Criteria 3: Research, Innovations and Extension

Key Indicator – 3.3 Research Publications and Awards

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the last five years (10)

Index

Sr. No.	A.Y	Computer Engineering	E&TC Engineering	Mechanical Engineering	Civil Engineering	Total Count
1	2017-18	07	14	04	07	32
2	2016-17	07	08	17	07	39
3	2015-16	02	27	18	06	53
4	2014-15	05	18	06	03	33
5	2013-14	04	14	02	03	23

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Criteria 3: Research, Innovations and Extension

Key Indicator – 3.3 Research Publications and Awards

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the A.Y.-2016-17

Index

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISBN/ISSN number
A Multiple Criteria-Based Cost Function Using Wavelet And Edge Transformation For Medical Image Steganography	Prof. S. I. Nipanikar	E&TC Engineering	Journal Of Intelligent Systems	2016-17	ISSN: 0334-1860 EISSN: 2191-026X
Natural language Database Interface for select query with probabilistic Context Free Grammar	Prof. Gitanjali B. Yadav Prof. Sunil M. Jadhav	Computer Engineering	Journal Of Information, Knowledge and Research in Computer Engineering	2016-17	ISSN: 0975 – 6760
A Review - Anomaly Based Network Security Using Response Recovery Engine	Prof. Ganesh S. Kothawale	Computer Engineering	International Journal of Scientific Research in Science, Engineering and Technology	2016-17	ISSN (E): 2394-4099
New method for generating helpful state of deterministic finite automata	Prof. G. B. Yadav Prof. S. M. Jadhav Prof. P. S. Nagale	Computer Engineering	Journal Of Information, Knowledge and Research in Computer Engineering	2016-17	ISSN(Online) : 0975 – 6760

Design of hydraulic fixture for machining on Al-Nissan 180m differential carrier model	Prof. D. B. Shelke	Mechanical Engineering	International Journal of Innovative Research in Technology	2016-17	ISSN: 2349-6002
Review On Calophyllum Inophyllum Methylester As A Possible Alternate Fuel In Compression Ignition Engine	Prof. D. B. Shelke	Mechanical Engineering	International Research Journal of Engineering and Technology (IRJET)	2016-17	ISSN(Online) : 2395 -0056
Response surface methodology based optimization of operating parameters of variable compression ratio C.I. engine fuelled with diesel-fish oil blends for minimal emissions	Prof. D. B. Shelke	Mechanical Engineering	International Journal of Current Engineering and Technology	2016-17	ISSN(Online) : 2277 – 4106
Experimental analysis of VCR Di diesel engine using Calophyllum inophyllum Bio Diesel	Prof. D. B. Shelke	Mechanical Engineering	International Journal of Current Engineering and Technology	2016-17	ISSN(Online) : 2277 – 4106
Bio-Diesel Production from Waste Cooking Oil Via Acids Catalysis and Its Blends with Diesel	Prof. D. B. Shelke	Mechanical Engineering	International Journal of Current Engineering and Technology	2016-17	ISSN(Online) : 2277 – 4106
Suitability of some fruit seeds oil for use as biodiesel fuel	Prof. S. K. Pawar	Mechanical Engineering	International Journal of Science and Research	2016-17	ISSN(Online) :2319-7064
Identification of Non-Conventional seeds oil as a potential feedstock for biodiesel production	Prof. S. K. Pawar	Mechanical Engineering	International Journal of Science and Research	2016-17	ISSN(Online) :2319-7064

Design and Development of Automatic Pneumatic Bumper System	Prof. S. K. Pawar Prof. M. B. Bankar Prof. R. V. Lalge	Mechanical Engineering	Journal of Information, Knowledge and Research in Mechanical Engineering	2016-17	ISSN(Online) :0975 – 668X
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Automatic Pneumatic Bumper and Break Actuation Before Collision	Prof. L. P. Maskepatil	Mechanical Engineering	Journal of Information, Knowledge and Research in Mechanical Engineering	2016-17	ISSN(Online) :0975 – 668X
Egg Freshness Detection Based On Digital Image Processing	Prof. S. B. Patil	E&TC Engineering	Journal Of Information, Knowledge And Research In Electronics And Communication Engineering	2016-17	ISSN (Online): 0975-6779
Quality Assessment Of Flower Based On Digital Image Processing	Prof. S. B. Patil	E&TC Engineering	Journal Of Information, Knowledge And Research In Electronics And Communication Engineering	2016-17	ISSN (Online):097 5-6779
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Sla And Idle Server Monitoring Algorithm With Feedback In Cloud Environment	Prof. S. J. Shaikh	Computer Engineering	International Journal of Innovations in Engineering, Research and Technology	2016-17	ISSN(Online) :2394-3696
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Implementation of Virtual Reality in Construction Industry	Prof. A. A. Avhad	Civil Engineering	International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET)	2016-17	ISSN(Online) :2319-8753
Nondestructive evaluation and structural health monitoring: A review	Prof. A. A. Shelke	Civil Engineering	International Journal for Scientific Research & Development (IJSRD)	2016-17	ISSN (online): 2321-0613
Comparative Study on Fibre Reinforced Concrete and Nominal Concrete	Prof. S. P. Salunkhe	Civil Engineering	International Journal for Scientific Research & Development (IJSRD)	2016-17	ISSN(Online) -2394-4099

Comparative Experimental Study On Cylindrical Compressive Strength Of Casted &n Cored Cylinders Of Fly Ash Concrete By Using NDT	Prof. S. P. Salunkhe Prof. S. M. Jadhav	Civil Engineering	Journal of Information, Knowledge and Research in Civil Engineering	2016-17	ISSN(Online) :0975-6744

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A Multiple Criteria-Based Cost Function Using Wavelet and Edge Transformation for Medical Image Steganography

S.I. Nipanikar / V. Hima Deepthi

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Abstract

With the ever-increasing need for concealing messages within cover media like image, video, and audio, numerous attempts have been developed for steganography. Most of the steganographic techniques perform their embedding operation on the cover image without selecting a better location. The right selection of location for embedding the information can lead to high imperceptibility and robustness. Accordingly, in this paper, we develop a new cost function for estimating the cost of every pixel to identify the good location to embed the message data. The proposed cost estimation procedure utilizes multiple parameters like wavelet coefficient, edge transformation, and pixel intensity. The proposed cost matrix is then utilized to embed the message data into the cover media using an embedding integer. The proposed steganographic technique is experimented with two magnetic resonance brain images, and the results are analyzed with the peak-to-peak signal-to-noise ratio (PSNR) and mean square error. The robustness analysis ensured that the proposed steganographic technique outperforms the existing methods by reaching the maximum PSNR of 72.74 dB.

Keywords: Steganography; medical image; wavelet; edge transformation; PSNR

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Natural Language Database Interface For Select Sql query with Probabilistic Context Free Grammar

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Abstract : *A Natural Language Interface to a Database (NLIDB) is a system that allows the user to access information stored in a database by typing requests expressed in some natural language. (NLIDB) are systems that translate a natural language sentence into a database query NLDBI system including its probabilistic context free grammar, which can be used to construct the parse tree, an algorithm to calculate the probabilities. We specify the model for helping the user with queries depending up on probabilistic context free grammar (PCFG) to relational database.*

Keywords: ***NLDBI, Probabilistic Context Free Grammar, SQL Translator, Experimental Methodology***

1. NLDBI

NLDBI (Natural Language Database Interface) is a system that allows users to access a database in natural language and has been a popular field of study. NLDBI allows the users to access the database even though they doesn't have the database dependent SQL Queries. User enters his query with the help of interface. As all the employees in an organization may not be aware of the SQL queries so the user cannot access the database content directly. The user who has the knowledge of the database querying language can enter the query and search in the database.

The users face a huge problem as they may not be aware of the
database dependent languages. As to provide a interface to the users such that they can enter the query in the English as most of the users of the system are familiar with the English language. The users enter his query in the general English language the system is responsible for understanding the query parse and translate into an SQL query.

LUNAR (1973)

This system comes in early seventies (1973).[2] The system LUNAR science Natural language information system which was used to serve queries regarding MOON ROCKS. It syntactically analyzed language

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A Review - Anomaly Based Network Security Using Response Recovery Engine

Ganesh Ghodke, Vaibhav Sarode, Sagar Valmiki, Prof. Patil S. S., Prof. Kothawale G. S.

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ABSTRACT

The security of the network reduces due to increase in the size of the network, there are many intrusion detection and intrusion response strategies which are carried on the basis to find and stop the intruders in the network such as local and global. Preserving the availability and integrity of networked computing systems in the face of fast-spreading intrusions requires advances not only in detection techniques and also in automated response techniques. Preserving the availability and integrity of networked computing systems in the face of fast-spreading intrusions requires advances not only in detection algorithms, but also in automated response techniques. In this paper, we propose a new approach to automated response called the response and recovery engine (RRE). Our engine employs a game-theoretic response strategy against adversaries modeled as opponents in a two-player Stackelberg stochastic game. The RRE applies attack-response trees(ART) to analyze undesired system-level security events within host computers and their countermeasures using Boolean logic to combine lower level attack consequences. In addition, the RRE accounts for uncertainties in intrusion detection alert notifications. The RRE then chooses optimal response actions by solving a partially observable competitive Markov decision process that is automatically derived from attack-response trees. To support network-level multiobjective response selection and consider possibly conflicting network security properties, we employ fuzzy logic theory to calculate the network-level security metric values, i.e., security levels of the system's current and potentially future states in each stage of the game. In particular, inputs to the networklevelgame-theoretic response selection engine, are first fed into the fuzzy system that is in charge of a nonlinear inference and quantitative ranking of the possible actions using its previously defined fuzzy rule set. Consequently, the optimal network-levelresponse actions are chosen through a game-theoretic optimization process. Experimental results show that the RRE, using Snort's alerts, can protect large networks for which attack-response trees have more than 500 nodes.

Keywords: Stackelberg game, ART trees, RRE engine, Markov Decision making, fuzzy rule set. Intrusion response systems, network state estimation.

I. INTRODUCTION

The network is in the order of increasing size in day to day life hence the security of the network is to be affected in great manner. IP fragmentation, SMTP mass mailing, DoS attacks, flood attacks, spoofing, buffer overflow are some of the attacks that occur in the network.There is other serious threat in network considered to be Intrusion. Intrusion is an action or instance of intruding or an unwelcome visit or a set of actions aimed to compromise integrity, confidentiality, or availability, of a computing as well as networking resource. that is an intrusion on one's privacy.in order to detect the intrusions the systems of intrusion detection, prevention and response systems are needed.

This paper is built upon our previous work [4]. In this paper, we present an automated cost-sensitive intrusion response system called the response and recovery engine (RRE) that models the security battle between itself and the attacker as a multistep, sequential, hierarchical,nonzerosum,two-player stochastic game. In

DESIGN OF HYDRAULIC FIXTURE FOR MACHINING ON AL-NISSAN 180M DIFFERENTIAL CARRIER MODEL

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***Abstract*-- In machining operation it is necessary to clamp the component on the fixture and avoid unwanted vibrations while machining on the component in order to achieve precision while performing various machining operations like Cover Face Milling, Bearing Cap Face Mounting Milling, Drilling, and Tapping. To perform these operations more accurately on the AL-Nissan 180M Advantek Series Differential Carrier on a Vertical Machining Center (VMC) to achieve accuracy, reduce clamping time and apparently economic saving. The Hydraulic Swing Type clamps are designed according to the requirement of clamping force. The design is evaluated in FEA software ANSYS by performing Modal, Harmonic Response and Static Structural analysis.**

***Index Terms* –AL-Nissan 180M Advantek Series Differential Carrier, ANSYS, Modal analysis, Harmonic Response analysis, Static Structural analysis, VMC.**

I. INTRODUCTION

Machining Fixture is a precision device used for constraining the movement/vibration of work piece while performing machining operations. In order to achieve better precision and reduce the clamping time as well as to eliminate manual loading efforts, Hydraulic Machining Fixtures are used vastly in industries. This work focuses on Hydraulic Machining Fixtures. The fixture comprise of Hydraulic Swing Clamps, it is important to locate the swing clamp in a way that the clamps will not interfere with the machining operations that are to be performed by VMC on the work piece. The main function of this hydraulic fixture is to apply clamping force on the work piece so that it can resist the external unwanted forces generated while machining operations. Proper fixture design is crucial to product precision, accuracy and surface finish of the work piece. In this work, design of Hydraulic Fixture for differential carrier to perform machining operations in VMC is done.

VMC operations are much cheaper than HMC so it is convenient to perform few operations on VMC also. For this currently a mechanical fixture is being used. Our job is to change the mechanical fixture with hydraulic in order to save time without compromising with the quality of machining. The cast component is loaded in fixture where it is located against casting lugs and clamped on cover face rib with pull down clamps and machined on cover face like- Milling of cover face, Milling of Bearing cap mounting face, bearing cap mounting drilling, tapping, cover face hole drilling. In new setup the mechanical pull down clamps are replaced with hydraulic swing clamps with change in mounting location of clamps.

II. MODAL ANALYSIS

Modal analysis is the study of dynamic properties of structure under vibration excitation. Modal analysis considers mass and stiffness of the structure to find various periods at which it will resonate. Modal analysis calculates the natural frequency of system alone. We get the result in form of mode shapes. A mode is a shape with a corresponding natural frequency at which the structure will absorb all the available energy supplied by an excitation.

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A REVIEW ON CALOPHYLLUM INOPHYLLUM METHYLESTER AS A POSSIBLE ALTERNATE FUEL IN COMPRESSION IGNITION ENGINE

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Abstract - *Fossil fuel will face a serious shortage in the near future and become rare. Scarcity of conventional petroleum resources is problem to be addressed immediately and that let to the research in alternative fuels for internal combustion engines. So there is a high priority to find alternative energy as their sustainable energy sources. Besides having various sources of alternative fuels, best substitution for diesel fuel in without any modification of the engine can be biodiesel The main rewards of using biodiesel are its renewability, availability, and better quality of exhaust gas emissions. In this paper we try to understand the performance and emission of Calophyllum inophyllum biodiesel and its blends when tested on the diesel engine with varied compression ratios, injection pressure. It is understood that the performance characteristics are more over similar for the biodiesel blend and diesel. The emission like HC,CO and smoke opacity showed reduction with increase in compression ratio, NOx emission slightly high for Biodiesel blends when compared to diesel.*

Key Words: Calophyllum Inophyllum Biodiesel, diesel engine, Performance, Emission

1. INTRODUCTION

Global warming and environmental pollution is the serious problem that the world is facing today and it should be addressed at the earliest. Energy is the major need for the all the activities for any economical and social development of the world .The petroleum products and fossil fuels are the main source of energy. In the transportation and industrial activities diesel engines will have a lot of application. Because of the increased usage of these fossil fuels there is a lot of shortage of these fuels as the reserves are depleted. But the progress of the world should not be hampered due to the decrease in these reserves. So a search of the possible use of any other fuel is taking the lead. The fuel that can replace the fossil fuel in all aspects in needed. So the researchers started the work in the exploration of the alternative fuel. And amongst the various alternatives, biodiesel stood first in the possible replacement to the fossil fuel. Biodiesel has got its own benefits of being an oxygenated fuel, bio degradable, renewable and nontoxic in nature. Biodiesel derived from animal fats and vegetable oil. It is defined as the mono-alkyl esters of long chain fatty acids that are obtained from vegetable oils or animal fats and alcohol with or without a catalyst. There are diverse feed stocks from which the biodiesel can be synthesized. Some are edible in nature and some non-edible. The edible feed stock like soyabean , seasame, palm oil and so on. But if the production of the biodiesel is done using the edible oil then there will a disturbance in the food web. So in order not to hamper the food chain the non edible sources are considered for the production of the biodiesel.

