

SEISMIC ANALYSIS OF RC FRAMED BUILDING FOR DIFFERENT POSITION OF SHEAR WALLS

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ABSTRACT

In the present study, the buildings with different number of stories i.e, 20 storie building is considered for the investigation of structure. These buildings are assumed to be situated in zone IV. The paper aims towards the seismic analysis of multi storey building with symmetrical plan under earthquake zones-III. For the analysis purpose model of G +14 stories of RCC with core and edge shear walls are considered. Various parameters such as lateral force, storey shear, storey displacement, story drift can be determined. ETABS stands for Extended Three dimensional Analysis of Building Systems. ETABS is commonly used to analyze. The case study in this paper mainly prioritizes on structural behavior of G+14 storey building with core and edge shear wall for sloped and plane grounded building. Modeling and analysis of the building is done on the ETABSv9.7.4 software. The seismic analysis of building is carried out for plane grounded and flat grounded building. Estimation of response such as; lateral forces, storey shear and storey displacement and storey drift is carried out.

1. INTRODUCTION

1.1 GENERAL

Various civil structures are primarily based on prescriptive method of building codes and loads which acts on the structure are low and resulting in elastic structural behavior. A structure can be subjected to the force greater than the elastic limit. The structural safety against major earthquake relate to the structural design of building for seismic loads. The earthquake loading behavior is different from wind loading and gravity loading which requires detail analysis to reach the acceptable elastic range in the structure. In dynamic analysis, the mathematical model of building by determining of strength, mass, stiffness and inelastic member properties are assigned. Dynamic analysis should be performed for symmetrical and unsymmetrical building. The main objective is to create awareness about dynamic effect on the building with the help of ETABSv9.7.4 software; it also Shows better response of building under dynamic loading and minimize the hazard to the life for all structures.

Structural design of buildings for seismic loads is primarily concerned with structural safety during

major ground motions. Seismic loading requires an understanding of the structural performance under large inelastic deformations. Behavior of the building under this loading is different from the wind loading or gravity loading. So it requires more detailed analysis to assure accepTable seismic performance beyond the elastic range. Some structural damage can be expected when the building experiences design ground motions, because almost all building codes allow inelastic energy dissipation in structural systems. The primary step in dynamic analysis of building is to develop a mathematical model of the building, through which estimates of strength, stiffness and inelastic member properties are assigned.

The difference between the dynamic and the static analysis is based on whether the applied action of forces has enough acceleration in comparison to the structure's natural frequency.

If a load is applied sufficiently slowly, the inertia forces can be ignored and the analysis can be simplified as static analysis.

Dynamic analysis, is a type of structural analysis which covers the behavior of structures subjected to

STRENGTH AND DURABILITY PROPERTIES OF CONCRETE WITH PARTIAL REPLACEMENT OF CEMENT WITH METAKAOLIN AND MARBLE DUST

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Abstract — Concrete is a composite material that consists essentially of a binding medium, such as a mixture of Portland cement and water, within which are embedded particles or fragments of aggregate, usually a combination of fine and coarse aggregate. Concrete is used to create hard surfaces that is composed of aggregate bonds and fluid cement that hardens quite quickly. We have different types of special concretes around us, each of these have different applications.

In this study partial replacement of cement has been done at 0%,3%,5%,9%,12%,13% with MK(Metakaolin) and 0%,10%(constant) with MP (Marble Powder). Compressive as well as tensile strength of concrete made with MK-MP has been compared with conventional concrete of grade M30. Durability of concrete was also analyzed with RCMT(Rapid chloride Migration Test). Result shows that there is a gain of strength with the addition of MK and MP. The optimized strength value of concrete was achieved for both compressive as well as split tensile strength at 9%MK and 10%MP.

RCMT shows that with the increase of addition of Metakaolin and Marble powder, there is a decrease in rate of penetration of chloride ions, hence good durability as compared to standard concrete

Keywords — Metakaolin; marble dust; strength; durability; RCMT.

INTRODUCTION

In construction Industry, consumption of cement is increasing day by day as well as cost is also increasing so to reduce the

consumption of cement, partial replacement with Metakaolin and Marble powder was done in this study. Metakaolin is a calcined clay and easily available in Gujarat,

EXPERIMENTAL STUDIES ON MECHANICAL AND DURABILITY PROPERTIES OF AERATED CONCRETE

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ABSTRACT

Concrete plays a vital role as a construction material in the world. In the present scenario, waste materials from various industries and admixtures are added to the mix. The objective of Present work is to find out the effectiveness of the Fly ash and glass aggregate based concrete. In this investigation it was proposed that the partial replacement of ordinary Portland cement by fly ash and fine aggregate by glass in concrete at variable temperatures and environments. In this investigation, cement is replaced by 10 percent of fly ash and fine aggregate by waste glass at 20 percent replacement. The tests were carried out to evaluate the mechanical and durability properties like compressive strength and split tensile strength at 7days, 28days, 56days and 90days. The experimental investigation on strength of concrete and optimum percentage. This investigation is focused on the partial replacement of ordinary Portland cement by fly ash and fine aggregate by waste glass in concrete at variable temperatures and cures in HCL solution. The utilization of the industrial waste has been the focus of waste reduction research for economical, environmental reasons of the partial replacement by replacing cement via 5%, 10%, 15%, and 20% of fly ash shows that the compressive strength increased up to 10% addition of fly ash and further increase in fly ash reduces the strengths gradually. Keeping these results in view further investigation is carried in which cement is replaced by fly ash upto10% and fine aggregate by waste glass up to 20% and up to 0.75% of HCL solution experimental investigation is carried on finding compressive strength and tensile strength.

Keywords : Compressive strength, Optimum percentage, Pozzolana, Tensile strength .

BACKGROUND OF THE STUDY

Light Weight Foamed concrete(LFC) has become most commercial material in

construction industry for nonstructural applications owing to its lesser density, stability and high thermal insulation properties. This research aims to develop an

AN IMPROVED DCM-BASED TUNABLE TRUE RANDOM NUMBER GENERATOR FOR XILINX FPGA

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Abstract: - True Random Number Generators (TRNGs) assume a critical job in present day cryptographic frameworks. Field Programmable Gate Arrays (FPGAs) shape a perfect stage for equipment usage of huge numbers of these security calculations. In this paper we present an exceptionally effective and tunable TRNG dependent on the rule of Beat Frequency Detection (BFD), specifically for Xilinx FPGA based applications. The fundamental focal points of the proposed TRNG are its on-the-fly tenability through Dynamic Partial Reconfiguration (DPR) to enhance haphazardness characteristics. We depict the scientific model of the TRNG activities, and trial results for the circuit actualized on a Xilinx Virtex-V FPGA. The proposed TRNG has low equipment impression and in-fabricated inclination disposal capacities. The irregular bit streams produced from it breezes through all tests in the NIST factual test suite.

Keywords: - Digital Clock Manager, Dynamic Partial Reconfiguration, Field Programmable Gate Arrays, True Random Number Generator.

INTRODUCTION

In todays world security is of highest importance and hence cryptography plays an important role in computer and networking security. Cryptography is a set of techniques for hiding information. It is employed in several fields as part of security protocols to secure classified information and data. Communication, being an integral part of life, including the internet and other means of

communication has given rise to security threats. Cryptography thus provides the necessary protection from the threats by protecting the data, i.e. providing different means and methods of converting data into an unreadable form. The basic aim of cryptography is that the unauthorized user can not accessed data. The content of the data frames should be encrypted with definite pattern. Another application is to ensure that

Principal

A STUDY ON EFFECT OF CERAMIC WASTE AS A FILLER IN BITUMINOUS CONCRETE MIX

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Abstract:

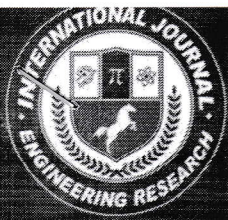
Aggregates in coarse, fine and filler fractions are the main constituents of the bituminous paving mixes. Bituminous mixes are most commonly used all over the world in flexible pavement construction. It consists of asphalt or bitumen (used as a binder) and mineral aggregate which are mixed together, laid down in layers and then compacted. Today's bituminous concrete pavements are expected to perform better as they are experiencing increased volume of traffic, increased loads and increased variations in daily or seasonal temperature over what has been experienced in the past. In this paving mix, normally lime is used as filler material to evaluate the suitability of ceramic waste as a filler material in Bituminous Concrete. A bituminous concrete mixes with ceramic dust were prepared in different proportions (3% and 5%) as filler. The amount of optimum binder content was determined by Marshall Stability test for samples. The mechanical performance was determined for Marshall Stability, deformation behavior or flow, as well as for density and void characteristics base on prevailing Indian standards specifications. Results show that the stability values and other parameters of samples containing ceramic wastes are improved in comparison to conventional mineral filler. The benefits of using ceramic waste in bituminous concrete mixture as mineral filler (3-5%) are therefore recommended. The replacement of conventional filler like lime and other mineral in bituminous concrete by ceramic wastes will have major environmental benefits

KEYWORDS: Bituminous mixture, Bottom ash, Fly ash, Tensile strength ratio

INTRODUCTION

Bituminous roads are defined as the roads in the construction of which bitumen is used as binder. It consists of an intimate mixture of aggregates, mineral filler and bitumen. The quality and durability of bituminous road is

influenced by the type and amount of filler material is used. The filler tends to stiffen the asphaltic cement by getting finely dispersed in it. Various materials such as cement, lime, granite powder, stone dust and



FEASIBILITY STUDY OF FOUR LANE ROADS CONNECTION BETWEEN KHAMMAM TO WARANGAL HIGHWAY

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Abstract:

Feasibility studies are normally conducted to justify investments the vital importance of feasibility studies in supporting decisions related to public spending on infrastructure projects, there are no attempts to evaluate such studies after construction of facilities. An analysis of a previous feasibility study for a national highway 563 construction and traffic conditions The national highway development in India is carried out by a national highway authority of India (NHAI) .In India as well as in the whole world transport system plays very important role in the development of country as a economic way and in the other ways also such as development of agriculture and industries The national highway (NH 563) development and implemented in India is 249 kms is total length. It takes from khammam to Warangal the development is going on NH563 and its becoming 4 lane roads. Some portions of NH563 highways are completed by becoming 4 lane highways but some portion are still the under construction. The design procedures for flexible pavements based on C.B.R values. The pavement design has accompanied by the code IRC: 37-2012 and Ministry of State Transportation (MOST) specifications. In this project report, the pavement layers, its prescribed limits by Ministry of State Transportation (MOST) and sources of raw materials required for the laying of pavement associated with laying of 4 lanes on National Highway (NH)-563 between khammam to Warangal. The alignment of highway passes through plain terrain for 249 km generally, the existing road is on 0.5-2.5 m high embankment except at approaches to major bridges the existing carriage width is 7.0 m with 1.5 m paved shoulder at locations of settlements. These include 4 major bridges, 69 minor bridges and 210 culverts.

INTRODUCTION

Government of India has decided to take up through National Highways Authority of India (NHAI) about 1000Kms of expressways under of the National

Highways Development Project (NHDP). NHAI has decided to take up the Bangalore-Chennai Expressway project to facilitate high speed travel in this corridor. The

TRAFFIC CONTROL MANAGEMENT FOR CONNECTIVITY ROADS FROM HYDERABAD TO WARANGAL HIGHWAY (NH163)

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ABSTRACT

Due to the ever increasing need for transportation, there will be increasingly automobile overloads except if some sweeping measures are taken. There are numerous conceivable approaches to diminish blockage, (for example, constructing new streets, new evaluating strategies, move of transport from street to prepare or send, et cetera). In any case, since activity blockage is a squeezing issue that seriously affects both the economy and nature, there unquestionably is a requirement for measures that can be executed on the here and now. In this paper we talk about from a frameworks and control perspective a portion of the techniques that can be utilized to decrease activity clog issues. We will center around Warangal high way (NH 164) and ring streets First we quickly examine the Automated Highway Systems (AHS) structure, which prompts a decrease of activity clog and to a superior utilization of the accessible limit of the transportation organize.

