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Study on Compressive Strength Properties of Concrete Using Aluminium Powder and Steel Fibers

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Abstract- The purpose of this work is to investigate the compressive strength of concrete by including aluminium powder and steel fibres. For this reason, aluminium powder was used to partially replace the cement, and steel fibres were used to partially replace the coarse aggregates. The aluminium powder when comes in contact with the cement particles tend to react with the calcium hydroxide present in the cement to produce hydrogen gas which is responsible to give a cellular kind of matrix to the concrete making it light in weight as compared to the conventional concrete which is helpful in reduction of the dead load of the structure. On the other hand, the steel fibers provide resistance to cracking in the concrete improving its ability to withstand high impact loading improving the strength and durability of the concrete. The main objective of this work is to utilize the waste product in to the concrete to improve its engineering properties. Replacement of aluminium powder and steel fibers 1% and 0.5% by weight of cement and coarse aggregate respectively. The result obtained shows that the aluminium powder and the steel fibres improve the workability and the compressive strength of the concrete.

Keywords: aluminium powder, steel fiber, lightweight concrete

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Urban Disaster Monitoring and Management based on Remote Sensing and GIS Methods

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ABSTRACT Disasters, whether natural or man induced have increased during the last decades in frequency all over the globe threatening a huge population within varied backgrounds. Over the years, remote sensing technologies have been functional in various disasters such as droughts, earthquakes, tsunamis, cyclones, etc. Its large area coverage capacity and observation repeatability makes its application cost effective. This paper tries to give the fundamental contributions and role of geographic information systems and remote sensing in disaster management applications. As an overview, it examines some recent practical application in disaster events. It also tries to look at some measurement characteristics and systems that have been applied to some disaster events within the disaster management framework and technologies. These various techniques and roles of remote sensing and geographic information systems in urban disaster monitoring and controlling, extends to disaster risk management using some sensors and satellites of emerging technologies. This discussion summarises in a single paper some of the many current techniques remote sensing and GIS employ in urban disaster management. Lessons from events can be drawn and implemented in similar scenarios to save lives and property.

Keywords: Natural disasters; Satellite and Sensors; Disaster Risk Management; Disaster Preparedness; Systems; Urban Disaster sustainability

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Techniques of Ground Improvement and Its Applications

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ABSTRACT: It is due to rapid growth of population, fast urbanization and more development of infrastructures like buildings, highways , railways and other structures in recent past years has resulted in reduction of availability of good quality of land. Therefore engineers have no choice left except to use soft and weak soils around by improving their strength by means of suitable modern ground improvement techniques for construction activities. At present the available ground improvement techniques are replacement of soil, vertical drains, stone columns, vibro compaction , dynamic compaction, soil reinforcement, vibro piers, in-situ densification, pre-loadings, grouting and stabilization using admixtures. The aim of these techniques are to increase the bearing capacity of soil and reduce the settlement. Ground improvement by reinforcing the soil is achieved by using fibers of steel, glass ,various polymers in the form of strips or grids and geosynthetics. Geosynthetics may be permeable or impermeable in nature depending on composition and its structure. The geosynthetics material can be used to perform different roles in different applications. It can be used as reinforcement, separation, filtration, protection , containment and confinement of soil to increase its bearing capacity. Depending upon the requirement and site condition a Geocell reinforcement may also be used. This paper presents a thorough study on various available modern ground improvement techniques and their applications in civil engineering in present scenario. On the basis of long term performance results of various ground improvement techniques and its analysis, an efficient design can be developed and a suitable method of ground improvement technique may be adopted for a particular application.

KEYWORDS: Geosynthetics, vertical drains, stone columns, vibro-compaction, dynamic compaction, soil reinforcement.

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CRACKS IN REINFORCED CONCRETE BEAMS OF RECTANGULAR CROSS-SECTION

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Abstract. The evaluation of stress state of longitudinal tensile reinforcement is highly important while examining the technical state of under-reinforced concrete structures. The appearance of yield stress in tensile reinforcement could be treated as the start of incipient failure of the flexural structure. The state of tensile reinforcement of flexural reinforced concrete structures could be examined by observing the properties of normal cracks. This paper presents the analysis of the relationship between various parameters of a normal crack during its development. Some elements of fracture mechanics are used for analysis of stress state in flexural reinforced concrete members. The analytical data are compared to the experimental results, and the adjustment functions are proposed for flexural beams of certain cross section shape, dimensions and reinforcing ratio.

Keywords: reinforced concrete; cracks; stress; strain; flexural beams; reinforcement.

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Improving the Strength of Existing Building Using Retrofitting Techniques

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Abstract:

Now-a-days retrofitting is becoming popular around the world, as most of the important structures like historical building or some other old structures which becomes weak over the time. Retrofitting is the best method to make safe the existing structures from the future earthquake and other environmental factors. Retrofitting [illegible] the helpless [illegible] to a current structure [illegible] future [illegible] It plan to reinforce a structure to fulfil the necessities of the present code for seismic outline. With respect to conventional repair and rehabilitation, retrofitting is much better and convenient. Retrofitting helps to enhance the strength, [illegible] and overall life span of the structure.

Keywords — Retrofitting, Building, Strengthening.

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(UGC Care Group I Listed Journal)

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STRUCTURAL HEALTH MONITORING TECHNIQUES

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ABSTRACT

Structures are normal or special; these are precious part and are promptly associated with living as well as non living things. Sometimes minute fault inside the structure might affect whole body and it would lead to collapse the structure which might create a significant loss of property and human beings too. So, increased awareness of structural Health Monitoring Techniques (SHM) gives an idea and remedies for the concerned defect due to aging, deterioration and fault during construction. Previous day's people used just a visual inspection for defect detection but extreme and worst damage in infrastructure leads to invent new technologies for the recognition of new methods on Structural Health Monitoring as a damage detection tools. Different kind of sensors is linked with computer system along with special hardware and software which gives the signature and helps to point out the risk zone. This paper emphasis on wired and wireless techniques under which several sub techniques like Impedance-Based, Nondestructive Evaluation using vibration signature, Limit strain measurement, Data fusion method, Inverse method etc studied and their comparative study on the performance based approach for the infrastructure like Building, Bridges, Towers are noted which most likely concerned with civil infrastructure. This paper mainly emphasis on the presence of different SHM Techniques briefly on one paper which might give access for knowing it in a glance.

KEYWORDS: Structural Health Monitoring (SHM), Wired Technique, Wireless Technique, Computer System, Software, Risk Zone

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Bridges and Precast Structures study on Special Concrete with Conventional Concrete

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Abstract - *India is a progressing country and there is immense development in construction field. Transportation sector plays vital role in socio-economic development of country. One of the most emerging constructions in transportation sector in India is bridges and elevated viaducts construction. The main objective of this paper is to grant more durability, strength, economy and sustainability to bridge and precast concrete structure. This paper discusses the comparative study of normal concrete and special concrete and determines the suitability of concrete for bridges and other precast units. Special concrete is addition of special ingredients (micro silica, poly-propylene fiber and bacillus subtilis) to conventional concrete ingredients. These special ingredients enhance the various engineering properties of concrete and fulfill the strength and durability parameters of bridges. The effect of compressive strength, water permeability and tensile strength of concrete cubes after mixing all these special ingredients is also discussed in this paper. Different cube specimen of special and conventional concrete were tested for various test and it was found that special ingredient concrete works significantly better in improving the characteristics properties of concrete as compared with conventional normal concrete.*

Key Words: **Concrete, Strength, Durability, Cracks, Bridge.**

lifespan of concrete. This paper discusses the formulation of special type of concrete by using special ingredients such as micro silica, poly-propylene fiber, and bacillus subtilis (Bacteria). The comparative effect of water permeability test, compressive strength test, and tensile strength test of cement concrete cubes of both special and conventional concrete are discussed in this paper. It was found that bacillus subtilis seals the cracks forms in concrete and improve the stiffness of structure, micro silica increases the compressive strength of concrete and poly-propylene fiber enhance the integrity of concrete structure.

2. OBJECTIVES

1) To Study the properties and effects of special ingredients in concrete.

2) To Carry out the Comparative study between Special and normal Conventional Concrete.

3) To determine the optimum proportion of Special ingredients and formulate the Special Concrete.

4) To enhance the Strength, Durability and Serviceability of Bridges and precast Structures.

3. MATERIAL AND METHODS

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Self-Compacting Concrete using Fly ash and Fibers

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Abstract- Self compacting concrete is a relatively invention in concrete and the addition of fibers to it shows improved strength properties. Several studies has been done on self compacting concrete with fiber addition. In this work, an attempt has been made to make glass fiber and polyester fiber self compacting concrete(FRSCC). FRSCC mixtures had a cement replacement of 25% fly ash and addition of glass fiber and polyester fiber at 0.05%, 0.10%, 0.15% and 0.2% on total volume of mix. For testing its properties in the fresh state, slum-flow test, L-box and V-funnel were used. Compression (strength of 7 and 28 days), flexural and split tensile strength tests were carried out.

Key Word- Fly ash,Glass fiber, polyester fiber, Self compacting concrete, Super plasticiser

the mix. A study has been done on the compressive, flexural and split tensile strength with these various mixes.

Fly ash is an industrial by-product, generated from the combustion of coal in the thermal power plants.The increasing scarcity of raw materials and theurgent need to protect the environment againstpollution has accentuated the significance ofdeveloping new building materials based on industrial waste generated from coal fired thermal powerstations creating unmanageable disposal problems due to their potential to pollute the environment. Fly ash,when used as a mineral admixture in concrete.improves its strength and durability characteristics.Fly ash can be used either as an admixture or as apartial replacement of cement. It can also be used a partial replacement of fine aggregates.

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INCORPORATING PLASTIC BAG WASTE INTO CONCRETE MIXES FOR SUSTAINABLE CONSTRUCTION

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ABSTRACT

The customary plastic bag is presently essential for our day by day lives. It's anything but a criticalwellspring of contamination and hurtful to the climate. Billions of bags are tossed day by day in nature. Apparently reusing isn't beneficial according to perspective of biological and financial, lightweight to be moved and reusing, burn-through a larger number of assets than it would reestablish.

The serious issues brought about by the presence of plastic waste in landfills, in metropolitan and field regions, force a worry of expanding scale for reasons of cleanliness and climate. The pressuredriven cement is a material somewhat close, solid waterproof dormant and minimized, which can decrease the impact of the temperature and forestall pollution of the encompassing living climatefrom hurtful impacts of plastic.

In this setting it was considered suitable to remember for the organization of common substantial components of destroyed plastic waste bag (LDPE), with differing rates of replacement of the granular skeleton, as a procedure for recuperation and valorisation by the lower cost procédure.

A test examination needs to completed to consider the presentation of the M25 grade concrete with the inclusion of plastic bag squander (LDPE) the properties like workability and compressive strength of concrete has researched.

KEY WORDS: plastic bag wastage, compression strength, workability, split tensile strength

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STRUCTURAL ANALYSIS AND DESIGN OF A G+3 RESIDENTIAL BUILDING

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ABSTRACT

In order to compete in the ever-growing competent market it is very important for a structural engineer to save time. As a sequel to this an attempt is made to analyze and design a multistoried residential building by using a software package STAAD.Pro. For analyzing a multi storied building one has to consider all the possible loadings and see that the structure is safe against all possible loading conditions. The present project deals with the analysis and design of a multi storied residential building of G+3. The dead load, live loads and wind loads are applied and the design for beams and columns is obtained STAAD.Pro with its new features surpassed its predecessors and compotators with its data sharing capabilities with other major software like AutoCAD.

Keywords: STAAD. Pro, dead load and live loads and wind loads, Multi-storey building, AutoCAD, Concrete mix.

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MULTISTORIED RESIDENTIAL BUILDING ANALYSIS AND DESIGN WITH E-TABS

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ABSTRACT: Structural design is the primary aspect of Civil Engineers and its analysis is backbone of Civil Engineering. The improper analysis and design leads to failure of structure resulting loss of life. To perform accurate analysis, the structural engineer is able to analyze the structure considering different constraints like to satisfy the serviceability and deformability etc., by following IS codes. Though conventional method is still practicing, our technology is upgrading equally or even more based on latest softwares due to time parameter.

Key Words; Analysis ,Design ,storey Drift, Storey Displacement, Analysis ,E-Tabs

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EXPERIMENTAL INVESTIGATION ON CONCRETE BRICK PREPARATION USING FLY ASH AND COCONUT SHELLS

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ABSTRACT

Most of the building material for construction of houses is the normal brick. The rapid growth in today's construction industry has obliged the civil engineers in searching for more efficient and durable alternatives far beyond the limitations of the conventional brick production. This project presents the experimental investigation of partial replacement of coconut shells as coarse aggregate and fly ash as replacement of cement in the preparation of concrete bricks. In this study M10 grade of concrete was made for concrete bricks. Concrete mix of 5%, 10%, 15%, 20% and 25% replacement of coconut shell as coarse aggregate and constant replacement of 25% of fly ash were made. The brick specimen was Casted a size of 190mm x 90mm x 90mm and the Shape and size test, Compression test, water absorption test, fire ignition, Soundness test, drop test, Efflorescence test, Colour test and Structure test were conducted to analyze their suitability as a construction material.

Keywords: M10 grade of concrete, fly ash, coconut shells, Shape and size test, Compression test, water absorption test, fire ignition, Soundness test, Drop test, Efflorescence test, Colour test, Structure test.

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UTILIZING E-WASTE AND MARBLE DUST IN CONCRETE: EXPERIMENTAL STUDY AND ANALYSIS

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ABSTRACT

The work was conducted on M20 grade mix. The replacement of coarse aggregate with E-waste in the range of different percentages (0%, 5%, 10%, 15%, 20%, 25%, 30%, 35%) and 15% replacement of cement with marble dust. Finally, the fresh and harden properties of concrete mix specimens obtained from the addition of these materials are compared with control concrete mix. The test results shows that a proper improvement in compressive strengths were achieved in the E-waste and marble dust concrete compared to conventional concrete and can be used effectively in concrete. The reuse of E-waste leads in waste reduction and resources conservation.

Keywords: Ewaste (Electronic waste), M20 grade mix, marble dust, compressive strengths.

RES MILITARIS

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ANALYSIS OF PERVIOUS CONCRETE PROPERTIES WITH RICE HUSK ASH AND POLYPROPYLENE FIBERS: AN EXPERIMENTAL INVESTIGATION

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ABSTRACT

A unique variety of concrete called pervious concrete has little-no fine aggregate. It is a solution to problems with water logging and to lessen runoff from paved surfaces. Its strength is less than that of conventional concrete, hence admixtures are required to boost strength and durability without lowering permeability. In this study, experimental research was done to examine the effects of replacing a portion of the cement with ricehusk ash at percentages of 0%,5%,10%,15%, and 20% and the optimum Percentage of RiceHusk Ash is the varied the addition of Polypropylene Fibres with certain percentages of 0.5%,1%,1.5%. The ACI Method was used to create the mixes.Water Cement ratio of 0.35 was adopted based on the Trial Method. Flexural strength Test, Compression Test, Split Tensile Test, Permeability, Porosity, Sorptivity, Acidity Alkalinity test and RCPT are among those conducted. The results indicated that for the compressive strength test, split tensile test and flexural test 10% of rice husk ash provides the Optimum results. Addition of Polypropylene Fibres at 1% by weight of cement Gives the Optimum Result in Mechanical tests and Acceptable durability were obtained based on ACI-522.

INTRODUCTION

Cement, water, coarse aggregate, and little to no fine aggregate make up pervious concrete. Rapid population increase may encourage the use of pervious surfaces like parking lots and sidewalks. The ground water table rises as a result of pervious surfaces. By allowing rainwater to seep into the earth, it is an eco-friendly way to satisfy demands. The vacancy content of pervious concrete ranges from 15% to 35%.Floods can be avoided by allowing runoff water to escape via the pores in pervious pavement, which also makes the problem of water logging simple to resolve. Although it has a higher permeability value than traditional concrete, its strength is lower. Long-term use of pervious concrete is a difficult undertaking since performance may decline. Pozzolanic materials are utilised to boost

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EXPERIMENTAL STUDY ON SOIL STABILIZATION USING RICE HUSK ASH

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ABSTRACT

The rice husk ash is mixed with soil in various proportions like 5%, 10%, 20%, 30%, 40% & 50%. The different tests were conducted in order to determine the different characteristics and properties of the red soil and obtained with following results. The liquid limit of the soil with addition of rice husk ash was found to be decreasing when compared to liquid limit of soil alone. The plastic limit of the soil increased with the addition of rice husk ash. The MDD of the soil with addition of rice husk ash by weight of soil is found to be decreases and the corresponding OMC is increased with addition of rice husk ash.

Keywords: Liquid limit, Plastic limit, Standard Proctor Test, OMC(optimum moisture content), MDD(maximum dry density)

RES MILITARIS
Social Science Journal

ENHANCING STRENGTH OF PLAIN CEMENT CONCRETE BEAMS WITH FIBER REINFORCED POLYMER COMPOSITES

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ABSTRACT

A great deal of investigation is now being directed around the globe into the utilisation of fibre reinforced polymer wraps, coverings, and sheets in the upkeep and fortification of built up huge people. Fiber-reinforced polymer (FRP) treatment has shown to be a very effective method of repairing and reinforcing buildings that have become mainly weak over time. In comparison to traditional repair systems and conventional materials, FRP repair systems provide a financially viable alternative. The flexural and shear behaviour of conventional beams strengthened with consistent glass fibre reinforced polymer (GFRP) sheets has been studied. Using a balanced two-point method, remote-built cement footers with epoxy-reinforced GFRP sheets were tested to failure. For this experimental test programme, three sets of samples were cast. In SET I, three cubes with weak flexure were cast, one as a reference sample and the other two as flexure reinforcement utilising continuous glass fibre reinforced polymer (GFRP) sheets. In SET II, three shear-weak cylinders were casted, one of which was controlled and the other two were strengthened in shear using continuous glass fibre reinforced polymer (GFRP) sheets. In SET III, three flexure-weak prisms were cast, one of which was the controlled beam and the other two were strengthened in the flexure using glass fibre reinforced polymer (GFRP) sheets. The samples are strengthened or repaired using different amounts and combinations of GFRP sheets and resins. In addition, twelve cylinders are cast, one set of which is a control cylinder and the other three sets of which are retrofitted with glass fibre reinforced polymer (GFRP) sheets and tensile strength evaluated.

The load, deflection, and failure modes of each of the beams were all measured in the lab. The process and use of GFRP sheets for reinforcing RC beams are also covered in great depth. The impact of the quantity of GFRP layers on the ultimate load bearing capability and failure mechanism of the beams is discussed.

A great deal of investigation is now being directed around the globe into the utilisation of fibre reinforced polymer wraps, coverings, and sheets in the upkeep and fortification of built up huge people. Fiber-reinforced polymer (FRP) treatment has shown to be a very effective method of repairing and reinforcing buildings that have become mainly weak over time. In comparison to traditional repair systems and conventional materials, FRP repair systems provide a financially viable alternative.

The flexural and shear behaviour of conventional beams strengthened with consistent glass fibre reinforced polymer (GFRP) sheets has been studied. Using a balanced two-point method, remote-built cement footers with epoxy-reinforced GFRP sheets were tested to failure. For this experimental test programme, three sets of samples were cast. In SET I, three cubes with weak flexure were cast, one as a reference sample and the other two as flexure reinforcement utilising continuous glass fibre reinforced polymer (GFRP) sheets. In SET II, three shear-weak cylinders were casted, one of which was controlled and the other two were strengthened in shear using continuous glass fibre reinforced polymer (GFRP) sheets. In SET III, three flexure-weak prisms were cast, one of which was the controlled beam and the other two were strengthened in the flexure using glass fibre reinforced polymer (GFRP) sheets. The samples are strengthened or repaired using different amounts and combinations of GFRP sheets and resins. In addition, twelve cylinders are cast, one set of which is a control cylinder and the other three sets of which are retrofitted with glass fibre reinforced polymer (GFRP) sheets and tensile strength evaluated.

The load, deflection, and failure modes of each of the beams were all measured in the lab. The process and use of GFRP sheets for reinforcing RC beams are also covered in great depth. The impact of the quantity of GFRP layers on the ultimate load bearing capability and failure mechanism of the beams is discussed.

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ANALYZING THE INFLUENCE OF BLENDED FIBERS ON THE PROPERTIES OF GEOPOLYMER CONCRETE: A COMPATIBILITY STUDY

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ABSTRACT

The most versatile, reliable, and long-lasting building material in the world is concrete. After water, concrete is the material that is used the most frequently, and it uses huge amounts of Portland cement. Since the greenhouse effect generated by CO2 emissions produces an increase in global temperature, which may lead to climate change, it is a problem for sectors, including the cement business. Reducing the amount of cement used in concrete by substituting Geopolymer for cement is one effort to produce more environmentally friendly concrete. The most prospective green and environmentally sustainable cement substitute is geopolymer concrete (GPC). Fly ash and alkaline solutions like sodium hydroxide (NaOH) and sodium silicate (Na_2SiO_3) are used to create the binder necessary to create geopolymer concrete, which is made without the use of cement. Concrete is fragile, lacks flexural strength, and is only moderately strong in compression. It is weak in tension.

By adding randomly positioned discrete fibers to the concrete matrix, it is possible to change the concrete's performance and make it more ductile. This enhances the concrete's properties when it has hardened, such as flexural toughness, flexural strength, ductility, impact strength, and tensile strength, as well as its ability to avoid or regulate crack initiation, propagation, and coalescence.

In concrete, microfracture develops as a result of the use of steel fibre, load, andenvironmental changes. Recron-3s is a discrete, discontinuous, short polypropylene monofilament fibre that may be utilised in concrete to regulate and arrest cracking. Concrete's bleeding, plastic settlement, heat and shrinkage strains, and stress concentrations caused by external restrictions are all greatly reduced when steel and polypropylene are added.

In the present study the strength of M30 grade Geopolymer concrete is investigated through by addition of various proportions of steel and polypropylene (Recron- 3s fiber) and also intended to show the optimum dosage of steel and Recron 3S. The results had shown overall considerable improvement in the mechanical properties of concrete like compressive strength (CS), tensile strength (TS), Flexural strength (FS) and Durability test. In addition to the effect of both steel and polypropylene fibers influence individually and in combine on

DESIGN AND ANALYSIS OF PLASTIC ROAD CONSTRUCTION

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ABSTRACT

The traffic pattern has changed since then and so has the technology. The volume of tandem, tridem and multi-axle vehicles has increased manifold and heavier axle loads are common. Since pavements are constructed as per the standards and specifications of design, which may not serve for the design period efficiently, safely, and economically due to early deterioration of materials with different properties. Now a days, the steady increment in high traffic intensity in terms of commercial vehicles, and the significant variation in daily and seasonal temperature put us in a demanding situation to think of some alternatives for the improvisation of the pavement characteristics and quality by applying some necessary modifications which shall satisfy both the strength as well as economical aspects. Also considering the environmental approach, due to excessive use of plastic in day-to-day business, the pollution to the environment is enormous. Since the plastic are not biodegradable, the need of the current hour is to use the waste plastic in some beneficial purposes. It is generally known that failure of asphalt pavement is due to fatigue cracking and rutting deformation, caused by excessive horizontal tensile strain at the bottom of the bituminous layer and vertical compressive strain on top of the subgrade. This presented study aim at expanding the scope of pavement design by Plastic modified bitumen and subjecting them to analysis using the software IITPAVE. In this study a road stretch is selected around Palwancha and engineering properties of subgrade soil has been studied.

