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OPTIMIZATION OF SLAB MILLING PROCESS PARAMETERS USING TAGUCHI METHOD

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In this study, the Taguchi method is used to find the optimal cutting parameters for slab milling operation. The orthogonal array, the signal-to-noise ratio, and analysis of variance are employed to investigate the cutting characteristics of ASTM A572 grade 50 high strength low alloy (HSLA) steel plates using solid carbide tool. Four cutting parameters viz cutting fluid, speed, feed and depth of cut are optimized with consideration of surface roughness. Analysis of variance (ANOVA) was carried out to determine which machining parameter significantly affects the surface roughness and also the percentage contribution of parameters. Confirmation test was conducted to ensure validity of the test result. The results of the study revealed that combination of factors and their levels $A_2B_2C_3D_1$ i.e. the machining done in the presence of cutting fluid, at a speed of 2300 r.p.m. with a feed of 300 mm/min and depth of cut of 0.13 mm yielded the optimum i.e. minimum surface roughness. Further, the results of ANOVA indicated that all four cutting parameters significantly affected the surface roughness with maximum contribution from cutting fluid (42.58%), followed by depth of cut (23.92%), feed (12.64%) and speed (10.55%). It is also observed that the surface finish for slab milling process can be improved effectively through this approach.

Keywords: Taguchi method, Optimization, Slab milling, Surface roughness, High strength low alloy steel.

TREATIES, CONVENTIONS AND PROTOCOLS FOR ENVIRONMENTAL PROTECTION

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The state of environment at the outset of twenty-first century is no more promising now than it was decades ago. Today the goals commonly expressed by environmentalists include reduction and clean up of man-made pollution, with future goals of zero pollution; reducing societal consumption of non-renewable fuels; development of alternative, green ,low-carbon or renewable energy sources; conservation and sustainable use of scarce resources such as water, land and air; protection of representative or unique ecosystem; preservation and expansion of threatened or endangered species or ecosystem from extinction; the establishment of nature and biosphere reserves under various types of protection. Now it's time to make global effort not only with strong determination but also with governmental support to make the blue planet habitat. We must follow the obligations of international treaties of the past and pursue the new global order to save the earth. There are numerous international environmental agreements made to protect the environment in different ways. These are: ENMOD Convention, ASEAN Agreement on Transboundary Haze Pollution, Antarctic Treaty, Basel Convention, Convention on Biological Diversity, Convention on Fishing and convention of Living Resources of High Seas, Convention on Long-Range Transboundary Air Pollution, Bonn Convention, Convention on International Trade in Endangered Species, Convention on Prevention of Marine Pollution by Dumping of Wastes, Ramsar convention, International Convention for the Regulation of Whaling, International Treaty on Plant Genetic Resources for Food and Agriculture, Kyoto Protocol, Montreal Protocol, Stockholm Convention, Comprehensive Nuclear Test-Ban Treaty, United Nations Convention on the Laws of the Sea, U N Framework Convention on Climate Change, Geneva Protocol-1925, Biological Weapons Convention-1972, Chemical Weapons Convention-1993, Outer Space Treaty- 1967, Nuclear Non-Proliferation Treaty-1968, Anti-Ballistics Missile Treaty-1972.

Keywords: Treaties, Conventions, Protocol, Environmental Protection.

**DESIGN AND CFD ANALYSIS OF SINGLE STAGE, END SUCTION,
RADIAL FLOW CENTRIFUGAL PUMP
FOR MINE DEWATERING APPLICATION**

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Heavy centrifugal pumps are used in slurry and mine dewatering. While working these pumps are more subjected to the wear and consumes more power. Hence single stage end suction radial flow pumps are used for these applications. The pump performance is mainly depends on the vane shape, impeller and volute and as well as the supporting mechanical parts. Hence, design has been concentrated on the flow path of the fluid through the vanes and volute section. Since energy is transmitted to the fluid through vanes, so vane shape plays a very important role in effective energy transfer. The impeller and volute is been designed by Walter K Jekat method and Error triangle method given by Stepanoff A J., which is modified during this work by taking equal divisions and varying vane inlet angle from hub to shroud is used to generate the vane which has given an improved efficiency with reduced power consumption with compact design. The model prepared is been analyzed in CFD tool CF Design 2010 and its performance is analyzed at different flow rates. Major work is concentrated on vane shape.

POWER QUALITY ANALYSIS VIA WAVELET TRANSFORM

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The dependence of modern life upon the continuous supply of electrical energy makes power quality of utmost importance in the power systems area.

In this paper work, a new approach to detect, localize and investigate the feasibility of classifying various types of power quality disturbances is presented ,wavelet transform analysis is done as well as the concept of mother wavelet is also explained. In quality of power, the current state of art is the use of Daubechies wavelets. Daubechies wavelets belong to a special class of mother wavelet and actually they are the most used for detection,

localization and classification of disturbances. The key idea underlying the approach is to decompose the disturbance signal developed with the help of MATLAB 7.0.5 version simulink into other signals which represent a approximated version and a detailed version of the original signal by using the wavemenu toolbox. The signal under investigation is often corrupted by noises, especially the ones with overlapping high-frequency spectrum of the transient signals. The signal firstly separated and then analysed using different techniques step by step.

The decomposition is performed using multi-resolution signal decomposition techniques. The demonstration is done with the distribution system to detect and localize disturbance with actual power line disturbances. In order to enhance the detection outcomes, utilization of wavelet transform coefficients of the analysed power line signals. The results of various other methods are compared and presented the best suitable method. The simulation results clearly demonstrate the superiority and effectiveness of the wavelet transform in both current and voltage signal noise reduction.

Keywords: Power Quality, Fourier Transforms, Wavelets, Multi Resolution Analysis, and Filter.

COMPREHENSIVE STUDY OF MODIFIED ARTIFICIAL NEURAL NETWORK ALGORITHM AND COMPARE EFFICIENCY AND PERFORMANCE WITH BASIC ALGORITHM OF NEURAL NETWORK IN DATA MINING

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Throughout the years, the computational changes have brought growth to new technologies. Such is the case of artificial neural networks, that over the years, they have given various solutions to the industry. Designing and implementing intelligent systems has become a crucial factor for the innovation and development of better products for society. Such is the case of the implementation of artificial life as well as giving solution to interrogatives that linear systems are not able resolve.

A neural network is a parallel system, capable of resolving paradigms that linear computing cannot. A particular case is for considering which I will cite. During summer of 2006, an intelligent crop protection system was required by the government. This system would protect a crop field from season plagues. The system consisted on a flying vehicle that would inspect crop fields by flying over them.

Now, imagine how difficult this was. Anyone that could understand such a task would say that this project was designated to a multimillionaire enterprise capable of develop such technology. Nevertheless, it wasn't like that. The selected company was a small group of graduated engineers. Regardless the lack of experience, the team was qualified. The team was divided into 4 sections in which each section was designed to develop specific sub-systems. The leader was an electronics specialist. She developed the electronic system. Another member was a mechanics and hydraulics specialist. He developed the drive system. The third member was a system engineer who developed all software, and the communication system. The last member was designed to develop all related to avionics and artificial intelligence.

COMPREHENSIVE STUDY OF ANT COLONIES FOR THE TRAVELING SALESMAN PROBLEM AND COMPARE EFFICIENCY AND PERFORMANCE WITH BASIC ALGORITHM

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The travelling salesman problem (TSP) is an NP-hard problem in combinatorial optimization studied in operations research and theoretical computer science. Given a list of cities and their pair wise distances, the task is to find the shortest possible tour that visits each city exactly once.

It is used as a benchmark for many optimization methods. Even though the problem is computationally difficult, a large number of heuristics and exact methods are known, so that some instances with tens of thousands of cities can be solved.

The TSP has several applications even in its purest formulation, such as planning, logistics, and the manufacture of microchips.

The ant colony optimization is a probabilistic technique for solving computational problems which can be reduced to finding good paths through graphs. In ACO, a set of software agents called artificial ants search for good solutions to a give optimization problem. The traveling salesman problem (TSP) is the problem of finding a shortest closed tour which visits all the cities in a given set. In this article we will restrict attention to TSPs in which cities are on a plane and a path (edge) exists between each pair of cities (i.e., the TSP graph is completely connected). Ant colony optimization is a metaheuristic in which a colony of artificial ants cooperates in finding good solutions to difficult discrete optimization problems.