1.1 List Of Non Edible oils:

To name a few non-edible oil seed crops are Jatropha curcas, Calophyllum inophyllum, Sterculia feotida, Madhuca indica Croton megalocarpus, Salmon oil, Pilu, Crambe, Pongamia glabra (koroch seed), Linseed, Ponagame pinnata (karanja), syringa, Scheleichera triguga (kusum), Cuphea, Camellia, Champaca, Simarouba glauca, Garcinia indica, Ricebran, Hingan (balanites), Desert date, Asclepias syriaca (Milkweed), Guizotia abyssinica, Deccan hemp Radish Ethiopianmustard, Syagrus, Idesia polycarpa var. vestita, Sapindus mukorossi (Soapnut), M. azedarach (syringe), Copaiba, Milkbush, Laurel, Cumaru, Andiroba, B. napus Almond piqui, Tomatoseed, camlisasativa, Zanthox-ylum bungeanum ,Azadirachta indica (neem), Lesquerella fendleri, Nicotiana tabacum (tobacco), Babassu, Deccan hemp, Ricinus communis L. (castor), Simmondsia chinensis (Jojoba),etc[1].

2. CALOPHYLLUM INOPHYLLUM OIL

After referring all the research work on various biodiesel oils, Honne oil (Calophyllum Inophyllum) is a promising for further studies since this oil is not much explored as an alternative biofuel for CI engine application.The Calophyllum Inophyllum linn is a species of family Guttifereae (Clusiaceae) and it is a native to India, East Africa, Southest Asia, Australia and South Pacific. It is called as 'Indian laurel', 'Alexandrian Laurel', Sweet Scented Calophyllum (in English), Sultan Champa, Surpan(in Hindi), Kokani, Pinamai, Punnai,,Namere(in Tamil) Burmese, Nagachampa, (in Marathi). The growth of this tree is found particularly near the sea coast and sufficient amount of sun light will help in

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Research Article

Response surface methodology based optimization of operating parameters of variable compression ratio C.I. engine fuelled with diesel-fish oil blends for minimal emissions.

Rasal Rushikesh M.* and Shelke Digvijay B.

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Abstract

Rapid decline in conventional hydrocarbon fuel reservoirs is forcing researchers all over the globe to hunt for alternatives for these hydrocarbon fuels. Fish oil extracted from discarded body parts of fish like head, tail, fins, etc. has shown promising results on a fixed compression ratio engine. Lot of studies regarding optimization of fish oil extraction methods are reported in the literature. However no study related to optimization of combustion parameters of diesel engine fueled with fish oil is reported in the literature. This paper presents the same study at three blends of fish oil viz. B15 (15% Fish oil+85% Diesel), B30 (30%Fish oil+70% Diesel), B45 (45% Fish oil +55% Diesel). Together with fish oil blends compression ratio, injection timing and load are the parameters varied in the experimentation. Compression ratio is varied from 15 to 18, injection timing is varied from 20^0 BTDC to 26^0 BTDC, and load is varied from $1/4^{th}$ to full load. Experimentation is carried out as per response surface methodology from concept of design of experiment. HC, CO, CO_2 and NOx are the combustion parameters kept under observation. A regression model is also postulated for each mentioned combustion parameters to predict them at different levels of input parameters. Model is validated by performing ANOVA. Significance of each input parameter on responses is studied through mean effect plots. Interaction effects between input parameters and various fish oil blends on responses are studied with the help of contour plots and commented in the paper. Further optimization of input parameters is carried out with composite desirability approach. The entire experimentation is confirmed with 95% confidence interval. Compression ratio 15:1, injection advance 21^0 BTDC and load 3kg and 22.5% fish oil blend were found to be optimal values in the test engine of 3.5kw at 1500rpm.

Keywords: *Fish oil, Emission, Design of Experiment (DoE), Response surface mothod, Parametric optimization.*

1. Introduction

The energy problems caused by the progressive depletion of fossil fuel sources, the research for alternative fuels from renewable sources is in growing demand (Gislaine Iastiaque Martins, *et al*, 2015). Numbers of different fuels were tested from the begining of the idea of alternative fuels. These fuels are used for various applications like traditional boilers, furnaces, etc (Fernando Preto, *et al*, 2008). The cultivated land is limited therefore growing seed oil plants to fulfill the requirement of food and biodiesel is very difficult (Cherng-Yuan Lin, Rong-Ji Li, 2009). Therefore experimentation on the use of fish oil as fuel additive or substitute to conventional diesel is started in the recent past. Several tons of fish waste comes out from fishing industry daily which goes for making fish food and more is wasted. The fish oil contains approximately 90% of the energy content of diesel fuel and is easy to process into biodiesel fuels, this clean burning source of bio-oil/biodiesel can be used to reduce dependence on imported fuel and improve air quality within the region (Sharanappa Godiganur, *et al,* 2010).

The research on the impact of the transesterification methods on the production of biodiesel and its properties, including temperature, molar ratio methanol to oil and reaction time and its optimization is done in the research (Pedro J, *et al*, 2014). The oil is extracted from discarded parts of marine fishes of mixed species were refined in different steps and afterwards it is tranesterified to convert it into biodiesel and the performance and emission characteristics were studied in research (Cherng-Yuan Lin, Rong-Ji Li, 2009).

The study was also carried out by pyrolysis of fish oil by a continuous pyrolysis pilot plant where % of biodiesel was obtained at constant temperature of 525^0c (V.R. Wiggers, *et al,* 2009). The effect of addition of catalyst on trans- esterification methods were studied and the output and the properties were

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Research Article

Experimental analysis of VCR Di diesel engine using Calophyllum inophyllum Bio Diesel

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Abstract

Biodiesel in recent days are so extensively studied for the sake of using it as an alternate fuel in diesel engine which constitutes the major role in transportation. In the current paper the Calophyllum Inophyllum biodiesel is prepared by using thermal cracking process .The thermo properties of the biodiesel derived from the above process is tested according to ASTM standards. Experiments were conducted on Variable Compression ratio Engine and Performance parameters were determined like Brake Power, Brake Specific Fuel Consumption, Volumetric and Brake Thermal Efficiency. Later Exhaust Emission parameters like CO, CO_2, HC and NOx were determined for biodiesel-diesel blends of 20%, 40%, 60%, 80% and 100%, by incrementing load by 25% and varying compression ratio from 15.5 to 17.5 at constant speed of 1500 rpm, injection pressure of 200 bar and injection timing of 27^0bTDC. The emissions shown by Pure Calophyllum biodiesel and B20 are much better and cleaner in comparison to diesel wherein the Carbon monoxide emission and Hydrocarbon emission reduced by 52% and 49.8%. The Nitrogen Oxides emission rose due to significant raise in exhaust gas temperature by 2.1%. The Brake specific fuel consumption and Brake Mean Effective pressure increased by 24.3% and 52% .

Keywords: *Fatty Acid Methyl ester, Calophyllum Inophyllum Biodiesel, Variable compression ratio Diesel Engine, Emissions and Performance.*

1. Introduction

Biodiesel stands for any diesel fuel replacement derivative from renewable biological reserve. More exclusively, biodiesel is distinct as oxygenated, sulfur-free, biodegradable, non-toxic and eco-friendly alternative diesel oil. Chemically, it can be defined as a fuel self-possessed of mono-alkyl esters or methyl esters of long chain fatty acids derived from renewable sources, for instance vegetable oil, animal fat and used cooking oil which is designated as B100 and also they meet the special requirements such as the ASTM and the European standards. The conversion of vegetable oils into biodiesel is best possible way to use in engine. There are many techniques to convert the vegetable oil into biodiesel and reduce its viscosity. There are many seeds of trees from which the oil can be extracted. The present work is done on Calophyllum Inophyllum from the Clusiaceae family. There are various names given in various languages like honne oil, puna oil etc. Many investigations were done on this oil by varying parameters like load, compression ratio, injection timing and pressure on both performance and emission with pure and blends with diesel. Collection of seeds and oil extraction and then proceeded for biodiesel production of Calophyllum Inophyllum Linn ("honne") Oil and understand its physical chemical properties. with molar ratio 8:1, KOH were 1.2wt%, temperature 65^oc, reaction time 90 minutes were used and testing of parameters as per ASTM 6751 standards. The thermo physical properties such as acid value density, Flash point, Calorific value, Fire point and Moisture, shows of calophyllum methyl esters were 0.702,892 gm/cc, 176^0c 37.18MJ/Kg, , 182^0c and 0.01% .The physico-chemical parameters proves that Calophyllum may be possible replacement as a reliable fuel as per ASTM. (Chavan S.B *et al*.,2013)

B.K Venkanna *et al* 2011 conducted test on CI engine for Honne oil and neat diesel to determine performance and emission characteristics at varied Injector opening. Experiments were carried out with different IOP of 200 to 260 bars. It was observered that the BTE increased when the IOP was varied from 200bar to 240bar because of good atomization and better mixing. The variation of EGT was observed highest at 200 bar for H100 but the thermal efficiency was found lowest. Emission characteristics like CO, HC for H100 dropped as the IOP increased and reached to least at 240 bars. Smoke opacity decreased with increase in IOP. NOx emission was higher with increased IOP. It was concluded that CO, HC, smoke opacity reduced as the IOP increased. NOx was

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Research Article

Bio-Diesel Production from Waste Cooking Oil Via Acids Catalysis and Its Blends with Diesel

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Abstract

Bio diesel is renewable source of energy, non-degradable, cleaner and efficient fuel for IC Engines. Conventionally it is produced by the alkali as a catalysis but due to more FFA contents in oils the Acid catalysis method is becoming popular for researchers. In this research work the productivity of different acids are evaluated for different concentrations of Acids, methanol, catalysts for constant temperature and time is to measure. The optimum combination Via Hydrochloric Acid and methanol /pretreated soybean oil, Acid concentration and time wise are calculated 0.16, 1% and 28 min.which gives yield up to 81% which meets ASTM fuel requirements. The optimum combination via nitric Acid for methanol and soybean as a pretreated oil, Acid concentration and Time wise is 0.20, 1.25% and 50 min.which gives yield up to 92.734% which meets ASTM fuel requirements. Optimum combination via sulfuric acid for methanol /Pretreated oil, Acid concentration and Time wise is 0.20, 1.5% and 24 min, which gives yield up to 99.009% which meets ASTM fuel requirement.

Keywords: *Biodiesel, Acid Catalyst, Transesterification*

1. Introduction

Exploring renewable energy sources is the need of present fuel scenario; the petro-fuels are vanishing more rapidly to meet heavy demands of today's population. The Bio-fuels looks attractive and inviting source in this situation. Bio-diesel as a fuel of this category are more environmental benefits as a cleaner fuel and reduces emissions by 85% compare to the petrol-diesel. Combustion of bio-diesel as a fuel in diesel engine is more proper than gasoline and diesel with less emission of carbon monoxide, particulate matter and toxic chemicals (Ravi PV 2006).

Bio-diesel is the product of the process known as a 'stratification' in which Triglycerides from soybean oil reacts with alcohol under action of certain catalysts at specific constant temperature for specific time interval to produce bio-diesel as a result. Bio-diesel can be used in internal-combustion engine as a fuel application solely or blending with petrol-diesel. (Knothe G, Dunn RO, Bagby MO 1997). According to Literature review, its blends show good performance characteristics on diesel engine. Their blend improves properties like Lubricity and stability etc.

Lots of benefits of using biodiesel as a fuel it is renewable source, burns cleaner than petrol-diesel and compatible with petrol-diesel. Bio-diesel can be produced through many techniques including acid & base catalysis, enzymatic conversion, solid catalysis, non-catalytic conversion and super-critical methanolysis. Enzymatic conversions are expensive and unable to provide requirements of ASTM diesel fuel specification, For Solid catalysis High pressure and temperature arrangements are required also for non-catalytic conversion are required large set-up of experimental and extreme operation conditions, so only base and acid catalysis are simple, easy and feasible techniques to local researchers out of which when free fatty acid contents are more than 5% then there will more soap formation and wastage of base catalyst so it is unfavorable in such cases so remaining acid catalysis is used for biodiesel production when FFA content are more than 5% in feed stock oil. This research paper is related to bio-diesel production from acid catalysis in which production rate of different acids is calculated. The Acids uses for this study are of AR (Analytical Reagent) quality including Hydrochloric acid, Nitric Acid and Sulfuric Acid

2. Experimental

A) Chemicals: All the chemical used are of Analytical Reagent (AR) quality which includes use of conc. hydrochloric acid (HCL), conc. nitric acids (HNO3), conc. sulphuric acids (H2SO4), sodium hydroxide pallets, Methanol etc.

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Suitability of Some Fruit Seeds Oil for Use as Biodiesel Fuel

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Abstract: *Due to recent petroleum crisis and unavailability of petroleum diesel the demand for petroleum diesel is increasing day by day hence there is a need to find out an appropriate solution. Bio fuels are being given serious consideration as potential sources of energy in the future. Biodiesel is a clean burning alternate fuel, produced from both edible and non-edible oil seeds. It can be used in compression-ignition engines with little or no modifications. Biodiesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics. It can be stored just like petroleum diesel fuel. The use of biodiesel in conventional diesel engines results in substantial reduction of unburnt hydrocarbons, carbon monoxide and particulate matters. Its higher cetane number improves the ignition quality even when blended in petroleum diesel. Various fruit contain large amount of oil in their seeds. Studies have been undertaken to compare free fatty acid composition and physico chemical properties of seeds oil & biodiesel produced from various fruit seeds such as Chikku, Awala, Jamun, Tamarindus Indicus, Orange, Moringa Oleifera etc.*

Keywords: Fruit seeds, transesterification, Biodiesel, Ethyl ester

1. Introduction

Biofuels have become one of the major solutions to issues of sustainable development, energy security and a reduction of greenhouse gas emissions. Biodiesel, an environmental friendly diesel fuel similar to petro-diesel in combustion properties, has received considerable attention in the recent past worldwide, Biodiesel is a methyl or ethyl ester made from renewable biological resources such as vegetable oils (both edible and nonedible), recycled waste vegetable oil and animal fats. The use of vegetable oils as alternative fuels has been in existence long ago but was set aside due to the availability of petroleum products which appears to be cheaper.[1]

Biodiesel is now recognized as an alternative because it has several advantages over conventional diesel. It is safe, renewable and non-toxic. It contains less sulphur compounds and has a high flash point (>130°C). It is almost neutral with regards to carbon dioxide emissions, and emits 80% fewer hydrocarbons and ~50% less particles. It enjoys a positive social impact, by enhancing rural revitalization. It is the only alternative fuel currently available that has an overall positive lifecycle energy balance.