Keywords: Tandem, tridem and multi-axle vehicles, IITPAVE.

1. INTRODUCTION

1.1 General

A flexible pavement structure is not easily amenable to accurate structural analysis because the materials forming the pavement layers and the subgrade soil supporting the pavement are exhibiting non-uniform properties. The various factors to be considered for the design of pavements are wheel load, subgrade soil properties, climatic factors, stress distribution characteristics of pavement component materials and environmental factors. Pavements are constructed as per the given guidelines by considering various parameters. It is generally known that failure of asphalt pavement is due to excessive strain and plastic deformation at critical locations. Rutting is the permanent deformation in pavement usually occurring longitudinally along the wheel path. The rutting may partly be caused by deformation in the subgrade and other non bituminous layers which would reflect to the overlying layers to take a deformed shape. fatigue cracking is conventionally considered as a 'bottom-up cracking' phenomenon, the

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ANALYZING THE PERFORMANCE OF REINFORCED CONCRETE WITH GLASS FIBERS: A STUDY

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Abstract— Fibre Reinforced Concrete is a composite material consisting of mixtures of cement fine and coarse aggregates and discrete discontinuous randomly dispersed suitable fibres such as steel fibres glass fibres and natural fibres etc., used in civil engineering and other applications. Fibre is a small piece of reinforcing material possessing certain characteristics properties. They can be circular or flat. Conventional concrete has poor tensile strength so its capacity to absorb energy is limited. By strengthening the cement concrete matrix with reinforcing fibrous materials the weakness in the tension zone can be overcome. Compressive strength Tensile strength and Young's modulus of the materials can be improved by the usage of fibres in concrete. The concrete is porous and the porosity is due to water-voids and air-voids. Due to presence of voids naturally strength of the concrete reduces. The addition of Glass fibres to the cement concrete matrix gradually increases the strength. GFRC has advantage of being light weight and thereby reducing the overall cost of construction ultimately bringing economy in construction.

In the present work, 36 specimens were casted and the tests were conducted for compressive strength and split tensile strength for M30 grade concrete mix where the concrete was reinforced with different percentages i.e. 0%, 0.5%, 1%, 1.5%, 2% and 2.5% of Glass fibres by the volume of cement and strengths were found out for 7, 14 and 28 days respectively.

I.INTRODUCTION:

Cement concrete is a well-known construction material in the field of civil engineering and it has a several desirable properties like high compressive strength, stiffness, durability under usual environmental Conditions. At the same time concrete is brittle and possess a very low tensile strength. It is having widespread application and it gives strength at a comparative low cost. The disadvantage of cement concrete is the emission of carbon-di-oxide gas during the production of cement clinker. Concrete has some deficiencies like low tensile strength, a low strain at facture, low post cracking capacity, brittleness and low ductility, limited fatigue life and low impact strength. From many researches it has been shown that, reinforcing concrete in tensile one or in both zones can yield a composite of good compressive and tensile strength. But in order to obtain ductility and durability the cracks should be minimize. The presence of cracks is responsible for weakness of cement concrete. This weakness can be removed by the addition of fibres in the concrete mixture and it increases its toughness or ability to resist the crack and also develops tensile strength and flexural strength. Such a concrete is called as fibre-reinforced concrete.

1.1 Fibre Reinforced Concrete

Fibre reinforced concrete is a composite material comprising of mixture of concrete mortar or cement mortar with discrete, discontinuous, uniformly dispersed appropriate fibres. The addition of fibre to the concrete makes its components tough and ductile. Already many type of fibres been used in concrete but not all the fibres can be used efficiently and economically. Each and every type of fibres has its own properties and boundaries. Addition of fibres into cement concrete not only increases the tensile and flexural strength but also minimizes the cracks. The characteristics like toughness and impact resistance can be improved by addition of fibres to the concrete have been shown by many researchers. Fibres include steel fibres, glass fibres, synthetic fibres and natural fibres. Fibres of various shapes and sizes produced from steel, plastic, glass and natural material are being used. Principles of Fibre Reinforced Matrix

When a load is applied on a body which consist of a fibre embedded in a surrounding matrix, the fibre contributes to the load carrying capacity of the body when the load is transmitted through the fibre ends.The fibre reinforced matrix is essential to fulfil the following functions.

a) The load transfer generally uses as a result of different physical properties of the fibre and matrix. The incorporation of fibre into brittle cement matrix increases the fracture toughness of the compound by crack arresting process As fibre have large

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DEPLOYING ZIGBEE-BASED WIRELESS HOME SECURITY SYSTEM

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ABSTRACT:

Now a days, Home Security threat is the most challenging task in our life. To overcome this threat, our houses must be Smart. This paper gives a solution to overcome the Home security threat. Using Zigbee network enabled digital technology, we can make our home Smart and secure. The technology gives us the opportunity to increase the connectivity of various devices hence we can get an overall security solution. Moreover, as the area of Internet is widening, we can remotely control and monitor the network enabled devices. The device can also send signal to the remote person whom we want to notify about the threat. Common gateway is used by both the Zigbee security system and Wi-Fi network for integration purpose. The use of this system would be user-friendly, flexible and cost effective. This system will based on Zigbee network. Hence, the hardware required would be Zigbee Modules, Micro-Controller (ATMEGA168), Relays, Voltage Regulator and various sensor devices. In this method, The sensors will sense the threat and send signals to the micro-controller through Zigbee network and the micro-controller would take appropriate action and send signal to the remote location on the reception of threat signals. Zigbee technology is simple, flexible and very reliable to use. It is broadly used transceiver standard. It has low data rate and consume low power. It's operational range is in between 10 meters to 20 meters but can be extended upto 150 meters by the use of direct sequence spread spectrum (which is quite well for the purpose of a home).

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DESIGNING A POWER-EFFICIENT MINI INVERTER

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ABSTRACT:

Inverters are extensively used in both residential and commercial settings to serve as a backup power source in the event of a power outage from the utility grids. In the case of a power outage, an inverter powers the electric equipment. As the name suggests, an inverter converts AC to DC to charge the battery before inverting DC to AC to power the electronic devices. So here is a power efficient converter that is compact in size and can provide an output voltage of 220v-230,150w. This energy-efficient mini inverter can be used to power items such as WiFi networks, mobile charges, lights, and so on.

Key Words: Transformer, Inverter, AC Load etc.

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DESIGNING A MICROCONTROLLER-BASED LINE FOLLOWER ROBOT

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ABSTRACT:

The development of technology in the field of robotics is very fast, but in the eastern regions of Indonesia, namely, the development of the development has not yet felt the impact. Especially in the Universitas Islam Sultan Agung learning media devices for microcontrollers are also not yet available. Therefore the author wants to pioneer by implementing the simplest robot design, the line follower robot, where the robot only goes along the lines. This study uses an experimental method, by conducting a research process based on sequences, namely: needs analysis, mechanical chart design, electronic part design, and control program design, manufacturing, and testing. The line follower robot based on the ATmega32A microcontroller has been tested, and the results show that the line follower robot can walk following the black line on the white floor and can display the situation on the LCD. But this line follower robot still has shortcomings in the line sensor sensitivity process depending on a certain speed. At speeds of 90-150RPM, the line follower robot can follow the path, while more than 150 rpm, the robot is not able to follow the path.

Keywords— line follower robot, microcontroller.

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ADVANCEMENTS IN HIGH-TECH AGRICULTURE SYSTEM IMPLEMENTATION

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ABSTRACT:

Irrigation system in India has given a highest priority in economic development. Many new concepts are being developed to allow agricultural automation to increase and deliver its full potential. To take full advantage of these technologies, we should not just consider the implimentation of developing a new single technology but should look at the vast issues for complete development of a system. Usage of Hi-tech Agricultural Solar Fence Security with soil Humidity Based Automatic water system and voice alert on PIR live Human Detection is been actualized in this undertaking for protected and secure agriculture water system. Additionally it diminishes human endeavors. Electric wall can be utilized to ensure farmhouses, farmlands, woodland, bungalows, and so on... from animals. In this way, these simulate the job of forest guard. Already popular in many countries where manpower is expensive, electric fences are slowly getting popular in India as well. This control an animal by giving them a minor, sharp and safe shock that teaches them to stay away from the fence as well as crops. Hence Electric fences are economical and practical solutions to maximize the field production through controlled grazing. Electric fencing is safe as its output is not continouse. There is a certain time duration between two pulses which prevents prolonged shocking to animals or people as well.

Keywords: Solar panel, AT MEGA 328 microcontroller, DC motor, fence circuit, sensors.

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ENERGY-EFFICIENT WATER PUMP CONTROL WITH FOUR-TIME SLOT AUTO TURN-OFF

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Abstract - Nowadays the modern technologies are helpful in all aspects of our life. Due to this lots of development done in the field of agricultural. The solar energy converted into electrical energy by photo voltaic cells. This energy stored in batteries during the day time to run the water pump for agriculture and distribute the water to the farm. The project is designed to operate the water pump at four different time slots. It prevents the difficulties of switching the pump on off manually. Real time clock interfaced to Arduino then Arduino give command to the corresponding relay to start the load and another command to switch off the load is programmed by the user. A matrix keypad helps to entering different time slots. Switching the pump ON OFF manually these difficulties can be overcome using this project. There be an inbuilt real time clock (RTC)which keeps tracking the time and thus switches ON/OFF the pump accordingly.In this project, solar panel used to charge the battery a lcd display is interfaced to the to display time. We are setting the time slots from app through wifi communication.

Keywords: solar panel, Matrix keypad, RTC, LCD, Arduino,wifi

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OPTIMIZING POWER DISTRIBUTION: AUTOMATIC ACTIVE PHASE SELECTOR FOR SINGLE-PHASE LOAD

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ABSTRACT:
Phase absence is a very common and severe problem in any industry, home or office. Many times one or two phases may not be live in three phase supply. Because of this, many times, some electrical appliances will be on in one room and OFF in another room. This creates a big disturbance to our routine work.This project is designed to check the availability of any live phase, and the load will be connected to the particular live phase only. Even a single phase is available, and then also, the load will be in ON condition.This project is designed with Arduino MCU. This controller continuously checks for live condition of all phases connected to it, and the controller connects the load to the active phase using a Relay. This relay is driven with a transistor. If two or three phases are live, the load will be connected to phase 1 only. An LCD is provided to display the status of the phase condition. Contrast control preset is given for LCD contrast control. This project uses regulated 12V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac out put of secondary of 230/12V step down transformer.

I.INTRODUCTION

Phase absence is very common in industry, home or office. Many times one or two phases may not be alive in three phase supply. Because of this some applications will be ON in one room and OFF in another room. This creates a big disturbance to our routine work. This project is designed to check the availability of any live phase, and the load will be connected to the particular live phase only. Even a single phase is available the load will be ON condition. Whenever the phase is not available the buzzer will ON. If any one or two phases in a three phase supply interrupted or goes low and you want the equipment to work normal voltage then this circuit will give you the solution. This system is designed to monitor the presence of supply to the three phase and to display the condition of each phase on an LCD. Most industrial and commercial applications depends upon the power supply. By using this circuit we can solve the problem of low voltage in single phase system.

The project is designed to provide uninterrupted AC mains supply i.e., 230 volt to a single phase load. This is achieved by automatic changeover of the load from the missing phase to the next available phase in a 3 phase system. It is often noticed that power interruption in distribution system is about 70% for single phase faults while other two phases are in normal condition. Thus, in any commercial or domestic power supply system where 3 phase is available, it is advisable to have an automatic changeover system for uninterrupted power to critical loads in the event of missing phase. In this system auto selection is achieved by using a set of relays interconnected in such a way that if one of the relay feeding to the load remains energized always. Under the phase failure condition the corresponding step down transformer secondary delivers zero voltage which is duly rectified to DC and then fed to the logic gates comprising of AND & OR to switch on the next relay that delivers the power to the load. It also has a provision of connecting to an inverter source which delivers uninterrupted power to the load incase all the 3 phases go missing. The project is supplied with three transformers connected to the 3 phases supply. Further the project can be enhanced by incorporating power semiconductor devices such as thyristors IGBTs for instantaneous

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ENHANCING ELECTRIC VEHICLE BATTERY LIFE WITH SUPERCAPACTORS AND REGENERATIVE BRAKING

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ABSTRACT:

Nowadays, for the development of regenerative drive system for the elevators, power and energy variation are the main motivations. So, there is a need to save energy which is wasted during normal operating condition of elevator. Aim of this paper is to adjust the acceleration and deceleration rate and speed for maximizing the regenerative capability of the drive system and hence to improve the elevator efficiency. At the time when the elevator machine operates as the generator, the energy due to braking is accumulated in a super-capacitor bank for temporary storage purpose and when the elevator machine operates in motoring mode the braking energy can be reused. Whatever the energy generated during braking is either returned back to the grid via converter or accumulated in a super-capacitor for further use in motoring operation. The proposed system has been simulated in a MATLAB. For charging the super-capacitor, the charging circuit model is prepared using PWM technique.

Keywords— super-capacitor, elevator motor drive, braking energy, PMAC motor, dc-dc converter.

I.INTRODUCTION

In recent years, because of the rapid increase in demand of energy which will be doubled in the future, it becomes imperative to save the energy in any form and by any means. This also applies to the elevator being one of the sources of energy consumption. There are various ways for the elevator to consume less energy.

- Efficient passenger transportation for neglecting unnecessary journeys.
- Proper use of technology suitable for building needs.
- Use of lighter material, instead of using heavy material.
- Use of efficient motors and drives.
- Use of efficient storage device to store the electrical power in the form of energy.

Later solution is the most efficient option to save the wasted power in the form of energy. For this purpose super-capacitor, flywheel, battery, capacitor, etc are the common storage devices. Out of these, super-capacitor has been preferred because of its advantages of having higher energy and power density. As it has better physical property, it does not loose accumulated energy.

Elevator has been introduced as the second most power consuming drive in a common room sharing areas of a building. The lifts which are equipped with regenerative drive system can capture the regenerated power for feeding it back to the grid. Although, a regenerative system having combination of rectifier and inverter is a best solution, it is costlier compared with the dc-dc converter with super-capacitor bank. There might be an improved technology having an inverter operating only in a braking mode for feeding the regenerated energy to the grid.

In this emergent world, it becomes very concern to reduce the energy consumption of the device. So it is obvious to increase the energy efficiency of the device. Energy efficiency of the elevator drive can be improved by storing the power regenerated

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ENHANCING METRO OPERATIONS: DENSITY-BASED AUTOMATIC TRAFFIC CONTROL SYSTEM

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ABSTRACT

It is important to know the road traffic density real time especially in mega cities for signal control and effective traffic management. In recent years, video monitoring and surveillance systems have been widely used in traffic management. Traffic control is a very difficult task for traffic control department, especially in metro cities. The Project is designed to check the density of traffic in particular place and the information is conveyed to traffic control station. This project is designed with AT89S52 microcontroller. The module consists of a IR emitter and TSOP receiver pair. The high precision TSOP receiver always detects a signal of fixed frequency. Due to this, errors due to false detection of ambient light are significantly reduced. This project uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac out put of secondary of 230/12V step down transformer.

I.INTRODUCTION

In today's high speed life, it brings down the productivity of individual and thereby the society as lots of work hour is wasted in the signals. High life, traffic congestion becomes a serious issue in our day to day activities. volume of vehicles, the inadequate infrastructure and the irrational distribution of the signaling system are main reasons for this chaotic congestions.

It indirectly also adds to the increase in pollution level as engines remain on in most cases, a huge volume of natural resources in forms of petrol and diesel is consumed without any fruitful outcome. Therefore, in order to get rid of these problems or at least reduce them to significant level, newer schemes need to be implemented by bringing in sensor based automation technique in this field of traffic signaling system.

Vehicular traffic control at road crossings has always been a matter of concern for administrations in many modern cities around the world. Several attempts have been made to design efficient automated systems to solve this problem. Most of the present day systems use pre-determined timing circuits to operate traffic signals which are not very efficient because they do not operate according to the current volume of traffic at the crossing. It is often seen in today's automated traffic control systems that vehicles have to wait at a road crossing even though there is little or no traffic in the other direction. There are other problems as well, like ambulances getting caught up by a red traffic signal and wasting valuable time. Congestion is often translated into lost time, missed opportunities, lost worker productivity, delivery delay and, in general, increased cost. Actually the traffic congestion is not only recurring (caused by recurring demand that exists virtually every day) but also non-recurring (caused by traffic incidents like damaged vehicles, crashes, work zones, weather and special events) in nature. To manage non-recurring congestion some sensor based systems were suggested for improvement over fixed timing controlled ones.

However the performance was not satisfactory due to the necessity of a direct line-of-sight (LOS) path between sensor and vehicles. Further, simultaneous multiple detections were difficult to handle with a sensor-based system.

It is an application specific project which is used to control the traffic. this project is implemented by placing IR transmitter and led's at the 4 way junction. the four paths are represented by R1,R2,R3,R4
Transmitter and receiver are placed at the either side of the four paths, and four led's are the corner of the junction
When there is a traffic along the paths, value of R would 000 which are the values of irsensors and if there is no traffic the value is 111

II. LITERATURE REVIEW

Presents a savvy movement control framework to pass crisis vehicles easily. Every individual vehicle is outfitted with exceptional radio recurrence ID (RFID) tag (set at a key area), which makes it difficult to expel or devastate. We utilize RFID per user, NSK EDK-125-TTL, and PIC16F877A framework on-chip to peruse the

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SMART SPEECH RECOGNITION AND VOICE-CONTROLLED ROBOT WITH WIRELESS VOICE & VIDEO TRANSMISSION TO REMOTE TELEVISION

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Abstract: Speech Recognition is a technology which allows the processing of a speech input to text and is speaker independent. This allows it to be used in numerous applications ranging from digital assistants to controlling machinery. This paper proposes a strategy which can be used in controlling a robotic vehicle through connected speech input. The speech recognizer platform will be an Android smartphone which communicates with the robot using Bluetooth Connectivity. This method allows for efficient recognition and smooth data transfer. Additionally the robot will also have the capability to detect obstacles and inform the user to use a different command. Our proposed technique will be useful for applications such as assistive robots for people with disabilities or in industrial applications such as work robots.

I. INTRODUCTION

This paper proposes a system whereby the human voice become a specific key to manipulate a robot, but nowhere a speech recognition module is used. In this system an android application is used to recognize human voice and is converted to text. This text is further processed and used to control robot. Keeping in mind he need of the day (requirements of the present day), our goal is to move towards making accessible to the manipulation of everyday objects to individuals with motor impairments. But voice (or speech) recognition module involves a high cost when it comes to practicality (reality). Using our system we perform several studies on control style variants for robots. Results show that it is indeed possible to learn to efficiently manipulate real world objects with only voice (human voice) as a control mechanism. Our results provide strong evidence that the further development of voice controlled robotics will be successful.

India is a growing, wealthy and powerful coal country. Even so, the prevailing hygienic mining operations growth rates are still low, rapidly in recent years, whenever a tragedy often occurs at the mining area leading to substantial property loss and life. The safety challenges in the coal mine are gradually being resolved by the nation and the people. Due to the complex nature of the mining ecosystem and the distinct workplace environment of mining operations, catastrophes which are occurring in the coal mine ought to be surveilled. Conventional surveillance systems in mining activities prefer to be wired networks which play a crucial role in safety risk management of mining operations. As mining sites continue to evolve and the intensity of resource extraction expands, there are several pavements which become invisible, which are concealed.Furthermore, laying cables which are costly and time consuming is not convenient. We will design a safety monitoring system for coal mines based on a network of wireless sensor networks that improve production safety monitoring levels and reduce accidents in coal mines to tackle issues. There are plenty hectares of armed forces technologies and services. It encompasses weapons, weapon systems, tools and confidential data. In the event of an emergency, however, some mechanism based on modern electronics and innovative technologies is essential if military officers active in surveillance areas seem to be to inform that they can rapidly coordinate for protection to be stuck and enacted at geographical boundaries and antagonistic territories. For military applications like with the patrolling of the involved space, this mechanism is a lot of economical. In captive or in aggressive instances it'll provide inherent blessings, it would walk on virtually any surface and supply supervising over a locality. The supervising becomes a lot of economical with the assistance of contemporary live streaming, it detects extreme temps and conjointly uses water hydrant to scale back the fireplace, within the planned system, video quality is makeshift. This is often necessary in several applications like noncombatant robots and military robots.

II. LITERATURE REVIEW

The surprising raise in the utilizing of robots and automation offers various advantages as well as it has drawn the attention of both academic investigation and commercial programs. The analysis on numerous technique of controlling robots has accomplished quite a few success by introducing a number of innovative techniques and methods of robot movement control. Verbal interaction intended for robot controlling is actually sort of an innovative process among many methods which are introduced

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SMS-BASED POWER THEFT DETECTION WITH AUTOMATIC ENERGY METER INFORMATION AND POWER CUT-OFF

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Abstract
Electrical energy is very imperative for ever day life and a spine for the industry. Electricity is indiscipline to our daily life with increasing need of electricity the power theft is also increasing power theft is a problem that continues to plague power sector across the whole country the objective of this project is to design a system in order to avoid the displeasure for the users from the fry bill irrespective of the use of the electricity due to theft using GSM module. The proposal in this project is to monitor the power theft and informing the power theft trough sms. Monitoring the power means calculating the power consumed exactly by the user at a given time. The power monitored of the meter. It is helps in identifying usages between authorized and unauthorized users which helps in controlling the power theft. one of the major challenges in current scenarios.

I.INTRODUCTION

Electricity theft is a very common problem in country. were population is very high and the use of electricity are ultimately tremendous. In India, every year there is very increasing number of electricity thefts across domestic electricity connection as well as industrial electricity supply. which results in loss of electricity companies energy and because of which we are facing the frequent problems of load shading in urban as well as rural areas so as to overcome the need of electricity for whole state. Also the ways using which theft can be done are innumerable so we can never keep track of how a theft has occured. and this issue is needed to be solved as early as possible. In This abstract we propose an electricity theft detection system to detect the theft which is a made by the most common way of doing the theft and that is bypassing the meter using the a piece of wire. people simply bypasses electricity meter which is counting the current unit by placing a wire before and after the meter reading unit. The proposed system will be hidden in such meter and as soon as an attempt is made for the theft. it will send SMS to control unit of electricity board. In this system current transformer are used. here one current transformer is placed in input side of the post line. Other current transformer are placed at the distribution points of the house lines. The output of CT values is given as input to PIC microcontroller convert analog inputs to digital. Then PIC compares the input current and the same of output current. If compared result has any negative values then this particular post is detected as theft point. This compared value is transmitted to electricity board. this value display in LCD display. The information will then be quickly processed by the microcontroller and a SMS will be send through the GSM technology.

II. LITERATURE REVIEW

Electricity can be produced through many ways which is then synchronized on a main grid for usage. The main issue for which we have written this survey paper is losses in electrical system. In et al [2] M.V.Ramesh This design incorporates effective solutions for problems faced by India's electricity distribution system such as power theft and transmission line fault. In et al [3] ZHOU Wei. electricity-stealing prevention became a big problem to the electricity board. Based on the kind of electricity-stealing and actual demand of prevention of stealing electricity. realizes the behaviour of electricity-stealing with remote monitoring . In et al [4] H.G.Rodney. this paper presents of design and development of Automatic meter reading (AMR) system. AMR system is a boom for remote monitoring and control domestic energy meter. In et al [5] Amin S. Mahmoud. This paper deals with automatic meter reading and theft control system in energy meter. This model reduces the manual manipulation work and theft control.