INTRODUCTION

As we set out from one place to other place in metro city, we pass no of streets and turns. Consider that there is some issue on street and you need to hold up till that issue clears then you are stuck in rush hour gridlock. In a similar sense, when you send a demand it is conceivable that because of some issue or different solicitations you need to sit tight for quite a while. On the off chance that no of bundles are lining and holding up in organize then it results in rush hour gridlock. In the event that once movement made, you should hold up till it over, which is certainly not settled or rely on current circumstance. So to manage this

circumstance, there must be some approach to manage this circumstance. Web activity is dynamic issue. Static arrangements are not adequate. Activity administration required notwithstanding amid over-burden. And furthermore activity administration required for constant media. The following entire report is devoted to estimating the movement, dissecting it and discovering approaches to bargain or oversee it. The Project-Level Transportation Management Plan (TMP) direction report traces the improvement, substance, and reason for the Project-Level TMP. A Transportation Management Plan is a reported arrangement

HETEROGENEOUS DATA STORAGE MANAGEMENT WITH DEDUPLICATION IN CLOUD COMPUTING

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ABSTRACT: Cloud storage as one of the most important services of cloud computing helps cloud users break the bottleneck of restricted resources and expand their storage without upgrading their devices. In order to guarantee the security and privacy of cloud users, data are always outsourced in an encrypted form. Data deduplication is a technique for eliminating duplicate copies of data, and has been widely used in cloud storage to reduce storage space and upload bandwidth. Promising as it is, an arising challenge is to perform secure deduplication in cloud storage. However, encrypted data could incur much waste of cloud storage and complicate data sharing among authorized users. We are still facing challenges on encrypted data storage and management with deduplication. Traditional deduplication schemes always focus on specific application scenarios, in which the deduplication is completely controlled by either data owners or cloud servers. In this project, propose a heterogeneous data storage management scheme, which flexibly offers both deduplication management and access control at the same time across multiple Cloud Service Providers. In this project, the original data copy is first encrypted with a convergent key derived by the data copy itself, and the convergent key is then encrypted by a master key that will be kept locally and securely by each user. The encrypted convergent keys are then stored, along with the corresponding encrypted data copies, in cloud storage. In addition, the project also considers the revocation of users in the given group. If the original (first) user of the group intimates the server with a user's (B) revocation, then the server rejects the proof of ownership submitted by that user (B). Likewise, session based deduplication is considered. The project is developed using Microsoft Visual Studio .Net 2005 as front end. The coding language used is Visual C# .Net. MS-SQL Server 2000 is used as back end database.

Keywords: Data deduplication, Cloud computing, Storage management, Access control

TRAFFIC SURVEY NATIONAL HIGHWAY

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Abstract - Traffic congestion is one of the major problem faced by the Muvattupuzha municipality. The high rate of growth of vehicle population, on road parking and above all the indiscipline among the road users are the factors contributing to the present scenario of traffic congestion. Road intersections and junctions create a lot of problems during morning and evening peak hours.

Key Words: Travel Time, Congestion, Heterogeneous, Traffic, peak hour volume.

INTRODUCTION

Our urban centers are experiencing rapid increase in population and vehicular growth. Urban traffic is heterogenous in character with all kinds of vehicles. This causes heavy traffic congestion and delay in traffic movement. One such point is the Muvattupuzha Kacherithazham road. The site is a center of traffic congestion and heavy queue formation during peak hours. Hence for better traffic flow, traffic surveys has to be conducted and proper solutions has to be discussed.

The aim of study is to analyze travel time and congestion under heterogeneous traffic conditions. The scope of this project is to suggest remedial measures for avoiding

congestion and to allow easy movement of traffic without causing delay. It also makes the road capable of handling large traffic loads considering the safety of passengers as well as pedestrians.

Transportation is carrying civilization to a brighter future. Currently transportation is one of the most burning problems in every territory of the globe. Every country is approaching as per their desires and try to resolve transportation issues as per the capabilities and resources they owe. While designing any structure it is necessary to calculate the loads coming on it to determine the reinforcement to be provided for safe functioning of the structure. In transportation volume serves the identical purpose. For planning, designing, scheduling, safe

EFFECT OF AGGREGATE SHAPE FACTORS ON THE PERFORMANCE OF ASPHALT MIXES

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ABSTRACT:

Aggregates are a principal material in pavement. Conventional road aggregates in India are natural aggregates obtained by crushing of rocks. The physical properties of coarse aggregates are more significant in new generation bituminous mixtures. Aggregate characteristics such as particle size, shape, and texture influence the performance and service ability of hot-mix asphalt pavement. The shape of aggregate particle has a significant influence on the performance of the asphalt pavement. Particle shape can be described as cubical, flat, elongated and round. The strength and serviceability requirements of asphalt mixes such as Stability, Flow, Voids in Mineral Aggregate (VMA), Voids Filled with Bitumen (VFB), Air Voids (Va) and Tensile Strength highly depend on the physical properties of aggregates. Dense Bituminous Macadam (DBM) mixes were analysed with different proportions (0%, 10%, 20%, 30%, 40%, and 50%) of different shape of aggregates was studied. Mixes with cubical and rod shape aggregates has been showed good results on stability and tensile strength of mixes. The parameters such as air voids and voids in mineral aggregate increases with increase in proportion of blade type of aggregates in DBM mixes. The Particle Index value of coarse aggregate significantly affected the engineering properties of a HMA mix. The particle shape determined how aggregate was packed into a dense configuration and also determined the internal resistance of a mix.

1. INTRODUCTION

1.1 GENERAL:

Aggregates are a principal material in pavement. Conventional road aggregates in India are natural aggregates obtained by crushing of rocks. In Hot Mix Asphalt (HMA), aggregates are combined with an asphalt binding medium to form a compound material. By weight, aggregate generally accounts for between 92 and 96 percent of HMA. They comprise the majority of pavement volume but only account for a minority of total pavement material costs. Therefore, knowledge of aggregate properties is crucial in designing a high quality pavement.

Aggregates can either be natural or manufactured. Natural aggregates are generally extracted from larger rock formations through an open excavation (quarry). Usually the rock is blasted or dug from the quarry walls then reduced in size using a series of screens and crushers. Some quarries are also capable of washing the finished aggregate. Manufactured rock typically consists of industrial by-products such as slag (by-product of the metallurgical processing – typically produced from processing

steel, tin and copper) or specialty rock that is produced to have a particular physical characteristic not found in natural rock (such as the low density of lightweight aggregate).

1.2 INFLUENCE OF AGGREGATE PROPERTIES ON HMA PERFORMANCE

Aggregate particles can be defined in terms of three independent shape properties: shape (or form), angularity, and surface texture (Barrett, 1980). These three aggregate shape properties fully characterize particles based on their geometry. The form property characterizes aggregate particles based on ratios of particle dimensions. The angularity property measurement describes particles based on the variations at the edges of particles. This measurement defines particles in a range from rounded to angular.

The final property is surface texture. This property describes the surface roughness of a particle at a small scale, which is not influenced by changes in form or angularity. These three properties are independent of each other: an increase or decrease in one of these properties does not necessarily influence the other two properties (Rousan, 2004). A schematic

EXCEPTIONAL TRAFFIC MANAGEMENT SYSTEM FOR PRIORITIZING EMERGENCY VEHICLES IN A SMART CITY

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ABSTRACT

The use of Wireless Sensor Network (WSN) has proved to be a very beneficial in the design of adaptive and dynamic traffic light intersection system that will minimize the waiting time of vehicles and also manage the traffic load at the intersection adaptively. In this paper, we propose an adaptive traffic intersection system based on Wireless Sensor Network where the traffic light of one intersection can communicate with the traffic light of the next neighboring intersections and traffic clearance will be prioritized for special vehicles with the help of sensors.

General Terms: Wireless Sensor Network.

Keywords: Adaptive traffic light, ITS, Dynamic.

INTRODUCTION

Nowadays Wireless Sensor Networks (WSN) has been applied in various domains like weather monitoring, military, home automation, health care monitoring, security and safety etc. or in a nut shell one can say wireless sensor network can be applied in most of the domains. Traffic Signal System or traffic monitoring is a vast domain where WSN can be applied to gather information about the incoming flow of traffic, traffic load on a particular road, traffic load at particular period of time (peak hours) and in vehicle prioritization. WSN installed along a

road can be utilized to control the traffic load on roads and at traffic intersections.

The sensor nodes that are to be deployed along the road are small in size and have low energy consumption.[1] These sensors run on both battery power as well as solar energy. They have the capability to draw solar energy so that they can use sunlight for functioning in bright and sunny condition and the battery power for functioning at night or in cloudy or foggy condition. Sensors used in the Wireless Sensor Network for traffic signal systems are mainly of two types: i) Intrusive type and ii)

**APPLICATIONS OF INTELLIGENT TRANSPORTATION SYSTEM IN CRDA
REGION**

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ABSTRACT: Elderly drivers have a high accident rate per kilometer driven, though not per person per year, and elderly pedestrians and transit users also have above average accident rates. The potential of Intelligent Transportation Systems (ITS) to enhance vehicle safety for elderly and less able travelers is examined. For car drivers, Advanced Vehicle Control and Safety Systems (AVCSS) and Advanced Transportation Information Systems (ATIS) should make driving easier, less stressful and safer. Transit users should be helped by better information before and during travel and by smart cards. Pedestrians with visual impairments can be helped by hand-held guidance equipment and by talking signposts; road-crossing facilities can be improved to benefit everybody.

INTRODUCTION

Intelligent Transportation Systems (ITS) is the term used to describe the application to road transportation of advanced technologies including computing, sensors, communications, and controls. These technologies have been in use for some time, but the rate of application has increased dramatically in the past few years. Real-time display of information in public transportation systems is becoming common, multimodal information terminals are starting to appear, major rental car companies have been offering in-vehicle navigation systems since mid- 1996 and automobile

manufacturers now offer these systems as options. These systems are intended to improve the safety, efficiency and capacity of the highway system. Almost all developed countries have growing elderly populations and a large increase in the number of elderly and less able drivers. In Canada, the population of people aged 65 and over is expected to increase from 3.2 million in 1995 to 7.8 million in 2025; already, about 10 percent of the adult population of Canada have specific transport disabilities (Mitchell, 1997). In the U.S., the population aged 65+ is forecast to more than double between 1990 and 2030 (NHTSA, 1996). The number of

THE BEST RESIST BETWEEN DIFFERENT REGULAR SHAPES (SQUARE, CIRCULAR, AND TRIANGLE) OF TALL BUILDING HAVING SEISMIC AND WIND LOAD CASE STUDY USING ETABS

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Abstract— in recent years, the number of tall buildings being constructed has been rapidly increasing worldwide. Some buildings have been constructed with triangular exterior structural members, known as diagrid systems, which have been developed for structural effectiveness and architectural aesthetics. Selecting a curved structural system for tall building design involves many complex factors, such as wind behavior, structural efficiency, and behavior of building due to wind. This paper presents various design and analysis strategies to mitigate wind-induced structural motions of tall buildings. The impact of recently-emerging relatively stiff structural systems, such as diagrids, is investigated. Recently diagrid structural system is adopted in tall buildings due to its structural efficiency and flexibility in architectural planning. Compared to closely space vertical columns in the framed tube, diagrid structure consists of inclined columns on the exterior surface of building. Analysis of 30 storey diagrid with core as shear wall building is presented. A curved perimeter plan is considered. ETABS software is used for modelling and analysis of structural members. All structural members are designed as per IS 800:2007 considering all load combinations. Along wind is considered for analysis and design of the structure. Load distribution in diagrid system is also studied for 30 storey building. Analysis results in terms of time period, top storey displacement and inter-storey drift is presented in this paper.

Keywords— Diagrid, Curved perimeter, analysis of structure, High rise buildings.