2. Oil Extraction Process

Various techniques such as mechanical extraction, solvent extraction, traditional extraction and super critical fluid extraction are used to obtain the oil from the seeds. The solvent extraction has become the most popular method of extraction of oil because of its high percentage of oil recovery from seeds. Solvent extraction bridges the gap between mechanical extraction which produces oil with high turbidity metal and water content and supercritical fluid extraction which is very expensive to build and maintain its facilities. Temperature is increased for oilseeds after pre-treatments such as cracking, dehulling and milling by heating, roasting and steaming of oilseeds prior to extraction and is termed thermal treatment of oilseeds. Better extraction is achieved by heating, which reduces the oil viscosity and released oil from intact cells, and also reduces moisture in the cells. Temperature plays an active role in the seed treatment for mechanical extraction and ensures an effective solvent process by heating the solvent which hastens the extraction process. At the right temperature and moisture content, the individual oil droplets unite to form a continuous phase and flow out maximizing oil yield. Solvent extraction is the use of chemicals as solvents in the extraction of oil from oilseeds. Solvent extraction is known for its high yielding oil output, ease and swiftness to carry out relatively cost effective, high overhead cost, and hazardous effects during and after operations. The use of this method requires a complete refining process to ensure traces of the solvents to be removed totally. Solvent extraction of cleaned, cracked, dehulled and conditioned flakes with hexane is commercially practiced to extract oil. [2]

3. Biodiesel Production

Generally two stage transesterification process is used for the production of biodiesel. This process consists of a sequence of three consecutive reversible reaction i.e. conversion of triglycerides to diglycerides followed by diglycerides to monoglyceride. The glycerides were converted into glycerol and one ester molecule at each step. If the oil contains more than 4% free fatty acids (FFA), then a two step transesterification is applicable to convert the high FFA oils to its mono esters. The first step, the acid catalyzed esterification reduces the free fatty acid content of the oil.

$$\text{Vegetable oil} + \text{Alcohol} \xrightleftharpoons{\text{acid}} \text{Tnglycende} + \text{water}$$

The second step, alkaline transesterification process converts the products of the first step to its mono-esters and glycerol. In this process vegetable oils are heated to temperature of 80-85°C by placing in water bath. Similarly alcohol is heated to

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Identification of Non-Conventional Seeds Oil as a Potential Feedstock for Biodiesel Production

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Abstract: *Energy is the critical input factor for the socioeconomic development and welfare of human being of any country. Fossil fuels are the major sources for the energy demand since their exploration. Due to limited reserves of fossil fuels, environmental degradation, and volatility in fuel prices, there is a growing need for energy security and protection of the environment. Country like India with an agricultural background has wasteland of about 55.27 million hectares, which can be utilized for growing plants/crops, which produce non-edible oil in appreciable quantity. Various non-convetional fruit seeds containing large amount of oil such as Soap nut, Hirda, Gulmohar, Hingot, Babool, Cotton, etc. can be used for biodiesel production. Thus indigenously produced biodiesel, which is defined as the mono-alkyl ester of vegetable oils or animal fats, obtained by transesterifying oil or fat with an alcohol, is considered one of the options to substitute the petroleum fuels.*

Keywords: Non- conventional Fruit seeds, transesterification, Biodiesel, Ethyl ester etc

1. Introduction

Biofuels have become one of the major solutions to issues of sustainable development, energy security and a reduction of greenhouse gas emissions. Biodiesel, an environmental friendly diesel fuel similar to petro diesel in combustion properties, has received considerable attention in the recent past worldwide. Biodiesel is a methyl or ethyl ester made from renewable biological resources such as vegetable oils (both edible and non-edible), recycled waste vegetable oil and animal fats. The use of vegetable oils as alternative fuels has been in existence long ago but was set aside due to the availability of petroleum products which appears to be cheaper.[1]

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$$\text{Vegetable oil} + \text{Alcohol} \xrightleftharpoons{\text{acid}} \text{Triglyceride} + \text{water}$$

The second step, alkaline transesterification process converts the products of the first step to its mono-esters and glycerol. In this process vegetable oils are heated to temperature of 80-85°C by placing in water bath. Similarly alcohol is heated to 65°C in the presence of alkali catalyst.

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DESIGN AND DEVELOPMENT OF AUTOMATIC PNEUMATIC BUMPER SYSTEM

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ABSTRACT :
India is the largest country in the use of various types of vehicles. As the available resources to run these vehicles like quality of roads, and unavailability of new technologies in vehicles are causes for accidents. Though there are different causes for these accidents but proper technology of braking system and technology to reduce the damage during accident are mainly affects on the accident rates. So today implementation of proper braking system to prevent the accidents and pneumatic bumper system to reduce the damage is must for vehicles. To achieve this system modification goal, design this "Automatic Pneumatic Bumper system". the work is a good solution to bridge the gates between institution and industries And able to understand the difficulties in maintaining the tolerances and also quality.

KEYWORDS: *Automatic Pneumatic Bumper system, Antilock Braking System (ABS), Electro-hydraulic system.*

1. Introduction

Today India is the most important under developed country in the world. India is the largest country in the use of various types of vehicles. As the available resources to run these vehicles like quality of roads, and unavailability of new technologies in vehicles are causes for accidents. The number of peoples which are dead during the vehicle accidents is also very large as compared to the other causes of death.

Though there are different causes for these accidents but proper technology of braking system and technology to reduce the damage during accident are mainly affects on the accident rates. So today implementation of proper braking system to prevent the accidents and pneumatic bumper system to reduce the damage is must for vehicles. To achieve this system modification goal, design this "Automatic Pneumatic Bumper system".

We have pleasure in introducing our new project "Automatic Bumper System for Four Wheelers", which is fully equipped by IR sensors circuit and Pneumatic bumper activation circuit. It is a genuine project which is fully equipped and designed for Automobile vehicles. This forms an integral part of best quality. This product underwent strenuous test in our Automobile vehicles and it is good.

1.1 Problem Statement

In conventional vehicles there are different mechanism operated for braking system like hydraulic, pneumatic, air, mechanical, etc. But all these braking mechanisms receive the signal or input power directly from the driver so it totally manual operated. When the driver saw the obstacle or any vehicle in front of his driving vehicle, he was irritated or becomes mazy.

Due to this the driver fails to give the proper input to braking system and proper working is not occurs. Also the driver may not able to pay the full attention during night travelling so there are many chances to accidents. After the accident occurs, there is no any provision to minimize the damages of vehicles. In currently used vehicles generally bumpers used are of rigid types.

These bumpers have specific capacity and when the range of the accidental force is very high then the bumpers are fails and these force transferred towards the passengers. So this system never reduces the damage of both vehicle and passengers. To overcome these unwanted effects design the Automatic Pneumatic Bumpers is important.

1.2 Objectives

The objective of this project includes:

1. To increase the sureness of braking Application.
2. To increase the response time of braking system.
3. To improve the pre-crash safety.
4. To avoid the percentage of passenger injury by using external vehicle safety.
5. To reduce the requirement of internal safety devices like air bags.

2. Literature Survey

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RICE PLANTING MACHINE

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ABSTRACT: *The ultimate aim of agriculture or farming in India is not only limited to growing of crops but is also associated with the economic growth of farmers and labours. Rice is one of the staple food crop of our country. Basically in India establishment of rice depends on the availability of moisture, climatic condition, age of the variety, availability of inputs & human labour. Mechanization in agricultural sector is advancing in developing countries like India. Rice is a labour-intensive crop and requires about 80-90 labour days per acre. Timely availability of labour and water for various activities of rice is becoming a problem. Hence to overcome these issues there is a need of mechanization in the field of rice cultivation by using rice transplanter as major tool in this process. There is also need for designing and developing an economical and user friendly rice transplanter for small scale farmers in order to increase the production as well as the quality of rice.In this paper manual rice planting machine along with their merits and demerits has been discussed by studying various aspects of transplantation related to rice and its field performance which are beneficial to the society and farmers. A rice transplanter is specialized equipment best fitted to transplant rice seedlings on the wet muddy paddy field. This paper is focussed on developing a machine which addresses labour problems faced by small scale farmers. The newly developed rice planting machine, can harvest up to two rows of paddy at a time.*

KEYWORDS- *Process parameters, production, rice transplanter, transplanting field.*

1.INTRODUCTION

Transplanting rice is perhaps the most elaborated method where seeds are sown in one place and after the seedlings are grown a little they are transplanted to another wide spread area. This is done in order to obtain higher yield and less weeding. According to the annual report of CRRI for 2013-14, total production of rice in the country is estimated at 106.19 million tonnes which was a new record. Production of 2013-14 is higher by 9.5 lakh tonnes than the last year's record production of 105.24 million tonnes.This may be because of rice been staple food crop of our country. Now day's farmers in our country are keen to use new methods as well as new technologies in the field of agriculture. Hence in this paper main focus is on Rice transplanting machine which could provide a huge boost to the agriculture sector specially in the field of rice cultivation. A rice transplanting machine is specialized equipment best fitted to transplant rice seedlings on the wet muddy paddy field.

The mechanical transplanting of the rice has been considered the most promising option, as it saves labour costs, ensure timely transplanting and attains optimum plant density that contribute to high productivity. In India, development and spread of rice planting progressed rapidly during 1990 and 2000. As per the latest technological trends and advancements in agricultural sector such mechanization of paddy planting machine will definitely meet the challenges and will overcome the issues associated, so that the cultivation of paddy is continuous and will definitely is going to meet the future demands with continuous supply of defined volume.

2. AIM & OBJECTIVE

The basic aim of this paper is to study and know the research gap between the use of traditional method and the mechanized transplanters for rice transplantation in India, along with the parameters related to the existing transplanters. In India very few people are aware about different existing transplanter, their benefits and requirements in order to achieve higher productivity and yield. Hence we aim to study about Rice transplanter, their benefits, requirements and help to popularize it amongst the people especially amongst small scale labours in our country so as to minimize cost of production and have better quality of rice. Use of rice transplanter also generates an alternate source of income for rural youth through custom services on nursery raising and mechanical transplanting.

3. LITERATURE REVIEW

In this review paper mechanized rice transplanters in the field of rice cultivation are been discussed by studying various parameters related to transplanter and its field performance. Transplanting essentially refers to the planting of 20- 35 days old and 20-30 cm high

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AUTOMATIC PNEUMATIC BUMPER AND BREAK ACTUATION BEFORE COLLISION

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ABSTRACT :
The technology of pneumatics plays a major role in the field of automation and modern machine shops and space robots.. The aim is to design and develop a control system based intelligent electronically controlled automotive bumper activation and automatic braking system is called AUTOMATIC PNEUMATIC BUMPER AND BREAK ACTUATION BEFORE COLLISION. This project consists of IR transmitter and Receiver circuit, Control Unit, Pneumatic bumper system and pneumatic braking system. The IR sensor senses the obstacle. There is any obstacle closer to the vehicle (with in 3-4 feet), the control signal is given to the bumper activation system and also pneumatic braking system simultaneously. The pneumatic bumper and braking system is used to product the man and vehicle. This bumper and braking activation system is only activated the vehicle speed above 30-40 km per hour. This vehicle speed is sensed by the proximity sensor and this signal is given to the control unit and pneumatic bumper and braking activation system.

***KEY WORDS :** IR transmitter, IR sensor, bumper, and proximity sensor*

1. INTRODUCTION

We have pleasure in introducing our project "AUTOMATIC PNEUMATIC BUMPER AND BREAK ACTUATION BEFORE COLLISION". Which is fully equipped by IR sensors circuit and Pneumatic bumper and braking activation circuit? It is the project which has been fully equipped and designed for auto vehicles. The technology of pneumatics plays a major role in the field of automation and modern machine shops and space robots.

The aim is to design and develop a control system based on intelligent electronically controlled automotive bumper activation system is called "automatic pneumatic bumper and break actuation before collision". The project consists of IR transmitter and Receiver circuit, Control Unit, Pneumatic bumper system. The IR sensor senses the obstacle. There is any obstacle closer to the vehicle (within 1feet), the control signal is given to the bumper and break activation system. This bumper activation system is activated when the vehicle speed above 40-50 km per hour. The speed is sensed by theproximity sensor and this signal is transfer to the control unit and pneumatic bumper activation system.

1.1 Introduction To Safety System:

The aim is to design and develop a control system based on pneumatic breaking system of an intelligent electronically controlled automotive braking system. for comparison of iterative technologies / techniques. The final phase of the new modern vehicle shall include: • Development of improved ABS control systems •Development and assessment of an electro-hydraulic- BBW (EH-BBW) system • Individual wheel braking combined with traction control •Assessing sensor failure and fault tolerant control system design • Preliminary studies into an electrically actuated system • Re-engineering using simplified models

A] Pneumatics:

The word 'pneuma' comes from Greek and means breather wind, for automation. Pneumatic systems operate on a supply of compressed air which must be made available in sufficient quantity and at a pressure to suit the capacity of the system. When the pneumatic system is being adopted for the first time, however it wills indeed the necessary to deal with the question of compressed air supply.

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Egg Freshness Detection Based On Digital Image Processing

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Abstract:
India is an agriculture based country, where in horticulture science is subsidiary branch of agriculture . Indian poultry industry that is one of the fastest growing segment of the agro sector today in India. Yolk index and air room height, two main measures for egg freshness detection, are very difficult to be accurately measured in practices. This paper investigated an image-based egg freshness detection method. The perspective image of egg was obtained by computer vision device. The characteristic regions, including the yolk region and air room region were separated from the obtained egg picture by image processing. The pixel areas and lengths of the above characteristic regions were respectively calculated and analyzed. The relative ratios of the pixel area and length of characteristic regions to that of the whole egg region were selected as characteristic parameters. It was shown that the above relative ratios increased while egg freshness reduced according to a detailed analysis. Three detection models of egg freshness were set up based on the correlations between the characteristic parameters and freshness. The test results showed that the accuracy rates of these models were 93, 94 and 92% respectively. The egg freshness detection based on image characteristic of yolk and air room was efficient and feasible.

KEYWORDS: *Egg yolk, air room, freshness, digital image, Web/mobile camera.*

I.INTRODUCTION

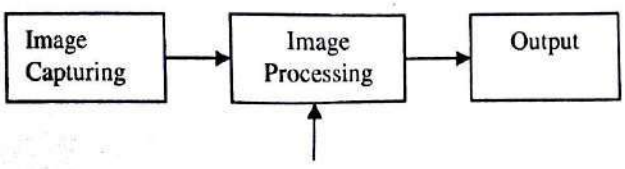
India is an agriculture based country, where in 70% population depends on farming. These are farming is basically known in three forms agriculture, horticulture and floriculture. Out of this the Indian agriculture is very important considering Indian economy.

Horticulture science is subsidiary branch of agriculture .In that include animal science and poultry industry. Indian poultry industry that is one of the fastest growing segment of the agro sector today in India. As production of agriculture crops has been rising at the rate of 1.5% to 2 % per annual. While the production of eggs and boilers per has been rising at the rate of 8% to10% per annual. Today India is world's fifth largest eggs producer.

Today egg freshness detection in an interesting and important topic in the food safety researches, mainly due to the fact that egg is closely related to the everyday lives of common people and egg content changes easily during storage. Many researchers have focused on egg freshness detection over the last decade. Due to limitations of human visuals there are possibilities of neglecting some important parameters which are important in quality checking. So to overcome disadvantages system is designed for checking quality of EGG based on "IMAGE PROCESSING".This system can easily find out distance between yolk index and albumen index that decides the freshness of egg .In this system the parameter of fresh egg can be measured and compared with standard define dimensions, also it is compared with aged egg .Thus it easily find outs the egg is contaminated. The term digital image refers to processing of a two dimensional picture by a digital computer. In a broader context, it implies digital processing of any two dimensional data. A digital image is an array of real or complex numbers represented by a finite number of bits. An image given in the form of a transparency, slide, photograph or an X-ray is first digitized and stored as a matrix of binary digits in computer memory. This digitized image can then be processed and/or displayed on a high-resolution television monitor. For display, the image is stored in a rapid-access buffer memory, which refreshes the monitor at a rate of 25 frames per second to produce a visually continuous display.