OPERATIONAL MODELING FOR OPTIMIZING BURR HEIGHT IN MILD STEEL DRILLING USING TAGUCHI TECHNIQUE

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This study presents a Taguchi technique as one of the method for minimizing the burr height and design optimization for quality while drilling Mild steel. The methodology is useful for modeling and analyzing various engineering problems. The aim of this study is to investigate the influence of drilling parameters, such as cutting speed and feed rate, and point angle on burr height formed when drilling Mild steel. An orthogonal array, signal-to-noise ratio, and analysis of variance (ANOVA) were employed to investigate the optimal drilling parameters under study. From the analysis of means and ANOVA, using MINITAB 16 @ software, the optimal combination levels and the significant drilling parameters on burr height were obtained. All tests were run without coolant at various combinations of chosen drilling parameters. A design of experiments, based on L27Taguchi design method, was also performed to study significant effect such as the interaction among drilling parameters. The optimization results showed that the combination of low cutting speed, low feed rate, and medium point angle is necessary to minimize burr height.

Keywords: Taguchi method of DOE, ANOVA, Drilling process, Burr formation.

COMPARING MANUAL AND AUTOMATIC NORMALIZATION TECHNIQUES FOR RELATIONAL DATABASE

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Normalization is a process of analyzing the given relation schemas based on their Functional dependencies and primary keys to achieve the desirable properties of minimizing redundancy. It aims at creating a set of relational tables with minimum data redundancy that preserve consistency and facilitate correct insertion, deletion, and modification. A normalized database does not show various insertions, deletion and modification anomalies due to future updates. This paper presents a comparison study of manual and automatic normalization technique using sequential as well as parallel algorithm. It is very much time consuming to employ an automated technique to do this data analysis, as opposed to doing it manually. At the same time, the process is tested to be reliable and correct. It produces the dependency matrix and the directed graph matrix, first. It then proceeds with generating the 2NF, 3NF, and BCNF normal forms. All tables are also generated as the procedure proceeds.

Keywords: Automatic Normalization, Manual Normalization, Relational Database, Functional Dependency, and Primary Key.

COMPARATIVE ASPECTS AND RESULT ANALYSIS OF VARIOUS CONTROL METHODS OF AN INVERTED PENDULUM USING MATLAB

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Inverted pendulum control is one of the fundamental problems in the field of control theory. The present work consists of comparative aspects and result analysis of various control methods like LQR, PID and state space analysis. State space method and LQR method is used for determining the stability of pendulum. It is found that LQR controller has the best performance among all these controllers. AI techniques and fuzzy logic can be applied so that a robust controller and better response can be achieved for future work.

Keywords: Inverted pendulum, Linear Quadratic regulator, MATLAB, State space method, PID controller.

VIDEO SURVEILLANCE SYSTEM: A REVIEW

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Video surveillance is gaining its important in almost every field of day to day life. Surveillance is being done not only in military areas or airports but also in offices, schools, shopping areas, old age home and many more areas. The primary purpose of this paper is to provide a general review on the overall process of a surveillance system used in the present time. The processing framework of the video surveillance system includes the following stages: moving object detection, object segmentation, representation, classification, tracking of objects, activity recognition and prediction.

Keywords: Video Surveillance, Background Subtraction, Objects Classification, Blobs, Tracking.

HEURISTIC APPROACH FOR BICRITERIA

IN CONSTRAINED $N \times 2$ FLOW SHOP SCHEDULING PROBLEM

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A bicriteria in n - jobs, 2- machines flow shop scheduling to minimize the rental cost of the machines under a specific rental policy in which the processing time and independent setup time each associated with probabilities including break down interval and job block criteria is considered. Further the jobs are attached with weights to indicate their relative importance. In this paper, a new heuristic algorithm has been developed for minimizing the makespan as well as the rental cost of machines which is simple and straight forward. A computer programme followed by a numerical illustration is given to substantiate the algorithm.

Keywords: Flowshop Scheduling, Heuristic, Processing Time, Setup Time, Job Block, Breakdown Interval, Weights of jobs.

INVESTIGATING COMMUNICATION ARCHITECTURE FOR TACTICAL RADIO NETWORKS DESIGN

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Tactical applications pose unique requirements for the network, including decentralized control, vulnerability to jamming and electronic warfare, and mission critical latency bounds for end-to-end data delivery. Moreover, a tactical network is generally composed of mobile nodes and the routing protocols must deal with a range of node mobilities and time varying channel conditions. The goal of this paper is to define the best way to utilize existing technologies to improve the robustness, capacity, and quality of service of the network.

To achieve its goal, paper investigates various radio communication aspects of tactical networks under the restrictions of radio design. The main focus of the paper is, understanding network formation of tactical forces and suitably suggest communication services to meet various operational requirements. The paper also discusses overall communication architecture to enable QoS in for multihop networked services. Protocols for MAC, routing and techniques for radio resources and terminal design are also recommended concerning the realization of fully functional tactical communication networks. Simulation study of routing protocol for the main characteristic of tactical formation i.e. group mobility is also presented

Keywords: Tactical network, MANET, MAC, Routing, Radio resources.

CONSERVATION OF THE ENERGY IN DAILY LIFE

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Energy plays a key role in achieving the goals of sustainable development and poverty eradication. We are faced with the formidable task of meeting the increasing demand for energy. The effort would be three pronged - to enhance supply, use resources available in an optimal and economical manner and on the demand side look at ways to save energy. Technological advances can contribute in large measure to this process. Energy efficient equipment should be manufactured both for industrial and domestic use. Similarly, the

process of manufacturing should be such that it cuts down on energy consumption at every stage. We must educate our people that energy is a resource that needs to be used judiciously. There are multiple requirements for energy and all citizens have a duty not to waste this precious resource. Even though India's per-capita emission of green house gases is much less than those of developed countries, in this age of climate change, as citizens of the globe, all of us need to make efforts towards energy conservation. Take step on conservation of light energy, heat energy, electricity, kinetic energy etc. Efficient use of energy is also a step towards conservation. All individuals, businesses, corporate organizations, Government offices and others to look at their energy consumption patterns and cut out wasteful expenditure of energy. So save energy in all manners to save the future of the human being.

SAVE ENERGY, SAVE EARTH, SAVE FUTURE.

Keywords: Energy, Conservation, Saving.

A STUDY OF DIGITAL IMAGE WATERMARKING

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Watermarking is a very important field for copyrights of various electronic documents and media. With images widely available on the Internet, it may sometimes be desirable to use watermarks. Digital watermarking is the processing of combined information into a digital signal. A watermark is a secondary image, which is overlaid on the host image, and provides a means of protecting the image. It acts as a digital signature, giving the image a sense of ownership or authenticity. Digital watermarking technique is very impressive for image authentication or protection for attacks. In this paper we aim to present a survey on different types of digital watermarks and methods to do image watermarking. Problems and challenges to produce watermarked images are also analyzed and reported.

Keywords: Digital Watermark, Steganography, Authentication, Frequency Domain, Spatial Domain, Least Significant Bit.

DESIGN OF MORPHOLOGICAL APPROACH TO DETECT AND ELIMINATE INK BLEED IN DOCUMENT IMAGES

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When we write some text on a paper either hand written or the printed it gives the impression of text on its back side. More the ink pressure more dark will be the impression on back side. Now if we write the text on this impression side it is not readable clearly. In case of scanned copy of such documents there is the problem to read the documents as well as to extract the actual text from this. This back side impression of the text is called ink bleed. Ink bleed is one of the major problems while reading the older documents or the manuscripts. In this proposed work we are presenting the way to resolve the problem of ink bleed. Here the research is being performed using the morphological operators to detect and eliminate the ink bleed from a ink-bleeded document.

Keywords: Ink Bleed, Manuscript, Morphological Operators, Elimination, Detection.

DESIGN AND SIMULATION OF POWDER COATING OPERATION USING KAWASAKI KF 121 ROBOT

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Industrial robots are mainly employed to perform repetitive and hazardous production jobs, multi-shift operations etc. to reduce the delivery time improve the work environment; lower the production cost and even increase the product range to fulfil the customers' needs. Robots have assumed a very great significance in this industrial world today. The features of modern day robot are responding to simple questions, deaf dumb and blind but do not suffer boredom, complaint and fatigue. The aim of this research work is to simulate powder coating operation by using of KF 121 robot. In this work, we have used the Autodesk Maya 2011 to create a video rendered operation of KF 121 robot. This work can be used as a teaching aid demonstrates the working of KF 121 robot in industrial environment.