INTRODUCTION

The rapid growths of urban population and consequent pressure on limited space have considerably influenced the residential development of city. The high cost of land,

the desire to avoid a continuous urban sprawl, and the need to preserve important agricultural production have all contributed to drive residential buildings upward. As the height of building increases, the lateral load resisting system becomes more important

ANALYSIS OF INDUSTRIAL STEEL STRUCTURE BY USING BRACING AND DAMPER UNDER THE WIND LOAD AND EARTHQUAKE LOAD

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ABSTRACT:

Following the recent trends of earthquake all over the world, it is observed that there is very high risk for earthquake, thus creating a need of earthquake resistant structure. The tall structures are prone to the seismic load and wind load. For this purpose of enhancing the stiffness and reducing lateral displacement there are various methods to resist these lateral loads like base isolation, formation of hollow foundations, tuned mass dampers, horizontal bands and bracings. Among these application, bracing is one of the best methods to resist these kinds of loads. Bracing can be applied concentrically or eccentrically. The cross bracings are one of the mostly used types of bracing. Bracings are very efficient in overcoming the elastic seismic waves. This is used for strengthening the building by increasing its stiffness and displacement capacity keeping the lateral displacement as low as possible. Various types of bracings can be used like X, V and Inverted V etc. An attempt has been made to study the reduction in responses of a structure under lateral loading due to the incorporation of different bracing systems. In this study a G+20 building structure of plan area 10.5m X 9m is analysed under earthquake load in zone IV by placing different bracing systems at different locations. The analysis is performed in ETABS by using response spectrum method. The bracing systems considered are inverted V, V and X bracings. These bracings are placed at center and outer bays of the building. From the analysis of the buildings with different bracings storey displacements, storey drifts, storey shears and overturning moments are evaluated. These results are evaluated for the load combination

INTEGRATING SOCIAL MEDIA WITH E-COMMERCE: COLD-START PRODUCT RECOMMENDATION USING MICROBLOGGING DATA

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Abstract: In recent years, the boundaries between online shopping and social networking have become increasingly blurred. Through social login, users can conveniently access their preferred e-commerce platforms using credentials from third-party social networks like Facebook or Twitter. Moreover, customers often share their recent purchases on microblogs, including links to the corresponding product pages on the merchant's website. Addressing the challenge of recommending products from e-commerce platforms to users on social networking sites in "cold-start" scenarios, this paper proposes an innovative solution to the relatively unexplored issue of cross-site cold-start product recommendation. The primary hurdle in implementing cross-site cold-start product recommendations lies in leveraging insights gleaned from social networking sites effectively. To overcome this obstacle, we suggest leveraging users who maintain accounts on both social networking platforms and e-commerce sites as intermediaries. Specifically, we propose employing recurrent neural networks to learn feature representations for users and products (referred to as user embeddings and product embeddings, respectively) using data collected from e-commerce platforms. Subsequently, we utilize a modified gradient boosting trees method to translate users' social networking features into user embeddings. With these user embeddings in hand, we develop a feature-based matrix factorization approach for cold-start product recommendations. Experimental evaluations conducted on a substantial dataset compiled from SINA WEIBO, the largest Chinese microblogging service, and JINGDONG, the largest Chinese B2C e-commerce website, validate the effectiveness of our proposed framework.

Keywords : online store , online business

I. INTRODUCTION

The lines between online shopping and social networking have blurred in recent years. Social network features, such as instantaneous updates and interactions between users, can be found on e-commerce sites like eBay. Social login is a feature offered by some online stores that enable new customers to register with their existing credentials from a social media platform like Facebook, Twitter, or Google+. A "buy" button, accessible via advertisements or other posts, was introduced on both Facebook and Twitter in the past year, allowing users to make purchases without leaving the sites. Strategically investing in SINA WEIBO allows e-commerce giant ALIBABA to reach Chinese internet users with product advertisements. Data extracted from social sites is crucial especially in light of the growing popularity of using these platforms for e-commerce.

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STRUCTURAL DESIGN AND ANALYSIS OF SUSPENSION SYSTEMS UTILIZING FEM METHODOLOGY

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Abstract: Suspension is the term given to the system of springs, shock absorbers and linkages that connects a vehicle to its wheels. Suspension systems serve a dual purpose contributing to the vehicles handling and braking for good active safety and driving pleasure, and keeping occupants comfortable and reasonably well isolated from road noise and vibrations. The leaf spring suspension also protects vehicle itself and any cargo or luggage from damage and wear. In this project a leaf spring system is designed in Catia V5 tool and then finite element analysis is used to estimate the load that acts on the suspension and stresses and deflections in the suspension under the load is analyzed. These values vary as the boundary conditions of the tests are changed and are compared to a predetermined value from a reliable source. In analysis, the model is carried out in Ansys tool to determine the natural frequencies and corresponding node shapes. And load analysis is also performed to estimate the frequency response to see the stability of the suspension. A static analysis is also carried out to estimate the deflection and stresses due to working conditions. the design safety is ensured based on strength and rigidity.

I- INTRODUCTION

Leaf spring is a simple form of spring commonly used for the suspension in wheeled vehicles. Originally called a laminated or carriage spring, and sometimes referred to as a semi-elliptical spring or cart spring, it is one of the oldest forms of springing, appearing on carriages in England after 1750 and from there migrating to France and Germany. A leaf spring takes the form of a slender arc-shaped length of spring steel of rectangular cross-section. In the most common configuration, the center of the arc provides location for the axle, while loops formed at either end provide for attaching to the vehicle chassis. For very heavy vehicles, a leaf spring can be made from several leaves stacked on top of each other in several layers, often with progressively shorter leaves. Leaf springs can serve locating and to some extent damping as well as springing functions. While the interleaf friction provides a damping action, it is not well controlled and results in stiction in the motion of the suspension. For this reason, some manufacturers have used mono-leaf springs.

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DEVELOPMENT AND EVALUATION OF HEAT PUMP SYSTEMS UTILIZING CAE TOOLS

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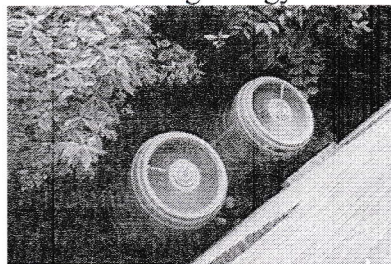
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Abstract: The Coolant pump assembly is a system to move heat around the engine. The main purpose of the assembly is to carry away the intense heat generated by the combustion in the engines and other applications include heating parts of the engine for cold weather. The engine runs best at a fairly high temperature. When the engine is cold, components wear out faster, and the engine is less efficient and emits more pollution. So another important job of the cooling system is to allow the engine to heat up as quickly as possible, and then to keep the engine at a constant temperature. The heat pump assembly is modeled using Catia and the analysis is carried out in Ansys. The heat pump system is subjected to different fluctuating temperatures from 260°C to room temperature. So, detailed thermal and structural analysis was carried out for designing the system and studied different modifications for proposing the optimum design with reduced deformations and stresses due to thermal loads.

I- INTRODUCTION

1.1 General Description

A heat pump is a device that transfers heat energy from a source of heat to a destination called a "heat sink". Heat pumps are designed to move thermal energy in the opposite direction of spontaneous heat transfer by absorbing heat from a cold space and releasing it to a warmer one. A heat pump uses a small amount of external power to accomplish the work of transferring energy from the heat source to the heat sink.



While air conditioners and freezers are familiar examples of heat pumps, the term "heat pump" is more general and applies to many heating, ventilating, and air conditioning devices used for space heating or space cooling. When a heat pump is used for heating, it employs the same basic refrigeration-type cycle used by an air conditioner or a refrigerator, but in the opposite direction - releasing heat into the conditioned space rather than the surrounding environment. In this use, heat pumps generally draw heat from the cooler external air or from the ground.

In heating mode, heat pumps are three to four times more effective at heating than simple electrical resistance heaters using the same amount of electricity. The typical installation cost of a heat pump is about 20 times greater than that of resistance

1.2 Overview


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ENHANCING DISTRIBUTED POWER MANAGEMENT IN INTERCONNECTED AC/DC MICROGRIDS, PARTICULARLY UNDER UNBALANCED CONDITIONS

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Abstract: This paper introduces a hybrid AC/DC microgrid aimed at streamlining the conversion processes within individual AC or DC grids, thereby minimizing the need for multiple DC-AC-DC or AC-DC-AC conversions. The hybrid grid integrates both AC and DC networks through multi-bidirectional converters, with AC sources and loads linked to the AC network and DC sources and loads connected to the DC network. Energy storage systems can be integrated into either the DC or AC links. The proposed hybrid grid offers flexibility to operate in either grid-tied or autonomous modes. Coordination control algorithms are devised to facilitate seamless power transfer between AC and DC links and to ensure stable system operation across diverse generation and load scenarios. The control strategies account for uncertainties and intermittencies associated with variables such as wind speed, solar irradiation level, ambient temperature, and load fluctuations. A small-scale hybrid grid model is developed and simulated using Simulink in MATLAB. Simulation results demonstrate the system's ability to maintain stable operation under the proposed coordination control strategies during transitions between different operating conditions.

Keywords : AC/DC Microgrids, Power Distribution, Controlled Algorithm.

INTRODUCTION

Three phase ac power systems have existed for over 100 years due to their efficient transformation of ac power at different voltage levels and over long distance as well as the inherent characteristic from fossil energy driven rotating machines. Recently more renewable power conversion systems are connected in low voltage ac distribution systems as distributed generators or ac micro grids due to environmental issues caused by conventional fossil fueled power plants. On other hand, more and more dc loads such as light-emitting diode (LED) light sand electric vehicles (EVs) are connected to ac power systems to save energy and reduce CO emission. When power can be fully supplied by local renewable power sources, long distance high voltage transmission is no longer necessary. AC micro grids have been proposed to facilitate the connection of renewable power sources to conventional ac systems. However, dc power from photovoltaic (PV) panels or fuel cells has to be converted into ac using dc/dc boosters and dc/ac inverters in order to connect to an AC grid.

Wind Energy

Wind power:


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ENHANCING MINING WORKER SAFETY WITH AN INTERNET OF THINGS (IOT)-ENABLED SMART HELMET

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Abstract : The mining industry now has access to a protective cap that uses artificial intelligence to warn workers when danger is present. We have taken into account air quality, head protector evacuation, and crash hazards in the development of protective caps (evacuation: are struck by a question). The concentration of potentially harmful gases, such as carbon monoxide, sulfur dioxide, nitrogen oxide, and particles is the first problem. An excavator was used to investigate the first precarious occurrence is when excavators are hit by a protest against the head with power exceeding a 1000 HIC estimation (Head Injury Criteria).

Keywords: Arduino, IOT, Border Security System, Temperature sensor.

I. INTRODUCTION

In these days solid affiliation business centers, the affiliations face creating necessities to additionally foster way efficiencies, investigate primary recommendation, and meet corporate monetary targets. Given the making period of different present-day frameworks and the extraordinary business-producing business center, reasonable and cost-effective strategies, business automation structures are depended upon to work on the support and execution of business operations. In the past, business automation structures are perceived as a huge expense, with the expense of any kind of which computerization structures require outrageous, very wide interfaces will be a huge and part of the time remained minimal or, and in this manner, they are not regularly done in business plants by their huge expense [4], as such, there's a true necessity for savvy distant robotization structures that award huge cash related hold saves and reduce air-poison floods through upgrading the association of current plans. WSNs, the conviction of insignificant cost implanted business robotization structures have become practical [5]. In the one's turns of events, distant little sensor community focuses are related on endeavor gear and reveal the cutoff points basic for each gadget's efficiency fundamentally settled on several appraisals like vibration, temperature, strain, and power quality. this information is then to some degree transported off a sink community that evaluations the information from every sensor. Any end loads are told to the plant workers as a perplexed warning framework. This awards plant staff to fix or abrogate contraptions, sooner than their sufficiency drops or they flop. Consequently, miserable device screw-ups and the related fix and substitution expenses might be stayed away from, simultaneously as consenting to genuine natural guidelines. The accommodating considered IWSNs brings two or three benefits over customary disturbed out the business following and control structures, which unite self-affiliation, quick blueprint, flexibility, and intrinsic wily dealing with limit. In such a manner, WSN plays a basic breaking point in making an unequivocally dependable and self-recuperating present-day gadget that quickly reacts to consistent occasions with genuine activities. in any case, to comprehend the imagined current applications and, therefore, take the upsides of the support benefits of WSN, productive dispatch shows, which can manage the right disagreeable conditions presented through such frameworks, are required. The imaginative improvement inside the worldwide has during that time-shifted direction and measures to show sports associations are being made to allow let free to encounters and guide for giving clients [6]. this is a delayed consequence of the staggering name for assets reasonable in helping industrialists with achieving put forward targets and foster applications for the supporting of time transportation of materials and set out a chance for expanded data [7]. The significance of introducing a pleasantly unprecedented model wi-fi Sensor social class (WSN) in business take a stab at programming can't be over-featured; as needs are, this experience tends to the great master in intersection the distance among the


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COMPREHENSIVE ANALYSIS OF LOAD CAPACITY IN SPHERICAL BEARINGS CONSIDERING SURFACE ROUGHNESS AND THERMAL EFFECTS

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Abstract: This study investigates the behavior of squeeze film lubrication in spherical bearings, accounting for variations in viscosity and the influence of heat. Graphical representations are constructed, and analytical expressions for load capacity and squeezing time are derived and systematically analyzed. The findings illustrate that the presence of a high viscous layer near the periphery contributes to an increase in load capacity and squeezing time, while a low viscous layer results in a decrease in both parameters. To assess the thermal impact on load capacity and squeezing time in spherical bearings, a parameter denoted as "q" is introduced and scrutinized across different values.