III. DESIGN OF HARDWARE

This chapter briefly explains about the Hardware implementation of Power theft identification. It discuss the circuit diagram of each module in detail.

3.1.ARDUINO UNO

The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply

RFID TECHNOLOGY INTEGRATION FOR LIBRARY AUTOMATION SYSTEM WITH AT89S52 MICROCONTROLLER

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ABSTRACT

Radio Frequency Identification (RFID) Card Readers provide a low-cost solution to read passive RFID transponder tags up to 2 inches away. The RFID Card Readers can be used in a wide variety of hobbyist and commercial applications, including access control, automatic identification, robotics navigation, inventory tracking, payment systems, and car immobilization. The RFID card reader read the RFID tag in range and outputs unique identification code of the tag at baud rate of 9600. The data from RFID reader can be interfaced to be read by microcontroller or PC. The RFID reader will be interfaced with the microcontroller through serial interface. In this project, the RFID reader will be present at the librarian to maintain the books taken by the students of that particular college or any educational institute. Other end of microcontroller connected PC through serial port. PC having C#.net application. Each book will be attached with a RFID tag. These RFID tags will contain the information like name of the student, year of joining, branch of specialization etc. These data stored in application data base. Whenever a student wishes to take a particular book from the library, the librarian places the tag present in the book near the reader so that the reader reads the information of the book and stores in the database. Then librarian has to enter student information in application. After return the book librarian has to press delete button. Then data will be deleted from data base. For small and medium systems notepad or word files are acting as data base. Microcontroller gives Beep sound if unauthorized cards occur. In this project 7805 is a regulator and it avoids noise spikes in power supply. RFID modem is connected microcontroller through serial port. These RFID modem works under 9600 or 4800 baud rates.

I.INTRODUCTION

In library there are various types of books with various authors are available. And to keep track of all of them is but difficult job. This is system is used to keep a record of them. Also it provides one advanced feature as students or user can check the status of particular book with the help of just SMS, and in addition to that he can also secure the same book with the help of single SMS. At the same time library person gets the intimation on the LCD display provided on the module with book name and mobile number. In order to get compatibility with current library records, database is made in MS Access. User interface software is designed in Visual Basics 6 language. There is standard serial communication between module and computer. Microcontroller and LCD are used for visual indication for librarian. Libraries are the source of knowledge and wisdom, but with the increasing education branches and new researches, millions of the books are being added to libraries. Manual sorting and placement of these books in shelves is a time consuming and cumbersome process for humans. This often results in incorrect placement of books on shelves. Consequently people find it difficult to locate the book because the exact location of book returned by the database differs from its present location. Thus an efficient and automatic book placement system is required to facilitate the people in locating the desired book in a short period of time. The question then arises to which information is necessary to automate the system. The front cover of the book contains information such as the title of the book, edition of book, name of authors and also publisher name in some cases.

RFID is being used in variety of fields like: automotive tracking, animal tracking, and all types of assets tracking and identification. Designers such as Ideas by Gul Ahmed, Amir Adnan tag their products with the RFID chip, which is the most common example of interaction with RFID. However garments and books are both separate things. Bar codes, magnetic cards are the better options for identification but not the best. RFID tag does not have to be visible in order to let them read, it can be

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Mr.Gopi Chand Boosa et al/ENHANCING RESOURCE EFFICIENCY: A CASE STUDY ON RESIN WASTE REDUCTION IN TRANSFORMER PRODUCTION

ENHANCING RESOURCE EFFICIENCY: A CASE STUDY ON RESIN WASTE REDUCTION IN TRANSFORMER PRODUCTION

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ABSTRACT

The market competition worldwide is increasingAggressively. Several organizations have realized the significance of improving their own performance. It can be done by utilizing the available resources. Improving efficiency by eliminating waste is essential in the industry. This paper is a case study ofa resin cast transformer manufacturing companywhere resin waste is significantly high as 8.87% from this resin waste around 3,40,000 Rs financial loss to the company every month. There is also an increase in cycle time, which directly increases lead time, resulting in customer dissatisfaction and a competitive advantage.current situation analyze using different lean tools. Analyzing the current situation with different lean tools likePareto chart, fishbone diagram, why-why analysis,and Process flow diagram found that broken casting, bucket waste, and drum waste all play a significant role in resin waste. By continuously applying the PDCA cycle to every aspect of the process, we were able to reduce resin waste by 44.19% and rejection by 39.64%. The industry saves 1,52,880Rs per month by reducing resin waste from 8.87% to 4.95%.

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ANALYZING THE IMPACT OF EXHAUST GAS RECIRCULATION ON EFFICIENCY AND EMISSIONS IN COMMON-IGNITION ENGINES RUNNING ON DIESEL AND JATROPHA OIL BIODIESEL BLENDS

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ABSTRACT

Start of injection, also known as injection timing, refers to the point in time when the process of injecting fuel into the combustion chamber really starts. Crank angle degrees (CAD) relative to top dead centre (TDC) of the compression stroke is the standard way that it is stated. The diesel engine has been favoured for a significant amount of time in the areas of the military, as well as in power plants, transportation, engineering equipment, and agricultural machinery. This is due to the diesel engine's great thermal efficiency, strong dependability, adequate and steady power, and other attributes. For a very long time, using diesel engines to power commercial transportation on land or water has shown to be the most efficient use of resources. However, the reduction of emissions generated by diesel engines is a primary issue, which has led to the search for alternative fuels and the development of one-of-a-kind in-cylinder platforms that are compatible with treatment equipment. These efforts are being made in an attempt to ease emission problems to the maximum degree that is practically possible. In recent years, the use of biodiesel in the automotive sector has seen a major increase. This may be attributed to the depletion of fossil fuels as well as the pollution that comes along with its use. The production of biodiesel takes place regionally, and its energy content is low, but it has a significantly positive impact on the emissions of greenhouse gases. You need to do more research into this particular aspect. The majority of biodiesels come from rice bran, rapeseed, palm, and canola oils, in addition to other regularly used culinary oils. According to the findings of the vast majority of earlier studies, the utilisation of bio-diesel results in the production of lower levels of carbon monoxide, particulate matter, and hydrocarbons as compared to clean diesel (D). The only potential drawback is that NOx emissions might potentially rise. Recirculating the exhaust gas, often known as EGR, is an efficient method for cutting down on NOx emissions. In the current study, 5%, 15%, and 25% of EGR flow rates are being used by the diesel engine when it is operating at half load. The engine is being fed diesel PD100 as well as blends of Jatropha biodiesel JOBD15 and JOBD30 in an effort to minimiseNOx emissions while maintaining an injection pressure of 240 bar and an injection timing of 23°bTDC. Emission characteristics

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Mrs M.Swarna et al/ ANALYZING AND OPTIMIZING MOTORIZED AGRICULTURE PRACTICES

ANALYZING AND OPTIMIZING MOTORIZED AGRICULTURE PRACTICES

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ABSTRACT

The weeding tool in agriculture field is used to remove the weeds (Undesired plants) found near the desired crop. This weeding tool requires to work precisely during the weed removal operation depending upon the varied conditions of the farm-field to ensure no crop spoilage. While, the weeding tools which are available in the market, amongst many of them poses inability to work in certain condition because of their limited operational flexibilities. However, the design of weeding tool proposed in this paper is able to overcome incapability of conventional weeding tool attachments by governing motor powered, compact, lightweight and easy to maneuver design. Also, the proposed weeding tool can be utilized to perform various type of weeding operation such as intra-row, inter-row and inbetween row weeding while ensuring precise removal of the weeds near the crops. In addition to the computer aided modelling of the tool, in this paper, the stress analysis of the computer aided design (CAD) of the proposed weeding tool using finite elemental analysis (FEA) method is also carried out for further design optimizations, and design of the tool is accordingly modified at the later stage after evaluating results of the analysis. Additionally, the designed tool was manufactured and tested on the field for empirical observation to perceive actual performance related information and substantiate optimization of the tool at the advance stage. Computer aided design, stress analysis and optimization of the weeding tool is performed holistically by using "Solidworks- 2019" software in the proposed research.

Key Words: Motorised agriculture weeder, Computer aided design, Stress analysis, Field test, Empirical observation, Design Optimization

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ANALYSIS OF VIBRATION CHARACTERISTICS IN ROLLING BEARING ROTOR SYSTEMS: CONSIDERING RADIAL CLEARANCE AND OUTER RACEWAY DEFECTS

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ABSTRACT:
The radial clearance of a rolling bearing causes its radial stiffness to exhibit time-varying characteristics, which may result in a measurable vibration. Inadequate lubrication may induce vibration, which in turn may produce tiny flaws on the raceway of the rolling bearing. In this research, we build a dynamic model of the rolling bearing rotor system that accounts for the radial clearance and outer raceway defect. Rolling bearings' time-dependent stiffness is modelled using a substitution of 8th-order Fourier series. In order to examine the fault characteristic frequency of rolling bearing, we must first get the vibration response of the rotor system. By analysing the vibration signal's frequency spectrum, we may determine the defect characteristic frequency of the test bearing during a rolling bearing rotor system vibration test. Good agreement between experimental and theoretical data confirms the accuracy of the dynamic model.

Vibration characteristics, outer raceway defect, bearing rotor system, time-varying stiffness, and rolling bearings are some examples of keywords.

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Mrs M.Swarna et al/EXPLORING THE MECHANICAL AND THERMAL RESPONSE OF SEQUENCE-WOVEN METAL MESH INTERTWINED BASALT/JUTE FIBER EPOXY POLYMERIC COMPOSITE

EXPLORING THE MECHANICAL AND THERMAL RESPONSE OF SEQUENCE-WOVEN METAL MESH INTERTWINED BASALT/JUTE FIBER EPOXY POLYMERIC COMPOSITE

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Abstract:

Designing a fiber reinforced polymer composite requires careful consideration of the various Fibers used how they are stacked, the fiber ratio, and position of different fiber layers, as these factors influence the structural characteristics. The research is mainly focused on the development of a new class of metal fiber polymer laminate-MFPL (woven stainless-steel mesh/basalt/jute) and its performance studies. Woven stainless-steel mesh reinforcement acts as a high-impact load absorber and as a high-ductile. The new class MFP laminate design was created by utilizing a Vacuum assisted resin transfer moulding technique (VARTM). The study looked at the mechanical characteristics of the produced MFPL, including tensile and flexural strength. The stacking layering arrangement with alternating basalt and jute layers demonstrated greater flexural and tensile strengths, by basalt layers on the outer locations. The thick basalt fiber may hold tension, especially in the outer layer, decreasing stress transmission to the remaining core layers. The wire mesh composed of basalt and jute fiber, with alternating layers and basalt layers on the outside, demonstrated a to some extent lower thermal degradation (364 °C) compared to the composite with basalt covered layering arrangement (462 °C). The outer basalt layers' strong thermal resistance limits heat passage to the following fiber layers.

Keywords: Jute fiber; Basalt mineral fiber; Layering arrangement; Polymer composite; Mechanical behaviour Thermal properties.

VARIATIONS IN HEAD GASKET MATERIAL DESIGN AND THERMAL ANALYSIS

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Abstract:
The engine's block and cylinder head are separated by a gasket. Its job is to keep unwanted fluids out of the cylinders and keep the compression levels high. My personal goal for this project is to improve upon the current gasket material and style for four-cylinder engines. Multiple-Layer System (MLS) Asbestos with steel (usually three layers of steel) - MLS gaskets are standard on most newer head engines. Rubber-like coatings, such as Viton, are often used to bind the contact sides to the cylinder block and cylinder head, while the thicker central layer is left uncoated. Gasket producers are looking for alternatives to asbestos because to the health risks posed by breathing in the mineral's tiny fibres. The cylinder head gasket of the 4-stroke engine will undergo a thermal analysis test.
Cylinder head gasket problems may be identified, and alternative gasket materials can be compared, with the use of this investigation. Gasket materials mostly undergo distortion as a result of temperature differences. This article presents the first documented use of ANSYS, a commercial programme for numerical simulation of thermal analysis. Catia software is used to create the gasket diagram. The software's diagram is imported and analysed. Using ANSYS, we compare the performance of these three options and choose the one with the best overall results. Several gasket material variations are used in this project to execute different optimisation strategies. Gasket modelling is accomplished with the use of design software. The thermal and structural characteristics of gasket material have been improved by the use of Finite Element analysis in ANSYS.
Keywords: gasket, transient thermal, catia, and ans

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Mr.Gopi Chand Boosa et al/ANALYSIS OF TENSILE STRENGTH IN EN8 STEEL AFTER CRYOGENIC TREATMENT

ANALYSIS OF TENSILE STRENGTH IN EN8 STEEL AFTER CRYOGENIC TREATMENT

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Abstract—
In an effort to achieve more efficient machining at a lower cost, an investigation into the tensile strength of EN8 steel that has been cryogenically treated is being conducted. In the traditional method of heat treatment, the material is brought to a very high temperature before being cooled by being quenched in oil. At a temperature as low as -190oC to - 273oC, a material may be subjected to the Cryogenic Treatment, which is a method that involves treating the material while it is encased in a chamber that is filled with liquid nitrogen.In this study, a standard heat treatment and a deep cryogenic treatment are compared to each other in terms of their effects on the tensile strength of EN8 steel. It has been found that when EN8 steel is treated to a deep cryogenic treatment, there is a considerable enhancement in the material's tensile strength.
Tensile strength, EN8 steel material, and deep cryogenic treatment are some keywords to look for.

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ELECTRICAL CHARACTERIZATION OF GLASS FIBER REINFORCED POLYMER (GFRP) COMPOSITES FOR META SURFACE ANTENNA PROSPECTS

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ABSTRACT:
In this paper, the Glass Fiber Reinforced Polymer (GFRP) composite samples are explored in order to evaluate their feasibility and adaptability for use in future metasurface antenna application. Multi- layer GFRP composite samples are fabricated with a proportionate ratio of resins and fiber using Vacuum Assisted Resin Transfer Molding (VARTM) technique. N type to waveguide (WR-187) adapter specially designed for electrical characterization of these GFRP composite samples is used.

Thru-Reflect-Line (TRL) calibration technique is used for the test setup, and scattering parameters of these GFRP samples is measured by using the manufactured adapter along with the sample holder on a two port Vector Network Analyzer (VNA). Relative permittivity and dielectric loss tangent of GFRP composite samples are computed using Nicholson-Ross-Weir (NRW) and New Non-Iterative conversion methods. The comparative analyses of both methods showed a very good agreement between them. The GFRP sample with the lowest relative permittivity is short listed for its possible application in future metasurface antenna.

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MECHANICAL EVALUATION OF KEVLAR, GLASS, AND CARBON FIBER COMPOSITES WITH GRAPHITE POWDER FABRICATED BY HAND LAYUP

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ABSTRACT: Composite materials are made of two or more constituent materials that are combined to create a material with superior properties to those of the individual materials. Synthetic fibers, such as glass fiber, carbon fiber, and aramid fiber, are often used as the reinforcing material in composite materials. These fibers are strong, lightweight, and have good fatigue resistance. The matrix material, which surrounds the fibers, is typically an epoxy resin or a thermoplastic. The matrix material provides the composite with its toughness and durability.Composite materials are used in a wide variety of applications, including automotive, aerospace, marine, and sporting goods. In the automotive industry, composite materials are used to make lightweight components, such as bumpers, spoilers, and door panels. They are also used to make structural components, such as the hood and trunk lid.The aim of this project is to fabricate and test seven different combinations of composite materials for useautomobile bumpers. The materials that will be used are Kevlar, S glass, carbon fiber, and graphite powder. The composites will be fabricated using the hand layup technique. The tensile strength, flexural strength, impact strength, and hardness of each composite will be tested. The results of the tests will be used to determine which composite is the best for use in automobile bumpers.The car bumper will be designed using the CATIA software and analyzed using the ANSYS software. The von-Misses stress and total deformation of the bumper will be calculated for each material. The results of the analysis will be used to verify the findings of the experimental tests.This project will provide valuable information on the use of composite materials in automobile bumpers. The results of the project will help engineers to select the best composite material for specific applications.

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ANALYSIS OF FLEXURAL BEHAVIOR IN GLASS FIBER REINFORCED POLYMER (GFRP) REINFORCED ENGINEERED CEMENTITIOUS COMPOSITE BEAMS

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ABSTRACT: Broad applications of fiber-reinforced polymer (FRP) reinforce ment are hindered by its elastic brittle behavior, which results in reduced structural ductility. In addition, due to the lower modulus of elasticity, serviceability considerations such as deflection and crack width control present serious challenges to designers. This paper reports new means to address these issues by introducing engineered cementitious composite (ECC), which is designed based on micromechanics principles and exhibits higher tensile and shear ductility, to replace brittle concrete matrix. Three series, totaling 16 GFRP reinforced beams with various shear span-depth ratios and longitudinal reinforcement ratios, were tested. The results reveal that, under the same reinforcement configurations, ECC beams exhibit significant increases in flexural performance in terms of ductility, load-carrying capacity, shear resistance, and damage tolerance (such as crack width or spalling) compared with the counterpart high-strength concrete (HSC) beam. The extent of improvement strongly depended on the failure mode; that is, when the limit state was dominated by matrix behavior, more significant improvement was observed. Moreover, ECC beams without shear reinforcement demonstrate better performance than HSC beams with dense steel stirrups, which suggests that elimination of shear reinforcement is feasible when the concrete matrix is replaced by ECC.

Keywords: beam; ductility; reinforcement; shear.

INTRODUCTION

... For an FRP-

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GLASS FIBER REINFORCED POLYMER COMPOSITES FOR POWER EQUIPMENT APPLICATIONS

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ABSTRACT
Glass fibers reinforced polymer composites have been prepared by various manufacturing technology and are widely used for various applications. Initially, ancient Egyptians made containers by glass fibers drawn from heat softened glass. Continues glass fibers were first manufactured in the 1930s for high-temperature electrical application. Nowadays, it has been used in electronics, aviation and automobile application etc. Glass fibers are having excellent properties like high strength, flexibility, stiffness and resistance to chemical harm. It may be in the form of roving's, chopped strand, yarns, fabrics and mats. Each type of glass fibers have unique properties and are used for various applications in the form of polymer composites. The mechanical, tribological, thermal, water absorption and vibrational properties of various glass fiber reinforced polymer composites were reported.

Keywords Glass fiber, polymer composites, mechanical property, thermal behaviour, vibrational behaviour, water absorption

Juni Khyat
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IOT BASED SAFETY AND POLLUTION CONTROL IN AUTOMOBILE

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Abstract—Now a days, many people are suffering from number of diseases which is only because of impure/unsafe drinking water. The traditional method of testing Temperature and humidity is to collect samples manually and then send them to laboratory for analysis. However, it has been unable to meet the demands of water quality monitoring today. Air and sound pollution is growing issue these days. It is necessary to monitor air quality for a better future and healthy living for all. We propose an air quality as well as sound pollution monitoring system that allows us to monitor and check air quality as well as sound pollution in particular area through IoT. In order to ensure the safe supply of the drinking water the quality needs to be monitor in real time. Here we design and develop a low cost system for real time monitoring of the water quality in IOT(internet of things).The system consist of several sensors used to measuring physical and chemical parameters of the water. The parameters such as temperature, PH, humidity sensor of the water can be measured.

I. INTRODUCTION

Pollution, also called environmental pollution, the addition of any substance (solid, liquid, or gas) or any form of energy(such as heat, sound, or radioactivity) to the environment at a rate faster than it can be dispersed, diluted, decomposed, recycled, or stored in some harmless form. Pollution is the introduction of contaminants into the natural environment that cause adverse change. Pollution can take the form of substances or energy, such as noise, heat or light. An Air contamination is a substance noticeable all around that can effectsly affectpeople and eco framework. The substance can be strong particles, fluid beads, or gases. A poison can be of common beginning or man- made. Toxins are named essential or optional. Air contamination developed in numerous parts of the world because of touchy modern development. Street transport is additionally one of the real supporters of air contamination which add to environmental change that has risky residential and worldwide results. Age and transport of contamination materials are represented by the dispersions of their sources

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SMART PREPAID ENERGY METER

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ABSTRACT:

The project aims at developing a system which helps in monitoring the readings from an energy meter and controlling the switching of energy meter. This system also has tamper switch, which helps in illegal removing of energy meter cabinet[3-9] and alerts the authorities in the form of text message. This also sends data to webpage in real - time with tamper alert status too.The controlling device is microcontroller. IOT modem, Relay, LCD, tamper switch and energy meter[4] are interfaced to the microcontroller. The microcontroller is programmed such that it sends the energy readings to the authorities by s ending simple SMS to the system. It helps controlling the energy meter along with tampering proof facility. The readings are displayed on LCD. The microcontroller is loaded with intelligent program written using Embedded 'C' language.The modules in the project are: IOT modem for establishing communication between system at house and electricity department, Energy meter which continuously gives usage details, LCD to display current reading of meter, Relay to disconnect the power in case of nonpayment of bill.

I.INTRODUCTION

Monitoring and keeping tracking of your electricity consumption for verification is a tedious task today since you need to go to meter reading room and take down readings. Well, it is important to know if you are charged accordingly so the need is quite certain. Well, we automate the system by allowing users to monitor energy meter readings over the internet. Our proposed system uses energy meter with microcontroller system to monitor energy usage using a meter. The meter[3-9] is used to monitor units consumed and transmit the units as well as cost charged over the internet using Wi-Fi connection. This allows user to easily check the energy usage along with the cost charged online using a simple web application. Thus, the energy meter[11] monitoring system allows user to effectively monitor electricity meter readings and check the billing online with ease. An embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and microcontrollers. Microprocessors are commonly referred to as general purpose processors as they simplyaccept the inputs, process and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interacts with other devices, controls the data and thus finally gives the result. The "IOT ENERGY METER MONITORING" using Arduino microcontroller is anexclusive project which is used to designing a completely automated for physically disabled personsnot only accepts butmanipulates it.

II. LITERATURE SURVEY

In 2010, using Multi - appliance power disaggregation technology implementers implemented the linear detection algorithm to determine which appliances are active in their power contributions. Problems are robust to errors in this database. In 2011, using cloud computing Page of it is critical to the continuing engagement and use of the device to save energy. Residences to determine the feedback provided by real - time energy monitors results in lower residential consumption rates during the 30 days after installation. In 2013, using GREEN technology is the smallest Zigbee - compatible node in existence. This technology will be possible in every place sensing of a different data types, from energy metering to environmental monitoring. [9] In 2014, GSM technology implemented automatic power will be reading. In 2016. Using Wi-Fi technology application can develop for Apple and BlackBerry 10 OS, thus providing multiple platform user's support. In 2017, using IOT technology An IoT device was created for measuring the voltage, current, power and energy of a three - phase four - line power line in a laboratory building. Through a brief review of the published literature and previously done work, we can say that the research has done a severe work on the plc power line communication and Internet of Things (IoT). It is concluded from the ken study of their work that in today's world PLC & IoT based meter could improve the overall efficiency of the existing or present system and could help in examining the unnecessary losses of power in different areastechnology found the solution for efficiency calculation of individual equipment. In 2012, using three feedback system, monitored the energy in residential Real – Time.