Keywords: Simulation, Powder Coating Operation, Kawasaki KF 121 robot, Maya Software.

PREDICTION OF DELAMINATION FACTOR IN DRILLING GLASS FIBER REINFORCED EPOXY PLASTICS USING NEURAL NETWORKS

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Drilling of holes in fiber reinforced plastics (FRPs) becomes almost unavoidable in order to facilitate joining of parts. The drilling induced damage in FRPs is an area of paramount concern as the delaminated holes act as areas of stress and lead to reduced life and efficiency of parts. The present research initiative is to study the delamination produced in drilling of unidirectional and [(0/90)/0]_s glass fiber reinforced epoxy laminates (GFREP). A Carbide Jodrill of two different diameters has been used at three different levels of speeds and feed rates. A predictive model based upon artificial neural networks (ANN) has been developed to predict delamination factor. The results reveal that artificial neural networks can be successfully applied to predict delamination at a given speed and feed for a particular GFREP laminate. In normal cases the predicted values are in close agreement with the experimental values. The mean percentage error in training and test data sets is found to be 1.1 % and 2.25%.

Keywords: GFRP, Drilling, Delamination, ANN.

DESIGN AND FABRICATION OF ROBOTIC GRIPPER FINGERS TO PICK PRISMATIC OBJECTS

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Robot Grippers are a type of end of arm tooling (EOAT) used to move parts from one location to another. They can be driven hydraulically, electrically and pneumatically. The

weight of the part that the gripper experiences, both from gravity and from acceleration, is a critical factor in determining the required gripping force. This paper deals with design and fabrication of fingers of a robotic gripper which is operated pneumatically. Furthermore, the emphasis is given on grasping and picking the objects having prismatic shape. The procedure is explained by grasping a rectangular prism. Robots are being used in many applications due to the benefits they bring such as, improved production and precision. Productivity, efficiency, quality and safety have proliferated robotic technologies into almost every industry.

Keywords: Robotics, Pneumatic gripper, Gripper finger design, Anthropomorphic finger.

SIMILARITY AND DISSIMILARITY MEASURE FOR CLASS CLUSTERING

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Clustering provides a way to easily retrieve the software components. There are many clustering techniques available but choosing the right kind of clustering depends upon the type of data.

We have developed a class clustering technique which focuses on the clustering of the classes on the basis of similarity and dissimilarity measures. This measure can be further analyzed from class attributes and methods. The classes are taken from the logical view of the software Rational ROSE which is an IBM modeling tool. Further a binary matrix has been developed which emphasizes on the presence and absence of class attributes and methods. Our approach resulted in the clustering of the classes on the basis of similarity and dissimilarity measures.

Keywords: Clustering , UML , Binary Matrix.

MULTI-BIOMETRIC SYSTEMS: SECURE SECURITY SYSTEMS

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Biometrics based user authentication techniques are used for automated recognition of individuals based on their physical or behavioral characteristics. A biometric is a unique and measurable characteristic of an individual like iris, face, signature, hand-geometry and retina. The fusion of multiple biometric characteristics in Multi-biometric systems provides the desired level of security. They combine information from multiple sources like multiple sensors, algorithms or traits and the presence of multiple sources of information makes them more reliable. In addition, they overcome various challenges encountered in mono-biometrics systems like: the problem of noisy data, non-universality, spoof-attacks, inter-class similarities and intra-class variations. Multi-biometric systems may be classified into following categories: multi-sensor systems, multi-algorithm systems, multi-instance systems, multi-sample systems, multi-modal systems and hybrid systems. The heart of any multi-biometric system is the fusion technique applied. There are various levels at which fusion can occur: sensor level, feature level, matching score level, rank level and decision level. In this paper we will present an overview of mono-biometric and multi-biometric systems, various types of multi-biometric systems employed, fusion techniques and their modes of operation.

SIMULATION AND PERFORMANCE ANALYSIS OF AD HOC ON-DEMAND MULTIPATH DISTANCE VECTOR ROUTING PROTOCOL (AOMDV) IN NS-2

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An ad hoc network is a collection of wireless mobile hosts forming a temporary network without the aid of any established infrastructure or centralized administration. In such an environment, it may be necessary for one mobile host to transfer large amount of data through other hosts to its destination but problem arises due to the limited bandwidth, congestion and also occur excessive delay. In this paper, we present a multipath protocol for routing in ad hoc networks, that uses on-demand distance vector routing, called Ad hoc On-demand Multipath Distance Vector (AOMDV) Routing Protocol. It eliminates the need for further routing when there is a broken link in the path. Hence reduces delay and provide required end-to-end bandwidth. We also analyze its performance using NS-2. Results shows that AOMDV has better efficiency in case of throughput of number of packets received or number of packets send. We performed several experiments in order to study the performance of AOMDV.

A COMMON FIXED POINT THEOREM SATISFYING CONTRACTIVE CONDITION OF INTEGRAL TYPE

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Fixed point techniques have been applied in such diverse fields as economics, engineering, game theory, and physics. The aim of this paper is to report new fixed point theorem. In this paper we prove a common fixed point theorem. The existence of fixed point for weakly compatible maps is proved under contractive condition of integral type.

Keywords: Fixed point, complete metric space, Weakly Compatible maps.

2010 AMS Mathematics Subject Classification: 47H10, 54H25.

CLUSTER BASED ENERGY EFFICIENT PROTOCOL FOR WIRELESS SENSOR NETWORK

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This paper deals with criterion used to measure communication protocol efficiency in Wireless Sensor Networks. As energy is a crucial characteristic of those networks, it is necessary to pay attention both to the energy consumption and to the distribution of energy consumption, when using communication protocols, so as to increase the lifetime of the whole network. Our aim is to present and discuss criterion designed to analyze communication protocol effectiveness. Clustering routing protocol provides an effective method for prolonging the lifetime of a wireless sensor network. But most of the researches care less about the communication between Cluster Head (CH) nodes and Base Station (BS). This paper proposed a Multi-hop Cluster based Routing Protocol comparison for wireless sensor network. In this Paper we compare the cluster based routing protocol LEACH and HEED. Simulation results show that the HEED protocol offers a better performance than LEACH clustering routing protocols in terms of network lifetime and energy consumption.

Keywords: Wireless Sensor Network, LEACH and HEED Protocol Energy Efficient, Multi-hop Clustering Sensor nodes.

MECHANICAL TESTING OF AL6061/SILICON CARBIDE METAL MATRIX COMPOSITE

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Metal Matrix Composites (MMCs) have evoked a keen interest in recent times for potential applications in aerospace and automotive industries owing to their superior strength to weight ratio and high temperature resistance. The widespread adoption of particulate metal matrix composites for engineering applications has been hindered by the high cost of producing components. Although several technical challenges exist with casting technology yet it can be used to overcome this problem. Achieving a uniform distribution of reinforcement within the matrix is one such challenge, which affects directly on the properties and quality of composite material. In the present study a modest attempt has been made to develop aluminium based silicon carbide particulate MMCs with an objective to develop a conventional low cost method of producing MMCs and to obtain homogenous dispersion of ceramic material. To achieve these objectives two step-mixing method of stir casting technique has been adopted and subsequent property analysis has been made.

Aluminium6061 (97.06% C.P) and SiC (320-grit) has been chosen as matrix and reinforcement material respectively. Experiments have been conducted by varying weight fraction of SiC (2.5%, 5%, and 10%) while keeping all other parameters constant. The results indicated that the 'developed method' is quite successful to obtain uniform dispersion of reinforcement in the matrix. An increasing trend of Tensile Test with increase in weight percentage of SiC has been observed. The results were further justified by comparing with other investigators.

Keywords: Metal Matrix Composites MMC's, Silicon Carbide SiC.

MODEL BASED TESTING WITH TINY ALGORITHM

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Software testing is a dynamic execution of the software in order to find out undiscovered error in the software. Role of software testing is not only to demonstrate the performance but also to take care of hidden defects since it is considered an ultimate barrier for release of software. Software testing is part of quality management. Quality management comprises of Quality assurance and quality control. Method applied to test the software is as follows:-

Functionality test is carried out manually or by applying automated testing Tools, such as Win runner, Quick test and latest tool Test Anywhere (tool).