Key Words: squeeze film, viscosity, eccentricity, thermal effect, film thickness, squeezing time etc.,

INTRODUCTION

This paper explores the phenomenon of squeeze film lubrication, which occurs when two lubricated surfaces approach each other with a normal velocity. The thin layer of lubricant between these surfaces serves as a cushion, preventing direct contact. The duration needed for the lubricant to be displaced depends on factors such as surface configuration, fluid properties, and applied load. Typically, squeeze film analysis focuses on understanding the relationship between load carrying capacity and the rate of approach.

Spherical bearings, designed to allow angular rotation about a central point in two orthogonal directions, find widespread application in scenarios requiring rotational motion adjustment. These bearings accommodate changes in alignment of the rotation axis, making them essential in various fields.

This paper specifically investigates the squeeze film lubrication of spherical bearings, considering the influence of viscosity variation and thermal effects. It derives expressions for load capacity and squeezing time, which are then subjected to numerical analysis. Graphical representations are employed to provide insights into the behavior of the system under study.

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OPTIMIZING LAYOUT DESIGN AND SIMULATION OF CMOS MULTIPLEXER ACROSS VARIOUS TECHNOLOGIES

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Abstract: The multiplexer circuit serves as a fundamental component across various branches of Engineering. In the realm of VLSI research, the primary aim is to streamline and downsize designs. This paper focuses on leveraging CMOS logic to craft a 2-to-1 multiplexer, aiming for a more straightforward and efficient circuit. Employing a range of design methodologies, the objective is to reduce the footprint, complexity, and power consumption of the multiplexer. The study delves into the analysis of 35nm technology. Additionally, the paper evaluates the design processes to optimize the effective area of the multiplexer.

Key Words: MUX, Pseudo NMOS logic Low Power, Static CMOS logic, Low Power.

1. INTRODUCTION:

The VLSI (Very large scale integration) is an important tool to integrate the number of components on a single chip. The choice of design style of VLSI product depends on the performance requirement, the technology being used, the lifetime and cost of the project. The important factors are area reduction, minimum power consumption and high speed. Now days, the demand for these factors are increasing. There are many design techniques are developed to enhance the performance of logic circuits. The operation in high temperature environment results in silicon failure and the circuit will be damaged. So, the requirement for low power consumption is increasing with the growth in devices like Mobile phones, medical instruments and Cs. Another factor is power consumption, which should be minimized because it results in low electricity consumption and less amount of heat is produced. [3] Multiplexer is major component in telecom industry and it's a key component of any arithmetic circuit. These are building blocks for data switching structure with resource sharing. In a communication system, the transmission takes place between transmitter and receiver by using a multiplexer at the transmitter side to transmit the data from many users on a single channel with the help of selection (control) lines.[4]

The field of field-programmable gate arrays (FPGAs) grew out of the PROM and PLD industries (PLDs). Any programmable logic device (PLD) or programmable read-only memory (PROM) could be modified in groups at a manufacturing facility or in the field. The Naval Surface Warfare Department supported Steve Casselman's early proposal in the late 1980s to create a personal computer capable of running 600,000 reprogrammable entries. In 1992, a patent was issued for the structure thanks to Casselman's efforts. The licenses granted for business central ideas and advancements for a programmable method of reasoning bundles, entryways, and justification squares.

2. MULTIPLEXER:


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ANALYSIS OF SMALL SIGNAL CHARACTERISTICS IN POWER SYSTEMS INCORPORATING WIND ENERGY AND ENERGY STORAGE UNITS

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Abstract: This paper presents a comprehensive study of the small signal behavior of power systems, incorporating both wind generation units and energy capacitor systems (ECSs). The modeling of wind units, which feature squirrel-cage induction generators connected to the power system via a full-scale AC/AC converter, as well as the ECS unit, is elaborated upon in detail. The ECS unit, as considered in this study, is comprised of electric double-layer capacitors (EDLC) and a DC/AC converter. Through digital computer simulations, the small signal behavior of three test systems is thoroughly investigated and compared. These systems include: System S1: The WSCC 9-bus system equipped with three conventional synchronous generators (SGs). System S2: The WSCC system with one of the conventional SGs replaced by a wind energy system. System S3: Similar to S2, but with the addition of an ECS unit. The study encompasses a comparison of dominant eigenvalues, participant state variables, and related participation factors for each of the three systems. Furthermore, the paper delves into analyzing the effects of loading on the unstable modes of System S3, which incorporates conventional SGs, wind generation units, and ECS units, by examining the trajectory of these modes as loads are incrementally increased.

Keywords: Power Systems, Small Signal Behavior, Wind Generation

INTRODUCTION

WIND energy is one of the cheapest and cleanest sources of electrical energy. Installed capacity of wind power plants has increased from 59.3 GW in 2005 to 198 GW in 2010 with nearly \$50 billion invested on wind energy in last 20 years [1]. Increased penetration of wind energy in power network is accompanied with deteriorated system dynamics (due to intermittent nature of wind speed), which should be taken into considerations. To compensate for these deteriorations new methods and equipment should be employed. It has been shown that energy storage systems can effectively improve power systems dynamics. In recent years, storage system capacity has been increased from tens of megawatt-hours to hundreds of megawatt-hours. In California a storage facility is going to be built that can deliver a full gigawatt to the grid for 4 to 6 hours. The ability of these sources to deliver/absorb large amount of power makes them a suitable choice for improving the dynamics of wind units and the overall power system. Several studies have been reported in literature related to output power smoothing of wind units connected to infinite bus using energy storage systems to compensate for wind speed fluctuations. However, effects of

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SECURE CLOUD STORAGE WITH KEYWORD SEARCH AND DUAL-SERVER PUBLIC-KEY ENCRYPTION

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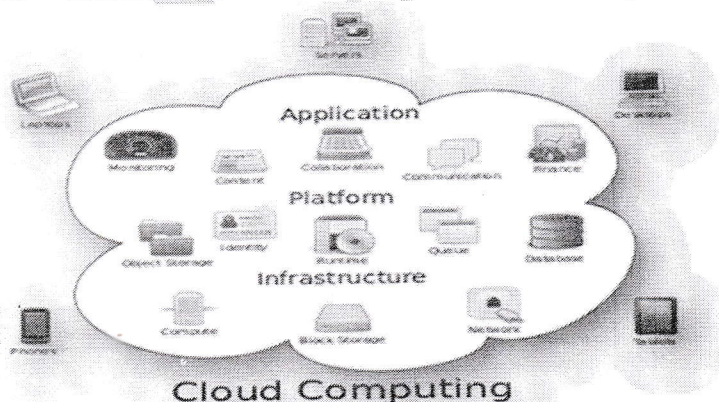
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Abstract: A growing number of individuals are turning to searchable encryption to safeguard the privacy of their data in secure cloud storage environments. In this study, we investigate the security of public key encryption with keyword search (PEKS), a fundamental cryptographic technique widely utilized in cloud storage applications. Unfortunately, the traditional PEKS framework has been found to suffer from a vulnerability known as an inside keyword guessing attack (KGA), which can be exploited by a malicious server. To address this security flaw, we propose the dual-server PEKS framework (DS-PEKS) as a novel approach. Additionally, we introduce a new type of smooth projective hash function (SPHF) called a linear and homomorphic SPHF (LH-SPHF). Leveraging LH-SPHF, we present a generic construction of secure DS-PEKS. Furthermore, we offer an effective instantiation of this general framework based on Decision Diffie-Hellman LH-SPHF, demonstrating its ability to achieve robust security against inside KGA attacks.

Indexed Terms -- Location-based social network, text mining, travel route recommendation

I. INTRODUCTION

Cloud computing (equipment and software) is used and shared remotely over a network in what is known as "the cloud" (usually the Internet). In structure graphs, a cloud-shaped picture is commonly used to represent the complex information it contains, hence the name. Through distributed processing, a client's information, code, and estimation can be shared amongst multiple, geographically dispersed organizations. System hardware and software for appropriate processing are available online from supervised pariah groups. Modern programming languages and server PC networks are made possible by these establishments.



Structure of cloud computing

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ENHANCING ENERGY AND MEMORY EFFICIENCY IN WIRELESS SENSOR NETWORKS THROUGH EFFECTIVE CLONE DETECTION

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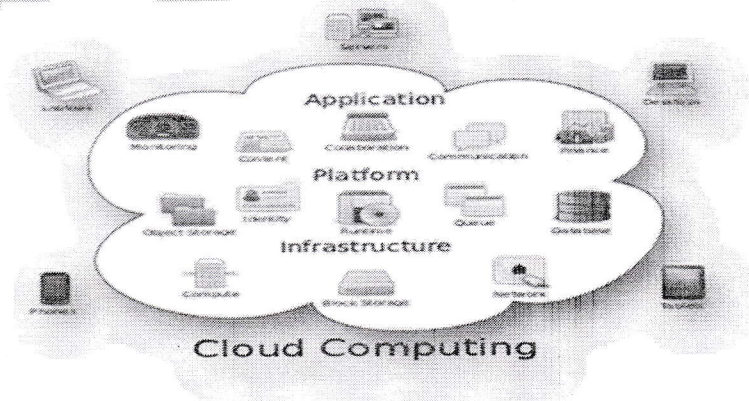
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Abstract: We introduce an energy-efficient clone detection protocol tailored for densely populated Wireless Sensor Networks (WSNs) to bolster clone attack detection and sustain network longevity. Leveraging geolocation data from sensors, we strategically designate witnesses within a ring-shaped area to validate sensor authenticity and flag any potential clone threats they detect. By employing a ring topology, both witnesses and the sink can receive data with minimal energy consumption along the transmission path. Notably, we demonstrate theoretically that our protocol can achieve a clone detection probability of 100% with reliable witnesses. Additionally, through an extended analysis, we evaluate the clone detection performance when dealing with untrustworthy witnesses. Remarkably, even with 10% of witnesses compromised, our protocol maintains a clone detection probability close to 99%. Unlike existing clone detection protocols employing random witness selection schemes, our approach minimizes buffer storage requirements, which depend solely on the network's radius, denoted as h , rather than the total number of sensors, denoted as n . Extensive simulations substantiate that our protocol effectively distributes traffic load across the network, ensuring prolonged network longevity.

Keywords: wireless sensor networks, clone detection protocol, energy efficiency, and network lifetime

I. INTRODUCTION

Cloud computing (equipment and software) is used and shared remotely over a network in what is known as "the cloud" (usually the Internet). In structure graphs, a cloud-shaped picture is commonly used to represent the complex information it contains, hence the name. Through distributed processing, a client's information, code, and estimation can be shared amongst multiple, geographically dispersed organizations. System hardware and software for appropriate processing are available online from supervised pariah groups. Modern programming languages and server PC networks are made possible by these establishments.



Structure of cloud computing

Explaining the Workings of Cloud Computing

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COMPREHENSIVE ANALYSIS OF BIG DATA ANALYTICS IN AGRICULTURAL PRACTICES

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Abstract : Big Data Analytics stands as a transformative, data-driven technology with immense potential for revolutionizing various industries. By collecting, storing, managing, processing, and analyzing diverse types of structured and unstructured data, it generates substantial productivity improvements. In the realm of Agriculture, the role of Big Data Analytics presents a pivotal opportunity to enhance farmers' economic gains through a digital revolution. This paper explores the applications of Big Data Analytics in supporting agricultural practices, with a particular focus on precision agriculture frameworks adopted across numerous countries. Additionally, it delves into identifying the tools crucial for implementing Big Data applications in agricultural services. The review uncovers numerous opportunities for harnessing Big Data in agriculture, yet it also highlights the existing challenges and issues that must be addressed to realize the full potential of this technology.

Keywords—Agriculture, Big data Analytics, Hadoop, HDFS, Farmers

I. INTRODUCTION

The technologies employed are exciting, involve analysis of mind-numbing amounts of data and require fundamental rethinking as to what constitutes data. Big data is a collecting raw data which undergoes various phases like Classification, Processing and organizing into meaningful information. Raw information cannot be consumed directly for any form of analysis. It's a process of examining uncover patterns, finding unknown correlation and finding useful information which are adopted for decision making analysis. Big data supports the public and private sectors in providing the discovered knowledge patterns which are later used for future predictions. It creates an opportunity to extract and process the valuable data which is a valuable asset of an organisation. Data analytics and storage tools enables to refine the data for future prediction and decision making analysis. This will create an economic or societal value in the society.