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DEEP LEANING BASED BRAIN TUMOR DETECTION

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ARDUINO-BASED UNDERGROUND CABLE FAULT DETECTION SYSTEM

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ABSTRACT:

Right here in this project we have a tendency to endorse a fault place detector model for the underground cord with Arduino. The goal of the project is to locate the break from the base station underground wire fault in KM's. Throughout this challenge we have a tendency to apply a easy idea of ohm's law. As soon as a fault occurs within the system the space located on liquid crystal display. Cables have been designed to be positioned above the head and, at existing, there's no underground cable this is above the previous technique. Hard conditions like storm, rains, and pollutants does no longer effect underground traces however once fault takes place in underground it's hard to locate the fault . Here we'll discover the suitable region of the fault. Presently the world has end up digitized as a consequence, the undertaking is to locate unique location of the fault in virtual form. Underground cabling machine is aa variety of commonly utilized in urban regions. Even though the fault occurs for a few reasons, at that point, the repair technique for this cable is difficult because of no longer understanding the precise place of the cable breakdown. Appropriately carrying a face cowl, and the related entryway may be opened. Packages uploaded to Arduino to notice the faults from cables. Once a break takes place in underground wires, we can ascertain faults via Arduino. LCD show suggests the faults in kilometre. Right here we have a tendency to create faults. Cable are different sorts. Every cable has completely one of a kind resistance that relies upon the material used. The worth of the resistance depends on the extent of the cable. Right here the resistance is the main role of the mission. If any deviation happens in the resistance, the value of the voltage needs to be modified that individual cause is called as Fault. we are able to discover those faults.

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I INTRODUCTION

optical fibre framework. A lot of optical strands

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ADVANCING ROAD SAFETY WITH IOT-BASED VEHICLE COLLISION AVOIDANCE SYSTEMS

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ABSTRACT:
Nowadays, the number of accidents is so high and uncertain. Accidents causes worst damage, serious injury and even death. These accidents are mostly caused by delay of the driver to hit the brake. Preventive measure such as improving visibility, auto headlights, windshield wipers, tire traction, etc. were deployed to reduce the probability of getting into an accident. Now we are at the stage of actively avoiding accidents as well as providing maximum protection to the vehicle occupants and even pedestrians. Hence in this paper, we make an attempt to propose a new automated vehicle collision avoidance system. This project is designed to develop a new system that can solve this problem where drivers may not brake manually but the vehicles can stop automatically due to obstacles by using sensors.
Thus, this paper focuses on the development of a sensor based embedded system that can assist the drivers to avoid any sort of collision on the road in order to save the precious lives and also to prevent the financial loss.
DOI Number: 10.48047/nq.2022.20.8.nq221140 NeuroQuantology 2022; 20(8): 11074-11078

I.INTRODUCTION

Collisions are one of the negative effects of any transportation system and road accidents adversely impact developing countries on a regular schedule.The main reasons are inadequate infrastructure, traffic control, and accident management. South Asia, particularly India and Bangladesh are identified as the developing countries with the highest frequency of accidents. However, technological superiority is in sight that exists in a universe whereby advanced technologies are also being developed and these approaches can be used in our society to fix shortcomings. At present the Internet of Things (IoT) is a figurative concept which depicts global internet connectivity. The core idea behind the IoT concept is to spend billions if not trillions of smart devices which can assess the obtained data and detect any kind of collisions as well as general climate of the day of occurrance. By the end of 2021 it is expected that there will be 28 billion connected devices [5] and IoT systems are a network that connects devices to collect and share data, and they are utilizedin a variety of applications. An ad hoc network for automobiles is a network of moving vehicles where each vehicle acts as a node in the creation of a mobile network.

II.LITERATURE SURVEY

In this section we concentrate on different approaches used for Vehicle collision detection and accident avoidance. Various techniques to improve the automotive systems with the consideration of various parameters mention.

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IOT SYSTEM FOR AEROPONIC CHAMBER TEMPERATUREMONITORING

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Abstract: In recent years, the Internet of Things (IoT) has received much attention in the areas of industry and academia. Currently, IoT technologies are being applied in many fields and is changing lives in many areas such as smart homes, smart cities, smart grids, autonomous cars, and the industrial internet. Howbeit, traditional agriculture is still waiting for many changes to occur in networking technology especially in IoT. Many researchers and engineers are working towards applying IoT technology to traditional agricultural methods. Aeroponics farming is an efficient and effective process for growing plants without using soil. When we apply IoT technology to an aeroponics system, it is expected that there will be many improvements such as decreasing water usage, increasing plant yield, minimizing rate of growth and reducing the workforce. In this paper, we designed and implemented a new automatic aeroponics system using IoT devices. Our system is comprised of three main components: a mobile application, service platform and IoT devices with sensors. The mobile application provides the user a graphical user interface to monitor and adjust the aeroponics system. The service platform is a middleware system that provides information for the mobile application to store the gathered information from IoT devices using sensors within the aeroponics system. The IoT device uses sensorswithin the is a new application in the agricultural industry and is expected to be a promising application that will help the farmer withincreasing productivity in farming and reducing carbon footprint.

Keywords: IoT (Internet of Things), Wireless Sensor Networks, Sensor Data Integration, Smart Farming, Automated Aeroponic System

I.INTRODUCTION

Earth's population is expected to grow in more than two billion people in fourth coming approximately more than a hundred hectares of additional conventional farmland. This product wasdesigned to survive the long journey and extend shelf life in local stores. Good quality and delicious, limited-quantity products are availablefor a few months in a year, so off-season farming doesn't matter. Another issue is that crop yields are highly dependent on the weather. A single poor growing season can cause thousands to starve in many areas of the world.

Aeroponics is the process of growing plants in an air or moist environment without the use of soil or an aggregate medium (NASA Spinoff, 2006). In aeroponics, plants are growr in an air or mist environment without engaging soils or any aggregate or soil mediun (Arunkumar & Manikand, 2011). Aeroponic gives room for easy access to plant roots since i is not planted in any aggregate medi (Pagliarulo & Hayden, 2002). The main ide behind the aeroponic greenhouse in intelliger

ANALYZING AND DESIGNING MAJORITY-BASED APPROXIMATE ADDERS AND MULTIPLIERS

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ABSTRACT:
Approximate computing is a new paradigm for nanoscale technologies that overcomes the problem of mistake tolerance in computation, allowing for greater performance with less power. The 3-Input MV is an important building component of majority logic (ML) in digital circuit design and is expected to play a significant role in numerous emerging nanotechnologies. In order to do this, the suggested multipliers and adders employ approximation compressors and a reduction circuitry that makes use of so-called complement bits. An approach is provided for selecting appropriate complement bits, and a size-dependent multiplier-dependent effect factor is developed and studied. The proposed designs are evaluated based on their feasibility using hardware metrics (such delay and gate complexity) and error metrics. The proposed designs are proved to be superior than existing ML-based systems in the literature. Case studies of bug-free programs are offered to show that the suggested architectures work as advertised.

Keywords: Majority logic, approximate adder, approximate multiplier, complementbits, approximate compressor, image processing.
DOI Number: 10.48047/nq.2022.20.8.nq221141 NeuroQuantology 2022; 20(8): 11079-11087

1. INTRODUCTION

Even though alternative nanoscale technologies have been proposed to replace CMOS after the expiration of Moore's law, the problem of power dissipation has not yet been overcome, despite the fact that the integration density of nano electronics devices is continuing to increase at a rapid pace. The use of approximate computing has the potential to reduce the negative effects that computers has on the environment while simultaneously improving system performance in error-tolerant applications such as multimedia signal processing, machine learning, and pattern recognition. Complementary metal-oxide semiconductor (CMOS) based approximation computer arithmetic circuits have been the subject of a significant number of research investigations. It has been shown that it is possible to create approximation adders, multipliers, and dividers for both fixed-point and floating-point formats. Error metrics such as mean error distance (MED), normalized mean error distance (NMED), and relative mean error distance (RMED) are only a few examples of the types of error metrics that have been established to investigate the errors that are caused by approximate arithmetic circuits.

Due to the fundamentally distinct logic structure of certain emerging technologies, such as quantum computing assistants (QCAs), nanomagnetic logic, and spin wave devices, it will be impossible for these technologies to quickly adopt the approximation designs used in CMOS circuits. The majority logic (ml) method of operation is the standard method of operation that is used in the modern electronics industry. In contrast to this, one could use the more standard Boolean logic. The functionality of a majority gate, which is a multi-input logic device, is illustrated in figure 1;

$$= M(A, B, C) = AB \div BC \div AC \qquad (1)$$

Fig.1.Majoritygate(3-input voter).

Just recently, research and development efforts have

ACCELERATING BINARY MULTIPLICATION: GROUPING AND DECOMPOSITION MULTIPLIER FOR HIGH-SPEED OPERATIONS

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BSTRACT:
nary multipliers are essential components of computational systems used in Digital Signal Processing (DSP) and ast Fourier transform (FFT) applications. Multipliers are important mathematical units that need more hardware esources and processing time. As a result, significant research has been conducted in order to reduce processing me and hardware needs. The Grouping and Decomposition (GD) multiplier is proposed as a high-speed binary ultiplier in this research report to save processing time. The primary goal of the proposed multiplier is to improve lgorithm processing efficiency in comparison to existing multiplier architectures. The aforementioned goal is ttained by employing two methodologies: parallel grouping of partial products of identical size and decomposition f each partial-product bit within the grouped sets. A 5:2 logic adder, often known as a 5LA, is used to perform the umming. The use of parallel processing and decomposition logic reduces the number of computational steps, nproving the efficiency of multiplication operations. The proposed GD multiplier's front-end and physical design mplementation was carried out in the 180 nm technology library utilizing the Cadence® Virtuoso and Cadence® 'irtuoso Assura tools. In compared to established multiplier architectures, the front-end design of the 8 8 suggested ;D multiplier demonstrated a considerable reduction in computing time of roughly 56% and a reduction in power-elay product of 53%. The suggested multiplier's power-delay product is additionally reduced by the physical design mplementation, which includes using the shortest-path method for internal subsystem routing. When used for ncreasingly complex multiplication jobs, the proposed multiplier's efficacy increases, making it ideal for advanced pplications.
Keywords: digital signal processing; fast Fourier transform; grouping and decomposition multiplier; 5:2 logic adder
DOI Number: 10.48047/nq.2022.20.8.nq221138 NeuroQuantology 2022; 20(8): 11061-11068

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focus in academia is on improving performance

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ADDRESSING OVERLOADED CDMA CROSSBAR FOR NETWORK-ON-CHIP ARCHITECTURES

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Abstract—
Due to its apparent benefits, such as acclimatized idleness, ensured benefit, and a below-framework able nature, Code Division Multiple Access (CDMA) has been advocated as the concrete band allotment admittance of Network On-Chip(NoC) interconnects. Because CDMA interconnects are used in restricted correspondences, in which different elements of a CDMA-encoded guiding conversation are delivered across different channels, they have been widely accepted by the human population of the NoC. It is not necessary to assume the CDMA channel if the limited obstruction issue can be mitigated by the effective use of on-chip interconnects. This disagreement also implies that transporters and restrictedchannels often switch roles, in contrast to on-chip interconnects. There are two separate accounts for encoding and decoding data packets, and each success bit is encoded using a unique CDMA technique. Despite the broad use of CDMA in NoC human culture, this practice persisted. Our research presents Aggregated CDMA (ACDMA), a novel CDMA encoding/decoding scheme for NoC interconnects in which each array $.25 is encoded in its own CDMA channel, hence eliminating the space and animation overheads associated with encoding/translating approaches.

Keywords—Network On-Chip, CDMA, encoding and decoding
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DOI Number: 10.48047/nq.2022.20.8.nq221139

Introduction

An SOC is an integrated circuit that incorporates a sophisticated electronic system. Therearedifficultiesingigabitcommunicationduetothe busdesignutilizedinitscreation.Onlyby creating a system with explicit modularity and parallelism could the communications bottle neck be removed. The key concept is that cores may talk to each other on the chip to coordinate resource allocation and use. Building a more effective NOC requires a router that is constructed well enough to allow for communication on the network on chip. The maximum number of simultaneousconnectionsthatmaybemadetothisrout ...ltaneousconnections ... throughstorea

packet switching, each router makes its own independent judgment on where to sendpackets. The optimal flow mechanism is store-and-forward since it does not need anyadditional bandwidth to function. Data transmission on each channel will be prioritized inturnbythearbitrator.Thisrouteremploysbufferingtop reventinputandoutputbottlenecks.

Information may be sent from one network to another with the help of a device called arouter. The term "traffic direction" describes what routers do in the connected world. Amicroprocessor-operatedrouterlinksseveralnetworkstogethersothatin formationmaybesentbetweenthem.Ifdatatravelsalong awirewithoutbeinginterrupted,ithasarrived.Thepacke t's destination is determined by the router based on the address it was given.

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RADIO CONTROLLED SMART PLANE DESIGN

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ABSTRACT- A Radio controlled airplane is a small flying machine that is controlled by motorist using a handheld transmitter. The RC plane is controlled by motorist on ground using a transmitter communicating with a receiver transferring signals to servos on board the plane. This RC plane has all the dynamics characteristics which are present in actual aircrafts. The aircraft considered in this study was designed to have optimum lift and drag characteristics. This was achieved by choosing the optimum values of fuselage length, wingspan, elevator, rudder confines and the all up weight determined by a series of iterative analysis. In addition, the optimum angle of attack analogous that a cell condition does not do was also determined. The modelling was done using marketable software CATIA V5R18. The lifting line proposition system was used in XFLR-5. This analysis for determining the parameters of the RC plane was done using XFLR- 5. This was also indicated by the system of computational fluid dynamics using marketable software ANSYS 15.

Keywords - RC plane, Fuselage, Wingspan, Elevator, Rudder, Drag, Lift, All up weight, stall, and angle of attack.

1. INTRODUCTION

The main aim of this project was to design, analyze and build an RC plane. This involves understanding the various aerodynamic forces choosing the stated objective, extensive literature review was done in determining the various parameters for building of the plane. Authors in [1] suggest development of a Canard type aircraft, with the mission of aerial reconnaissance and surveillance. Ryan et al [2] provide insight into flapping fligh configuration that provided an insight into improved aerodynamic performance, improved maneuverability, and hover capabilities. Luca e al [3] provide a review of state of art with respec micro and nano aerial vehicles, which helpe better understanding of different design an engineering principles for such vehicles Reference [4] provided detailed information o RC controlled aircrafts design and build.Based o all the literature review and available knowledg it was decided to systematically design, analyz and build an RC plane. In addition it was decide to develop such a plane, to maximize the aspe ratio, minimize the wing loading and optimize th weight. Basic terms like lift coefficient, tip, ro chord, taper ratio etc... help understand th aerodynamics characteristics of flight while th actual movement of air over the airfoil he understand the behavior of flight in air. Keepi these considerations in mind the design an optimization were done.

The aim of this paper is therefore to explain the systematic methodology followed for designing, analyzing and building the RC plane including details of optimization. The following are the major steps in this process:-

- Selecting various design targets
- Selecting the type of geometry

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ENHANCED 12T MEMORY CELL DESIGN FOR AEROSPACE APPLICATIONS IN NANO SCALE CMOS TECHNOLOGY

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Abstract— **The size of semiconductors and the distances between them are rapidly shrinking as technology advances. As a result, SRAM cells used in aerospace applications become more susceptible to soft-error when the fundamental charge of the fragile nodes decreases. Single-event upsets (SEUs)may cause data inversion if a radiation particle hits a sensitive node in a typical 6T SRAM cell. To lessen the impact of SEUs, this paper proposes a Soft-Error-Aware Read-Stability-Enhanced Low-Power 12T (SARP12T) SRAM cell. SARP12T's performance is evaluated in relation to those of other recently released soft-error-aware SRAM cells such as QUCCE12T, QUATRO12T, RHD12T, RHPD12T, and RSP14T. Even if the values of the sensitive nodes in SARP12T are flipped due to a radiation attack, the data may be recoverable. SARP12T is resilient to storage node-pair-initiated single-event multi-node upsets (SEMNUs). The '0' storing memory nodes in the proposed cell are easily accessible through the bitline during read operation and are highly resistant to interruptions. SARP12T is also the most efficient method of holding in terms of energy consumption. SARP12T outperforms competing cells in terms of write performance, and its writelatency is much lower. The suggested cell achieves all of these advantages with just a little increasein read latency and read/write energy.**

Keywords— Aerospace, SARP12T, QUCCE12T, SRAM

I. Introduction

The strong ionizing effect of radiation near nuclear reactors and in space has the potential to impairor destroy electrical infrastructure. Ionizing radiation has been International Technological Strategy for Semiconductors (ITRS) predicted that this trend would reverse, but the opposite has already occurred. The scaling limitation on the threshold voltage of the transistor kept the leakage current to an acceptable level [2]. These static random access memories (SRAMs)are essential to the operation of

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MATERIAL SCIENCE AND TECHNOLOGY

DELVING INTO DESIGN SPACE: HIGH-SPEED EXPLORATION USING GRAPH NEURAL PROCEDURES

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ABSTRACT: Adders are a crucial component of microprocessors' data channel logic, therefore their design has been at the forefront c VLSI research for quite some time. While EDA flow helps designers get closer to an optimal adder architecture, it isn't always enough The design space is huge, which is why this is the case. A machine learning-based strategy was offered in earlier studies as a means t investigate the design space. Weak feature representations and an inefficient two-stage learning loop cause prefix adder structures t underperform. A multi-branch framework that combines a variational graph autoencoder and a neural process (NP) is first demonstrate this is the graph neural process.

Index Terms—Design space exploration, graph neural process, high speed adder, neural process.

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MATERIAL SCIENCE AND TECHNOLOGY

DETECTING PROFILE FRAUDULENCE AND FRETTING OUT USING CONVOLUTIONAL NEURAL NETWORKS (CNN)

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ABSTRACTS

The widespread availability of cameras over the last several decades has made picture capture more common, and the photos we create with these cameras have quickly become an integral part of our everyday lives owing to the wealth of information they hold. Yet, with the proliferation of image-editing software, fabricated photos are increasingly being used to convey disinformation. While there are tried-and-true methods for spotting fakes, recent years have seen a surge of interest in the use of convolutional neural networks (CNNs) for this purpose. But the currently available CNN-based algorithms can only detect certain kinds of forgeries. Therefore, a more effective and precise method of detecting undetected forgeries in a picture is required. In this research, we offer a lightweight deep learning-based system capable of detecting forgeries created using double image compression[1]. Compared to the existing state-of-the-art methods, our model, which is trained on the difference between the original and compressed versions of a picture, performs far better. Overall validation accuracy of 92.23 percent indicates that the experimental findings are encouraging.

Keywords- Image Forgery, Deep Learning, CNN.

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ENHANCING AIRLINE ACCESSIBILITY: ZIGBEE-BASED ASSISTANCE FOR DEAF AND DUMB PASSENGERS

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ABSTRACT

The main aim of this paper is to construct a user friendly multi-language communication system for illiterate/dumb people traveling by Airlines. As we have different languages in our world and its impossible for us to know all the languages. So, in this paper we are building a device that helps them in expressing their needs with other language people (Airhostess) i.e. request them if we need anything in the flight like coffee, tea, drinks etc. In this paper we use Touch screen Technology to make it easy even to illiterates as it is also included with images, which indicates the needs. This even reduces the difficulty to airhostess in receiving the customers with different languages. Here for wireless communication purpose we use Zigbee technology.

Keywords: Airlines, Zigbee,

INTRODUCTION

from the customer and make the possible way to

SMART SHOPPING TROLLEY SOLUTIONS FOR MALLS: LEVERAGING IOT FOR EFFICIENCY

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ABSTRACT:

Nowadays, buying and searching for products at shopping malls are turning into a daily activity in cities. We can see many number of people shopping at malls on holidays and weekends. The rush happens when there are special offers and discounts. People purchase completely various things and place them in trolley. After total purchase, one must visit the billing counter for billing and making payments. In the billing counter, the cashier prepares the bill victimization bar code reader that might be a time overwhelming method and leads to long queues at billing counters. This paper targeted to minimize the queue at a billing counter in a shopping mall. The smart shopping cart does the same by displaying the total price of the product kept inside the cart. In this way, the customer can directly pay the amount either in-app or in the billing counter and leave with the commodities he/she has bought. The hardware relies on Arduino Uno, RFID Reader Module, RFID Card, and Buzzer. It eliminates the normal scanning of products at the counter and in turn speeds up the entire process of shopping is easy and also with this system, the customer shall know the total amount to be paid. Hence the customer can plan his shopping only by buying the essential commodities according to his savings. Since the entire process of billing is based on RFID, so it reduces the possibility of human error substantially. The system also has a feature to delete the scanned products by customers to further optimize the shopping experience.

I.INTRODUCTION

Nowadays a number of shopping mall has increased around the world. Sometimes customers have problem regarding the incomplete information about the product on sale and waste of time at billing counters[1]. In existing system, shopping malls are using barcode standards [2]. This technique has replaced the previous manual system however has limitations. Barcode scanner requires a manual tracking, whereas RFID can be automatically tracked[3]. Barcodes additionally need a considerable quantity of manpower and human effort. Barcodes will get broken simply. Not solely this, The Barcode system needs the client to the square in long queues so as to induce their product scanned and their bills generated. This method will persuade be wearisome and it additionally consumes heaps of the shoppers, thereby adding to disadvantages there too, the Barcode system remains in use. It is obvious that there is a desire to bring on a better and a lot of economical systems. The advent of newer techniques like RFID technology and wireless networks have makes the process of shopping at a faster pace, making it more efficient as well as making it more transparent[4].

Smart shopping cart using Arduino and RFID may be a new advancement in the field of Supply Chain Optimization. This method shall not only to skip the long queues in supermarkets and malls but also save plenty of your time for the purchasers. The system also helps the customer in saving money. The system uses RFID tags instead of Barcode tags which are much more efficient and powerful when it involves scanning of products. The device developed using Arduino and RFID shall be installed on the handbasket or trolley. The

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EFFECTIVE POWER AND GROUND DISTRIBUTION SCHEME FOR DEEP SUBMICRION HIGH SPEED VLSI CIRCUITS

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ABSTRACT

This paper studies the power and ground distribution and its noise effect for deep submicron CMOS VLSI circuits. It is found that orders of magnitude reduction in switching noise can be achieved using an effective power and ground distribution scheme introduced in this paper.

1. INTRUDUCTION

In the early days of VLSI, the design of power distribution for an integrated circuits was rather simple. Lower speeds and circuit density made the choice of the wire width easier: just made them fat enough to avoid resistive voltage drop due to switching currents in the power supply. Later synthesis tools have considered simplified DC, AC and transient interaction aspects which improve the design by optimizing the power I/O cell assignment, the power bus topology selection, and the power bus sizing via simulated annealing algorithms [1]. Nonetheless, the existing power synthesis algorithms are still inadequate when the technology is moved deeper into submicron generations (0.18~0.05 μm generations). The increased clock speed and huge integration density will result in a power dissipation approaching to 20W/cm² for instance in future microprocessors [2], which correlates a reasonable power density limit for an air-cooled package device. Such a power density is equivalent to an average current of 16.67A for 1.2V supply in 0.1μm CMOS. Assume that the current is uniformly distributed with an Al-Cu sheet of 1μm thick, the average current density is thus as high as 1.67mA/μm². Such a high current density causes 0.367V/cm DC voltage drop on Al-Cu wires (ρ=2.2μΩcm) and also perhaps some reliability concerns such as electromigration. Multiple power planes may thus be utilized which allows more flexibility in the topological layout of the power networks. Moreover, when the internal clock runs at GHz, fast switching rise time causes a huge simultaneous switching current which results in a substantial switching noise (*i.e.* Δl noise) and ground bounce in the supply network. On-chip decoupling capacitors are thus required to reduce this switching noise. Early works use such as metal-insulator-metal capacitors on the top of the chip, or use large MOS transistor capacitors etc. [3-5]. Whereas, in deep submicron VLSI circuits, different functional metallization layers may be available [6-7]. This provides a new degree of freedom in design floorplans and geometric topology of power network. We so far can use the decoupling effect of the interconnect parasitic capacitors through the power network itself.