Model based testing focus on the functional part that is at the front end (black box Testing) side when we look at its backend (white box Testing) for testing, that is taken care by the tester who prepare test cases manually and test them with automated Tools, In order to on form, whatever result we have obtained / achieved is as desired by tester as well as expectation of the customer. Whatever result obtained on testing need to be kept secret and if it is need to be transferred over a unsecured network, Tiny algorithm play a vital role since it not only encrypt the data that is to be kept secret (Results) but also provide security to the encrypted data being transmitted, in order to ensure that it reaches to desired destination's without any interruption.

A BANDWIDTH UTILIZATION APPROACH TO RESOLVE CONGESTION IN MOBILE NETWORKS

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A mobile network is one of the busiest networks in use these days. It includes different type of data flow over the network. As the data flow increases over the network it suffer from the problems like congestion, data loss, data distortion etc. As the size of the network increases such kind of problems increases very fast. There are number of approaches that use different

routing algorithm or the hardware to improve the transmission ratio over the network. The proposed work is also in the same direction. In this proposed approach we are presenting the better utilization of available bandwidth in such a way the loss can be minimized. The proposed approach will use the bandwidth according to the type of data. The system will be applied on data link layer and it will avail the bandwidth to a communication on the basis of data that will be transferred over the network. The work also includes the analysis in terms of throughput and the data loss over the network

Keywords: Bandwidth, Adhoc, Mobile, Dataloss, Frequency.

COMPARISON OF LINEAR BLOCK CODES & CYCLIC CODES

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Block codes represent the method of inserting redundancy (overhead) into the original message vector so that the presence of errors can be detected and ultimately corrected. It refers to the type of signal transformations designed to improve performance over a digital communications link by enabling the transmitted signals to better withstand various channel impairments. Such impairments include (but not limited to) noise, fading, dispersion, and jamming. One reason this technique has become so popular is that it is implemented quite efficiently through the use of very large scale integrated (VLSI) circuits. This paper demonstrates the generation of special linear block codes, the cyclic codes, using systematic coding scheme. It also discusses several entities of linear block codes like parity check codes, syndrome testing, and generator matrix to fully understand how systematic encoding can be used to generate cyclic codes. Thus, the comparison is done between linear block codes & cyclic codes (important subclass of linear block codes).

Keywords: Channel Coding, Linear Block Codes, Cyclic Codes, Generator Matrix, Syndrome Decoding.

CRACKS IN THE CLOUD

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Cloud computing is a way to share large amount of resources belonging to different organizations. Virtualization is the main technology for enabling cloud resource sharing, which is a good method to share many kinds of distributed resources. It also makes security problems more complicated for users than before. Cloud computing is composed of different local systems and includes the members from multiple environments; therefore the security in cloud is complicated. On one side, the security mechanism should provide enough security to the user, on the other side; the security mechanism should not be too complex to put the users into an inconvenient situation. The prosperity in Cloud Computing can come after security and privacy issues will be resolved. Cloud computing is the product of the combination of traditional computing technology and network technology. It aims to construct a perfect system with powerful computing and using the advanced business models like SaaS (Software as a Service), PaaS (Platform as a Service), IaaS (Infrastructure as a Service) to distribute the powerful computing capacity to end users' hands.

Keywords: Service Level Agreement, Quality of Service, Disaster, Regulatory Compliance.

ENGINEERING INNOVATIONS FOR ENVIRONMENT AND ENERGY SUSTAINABILITY

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Sustainable development is the watchword of the day, which means that care must be taken to preserve existing environmental resources for the benefit of future generations. The technology already exists and, naturally, it can be improved for the sustainable use of non-conventional energy or renewable energy sources (RES). If the cost of electricity generated by non-conventional sources were higher than that generated by conventional sources, society should go ahead at full speed and start phasing out the latter. In this paper we have discussed two out of many engineering innovations towards environmental and energy sustainability.

Keywords: RES, Environment and Energy Sustainability, Sustainable Development.

FUZZY-LOGIC-BASED FAULT CLASSIFICATION FOR TRANSMISSION LINE PROTECTION

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In this paper, an approach for fault classification of transmission line faults using fuzzy logic has been presented. This method is able to identify the single line to ground faults that may occur in a transmission line under different fault resistances, inception angle and load angles. This method requires only samples of three phase currents. To illustrate the effectiveness of the proposed technique, extensive simulation studies, using PSCAD/EMTDC and MATLAB, have been carried out for different types of single line to ground fault considering wide variations in fault resistances, inception angle and loading levels. Fault data generated by PSCAD/EMTDC have been used for fault classification by a MATLAB program.

Keywords: Fault Classification, PSCAD/EMTDC, Fuzzy Logic, Transmission Line.

COMPARATIVE ANALYSIS OF FACE RECOGNITION ALGORITHMS

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Biometric system provides automatic identification of an individual based on a unique feature or characteristics possessed by the individual. There are various types of biometric technology like face, iris, voice, signature, DNA etc. The ability of recognizing a person solely from his face is known as face recognition. Face recognition comprises of four distinct blocks data acquisition, data preprocessing, feature extraction and face recognition. Data

acquisition means detection of face in image. In data preprocessing stage reducing the variation of face obtained during the acquisition. Feature extraction is used for extraction the geometrical features of images. There are many types of algorithms used for extraction. This paper contains the review of various face recognition algorithm, parameters used for recognition and the problems encounter during recognition. Then we define the problem statement and explain how solve it.

Keywords: Face Recognition, Eigenface, Principal Component Analysis (PCA), Linear Discriminant Analysis (LDA), Independent Component Analysis (ICA), Face Recognition Technology (FERET).

RFID: UNIQUE IDENTIFICATION TECHNIQUE FOR ATTENDANCE SYSTEM

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RFID means Radio Frequency Identification is a wireless identification technique which becomes very much popular and having lot of importance these days and is used to identify the physical objects like products, humans, animals etc by the use of radio frequency. It can read much more data and from a much farther distance as compared to that of barcode but above all it has a sparking feature of security. The tag is the identifying element of the product. It is used in wide variety of applications. In this paper, we are describing basics of Radio Frequency Identification System, Working of RFID; Wiegand 26 bit Format, Differences between RFID & Barcode technique & application in attendance system.

Keywords: RFID, Wiegand 26 bit Format, attendance system using RFID.

JIT BASED QUALITY MANAGEMENT IN AGRICULTURAL AND IMPLEMENT INDUSTRY

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The existence of manufacturing companies in a competitive market depends upon its ability to produce high quality product at reasonable cost and with a shortest possible time. It is not difficult to build the high quality product, but it is difficult to maintain that quality. Just-in-Time (JIT) system is capable of achieving this goal. This approach combines the objectives of high quality, manufacturing flexibility, reducing inventory, reasonable cost and delivery dependability. It stimulates new directions of planning and performing activities in a manufacturing. JIT Based Quality Management is one of JIT elements having high potential in achieving many benefits such as improving company competitiveness, cost saving, quality improvement etc. This approach in Indian context is be helpful for those industries, which are struggling with problems of unreliable and long lead-time, quality of product , low productivity, high rate of scrap and defects, shortage of raw material, and least utilization of workers and equipments.

Keywords: Benefits, Just In Time, In Agriculture And Implements Industry.

CONSTRAINED N-JOB, 3-MACHINE FLOW SHOP SCHEDULING PROBLEM WITH TRANSPORTATION TIME

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This paper provides different structural conditions for a ‘n-job, 3-machine’ flow shop scheduling problem involving processing times and transportation time. A heuristic approach is given to find optimal or near optimal sequence, minimizing the total elapsed time. This approach is very simple and easy to understand and, also provide an important tool for decision makers to design a schedule for constrained flow-shop scheduling problems. The method is clarified with the help of numerical illustration.

Keywords: Flow Shop Scheduling, Processing Time, Transportation Time, Optimal Sequence.

A SURVEY ON DIFFERENT TECHNIQUES OF SPECTRUM ALLOCATION IN COGNITIVE RADIO NETWORKS

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A cognitive radio (CR) is very significant technology to use a spectrum dynamically in wireless communication networks. This paper discusses about the spectrum management issue different techniques in Cognitive radio networks (CRNs). It is essential to use unused licensed spectrum band, also called the white spaces, for the better utilization of the spectrum. The availability of spectrum allocation of idle bands is a key approach to enhancing the utilization of wireless spectrum in cognitive wireless systems. Here, this paper reviews the different techniques used for the spectrum allocation in CRNs:

- 1) Priority Based Spectrum Allocation ;
- 2) Dynamic spectrum management;
- 3) Spectrum management using Swarm Intelligence.