II. PRAPOSED SYSTEM

Block diagram of egg freshness detection on digital image processing.



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Quality Assessment Of Flower Based On Digital Image Processing

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ABSTRACT: *India is an agriculture based country, where role of floriculture is very important in Indian economy. Indian floriculture industry comprise of flowers such as rose, tuberose, gladder, authurium, carnatious, marigold etc. but rose has always been admired for its beauty and fragrance. It occupies 1st position in international market of flowers. To increase productivity and maintain quality of rose flower, India comes to take modern steps in floriculture. To motivate the Rose flower growers government and other organization are organizing the King of Rose competition in agro exhibition where the quality is main aspect. Generally the quality of the rose is accessed by its color intensity and structural parameters such as height, width, curvature of petals. In such competitions flower quality has been inspected by multiple agree experts. Individual experts have their own perspective of assessment of quality of flower. So they may not come to final conclusion. Until the specific catteries are not defined it is difficult to come at the conclusion that which is good quality flower. To overcome these problems system is designed to decide the quality of rose flower based on the term Digital Image Processing that will assess the quality of flowers with predefined criteria without any biases and farmer will get the justice in the competition. The system will also help full to separate out quality flower using different processes like image preprocessing, segmentation, filtering, feature extraction and some morphological processes. Thus image processing concept is evolved for solving the problems faced by human.*

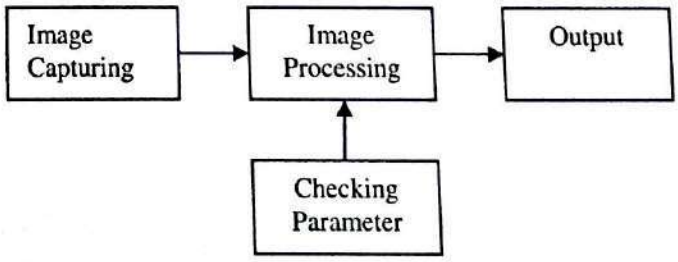
***Keywords*— Rose flower, Frame box, digital image,MATLAB, Web camera.**

I. INTRODUCTION

India is an agriculture based country, where floriculture is very important considering Indian economy. To motivate the Rose flower growers government and other organization are organizing the King of Rose competition in agro exhibition where the quality is main aspect. Generally the quality of the rose is accessed by its color intensity and structural parameters such as height, width, curvature of petals. In such competitions flower quality has been inspected by multiple agree experts. Individual experts have their own perspective of observing quality of flower. So they may not come to final conclusion. Until the specific catteries are not defined it is difficult to come at the conclusion that which is good quality flower. To overcome these problems system is designed to decide the quality of ROSE flower based on the term Digital Image processing that will assess the quality of flowers with predefined criteria without any biases and farmer will get the justice in the competition. The system will also help full to separate out quality flowers during the export.. So image processing concept is evolved for solving the problems faced by human.

II. PRAPOSED SYSTEM.

Block diagram of quality assessment of flower on digital image processing.



Block diagram.

III. MATERIALS AND METHODS.

Method use for finding regional parameters,

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HEAT TRANSFER AND MATERIALS IN COOKING

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ABSTRACT:

Heat transfer is a very important aspect in the cooking process. Heating food destroys potentially harmful bacteria and other microorganisms, which makes food safe to eat and easier to digest. When food or liquids become hot, their molecules absorb energy, begin vibrating rapidly, and start to bounce off of each other. As they collide, heat energy is produced and transferred, which warms and cooks our food. Heat transfer is the process of an item or substance coming into contact with a heat source and becoming hot. In more scientific terms, heat transfer is an exchange of thermal energy between two objects. There are three methods of heat transfer namely conduction, convention and radiation. All these methods are being used in cooking methods. Taste and healthiness of the food is our prime requirement. Does mode of heat transfer affect the test and Vitamins and other contents in the food? Various cooking method and their corresponding mode of heat transfer has been discussed and investigated all aspects concerned with the topic.

KEY WORDS: Cookware, Cooking methods, heat transfer in cooking

I. Introduction:

Human prime requirement of life to survive is food and water. Without food human can't survive. From the ancient period, human has been changing his food over the period. Historically, people secured food through two methods: hunting and gathering and agriculture. Today, the majority of the food energy required by the ever increasing population of the world is supplied by the food industry. Food is any substance consumed to provide nutritional support for the body. It is usually of plant or animal origin and contains essential nutrients such as carbohydrates, fats, proteins, vitamins, or minerals. The substance is ingested by an organism and assimilated by the organism's cells to provide energy, maintain life, or stimulate growth. Food safety and food security are monitored by agencies like the International Association for Food Protection, World Resources Institute, World Food Programme, Food and Agriculture Organization, and International Food Information Council. They address issues such as sustainability, biological diversity, climate change, nutritional economics, population growth, water supply, and access to food.

The right to food is a human right derived from the International Covenant on Economic, Social and Cultural Rights (ICESCR), recognizing the "right to an adequate standard of living, including adequate food", as well as the "fundamental right to be free from hunger". Most food has its origin in plants. Some food is obtained directly from plants; but even animals that are used as food sources are raised by feeding them food derived from plants. Cereal grain is a staple food that provides more food energy worldwide than any other type of crop. Corn (maize), wheat, and rice – in all of their varieties – account for 87% of all grain production worldwide. Most of the grain that is produced worldwide is fed to livestock.

Some foods not from animal or plant sources include various edible fungi, especially mushrooms. Fungi and ambient bacteria are used in the preparation of fermented and pickled foods like leavened bread, alcoholic drinks, cheese, pickles, kombucha and yogurt. Another example is blue-green algae such as Spirulina. Inorganic substances such as salt, baking soda and cream of tartar are used to preserve or chemically alter an ingredient.

Heat transfer is an important process which is being used for cooking the food. We can't just eat raw food harvested from plant because human digestion system is not so strong to digest it so we heat to food in proper form in order to sustain its healthiness and taste called cooking. Several methods of cooking has been evolved over the time by humans. Different topographical area peoples prefer different tastes of

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A REVIEW ON HEAT TRANSFER ENHANCEMENTTECHNICS

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ABSTRACT :
Heat transfer augmentation techniques are commonly used in areas such as heating, cooling in evaporators, process industries, thermal power plants, refrigerators, automobiles, radiators for space vehicles, air-conditioning equipment. In Passive techniques, inserts are used in the flow passage to augment the heat transfer rate are more effective as compared with active techniques, because the insert manufacturing process is simple and these techniques can be easily employed in an existing heat exchanger. In design of compact heat exchangers, passive techniques of heat transfer augmentation can play an important role if a proper passive insert configuration can be selected according to the heat exchanger working condition. The present paper is a review on progress with the heat transfer augmentation techniques in the recent past and will be useful to designers implementing passive augmentation techniques in heat exchange. Twisted tapes, wire coils, ribs, fins, dimples, etc., are the most commonly used passive heat transfer augmentation tools. The thermo hydraulic behaviour of an insert mainly depends on the flow conditions (laminar or turbulent) apart from the insert configurations.

KEY WORDS*- Heat Transfer, Argumentation Techniques, Performance Evaluation Criteria*

1. Introduction

The argumentation techniques used to increase heat transfer coefficient are classified as either active or passive techniques. Active techniques require an external power input to cause the increase in heat transfer coefficients passive techniques do not require a power input. It typically relies on a modification of surface or tube geometry such as by adding fins or by roughening the tube surface. The heat transfer enhancement methods are classified in the following section.

A.Classification of Various Heat Transfer Enhancement Techniques-

They are broadly classified into three different categories:

i. Passive Techniques
ii. Active Techniques
iii. Compound Techniques

i. Passive Techniques

a)Treated surfacesare heat transfer surfaces that have a fine-scale alteration to their finish or coating. The alteration could be continuous or discontinuous, where the roughness is much smaller than what affects single-phase heat transfer, and they are used primarily for boiling and condensing duties.

b)Rough surfacesare generally surface modifications that promote turbulence in the flow field, primarily in single-phase flows, and do not increase the heat transfer surface area. Their geometric features range from random sand-grain roughness to discrete three-dimensional surface protuberances.

c)Extended surfacesmore commonly referred to as finned surfaces, provide an effective heat transfer surface area enlargement. Plain fins have been used routinely in many heat exchangers. The newer developments, however, have led to modified finned surfaces that also tend to improve the heat transfer coefficients by disturbing the flow field in addition to increasing the surface area.

d)Displaced enhancement devicesare inserts that are used primarily in confined forced convection, and they improve energy transport indirectly at the heat exchange surface by "displacing" the fluid from the heated or cooled surface of the duct with bulk fluid from the core flow.

e)Swirl flow devicesproduce and superimpose swirl or secondary recirculation on the axial flow in a channel. They include helical strip or cored screw-type tube inserts, twisted ducts, and various forms of altered (tangential to axial direction) flow arrangements, and they can be used for single-phase as well as two-phase flows.

f) Coiled tubesare what the name suggests, and they lead to relatively more compact heat exchangers. The tube curvature due to coiling produces secondary flows or Dean vortices, which promote higher heat transfer coefficients in single-phase flows as well as in most regions of boiling.

g)Surface tension devicesconsist of wicking or grooved surfaces, which direct and improve the flow of liquid to boiling surfaces and from condensing surfaces.

h)Additives for liquidsinclude the addition of solid particles, soluble trace additives, and gas bubbles in single-phase flows, and trace additives, which usually depress the surface tension of the liquid, for boiling systems.

i)Additives for gasesinclude liquid droplets or solid particles, which are introduced in single-phase gas flows

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NANOTECHNOLOGY ITS FUNDAMENTALS AND RAPID PROTOTYPE MAKING

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ABSTRACT : A basic definition of Nanotechnology is the study manipulation and manufacture of extremely minute machines or devices. These devices are so small to the point of manipulating the atoms themselves to form materials. By this Nanotechnology we can make computers billions of times more than today's and new medical capabilities that will heal and cure in cases that are now viewed as utterly hopelessly. The properties of manufactured products depend on how those atoms are arranged .If we know about exactly how many dopant atoms are in a single transistor and exactly where each individual dopant atom is located and placed roughly the right number in roughly the right place, we can make a working transistor. Another improvement in Nanotechnology is self replication.Self replication make a effective route to truly low cost manufacturing .Our intuitions about self replicating systems learned from biological systems that surround us are likely to seriously mislead us about the properties and characteristics of artificial self replicating systems designed for manufacturing purposes. Artificial systems able to make a wide range of non biological products like diamond under programmatic control are likely to be more brittle and less adaptable in their response to changes in their environment than biological systems. At the same time they should be simpler and easier to design. Thus the progress of technology around the world has already given us more precise less expensive manufacturing technologies that can make an unprecedented diversity of new products. Everything requires the computer is a major reason why people should research and develop Nanotechnology.

***KEY WORDS :** Nanotechnology, fundamentals of nanotechnology, basic principle of prototype making.*

1. INTRODUCTION

Nanotechnology is the art and science of manipulating matter at the nanoscale. We All Should care Because it can and most likely will bring revolution in the current industrialization and manufacturing processes. The American government is investing a wholesome of around 1 trillion USD/year….in different sectors, Some of which are mentioned in this chart a big proportion of the R&D is being invested on materials and electronics field. Like as prototyping or model making is one of the important steps to finalize. It helps in conceptualization of a design. Before the start of full production prototype is usually fabricated and tested. Prototype making is the sub part of Nanotechnology.

2. HOW SMALL NANO-SCALE IS

. Its a bit difficult to realize how small the Nano-scale is. To make things easier to get, we can say that one nanometre (nm) is one billionth of a metre. Rapid prototype (RP) is additive process, unlike all other familiar workshop machine methods that cut6 away the materials until desired shape is achieved the removal of material is done in Nano-scale also.

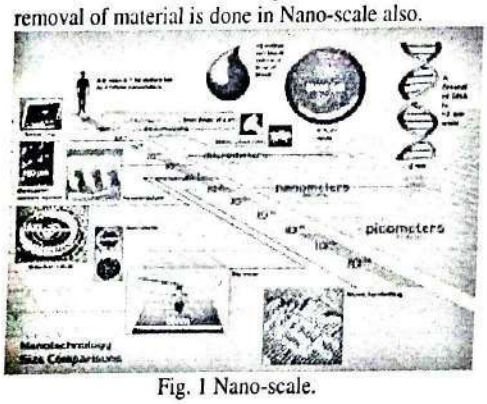

Fig. 1 Nano-scale.

3. APPLICATIONS OF NANOTECHNOLOGY

ELECTRONICS

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A Role of CAD/CAM and PLM in Designing, Developing and Manufacturing in Modern Manufacturing Technologies

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ABSTRACT : CAD/CAM technologies for superior product modeling in the intelligence of designing complete product variants become more and more persistent in future. Many design techniques to help interdisciplinary design actions in different engineering domains in addition to consequent processes have to be developed. A necessary job to achieve this aim is to permanently investigate the present state of the art, emerging trends, new approaches, in addition to industrial problems and requirements about the entire CAD/CAM area. With the aim of direct future research and development activities as close as possible to the continuously rising requirements of a worldwide market we carried out a wide-ranging national study in cooperation with one of the Germans leading CAD/CAM magazines. In this way, it became possible to reach a representative amount of users, to obtain their experience based assessments on today's most important aspects of CAD/CAM technology. The results of this examination are summarized in this paper to give system developers, engineers, and researchers and overview of the present condition as well as to serve as a direction for decision makers in the Design and Development areas in the modern manufacturing technologies.

KEY WORDS: CAD/CAM, PLM, CIM, Product development, Design and Manufacture.

1. INTRODUCTION

CAD/CAM (computer-aided design and computer- aided manufacturing) refers to computer software that is used to design, develop and manufacture products. CAD is the use of computer technology for design and design documentation. CAD/CAM applications are used to both design a product and program manufacturing processes, specifically, CNC machining. CAM software uses the models and assemblies created in CAD software to generate tool paths that drive the machines that turn the designs into physical parts. CAD/CAM software is most often used for machining of prototypes and finished parts. In a globally competitive environment, time compression strategies in product development are of critically importance. Certain products have long development cycle times. Examples are aircraft and automobiles. In some of the products like computers, technological obsolescence puts a constraint on the product development time. The drawing and design software represents the most prominent concerns of developers of computer systems, and was the development of several software that fall within the design concept computer (Computer Aided Design), which is referred to as short term CAD. It was this software with two, including directions what general, including what is a specialist in one of the engineering fields such as mechanical or electrical or electronic, construction and architecture, some of which is advanced in the adoption of the principle of geometric modeling. The concept of manufacturing computer includes all the activities involved in the planning and control of production in different factories, such as digital control computer (Computer Numerical Control: CNC) and the leadership of human industrial automation (Industrial Robotics) and planning of production processes (Process Planning) and the overall layout of the plant, including so planning tables productivity and material requirements planning, and production capacity in modern manufacturing technology.

Product Lifecycle Management (PLM) is a holistic business approach which emerged in late 1990's. It is a concept that represents the strategy of integrated management which addresses the requirements of the development and management of the complete set of product-related data throughout the lifecycle across the extended enterprise. PLM provides the business approach to best manage and use the intellectual capital (IC) that includes the product definition, product history and the best practices of enterprises [10]. PLM systems emerged from the evolution of engineering technologies in the last two decades from Computer Aided Design and Computer Aided Manufacturing (CAD/CAM).