In this paper, we address an effective on-chip power and ground distribution scheme for deep submicron high speed VLSI circuits. By incorporating the complex LRC parasitic and on-chip decoupling effect of the power network, noise on power/ground nets is studied for various power bus topology and sizing. We show that when VLSI circuits clock at very high speed, orders of magnitude reduce in switching noise can be achieved by slicing the power/ground planes and/or wide on-chip power/ground wires into multiple small wires with power and ground evenly distributed. High aspect ratio wire (height: width ratio) with short separation between V_{DD} and GND are hence a promising wire geometry for low noise power network.

2. NOISE ON A DISTRIBUTED POWER LINE

To feed such larger power dissipation, one possible way is t deposit very thick metal layers on the top of the chip as powe and ground planes. The distance between the load and th power and ground planes thus becomes shorter and hence th voltage drop on the wires is reduced. An alternative way is t insert multiple power and ground planes between signal lay ers, as the style which is used in today's multi-layer print ci cuits board designs. This method also provides better sign isolation. The drawback is increasing the number of interco nect layers and signal layer to signal layer connecting. A the third possibility is to use two stacked metal layers (sep rated by the dielectrics) for ground and power respective instead of distributing power and ground on the same me layers. Of course one need to do more vias through one of t layers, which is a drawback. Additionally, thermal mismat between metal and dielectrics would yield some manufactu problems for such a structure.

No matter which style is used, there is less trick we can dc decrease this dc voltage drop other than increasing the to

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AUTOMATICALLY PATHWAY FOR EMERGENCY VEHICLES USING ARDUINO & IR SENSORS

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Abstract: The project is aimed at designing a density based dynamic traffic signal system where the timing of signal will change automatically on sensing the traffic density atany junction. Traffic congestion is a severe problem in most cities across the world and therefore it is time to shift more manual mode or fixed timer mode to an automated system with decision making capabilities. Present day traffic signaling system is fixed time based which may render in efficient if one lane is operational than the others. To optimize this problem we havemade a frame work for an intelligent traffic control system. Some times higher traffic density at one side of the junction demands longer green time as compared to standard allotted time We, therefore propose here a mechanism in which the time period of green light and red light is assigned on the basis of the density of the traffic present at that time. This is achieved by using PIR (proximity Infrared sensors). Once the density is calculated, the glowing time of green light is assigned by the help of the micro- controller (ARDUINO).

Index Terms:- Preliminary, Pioneer, adaptability

I. INTRODUCTION

We know that INDIA is a biggest country and it occupies 2nd place in world iin population. The population as estimated in mid-2018is 130 crores approximately and it keeps increasing. Most Saudis use their private vehicles for transportation because the lack of public transportation. And government also identified that lot of deaths are happening due to traffic only. As a result, the number of vehicles on roadshave been increased. Consequently, traffic is becoming a serious problem. In big cities due to the traffic congestion, emergency vehicles such as ambulance, fire engines are affected by traffic jams and consequently many people could lose their lives because of an ambulance delay. Although the emergency vehicles in Saudi Arabia have the right to pass red lights and exceed the speed limit on roads to reach the patient, but this adds another problem and it might cause farther accidents. The proposed system would save people life and the environment from the consequences of emergency vehicle delay

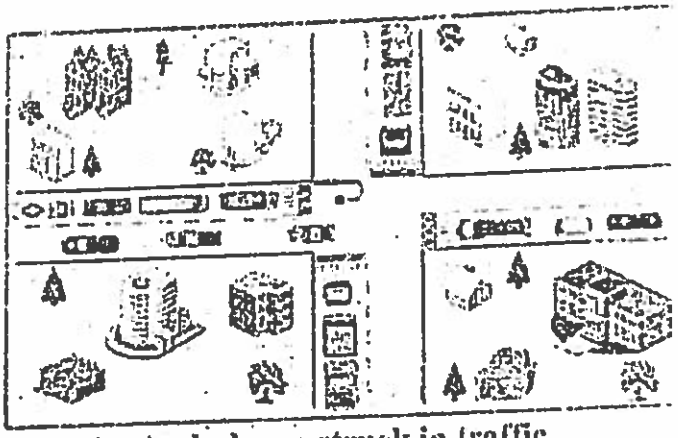

Fig 1:- Ambulance struck in traffic

Furthermore, it saves the emergency vehicl passengers from any accident that would resul from crossing the red light. Also, it avoids the tim wasted by waiting the emergency vehicle for th red light to turn off and avoiding forcing cars i front of it to cross the red light to enable passin the emergency vehicle. We know that INDIA is biggest country and it occupies 2nd place in worl iin population. The population as estimated i mid-2018is 130 crores approximately and it keep increasing. Most Saudis use their private vehicle for transportation because the lack of publi transportation. And government also identifie that lot of deaths are happening due to traffi

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Design and Security Simulation of Wi-Fi Networks

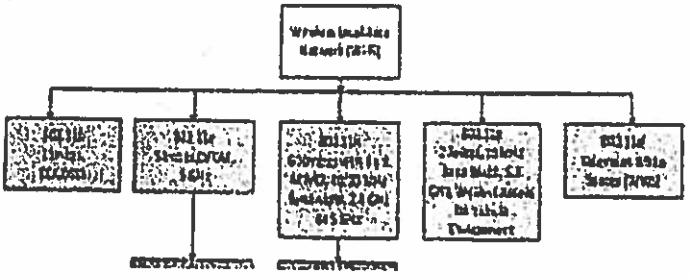
Mrs. Kukkla Sireesha [1], Mr. Sirikonda Vamshi Krushna [2], Mr. Cheruku Murali Krishna [3]
Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract – Wireless networks milieu is sprouting into the market, and it is the principal way of accessing the internet. Design and security of these networks for an organization need to be considered to ensure mobility is accomplished. In this study simulation results of 802.1X with flexible authentication via secure tunnelling was performed. Opportunistic key caching which is preferred by many vendors was used transit the session information from the posterior access point to the prior access point to minimize the hand-off latency to allow continuous connectivity to avoid poor network performance. The simulation process was applied throughout the write up of this article without setting up the pricy real lab-test. After the successful modelling of the network, the outcome will be transferred to the real-life environment. The network simulator software was used to illustrate roaming while Cisco Packet Tracer was engaged in the layout design of the wireless nodes. This research applies to network administrators and engineers worldwide to save time and the cost of the network appliances.

Index Terms – Simulation, Security, EAP-FAST, 802.1X, EAP Types, WLAN, RADIUS.

1 INTRODUCTION

since data propagation is done via electromagnetic waves which bounce over the hackers' vicinity. This salient feature makes these networks insecure unlike in wired schemes where an imposter is demanded to have a cable connectivity to tap data packets. Apparently, IEEE 802.11ac and IEEE 802.11ad WIGig are the modern standards of Wi-Fi-based networks that are sprouting into the market space to provide the 60GHz with backward compatibility with IEEE 802.11n which was predominantly designed to boost Wi-Fi security features. The WLAN IEEE 802.11 protocols were build up as revealed in Figure 1.



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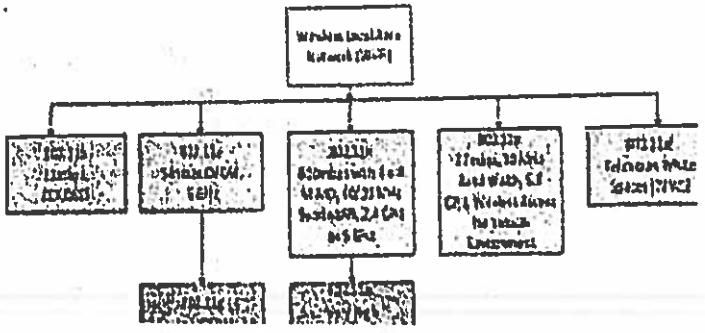

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Network Security for IPv4

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Abstract- Network security has become more important to personal computer users, organizations, and the military. With the advent of the internet, security became a major concern and the history of security allows a better understanding of the emergence of security technology. The internet structure itself allows for many security threats to occur. If the architecture of the internet is modified, it can reduce the possible attacks that can be sent across the network. Knowing the attack methods allows us to emerge with appropriate security. Many businesses secure themselves from the internet by means of firewalls and encryption mechanisms. The businesses create an "intranet" to remain connected to the internet but secured from possible threats. The entire field of network security is vast and in an evolutionary stage. In order to understand the research being performed today, background knowledge of the internet, its vulnerabilities, attack methods through the internet, and security technology is important and therefore they are reviewed.

Index Terms- Data Security, Internet Architecture, IPv4, Network Security.

II. NETWORK SECURITY

System and network technology is a key technology for a wide variety of applications. Networks and applications need security. Although, network security is a critical requirement, there is a significant lack of security methods that can be implemented easily.

There exists a "communication gap" between the developers of security technology and developers of networks. Network design is a well-developed process that is based on the Open Systems Interface (OSI) model. The protocols of different layers can be easily combined to create stacks which allow modular development. The implementation of individual layers can be changed later without making other adjustments, allowing flexibility in development. In contrast to network design, secure network design is not a well-developed process. There isn't a methodology to manage the complexity of security requirements. Secure network design does not contain the same advantages as network design.

Network security doesn't mean securing both end computers. When transmitting data the communication channel should not be vulnerable to attack. A possible hacker could target the

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SPAM IDENTITY IN E-MAIL USING ML

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Abstract: Spam emails are known as unrequested commercialized emails or deceptive emails sent to a specific person or a company Spams can be detected through natural language processing and machine learning methodologies. Machine learning methods are commonly used in spam filtering. These methods are used to render spam classifying emails to either ham (valid messages) or spam (unwanted messages) with the use of Machine Learning classifiers. The proposed work showcases differentiating features of the content of documents There has been a lot of work that has been performed in the area of spam filtering which is limited to some domains. Research on spam email detection either focuses on natural language processing methodologies on single machine learning algorithms or one natural language processing technique on multiple machine learning algorithms In this Project, a modeling pipeline is developed to review the machine learning methodologies.

Keyword: Email Spam Detection, Spam Detection, Machine Learning, Neural Networks, Naive Bayes, Support Vector Classifier, Logistic Regression, Spam, Social Media.

I. INTRODUCTION

Technology has become a vital part of life in [illegible] day, the use of the it, or steal useful information and scam gullible people.

The identification of spam emails is a very tedious task and can get frustrating sometimes.

While spam detection can be done manually, filtering outa large number of spam emails can take very long and wastea lot of time. Hence, the need for spam detection soft wares has become the need of the hour. To solve this problem, various spam detection techniques are used now. The most common technique for spam detection is the utilization of Naive Bayesian method and feature sets that assess the presence of spam keywords. The main purpose is to demonstrate an alternative scheme, with the use of Neural Network (NN) classification system that utilises a collection of emails sent by several users, is one of the objectives of this research. One other purpose is the development of spam detection with the help of Artificial Neural Networks, resulting in almost 98.8% accuracy.

II.LITERATURE SURVEY

Email:

Electronic mail (email) is a messaging system that electronically transmits messages across computer networks. Anyone is free to use email services through Gmail, Yahoo or people can even register with an Internet Service Provider (ISPs) and be provided with an email account. Only an internet

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EMOTION DETECTION USING ML

Dr. Pulime Satyanarayana [1], Mrs. Palakollu Divya [2], Mr. Korivi Vamshee Krishna [3]
Department of Computer Science Engineering, Samskruti College of Engineering and Technology

ABSTRACT-Ongoing feeling acknowledgment has been a functioning field of examination in the course of recent many years. This work intends to characterize truly crippled individuals (hard of hearing, idiotic, and confined to bed) and Mental imbalance children's enthusiastic articulations dependent on facial milestones and electroencephalograph signals utilizing a convolutional neural organization (CNN) and long transient memory classifiers by fostering a calculation for constant feeling acknowledgment utilizing virtual markers through an optical stream calculation that works successfully in lopsided lightning and subject head revolution (up to 25°), various foundations, and different complexions. Nineteen college understudies elected to gather EEG signals. At first, Haar-like provisions are utilized for facial and eye location. After ward, virtual markers are set on characterized areas on the subject's face dependent on a facial activity coding framework utilizing the numerical model methodology, and the markers are followed utilizing the Lucas-Kande optical stream calculation.

KEYWORDS- KKN, GUI , CNN Algorithm ,Dataset-training, testing , Pre-processing,

I.INTRODUCTION

One of the significant ways people show feelings is through looks. Look acknowledgment is one of the most powerful, regular and quick means for people to convey their feelings and aims. People can be in certain conditions confined from showing their feelings, like hospitalized patients, or because of lacks; subsequently, better acknowledgment of other human feelings will prompt successful correspondence.

Programmed human feeling acknowledgment has gotten a lot of consideration as of late with the presentation of IOT and savvy conditions at medical clinics, shrewd homes and brilliant urban areas. Astute individual partners (IPAs), like Siri, Alexia, Cortana and others, utilize normal language preparing to speak with people, however when expanded with feelings, it builds the degree of powerful correspondence and human-level knowledge.

For instance, upgraded Misrepresentation Digger utilizes the grouping based information mining technique 'Dialect' to distinguish regular examples. What's more, it is utilized for AI driven advances in the clinical space, for example, income cycle the executives (for example installments) and understanding patient wellbeing through zeroing in on a clinical information rich climate

Humans have always had the innate ability to recognize and distinguish between faces. Now computers are able to do the same. This opens up tons of applications. Face detection and Recognition can be used to improve access and security like the latest

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Edge Computing inInternet of Things (IoT)

Mr. Sirikonda Vamshi Krushna [1], Mr. Ravikumar Chawhan [2], Dr.Malladi Ramakanth Reddy [3]
Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract – Edge has become a growing trend in recent years. Bringing computing and analytics remarkably close to the data where it originated is the leading cause of edge computing. As the data is growing day by day, there arises the bottleneck in computation and network layers. Due to the enormous growth of Internet of Things (IoT) devices with its recent applications, the need for real-time computation has readily driven edge computing. Today data processing is an excellent paradigm for real-time data. In the integration of various IoT devices to solve the computing perplexities, created the emergence of the Edge computing. This paper clarifies concepts and contributions of edge computing associated with IoT devices. The proposed work produces a thumbnail survey on edge computing and its performance . management towards IoT devices. The characteristics and architecture of Edge computing over IoT devices are furnished. The state-of-the-art on edge computing applications in the real-time scenario is discussed in this article. The proposed work explores the key benefits of Edge computing towards IoT devices, along with the comparative principles of edge computing over the Cloud, are represented. The existing challenges of edge computing are also discussed in this work.

Index Terms – Edge Computing, IoT devices, Data Processing, Performance Computing.

I. INTRODUCTION

Edge computing fetches memory and computes better than traditional data centre by bringing them significantly closer to the location whenever they are needed frequently in the form of local devices or any physical units across different areas. It is a disclosed platform integrating network, computation, storage, and other application entities on its edge of the network which is physically close to the data [1]. As the number of smart devices increases, day by day, the consumption of power in data centres also increases rapidly. In this case, the cloud cannot improve computing efficiency [2] to meet the increasing demand for the source of power. Cloud computing has a strategic form of data centres in its hand [3]. Of course, with substantial resource capacities with itself. As cloud servers handle more user applications, the cloud faces significant challenges to meet the energy consumption demand in the data centre. Now, improving the efficiency of energy consumption is existing research going on [4]. But the need for various tactile internet application that include augmented reality and virtual reality, the demand for bandwidth dragged the enterprises towards the edge, and became essential to have the servers very close to the edge for proper response. This response made edge computing com

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IoT Based Weather Monitoring System using Raspberry Pi

Mr. Cheruku Murali Krishna [1], Dr.Malladi Ramakanth Reddy [2], Mrs. A. Rajini Devi [3]
Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract - *Weather condition plays an very important role in our daily life. Collecting of data about the different parameters of the weather is necessary for planning in home and environments. Recent developments in Internet of Things made possible to collect the data. In this system some digital as well as analogue sensors like DHT11, BMP180, LDR and marked scale with ULN2803 are used for environmental parameter measuring. This data from input sensors is then read by server that is Raspberry Pi itself and stored in CSV as well as text files. The sensors gather the data of various environmental parameters and provide it to Raspberry PI which act as a base station. The Raspberry PI then transmits the data using WIFI and the processed data will be displayed on laptop through accessing the server that is on the receiver side.*

Key Words: Embedded System, Raspberry Pi, IoT, HTTP

direct, wired link, etc. Weather forecasting has to be reliable and accurate, regardless of its application.

Also, it has to provide simple access to all the measured parameters. The quality of sensors and precision of measurements may vary, and the location of weather forecasting station can determine the accuracy and reliability of the weather data collection. Raspberry Pi, acting as data logger process the converted output of sensors from analog to digital. The logged data can then be transferred to a desktop or any other monitor has GUI for further analysis. So by using easily obtained components and less complicated circuitry powerful weather station can be built. Now a day's various weather factors like wind and many other cause great impact on humans day to day life.

1.1 Internet of Thing (IoT)

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An IoT platform facilitates in developing, deploying, and managing IoT and M2M applications. It also automates

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Library Management System (LMS) Using JAVA

Mrs. Doddi Kousari kumari [1], Mrs. Kukkla Sireesha [2], Ms. Samreen Mohammed [3]
Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract: A Library Management System is a system that is used to maintain the records of the library. It contains work like th number of the available books, the number of books issued, the number of books to return or renew. It helps to maintain database that is useful to enter new books and records of books borrowed by the members with the respective submission dates. I will reduce the manual work done by the librarian to maintain the record of the library. It allows maintaining the resources in more operative manner that will help to save the time. It is also convenient for the librarian to manage the process of book allocation. It is useful for students as well as a librarian to keep the constant track of the availability of all books in a library.

Keywords: Library, Java, Management, System

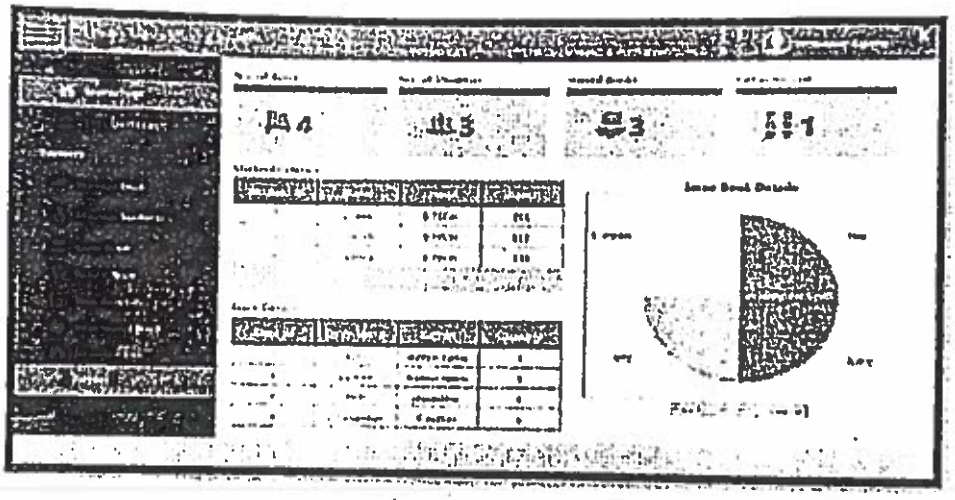

Fig 1. LMS Home Page

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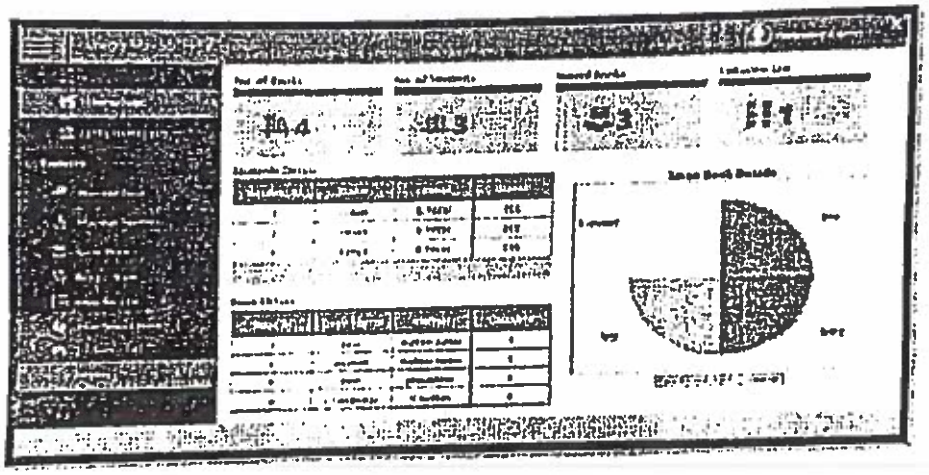

Fig 1. LMS Home Page

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DEEP LEARNING Based Traffic SIGN

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Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract: Automatic detection and recognition of traffic signs plays a crucial role in management of the traffic-sign inventory. It provides an accurate and timely way to manage traffic-sign inventory with a minimal human effort. In the computer vision community, the recognition and detection of traffic signs are a well-researched problem. A vast majority of existing approaches perform well on traffic signs needed for advanced driver-assistance and autonomous systems. However, this represents a relatively small number of all traffic signs and performance on the remaining set of traffic signs, which are required to eliminate the manual labour in traffic-sign inventory management, remains an open question. In this project, we address the issue of detecting and recognizing a large number of traffic-sign categories suitable for automating traffic-sign inventory management. We adopt aconvolutional neural network (CNN) approach, the mask R-CNN, to address the full pipeline of detection and recognition with automatic end-to-end learning. We propose several improvements that are evaluated on thedetection of traffic signs and result in an improved overall performance. This approach is applied to detection of many traffic-sign categories represented in our novel dataset. The results are reported on highly challenging traffic-sign categories that have not yet been considered in previous works.

Index Terms: Deep Learning, Traffic Sign Detection, Gabor Filter Effect, CNN.