Keywords: Quality Of Service(QoS), Cognitive Radio, Crns Cognitive Radio Network, CR Cognitive Radio, Primary Users, Secondary Users, Particle Swarm Intelligence, Spectrum Allocation, Look Up Table.

A DIFFUSION BASED LOW POWER CONSUMPTION APPROACH TO CONSTRUCT 90NM FULL ADDER

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There is always the requirement of efficiency enhancement in each architecture. If the hardware based architectures are optimized, it will enhance the complete system. The proposed work is in the same direction to reduce the power consumption in the construction of 90nm Full Adder with CMOS Architecture. This paper presents the filtration approach for high performance and low power architecture generation. In this proposed work the diffusion input scheme is introduced to reduce the power in digital circuits. The system will give the concept of low power logic design that will use reduced layout area, less number of devices and the low power consumption. The proposed system will be implemented in Active HDL

or in the ModelSim simulator. The simulation will be presented in the form of Waveforms. The work will be independent to the layout.

Keywords: Full Adder, Power Reduction, Active Hdl, CMOS, Architecture, Digital.

AN OFDM BASED SOLUTION TO PROVIDE RELIABLE PACKET DELIVERY IN WIMAX NETWORKS

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A Wimax network is once of most appealing network that covers most of needs of a business network. A network that requires security at high data speed is fulfilled by Wimax. Although this as the data is transferred at very high speed a small delay in communication or any decision making process will result the data loss over the network. Such kind of problem occur in a hierarchical network where multiple users transfer data to other network, In such case the connecting node to these two network suffers the problem of bottleneck problem. As in case of bottleneck there is a tight end for the outside communication and it results the data loss. The proposed work is the implementation of OFDM to resolve this bottleneck problem. The Proposed work is the better utilization of network bandwidth to get the reliable solution. The bandwidth is shared by connecting nodes respective to the variable length data request. The system will first observe the number of request being transferring and the size of data communication made by each request and on this basis the bandwidth will be assigned to each network.

Keywords: Wimax, OFDM, Bottleneck, Hierarchical, Bandwidth.

AUTOMATIC OBSTACLE DETECTION BASED ON GAUSSIAN FUNCTION IN ROBOCAR

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Robocar is the world's best invention for human generation in today's life. A car miniature prototype car research by us who's various movements can be controlled automatically. Considering the road knowledge, we develop a new approach to extract the position of the

obstacles and respond immediately in accordance with the obstacles, based on its geometric features.

A STOCHASTIC CONTINUUM DAMAGE MECHANISM APPROACH TO STRESS CORROSION CRACKING (SCC) ASSESSMENT OF PIPELINES

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The increasing energy development activities in the world impose the viability of pipeline for the safe and economical working. Pipelines mainly transport chemicals and hazardous fluids hence need to have very good safe track record and proved to be a safe and economical mean of carrying them. To lay down this platform, extensive research and development program has lead to appropriate design, selection of suitable materials and good operational practices. The optimization of selecting and evaluating coatings for feasible use in northern pipelines is of great importance with respect to the extreme environments to which the coated pipe may be subjected. Still failure occurs in pipelines due to some instants. Major cause of this failure includes crack formation and it's propagation over the surface of the pipe. Key cause behind these unwanted cracks is induced due to stressed corrosion cracking (SCC). The reasons behind SSC include the crevice loads, hydrogen embrittlement, residual stresses and film induce cleavage. The main objective of this article is to explore mechanisms and morphology of cracks propagation due to stress corrosion cracking to the pipe wall and its effect over the pipe span.

Keywords: Pipelines, Crack propagation, Stress corrosion cracking, Hydrogen embrittlement.

OPTIMIZATION OF INPUT PROCESS PARAMETERS FOR VIBRATORY BALL BURNISHING PROCESS USING RSM

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Burnishing is a chipless finishing method, which employs a rolling tool, pressed against the work piece, in order to achieve plastic deformation of the surface layer. Ball burnishing processes are largely considered in industrial cases in order to restructure surface characteristics. As per previous research the effect of burnishing speed, feed, ball diameter, burnishing force and no. of tool passes playing important role on the quality of the work surface produced and its wearing characteristics. The deforming action of the ball which governs the surface roughness and micro hardness is strongly governed by the trajectory movement of tool. The trajectory movement of tool can be adjusted in proper range by selecting proper combinations of speed, feed, vibration frequency and amplitude. Addition in vibratory technique, the investigation of electromagnetic vibrator using in ordinary ball burnishing process perform reliable and effective surface enhancement. The plastic deformation on the part surface can easily achieved by applying considerably lower pressure as compared to other conventional techniques.

The experimental results are analyzed by utilizing response surface method and developed mathematical and statistical model which helps to optimize vibratory burnishing input parameter.

Keywords: Vibratory Ball Burnishing, Surface Roughness, Force, Frequency, Feed And Speed, RSM.

CLUSTER BASED ENERGY EFFICIENT PROTOCOL FOR WIRELESS SENSOR NETWORK

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This paper deals with criterion used to measure communication protocol efficiency in Wireless Sensor Networks. As energy is a crucial characteristic of those networks, it is necessary to pay attention both to the energy consumption and to the distribution of energy consumption, when using communication protocols, so as to increase the lifetime of the whole network. Our aim is to present and discuss criterion designed to analyze communication protocol effectiveness. Clustering routing protocol provides an effective method for prolonging the lifetime of a wireless sensor network. But most of the researches care less about the communication between Cluster Head (CH) nodes and Base Station (BS). This paper proposed a Multi-hop Cluster based Routing Protocol comparison for wireless sensor network. In this Paper we compare the cluster based routing protocol LEACH and HEED. Simulation results show that the HEED protocol offers a better performance than LEACH clustering routing protocols in terms of network lifetime and energy consumption.

Keywords: Wireless Sensor Network, LEACH and HEED protocol Energy Efficient, Multi-hop Clustering, Sensor nodes.

A GENETIC APPROACH TO OPTIMIZE THE ROUTE SELECTION IN MOBILE NETWORKS

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QOS is always the basic requirement of any network. Mobile Area network is most busy network these days because of voice and video data transmission over it. Because of this the optimization of QOS is most required in such networks. The proposed work is to define a genetic based routing approach to optimize the routing in MANETs. In this work we will perform the population generation respective to number of all node paths between two nodes. Now we will select any two random paths and perform a cross over on it. The crossover will generate a result path from this and finally the mutation is applied on to it perform the filtration process. The genetic approach will generate an optimized path on the basic of congestion over the network. The result path will improve the data delivery over the network.

Keywords: MANET, QOS, Genetic, Delivery, Routing, Optimized.

OPTIMIZATION OF EXTRUSION BLOW MOLDING PROCESS PARAMETERS BY GREY RELATIONAL ANALYSIS AND TAGUCHI METHOD

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This study investigated the optimization parameters of extrusion blow molding process for making plastic container of high density polyethylene grade B6401 (HDPE) produced by the Mitsui CX processed at HALDIA PETROCHEMICAL LTD. A plastic container made by using L9 orthogonal array. Nine experimental runs based on an orthogonal array of Taguchi method were performed. The process parameters were screw temperature, blowing time and exhaust/cooling time and the responses were the compressive strength and volume accuracy were selected as the quality target. An optimal parameter combination of the Extrusion blow molding process was obtained by Grey relational analysis. By analyzing the Grey relational grade, the degree of influence for each controllable process factor onto individual quality targets can be found. Additionally, the analysis of variance (ANOVA) has been also applied to identify the most significant factor.

Keywords: Extrusion blow molding, Grey relational analysis, Optimization, HDPE, Compressive strength, Volume accuracy, ANOVA.

A CONCISE ARTIFICIAL NEURAL NETWORK IN DATA MINING

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Data mining a multidisciplinary field, is an analytic process designed to explore data (typically business or market related) in search of consistent patterns and/or systematic relationships between variables, and then to validate the findings by applying the detected patterns to new subsets of data. There are many technologies available to data mining practitioners, including Artificial Neural Networks, Regression, and Decision Trees. Many practitioners are more concerned to Neural Networks due to their black box nature, even though

they have proven themselves in many situations. In our current research we are attempting to determine if Neural Networks outperform more traditional statistical techniques. This paper is an overview of artificial neural networks and questions their position as a preferred tool by data mining practitioners.

Keywords: Artificial Neural Network (ANN), Data mining, Competitive learning, Multilayered Feed Forward Neural Network, Implementation, Advantages.