2. STEPS IN PRODUCT DESIGN, DEVELOPMENT AND MANUFACTURING

Product design is of critical importance to the production system. It contributes more than any other attribute to the overall design and operation of the production system, and

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HYPERLOOP TECHNOLOGY THE PASSENGER TRANSPORT SYSTEM

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ABSTRACT:
Present orthodox approaches of shipping of folks reside of four unique types: rail, road, water, and air. These modes of transport tend to be either relatively slow (e.g., road and water), expensive (e.g., air), or a combination of relatively slow and expensive (i.e., rail). Hyperloop is a new mode of transport that seeks to change this paradigm by being both fast and inexpensive for people and goods. Hyperloop is also unique in that it is an open design concept, similar to Linux. Hyperloop consists of a low pressure tube with capsules that are transported at both low and high speeds throughout the length of the tube. The capsules are supported on a cushion of air, featuring pressurized air and aerodynamic lift. The capsules are accelerated via a magnetic linear accelerator affixed at various stations on the low pressure tube with rotors contained in each capsule. Passengers may enter and exit Hyperloop at stations located either at the ends of the tube, or branches along the tube length. Although Hyperloop is similar to other vacuum tube train (Vacuum Train) concepts,2 the soft vacuum represents a distinct difference. It allows the pod to run on air-bearings, thus removing the need for a magnetic levitation system used on other Vacuum Train designs. The air bearings require a source of pressurized air, which is provided by a compressor powered by on-board batteries. Since Hyperloop operates at transonic speeds and a low pressure environment, the design of the pod compression system can be likened to the compressor design for aircraft turbo machinery. Furthermore, the aerodynamic concerns arising from constricted flow through a tube are prevalent in the design of inlets and nozzles on aircraft engines and the entire system faces similar weight and volume constraints. For these reasons, the modeling approach applied here is inspired heavily by methods for aircraft sizing and turbine engine cycle analysis

KEYWORDS: **Transportation, Hyperloop, Fast and Reliable, Suspension,**

1. INTRODUCTION

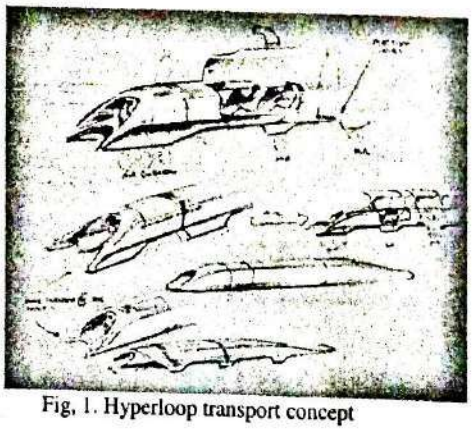

Fig. 1. Hyperloop transport concept

Two versions of the Hyperloop capsules are being considered: a passenger only version and a passenger plus vehicle version. Hyperloop Passenger Capsule Assuming an average departure time of 2 minutes between capsules, a minimum of 28 passengers per capsule are required to meet 840 passengers per hour. It is possible to further increase the Hyperloop capacity by reducing the time between departures. The current baseline requires up to 40 capsules in activity during rush hour, 6 of which are at the terminals for loading and unloading of the passengers in approximately 5 minutes.

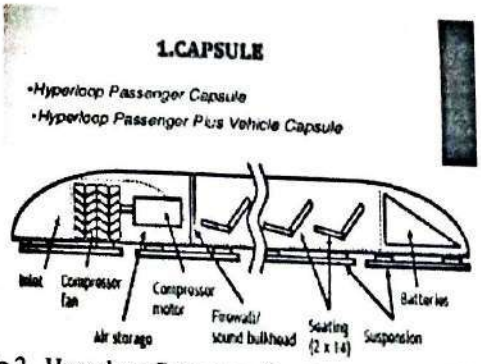

Fig 2. Hyperloop Passenger Plus Vehicle Capsule.

The passenger plus vehicle version of the Hyperloop will depart as often as the passenger only version, but will accommodate 3 vehicles in addition to the passengers. All subsystems discussed in the following

Performance Comparison and Analysis of Proactive and Reactive Protocols for MANET

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***Abstract*— Mobile ad hoc network (MANET) is a collection of mobile nodes which are connected by wireless link. Each node operates as an end system but also as a router to forward packet. The nodes are randomly move anywhere in the network. This nodes change the position randomly. The main types of routing protocols are proactive, reactive and hybrid. Reactive protocols are AODV, DSR, and proactive are DSDV, OLSR. Nodes in a MANET normally have limited transmission ranges, some nodes cannot communicate directly with each other. Energy Conservation is a very important design issue for mobile ad hoc networks (MANET) since mobile nodes are powered by batteries with limited capacity. In this paper we study the comparison of DSDV and OERRRP routing protocol based on throughput, packet drop, Throughput Vs simulation time, packet delivery ratio, average energy consumption, end to end delay and Lifetime.**

***Keywords*—MANET, Proactive and Reactive routing protocols DSDV, OERRRP.**

Introduction

Mobile Ad-hoc network is a set of wireless mobile nodes dynamically forming a short-term network. The goal of this design is to provide communication facilities between end-users without any centralized infrastructure. Wireless technologies such as Bluetooth or the 802.11 are used [1]. MANETs have number of advantages over traditional networks. Like, it reduces infrastructure cost, also establishment is ease. To forward the packets routing is individually performed by nodes using intermediate nodes [1]. There is no centralized structure so different task are done by node itself. Each individual node must act as a router to do packet routing which is done by different routing protocol in MANET. This paper proposes an energy efficiency routing protocol, OERRRP based on the basis of the classical routing protocol, Ad hoc On-Demand Distance Vector (AODV) in Ad Hoc network. Optimal Energy Reverse Reactive Routing Protocol (OERRRP) introduces maximum energy path on the network layer, Node check its energy if it is above the threshold level then only it select that route, otherwise it does not select that route. It choose best optimal path which gives better performance than AODV, DSR. In this protocol we compare the energy at the node with the threshold level and if the energy of node is below the threshold level then that node is not select for communication. So in this way we can increase the energy consumption and lifetime of discovered node.

Classification of Routing Protocols for MANET

MANET routing protocols are classified into three major categories: Proactive, Reactive and hybrid.

Proactive Routing Protocols:
The main working of proactive protocol is continuously learn about the network by exchanging topological information among the network nodes. They rely upon maintaining routing tables to known destination, the advantage of these protocols is source node does not need route-discovery procedures to find a route to a destination node. On the other hand the drawback of these protocols is that maintaining an up-to-date routing table requires substantial messaging overhead, which consumes bandwidth and power, and decreases throughput, especially in the case of a large number of high node mobility.

Reactive Routing Protocols:
Reactive Protocols proceed for establishing route(s) to the destination only when the need arises. They do not need periodic Transmission of topological information of the network. In this route discovery process is done by source node to find route to destination. When route found, the route maintenance is initiated to maintain this route until it is no longer required or the destination is not reachable. The advantage of these protocols is that overhead messaging is reduced. One drawback of these protocols is the delay is more in discovering a new route.

***Hybrid Routing Protocols*:**
Even reactive or proactive features of routing protocols are not enough. So mixing of above both protocols are used called as hybrid protocol. Based on the method of delivery of data packets from the Source to destination, classification of MANET routing Protocols is done as follows:

Unicast Routing Protocols: The routing protocols that Consider sending information packets to a single destination from a single source.

Multicast Routing Protocols: Multicast is the delivery of information to a group of destinations simultaneously, using the most efficient strategy to deliver the messages over each link of the network only once.

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A Review on Audio Steganography

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Abstract: Steganography is the art of data hiding context of secret message, without the knowledge of third party. Audio steganography is to send secret audio file more securely. Various techniques has introduced for performing steganography along with the various transform to increase the security of transmission. To enhance the security of the data transmission of secret data this methods found to be the best techniques. This paper specifies the techniques to find the gaps in existing techniques.

Keywords: Steganography, DWT, OPAP.

1. INTRODUCTION

The main purpose of Steganography, which means 'writing in hiding' is to hide data in a cover media so that others will not be able to notice it. From the rise of the internet, the use of it for communication or data transfer has increased day by day, as the use of internet for communication has increased; the security of the data transfer also becomes a main factor, for this purpose steganography can be used, its basic diagram shown in fig 1.1 and different techniques taken into consideration. In this study, we are going to have a survey on some published algorithms and methods in this steganography field on the secret data. Different existing techniques to perform embedding are available along with those techniques different transforms can be use, those transforms survey done here.

2. LITERATURE REVIEW

As frequency domain provides more security to the data transfer than the spatial domain technique. Authors Po-Yueh Chen and Hung-Ju Lin propose a new steganography technique in 2006 which embeds the secret messages in frequency domain with high PSNR. To embed secret data in frequency domain, the detail procedure of 2D DWT is given by the author. This technique, keep the messages away from stealing, destroying from unintended users on the internet and hence provide satisfactory security.

Mekelweg author in 2009 gives a thesis, in these details of different transform algorithms such as DWT and DCT are given with reason for consideing the DWT algorithms, as several multimedia standards such as the JPEG2000 and MPEG-4 are based on the DWT. These new standards brought new requirements such as progressive, low bit rate transmission, and region-of-interest coding. In addition he proposes that, the DCT based compression standards are block-based causing blocking artifacts in the output image.

Amanjot Kaur, Jaspreet Kaur, in june 2012 discussed the comparison between DCT and DWT based on parameters such as PSNR, MSE, BER, TIME and they found that DWT provides higher compression ratios and DCT takes more time than DWT.

Steganography is checked on two aspects imperceptibility and embedding capacity (payload), authors Shaikh Salman, Prof. S. R. Kinge in 2013 discussed different techniques such as LSB, OPAP, APPM and DE. They proposes that if we want to embed large amount of data and if stego image quality is not so important then use OPAP method, but when image quality is of greater importance than embedding capacity, then DE & APPM are the best choice.

Additional improvement in the quality of image while embedding is given by authors N.Vinothkumar, T.Vigneswaran in March 2013, they proposes that image quality of the stego image is improved by this as the Optimal Pixel Adjustment Process is applied after embedding the message. The frequency domain is employed to increase the robustness of the steganography method. A variant of LSB method can be found in that proposes an Optimal Pixel Adjustment Process in which image quality of the stego-image can be improved with low computational complexity.

Different steganography techniques and performance measures are given by these authors Rajashree Shitole, S.R.Todmal, in May 2014. They introduces that LSB method has average embedding capability and in EMD payload cannot be increased and it is limited to 5-ary notational system. For extraction, more than one pixel needs to be modified, which affects overall performance and OPAP have high payload with less degradation of image quality is introduced. The different techniques of stegnography given along with their algorithm steps in brief by these authors.

Author M. I. Khalil in 2011 proposed a technique for how to hide a short audio message in the cover image data; with the less degradation of image quality. Among available embedding techniques he uses LSB for embedding secret data and gave the brief of audio steganography.

3. EMBEDDING & EXTRACTION PROCEDURE OF SECRET DATA

3.1. Embedding Procedure:

Step 1: To begin, we have two data files one cover and second secret data file, so the first step is to read the files. Then check for the size mismatch of secret and cover data file. All cover data file size should be greater than the

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A Survey on Scene Text Detection and Text Recognition

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Abstract: Now a day's reading words in unimpeded and noisy images is a not an easy problem. Also extracting words or text from natural scenes or videos is very difficult thing. So we should have some mechanism to recognize the text from images and videos. In this paper an effort has been taken to focus the progress made so far in the character feature of scene text recognition system and an overview of technological prospective of scene text recognition systems are discussed. In Text recognition, feature extraction required much attention because recognition performance heavily depends on it.

Keywords: Text Recognition, Text Detection, Character Features, Feature Extraction.

I. INTRODUCTION

Now a day's everybody want to give a unique name with the unique font style to their shops, institutes, buildings, hotels, restaurants to attract people. And it is very difficult task to understand the same. Because the intensity of text is affected by shadow, low lights, high lights and the weather conditions, language of the text and orientation. Reading character from photographs is again a challenging thing, as it has very low visibility and needed to have some system on place which should make such text readable to everybody. Scene text recognition method is the answer to all these challenges. We should have some technologies which can recognition the text from natural scene images and videos. Text recognition from any natural scenes images and videos is application of image processing technique. Text recognition is depends on the pattern of image text. For that text recognition, localization and understanding is the core methods used.

We widely started using cell phones and development for the same is growing like anything. It has become the need of individual to use cameras to capture information. There are many applications running over cell phone to understand captured text information, but to understand text from natural scene images or videos is little tricky job. So text recognition from such scenes using mobile application is one good option.

Text detection and recognition in general have quite a lot of relevant functions for automatic information retrieval such document indexing, content-based image retrieval text or character recognition.

II. BLOCK DIAGRAM

Following diagram shows the process of Scene Text Recognition system.

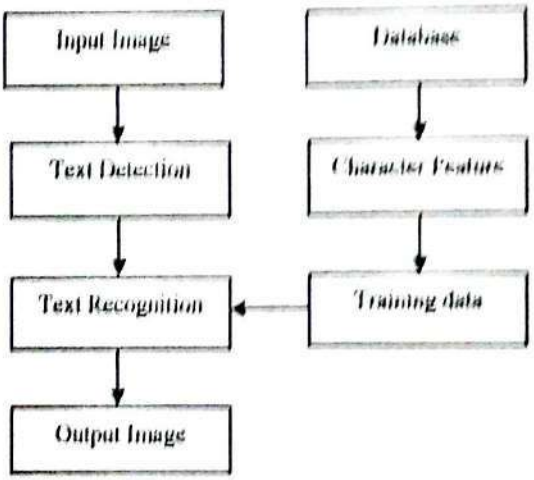

Fig1. Block Diagram of Scene Text Recognition System

Text Detection: Text detection is the method used to detect the Text or character area from original scene image. There may be scattered or noisy images where it is difficult to understand the text area. This method helps to identify such areas.

Database & Character features: Database and Character features will have the collection of pattern data of characters and numbers also there features like shapes, angles and structures which is included in training dataset to verify the text against with available patterns.

Training dataset: Training dataset is created using more than 200 text fonts of computer and additional characters to by the use of Probable occurrences of English language words.

Text Recognition: once we have detected or extracted area of target image, we can recognize the characters or text with the help of training data. The detected image area compared by available training dataset which outputs the exact character written in image.

III. RELATED WORK

Methods used for Text Detection:

The text detection stage seeks to detect the presence as well as to understand the text in a given image. Kim selected in 1996 using an automatic scene text detection

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A MOVING TARGET DETECTION ALGORITHM BASED ON THE DYNAMIC BACKGROUND

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ABSTRACT: *Advantages and disadvantages of two common algorithms frequently used in the moving target detection: background subtraction method and frame difference method are analyzed and compared in this paper. Then based on the background subtraction method, a moving target detection algorithm is proposed. The background image used to process the next frame image is generated through superposition of the current frame image and the current background image with a certain probability. This algorithm makes the objects which stay long time to be a part of the background after a certain period of time, but not be detected as a part of foreground. The experimental results show that this algorithm can detect moving targets more effectively and precisely.*

KEYWORDS-background subtraction; frame difference; moving target detection; dynamic background.

