transmission risk problem.Thus, sharing visual secret images in computer-aided environments has become an important issue today.The proposed natural image based visual secret sharing (NVSS) scheme use diverse media for hiding secret image and reduces the transmission risk problem. The carrier media in the scheme contains digital images, printed images, hand-painted pictures, etc.We also apply digital watermarking to natural shares to maintain integrity of images.

In the conventional technique, 'n+2' images are used for secret sharing (n for natural images, one carrier image, and one secret image). The natural images 'n'are distributed to participants. The key is required for encryption of secret image and is generated from 'n' natural images. At receiver side, anyone who holds fewer than 'n' natural images cannot generate a key. By stacking 'n'natural images, the key reveals and we can decrypt the secret image [1]. Conventional shares consist of many random and meaningless pixels which satisfy the security requirement for protecting secret contents, but they suffer from two drawbacks: first is a high transmission risk because noise-like shares.Second is the number of shares increases; it becomes more difficult to manage the shares. Thus, the risk to both the participants and the shares increases, which increases the probability of transmission failure. The shares contain noise-like pixels. These shares can be embedded in another carrier image by the process called steganography.

In proposed NVSS scheme, we handle 'n'natural images and two images as one carrier image, another one as a secret image. Itcan share a digital secret image over n-1 arbitrary natural images and one share.Instead of changing the natural images it extracts the features from each natural image and generates the numeric key. To increase the securitylevel, the generated shares can be concealed by the data hiding technique during transmission. In this paper, we develop encryption, decryption, share hiding, share extraction algorithm for NVSS scheme. The possible ways to hide the generated shares are also discussed. The proposed scheme provides three level securities, reduces transmission risk and increases the contrast of the natural image.

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Image Media Diversity in a Security Survival for Digital Image Sharing Schemes

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Abstract- The previous technique of sharing the digital image i.e. Visual Secret (VSS)suffers from a transmission risk problem while sharing. To reduce such a problem, this paper gives the solution for solving it. The natural-image-based VSS scheme (NVSS scheme) is the proposed technique used to reduce the transmission risk problem and also to protect the participant while sharing the digital image. In NVSS scheme, one digital image, n-natural images and one carrier image are needed. The natural images(or natural shares) can be digital image and printed image. As the value of n increases, the NVSS scheme usesonly one noise share for sharing the secret image. With the help of extracted features, secret image will be encrypted where process carried by (n-1) natural shares. This encrypted result will be hided by using the QR code. The recovering of the secret image at the receiver will be done by the Share Extraction Algorithm or decryption process. The transmission risk is reduced by transmitting the natural images usingdiverse media.

Index Terms- Visual secret sharing scheme, Extended Visual Cryptography scheme, natural images, natural shares, secret digital image, etc.

1. INTRODUCTION

The Extended Visual Cryptography Scheme (EVCS) is a user-friendly scheme. Visual Cryptography (VC) is a special image encryption technique. It is different from traditional cryptography, because it does not need complex computation to decrypt. In the decryption process of this method, where without any complex cryptographic computation encrypted. Visual cryptography is a simple and powerful method which can provide high security for confidential information. In EVCS method, constructing a set of noise-like shares that are pixel expansion free. Then directly adds a cover image on each share via a stamping algorithm. So, the pixel expansion can be removed entirely and the message is encoded into a binary pattern. In each Share image, each message pixel is represented by a fixed size binary pattern which is called as a share, in which two of the four sub pixels selected randomly are black. The pixel expansion problem therefore consists because of sub pixels.

The disadvantages of Extended Visual Cryptography Scheme (EVCS) are as follow:

- In VSS schemes, the decryption process need not require computation; it may be difficult to analyze every share without computers.
- It would not investigate combinations and/or statistical data of pixels in shares.
- Storage and transmission of the shares requires an amount of storage and bandwidth resources which equivalent to the size of the secret times the number of shares.
- Expansion of the original pixels on the secret images in encryption, which makes lower level of contrast of the reproduced images.

Halftone shares are generated, because the secret information is embedded into the Halftone shares and it will give the result as recovered good quality of image. The shares contain many noise-like pixels or display low-quality images. Such shares are easy to detect by the naked eye. This meaningless shared data were embedded into the cover image to form stego images.

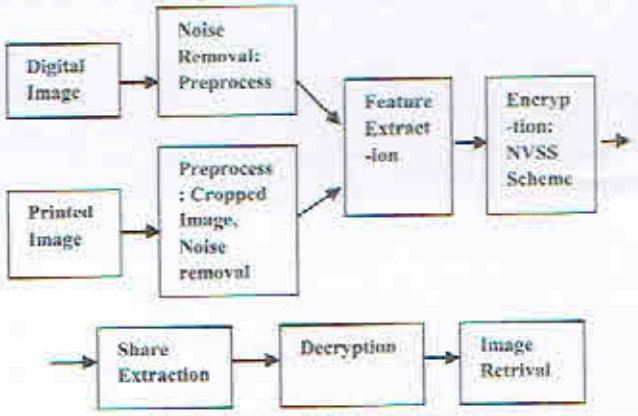

Fig. 1.The (n, n)-NVSS process