II. WHY BIG DATA ANALYTICS

Big data analytics are important to the core of various applications since data is the raw material which is fed as the input for processing. In major it supports Business Intelligence by allowing the business to grow rapidly and provide better solution at the right time by providing the right format of data for this we need to deal with the large datasets .Text mining, data mining

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EXPERIMENTAL INVESTIGATION ON STRENGTH AND DURABILITY PARAMETERS OF CONCRETE REPLACING CEMENT BY GLASS POWDER IN CONCRETE WITH DIFFERENT DOSAGES FOR M25 AND M30 CONCRETE

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ABSTRACT: Concrete plays important role in the construction industry worldwide. New technologies have helped to develop new types of construction and alternative materials in the concrete area. As society makes determined moves towards sustainability, construction has a very important role to play within this new agenda, not only because of its economic and social contribution, but also because of its impact on the quality of our lives, our comfort and safety. While the building industry provides 5% to 10% of worldwide employment and generates 5% to 15% of GDP (Gross Domestic Product), the built environment accounts for 40% of energy consumption, 40% of CO₂ emissions, 30% of the consumption of natural resources, 30% of waste generation and 20% of water consumption. The future global challenge for the construction industry is clearly to meet the world's growing needs while at the same time limiting the impact of its burdens by drastic improvement of its activities. Due to exponential growing in urbanization and industrialization, byproducts from industries are becoming an increasing concern for recycling and waste management. Cement is the major component in production of concrete. But manufacturing of cement causes air pollution and it is dangerous in the present day scenario. With the increasing awareness about the environment, scarcity of land fills space and due to its ever increasing cost, wastes materials and by products utilization has become an attractive alternative to disposal. The glass powder was tested with concrete and mortar. Cement was replaced by the glass powder in the proportion of 0%, 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55% and 60% for M25 grade and M30 grade of concrete with and 0.44 water-cement ratios respectively. The compressive strength, split tensile strength, consistency and flexural strength were conducted for the above replacements. The result showed glass

LABORATORY EVALUATION OF MICROWAVE-HEATED ASPHALT PAVEMENT MATERIALS

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ABSTRACT

The potential use of microwave energy to heat asphalt mixtures and pavements has begun attracting attention. Microwave heating is rapid, deep and uniform. With microwaves, heat is generated by the treated material under the excitation of an alternating electromagnetic field caused by the passing microwaves. Some materials such as water heat very well with microwaves, while others such as Teflon do not. Asphalt cement is similar to Teflon, but many aggregates seem to possess favorable microwave heating properties. This thesis focuses on pavement materials and their interaction with microwave energy as a heating method. The interaction between asphalt-pavement materials and the applied microwave energy was evaluated in two phases. First, the effect of microwaves on some properties of virgin and recycled mixtures was investigated. Potential benefits to adhesion and water-stripping resistance of asphalt film to aggregate are promising but need further investigation. Secondly, the effect of several mixture variables on microwave heating efficiency was also studied.

INTRODUCTION

Existing asphalt pavement materials are commonly removed during resurfacing, rehabilitation, or reconstruction operations. Once removed and processed, the pavement material becomes RAP, which contains valuable asphalt binder and aggregate (see figure 1). In the early 1990s, FHWA and the U.S. Environmental Protection Agency estimated that more than 90 million tons of

asphalt pavement were reclaimed (i.e., converted into material suited for use) every year, and over 80 percent of RAP was recycled, making asphalt the most frequently recycled material.(2) RAP is most commonly used as an aggregate and virgin asphalt binder substitute in recycled asphalt paving, but it is also used as a granular base or subbase, stabilized base aggregate, and embankment or fill material. It can also be used in other construction applications. RAP

MANAGEMENT OF ROAD EVOLUTION AND TECHNIQUES

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ABSTRACT

Climate change, awareness of energy efficiency, new trends in electricity markets, the obsolescence of the actual electricity model, and the gradual conversion of consumers to prosumer profiles are the main agents of progressive change in electricity systems towards the Smart Grid paradigm. The introduction of multiple distributed generation and storage resources, with a strong involvement of renewable energies, exposes the necessity of advanced metering or Smart Metering systems, able to manage and control those distributed resources. Due to the heterogeneity of the Smart Metering systems and the specific features of each grid, it is easy to find in the related literature a wide range of solutions with different features. This work describes the key elements in a Smart Metering system and compiles the most employed technologies and standards as well as their main features. Since Smart Metering systems can perform jointly with other activities, these growing initiatives are also addressed. Finally, a revision of the main trends in Smart Metering uses and deployments worldwide is included.

Introduction

India has one of the largest road networks in the world (over 3 million km at present). For the purpose of management and administration, roads in India are divided into the following five categories:

- National Highways (NH)
- State Highways (SH)
- Major District Roads (MDR)
- Other District Roads (ODR)
- Village Roads (VR)

The National Highways are intended to facilitate medium and long distance inter-city passenger and freight traffic across the country. The State Highways are supposed to carry the traffic along major centers within the State. Other District Roads and Village Roads provide villages accessibility to meet their social needs as also the means to transport agriculture produce from village to nearby markets. Major District Roads provide the secondary function of linkage between main roads and rural roads.

Trend in Road Traffic

Freight transport by road has risen from 6 billion tonne km (BTK) in 1951 to 400 BTK in 1995 and passenger traffic has risen from 23 billion-passenger km (BPK) to 1,500 BPK during the same period. Freight and passenger traffic are expected to increase to 800 BTK and 3,000 BPK respectively by the year 2001. The annual growth of road traffic is expected to be 9 to 10%. Current boom in the automobile sector may even increase the future growth rate of road traffic. While the

traffic has been growing at a fast pace, it has not been possible to provide matching investment in the road sector, due to the competing demands from other sectors, especially the social sectors, and this has led to a large number of deficiencies in the network.

Many sections of the highways are in need of capacity augmentation, pavement strengthening, rehabilitation of bridges, improvement of riding quality, provision of traffic safety measures, etc. There are congested road sections passing through

Towns where bypasses are required. Many old bridges are in need of rehabilitation/replacement along with capacity augmentation.

NHs are the main arterial roads which run through the length and breadth of the country connecting ports, state capitals, industrial and tourist centers and neighboring countries. NHs constitutes less than 2% of the total road network, but carries nearly 40% of the total road traffic.

The main roads have not kept pace with traffic in terms of quality also. Out of the total 171,445 Km. Length of National and State Highways only 2 percent of their length is four-lane, 34% two-lane, and 64% single lane. As far as NHs are concerned, only 5% of their length is four-lane, 80% two-lane and the balance 15% continues to be single lane.

Thus the road sector, in spite of its high priority is adversely affected by the poor quality and service levels. The poor quality of Indian roads is highlighted

UTILISATION OF PLASTIC WASTE IN CONSTRUCTION OF FLEXIBLE PAVEMENT

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ABSTRACT

Disposal of waste materials including waste plastic bags has become a serious problem and waste plastics are burnt for apparent disposal which cause environmental pollution. Utilization of waste plastic bags in bituminous mixes has proved that these enhance the properties of mix in addition to solving disposal problems. Plastic waste which is cleaned is cut into a size such that it passes through 2-3mm sieve using shredding machine. The aggregate mix is heated and the plastic is effectively coated over the aggregate. This plastic waste coated aggregate is mixed with hot bitumen and the resulted mix is used for road construction. The use of the innovative technology will not only strengthen the road construction but also increase the road life as well as will help to improve the environment. Plastic roads would be a boon for India's hot and extremely humid climate, where temperatures frequently cross 50°C and torrential rains create havoc, leaving most of the roads with big potholes. In my research work I have done a thorough study on the methodology of using plastic waste in bituminous mixes and presented the various tests performed on aggregates and bitumen.

KEYWORDS: Plastic Waste, Bitumen, Aggregates, Plastic Roads

INTRODUCTION

A material that contains one or more organic polymers of large molecular weight, solid in its finished state and at some state while manufacturing or processing into finished articles, can be shaped by its flow, is called as 'Plastic'. Plastics are durable and degrade very slowly; the chemical bonds that make

plastic so durable make it equally resistant to natural processes of degradation. Plastics can be divided in to two major categories: thermosets and thermoplastics. A thermoset solidifies or "sets" irreversibly when heated. They are useful for their durability and strength, and are therefore used primarily in automobiles and construction applications.

HIGHWAY FAILURE AND ITS MAINTENANCE TECHNIQUES

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ABSTRACT

The most important component of any developed or developing country is their ability to reach, communicate and transfer necessities from one location to another. This ability makes a Country thrive economically, connect nationally and internationally, and allows growth of its people socially. The key to this connectivity of any Country is its Pavements, more importantly, its highways. Sophisticated highways provide a better quality to transportation. Ease of transportation promotes access to markets, materials and opportunities to locals and facilitators. This improves earning, standard of living and in turn increases the demand for more transport. Hence, highways and transportation are interdependently related to economic development of a country.

INTRODUCTION

The maintenance of roads involves the co-ordination of a wide range of seemingly unrelated activities. In practice to achieve a good standard of effective maintenance it is essential that different aspects of the work should integrate smoothly. The task facing the Engineer in Road Maintenance is to maintain a network of roads within available budgets. This is made difficult by the amounts of road which are built to inadequate standards and the increase in both the volumes of traffic and in the axle loadings combined with decreasing budgets and the expectation of further cuts in public expenditure. This is noticeable both in rural areas where the intensification and diversification of agricultural production has resulted in minor roads of minimal pavement construction having to accommodate relatively large volumes of traffic and more particularly commercial vehicles which on occasion can barely fit onto the road, and in

urban areas where the growth of towns and cities has incorporated areas serviced by minor roads now carrying heavy volumes of traffic.

Of these the majority of National Primary and some national Secondary roads have been realigned to modern design standards, the remainder are old pre automobile tracks which received an overlay of gravel and surface dressing during the 1950/60's with subsequent granular overlays and Surface Dressing. Due to the dispersed settlement pattern in Ireland we have a proportionately long road network for our population. The maintenance of these roads will continue to be an ongoing problem, resources will not allow for complete structural overlays or realignment of a significant proportion of these roads.

During the past decade and a half funding has been available to allow a higher expenditure on Road Maintenance than was previously

LIFE CYCLE COST ANALYSIS AND COST SAVINGS FOR ROAD PROJECTS

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Abstract

The cost of road construction consists of design expenses, material extraction, construction equipment, maintenance and rehabilitation strategies, and operations over the entire service life. An economic analysis process known as Life-Cycle Cost Analysis (LCCA) is used to evaluate the cost-efficiency of alternatives based on the Net Present Value (NPV) concept. It is essential to evaluate the above-mentioned cost aspects in order to obtain optimum pavement life-cycle costs. However, pavement managers are often unable to consider each important element that may be required for performing future maintenance tasks. Over the last few decades, several approaches have been developed by agencies and institutions for pavement Life-Cycle Cost Analysis (LCCA). While the transportation community has increasingly been utilizing LCCA as an essential practice, several organizations have even designed computer programs for their LCCA approaches in order to assist with the analysis. Current LCCA methods are analysed and LCCA software is introduced in this article. Subsequently, a list of economic indicators is provided along with their substantial components. Collecting previous literature will help highlight and study the weakest aspects so as to mitigate the shortcomings of existing LCCA methods and processes. LCCA research will become more robust if improvements are made, facilitating private industries and government agencies to accomplish their economic aims.

Introduction:

Within the scope of LCCA, impact of chosen MR&R action on particular pavement is evaluated, as each method has different costs and different impact on the improvement of technical parameters, such

as increased serviceability or prolonged service life.

Roads are constructed using two major expensive components; aggregates and asphalt. According to a study over 90 million tonnes of asphalt is recycled every year in North America . For being more

ADVANCE PAYMENT DESIGN

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Abstract

Highway and pavement design plays an important role in the DPR projects. The satisfactory performance of the pavement will result in higher savings in terms of vehicle operating costs and travel time, which has a bearing on the overall economic feasibility of the project. This paper discusses about the design methods that are traditionally being followed and examines the "Design of rigid and flexible pavements by various methods & their cost analysis by each method".