APPLICATION OF ARTIFICIAL INTELLIGENCE TOOLS ON MANUFACTURING

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Manufacturing systems in industries has dramatically changed as a result of advanced manufacturing technologies employed in today's factory. Factories are now trying to attend and maintain a world-class status through automation that is possible by sophisticated computer programs. The development of CAD/CAM system is evolving towards the phase of intelligent manufacturing system. A tremendous amount of manufacturing knowledge is needed in an intelligent manufacturing system. Artificial intelligence techniques are designed for capturing, representing, organizing, and utilizing knowledge by computers, and hence play an important role in intelligent manufacturing. Artificial intelligence has provided several techniques with applications in manufacturing like; expert systems, artificial neural networks, genetic algorithms and fuzzy logic. The potential power of AI is very great and it is believed that with the exploitation of AI methods, it will only possible to build well conceived and intelligent computer integrated manufacturing systems. In this paper the meaning of artificial intelligence and some of the most effective artificial intelligence tools are introduced. The applications of artificial intelligence tools in design and manufacturing are also discussed with some examples.

Keywords: CAD/CAM, Expert System, Genetic Algorithm, Fuzzy Logic, Neural Network.

IDENTIFYING UNIFIED MODELING LANGUAGE (UML) AS AN INDISPENSABLE TOOL IN SOFTWARE RE-ENGINEERING

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We all are becoming more and more technology savvy day by day. This means that we are becoming dependent on machines which utilize software to work. Any small change in the software because of change in requirement or any other reason is crucial. Requirement of software reengineering is increasing day by day. Studies reveal that approximately 50% of maintenance time is spent by maintainers in the process of understanding the code. Unified modeling language (UML) is a visual modeling language, and is used to create visual model of software system. The Role of UML is significant in all phases of software development like inception, elaboration, construction and transition. In this paper we proposed UML playing indispensable role in software reengineering. The key role is to analyze the new requirement and to adapt the new requirement in existing software by visualizing the functionality and incorporating the changes in correct manner.

Keywords: Reengineering, UML, Class Diagram, Activity Diagram, Visualization.

SHOWCASING THE MODELLING APPROACH: THE UNIFIED DEVELOPMENT FOR LAND RECORD INFORMATION SYSTEM

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The heterogeneous nature related with the analysis & development of the information systems combined with the complexity associated with the technologies used for these, has given a serious thought for the streamlining of these life cycle processes.

This paper presents the unified modelling approach, which can be used for the modelling and implementation of the information systems. It showcases the case study of the Punjab State where the land record information system is going in implementation stage. The paper highlights the various aspects related with the information system; modelled using UML

framework. The concept is elaborated by the various types of Unified modelling language diagrams, which have been applied for designing (modelling) this system. The Farad centres established for this I.S., their network design and the combined flexibility of software integrated with the working of the revenue officials (manpower deputed at LRIS) forms the framework; leading to highly flexible modelling design. The modelled diagrams can form an easy and concise description; for whenever the need arises for the further software life-cycle development or integration of the required resources (showcased in UML diagrams) of the information system with the latest tool and technologies (technological enhancements).

DETECTION OF BLACKHOLE ATTACK ON AODV BASED MOBILE AD HOC NETWORKS USING K-MEANS CLUSTERING TECHNIQUE OF DATA MINING

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MANET has no clear line of defense so, it is accessible to both legitimate network nodes and malicious nodes. Some of the nodes may be selfish, for example, by not forwarding the packets to the destination, thereby saving the battery power. Some others may act malicious by launching security attacks like black hole or hack the information. Traditional way of protecting networks with firewalls and encryption software is no longer sufficient. Therefore, intrusion detection system is required that monitor the network, detect malicious node and notifies other node in the network to avoid malicious node i. e. IDS detects malicious activities in the networks. We have implemented k-means clustering algorithm of data mining for efficient detection of intrusions in the MANET traffic and also generated black hole attacks in the network. In data mining, clustering is the most important unsupervised learning process used to find the structures or patterns in a collection of unlabeled data. We have used the K-means algorithm to cluster and analyze the data in this paper. The simulation of the proposed method is performed in NS2 simulator and we got the result as we expected.

Keywords: MANET, Cluster, Intrusion Detection System, K-Means Clustering Algorithm, Data Mining, Black Hole Attack.

STUDY ON VARIOUS METHODS TO MAXIMIZE THE LIFETIME OF WIRELESS SENSOR NETWORKS

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Wireless sensor network (WSN) consists of tiny sensor nodes with sensing, computation and wireless communication capabilities. Now days, it is finding wide applicability and increasing deployment, as it enables reliable monitoring and analysis of environment. Lifetime maximization relates with various factors such as throughput, end to end delay, lifetime parameter such as time, output, packet delivery rates, no. of nodes, nodes efficiency and operating frequency to operate and relate each parameter. Balancing energy consumption and prolonging network lifetime are open challenges in Wireless Sensor Networks. In the research field of WSNs how to reduce the energy consumption of WSN so that the lifetime of WSN can be prolonged is one of the hottest spots. In this paper we survey various methods to maximize the lifetime of wireless Sensor Networks highlighting their objective, features, complexity etc.

Keywords: Wireless Sensor Networks, Lifetime, Energy Consumption, Throughput, Delay, Packet Delivery Rate.

USE OF RENEWABLE RESOURCES IN WIRELESS COMMUNICATION NETWORKS

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Energy consumption has always a noticeable impact on the environment. Fast growing world population, increasing prosperity and the hunger for fuel that has developed a consequence, have led to a rapid rise in the need for energy, so to fulfill that need we require renewable resources. The non-conventional or alternative energy resources are not amenable to depletion even with irrational levels of consumption. Using alternative energy resources will

not only reduce environmental impact, it will also cut costs and help to make technology more affordable for everyone. This paper provides an overview of various alternative energy resources like solar power, fuel cells, wind power which serve as the efficient energy resources for the future generations of wireless mobile communication networks.

Keywords: Renewable Energy Sources (RES), Solar mobile charger, Fuel Cell, Wind Power, Wireless Communication Networks.

PERFORMANCE ANALYSIS OF SLEEP - AWAKE PROTOCOL OF SMART DUST IN DIFFERENT TOPOLOGIES

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It is a demand in wireless sensors that the sensors should work for a long time. To increase the life time of sensor or mote it is necessary to minimize the consumption of energy during lifespan of that particle. For this purpose, we are looking for the **Sleep - Awake Protocol**, an energy efficient protocol. This is to main aim to improve the performance with the focus on energy consumption. Further to analyse with two different topologies, number of receive and lost packets and different number of nodes in a given area etc. and finally compare the performance of SWP protocol and DSR protocol implement with Floyd Warshall Algorithm. As a result we found that the Sleep - Awake protocol performs better in hierarchical topology whereas DSR protocol with Floyd Warshall algorithm performs better in random selection topology.

COMPARATIVE STUDY OF SELECTIVE ENCRYPTION ALGORITHM FOR WIRELESS ADHOC NETWORK

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Information Security has become an important issue in data communication. Encryption has come up as a solution, and plays an important role in information security system. This security mechanism uses some algorithms to scramble data into unreadable text which can be only being decoded or decrypted by party those possesses the associated key. These algorithms consume a significant amount of computing resources such as CPU time, memory and battery power and computation time. This paper performs comparative study of three algorithm; Full encryption algorithm, Toss-a-coin selective encryption algorithm and Probabilistic selective encryption algorithm considering certain parameters such as encryption time percentage time, encryption time, overall time and encryption proportion. Eventually, we carry out an extensive set of simulation experiments based on *ns2* simulator, and our simulation indicates that the technique of selective algorithms can indeed improve the efficiency of message encryption.

Keywords- Wireless Security, Data Confidentiality, Selective Cryptographic Algorithm, Symmetric Key Encryption, Wireless Ad hoc Networks.

POWER QUALITY INNOVATION IN HARMONIC FILTERING

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Power quality has become a great concern for both energy suppliers and their customers because the increasing use of sensitive devices and the significant consequences of a poor power quality for the competitiveness of the companies. The increasing developments need increasing use of electricity. While meeting this power demand, there causes a pollution in electrical system called Harmonics. The harmonics are integer multiples of fundamental currents/voltages. Substantial presence of harmonics results in excessive overheating of the equipments and other problems. Harmonics are created by non linear loads that draw current in abrupt pulses rather than in a smooth. With advancement in technology, there has been an increase in usage of power electronic converters/loads for various industrial applications and process automation. Power electronic loads inject harmonic currents into the utility causing overheating of power transformers and neutral wires, unpredictable performance of protection systems etc. In addition, electric resonances in such loads can also cause other undesirable phenomena like voltage fluctuations; radio frequency interference (RFI) etc. Different problems due to harmonics have different solutions. This paper presents the

basic concept of harmonics, their generation, problems created by them and harmonic filtration as a solution for all these problems.