INTRODUCTION

unconscious driver due to many psychological factors. Moreover, road sign provides information about state of the street to the drivers and pedestrians. Designing common TSR system is not conceivable option, because the structure, shape and colors of road signs are country specific. Many researches in this field have been explored for different countries. It is fact that no significant research works has not so far conducted to develop TSR system for Indian road ways. Most of the traffic sign used in Indian are triangular shape classified as warning sign. Non-triangular signs are seen very few. So, we emphasize our works on triangular traffic sign where the border color rim of these signs is red. The TSR system is developed in three modules: detection, shape verification and recognition. Many algorithms had been proposed for traffic signs detection. Most of the methods used color information for segmentation by using RGB, HSV, YIQ, YUV and L*a*b color models. Soumen and Kaushik used YcbCr color model to detect road sign. Traffic sign follows some well-defined shape signature such as triangle, circular, rectangle. To verify and classify shape, authors proposed algorithms based on distance to borders vectors, Fourier Descriptor (FD) and classifiers such as SVM, Adaboost. Recognition of traffic signs are implemented by using various feature descriptor(HOG, SURF, LBP, LSS) of the segmented blob and the state of art machine learning procedures such as SVM, extreme learning machine, K-d trees, random forest , artificial neural networks(ANN) and deep learning paradigm . Zumra and Imran used SIFT, SURF and BRISK features descriptor and nearest neighbor classifier

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DEEP LEARNING Based Traffic SIGN

Mr. Vemula Pranay [1], Mrs. A. Rajini Devi [2], Mr. Ravikumar Chawhan [3]
Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract: Automatic detection and recognition of traffic signs plays a crucial role in management of the traffic-sign inventory. It provides an accurate and timely way to manage traffic-sign inventory with a minimal human effort. In the computer vision community, the recognition and detection of traffic signs are a well-researched problem. A vast majority of existing approaches perform well on traffic signs needed for advanced driver-assistance and autonomous systems. However, this represents a relatively small number of all traffic signs and performance on the remaining set of traffic signs, which are required to eliminate the manual labour in traffic-sign inventory management, remains an open question. In this project, we address the issue of detecting and recognizing a large number of traffic-sign categories suitable for automating traffic-sign inventory management. We adopt aconvolutional neural network (CNN) approach, the mask R-CNN, to address the full pipeline of detection and recognition with automatic end-to-end learning. We propose several improvements that are evaluated on thedetection of traffic signs and result in an improved overall performance. This approach is applied to detection of many traffic-sign categories represented in our novel dataset. The results are reported on highly challenging traffic-sign categories that have not yet been considered in previous works.

Index Terms: Deep Learning, Traffic Sign Detection, Gabor Filter Effect, CNN.

I. INTRODUCTION

Oriented traffic TSR is an significant field to do research that continuously attracts the research's community of the industry .Since Traffic sign helps to interpret the state of the road, regulate the traffic and also helps in warning and guiding pedestrians and drivers. Recently road ... frequently across the unconscious driver due to many psychological factors. Moreover, road sign provides information about state of the street to the drivers and pedestrians. Designing common TSR system is not conceivable option, because the structure, shape and colors of road signs are country specific. Many researches in this field have been explored for different countries. It is fact that no significant research works has not so far conducted to develop TSR system for Indian road ways. Most of the traffic sign used in Indian are triangular shape classified as warning sign. Non-triangular signs are seen very few. So, we emphasize our works on triangular traffic sign where the border color rim of these signs is red. The TSR system is developed in three modules: detection, shape verification and recognition. Many algorithms had been proposed for traffic signs detection. Most of the methods used color information for segmentation by using RGB, HSV, YIQ, YUV and L*a*b color models Soumen and Kaushik used YcbCr color model to detect road sign. Traffic sign follows some well-defined shape signature such as triangle, circular rectangle. To verify and classify shape, author proposed algorithms based on distance to border vectors, Fourier Descriptor (FD) and classifier such as SVM, Adaboost. Recognition of traffic signs are implemented by using various feature descriptor(HOG, SURF, LBP, LSS) of the segmented blob and the state of art machine learning procedures such as SVM, extreme learning machine, K-d trees, random forest , artificial neural networks(ANN) and deep learning paradigm Zumra and Imran used SIFT, SURF and BRISK features descriptor and nearest neighbor classifier (KNN). De La and Moreno proposed ANN as classifier. SVM wasused for recognition module in Huang and Hsieh used Adaboost for the classification of traffic signs. The objective of our research is to design a TSR system by considering distinct color ... of signs ...

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Oriented traffic TSR is an significant field to do research that continuously attracts the research's community of the industry .Since Traffic sign helps to interpret the state of the road, regulate the traffic and also helps in warning and guiding pedestrians and drivers. Recently road accidents are occurring frequently across the world. Leading cause of most accidents is the ignorance of the traffic sign. TSR system plays great potential in decline of road accidents by alerting driver in complex scenario and unconscious driver due to many psychological factors. Moreover, road sign provides information about state of the street to the drivers and pedestrians. Designing common TSR system is not conceivable option, because the structure, shape and colors of road signs are country specific. Many researches in this field have been explored for different countries. It is fact that no significant research works has not so far conducted to develop TSR system for Indian road ways. Most of the traffic sign used in Indian are triangular shape classified as warning sign. Non-triangular signs are seen very few. So, we emphasize our works on triangular traffic sign where the border color rim of these signs is red. The TSR system is developed in three modules: detection, shape verification and recognition. Many algorithms had been proposed for traffic signs detection. Most of the methods used color information for segmentation by using RGB, HSV, YIQ, YUV and L*a*b color models Soumen and Kaushik used YcbCr color model to detect road sign. Traffic sign follows some well defined shape signature such as triangle, circular rectangle. To verify and classify shape, author proposed algorithms based on distance to border vectors, Fourier Descriptor (FD) and classifier such as SVM, Adaboost. Recognition of traffi signs are implemented by using various featur descriptor(HOG, SURF, LBP, LSS) of th segmented blob and the state of art machin learning procedures such as SVM, extreme learnin machine, K-d trees, random forest , artificial neur networks(ANN) and deep learning paradigm Zumra and Imran used SIFT, SURF and BRIS features descriptor and nearest neighbor classifi (KNN). De La and Moreno proposed ANN as classifier. SVM wasused for recognition module Huang and Hsieh used Adaboost for t classification of traffic signs. The objective of o research is to design a TSR system by consideri distinct color features of signs with auto features extraction and classification by deep CN Organization of this article is structured in a w that describes the system outline, segme process is represented for recognition stage

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HEART DISEASE PREDICTION USING MACHINE ALGORITHM

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Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract—

To deal with the problem there is essential need of prediction system for awareness about diseases. Machine learning[1-3] is the branch of ArtificialIntelligence(AI), it provides prestigious support in predicting any kind of event which take training from natural events. In this paper, we calculate accuracy of machine learning algorithms for predicting heart disease, for this algorithms are k-nearest neighbor, decision tree, linear regression and support vector machine(SVM) by using UCI repository dataset for training and testing. For implementation of Python programming anaconda(jupytor) notebook is best tool, which have many type of library, header file, that make the work more accurate and precise.

Keywords:Machine Learning, SVM,

I. INTRODUCTION

II .LITERATURE REVIEW

Heart is one of the core organ of human bo play crucial role on blood pumping in humanbody which essential as the oxygen for human body so there is alw need of protection of it, this is one of the big reasons for researchers to work on this. So there are number researchers working on it. There is always need of analysi heart related things either diagnosis or prediction or you say that protection of heart disease . There are various fie like artificial intelligence, machinelearning.

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FORECASTING AND ANALYSIS OF COVID-19

Mr. Korivi Vamshee Krishna [1], Dr. Pulime Satyanarayana [2], Mrs. Palakollu Divya [3]
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ABSTRACT: Millions of people have been infected and lakhs of people have lost their lives due to the worldwide ongoing novel Coronavirus (COVID-19) pandemic. It is of utmost importance to identify the future infected cases and the virus spread rate for advance preparation in the healthcare services to avoid deaths. Accurately forecasting the spread of COVID-19 is an analytical and challenging real-world problem to the research community. Therefore, we use day level information of COVID-19 spread for cumulative cases from whole world and 10 mostly affected countries; US, Spain, Italy, France, Germany, Russia, Iran, United Kingdom, Turkey, and India. We utilize the temporal data of coronavirus[1-5] spread from January 22, 2020 to May 20, 2020. We model the evolution of the COVID-19 outbreak, and perform prediction using ARIMA and Prophet time series forecasting models. Effectiveness of the models are evaluated based on the mean absolute error, root mean square error, root relative squared error, and mean absolute percentage error. Our analysis can help in understanding the trends of the disease outbreak, and provide epidemiological stage information of adopted countries. Our investigations show that ARIMA model[7-11] is more effectivefor forecasting[6] COVID-19 prevalence.The forecasting results have potential to assist governments to plan policies to contain the spread of the virus.

KEYWORDS- Time Series Analysis, ARIMA model[7-11] , COVID 19 , Future forecasting , Dataset.

I.INTRODUCTION

The novel Coronavirus (COVID-19) has infected millions of people worldwide since it emerged from China in December 2019. COVID-19 has very high mutating capability, and it can spread very easily. Infected people from this virus suffer from severe respiratory problems, and may develop serious illness if suffering from chronic diseases like cardiovascular disease or diabetes or having weak immune system or being older in age. World health organization (WHO) declared on 11th March, 2020, the outbreak of [illegible] are challenges to contain the the virus .

The spread of COVID-19[2-5] can be classified under major stages- 1. Local outbreak: at this stage, spreading cha the virus among the people can be tracked, and the sou infection can be found out. The cases in this stage mostly rel within family or friends, or the local exposure. 2. Comm transmission: at this stage, source of the chain of infected p cannot be found out. The infected cases grow through c transmission in the communities. 3. Large scale transmissi this stage, the virus spreads rapidly to other regions of a c due to uncontrolled mobility of people at large scale.

Due to high scale community impact and easy spre worldwide, national governments imposed lockdown to contr spread of corona virus. As of 20th May, 2020,4996472 case been confirmed, 1897466 cases have recovered, 2328115 have been reported, and 2770891 active cases have been ide worldwide. The statistical data is collected from , and the n of COVID-19 cases is calculated between 22 Jan, 2020 to 2 2020.

As no vaccine has been discovered of the disea motivation behind this paper is to model spreading of the virus, and predict the impact to optimize the planning to n the various services and resources for the public h governments. Some showing statistical analysis, modelir artificial intelligence to contain the spread of the viru highlight impacts in coming days. These early studies are out using very limited information available at early stage outbreak. Now, the virus has spread at large scale, and information is available for the analysis. Predictive anal COVID-19[1-5] has become a hot research area to support services and governments to plan and contain the spread infectious disease . Modeling and forecasting the daily behavior of the virus can assist the health systems to be r accommodate the upcoming number of patients. A forecasting of the disease is a matter of concern because impact governments policy, containment rules, health syste social life. Regarding this context, we explore the pr capability of the ARIMA forecasting models. The mod widely used and accepted due to their more accurate fore capability. We use the day level cumulative cases of CO worldwide and 10 mostly affected countries; US, Spain France, Germany, Russia, Iran, United Kingdom, Turkey, a for our analysis study.

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Due to high scale community impact and easy spreading worldwide, national governments imposed lockdown to control the spread of corona virus. As of 20th May, 2020,4996472 cases have been confirmed, 1897466 cases have recovered, 2328115 deaths have been reported, and 2770891 active cases have been identified worldwide. The statistical data is collected from , and the number of COVID-19 cases is calculated between 22 Jan, 2020 to 20 May 2020.

As no vaccine has been discovered of the disease, sc motivation behind this paper is to model spreading of the corona virus, and predict the impact to optimize the planning to manage the various services and resources for the public by the governments. Some showing statistical analysis, modeling, and artificial intelligence to contain the spread of the virus, and highlight impacts in coming days. These early studies are carried out using very limited information available at early stage of the outbreak. Now, the virus has spread at large scale, and much information is available for the analysis. Predictive analysis of COVID-19[1-5] has become a hot research area to support health services and governments to plan and contain the spread of the infectious disease. Modeling and forecasting the daily spread

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MATERIAL SCIENCE AND TECHNOLOGY

BRAIN TUMOUR DETECTION FROM MRI IMAGES: TECHNIQUES AND APPLICATIONS

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1234Assistant Professor
Department Of Computer Science And Engineering
Samskruti College of Engineering and Technology, Hyderabad

ABSTRACT

The detection, segmentation, and extraction from Magnetic Resonance Imaging (MRI) images of contaminated tumor areas are significant concerns; however, a repetitive and extensive task executed by radiologists or clinical experts relies on their expertise. Image processing concepts can imagine the various anatomical structure of the human organ. Detection of human brain abnormal structures by basic imaging techniques is challenging. In this paper, a Fully Automatic Heterogeneous Segmentation using Support Vector Machine (FAHS-SVM) has been proposed for brain tumor segmentation based on deep learning techniques. The present work proposes the separation of the whole cerebral venous system into MRI imaging with the addition of a new, fully automatic algorithm based on structural, morphological, and relaxometry details. The segmenting function is distinguished by a high level of uniformity between anatomy and the neighboring brain tissue. ELM is a type of learning algorithm consisting of one or more layers of hidden nodes. Such networks are used in various areas, including regression and classification. In brain MRI images, the probabilistic neural network classification system has been utilized for training and checking the accuracy of tumor detection in images. The numerical results show almost 98.51% accuracy in detecting abnormal and normal tissue from brain Magnetic Resonance images that demonstrate the efficiency of the system suggested.

Keywords: Brain Tumor Detection, Classification, Segmentation, Deep learning, ELM.

I. INTRODUCTION

The Importance and Significance of Detecting Brain Tumors

In clinical studies on brain anatomy, MRI [illegible] a crucial tool [1]. The high resolution,

Meningioma and Gliomas are low-grade cancer known as benign tumors and high-grade tumors classified as malignant tumors, including astrocytoma and glioblastoma [7]. Glioblastoma is the most malignant type of astrocytoma, the most elevated glioma [8]. Glioblastoma is unique to all

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MATERIAL SCIENCE AND TECHNOLOGY

ADVANCING HEART DISEASE PREDICTION WITH MACHINE LEARNING

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[1]Assistant Professor,&HOD,[234]Assistant Professor
Department Of Computer Science And Engineering
Samskruti College of Engineering and Technology, Hyderabad

ABSTRACT Heart plays significant role in living organisms. Diagnosis and prediction of heart related diseases requires more precision, perfection and correctness because a little mistake can cause fatigue problem or death of the person, there are numerous death cases related to heart and their counting is increasing exponentially day by day. To deal with the problem there is essential need of prediction system for awareness about diseases. Machine learning is the branch of Artificial Intelligence(AI), it provides prestigious support in predicting any kind of event which take training from natural events. In this paper, we calculate accuracy of machine learning algorithms for predicting heart disease, for this algorithms are k-nearest neighbor, decision tree, linear regression and support vector machine(SVM) by using UCI repository dataset for training and testing. For implementation of Python programming Anaconda(jupytor) notebook is best tool, which have many type of library, header file, that make the work more accurate and precise.

I. INTRODUCTION

Heart is one of the most extensive and vital organ of human body so the care of heart is essential. Most of diseases are related to heart so the prediction about heart diseases is necessary and for this purpose comparative study needed in this field, today most of patient are died because their diseases are recognized at last stage due to lack of accuracy of instrument so there is need to know about the more efficient algorithms for diseases prediction.

Machine Learning is one of the efficient technology for the testing, which is based on training and testing. It is the branch of Artificial Intelligence(AI) which is one of broad area of learning where machines emulating human learning is a specific branch of things so in this project we uses the biological parameter as testing data such as cholesterol, Blood pressure, sex, age, etc. and on the basis of these, comparison is done in the terms of accuracy of algorithms such as in this project we have used four algorithms which are decision tree, linear regression, k-neighbour, SVM.

In this paper, we calculate the accuracy of four different machine learning approaches and on the basis of calculation we conclude that which one is best among them.

Section I of this paper consist the introduction about the machine learning and heart diseases. Section II described, the machine learning classification. Section III illustrated the related work of researchers. Section IV is about the methodology used for this prediction system. Section V is about the algorithms used in this

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MATERIAL SCIENCE AND TECHNOLOGY

ENHANCING SECURITY IN DYNAMIC ID-BASED AUTHENTICATION KEY AGREEMENT: AN EFFICIENT AND PROBABLE SECURITY APPROACH

1VEMULA PRANAY, 2Dr. A. POONGODAI, 3Dr AMITHA JOHAR, 4RAGEERU BHARGAVI
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Department Of Computer Science And Engineering
Samskruti College of Engineering and Technology, Hyderabad

ABSTRACT

Providing security and privacy in today's digital era is very crucial. In order to ensure that the sensitive user data can only be accessed by a valid server, the user and server should agree on a common key in advance. To do so, in the last decade, a number of dynamic ID-based authenticated key agreement (DIDAKA) protocols have been proposed, which can guarantee subsequent secure communications of users and servers. Nevertheless, investigating the related works indicates that the existing DIDAKA schemes suffer from one or more security challenges. Quite recently, Xie et al. have presented an interesting anonymous DIDAKA protocol to cover the security weaknesses of previous schemes; nonetheless, we found that their scheme is susceptible to three attacks. Therefore, to remedy the security limitations, in this paper, we propose a security-enhanced anonymous DIDAKA protocol, which not only keeps the merits of Xie et al.'s scheme, but also offers better execution time compared to their proposed one. To demonstrate the security of the proposed scheme, we present both formal security proof and automatic formal verification of security and to show its efficiency, we present an extensive comparative performance analysis. In conclusion, the results are indicative of the priority of the proposed scheme.

I. INTRODUCTION

SECURITY is an indispensable part of every digital communication. Evidently, without employing proper security measures, the integrity, confidentiality, and privacy of communicating parties cannot be fulfilled. As a result, overlooking the security concerns will affect the wide adoption and acceptance of many new advanced technologies that are based on digital communications. To provide a secure communication channel between two entities, both symmetric and asymmetric encryption methods can be used. However, for the symmetric encryption algorithms, like the advanced encryption standard (AES), the two parties need to have a shared key in advance. Further, since in comparison to the symmetric [illegible] methods, the asymmetric encryption [illegible] cannot be employed (AKA) protocol, first agree upon a common key and then, by utilization of a well-known symmetric encryption mechanism and the generated shared key, they are able to communicate securely and efficiently. In the last decade, a considerable number of AKA protocols have been presented for different applications, such as telecare medical information systems [2], internet of things [3], wireless sensor networks [4] [5], wireless body area networks [6] [7], vehicle to grid networks [8], smart grids [1] [9] [10]], multi server environments [11] [12], global mobility networks [13], and so on. Because of the simplicity and portability of the two-factor smart card based AKA protocols, they have grasped noticeable attention among the other AKA schemes [14].

However, investigating the literature indicates [illegible] of these protocols suffer from one or

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DENSITY-BASED SMART TRAFFIC CONTROL SYSTEM: CONGESTION TRAFFIC INFORMATION USING CANNY EDGE DETECTION ALGORITHM

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ABSTRACT

Congestion in metropolitan areas is getting worse, therefore it's more important than ever to use cutting-edge technology and equipment as soon as possible to improve traffic management. Time-based or human-driven solutions have failed in the past. In this research, a novel approach is provided for real-time traffic density measurement using cutting-edge edge identification and digital picture processing. The reaction speed, vehicle management, automation, dependability, and overall efficiency are all greatly improved by this cutting-edge traffic control system. Four example photos depicting different traffic circumstances are used to illustrate the results of the hardware implementation, and the whole method is illustrated with appropriate diagrams. This entails taking photos, finding edges, and giving out the "go" indication.

Keywords: Smart Traffic Control; Density based Traffic Control; Edge Detection; Image Processing in Traffic Control.

INTRODUCTION

Statistics from the World Bank [1]. The increase of county GDP or metropolitan employment is slowed by congestion, according to intercity studies, and this has an adverse effect on regional competitiveness. To get the most out of our current infrastructure while the number of cars on the road continues to rise, we need a whole new traffic control system that employs cutting-edge technology. Instead of focusing on building additional roads, flyovers, elevated motorways, etc., we should concentrate on improving the . Various systems, such as extract real-time traffic data from CCTV photos placed along the traffic signal. There are a number of options for gathering traffic data. Pixel counters and automobile counters are two examples [3, 4].The good findings of employing these methods to gather traffic statistics warrant further exploration. Rickshaws and auto-rickshaws are the most common form of transportation in South Asian countries, despite the fact that they are so closely related to one another that they may not even qualify as vehicles. Pixel counting also has the issue of not being able to differentiate between cars and other moving things such as people and pavements

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MACHINE LEARNING-BASED METHODOLOGY FOR CHRONIC KIDNEY DISEASE DIAGNOSIS

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ABSTRACT

Chronic kidney disease (CKD) is a global health problem with high morbidity and mortality rate, and it induces other diseases. Since there are no obvious symptoms during the early stages of CKD, patients often fail to notice the disease. Early detection of CKD enables patients to receive timely treatment to ameliorate the progression of this disease. Machine learning models can effectively and clinically achieve this goal due to their fast and accurate recognition performance. In this study, we propose a machine learning methodology for diagnosing CKD. The CKD data set was obtained from the University of California Irvine (UCI) machine learning repository, which has a large number of missing values. KNN imputation was used to fill in the missing values, which selects several complete samples with the most similar measurements to process the missing data for each incomplete sample. Missing values are usually seen in real-life medical situations because patients may miss some measurements for various reasons. After effectively filling out the incomplete data set, six machine learning algorithms (logistic regression, random forest, support vector machine, k-nearest neighbor, naive Bayes classifier and feed forward neural network) were used to establish models. Among these machine learning models, random forest achieved the best performance with 99.75% diagnosis accuracy. By analyzing the misjudgments generated by the established models, we proposed an integrated model that combines logistic regression and random forest by using perceptron, which could achieve an average accuracy of 99.83% after ten times of simulation. Hence, we speculated that this methodology could be applicable to more complicated clinical data for disease diagnosis.

Keyword: Chronic Kidney Disease, Machine Learning, KNN Imputation, Integrated Model

1.INTRODUCTION

Chronic kidney disease (CKD) is one of the most common diseases worldwide, affecting about 10% of the world's population [1]. The presence of kidney damage or impairment of kidney function are indications of chronic kidney disease [2], also characterized by decreased excretory renal work or proteinuria for more than 3 months [3]. Kidneys have millions of tiny blood vessels that act as filters to remove waste products from the blood. In some cases, this filtering system breaks down and the kidneys lose their ability to filter out waste products, leading to kidney disease. There is no single underlying cause of CKD, but worsening is usually irreversible and can lead to serious health [illegible] In addition to the severity of chronic [illegible] more symptomsthat do not appear in the early stages, which can result in a 25% loss of kidney function due to late diagnosis . The best way to prevent CKD from progressing to renal failure is early diagnosis [6]. Most developing countries suffer from a shortage of specialized doctors, in addition to high diagnostic costs, especially in remote provinces. Therefore, the need to develop new technologies for diagnosing chronic kidney disease, which would help the doctor in the early detection of the disease, increased. Deep learning and machine learning (AI) play an important role in the medical field, especially in early detection and disease prediction. The most widely used technologies are ANN and SVM algorithms. These technologies have great advantages in [illegible] in the identification process [illegible]

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MATERIAL SCIENCE AND TECHNOLOGY

ROBUST MALWARE DETECTION USING DEEP LEARNING: AN INTELLIGENT APPROACH

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ABSTRACT: "Malware or malware remains a major concern in present digital life as computer users, companies and governments see the rise of malware attacks. Current malware detection solutions are use static and dynamic analysis of malware signatures and behaviours; this is time consuming and ineffective in identifying unknown malware. The latest malware uses polymorphism, shapeshifting, and other avoidance methods to quickly change the behavior of the malware and create more malware. Recently, machine learning algorithms (MLA) have been used to effectively identify malware because new malware is often different from existing malware." This requires a lot of engineering skills, technical training and artistic expression. The engineering process can be avoided altogether by using advanced MLA techniques such as deep learning. Although some recent studies have progressed in this direction, the efficiency of algorithms is highlighted by the data.
"In order for newly developed methods to be effective in zero-day malware detection, it is necessary to reduce the bias and self-testing of these methods. To fill this gap in the literature, this study evaluates the role of classical MLA and deep learning in malware detection, classification and classification using public and private databases. Training and testing distinguish between public and private data used in clinical trials and collected at different times. We also provide a new image processing system with state-of-the-art MLA and in-depth courses." A qualitative analysis of the method shows that deep learning outperforms traditional MLA. Overall, this project uses deep learning techniques to classify malware in real time and provides powerful insights. Visualization and deep learning, based on a combination of static, dynamic and image processing in a big data environment, is a new method for zero-day malware discovery.