Flexible pavement are preferred over cement concrete roads as they have a great advantage that these can be strengthened and improved in stages with the growth of traffic and also their surfaces can be milled and recycled for rehabilitation. The flexible pavements are less expensive also with regard to initial investment and maintenance. Although Rigid pavement is expensive but have less maintenance and having good design period. The economic part are carried out for the design pavement of a section by using the result obtain by design method and their corresponding component layer thickness. It can be done by drawing comparisons with the standard way and practical way. This total work includes collection of data analysis various flexible and rigid pavement designs and their estimation procedure are very much useful to engineer who deals with highways.

Keywords – Design of flexible pavement, Design of rigid pavement, Cost analysis, Estimation

1. INTRODUCTION

The transportation by road is the only road which could give maximum service to one all. This mode has also the maximum flexibility for travel with reference to route, direction, time and speed of travel. It is possible to provide door to door service only by road transport. Concrete pavement a large number of advantages such as long life span negligible maintenance, user and environment friendly and lower cost. Keeping in this view the whole life cycle cost analysis for the black topping and white topping have been done based on various conditions such as type of lane as single lane, two lane, four lane different traffic categories deterioration of road three categories.

A highway pavement is a structure consisting of superimposed layers of processed materials above the natural soil sub-grade,

whose primary function is to distribute the applied vehicle loads to the sub-grade. The pavement structure should be able to provide a surface of acceptable riding quality, adequate skid resistance, favorable light reflecting characteristics, and low noise pollution. The ultimate aim is to ensure that the transmitted stresses due to wheel load are sufficiently reduced, so that they will not exceed bearing capacity of the sub-grade. Two types of pavements are generally recognized as serving this purpose, namely flexible pavements and rigid pavements. This gives an overview of pavement types, layers and their functions, cost analysis.

II. TRAFFIC DATA (MAX WHEEL LOAD, TRAFFIC VOLUME (DAILY&HOURLY))

ANALYSIS OF TRAFFIC NOISE

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ABSTRACT. Traffic noise produces unpleasant or unwanted sounds to the communities, which not only makes enormous noise pollution in the road areas but also detracts from the living and occupational quality of the buildings and land located near the main roads and highways. This study concerns road traffic noise impacts to the residential areas in Regina, the capital city of Saskatchewan, Canada. The present study aims at establishing a methodology to comprehensively understand the effects of traffic noise to different residential areas. The relationship among noise level, traffic flow and surrounding environment is studied. Extensive measurements are carried out in various typical residential areas carefully selected within the city. Systematic evaluations on traffic noise impacts to the residential areas of Regina are performed based on the data obtained in the acoustic measurements conducted in the study. Current noise levels in the residential areas of the three categories classified for Regina are presented. A numerical relationship between the traffic noise and traffic flow are established for the residential areas of the city.

Keywords: Evaluation, objective acoustic measurement, residential environments, traffic flow, traffic noise.

INTRODUCTION

Motor vehicle, a significant symbol of modern civilization, not only brings convenient transportation to our society but also gives off unpleasant traffic noise in living environments. With the development of design and manufacture technologies, current single vehicle does emit less noise than those models manufactured years ago, but tremendous amount of vehicles have

dissipated such reduction from single ones and the vehicles on the roads make the traffic noise the main noise source in cities, from towns to metropolitans. Research works have approved that noise may bring negative effects to people physiologically and psychologically. A clear view of the traffic noise level in living environments will certainly help to better understand the actual environment conditions and will indicate

MODELLING THE CRITICAL GAPS FOR U TURN VEHICLES AT MEDIAN OPENINGS UNDER THE INDIAN MIXED TRAFFIC CONDITIONS

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ABSTRACT

Over the span of late years there has been extended foundation of non-safe un-signalized center openings in most by far of the urban regions in India. The expectation behind this foundation is to wipe out issues related with unlawful U-turns at unions and other development workplaces close to the center openings on multi-way urban avenues. Data assembled for this examination is as video-pictures of six U-turn center openings on 4-way and 6-way avenues orchestrated in the urban zones of Hyderabad, Secunerabad and LBNagar.

This paper displays another idea on hardening conduct of U-turn vehicles for assessment of holes perceived by drivers at focus openings in light of the Influence Line for Gap Acceptance (INAFOGA) procedure; which is likewise separated and the crucial split respects got by and Plainly visible Likelihood Harmony thought for heterogeneous activity stream in the urban area of the Indian states. Statistical Package for Social Sciences (IBM-SPSS 22.0) has been utilized to play out a planned delineation Speculation (t-test) between these two strategies which uncover that key opening respects got by "INAFOGA" are 18-31% more than those got by Likelihood Harmony strategy. Radar plots, box-plots, t-estimation, two-tool after centrality respect joined with higher key opening respects for various methods for transport (adjacent to Game Utility Vehicles) supports the way that "INAFOGA" framework is to ensure fitting under blended development conditions.

openings under mixed development conditions have not been tended to until today. The elucidation for this carelessness is the complex vehicular affiliations and dangerous way changing tasks by non-automated vehicles at these workplaces. The examination focuses our idea towards progress of another idea on joining conduct of U-turn vehicles for assessment of essential fissure perceived by U-turn drivers fixated on the "INAFOGA" system. Existing timetables appear in past examinations like Harders methodologies, Modified Raff strategy.

Key words: U-turns, Safety, Delays, Traffic flow, Capacity, INAFOGA, ANOVA, SPSS

1.INTRODUCTION

The present examination gives a theory to ID of the dispute zone between a turning vehicle and on-coming vehicles at uncontrolled centre openings on urban lanes under mixed development conditions. Data for turning improvements of different sorts of vehicles

were assembled at 13 centre openings on 6-way boulevards and 8 center openings on 4-way avenues in different urban zones of India. These data are dismembered quantifiably and it was found that the fundamental position (method for the outer wheel) of a vehicle is affected by the vehicle evaluate and the road width.



FRONT DESIGN AND IMPLEMENTATION OF HIGH SPEED HYBRID DUAL D-FIFO-FF (FLIP-FLOP) SYNCHRONIZER USING VERILOG

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ABSTRACT:

Phase Measurement in certain applications where signal and its related information needs to be sustained synchronously results in to measure different phases for the application intended. Such orthodox systems would emphasize on measurements of time and phases implementing as an original mixed signal approach. This imparts uncertainty of the different phases in regards to recovered signals. To initiate such intricacies, specifically related to phase shift changes in FPGA, we impart the specific design logic core such as synchronizer and digital phase detector module for phase measurement system providing higher resolution and better precision in specific range of few Pico seconds. In this design scenario we estimate the design of the synchronizer and phase detector using Dual D-flip flops such module level modifications

would arise systematic sampling over the phase detected signal. Our design with Dual D-FF would suffice the estimation of the model for customized model for Synchronizer resulting in Power and Area for respective test benchmark and has been compared and tabulated with existing system synchronizer. The design is estimated with mathematical modeling to emphasize the correct scenario for the synchronized values observed and its phase detection using Dual D flip flop. Our design methodology is implemented using Verilog HDL using HDL designer series and modelled for its netlist analysis using Xilinx Spartan 3 XCS 200TQ-144.

I. INTRODUCTION:

Postulation for the different elements in the phase measurement information has to be calibrated to establish synchronization of

From Desire to Decision: A Holistic View of Impulse Buying Dynamics in Retail

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ABSTRACT

This study delves into the complex dynamics of impulse buying behavior by constructing a comprehensive theoretical framework. Rooted in behavioral theories and arousal theory, the research explores the interplay between external stimuli, individual cognitive and emotional processes, and impulsive purchasing tendencies. Leveraging the Theory of Planned Behavior (TPB), the study investigates the impact of attitudes, subjective norms, and perceived behavioral control on consumers' intentions and actions in the context of impulse buying. The arousal theory is integrated to shed light on the influence of heightened emotional states on impulsive behavior. Through this synthesis, the research offers a nuanced understanding of the multifaceted factors that contribute to impulse buying, presenting insights into triggers, cognitive mechanisms, and emotional dynamics. This theoretical framework provides a foundation for developing informed strategies in retail contexts and designing targeted interventions in consumer psychology.

Keywords: Impulse buying behavior, Behavioral theories, Arousal theory, Theory of Planned Behavior (TPB), Consumer psychology interventions

In the 1990s, researchers initiated investigations into the potential stimulation of unplanned consumer purchases across various product categories (Inman et al., 2009). Empirical studies consistently reveal a prevalent occurrence of impulse buying among consumers. Nelson's study found that

8 out of 10 supermarket shoppers make unplanned product purchases impulsively, with one in five shopping baskets containing such items (Cheng et al., 2013). Muhtar Kent's study indicated that over 70% of Coke's sales are attributed to impulse buying (Karmali, 2007).

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Beyond Trends: Exploring the Complexities of Impulsive Buying through S-O-R Framework

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ABSTRACT

This abstract explores the multifaceted aspects of impulsive buying behavior, emphasizing the interconnected roles of various individual characteristics. Grounded in the "stimulus-organism-response (S-O-R)" framework developed by Mehrabian and Russell (1974), the study delves into the discrete mental and emotional features of customers, showcasing the influence of these elements on impulsive purchasing. Fashion involvement emerges as a pivotal factor, with individuals displaying higher impulsivity when engaged with trendy clothing and stylish items. The SOR model identifies the emotional state of mind as a significant mediator, particularly when individuals experience a sudden and intense attraction toward a product. Furthermore, the research underscores the link between positive affect, hedonic fulfillment, and impulsive buying, noting that customers in pleasing moods tend to engage in careless and spontaneous purchasing. This aligns with past findings highlighting the substantial role of positive emotions in enhancing impulsive buying tendencies. In summary, the theoretical framework presented in the study establishes that individual differences among consumers contribute to distinct positive affective reactions, thereby influencing impulsive purchasing behavior.

Volume 07, Issue 3, Aug/2019

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DESIGN OF STRUCTURE SUPPORTED ON SINGLE COLUMN

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ABSTRACT:

The rapid increase in population and scarcity of land tends to the development of construction technology and high rise commercial structures. Building plays a vital role for improving the various activities. In the late world, prompt to action of peoples from one place to another is of great extent mainly for earnings. In building more facilities like financing section, computer section, administration section, design section and drawing section are provided. The supporting condition of structural members determines their stability during their lifetime. A structure is said to be stable when it satisfies all stability requirements. Structures will be more stable when all the sides proportionally to balance the static and dynamic loads support it; the structure has supposed to be supported. For aesthetic appearance we create our building supported by a single column. Satisfying the requirement of stability conditions for a single column structures will be a complicated one, compare with the structures supporting in all the sides depends upon their configuration; single column structure is a critical one when it is being to an symmetrical and eccentric loading condition. Eccentric loading will cause the structure to twist in any direction and may cause failure of structure is very critical condition. Since single column is supporting whole structure, all other members will act as cantilevers. To reduce the cantilever span for the structural beams converting two-third of the length as simply supported by providing the two ring beams and inclined beams. The structure is analyzed and designed using Staad pro (structural analysis package), which is based on stiffness matrix method. The above structure has been analyzed for various possible loading conditions and the critical has been selected for design purpose.

Keywords: *Single column, symmetrical, eccentric loads, Staad Pro.*

1. INTRODUCTION:


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A Novel Control Scheme for Wind Turbine Driven DFIG Interfaced to Utility Grid

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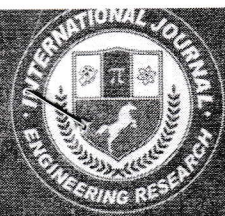
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ABSTRACT:

This article deals with a phase-locked loop (PLL)- based novel control for wind turbine driven doubly fed induction generator interfaced to utility grid with a battery energy storage (BES) connected at the dc link. The control of grid-side converter (GSC) is modified to export/import constant power to/from the grid. The state of charge of BES helps in deciding the reference export power to the grid apart from the manual selection using averaged wind power in a particular period of time. An off maximum power point tracking logic is incorporated in the rotor-side converter (RSC) control to operate the BES within its constraints and, moreover, to feed constant power to the grid. In addition, the energy management scheme of the system is presented in the form of flowchart for both exporting and importing power to/from the grid. The RSC and GSC have taken care of unity power factor operation at stator terminals and to mitigate harmonics and grid currents balancing, respectively. The system performance is found robust as the PLL response is not affected even under grid voltages with dc offset. The system is modeled and simulations are carried

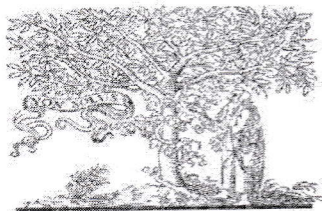


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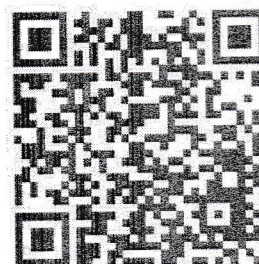
Title **USE OF LOCAL MEASUREMENTS TO ESTIMATE VOLTAGE STABILITY MARGIN (VSM)**

Volume 08, Issue 11, Pages: 263–272.