Keywords: Power, Filter, Harmonic, Load.

THE GROWING IMPORTANCE of BIOMASS

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Energy is the key input to derive and improve the life cycle. Primarily it is the gift of nature to the mankind in various forms. The consumption of the energy is directly proportional to the progress of the mankind. The advancement in technology has to lead to the introduction of newer electricity production techniques. Although biomass/bio-energy is being used by man for centuries, but more research is being done to introduce methods to cut down the energy/plants costs and make it as eco-friendly as possible. This renewable power is being made the alternate source of energy. The bio energy is generated from living organism as well as other sources which together constitute the biomass. The most important fuel worldwide after coal, oil and natural gas is biomass. It is expected to become one of the key energy resources for global sustainable development and helps to meet the increasing energy demands. This paper gives a brief comparison of conventional and modern biomass conversion technologies. The objective of this paper is to introduce the basics of algal-bio fuel production and the current status of this emerging biodiesel source. Finally it will be recommended which technologies to be used for bio diesel production.

Keywords: Energy, Biomass, Sustainable, Consumption, Eco–friendly

SIMULATION OF MHO CHARACTERISTICS FOR TRANSMISSION LINE PROTECTION USING PSCAD

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Modeling of protective relays offer an economical and feasible alternative to investigate the performance of relays and protection systems. In this paper MHO characteristics and Bergeron model type transmission line are modelled and simulated using PSCAD/EMTDC software. To study the performance of the relay characteristics, single line to ground fault at different locations with various fault resistances are considered. A Fast Fourier Transform block in PSCAD/EMTDC has been used to extract the fundamental component. The test network used in this paper is 220kv transmission line system.

Keywords: Modeling, MHO relay, PSCAD/EMTDC.

MODELING OF IMPEDANCE RELAY USING PSCAD/EMTDC

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Modeling of relays permits to check and optimize the performance of relays that are already installed in power systems. Designing new relaying algorithms or new relaying equipment is also improved with relay modeling. This paper deals with modeling of Impedance relay using PSCAD/EMTDC software. The modeling is done by taking voltage and current signals at relay location and apparent impedance is calculated after extracting the fundamental component using Fast Fourier Transform block in PSCAD/EMTDC. To study the performance of the developed model different types of shunt fault at different length over the transmission line with various fault resistances are considered. The impedance relay is tested on 220KV power network.

Keywords: Modeling, impedance relay, PSCAD.

AN EFFICIENT NEW STRATEGY TO DEFINE CLUSTERING ALGORITHM

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Data mining is the exploration and analysis of large quantities of data in order to discover valid, novel, potentially useful, and ultimately understandable patterns in data. This paper presents the concept of data mining and aims at providing an understanding of the overall process and present a clustering algorithm based on new validity index for calculating the value of k in advance. The application of this new k-means algorithm to partition of Sample Training Needs Analysis shows its feasibility and validity. The K - means algorithm is one of the best known and most popular clustering algorithms. K - means seeks an optimal partition of the data by minimizing the sum - of - squared - error criterion. In this paper we present a clustering algorithm based on various validity indices for calculating the value of k in advance. We propose a method for finding cluster center just to overcome the calculation of finding k in k-means algorithm by using various validity measures

Keywords: Data Mining, Clustering, K-Means Algorithm, Validity Index.

COMPARISON BETWEEN PERFORMANCE OF STANDARD MERCURY AND OMRON HEM-4021 SPHYGMOMANOMETER IN A RESEARCH SETTING

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The mercury sphygmomanometer, the “gold” standard for blood pressure (BP) measurements, has been gradually phased out in clinical and research settings because of environmental concerns. The rapidly increasing number of automated devices and the necessity of replacing the mercury sphygmomanometer have raised the concerns about the

accuracy of BP monitors. Our on-going research compared the performance of standard mercury and OMRON HEM-4021, semi-automated sphygmomanometer, before implementing a study-wide transition to the semi-automated sphygmomanometer. BP of 50 normal and 24 hypertensive individuals was measured in random order, under standardized conditions, using both types of devices. The study found no statistically significant difference between systolic BP (SBP) and diastolic BP (DBP) of normal and hypertensive subjects. Regression analysis demonstrated that both devices have positive and statistically strong correlation between SBP and DBP measurements. Bland-Altman plot showed a perfect agreement between measurements of both devices for normal and hypertensive subjects. Mercury BP measurements can be replaced by readings taken using OMRON HEM-4021 sphygmomanometer in research settings. The slightly lower readings obtained with the OMRON HEM-4021 sphygmomanometer (in the context of reduced observer-subject interaction) may be a more accurate estimate of BP status.

VIBHAKTI PARSER : A TOOL FOR ENGLISH PLAIN TEXT

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Resolving syntactic ambiguities is still one of the biggest problem in machine translation systems. The goal of designing a computer system, capable of conversing with people in their own natural language has been a dream of A. I., almost since the inception of digital computers in the 1940's. To be able to converse in human language is a basic pre-requisite of any intelligent assistant, because language serves as our basic vehicle for thought and communication. Producing an unambiguous parse is a major challenge for the parsers developed for English Language. Correct verb and noun group attachment poses the greatest hindrance in this regard.

Keywords: Vibhakti, Vibhakti Parser, Case Roles.

EVALUATION OF COOLING LOAD BY TETD/TA METHOD

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The primary function of an air conditioning system is to maintain the conditioned space at required temperature, moisture content with due attention towards the air motion, air quality and noise. The required conditions are decided by the end user of the conditioned space, e.g. for providing thermal comfort to the occupants as in comfort air conditioning applications, for providing suitable conditions for a process or for manufacturing a product as in industrial air conditioning applications etc. The reason behind carrying out cooling and heating load calculations is to ensure that the cooling and heating equipment designed or selected serves the intended purpose of maintaining the required conditions in the conditioned space. Design and/or selection of cooling and heating systems involve decisions regarding the required capacity of the equipment selected, type of the equipment etc. By carrying out cooling and heating load calculations one can estimate the capacity that will be required for various air conditioning equipment. For carrying out load calculations it is essential to have knowledge of various energy transfers that take place across the conditioned space, which will influence the required capacity of the air conditioning equipment. Cooling and heating load calculations involve a systematic step-wise procedure by following which one can estimate the various individual energy flows and finally the total energy flow across an air conditioned building. In this research cooling load is estimated by TETD method of seminar hall of N.C College of Engg, Israna (Panipat)

INDUCED VARIATION AND SENSITIVITY ROBUST OPTIMUM DESIGN – AN ILLUSTRATION

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Solution of any design optimization problem is in form of a set of values for each individual design variable. Optimum Design is a rigid design and no change or variation in the set values is tolerated. A change or variation in set values of design variables and / or design parameters may cause improper functioning or even failure in some critical cases. The Optimum Design is generally so sensitive to change or variation that it does not tolerate any change or variation though the change is very small and even of the level of geometric tolerances. This all happens because the variation in design variables and parameters get induced in design function causing variation of design function. Variation of design function may cause improper functioning or even failure. In this context Robust Optimum Design is

that optimum design which tolerates variations. The variations (which also include the geometric tolerances) are the expected deviation of design variables and / or parameters from their set values. If any how the induced variation is reduced to such an extent that it is hardly noticeable then the variations become tolerable up to certain extent and proper functioning and no failure is ensured up to certain extent. Thus the design becomes a robust one and it is called as a ‘Sensitivity Robust Optimum Design’.

Keywords: Induced variation, Robust Optimum Design, Sensitivity Robustness, Transmitted Variation.

METRICS AND MEASUREMENT ISSUE OF SOFTWARE

RELIABILITY

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Software reliability is the probability of failure free software operation for a specified period of time in a specified environment. Software reliability, however, is generally accepted as the key factor in software quality since it quantifies software failures. Reliability is a by-product of quality, and software quality can be measured. Current methods to measure the reliability of software are usually focused on large server based products. For such products unique issue arise in obtaining the failure and population data and in analysing this data to determine reliability. In this paper we review some of the key issue in measuring reliability of such software products and software metrics to improve the reliability and quality of the software products.