INTRODUCTION

"With the rise of malware threats, it is more necessary than ever to protect our computers and mobile phones with antivirus software. Machine learning is an important technique for malware [illegible] been trained with millions of

- Various issues but terrible video/sound effects

LITERATURE REVIEW

Robust Intelligent Malware Detetion Using Deep Learning

VINAYAKUMAR R1 , MAMOUN ALAZAB2 (Senior Member, IEEE) , SOMAN KP1 ,

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MATERIAL SCIENCE AND TECHNOLOGY

EFFICIENT CLONE DETECTION IN WIRELESS SENSOR NETWORKS: BALANCING ENERGY AND MEMORY EFFICIENCY

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ABSTRACT

In this paper, we propose an energy-efficient location-aware clone detection protocol in densely deployed WSNs, which can guarantee successful clone attack detection and maintain satisfactory network lifetime. Specifically, we exploit the location information of sensors and randomly select witnesses located in a ring area to verify the legitimacy of sensors and to report detected clone attacks. The ring structure facilitates energy-efficient data forwarding along the path towards the witnesses and the sink. We theoretically prove that the proposed protocol can achieve 100 percent clone detection probability with trustful witnesses. We further extend the work by studying the clone detection performance with untrustful witnesses and show that the clone detection probability still approaches 98 percent when 10 percent of witnesses are compromised. Moreover, in most existing clone detection protocols with random witness selection scheme, the required buffer storage of sensors is usually dependent on the node density, i.e., O(n—√) , while in our proposed protocol, the required buffer storage of sensors is independent of n but a function of the hop length of the network radius h , i.e., O(h) . Extensive simulations demonstrate that our proposed protocol can achieve long network lifetime by effectively distributing the traffic load across the network.

Keywords: Sensors, Clone, Protocol

INTRODUCTION

Wireless sensors have been widely deployed for a [illegible] and the location information are shared with witnesses at the stage of witness selection.

When any of the nodes in the network wants to

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MATERIAL SCIENCE AND TECHNOLOGY

IRIS RECOGNITION WITH MACHINE LEARNING TECHNIQUES: ADVANCEMENTS AND APPLICATIONS

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ABSTRACT

One of the main results of the validation system is based on the fingerprint based iris recognition system and respective technology. The entire biometric process is very much authentic and unique than the other types of recognition system and validation process. This has provided innovative ideas in the daily lives of human beings. The multimodal biometric process has generally applied various types of applications for properly dealing with the appropriate and most significant limitations of the "unimodal biometric system". The entire process has been generally included with the proper sensitivity of noise, the population coverage areas, variability cases of the inter class and intra class issues, vulnerability cases of possible hacking and the non universality criteria. The entire research paper has been mainly focused on the deep learning oriented machine learning system. The fingerprint based iris recognition system to do the proper validation of human beings has been mainly done by convolutional neural network (CNN) technique. In the existing data validation process, the iris recognition system has been mainly done with respect to the "high security protection system with
actual fingerprints". The entire paper has been briefly elaborated on the best uniqueness, reliability process and the proper "validity of the iris biometric validation system" for the actual purpose of the person identification.

I. INTRODUCTION

1.1. Introduction

The biometric process has been mainly used to recognize individual types of physical aspects and features. For this purpose, a tremendous amount of acknowledgement technologies have been generally provided with the actual fingerprint, iris procedures and voice acknowledgement. The biometric mainly deals with the proper technical and technological for the body controls and body ...tication system is based the strong privacy properties of the entire system. The exceptional fingerprint assurance or the proper kind of imprint approval has been mainly insinuating the automated methods and procedures to ensure similarity between the two people fingerprints. The entire chapter has been generally provided with the actual purpose of the fundamental research that is overall dependent on the research objectives and respective research questions. In this chapter, the research framework of the entire study has also been provided. The fundamental research has described all the factors that are responsible for

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CLASSIFICATION OF LEAF DISEASE USING CNN

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Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract—In the field of agricultural information, the automatic identification and diagnosis ofmaize leaf diseases is highly desired. To improve the identification accuracy of maize leaf diseases and reduce the number of network parameters, the improved GoogLeNet and Cifar10 models based on deep learning[10]are proposed for leaf disease recognition in this paper. Two improved models that are used to train and test nine kindsof maize leaf images are obtained by adjusting the parameters, changing the pooling combinations, adding dropout operations and rectified linear unit functions, and reducing the number of classifiers. In addition, the number of parameters of the improved models is significantly smaller than that of the VGG and Alex Net structures. During the recognition of eight kinds of maize leaf diseases, the GoogLeNet model achieves a top - 1 average identification accuracy of 98.9%, and the Cifar10 model achieves an average accuracy of 98.8%. The improved methods are possibly improved the accuracy of maize leaf disease, and reduced the convergence iterations, which can effectively improve the model training and recognition efficiency.

I Introduction

Maize is an important food and feed crop. Its plantarea and total output are the largest in the world except for rice and wheat [1]. However, in recent years, the number ofspecies of maize diseases and the degree of harm they cause have increased, mainly due to changes in cultivation systems, the variation of pathogen varieties, and inadequate of plant protection measures. Generally, there are eight typesof common [illegible] including Curvularia leaf spot, Dwarf mosaic, [illegible] Brown spot, Round spot,

support vector machine (SVM), neural networks, and oth methods, we can detect and classify leaf diseases [8]. An SVM based multi - classifier was proposed by Song et al. and wa applied to identify a variety of maize leaf

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II Literature Survey

L. Chen and L.Y. Wang proposed a method for the identification of maize leaf diseases based on image processing technology and a probabilistic neural network (PNN) [9]. The best recognition accuracy of this method was90.4%. However, for the PNN classifier, the identification accuracy and speed of this method decrease as the number of training samples increases. A method of maize leaf disease identification based on adaptive weighting multi-classifier fusion was proposed by L. F. Xu [10]. Seven common typesof maize leaf disease were tested by this method. The average recognition rate was 94.71%. N. Wang . [11] Z. Qi et al. [11]and F. Zhang [11] proposed different methods using digital image processing techniques based on Fisher discriminant, Retinex algorithm combined with principal component analysis (PCA) and SVM[8], and quantum neural network(QNN) and combination features for identification of maize leaf disease. The highest recognition accuracy of these studies was 95.3%, but fewer maize diseases were involved in these methods. Different methods are used to identify maize diseases and the best recognition accuracy was 95.3%, which cannot meet the current requirements for high recognition accuracy. Therefore, in the follow-up study, we should focus on how to improve identification accuracy.

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Deep learning has made tremendous advances in thepast few years.It is now able to extract useful feature representations from a large number of input images. Deep learning provides

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Network Security with Its PenetratingAttacks and Possible Security Mechanisms

Dr.Malladi Ramakanth Reddy[1], Mr. Korivi Vamshee Krishna[2], Mr. Sirikonda Vamshi Krushna[3]
Department of Computer Science Engineering, Samskruti College of Engineering and Technology

Abstract- Security is a fundamental component in the computing and networking technology. The first and foremost thing of every network designing, planning, building, and operating a network is the importance of a strong security policy. Network security has become more important to personal computer users, organizations, and the military. With the advent of the internet, security became a major concern. The internet structure itself allowed for many security threats to occur. Network security is becoming of great importance because of intellectual property that can be easily acquired through the internet. There are different kinds of attack that can be when sent across the network. By knowing the attack methods, allows for the appropriate security to emerge. Many businesses secure themselves from the internet by means of firewalls and encryption mechanisms. There is a large amount of personal, commercial, military, and government information on networking infrastructures worldwide and all of these required different security mechanisms. In this paper, we are trying to study most different kinds of attacks along with various different kinds of security mechanism that can be applied according to the need and architecture of the network.

Keywords: Network Security, attacks, hackers, Cloud-environment security, zero-trust model (ZTM), Trend Micro internet security.

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I INTRODUCTION

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Study of Network Security along with Network Security Tools and Network Simulators

Dr. Malladi Ramakanth Reddy [1], Mr. Korivi Vamshee Krishna [2]
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Abstract -With the increase of hacking, different attacks, viruses, worms and other networking threats, security is a major problem in today's networks. 10, 15 years ago, security was a simple issue requiring simple solutions. In those days, the internet was small and had only a small number of businesses, organizations, universities and government agencies connected to it. Aging passwords were used to protect accounts and simple packet- filtering firewalls were used to restrict traffic flows. The entire field of network security is vast and in an evolutionary stage. The range of study encompasses a brief history dating back to internet's beginnings and the current development in network security. In order to understand the research being performed today, background knowledge of the internet, its vulnerabilities, attack methods through the internet, and security technology is important and therefore they are reviewed.

In this paper, we analyzed the various network simulators and network security tools. This paper highlights the working of Wireshark as a network protocol analyzer and also accentuates its flexibility as an open source utility. Wireshark is used to analyze network data and then that data is classified into normal data and abnormal data.

Keywords- Nmap, Nessus, Network Security, Snort, Wireshark.

I. INTRODUCTION TO NETWORK SECURITY

Network security [2] refers to any activities designed to protect your network. It consists of the technologies and processes that are deployed to protect networks from internal and external threats. Network security involves all activities that organizations, enterprises, and institutions undertake to protect the value and ongoing usability of assets and the integrity and continuity of operations. Effective network security targets a variety of threats and stops them from entering or spreading on your network.

A. Goal of Network Security

The primary goal of network security is to provide controls at all points along the network perimeter which allow access to the network and only let traffic pass if that is authorized, valid and of acceptable risk.

The purpose of network security is to protect networks, network devices and network messages from unauthorized access, usually by outsiders.

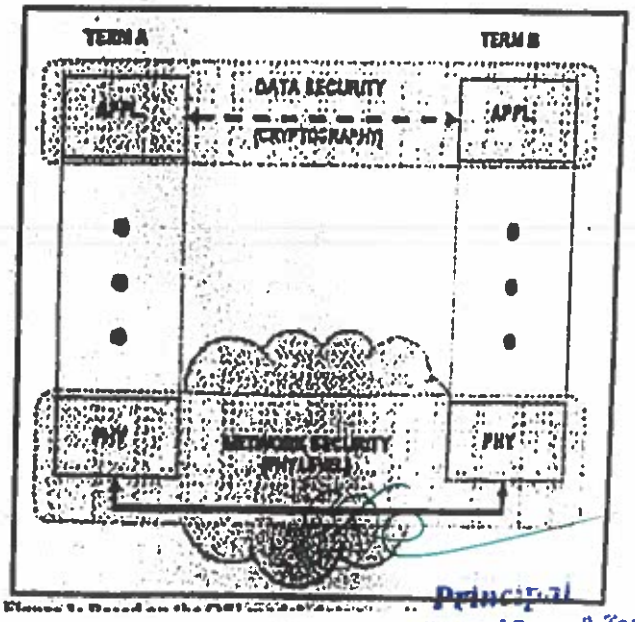
Objective 2: To detect and respond to attempted and actual intrusions through the network.

Objective 3: To prevent network messages that is sent across networks from being intercepted or modified.

B. Differentiating Data Security and Network Security

Data security is the aspect of security that allows a client's data to be transformed into unintelligible data for transmission. Even if this unintelligible data is intercepted, a key is needed to decode the message. This method of security is effective to a certain degree. Strong cryptography in the past can be easily broken today. Cryptographic methods have to continue to advance due to the advancement of the hackers as well.

When transferring cipher text over a network, it is helpful to have a secure network. This will allow for the cipher text to be protected, so that it is less likely for many people to even attempt to break the code. A secure network will also prevent someone from inserting unauthorized messages into the network. Therefore, hard ciphers are needed as well as attack-hard networks [2].



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A. *Goal of Network Security*

The primary goal of network security is to provide controls at all points along the network perimeter
which allow access to the network and only let traffic pass if that is authorized, valid and of acceptable risk.
The purpose of network security is to protect networks, network devices and network messages from unauthorized access, usually by outsiders.
Objective 1: To provide control all points along the network perimeter in order to block network traffic that is malicious, [illegible] otherwise presents risk to the network.
Objective 2: To detect and respond to attempted and actual intrusions through the network.
Objective 3: To prevent network messages that is sent across networks from being intercepted or modified.

B. *Differentiating Data Security and Network Security*

Data security is the aspect of security that allows a client's data to be transformed into unintelligible data for transmission. Even if this unintelligible data is intercepted, a key is needed to decode the message. This method of security is effective to a certain degree. Strong cryptography in the past can be easily broken today. Cryptographic methods have to continue to advance due to the advancement of the hackers as well.
When transferring cipher text over a network, it is helpful to have a secure network. This will allow for the cipher text to be protected, so that it is less likely for many people to even attempt to break the code. A secure network will also prevent someone from inserting unauthorized messages into the network. Therefore, hard ciphers are needed as well as attack-hard networks [2].

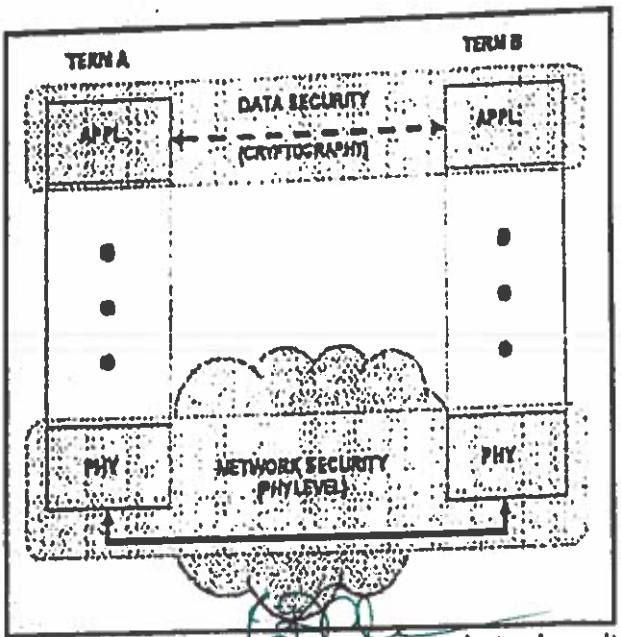

Figure 1: Based on the OSI model, data security and network security have a different security function [2].

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Synthesis, Characterization of Chalcone moiety

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Abstract: In this study two chalcone diols namely DBHB, DBHE were synthesised by base catalysed Claisen-Schmidt condensation method comprising 1-3 diacetyl benzene and varying benzaldehyde. The UV-Visible spectroscopy, Fourier Transform Infrared spectroscopy was done to prove the formation of chalcone diols. Nuclear Magnetic Resonance spectroscopy was applied to confirm the structural orientation. The optical band gap energy of DBHB, DBHE were done by UV-Visible spectroscopy found to be 4.27 and 4.18 eV respectively. Thus the synthesised chalcone diols behave like a semiconductor material.

Keywords: **Claisen-Schmidt, Condensation, Resonance, Optical, Bandgap energy, Semiconductor.**

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THE ROLE OF MATHEMATICS IN EMERGENCE OF CRYPTOGRAPHY

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ABSTRACT

Cryptography is an art of developing techniques of writing messages in a secret way and ensuring the security in communication. Earlier, the use of cryptography was restricted to the safety of information in diplomatic and military areas. With the growth in e-commerce, ATM machines, e-mail and video conferencing through computers, the threat of unauthorized accessibility to the data became a serious concern. So, in order to secure the stored data and to communicate safely the need was to develop economical, efficient and safe cryptography systems. The intent of this paper is to discuss how mathematics plays a significant role in developing various techniques of cryptography.

Keywords: Ciphertext, Cryptography, Decryption, Encryption, Plaintext

I. INTRODUCTION

The term Cryptography, coined from the Greek language, is collaboration of two words 'kryptos'- 'hidden' and 'graphein'- 'to write'. Cryptography came into picture when the use of physical locks was abandoned in communication. The first recorded use of cryptography comes from Julius Caesar, a Roman army commander, around 50 B.C [1]. Some of the important terms related to cryptography are following:

Encryption: Encryption is part of cryptography used to hide information by converting it into an illegible code.It uses a particular parameter or key to perform the information conversion. Decryption is the reverse of encryption.

Plaintext: It is the information to be encrypted.

Ciphertext: It is the output of the encryption.

Cipher: Cipher is an algorithm used for encrypting and decrypting messages. It is the set of transformations to convert plaintext into ciphertext. Cipher can be thought of as the virtual lock.

Cryptanalysis: The art of interpreting secret messages and discovering the method used for cryptography is calle

[illegible] It exposes the drawbacks in existing cryptography systems. Cryptographers invent hidden codes an

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Conflict between Societal Norms and Self- Empathy on Women Characters in Anita Nair's'Ladies Coupe'

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Abstract— Anita Nair is popular writer in English. She through this novel 'Ladies Coupe' talks about the various problems faced by the women in the patriarchal society. It depicts the conflict between the societal norms and self-empathy on women characters in various complexities of life. This paper is a study of Anita Nair's second novel where all her major and minor characters undergo physical, psychological and situational constraints set by the society. It centrals around the protagonist, Akilandeswari, a forty five year old spinster who travels in the ladies compartment of a train. There she meets her co-passengers in the Ladies coupe who shares their real stories of their life. Eldest of all is Janaki, Margret Paulraj is a school teacher, Prabhavathi a perfect home maker, Marikolunthu the abused lady of innocence, Karpagam a revolutionary widow and a schoolmate of Akhila, etc.,. Each one is from different from one another in their social status, economical stability, age, community and also in their experiences of life. It also elaborates about how they fight back successfully balancing the norms of the society and revelation of self.

Keywords— Anita Nair, Women Writer, patriarchal societal norms, self- empathy, self- revelation.

Anita Nair is a popular South Indian writer in English .She talks about the problems of women folks and their sufferings in the hands of patriarchal society in contemporary India. She unveils the bare truth of how dreams of the women scatter and vanish slowly due to fixed patterns of the societal norms in the name of so called culture and tradition. 'Each of the women is finely drawn' says the Hindustan Times.

Balancing and counter- balancing these strict unwritten rules and boundaries make her struggle between her own choices and social expectations from her. Going beyond the above boundaries cast her away from the crowd, branding her as unfit for the society in which she lives. In order to cope up, she needs to struggle a lot both physically and psychologically against social, cultural and economical challenges. Breaking those barriers and obstacles withstanding the test of time seems to be a great challenge for her. This may sometimes mar her reputation and cause damage to her livelihood.

This novel 'Ladies Coupe (2001)' is the second novel written by Anita Nair .It brought her great fame and popularity among the audience. It was selected as one of the top five books in the year 2002. It was hence translated into more than twenty five languages around the world. Anita Nair readily brings out all conflicts which women undergo in the name of societal norms, boundaries, marriage, customs and traditions in the male dominated society where men rule over her body and mind.

They were literally been ill-treated in many others ways in all spheres of their life such as verbal, physical and sexual abuse by the spouse, sexual harassment, sexual exploitation, seduction, reciprocated love, care and affection, lack of financial stability, economic compulsion, curbing of economic freedom, blocking of social independence, oppression and suppression, discouragement lack of moral support, lack of guidance, use and misuse o her poverty, insecurity, etc., were brought live by th author.

All the characters, major and minor, in the nove 'Ladies Coupe' undergo psychological trauma in the journey of life due to certain situational constraints whic they face in their life. All this is brought live in a ve simple vivid language by Anita Nair.

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Biogas Production from Paper Waste and its blend with Cow dung

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ABSTRACT

A study of the biogas production potential of paper waste (PW-A) and its blend with cow dung (PW: CD) in the ratio 1:1 was investigated. The two variants were charged into 50L metal prototype biodigesters in the ratio of 3:1 of water to waste. They were subjected to anaerobic digestion under a 45 day retention period and mesophilic temperature range of 26°C-43°C. The physicochemical parameters of the wastes were determined including microbial analysis. Results obtained showed that PW had a cumulative gas yield of 6.23 ±0.07dm ^{3}/kg of slurry with the flash point on the 2nd day even though gas production reduced drastically while the flammability discontinued and resumed after 14 days. Blending increased the cumulative gas yield to 9.34±0.11dm^3/kg.slurry representing more than 50% increase. The onset of gas flammability took place on the 6th day and was sustained throughout the retention period. The study showed that paper waste which abounds everywhere and is either burnt off or thrown away constituting nuisance to the environment would be a very good feedstock for biogas production. It also indicates that blending paper waste with cow dung or any other animal waste will give sustained gas flammability throughout the digestion period of the waste since animal wastes are good starters for poor biogas producing wastes. Generation of biogas from paper waste upholds the concept of waste to wealth in enhancing sustainability of development.

Keywords: Waste paper, cow dung, gas flammability, waste blend, retention time.

INTRODUCTION

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Heat Transfer Through a PlaneWall Using Visual Basic

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Abstract: In present work a teaching module for teaching unsteady state heat transfer using visual basic has been presented. A Visual Basic computer program has been written to solve the unsteady state heat transfer through a plane wall and has been shown with the help of computer graphics. The governing equation has been modelled using finite difference numerical procedure in which the wall is divided into a number of nodes and temperature at each node has been calculated using Visual Basic code. The program returns the values of temperature at each node into excel sheet and a coloured plot of these temperatures with time and space on the Graphical User Interface. With this module parametric study of different parameters affecting the unsteady state heat transfer such as diffusivity, time difference, number of nodes, distance between two nodes etc. can be performed.

Index Terms: heat transfer; Visual Basic; excel; unsteady state; plane wall; one-dimensional; numerical methods; Graphical User Interface

1. INTRODUCTION

Heat transfer is defined as rate of exchange of thermal energy between two physical systems from one equilibrium state to another on account of temperature difference between the two systems. There are three basic mechanisms of heat transfer conduction, convection and radiation. If temperature distribution is a function of both time and space then it is known as unsteady state heat transfer. The partial differential equation governing the unsteady state heat transfer can be solved by analytical and numerical methods.Analytical methods are limited to highly simplified problems and these are extremely tedious and time consuming, so computer and numerical methods are ideally used for such calculations. The numerical methods used for solving the differential equations are based on replacing the differential equation by algebraic equations. If the derivative is replaced by the differences of the variable then it is known as Finite difference method. In this the medium is subdivided into small regions forming nodal network and the value of variable is calculated at each node. As these methods are iterative so computer programs are helpful in solving these iterative problems. Visual Basic is a 3rd generation, event- driven programming language. Visual Basic was derived from BASIC and enables the Rapid Application Development (RAD) of Graphical User Interface (GUI) applications. Its features like Graphical User Interface and solving complex mathematical problems within short time ideally suit it for educational purposes. Modules prepared under Visual Basic allow us to "see" and help in understanding the physics underlying a particular process.

Visual Basic provides many advantages as compared to other software's due to which it is being widely in the field of education. Ribando et al. [13] developed a PC-based teaching module for laminar and turbulent forced convection over a flat plate. In this the boundary layer equations are solved using finite-difference numerical methods using Visual Basic. Yeh [14] used Visual Basic programming language to solve problems of radiation heat transfer. Hassan et al. [14] used Visual Basic programming language for simulating numerical iterations. Kothare [7] designed shell and tube heat exchanger by VB Language for educational purpose. Mandal [9] developed a software for designing a dairy heat exchanger and for its performance evaluation. He used Visual Basic for heat transfer studies in various types of heat exchanger geometries. Obuka et al. [11] developed a computer application using Visual Basic to calculate the cooling load of a non-residential building taking all influential factors into consideration. The objective of this work is to develop a module using Visual Basic for the numerical analysis of one-dimensional unsteady state heat transfer through a plane wall. In this the thickness of wall is divided into a number of nodes and after finite difference procedure temperature variation at each node with time has been calculated and has been shown graphically. The program returns the values of temperature at each node into excel sheet and a coloured plot of these temperatures with time and space on the graphical user interface. The module prepared consists of full color visualization and straight forward user input through user interface.