I. INTORDUCTION

Intelligent video surveillance is a new research direction in the field of computer vision. It uses the method of computer vision and detects the movement target in the monitoring scene by automatic analysis the image sequence by the camera recording. And the research on moving target detection and extraction algorithm can be said to be key issues in intelligent video. Its purpose is the detection and extraction of the moving targets from the scene of the video image sequence. Therefore the effective detection of moving targets determines the system performance. Therefore, this article focuses on key technology in the moving targets detection and extraction. In this paper, firstly, it has a brief introduction of pretreatment of the video images. It reduces the error in the image processing after. Secondly the paper focuses on analysis comparison the two algorithms: the background subtraction and the frame difference. Lastly, this paper selects based on the background subtraction method to improve it and present a moving target detection algorithm based on the background which has dynamic changes

II. IMAGE PREPROCESSING

Noise Noise is any entity which is not of benefit to the purpose of image processing. The influence of noises on the image signal amplitude and phase is complexity. So how to smooth outnoise and keep the details of image is the major tasks of the image filtering. B. Noise Filter We use the median filter in this paper. Median filter is a non-linear method for removing noise. Its basic idea is to use the median of the neighborhood pixel gray value instead of the gray value of pixel point. For the odd elements, the median refers to the size of the middle value after sorting; For evennumbered elements, the median refers to the average size of the two middle values after sorting [1]. Median filter as a result of this method is not dependent on the neighborhood with a lot of difference between typical values, which can remove impulse noise, salt and pepper noise at the same time retain the image edge details. In general the use of a median filters contain oddnumbered points of the sliding window. Specific methods is determining a first odd-numbered pixel window W. Each pixels in window line by the size of the gray value, and use the location of the gray value between the image f xy (,) gray value as a substitute for enhanced images g (,) x y ,as follows: g(,) { (,),(,) } x y Med f x k y l k l W = — ∈ (l) W is the window size which is selected.

III. . IMAGE SEGMENTATION

In the Images research and application, Images are often only interested in certain parts. These parts are often referred to as goals or foreground (as other parts of the background). In order to identify and analyze the target in the

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A Methodology for Extracting Standing Human Bodies from Single Images

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ABSTRACT:
Segmentation of human bodies in images is a challenging task that can facilitate numerous applications, like scene understanding and activity recognition. In order to cope with the highly dimensional pose space, scene complexity, and various human appearances, the majority of existing works require com-putationally complex training and template matching processes. We propose a bottom-up methodology for automatic extraction of human bodies from single images, in the case of almost upright poses in cluttered environments. The position, dimensions, and color of the face are used for the localization of the human body, construction of the models for the upper and lower body according to anthropometric constraints, and estimation of the skin color. Different levels of segmentation granularity are combined to extract the pose with highest potential. The segments that belong to the human body arise through the joint estimation of the foreground and background during the body part search phases, which alleviates the need for exact shape matching. The performance of our algorithm is measured using 40 images (43 persons) from the INRIA person dataset and 163 images from the "lab1" dataset, where the measured accuracies are 89.53% and 97.68%, respectively. Qualitative and quantitative experimental results demonstrate that our methodology outperforms state-of-the-art interactive and hybrid top-down/bottom-up approaches.

KEYWORDS: **Adaptive skin detection, anthropometric constraints, human body segmentation, multilevel image segmentation.**

1. Introduction

Extraction of the human body in unconstrained still mages is challenging due to several factors, including shading, image noise, occlusions, background clutter, the high degree of human body deformability, and the unrestricted posi-tions due to in and out of the image plane rotations. Knowledge about the human body region can benefit various tasks, such as determination of the human layout , recognition of ac-tions from static images , and sign language recognition. Human body segmentation and silhouette extraction have been a common practice when videos are available in con-trolled environments, where background information is avail-able, and motion can aid the segmentation through background subtraction. In static images, however, there are no such cues, and the problem of silhouette extraction is much more challenging, especially when we are

For human body segmentation in static images. We decompose the problem into three sequential problems: Face detection, upper body extraction, and lower body extraction, since there is a direct pair wise correlation among them. Face detection provides a strong indication about the presence of humans in an image, greatly reduces the search space for the upper body, and pro-vides information about skin color. Face dimensions also aid in determining the dimensions of the rest of the body, according to anthropometric constraints. This information guides the search for the upper body, which in turns leads the search for the lower body. Moreover, upper body extraction provides additional in-formation about the position of the hands, the detection of which is very important for several applications. The basic units upon which calculations are performed are super pixels from multi-ple levels of image segmentation. The benefit of this approach is twofold. First, different perceptual groupings reveal more meaningful relations among pixels and a higher, however, abstract semantic representation. Second, a noise at the pixel level is suppressed and the region statistics allow for more efficient and robust computations. Instead of relying on pose estimation as an initial step or making strict pose assumptions, we enforce soft anthropometric constraints to both search a generic pose space and guide the body segmentation process. An important principle is that body regions should be comprised by segments that appear strongly inside the hypothesized body regions and weakly in the corresponding background. The general flow of the methodology can be seen in Fig. 1.

The major contributions of this study address upright and not occluded poses.

1) We propose a novel framework for automatic segmentation of human bodies in single images.
2) We combine information gathered from different levels of image segmentation, which allows efficient and

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COMPARATIVE STUDY OF R.C.C AND STEEL-CONCRETE COMPOSITE (G+10) RESIDENTIAL BUILDING

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ABSTRACT :
Steel-concrete composite construction has gained large acceptance all over the world as an substitute for pure steel and pure concrete construction. However this approach is a new concept for construction industry. R.C.C is no longer economical because of their increased dead load, hazardous formwork. The present study deals with comparison of reinforced concrete, steel and composite structures under the effect of static and dynamic loads. The results of this work show that composite structures are best suited for high rise buildings compared to that of steel and reinforced concrete structures. Response spectrum method is used for comparison of three structures with the help of ETABS software.

KEY WORDS: *Composite beam, Composite column, Composite slab,* Bare frame, Base shear, Displacement and Inter-storey drift.

1. INTRODUCTION

In today's modern period and faster growing economy with simultaneously increasing human population the need of shelter with higher land cost in major cities where further horizontal expansion is not much possible due to space shortage, we are left with the solution of vertical expansion. Steel-concrete composite construction is a faster technology which saves lot of time in construction which will help the planners to meet the demand with minimum time in real estate market. This technology provides more carpet area than any other type of construction. Composite construction also enhances the life expectancy of the structure.

Composite construction has gain wide acceptance because of their many advantages i.e. faster to erect, lighter in weight, better quality control, reduced time of construction, has better ductility and hence superior lateral load resisting behavior.

The present research is an attempt to study the behavior of reinforced concrete, steel and composite structures under the effect of seismic loading. The parameters considered are base shear, displacement and inter-storey drift.

2. COPOSITE MULTISTORIED BUILDINGS

The primary structural components use in composite construction consists of the following elements.

1. Composite deck slab
2. Composite beam
3. Composite column
4. Shear connector

2.1. COMPOSITE DECK SLAB

Composite floor system consists of steel beams metal decking and concrete. They are combined in a very efficient way so that the best properties of each material can be used to optimize construction techniques. The most common arrangement found in composite floor systems is a rolled or built-up steel beam connected to a formed steel deck and concrete slab. The metal deck typically spans unsupported between steel members, while also providing a working platform for concreting work. The composite floor system produces a rigid horizontal diaphragm, providing stability to the overall building system, while distributing wind and seismic shears to the lateral load-resisting systems.

Composite action increases the load carrying capacity and stiffness by factors of around 2 and 3.5 respectively. The concrete forms the compression flange – the steel provides the tension component and shear connectors ensure that the section behaves compositely. Beam spans of 6 to 12 m can be created giving maximum flexibility and division of the internal space. Composite slabs use steel decking of 46 to 80 mm depth that can span 3 to 4.5 m without temporary propping. Slab thicknesses are normally in the range 100 mm to 250 mm for shallow decking, and in the range 280 mm to 320 mm for deep decking. Composite slabs are usually designed as simply supported members in the normal condition, with no account taken of the continuity offered by any reinforcement at the supports.

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SEISMIC PERFORMANCE OF A DIFFERENT (G+10) COMPOSITE RESIDENTIAL BUILDING FRAME

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ABSTRACT :
The majority of building frames are designed and constructed in reinforced concrete structures, depending upon the availability of constituent materials and the workmanship required in construction industry along with practicality of the existing design codes. Now a day to fulfill the demand of increasing population there is need of high rise building construction and today in India RC construction is popular to fulfill the demand of the construction industry. But since from last two decades construction industry experiences drastic changes due to increasing population demand, market condition, and availability of resources (men, money & material) etc. Which results new techniques of construction are introduced in the industry by inventors which give alternative solution to conventional construction. These are mix type or hybrid construction called as a composite construction, which are making efficient use of constituent material which can be more effective than conventional RC construction. The composite structures are the structures in which sections are made up of building different types of materials such as steel and concrete, which are used for construction of beams, columns, slabs, etc. Numbers of the studies are carried out on composite construction techniques by different researchers in different parts of the world and found it to be better seismic resistant and more economical as compared to RCC construction.

KEY WORDS : Composite Consruction, Shear Connector, Pushover Curve, etabs software.

1. Introduction

Now a day the steel-concrete composite construction can be a best suitable alternative to fulfill the rapidly increasing urbanization demand as compared to only steel or only reinforced concrete structure. Today the researchers or scientist in relevant field has got considerable success to understand the behavior of such type of mix-system or hybrid system. The much work is carried out in the foreign countries like us & japan. This type of hybrid structure is well understood & described in the foreign code such as ACI 318, Eurocode 4 etc. But there are no any such specific codal provisions in India, is 11384-1985 has provides some guidance related to shear connectors while connecting to steel beam but no any specific guideline or provisions for designing the steel-concrete composite structure. Hence there is lot of scope to improve the codal provision in relevant field to meet the design requirement. And there is lot of opportunity in Indian topography to meet the need of rapidly increasing urbanization in limited area. By study it is proved that the steel-concrete is best alternative in seismic region as the hybrid frame resist repeated loading very effectively compare to RCC. Hence this proposed work helps to understand the behavior of steel-concrete hybrid structure up to some extent which might be helpful to those who try to understand the behavior of composite or hybrid construction in all respect.

1. Now it is the demand of time that every structure must be analyzed and designed for lateral forces such as earthquake and wind forces.
2. Generally it is found that for resistance designs, the cross sectional area of RCC structural member comes out very heavy with large amount of steel, which takes large space in construction of multistory building, although in metropolitan cities there is a problem of space availability.
3. Under such circumstances composite structure is one of the best options, which not only takes care for earthquake forces but also gives less cross sectional area.
4. In composite construction economy of the construction and proper utilization of material is achieved.

Necessity of high rise Building :

There are many reasons to construct high rise buildings and these are as follows:

1. Rapid growth of population in urban communities, and therefore the constant pressure of the limited land area affected the evolution of building.
2. Expensive land prices.
3. Restriction of random expansion in major cities adjacent to agricultural land.
4. The high cost of setting up infrastructure for new cities.

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COMPARATIVE ANALYSIS OF RCC AND STEEL-CONCRETE COMPOSITE MULTISTORIED BUILDING

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ABSTRACT— The majority of building structures are designed and constructed in reinforced concrete which are mainly depends upon availability of the constituent materials and the level of skill required in construction, as well as the practicality of design codes. R.C.C is no longer economical because of their increased dead load, hazardous formwork. However composite construction is a new concept for construction industry. The present comparative study deals with inelastic behavior of RCC and composite structures. The pushover analysis is carried out using E-tab 15 and compare the various parameters like story drift, displacements etc. The reviews shows that, the composite structures are best suited for high rise buildings compared to that of steel and reinforced concrete structures.

KEYWORDS—*steel-concrete composite; SRC; CFT; equivalent linear static analysis; story drift ; story displacement,*

I INTRODUCTION

Now a days, in India; to fulfill the need of high rise building, composite is best suited for infrastructural growth rather than RCC and Steel. Reviews and studies shows that composite construction considerably reduces the gravity load as compare to RCC .composite is compatible and complimentary to each other; they have ideal combination as, steel in tension and concrete in compression, concrete protect the steel from corrosion as well as it gives thermal insulation to embedded steel; though they have almost same thermal expansion. Although the compressive strength and unit cost of reinforced concrete is less than that of structural steel, the use of modern composite systems, allowing the erection of multi-story structural frames to proceed at pace, can make it economically prohibitive to delay the construction of each floor while concrete columns are cast. In Japan, however, the superior earthquake resistant properties of composite beam-columns have been long recognized and have become a commonly used for construction in that region. It was therefore necessary to develop seismic design criteria for typically used Indian structural systems, to advance the use of this efficient type of mixed construction.

II. OBJECTIVE

The purpose of this work is to introduce the steel concrete composite members in high rise building construction.

1. Inelastic (Pushover) analysis of both RCC and Composite building frame are carried out using E-tab 15
2. For composite column, Encased rolled steel section in concrete (SRC) and concrete filled steel tube (CFT) are used.
3. The beams are made up from RCC and rolled steel section.
4. Compare the parameters like story drift, displacement etc. of RCC and Composite frame.
5. Suggest the suitability of composite construction as compare with RCC.

III. LITERATURE REVIEWS

Dr. D. R. Panchal In **(2014)** present the simplified method of design of composite slabs, beams and columns and software is developed with pre- and post- processing facilities in VB.NET. All principal design checks are incorporated in the software. The full and partial shear connection and the requirement for transverse reinforcement are also considered.

D. R. Panchal and P. M. Marathe (2011) make the comparative analysis of steel concrete composite, steel and R.C.C. for of G+30 storey commercial building in earthquake zone IV. Equivalent Static Method is used. For modeling of Composite, Steel and R.C.C. structures, ETABS software is used and the results are compared; and it is found that composite structure is found to be more economical. In all the options the values of story displacements are within the permissible limits as per code limits. Steel and composite structure gives more ductility to the structure as compared to the R.C.C. which is best suited under the effect of lateral forces.

LIU Jingbo and LIU Yangbing (2008) creates the CL-CFST (composite beam-concrete filled square tubular column), SL-CFST (steel beam-concrete filled square tubular column), CL-ETRC (composite beam-equivalent stiffness RC column), SL-ETRC (steel beam-equivalent stiffness RC column) and RC frame structures. Then the response spectrum and the inelastic

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EmoPlayer: An Emotion Based Music Player

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Abstract: *The human face is an important organ of an individual's body and it especially plays an important role in extraction of an individual's behavior and emotional state. Manually segregating the list of songs and generating an appropriate playlist based on an individual's emotional features is a very tedious, time consuming, labor intensive and upheld task. Various algorithms have been proposed and developed for automating the playlist generation process. However the proposed existing algorithms in use are computationally slow and less accurate. This proposed system based on facial expression extracted will generate a playlist automatically thereby reducing the effort and time involved in rendering the process manually. Facial expressions are given using inbuilt camera. We have used Viola-Jones algorithm and multiclass SVM (Support Vector Machine) for face detection and emotion detection respectively.*

Keywords: *Emotion, Facial Expression, Face Detection, Support Vector Machine.*

1. Introduction

Music player plays a vital role in everyone's life. Most of the music lover's users found themselves in a hectic situation when they do not find songs corresponding to their mood in the situation. So we have developed an emotion based music player.

The main objective of this paper is to design an efficient and accurate algorithm that would generate a playlist based on current emotional state and behaviour of the user. Face detection and facial feature extraction from image is the first step in emotion based music player. For the face detection to work effectively, we need to provide an input image which should not be blur and tilted. We have used Viola-Jones algorithm that is used for face detection and facial feature extraction.

We have generated landmarks points for facial features. The next step is the classification of emotion for which we have used multi-class SVM classification. The generated landmarks points are provided to the SVM for training purpose. The emotion classified by SVM is then passed to music player and accordingly music will be played.