Paper Authors

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Design and Analysis of Crane Hook with Different Materials

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Abstract- Crane hook is significant component used for lifting the load with the help of chain or wire ropes. Crane hooks are highly liable components and are always subjected to bending stresses which leads to the failure of crane hook. Failure of a crane hook mainly depends on three major factors i.e. dimension, material, overload. To minimize the failure of crane hook, the stress occurs edinit must be studied. Structural failure of the crane hook may happen as a crane hook is subjected to continuous loading and unloading. In this paper the design of the hook is done by analytical method for the different materials like high strength low alloy steel and Structural Steel. CATIA software is used for modeling the crane hook and ANSYS software used to find out the stresses induced in it. This result helps us for determining of stress in existing model. By predicting the stress concentration area, the hook working life increase and reduce the failure stress.

Key word: - Crane hook, CAD software, CAE software (ANSYS)

1. INTRODUCTION

A Crane hooks are components which are always subjected to failure due to accumulation of large amount of stresses which can eventually lead to its failure. Crane hooks are generally used to lift the heavy load in industries and constructional sites. A crane is a machine, equipped with a hoist, wire ropes or chains and sheaves used to lift and move heavy material. Cranes are mostly employed in transport, construction and manufacturing industry. Overhead crane, mobile crane, tower crane, telescopic crane, gantry crane, deck crane, loader crane, jib crane, are some of the commonly used cranes. A crane hook is a device used for lifting and grabbing up the loads by means of arcane. It is basically a hoisting fixture designed to engage a link of a lifting chain or the pin of a cable socket. Crane

hooks with circular, trapezoidal, rectangular and triangular cross section are commonly used. So, crane hook must be designed and manufactured to deliver maximum performance without failure. The crane hooks are vital components and are most of the time subjected to failure due to accumulation of large Amount of stresses, which are ultimately leading to failure. Fatigue of the crane hook is happens due to continuous loading and unloading of crane. If the crack is detected in the crane hook, it can cause fracture of the hook. Due to this there are chances of serious accident. Bending stress, tensile stress, weakening of the hook due to wear, plastic deformation due to overloading, excessive thermal stresses are some of the other reasons of failure.

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CIRCULATED VOLTAGE AND RECURRENCE SYNCHRONIZATION CONTROL PLOT FOR ISLANDED INVERTER-BASED MICROGRID

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Abstract:

This examination exhibits a completely disseminated control worldview for auxiliary control of islanded AC microgrid (MG). The proposed strategy tends to both voltage and recurrence reclamation for inverter-based appropriated generators (DGs). The MG framework has hang controlled DG units with prevalently inductive transmission lines and diverse correspondence topologies. The rebuilding plan is completely disseminated in nature, and the DGs need to speak with their neighbors utilizing a scanty correspondence arrange. The proposed control plan is productive to give speedy reclamation of the voltage and recurrence while precise power-sharing is accomplished in spite of unsettling influences. Further, combination and strength examination of the proposed control plan is exhibited. The proposed calculation stays away from the requirement for a focal controller and complex correspondence structure in this way lessening the computational weight and the danger of single-point-disappointment. The presentation of the proposed control plan has been checked thinking about varieties in burden and correspondence topologies and connection delay by seeking after a broad recreation study in MATLAB/SimPowerSystem tool kit. The proposed control plan supports attachment and-play request and adaptability of MG organize. The proposed control plan is additionally contrasted and the area following mistake based disseminated control conspire and saw that the previous display quicker intermingling and precise execution regardless of unsettling influences in MG organize.

1. INTRODUCTION

In the advanced period of brilliant power frameworks, the microgrid (MG) innovation has been showed as one of the promising advances to encourage the mix of sustainable power sources (RESs) into a current power matrix [1-3]. These RESs, for example, photovoltaic (PV), wind generators (WGs) and microturbines (MTs) are little scale disseminated generators (DGs) that are associated with the fundamental lattice organize by means of voltage source inverters (VSIs) [4]. The physical attributes of these inverter-based DGs are

totally not the same as the customary synchronous generators (SGs). Consequently there is a requirement for planning unmistakable control methods for the above situation. For example, the SGs have huge pivot mass and inactivity which are combined with the network recurrence for guaranteeing lattice strength. Be that as it may, on account of DGs, the nonappearance of idleness and turning mass postures specialized difficulties, for example, the requirement for capacity limit and suitable control activity to guarantee security. A group of the DGs, burdens, and vitality stockpiling units frames a locally controllable substance in the

EFFECT OF HIGHWAY GEOMETRIC ELEMENTS ON ACCIDENTS RATES

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ABSTRACT

Road accident prediction plays an important role in accessing and improving the road safety. Fuzzy logic is one of the popular techniques in the broad field of artificial intelligence and ability to improve performance similar to human reasoning and describe complex systems in linguistic terms instead of numerical values. In this study, a system was established based on Fuzzy Inference System (FIS) in which output data such as traffic Accident Rate (AR) and input data such as various highway geometric parameters. The study was conducted on two road segment from plain and rolling terrain highway and two road segments from hilly and mountainous terrain highway within the rural area of the Indian Territory. Two Highway Accident Rate Prediction Models (HARMPRT and HARPMHMT) were developed due to the complexity of geometric parameters of rural highway on different terrain conditions which takes horizontal radius, super elevation, K-value, vertical grade and visibility as input variables and Accident Rate (AR) as output variables. The findings show that the proposed model can be effectively applied as a useful Road Safety tool capable of identifying risk factors related to the characteristics of the road and great support to the decision making of incident management in Intelligent Transportation Systems.

INTRODUCTION

Motor vehicle accidents kill about 1.2 million people in a year world-wide and the number will grow to more than 2 million in 2020 unless steps are taken; a study released by the World Health Organization (WHO) and the World Bank. [Washington: Article-Traffic accidents becoming one of world's great killers, By Matthew Wald, April 8, 2004]. Any design solution mitigating this kind of individual human behavior cannot be predicted, only some safety rules can be enforced. Also, vehicle factors, related to mechanical behavior of vehicles are not the scope of civil engineering study. Hence, road factors are only considered as part of this study. It is very important for the highway to establish a harmony between all the three factors at the design stage of a highway. With a geometrically good design, it is possible to compensate for the other factors and thus decrease the number of traffic accidents.

Basic Parameters of Highway Geometric

- Speed

Speed is defined as the distance covered per unit time. Since speed of every vehicle is impossible to track on a roadway; therefore, in practice, average speed is based on the sampling of vehicles over a period of time on a particular section of road. Speed is one of the most important factors considered by travellers in selecting alternative routes. The speed of a vehicle on a road depends upon five conditions: physical characteristics of the highway, amount of roadside interference, weather, presence of other vehicles, and the speed limitations in addition to the capabilities of the driver and their vehicles. It is the basic parameter which determines all other geometric features of the highway

- **Cross Section**

Cross section is defined as the number of lanes and lane width including cross fall, shoulder, sidewalk, earth slope and drainage features in the transverse direction of the roadway. The cross section shows the total formation of the road.

- Super elevation

STRENGTH AND DURABILITY PROPERTIES OF CONCRETE WITH PARTIAL REPLACEMENT OF CEMENT WITH METAKAOLIN AND MARBLE DUST

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Abstract — Concrete is a composite material that consists essentially of a binding medium, such as a mixture of Portland cement and water, within which are embedded particles or fragments of aggregate, usually a combination of fine and coarse aggregate. Concrete is used to create hard surfaces that is composed of aggregate bonds and fluid cement that hardens quite quickly. We have different types of special concretes around us, each of these have different applications.

In this study partial replacement of cement has been done at 0%,3%,5%,9%,12%,13% with MK(Metakaolin) and 0%,10%(constant) with MP (Marble Powder). Compressive as well as tensile strength of concrete made with MK-MP has been compared with conventional concrete of grade M30. Durability of concrete was also analyzed with RCMT(Rapid chloride Migration Test). Result shows that there is a gain of strength with the addition of MK and MP. The optimized strength value of concrete was achieved for both compressive as well as split tensile strength at 9%MK and 10%MP.

RCMT shows that with the increase of addition of Metakaolin and Marble powder, there is a decrease in rate of penetration of chloride ions, hence good durability as compared to standard concrete

Keywords — Metakaolin; marble dust; strength; durability; RCMT.

INTRODUCTION

In construction Industry, consumption of cement is increasing day by day as well as cost is also increasing so to reduce the

consumption of cement, partial replacement with Metakaolin and Marble powder was done in this study. Metakaolin is a calcined clay and easily available in Gujarat,

LABORATORY EVALUATION OF BOND BETWEEN BITUMINOUS PAVING LAYERS

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Abstract: This study is an attempt to evaluate the interface bond strength between two types of bituminous layer combinations in the laboratory. The cylindrical specimens have been tested for bond strength at four normal service temperatures, namely 25, 30, 35 and 40 degree C by applying different types of tack coat at varying application rates. The specimens have been prepared using normal Marshall Procedure first for the underlying layer, followed by application of tack coat and finally overlaying with the top layer in the same mould in an appropriate manner. Two types of layer combinations have been tried, namely (i) Bituminous Concrete (BC) layer on Dense Bituminous Macadam (DBM) samples and (ii) Semi Dense Bituminous Concrete (SDBC) layer on Bituminous Macadam (BM) samples. Similarly, different types of tack coat materials namely bitumen, Cationic Rapid Setting with low viscosity (CRS-1) and Cationic Medium Setting with high viscosity (CMS-2) emulsions have been used for the interface bond between the said bituminous layers. The samples thus prepared have then been tested on a specially fabricated attachment (named bond strength device) fixed to the loading frame of the Modified Marshall Testing Apparatus. It is observed that the interlayer bond strength depends on the test temperature and this decreases with increase in test temperature. It is also observed that the bond strength depends on the type of tack coat used and conditions of the type of combinations. The optimum amount of tack coat has been found to vary for tack coat type and layer combination type.

Keywords: Interlayer Bond strength, Tack coat, bituminous layer combination, Bond strength.

INTRODUCTION

Highways are considered to be the backbone of a country's growth and development. All developed as well as developing countries normally have a continuous program of sustaining and building road infrastructures or developing the existing road [1]. To improve the existing road infrastructure in view of increased

traffic is to strengthen the existing pavement layer by overlaying with another layer of appropriate material composition and thickness [2]. The flexible pavement is generally designed and constructed in several layers for effective stress distribution across the pavement layers under the varying heavy traffic loads. The viscous nature of the flexible pavement, allows its

INFLUENCE OF CRUMB RUBBER MODIFIED BITUMEN ON CRUSHING OF RECYCLING AGGREGATES IN HOT MIX ASPHALT

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ABSTRACT

This paper presents preliminary results of a research that investigates the feasibility of using aggregates recycled from civil construction and demolition wastes for manufacturing dense graded hot mixed asphalts (HMA) to be used in highways with low or medium traffic volume. Previous results showed that the tested material meets all Brazilian standard requirements for use in base layers, but it was prone to grain crushing, what is a major concern in the case of HMA. It is supposed that modified asphalt rubber binders might help to mitigate this potential problem. In order to check this hypothesis, several samples were prepared using binders with different amount of crumb rubber (0, 10 and 20%). The compaction energy was also investigated by varying the number of blows (35, 50, and 75) during the Marshall Compaction tests. The results were analyzed in terms of Marshall Degradation Index and show that the particle crushing is reduced with increasing amount of crumb rubber.

1. INTRODUCTION

1.1 GENERAL

Pavement designers have one goal in mind to carry the traffic load smoothly, reliably and cost effectively for a long period of time. We know that in order to accomplish that goal, a pavement has to meet several criteria. It has to distribute the applied load over a wide enough area so that it does not fail the underlying soil support system. It has to be durable to withstand the abrasive nature of the traffic, and environmental conditions. It has to resist damage so that it does not have to be repaired or replaced within a reasonable life span. It needs to be strong. Stone Matrix Asphalt (SMA) is a gap-graded mixture, have a better stone to stone contact which gives better strength to the mixture. In this research work aggregate used as per the MoRTH specification which was taken from a same lot. The samples are made with aggregate with different gradation, filler (cement) and binder (bitumen 30).