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Solving FuzzyTransportation Problems with Trapezoidal Fuzzy Numbers

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Abstract: *In this paper, we consider the fuzzy transportation problem (FTP) where cost, availability and demand of the product are represented Trapezoidal fuzzy numbers. We develop fuzzy version of Vogel's Algorithm for finding fuzzy optimal solution of fuzzy transportation problem and Fuzzy transportation problem can be converted into a crisp valued Transportation problem using fuzzy ranking techniques.*

Keywords: Fuzzy set, fuzzy transportation problem, trapezoidal fuzzy number, fuzzy ranking techniques.

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Traumatic Distress in Children Arundhati Roy's The God of Small Things

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Abstract— Arundhati Roy's novel The God of Small Things (1997) narrates trauma and its deep distress in child psychology. The novel consists of multiple traumas. Rahel and Estha-- the two major characters – are haunted by past events throughout their life. I pay particular attention to child psychology affected by trauma, its causes, symptoms and responses are examined in relation to the experience of the children particularly Rahel and Estha. In this article I employ the theoretical frameworks of psychological trauma studies in relation to childhood. It provides interpretations of psychological trauma in the childhood and its long-lasting affects even in the adult life. The protagonists are two twin children Rahel and Esthappen.

Keywords— trauma, psychology, humiliation, trigger, nightmares.

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Fourier series and Transforms via Convolution

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Abstract

In this paper we show an alternative way of defining Fourier Series and Transform by using the concept of convolution with exponential signals. This approach has the advantage of simplifying proofs of transforms properties and, in our view, may be interesting for educational purposes.

Index terms— Convolution, Fourier Series, Fourier Transform, DFT.

1 Introduction

Fourier Series and Transform [1] are pivotal topics in any course of Signals and Systems for engineering. Their use is widespread in most engineering courses generally because it help us to solve and/or understand certain operations involving signals (e.g. derivation, integration, translations, etc) that appears in the so-called time-domain as other operation (generally simpler) in another domain denominated frequency domain, and vice-versa. Our aim in this note is to present a new formulation for Fourier series and transform by exploring its close connection with another fundamental operation in the context of signal and systems theory that is the convolution [1] (see also Section 2). The main result of the paper is Proposition 3.1 in Section 3.1, which presents another formulation for the Exponential Fourier series. In sections 3.2 and 3.3 we extend the idea to give a new formulation for the Fourier Transform and Discrete Fourier Transform (DFT), respectively.

2 Signals and convolution

A signal is generally represented as a complex-valued function and which is said to be *analog* when the domain is the set of real numbers, or *discrete* when the domain is the set of integers[1], that is:

$$f: \quad \mathbb{R} \to \mathbb{C} \quad \text{(Analog signal)}$$
$$t \mapsto f(t)$$

$$g: \quad \mathbb{Z} \to \mathbb{C} \quad \text{(Discrete-time signal)}$$
$$k \mapsto g(k)$$

As examples we have $f(t) = \cos(\frac{\pi}{2} t)$ as an analog signal and $g(k) = \cos(\frac{\pi}{2} 10^{-3} k)$ a discrete signal. We can obtain a discrete signal (f^*) from an analog signal (f) by the process of (periodic) "sampling", which is mathematically implemented as:

$$f^*(k) = f(kT_s)$$

where $T_s > 0 \in \mathbb{R}$ is denominated "sampling" interval.[2] In this situation, we say that the samples of f are spaced in time by an interval T_s, and it is understood that as T_s tends to zero the discrete signal f^* tends to analog signal f, that is $kT_s \to t$ and $f^*(k) \to f(t)$.

Convolution is a binary operation between signals, and we have an analog convolution when both signals involved are analog or a discrete convolution when they are discrete signals. We start by defining discrete convolution:

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BIOMEDICAL APPLICATIONS OF CHITOSAN AND ITS DERIVATIVES

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ABSTRACT

Chitosan is a deacetylated compound of chitin which is a polysaccharide extracted from the shells of crustaceans, molluscs, fungi and other organisms. Chitosan is made up of copolymers containing glucosamine and N acetylglucosamine. They are derived by three methods from chitin viz, deproteination, demineralization and deacetylation. It is a basic polysaccharide and has several advantages such as photoelectric behaviour, ability to form films, metal chelation, optical and structural characteristics. These abilities of chitosan made them a perfect candidate for various applications. Chitosan is used in various fields such as cometics, agriculture, food, paper industry and also in fabrics. Besides these, they are widely used in biomedical applications due to its flexibility to be moulded into any shapes and more importantly its non toxic nature. In the field of biomedicine, Chitosan are known for their best anti microbial, anti oxidant, anti cancer and wound healing abilities and it is also used as drug delivery systems for treating several diseases. The present review deals with the biomedical applications of chitosan.

Keywords

Antimicrobial activity, Chitin, Chitosan, Drug targeting, Woundhealing

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MHD Chemically Reacting and Radiating Nano fluidFlow over a Vertical Cone

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Abstract: In this study, we examine the combined effects of thermal radiation, chemical reaction on MHD hydromagnetic boundary layer flow over a vertical cone filled with nanofluid saturated porous medium under variable properties. The governing flow, heat and mass transfer equations are transformed into ordinary differential equations using similarity variables and are solved numerically by a Galerkin Finite lement method. Numerical results are obtained for imensionless velocity, temperature, nanoparticle volume raction, as well as the skin friction, local Nusselt and Sherwood umber for the different values of the pertinent parameters ıtered into the problem. The effects of various controlling ırameters on these quantities are investigated. Pertinent sults are presented graphically and discussed quantitatively. ıe present results are compared with existing results and found be good agreement. It is found that the temperature of the id remarkably enhances with the rising values of Brownian tion parameter (*Nb*).

ıwords: MHD; Nanofluid; Vertical cone; Variable properties; :mical reaction; Thermal radiation.

Nomenclature

Le	Lewis number
p	Pressure
Nb	Brownian motion parameter
q_r	Thermal radiation
M	Magnetic parameter
Sh_x	Local Sherwood number
Nv	Variable viscosity parameter
Nc	Variable thermal conductivity parameter
Cr	Chemical reaction parameter
Nr	Buoyancy ratio
K	Permeability of the porous medium *Greek symbols*
μ	viscosity c
porosity	
y	proportionality constant
α_m	Thermal diffusivity.
ρ_f	Fluid density
ρ_p	Nanoparticle mass density

UNLOCKING ENGINEERING PHYSICS: ADVANCEMENTS IN BLACK-BOX SOLVERS FOR NUMERICAL SIMULATIONS AND MATHEMATICAL MODELING

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ABSTRACT:

This article presents a two-grid approach for developing a black-box iterative solver for a large class of real-life problems in continuum mechanics (heat and mass transfer, fluid dynamics, elasticity, electromagnetism, and others). The main requirements on this (non-)linear black-box solver are: (1) robustness (the lowest number of problem-dependent components), (2) efficiency (close-to-optimal algorithmic complexity), and (3) parallelism (a parallel robust algorithm should be faster than the fastest sequential one). The basic idea is to use the auxiliary structured grid for more computational work, where (non-)linear problems are simpler to solve and to parallelize, i.e., to combine the advantages of unstructured and structured grids: simplicity of generation in complex domain geometry and opportunity to solve (non-)linear (initial-)boundary value problems by using the Robust Multigrid Technique. Topics covered include the description of the two-grid algorithm and estimation of their robustness, convergence, algorithmic complexity, and parallelism. Further development of modern software for solving real-life problems justifies relevance of the research. The proposed two-grid algorithm can be used in black-box parallel software for the reduction in the execution time in solving (initial-)boundary value problems.

Keywords: mathematical modelling; parallel; high-performance and multigrid computing; black-box software; multiphysics simulation; real-life problems

1. INTRODUCTION

Mathematical modelling of physical and chemical processes has always been an important activity in science and engineering [1]. Scientists and engineers, however, cannot understand all the details of the mathematical models, numerical algorithms, parallel computing technologies, and parallel supercomputer architectures. This fact motivates the development of black-box software. Several industries, as well as engineering and consulting companies worldwide, use commercially available general-purpose CFD codes for the simulation of fluid flow, heat and mass transfer, and combustion in aerospace applications (Fluent, Star-CCM+, COMSOL's CFD Module, Altair's AcuSolve, and others). Also, many universities and research institutes worldwide apply commercial codes, in addition to using those developed in house. Today, open-source codes such as OpenFOAM are also freely available. Other important issues are the description of complex domain geometries and the generation of suitable grids. However, to successfully apply such codes and to interpret the computed results, it is necessary to understand the fundamental concepts of computational methods. A promising and challenging trend in numerical simulation and scientific computing is to devise a single code to handle all problems [which already be

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Fuzzy Transportation Problem Using Ranking Approach

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ABSTRACT

The fuzzy set theory has been applied in many allied fields such as operation research, management science and control theory etc. The fuzzy numbers and fuzzy values are widely used in engineering application. In this paper, we propose a new ranking method for solving fully fuzzy transportation problem (FFTP). In ranking method, the given FFTP is converted into a crisp transportation problem (CTP) and solved by using Yager's ranking technique and the optimal solution to the given FFTP is obtained and then compared between our purposed method and the existing method. Numerical example is also provided to demonstrate the effectiveness and accuracy of our proposed method.

Keywords: Fuzzy Transportation Problem, Symmetric Triangular Fuzzy Numbers, Ranking, Optimal Solution.

RES MILITARIS Social Science Journal

EXPLORING LIMIT CYCLES IN CHEMICAL SYSTEMS: A DYNAMIC PERSPECTIVE

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ABSTRACT

The dynamics of a chemical reaction network (CRN) is often modelled under the assumption of mass action kinetics by a system of ordinary differential equations (ODEs) with polynomial right-hand sides that describe the time evolution of concentrations of chemical species involved. Given an arbitrarily large integer $K \in N$, we show that there exists a CRN such that its ODE model has at least K stable limit cycles. Such a CRN can be constructed with reactions of at most second order provided that the number of chemical species grows linearly with K. Bounds on the minimal number of chemical species and the minimal number of chemical reactions are presented for CRNs with K stable limit cycles and at most second order or seventh order kinetics. We also show that CRNs with only two chemical species can have K stable limit cycles, when the order of chemical reactions grows linearly with K.

Keywords: chemical reaction networks, limit cycles, mass action kinetics

polynomials on their right-hand sides [1, 2]. The mathematical investigation of ODEs with polynomial right-hand sides has a long history and includes a number of challenging open mathematical problems, for example, Hilbert's 16th Problem [3], which asks questions about the number and position of limit cycles of the planar ODE system of the form

$$\frac{dx}{dt} = f(x, y) \qquad (1.1)$$

$$\frac{dy}{dt} = g(x, y) \qquad (1.2)$$

where f(x, y) and g(x, y) are real polynomials of degree at most n. Denoting H(n) the maximum number of limit cycles for the system (1.1)–(1.2), neither the value of H(n) (for $n \geq 2$) nor any upper bound on H(n) have yet been found [4]. Since a quadratic system with 4 limit cycles has been constructed [5], we know that $H(2) \geq 4$. Similarly, $H(3) \geq 13$, because cubic systems with at least 13 limit cycles have been found [6, 7].

Considering CRNs with two chemical species undergoing chemical reactions of

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Social Science Journal

UNVEILING THE SECRETS: STRUCTURAL AND MAGNETIC INVESTIGATIONS OF CHROMIUM FERRITE NANOPARTICLES

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ABSTRACT

Pure chromium nanoparticles with the general formula $CrFe_2O_4$ have been created using the conventional wet chemical co-precipitation process. For four hours, the prepared sample was annealed at 600 0C. For the prepared sample, room temperature X-ray diffraction patterns were obtained to verify the creation of a single-phase cubic spinel structure. On prepared samples, studies using a scanning electron microscope were performed to examine the surface morphology. The size of the particles as determined by XRD and SEM data is in the nanometer range. The range reported for the lattice constant was met. The pulse field hysteresis loop approach was used to study the magnetic characteristics. It was discovered that the coercivity and saturation magnetization values were higher than their bulk counterparts.

Keywords: chemical co-precipitation, nanoparticles, lattice constant, and X-ray diffraction

Introduction

In the recent years ferrites having high electrical resistivity, low eddy current loss, structural stability, large permeability at high frequency, high coercivity, high cubic magneto crystalline anisotropy, good mechanical hardness, and chemical stability, nanosized spinel-type ferrites have emerged as an important class of nanomaterials.[1,2] As a result, research devoted to the development and characterization of such nanomaterials, the development of cost-effective, environmentally friendly synthesis processes, and the discovery of novel uses for existing materials has gained a great deal of interest. MFe_2O_4 type spinel ferrite attracts several electronic and electrical industries for the fabrication of devices and components such as high-density magnetic core of read/write for the high-speed tapes etc.[2,3]

In recent years there has been considerable interest in the study of the properties of nano-sized ferrite particles because of their importance in the fundamental understanding of the physical properties as well as to their proposed applications for many technological purposes.[2,3] The unique properties of nanoparticles are in general related to the adoption of materials, crystal structure to a small (nano size) and large surface to volume ratio.

Among the several spinel ferrites Chromium ferrite is an interesting ferrite because it crystallizes either in a tetragonal or cubic symmetry depending on the cation distribution among the interstitial site of a spinel structure.[6,7] The other interesting feature of Chromium ferrite is that it contains Jahn Teller ion which is responsible for interesting electrical and magnetic properties. In bulk form, Chromium ferrite is a magnetic compound useful in many technological applications.[8] They can also be prepared by techniques such as wet chemical co-precipitation,[9] sol-gel[10], hydrothermal synthesis[11] or microwave emulsion[12] at nanoscale, that can be employed in important applications such as ferro- fluid technology,[13] magnetically guided drug delivery.[14] The magnetic properties of spinel ferrites originate from the antiferromagnetic coupling between the octahedral and tetrahedral sub lattices. The magnetization results from the

UNLOCKING INSIGHTS: QUANTUM COMPUTATIONAL APPROACHES TO METAL OXIDE MONOBORIDES OF 3D TRANSITION SERIES

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ABSTRACT

In the present study the basic set B3LYP LanL2Dz level used and investigated 3d transition metal monoborides utilizing the density functional approach. The dimers. the lowest spin state. bond length. vibrational frequencies are calculated. These dimers' cation and anion are also investigated. It was discovered that the ionization potential of these dimers is substantially higher than their electron affinities. The range of electron affinities for 3d transition metal monocarbides is the broadest and the narrowest for 3d transition metal mononitrides. Ionization potential ranges are greatest for 3d transition metal monoborides and narrowest for 3d transition metal monocarbides as it was studied by earlier researchers. In this article monoborides spin multiplicity. vibrational frequencies and their bond length studied.

Key words: Oxides. Monoborides. Mullikan. Gaussian Software.

INTRODUCTION

Molecules which form the small clusters or nanoparticles exhibit proper- ties that are often quite different from those in the bulk phase. For example. small metal clusters exhibit novel electronic. magnetic. optical. and chemical properties.[1-17] The geometric and electrical structures of transition metal containing clusters are critical for understanding their growth behavior as well as the associated catalytic. magnetic. thermal. and optical capabilities. Transition metal nanoparticles are gaining popularity in technological applications. A lot of theoretical and experimental.[18-72] Works on transition metal containing clusters have been carried out in the past several years for their importance in many fields. such as heterogeneous catalysis. nanotechnology. microelectronics. materials sciences. optoelectronics. etc. Clusters containing B. atoms have received considerable attention from various aspects. One area of interest is their potential importance in interstellar space. Until now. several Borides containing molecules have been detected in interstellar medium. Small clusters have been the subject of intense

EXPLORING RUTHENIUM(II) POLYPYRIDYL COMPLEXES: SUPRAMOLECULAR ARCHITECTURE AND INSIGHTS INTO PHOTOPHYSICAL AND BIOLOGICAL PROPERTIES

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ABSTRACT:

Complexes of the type [Ru(N–N)2(tdzp)]Cl2, where N–N is 2,20 -bipyridine (bpy) (1), 1,10-phenathroline (phen) (2), dipyrido[3,2-d:20 ,3-f] quinoxaline (dpq) (3), which incorporate the [1,2,5]-thiadiazolo-[3,4-f]- [1,10]-phenanthroline (tdzp) ligand, have been synthesized and characterized by IR, 1 H-NMR, 13C-NMR, ESI-MS, elemental analysis, UV-Visible and luminescence spectroscopy. The molecular structure of complex 2 is confirmed by single crystal X-ray structure determination. A two-dimensional cyclic water– chloride anionic {[(H2O)10(Cl)2] 2}n network has been structurally identified in a hydrophobic matrix of 2. Interaction of these complexes with Calf Thymus DNA (CT-DNA) was explored by electronic absorption and emission spectroscopy and circular dichroism spectroscopy. The nucleolytic cleavage activity of complexes 1–3 has been carried out on double stranded circular plasmid pBR322 DNA by gel electrophoresis experiments. The cytotoxicity of the complexes against a cancer cell line has been studied by MTT assay and cellular localization of complexes within the cells has been monitored by fluorescence microscopy. Notably, 1–3 exhibit potent antiproliferative activities against a panel of human cancer cell line.

Introduction

Deoxyribonucleic acid (DNA) is the primary carrier of all genetic information and it plays a major role in replication and storage of genes. Thus the molecules that interact with DNA have a variety of applications including pharmaceuticals, tools for molecular biology and probes for electron transfer.1,2 In this context, over the last two decades the transition metal polypyridyl complexes have received a considerable amount of attention.3–12 In particular coordinatively saturated ruthenium(II) polypyridyl complexes have received much attention because of their tuneable photophysical and photochemical properties, leading to a wide range of successful or potential applications in the field of photochemistry, photo-physics, and biochemistry.4,5,13,14 A widely studied [Ru(bpy)3] 2+ (bpy = 2,20 -bipyridine) complex binds electrostatically to DNA having binding affinity in the order of 103 M1 . 15 but when one of the bpy ligands is replaced with a dppz (dppz = dipyrido[3,2-a:20 ,30 -c]phenazine) ligand, it results in the [Ru(bpy)2(dppz)]2+ complex that binds intercalatively to DNA with a binding constant of the order 106 M1 and this complex also behaves as a molecular light switch for DNA.2,16,17 This shows that the DNA interaction properties of complexes can be tuned by modification of ligands. Ruthenium polypyridyl complexes interact with DNA by non-covalent interaction such as electrostatic, minor groove, major groove, partial intercalative

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JOURNEYING THROUGH MOTION AND MOBILITY: EXPLORING THE FICTIONAL WORLD OF JOHN MUCKLE

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ABSTRACT:

The narrative fictions of John Muckle reflect the increased motion and mobility of people and things in the late twentieth and twenty-first centuries. This increase is a significant, although often invisible, part of the narrative and can be read through both the form and content of the writing. The working lives of his characters, and their sense of identity, are changed through acts of movement, while the objects that make up the environment they live in are similarly always in the process of change. Motion is not, however, the article claims, initiated or determined by social forces, or the inevitable consequence of a capitalist system that demands ever more productivity and growth. Motion is always and already there, and therefore is changed, but not initiated, by economic and social pressures. It is this interplay between people and things that are always and already moving, and a capitalism that seeks to change or direct that movement, that provides the tensions within the narrative and the events in the lives of the characters, both tragic and joyful. Narratives, and the movements they often describe, become less about beginnings and endings, and more about sequences of collisions and moments of change in direction and velocity.

INTRODUCTION:

In John Muckle's fiction, people are often on the move, travelling to work and back, streaking across Europe in a stolen car or cruising the Riviera on a motorcycle. They are also often apparently stuck, geographically immobilized through age, lack of money or inertia, in a job they can't leave or in a place that has too strong a hold, or in a relationship that is now their only possible reality. In Muckle's work, these conditions can happen coincidentally. In London Brakes, Tony Guest travels round the same circles on his motorbike, picking up and delivering packages as a courier.1 It is an endless circulation that is going nowhere, and his friends wonder why he isn't 'moving on'. In Falling Through, the immigrant pupils of the itinerant tutor Graham are taught enough English to carry out the jobs that will enable them to take their place in their new country.2 Their own mobility, albeit sometimes an enforced one of migration, means that they are sustained in a position of precarity. Graham himself is often found in the novel lying on his single bed staring at a model glider on the ceiling. In My Pale Tulip, the impoverished youths from Jaywick can only travel from their place on the margins of English culture and stay in hotels in a mainland Europe they had never before experienced because of a stolen car and money.3 Their trip is characterized by instability, knowing that their journey can't continue forever and that it will end badly.

The ability of objects to keep moving, as well as the characters, is often central to the novels and the narrative. Automobility, as one form of movement, is provided by very particular cars and motorcycles, from the Yamaha XS750 in London Brakes (D.

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A cross-linguistic, cross-cultural study

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Abstract

Following Swales's (1981) works on genre analysis, studies on different sections of Research Articles (RAs) in various languages and fields abound; however, only scant attention has been directed toward abstracts written in Persian, and in the field of literature. Moreover, claims made by Lores (2004) regarding the correspondence of two types of abstracts with different models, and by Martin (2004) concerning the influence of sociocultural factors on the way writers write needed evaluation. To fill this gap, 90 English and Persian abstracts written in the field of literature, by English and Persian native speakers, were analyzed based on the IMRD (Introduction, Method, Results, and Discussion) and CARS (Create A Research Space) models. The results demonstrated that literature RA writers generally focus on Introduction and Results, neglect Method and Discussion, and do not mention the niche in previous related work; secondly, although none of the models were efficient, literature abstracts generally matched CARS more than IMRD; and thirdly, abstracts written by Persian native speakers had minor deviations from both the Persian and the international norms, and exhibited a standard of their own. The present study also discusses steps which the models fail to predict. In addition, it offers a number of pedagogical implications for TEFL, especially for the writing skill.

Keywords: IMRD, CARS, literature, research articles, moves, steps

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Laplace Transformation and its applications

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Abstract: In this paper, we are interested to discuss about properties and applications of Laplace transform in various fields. Also we discuss Laplace transform has the master techniques used by researchers, scientists and mathematicians to find results of their problems. In this paper we will study to solve research problems by using Laplace transform. The motive of this paper is that a scientific review on properties and applications of Laplace transform. This paper also includes the formulation of Laplace transform of important functions like the periodic functions, Unit Impulse function.

Keywords: Laplace transforms, Properties, Differential equation

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MHD FREE CONVECTIVE HEAT AND MASS TRANSFER FLOW PAST AN ACCELERATED VERTICAL PLATE THROUGH A POROUS MEDIUM WITH HALL CURRENT, ROTATION AND SORET EFFECTS

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ABSTRACT

The free convective heat and mass transfer of viscous, incompressible, of unsteady rotating MHD flow past an infinite vertical plate was considered under the influence of Hall current, rotation and Soret effects. It is assumed that the flow possess an angular velocity ω about the normal to the plate. Transverse magnetic field was applied along the normal to the plate. The governing non linear coupled partial differential equations are reduced to dimensionless form using non – dimensional scheme and then solved analytically using two term perturbation method.

KEYWORDS: Porous Medium, MHD, Hall Current, Rotation & Soret Effect

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