2. Literature Survey

A literature survey is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature reviews use secondary sources, and do not report new or original experimental work.

Various techniques and approaches have been proposed and developed to classify human emotional state of behaviour. The proposed approaches have focused only on the some of the basic emotions. For the purpose of feature recognition, facial features have been categorized into two major categories such as Appearance-based feature extraction and Geometric based feature extraction. Geometric based feature extraction technique considered only the shape or major prominent points of some important facial features such as mouth and eyes.

An accurate and efficient statistical based approach for analyzing extracted facial expression features was proposed by Renuka R. Londhe. The paper was majorly focused on the study of the changes in curvatures on the face and intensities of corresponding pixels of images. Support Vector Machine (SVM) was used in the classification extracted features into 6 major universal emotions like anger, disgust, fear, happy, sad, and surprise.

Numerous approaches have been designed to extract facial features and audio features from an audio signal and very few of the systems designed have the capability to generate an emotion based music playlist using human emotions and the existing designs of the systems are capable to generate an automated playlist using an additional

Secure Data Retrieval using AES approach for Decentralized Disruption Tolerant Military Networks

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Abstract— In this paper, by utilizing AES Algorithm for decentralized DTNs we portray how to secure data and recuperation arrange for where different key forces manage their properties self-sufficiently and avoid the key escrow, revocation, Coordination of characteristics issued from different forces. Adaptability is given by AES to encryption and decoding. For unravelling to happen the unscramble or needs a couple of attributes that matches or relates with the one portrayed by security game plan of the passageway control. We delineated that how securely and authority manage the private data by applying proposed part which is passed on in the aggravation tolerant military framework. The point of confinement of military security has stretched out from standard sorts of rivalry between nation states to fourth-time battling between a state and non-state on-screen characters. In Military Environment, they are endure spasmodic framework accessibility. So we are using the DTN (Disruption Tolerant Network) that allows the remote framework for military application to pass on each other moreover warriors can get to ordered data by utilizing stockpiling centre in cutting edge or counter zone to torment shape the widely appealing framework accessibility and achieve secure data or some summon by tried and true to research from external centre. The most troublesome thing in this cases are approval of affirmed game plans. Figure content approach property based encryption is a tried and true cryptographic response for get to control issues.

Key words: Disturbance Tolerant System (DTN), Secure Information Recovery, Access Control, Advance Encryption Standard (AES), Multi Specialist

I. INTRODUCTION

A disturbance tolerant system (DTN) is a framework laid out so that worldly or sporadic correspondences issues, repressions and irregularities have the smallest possible disagreeable impact. In Military secure framework, they are using remote contraptions affiliations that may be separated basically by affiliation stick, some condition components and adaptability, generally when they work in counter circumstances. To pass on each other easily in these extraordinary frameworks organization circumstances i.e. Disturbance tolerant system (DTN) progressions are used. Exactly when there is no any end to end relationship amidst source and objective match and message from source centre point may go to transitional centre point for a liberal measure of time until the affiliation would be over the long haul developed. In maker describe limit centre points in DTN where data is secured centre or investigated that solitary such flexible centre point can get to major information quickly and viably. Intrusion tolerant framework is an advancement which allows the centre point to talk with each other in secure way. It is one of the powerful responses for moving the data in framework. An expansive segment of the military customers use this advancement for secure trade of the data. In military applications required extended protection of mystery data with get to control system that are cryptographically actualized. Some of the cases it is alluring to give unmistakable get to organization like data get to approach are qualify over the customer's properties and parts, which are supervised by the key forces. For instance in an unsettling influence tolerant military framework, on the limit centre point pioneer may store private data which is access by "Unexpected A" who are appreciating "District B."

The AES calculation with Random numbers key is trying methodology which is fulfil the need of secure data in DTN. AES computation and Random key parts a by using access courses of action it is instrument of enable get to control over the mixed data and credited properties among private keys and figure content. One of the basic thing is figure writings AES Algorithm gave less difficult strategy for encode or unravel data with the true objective that the scrambled can depicted the RSA count keys that to be need prepare by descriptor and devotee into figure content. However the customer can disentangle the data on different way for security reason. Consequently, the issue of applying the ABE to DTN presents a couple security and insurance challenges. Transportable centre points in military circumstances, for example, in a threatening district are level to practice in proceed of harum scarum structure framework and different designations. Unsettling influence tolerant system (DTN) advancements are getting the chance to be helpful outcomes that endorse remote device passed on by officers for correspondence reason and surrender the private data or secret data or pull in steady by disregarding outside farthest point centres or limit centre points. A DTN centre point can forward package between at least two unique centres in one of two conditions they were Routing and Equivalent Forwarding. In DTN, data where secured or envision with the true objective that solitary endorsed flexible centre points can dishes the required information rapidly and capably. In the long run a couple of customers may change their accomplice properties like customer change the locale or some private keys might be exchanged off, to make structure secure key redesigning for each property is central. In any case, this issue is more troublesome, especially in ABE systems, since each properties shared by each customer as we study different social occasions of customers as trademark get-togethers. This characterizes denial of qualities can impact on different clients in gathering. Another test is the key escrow issue. In irregular key, create private key for client by applying the expert's lord keys to client related arrangement of properties. Consequently, by creating property key, specific client can utilizing key trait unscramble each figure content. The each key expert having complete concession for make self-property with possess ace privileged

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SLA AND IDLE SERVER MONITORING ALGORITHM WITH FEEDBACK IN CLOUD ENVIRONMENT

[PAPER ID ICITER-D191]

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ABSTRACT:

The scheduling algorithm plays vital role in day-today life. The load balancer can map task to resource that based on some particular objectives. The main objectives of load balancing are resource utilization and task completion. Cluster formation is done based on properties and processing power of server and assign task to first phase. In First phase, Service Level Agreement (SLA) algorithm determines priority of tasks, cost estimation and assign task to the respective cluster to second phase. In second phase, the Idle-server monitoring algorithm applies to check server is idle or not and result is forwarded to third phase which check whether task is get processed or not and reassignment of task will be done and analyze the result. The main aim is to understand the processing power and numbers of tasks are going to be processed by server to maximize throughput. This paper shows that maximum throughput by introducing Quality-of-Service in cloud environment.

KEYWORDS: Cloud computing, Quality of Service, Load balancing scheduling techniques, Load balancing algorithm.

INTRODUCTION:

This cloud load balancing is one type of load balancing method that is performed in cloud computing environment. Load balancing is process of distributing or dividing workload across multiple computing system or resources. A load balancing reduces cost and maximizes availability of resources which is associated with document management systems. In order to suit user requirements, it uses a precise method to map the tasks to appropriate cloud resources, though by default maximum strategies are static in nature[6].

Whenever cluster formation is done then the cluster of server should be session-aware, so that any client connect to any cluster of servers at any time , the user gets unpredicted experience.[10] This is usually achieved with in-memory database or shared database. In distributed resources, scheduling problem is process that maps and manages the implementation of independent tasks. In order to meet the users specific need, process can provide appropriate resources to ensure that the workflow can be successfully completed.[6] Cloud Computing is state which gives proper and on-demand network access to shared pool of computing resources like network, storage, servers and services that are to be rapidly released with the efficient way in minimum management.[7]

At present, cloud computing is suffering from some challenges like security, QoS, Power Consumption and Load Balancing etc. Currently, as there is an increase in technology and consumer demands, there is excessive workload which calls for the need of the load balancer.[6] To balance the task properly the task should be get prioritize so that the tasks can be handled properly. The priority of task is depend upon the processing power of ant server or system. The processing power is calculated depend upon the hardware configuration such as input and output functionalities of system [6] [7].

The concept of balancing the load on the server on cloud has an important effect on performance.[10] The uneven distribution of load among the servers result in server overloading and may lead to crashing of servers. This degrades the performance of server. Load balancing is technique that distributes the load equally among the servers which avoid the overloading of server, server crashes and performance degrades. Load Balancing is an important factor that good response time, effective resource utilization. Thus the effective load balancing is needed. [6][10]

Reduction Of High Dimensional Graphical Data

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Abstract—The coming century is surely the century of data. A combination of blind faith and serious purpose makes our society invest massively in the collection and processing of data of all kinds, on scales unimaginable until recently. In spite of the fact that graph embedding has been an intense instrument for displaying data natural structures, just utilizing all elements for data structures revelation may bring about noise amplification. This is especially serious for high dimensional data with little examples. To meet this test, a novel effective structure to perform highlight determination for graph embedding, in which a classification of graph implanting routines is given a role as a slightest squares relapse issue. In this structure, a twofold component selector is acquainted with normally handle the component cardinality at all squares detailing. The proposed strategy is quick and memory proficient. The proposed system is connected to a few graph embedding learning issues, counting administered, unsupervised and semi supervised graph embedding.

Keywords- Feature selection; High dimensional data; Sparse graph embedding; Sparse principal component analysis;Subproblem Optimization;

I. INTRODUCTION

Two of the most influential principles in the coming century will be principles originally discovered and cultivated by mathematicians: the blessings of dimensionality and the curse of dimensionality. The curse of dimensionality is a phrase used by several subfields in the mathematical sciences; I use it here to refer to the apparent intractability of systematically searching through a high-dimensional space, the apparent intractability of accurately approximating a general high-dimensional function, the apparent intractability of integrating a high-dimensional function.

The blessings of dimensionality are less widely noted, but they include the concentration of measure phenomenon, which means that certain random fluctuations are very well controlled in high dimensions and the success of asymptotic methods, used widely in mathematical statistics and statistical physics, which suggest that statements about very high-dimensional settings may be made where moderate dimensions would be too complicated.

To lighten this, one conceivable methodology is to change high dimensional data into a lower dimensional representation while safeguarding the inborn data structures. This is dimensionality reduction. Inherent data structures can have both nearby and worldwide properties, contigent upon the applications. Nearby properties frequently allude to the nearby neighborhood relationship for example in LPP, while illustrations of worldwide properties incorporate class detachment in LDA, the worldwide change in PCA, and the worldwide most brief way between any sets of data tests in the Isomap technique.

Numerous feature selection strategies have been proposed in diverse learning settings with diverse component significance measures. These strategies can be arranged into two classes, to be specific, the regulated and unsupervised routines. For the regulated routines there are two principle highlight significance measures, distance based measures and the connection based measures. In particular, the separation based measures characterize the critical components as those that different classes better and group the inside of class tests for example LDA based component determination routines. In relationship based component choice methods the critical components are those that relate well with class names furthermore give better forecast results. In the

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Study of Round Central Hole in Buckling Analysis of Cross Ply Laminates

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Abstract - Laminated structures find many applications in various engineering fields namely aerospace, bio-medical, civil, marine and mechanical engineering due to easy handling, good mechanical properties and low fabrication cost. Laminated plates with round holes and other openings are extensively used as structural members in aircraft design. These holes are act sometimes as access holes, holes for hardware to pass through, or in the case of fuselage, windows and doors or simply used to reduce the weight of the structure. These laminated structures are often subjected to load in one or more direction in cycles or as intermittent load. Thus there is need to study the failure of these components under bi-axial loading with the view to optimize the shape and lay of the components so as they give maximum service and more life. In this paper bi-axial testing machine is developed to determine bucking load of different materials. Experiments are carried out on cross ply composite under various buckling loads on the bi-axial testing machine. The theoretical results, analytical and experimental results are compared with each other. It is observed that the strength of Bakelite composite plates is higher than glass epoxy laminated composite plate. So Bakelite is more suitable than glass epoxy.

Keywords- buckling, Bakelite, Ansys, biaxial loads,

I. INTRODUCTION

The laminated composite materials are created to improve combination of mechanical characteristics like high strength stiffness for lower weight, ease of handling and low fabrication cost, stability and improvement of structure aesthetics are achieved. Different types of holes are cut into the composite laminated plates either to form ports for mechanical or electrical systems, to reduce the overall weight of composite materials, to assemble components inside the structure, to serve as doors and windows. In laminated structures, these cutouts causes failure due to increased stress concentration, high interlaminar stresses and delamination due to free edges and also due to the various in plane loading conditions. One way to reduce this failure is by testing the component for the different loading conditions before it is put into the operation.

Failure in the structures is of various types viz; creep, fatigue, alternate & excessive stresses, bending, buckling. Among which buckling is more severe and catastrophic failure that occurs in composite structures. It depends upon the stiffness of the material not on its strength. If the structures are heavily loaded with axial compressive forces then it causes failure due to buckling. The minimum compressive load which exceeds the ultimate load value is called the critical buckling load. Buckling results in elastic instability and can even collapse. So for the reliability and safety of the design under given operating conditions it is necessary to investigate buckling behavior of structures with different characteristics. Also the maximum value of the load which the structure withstands is necessary.

There are numerous ways of reducing or preventing buckling, for example by changing the aspect ratio in plates, increasing the bucking load by changing the fibre orientation or by varying the applied load. Scientists & engineers have used experimental methods to determine critical bucking load which are less cumbersome and time saving as compared to numerical methods which consumes more time and require equation solving. They used INSTRON tensile testing machine for experimentation which is heavy and inflexible & applies only uniaxial loads. In this work a biaxial tensile testing machine is designed and developed which can apply load closer to actual working condition.

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Numerical Investigation of Heat Transfer Characteristics Using Different Discrete Rib Arrangements

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Abstract

Numerical study was carried out to study effect of different discrete rib arrangements on heat transfer performance. These rib arrangements include variously angled ribs, different. Spacing and also different angle combinations. Standard k-ε model is used for turbulence modelling. This study is carried out at Reynolds no. 22384 which was selected from previous studies. Different rib arrangements like inline and staggered for 30°, 45 and 60, discrete V's arrangement with different spacing, diamond like discrete rib arrangement with half and complete obstruction, inline and staggered connected V's and angle combination rib arrangements are studied numerically in this study. It is observed that 45 inline V-shape rib arrangement shows better Thermal Enhancement Factor (TEF) as compared to other arrangements and value of TEF is observed to be 1.0011. Ribs arranged in discrete V's shape with different spacing shows comparatively less heat transfer enhancement.

Keywords- Rib Arrangement, Heat Transfer Enhancement, Rib Spacing, Rib Angle

I. INTRODUCTION

A heat exchanger is a device that provides the transfer of thermal energy between two or more fluids, which are at different temperatures and are in thermal contact with each other. Heat exchangers are used for different applications as power generation, refrigeration, ventilating and air-conditioning systems, process, manufacturing, aerospace industries, electronic chip cooling etc. The traditional methods of reducing the air-side thermal resistance are by increasing the surface area of the heat exchanger, or by reducing the thermal boundary layer thickness on the surface of the heat exchanger. Increasing the surface area is effective but it results in the increase in material cost and increase in mass of the heat exchanger. Heat transfer rate is directly proportional to the turbulence of the fluid flowing over the heated surface. The active heat transfer enhancement methods are as cost of increased pumping power (stirring the fluid, vibrating the surface etc.) while in passive heat transfer enhancement methods no external power source is required (dimples, pin-fins, perforated baffles, twisted tapes, vortex generators etc.). The subject of heat transfer enhancement is of serious interest in the design of compact heat exchangers. The emphasis is given to minimizing the space occupied by the equipment for the desired rate of heat transfer. The Artificial roughness is used as turbulence promoters on a surface. It is also the technique to enhance rate of heat transfer to the flowing fluid in a testing duct. The surface roughness can be created by number of methods such as welding, fixing small ribs, fixing small diameter of wires, machining, and sand blasting, casting and forming.