Most of the studies reveal that there associated engineering benefits using modified bitumen with sasobit as an additive (called as WMAs) over conventional hot-mix asphalt (HMA). It was also observed from the literature that low temperature mix (SMA) has a better performance that of HMA mixes. Globe efforts are being put forward

to shield our environment from release of harmful gases obtained through HMA. CO₂ is the part of our natural environment however is produced from combustion of coal, gas, and petroleum products. To avoid considerable impact of CO₂ emissions in future on our environment, efforts are made to decrease these harmful gases. The use of stone mix asphalt will able to reduce the release of harmful gases in environment and the use of sisel fiber will protect deploying of natural resources.

1.2 RECYCLE AGGREGATES

The production of demolition and construction waste has been increasing at a gradual rate in recent years. The amount of landfill available to contain this material has been decreasing, and the need to find appropriate disposal locations has been of increasing concern. Recycling programs offer a viable solution. The use of these materials as recycled base course in new roadway construction has become more common in the last twenty years, with some municipalities reporting as much as 400,000 tons of recycled materials used in this manner. Recycled roadway materials are typically generated and reused at the same construction site, providing increased savings in both money and time. It has been speculated that in some municipalities recycled materials costs less to

STUDY EFFECT OF SIZE OF AGGREGATE ON SELF COMPACTING CONCRETE OF M70 GRADE

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ABSTRACT

Concrete is a versatile used construction material and concrete has been accepted as a material for construction, researchers trying to improve its quality and enhance its performance. Recent changes in construction industry demand improved durability of structures. There is a methodological shift in the concrete design from a strength based concept to a performance based design. At present there is a large emphasis on performance aspect of concrete. One such thought has lead to the development of Self Compacting Concrete (SCC). SCC is a new kind of High Performance Concrete (HPC) with excellent deformability and segregation resistance. It can flow through self gravity and fill the gaps between reinforcement and corners of moulds without any need for vibration and compaction during the placing process. certain guidelines for fresh properties of SCC comes by The European Federation of Producers and Applicators of Specialist Products for Structures (EFNARC). The present investigation is aimed at developing high strength Self Compacting Concrete of M70 Grade. The parameters of study include grade of concrete and effect of size of aggregate.

Keywords: CRRI, NPCIL, EFNARC, PCI, IS 456-2000.

BACKGROUND OF THE STUDY

Concrete is the construction material widely used throughout the world. Construction materials used in the industry should be friendly with the environment during its usage. Self-compacting concrete (SCC) is an

innovative concrete that does not require vibration for placing and compaction. It is able to flow under its own weight, completely filling formwork and achieving full compaction, even in the presence of congested reinforcement. The hardened concrete is dense, homogenous and has the

USE OF DEMOLISHED CONCRETE AND BRICK AGGREGATES AS ALTERNATIVE MATERIALS IN VARIOUS PAVEMENT LAYERS

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ABSTRACT:

While use of alternative materials in roadway construction is increasing day by day, many agencies are still reluctant to consider alternative materials as a suitable substitute for materials already being used. This is mainly due to unfamiliarity with the engineering properties of alternative materials and a lack of suitable sources that supply recycled materials. This report will explain the several properties of alternative materials through laboratory testing. Laboratory tests include basic tests on aggregates, Marshall mix design, indirect tensile strength test, Atterberg's limits, compaction test and California Bearing Ratio (CBR) test. Specifically, this report will investigate the strength and moisture-density characteristics of various alternative materials blended with natural aggregates for use as road construction materials.

A feasibility study has been conducted to investigate the possibility of using demolished concrete aggregates and crushed clay brick as aggregates in base and sub base layers respectively. The results showed that the use of demolished concrete aggregates satisfy the basic requirements of base course layer, up to 75 % replacement with virgin aggregates. On the other hand, crushed clay brick aggregates increased the optimum moisture content and decreased the maximum dry density of the sub-base materials compared to those of natural sub base materials. Moreover, the replacement of crushed clay brick increases the optimum moisture content and decreased the maximum dry density. This was mainly attributed to the lower particle density and higher water absorption of crushed clay brick aggregates. The CBR values increases with the replacement level of crushed clay brick aggregates increases.

1. INTRODUCTION

1.1 GENERAL:

Large scale infrastructure road development is being carried out in our country. Due to these developments, natural construction materials like soil, aggregates etc. are getting depleted, forcing the authorities to search for alternative road construction materials. In India there is a pressure to increase the use of option materials in road construction. This reduces the amount of natural aggregates that have to be used and enables the alternative materials to be used constructively instead of being sent to landfill. Civilization also produces waste products. Disposal issue of the waste products is a challenging task. Some of these materials are not biodegradable and often leads to environmental pollution.

It is estimated that the construction industry in India generates about 10 to 12 million tons of waste annually as per 2001 statistics. While

retrievable items such as bricks, wood, metal, tiles are recycled, the concrete and masonry waste, accounting for more than 50% of the waste from construction and demolition activities, are not being currently recycled in India. Recycling of concrete and masonry waste is, however, being done abroad in countries like U.K., USA, France, Denmark, Germany and Japan. Concrete and masonry waste can be recycled by sorting, crushing and sieving into recycled aggregate. This recycled aggregate can be used to make concrete for road construction and building material. The quantity of waste materials is generated from construction activity in India is given in table 1.1.

Table 1.1 Quantities of waste generation in India (2001)

DESIGN OF SHALLOW FOUNDATIONS

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ABSTRACT

Shallow foundation designs are typically governed either by settlement, a serviceability limit state, or by bearing capacity, an ultimate limit state. While geotechnical engineers have been designing against these limit states for over half a century, it is only recently that they have begun to migrate towards reliability-based designs. At the moment, reliability-based design codes are generally derived through calibration with traditional working stress designs. To take advantage of the full potential of reliability-based design the profession must go beyond calibration and take geotechnical uncertainties into account in a rational fashion. This paper proposes a load and resistance factor design (LRFD) approach for the bearing capacity design of a strip footing, using load factors as specified by structural codes. The resistance factors required to achieve an acceptable failure probability are estimated as a function of the spatial variability of the soil and by the level of "understanding" of the soil properties in the vicinity of the foundation. The analytical results, validated by simulation, are primarily intended to aid in the development of the next generation of reliability-based geotechnical design codes, but can also be used to assess the reliability of current designs.

Introduction

General Requirements of Foundations

For a satisfactory performance, a foundation must satisfy the following three basic criteria:

1. Location and depth criterion.
2. Shear failure criterion or bearing capacity.
3. Settlement.

Location and Depth Criterion:

As a general rule, any foundation should be placed at a depth where the soil stratum is adequate from the point of view of bearing capacity and settlement criteria.

Minimum Requirements:

A foundation should be located at a minimum depth of 50cm below natural ground surface.

The foundation must be placed below the zone of volume change, where volume change is expected. For example, in areas where there is expansive soil the foundation should be taken below the active zone.

Foundations for structures in a river have to be protected from the scouring action of the flowing-stream. The depth of foundation for a bridge pier or any similar structure must be sufficiently below the deepest scour level.

PROPERTIES OF STRENGTH AND DURABILITY OF CONCRETE BY PARTIAL REPLACEMENT OF FINE AGGREGATE WITH COPPER SLAG AND CEMENT WITH EGG SHELL POWDER FOR M30 AND M40 GRADE OF CONCRETE

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ABSTRACT

The main objectives of this research were to determine the geotechnical engineering properties of two types of copper slag generated from different copper making operations and to assess their potential use in subgrade stabilization and embankment construction. Samples of fresh and aged basic-oxygen-furnace (BOF) slag and of fresh electric-arc-furnace-ladle (EAF(L)) slag were characterized through a series of laboratory tests (specific gravity, grain-size analysis, X-ray diffraction, compaction, maximum and minimum density, large-scale direct shear, consolidated drained triaxial and swelling tests). The effects of gradation on the engineering properties of both fresh and aged copper slag samples were also investigated. Various mixtures of copper slag [BOF and EAF(L)] and Class-C fly ash were also investigated. The mixtures were prepared by adding 5 and 10% Class-C fly ash (by weight) to aged BOF slag and 5, 10 and 20% Class-C fly ash (by weight) to fresh EAF(L) slag. Unconfined compression tests were performed after various curing times to evaluate the strength gain characteristics of the mixtures. Long-term swelling tests were performed for compacted mixtures of both fresh and aged BOF slag and 10% Class-C fly ash (by weight) and for compacted mixtures of fresh EAF(L) slag and 5, 10 and 20% Class-C fly ash (by weight). The effect of adding 10% ground rubber (by weight) to fresh and aged BOF slag on the long-term swelling behaviour of the mixtures was also investigated. The optimum moisture content and maximum dry unit weight of BOF slag were in the ranges of 4-8% and 19.5-21.8 kN/m³, respectively. The critical-state friction angle of fresh and aged BOF slags was in the 45.3°- 48.1° range according to large-scale direct shear test results. Based on isotropically consolidated drained triaxial test results, the peak friction angles of aged BOF slag

STUDY ON STRENGTH OF CONCRETE USING ROBO SAND AS A PARTIAL REPLACEMENT OF FINE AGGREGATE

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ABSTRACT

Concrete is widely used material in the world. Based on global usage it is placed at second position after water. Natural river sand which is one of the constituents used in the production of conventional concrete has become highly expensive and also scarce. Sand is basic concrete making construction material required in large quantities. Robo sand is one among such materials to replace river sand, which can be used as an alternative fine aggregate in mortars and concrete. In this present research work, M20 and M30 grades of concrete are used as reference mixes. The fine aggregate (natural sand) was replaced with percentages 0% (for conventional concrete mixture), 20%, 40%, 60%, 80% and 100% of robo sand by weight and tests were conducted on the properties of fresh and hardened concrete. Slump-cone test, Compaction factor test and Vee-Bee Consistometer tests were performed to evaluate the workability characteristics of fresh Concrete. Compressive strength, Flexural strength and Split tensile strength were determined at the age of 7, 28, 56 and 91 days respectively. The results indicate that workability decreases with increase in robo sand percentage which is due to the high water absorption capacity of robo sand. The compressive strength is observed to be increasing up to 60% replacement of robo sand and then decreased. Similar correlation was observed in both split tensile strength and flexural strength.

Keywords: Robo sand, Natural Sand, Concrete, Mortar, Replacement, Compressive Strength, Split Tensile Strength, Flexural Strength.

BACKGROUND OF THE STUDY

Concrete is a compound material made from cement, water, fine aggregate and coarse aggregate. But present researchers are in

significance of finding new concrete by using different alternative materials or products produced from industries which are harmful to atmosphere. An attempt has been

STUDY OF MECHANICAL PROPERTIES OF CONCRETE WITH DOUBLE BLENDING OF FLY ASH

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Abstract - The industrial by-products used as cement replacement materials were ground granulated blast furnace slag, silica fume.. Lot of works focus on the supplementary cementations materials used as cement replacement material in concrete. In addition we add sisal fiber for increase the tensile strength of concrete .The limited studies that had been carried out show that the GGBS, silica fume was used as cement replacement material in concrete. Limited studies had been carried out on the durability studies of concrete using GGBS, silica fume, Sisal fibre. In the test we mix conventional concrete with GGBS in three proportions (45%.55%,65%) and Conventional concrete with silica fume in (5%,10%,15%)And we get the optimum value of these two cementations material of GGBS, Silica fume and finally we blend with sisal fiber at (1%) then find out the maximum strength of double blend concrete then conventional concrete.

Key Words: Cement, GGBS, Silica Fume, Sisal Fibre, Double Blend Concrete

INTRODUCTION

Nowadays high-strength and high-performance concrete are widely used throughout the world and to produce them it is necessary to reduce the water/binder ratio and increase the binder content. Super plasticizers are used in these concretes to achieve the required workability; moreover, different kinds of cement replacement materials are usually added to them because a low porosity and permeability are desirable. Mineral admixtures such as ground

granulated blast furnace slag (GGBS), fly ash and silica fume are commonly used in concrete because they improve durability and reduce porosity; improve the interface with the aggregate. Economics (lower cement requirement), energy and environmental considerations have had a role in the mineral admixture usage as well as better engineering and performance properties. The lower cement requirement also leads to a reduction for CO₂ generation by the production of cement. Granulated blast-furnace slag is a by-product in the manufacture of pig iron and the