The use of artificial roughness rib elements on the absorber plate is one of the effective ways which enhances the heat transfer coefficient of the air, thus increasing the heat transfer rate. These roughness rib elements break up the boundary layers and induces turbulence which results in heat transfer enhancement. These roughness elements being smaller in height as compared to duct size causes turbulence in the laminar sub layer adjacent to the wall without affecting the main turbulent zone in the flow. Efforts for enhancing heat transfer have been directed towards artificially destroying laminar sub-layer. Artificial roughness creates turbulence near wall and breaks laminar sub-layer. However artificial roughness results in high frictional losses leading to more power requirement for fluid flow. Hence turbulence has to be created in a region very close to heat transferring surface. Core fluid flow should not be unduly disturbed to limit pumping power requirement. This is achieved by keeping height of roughness element small in comparison to duct dimensions. The performance of the heat transfer surface with ribs depends significantly on the parameters of the flow structure, such as reattachment length of the separated streamline and turbulence intensities, as well as the area of the surface.

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Implementation of Virtual Reality in Construction Industry

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ABSTRACT: Present-day construction projects are characterized by short-term partnerships between multidisciplinary teams with varying levels of process maturity and information handling capability. They involve the planning, Architectural Design and erection of structures of all types. Compared with other industries, the construction sector has relatively poor profit margins and low efficiency levels. The product development process in construction is still structured as a sequential chain of activities in which each activity is separated in time and space and where Architectural Design information is communicated using traditional documents, such as 2D drawings and written specifications. This process is slow and error prone and reflects the functional orientation of the construction project. However, lessons learned from the manufacturing industry have shown that new Architectural Design processes using modern information and communication technology (ICT),tools such as concurrent engineering and virtual reality (VR) can increase efficiency and reduce lead times. So far, VR has been used sporadically in the construction industry, often from the perspective of visualizing the product Architectural Design for the client. The objective of present research has been to investigate how VR (and thereby 3D) can be used during the planning, Architectural Design and realization phase of a construction project with the emphasis on complex building products. What are the main benefits and how should the construction project be organized in order to make use of the potential benefits the technology offers? The main hypothesis during present research has been that the use of digital prototypes visualized using VR technology makes it easier to identify, analyze, coordinate and communicate the product Architectural Design in order to improve the decision-making and thereby the final product. Virtual reality technologies both play vital roles in the construction industry. Virtual reality technologies, however, have a higher benefit when compared to Real. The technology types are discussed,with their similarities and differences explained. The past, present, and future is described. Some benefits of using Virtual reality technology are discussed. The drawbacks are mentioned, with the way to correct them detailed.

KEYWORDS: Virtual Reality (VR),Construction Industry, Augmented Reality (AR)

I. INTRODUCTION

Throughout the 20th century and beyond, the World has seen monumental changes in a wide variety of aspects. In our regard, there has a huge transformation in the construction industry. Through building bigger and better things, the industry has revolutionized means and methods [3].In addition, in order to overcome shortage of competent workforce, the construction industry has taken advantage of technology to better recruit and retain new workers in construction career[8]. One of the technological tool employed by the construction industry is called Virtual Reality, in which a three-dimensional, computer generated environment can be explored and interacted by a person. Virtual Reality shares the same concept, but rather than to interact in a non-existing environment (virtual reality), Virtual reality uses existing environment while implementing virtual elements to appear as if both are together at the same time [6]. The purpose of this review is to explore the changes in the construction industry that are resulting from Augmented and virtual technology.

What is virtual reality?

In technical terms, virtual reality (VR) is described as a computer-generated 3-dimensional environment that can be explored as well as interacted with by an individual.

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Non Destructive Evaluation and Structural Health Monitoring: A Review

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Abstract— Structural health monitoring has great potential for enhancing the functionality, serviceability and increased life span of structures. Structural health monitoring is defined as "continuous, autonomous, real time, in-service monitoring of the physical condition of a structure by means of embedded or attached sensors with minimum manual intervention". This need which arises from the fact that intensive usage combined with long endurance causes gradual but unnoticed deterioration in structures, often leading to unexpected disasters. Recently smart piezoelectric-ceramic lead material is emerged as high frequency impedance transducers for non-destructive evaluation. In this role, the PZT patches act as collocated actuators and sensors and employ ultrasonic vibrations gives a characteristic admittance 'signature' of the structure. The admittance signature has vital information about the nature of the structure, and it can be analysed to predict the onset of structural damages. PZT patches exhibit excellent performance as far as damage sensitivity. Their sensitivity is high enough to capture any structural damage at the incipient stage. There are different Non-Destructive techniques like acoustic emission, ultrasonic, acousto-ultrasonic, guided ultrasonic waves or Lamb waves. The Lamb wavebased active SHM method uses piezoelectric (PZT) sensors to transmit and receive wave. Thus, Lamb waves generated by PZT sensors and time-frequency analysis techniques could be used effectively for damage detection. This study has given a complete idea of the working and the basic requirements of SHM system.

Key words: Structural Health Monitoring (SHM), Nondestructive Evaluation (NDE), PZT Patches, Lamb Waves

I. Introduction

Structural health monitoring provides the ability of a system to detect adverse changes within a system's structure. SHM is an emerging technology that has multiple applications. Development of new techniques for structural health monitoring (SHM) and non-destructive evaluation (NDE) is need arises from the fact that intensive usage combined with long endurance causes gradual but unnoticed deterioration in structures, often leading to unexpected disasters. In this PZT materials, for example, have recently emerged as high frequency impedance transducers for SHM and NDE. In this role, the PZT patches act as collocated actuators and sensors and employ ultrasonic vibrations gives a characteristic admittance 'signature' of the structure. With the increasing number of civil structures, it has become a necessity to monitor these structures regularly via Non-destructive Testing/ Structural Health Monitoring methods, to prevent catastrophic failures. Also it is required to implement cost-effective measures and ease of implementation. This way the cost gets reduced as it minimizes maintenance and inspection cycles.

II. Review of Literature

A. *Nishanth R. and Maheshprabhu.R, et.all [1]*

Has carried out study on structural health monitoring which is based on Lamb wave propagation. It has been developed especially for distinguishing different kinds of damages. The Lamb wave-based active SHM method uses piezoelectric (PZT) sensors to transmit and receive Lamb waves in a thin Aluminium plate. The Lamb wave modes travel into the structure and are reflected by the structural boundaries, discontinuities, and damage. By studying their propagation and reflection, the presence of defect in the structure is determined. Laboratory level experiments have been carried out on thin Aluminium plates with angular, horizontal and vertical defect. This study provides significant insight into the problem of identifying localized damages in the structure using PZT and dispersion of signal after they interact with different types of damage. Those small defect like the horizontal one that may be nearly missed in time domain analysis can also be clearly identified in the STFT analysis. Moreover the occurrence of so mode is also clearly seen. Thus, Lamb waves generated by PZT sensors and time-frequency analysis techniques could be used effectively for damage detection in aluminium plate.

B. *Hui-Ru Shih, Wilbur L. Walters et. all [2]*

Has carried out study on structural health monitoring (SHM) is an emerging technology that has multiple applications. SHM emerged from the wide field of smart structures, and it also encompasses disciplines such as structural dynamics, materials and structures, non-destructive testing, sensors and actuators, data acquisition, signal processing, and possibly much more.

C. *Dr. Suresh Bhalla and Chee-Kiong Soh [3]*

has carried out study on development of new techniques for structural health monitoring (SHM) and non-destructive evaluation (NDE) is need arises from the fact that intensive usage combined with long endurance causes gradual but unnoticed deterioration in structures, often leading to unexpected disasters. In this smart piezoelectric-ceramic lead zirconate titanate (PZT) materials, for example, have recently emerged as high frequency impedance transducers for SHM and NDE. In this role, the PZT patches act as collocated actuators and sensors and employ ultrasonic vibrations (typically in 30-400 kHz range) to glean out a characteristic admittance 'signature' of the structure. The admittance signature encompasses vital information governing the phenomenological nature of the structure, and can be analysed to predict the onset of structural damages. As impedance transducers, the PZT patches exhibit excellent performance as far as damage sensitivity and cost-effectiveness are concerned. Typically, their sensitivity is high enough to capture any structural damage at the incipient stage, well before it acquires detectable macroscopic

Comparative Study on Fibre Reinforced Concrete and Nominal Concrete

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Abstract— Concrete is weak in tension and possesses high compressive strength, stiffness, low thermal, brittle character and toxicity so it is have provided a technical basis for improving such deficiencies. The use of fibres is to improve the characteristics of construction materials. Fibres are small pieces of reinforcing materials added to a concrete mix. In addition with the most common fibres used is namely steel, glass, asbestos, etc. When the loads imposed on the concrete approach that for failure, crack will propagate, sometimes rapidly, fibres in concrete provides a means of arresting the crack growth. If the modulus of elasticity of fibre is high with respect to the modulus of elasticity of concrete or mortar binder the fibre helps to carry the load, thereby increasing the tensile strength of the material. Fibres increase the toughness, the split as well as compressive strength, and reduce the creep strain and shrinkage of concrete. In this paper, the aim of the study is to comparison between properties of fibre reinforced concrete at different percentage 1% to 3% with respect to 7days and 28days fresh water curing with nominal concrete at weigh batching and volume batching method. Concluded that the addition of fibres improves ductility of concrete and its post-cracking load carrying capacity. Split tensile strength of concrete goes on increasing as fibre content is increases. The compressive strength of concrete by weigh batching is higher as compared to volumetric batching method.

Key words: Fibres Reinforced Concrete; Nominal Concrete; Weigh Batching; Volumetric Batching

I. INTRODUCTION

Fibre reinforced concrete is termed as a composite materials using cement, aggregate and incorporating discrete discontinuous fibres. Then, why would we wish to add such fibres to concrete? Plain concrete is a brittle material, with a low tensile strength and having a low strain capacity. The fibres used in FRC may be of different materials like steel, G.I., carbon, glass, asbestos, polypropylene, jute etc. The addition of these fibres into concrete mass can significantly increase in the compressive strength, tensile strength of concrete. [1], [2], [5], [6]

With the use of reinforcement in concrete results tends to increases strength and ductility, which requires skilled labours for careful placement. The introduction of fibres in discrete form in plain or reinforced concrete may provide a better solution. Addition of fibres to concrete makes it isotropic and homogeneous material. When concrete cracks, the randomly oriented fibres start functioning, arrest crack formation and propagation which results into improved strength and ductility. The failure modes of FRC are either bond failure between fibre and matrix or material failure. [3], [4]

Concrete shows excellent properties rather low performance when subjected to tensile stress because of no use of reinforcement. The cement in concrete is replaced accordingly with the percentage of 10 %, 20%, 30%, and 40% by weight of slag and 0.5%, 1%, 1.5%, 2% by weight of steel fibre. The strength performance of fibre reinforced concrete is compared with the performance of nominal concrete. [7], [8], [9], [10].

II. RESEARCH SIGNIFICANCE

When the addition of steel fibres in a concrete matrix would improve significantly many of its engineering properties, however the addition of steel fibres is not mainly the part for the strength increasing point but also economical point of view as compared to conventional reinforced concrete. Superplastizer also pay an important role in modifying the microstructure of concrete and help to achieve better workability characteristics as the use of fibre in concrete it will be turn into the lower workability so it has also required to see the use of optimal fibres. Although considerable research has been carried out on the engineering properties of fibres reinforced concrete based on compressive tests but it is also required to see that which method is preferred volumetric batching or weigh batching method with the helps of compressive, split strength and also with workability test. To answer this, the present investigation has been forced on effective utilization of concrete produced with fibres and without fibres.

Therefore, to study the properties comparison between the fibres reinforced concrete and nominal concrete is also essential.

III. EXPERIMENTAL PROGRAMME

During in this study, the properties compare between the fibres reinforced concrete and nominal concrete with volumetric batching method and weigh batching method is observed.

Ordinary Portland cement of 43 grades is used in the experimentation work. Locally available river sand conforming to zone II is used as fine aggregate in concrete. For Coarse aggregate the nominal maximum size of 20mm is used which supplied by local quarry. The concrete mix is designed as per IS 10262:2009. The specific gravity of fine and coarse aggregate was 2.70 and 2.90 respectively. The experiments which corresponds to M20 grade of concrete are carried out on a mix proportion of 1:1.60:3.47 with w/c= 0.50 with weigh batching method and the same properties of the materials are used with mix proportion of 1:1.70:3.50 with w/c= 0.60 in the volumetric batching method.

The Concrete ingredients in dry state thoroughly mixing and the required quantity of water are further added in the mix. The mixing of ingredients is done by using mechanical mixer till homogenous mixture is obtained. Concrete which is prepared is placed in cubes and cylinders in three layers Each layer is well compacted by tamping rod by bullet end by giving 25 blows Further the blocks and

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"COMPARATIVE EXPERIMENTAL STUDY ON CYLINDRICAL COMPRESSIVE STRENGTH OF CASTED & CORED CYLINDERS OF FLY ASH CONCRETE BY USING NDT"

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ABSTRACT:—
Nondestructive testing (NDT) has the potential to be a powerful investigative tool due in part to its ability to detect problems without inducing further damage or through those where the concrete surface is slightlydamaged topartially destructive tests, such as core tests and pullout and pull off tests, where the surface has to be repaired after the test, but also because it does so with minimal expenditures of time and manpower The range of properties that can be assessed using nondestructive tests and partially destructive tests is quite large and includes such fundamental parameters as density, elastic modulus and strength as well as surface hardness and surface absorption, reinforcement location, size and distance from the surface. In some cases it is also possible to check the quality of workmanship and structural integrity. In this project work, three grades of fly ash concretes M20, M25 &M30 are used for the testing purpose with thereplacement of cement by 10% of fly ash. The tests for compressive strengths of two types of sizes 100 x 200 mm for cored & 150 x 300mm for casted cylinders carried out. Thetests results are recorded for the 7, 14, 21, & 28 days. The compressive strength & quality of concrete is found by variousNDT tests available. Both the results for casted cylinders and cored cylinders are compared and validated with modeling fromsoftware ABACUS.

KEYWORDS—Fly ash Concrete, Compressive strength, Cylinders, Abaqus analysis.

I. INTRODUCTION

It is a great deal of the quality assurance and forensic work performed on civil engineering structures revolves around the use of destructive testing techniques.

In the past, NDT has usually been approached in an entirely empirical manner. Typically, this was done by performing large numbers of tests with a particular piece of equipment and then analyzing the results in an attempt to find some pattern that represents the expected damage. There are a number of advantages associated with this approach. It will allow proper correlation of NDT Such information is essential in establishing acceptable performance of new structures and also gives the rough idea about the concreting..

By combining a laboratory testing program that simulates the strength mechanisms in concrete with nondestructive testing technologies this research will identify the parameters related with compressive strengths. Knowledge of these key will allow for the selection of appropriate NDT technologies for monitoring changes. This effort will thus provide the groundwork for future research aimed at using nondestructive testing.

Knowledge of the condition of newly constructed structures will provide the quality assurance data necessary to ensure compliance with the performance-based specifications approach currently being adopted. Similarly, the ability to detect, identify and quantify existing damage at an earlier age than conventional techniques will minimize the costs associated with rehabilitation. Finally, a comprehensive NDT based evaluation program will set the stage for a rational framework for actual service life modeling of structures, with an emphasis on providing information for the development of optimum maintenance regimes and rehabilitation techniques.