WEBSITE ISSUES

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The Paper presents the basic concepts for designing good web sites. Sites with different objectives will obviously have different needs. Moreover, individuality and uniqueness of web sites are also valued features. With that in mind, those guidelines are offered as a starting point for developing good web design skills, not as formula that should be followed stickly.

IMPLEMENTATION, ANALYSIS & COMPARISION OF ROUTING PROTOCOL (RIP & OSPF) USING NETWORK SIMULATOR EDUCATION VERSION OPNET

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We wish to investigate the behavior of existing RIP & OSPF routing protocol using opnet simulator. Opnet educational version simulation only can be implemented on first three layers Via physical, data link and network layer and support all the protocol and rules encountered in these layers.

In present scenario the information is available easily but the information lies in accessing the medium. The RIP and OSPF protocol both the protocol used in autonomous system. We just to compare the result in term of efficiency, throughput, delay, and failure etc and try to improve the existing parameters.

Practical implementation of Network layer protocol is inefficient and expensive which also required curing of some other parameters. For this reason we choose opnet network simulator (educational version) which is easily available to simulate these protocol and provide ease to study the behavior of the network under good efficiency and performance.

Keywords: Networks; Routing Protocols; RIP; OSPF

COMPARATIVE ANALYSIS OF WEBPAGE CHANGE DETECTION ALGORITHMS

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Now a day's people are using internet actively for exchange of information across the world resulting in uploading of information on web pages and updating of new web pages very frequently. The contents of web page changes continuously & rapidly. Hence it becomes very difficult to observe the changes made in web pages and retrieve the original web pages.

To efficient retrieval and monitoring the changes made in web pages and compare the difference between refreshed page and old page efficiently that too in minimum browsing time, an effective monitoring system for the web page change detection based on user profile is needed. The web page change detection system can be implemented by using various Tools or Algorithms. In this paper, we will explain the application of various algorithms to detect the changes in web pages based on user intent.

DETERMINING THE RANKING OF DRESSING PARAMETERS FOR GRINDING RATIO IN SURFACE GRINDING BY ANALYTICAL HIERARCHICAL PROCESS (AHP)

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Dressing is the process of removing glazed and loaded surface of the grinding wheel, for increasing the cutting ability of the wheel during the grinding operation. Generally dressing has significant effect on grinding wheel performance in terms of grinding ratio.

The grinding wheel performance is significantly affected by the way the wheel is dressed. The four important parameters in single point diamond dressing are: depth of cut, cross feed rate, drag angle of the dresser and tip radius of the diamond dresser. The effect of these four parameters is critically assisted in terms of the grinding ratio in the subsequent grinding operation.

Objective of this paper is to develop hierarchical structure for the factors and to provide judgment about relative importance of each these factors specify preference for each decision alternatives with respect to each factor, providing a prioritized ranking order of preference for decision alternative, critical assessment is done by using A H P.

Keywords: Dressing, Surface grinding operation, Ranking, Grinding ratio, Analytical Hierarchical Process (AHP).

PERFORMANCE ANALYSIS OF DIFFERENT TYPES OF SOURCE CODING TECHNIQUES

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This research paper explains the performance analysis of source coding techniques on text and image data. The advent in communication technologies has led to an enormous growth of human life. Internet now a day is finest example of development of Communication system. The Bandwidth requirement by users is increasing but Bandwidth is still same (practically). So, data has to be “cut down” in effective and efficient way so that we can store our message in less space and using less bandwidth. We have various Source Coding Techniques for this purpose. These source coding techniques can be applied to different types of data. In this paper, we have applied Huffman coding and RLE coding to same text data and compared the performance of both techniques. We have chosen compression ratio as performance parameter. Also, DCT compression and Wavelet compression techniques are applied to same image data and compared the performance of both techniques. Based on result of performance of these techniques pros and cons of these techniques are discussed in this paper.

Keywords: Source coding, RLE, Huffman, DCT compression, Wavelet compression, PSNR.

SURFACE HARDENING ON EN31 BY 3LH HARD ELECTRODE TO ENHANCE WEAR RESISTANCE.

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In this paper an effort is made to decrease the wear surface from material while using in industry and agricultural work by the mean of hardfacing. Hardfacing is a method in which a 3 LH hard electrode is deposite on surface of material by method of arc welding. In fields while ploughing the tiller blade are faced very high resistance from soil due to which there is wear on the surface of tiller blade. Due to abrasive wear of the surface of material, these steels require frequent repair, resulting in economic loss. The material tiller blade is EN-31. In this EN-31 is base material of substrate. It is found that with the help of hardfacing the wear resistance property of EN-31 is increase.

Keywords: Wearresistance, Hardfacing, Hard Electrode, En31, SEM, EDS.

FILTERING TECHNIQUES FOR ECG SIGNAL PROCESSING

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ECG is the graphical recording of the electrical activity of the heart and recognized biological signal used for clinical diagnosis. The ECG signal is very sensitive in nature, and even if small noise mixed with original signal the various characteristics of the signal changes. The signal voltage level is as low as 0.5 to 5mV and is susceptible to artifacts that are larger than it. The frequency components of a human's ECG signal fall into the range of 0.05 to 100Hz and as far as the noise is concerned; the muscle movements, mains current and ambient electromagnetic interference generate it. Hence filtering remains an important issue, as data corrupted with noise must either filter or discarded. This paper discusses different filtering techniques used in ECG signal preprocessing and their implementation in a wide variety of systems for ECG analysis in recent research work.

Keywords: Electrocardiogram, ECG Signal Processing, Artifact, Filtering.

RECONFIGURABLE MULTIPLIERS FOR INTEGER AND GALOIS FIELD MULTIPLICATION

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The main objective of this paper is to implement reconfigurable multipliers for Integer and Galois field multiplication. Reconfigurable in this sense means that the functionality of the components can be changed by externally supplied control bits, which are typically stored in registers. We know multiplication is a vital function for any practical DSP system. Some common DSP algorithms require different multiplication types, specifically Integer or Galois Field (GF) Multiplication. Since both Integer and Galois Field share similarities in their structures, the aim is for efficiently combining them in a single reconfigurable VLSI circuit, and analyzing the designs in terms of design metrics area, performance, and power consumption. Finally comparing these design metrics with reference architectures. These reference architectures are implemented by placing a fixed instance of Integer and GF multipliers in parallel and selecting the result through multiplexer. These reconfigurable multipliers coded in Verilog HDL and synthesized in a Xilinx 9.2. Each result is compared to reference architecture, showing area savings, and an increase in power consumption.

STUDY OF EVOLUTIONARY ALGORITHMS TO SOLVE 0/1 KNAPSACK PROBLEM

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This paper presents evolutionary algorithms design paradigms applied to single problem – 0/1 Knapsack Problem. The Knapsack Problem is a combinatorial optimization problem where one has to maximize the benefits of objects in a knapsack without exceeding its capacity. An optimization problem is simply a problem for which there are different possible solutions, and there is some clear notion of solution quality. That is, an optimization problem exists when different candidate solutions can be meaningfully compared and contrasted. Optimization algorithm can be deterministic or probabilistic. Deterministic techniques such as Greedy algorithm, dynamic programming technique are not best suited for such problems. Our objective is to study that how the evolutionary techniques - Genetic and Memetic Algorithms affect the performance of Knapsack Problem. A population-based search algorithm called Genetic Algorithm (GA) is commonly used to solve combinatorial optimisation problems where the goal is to find the best solution in a (possibly unknown) solution space. It uses the principle of biological evolution to generate successively better

solutions from previous generations of solutions. Memetic algorithm (MA) is an extension of GA which incorporates a local-search algorithm for each solution in between generations.

Keywords: Knapsack Problem, Genetic Algorithm, Memetic algorithm.

DATA SECURITY AND INTEGRITY USING DATA HIDING

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Steganography is a technique of hiding information in digital media. In contrast to cryptography, it is not to keep others from knowing the hidden information but it is to keep others from thinking that the information even exists. In this paper we propose an advanced system of encrypted data embedded into an image file using random LSB insertion method in which the secret data are spread out among the image data in a seemingly random manner. This is achieved using a secret key. It combined both feature of steganography and cryptography. To enhance security level that. It also provides integrity and message authentication using MAC algorithm.

Keywords: Authentication, Cryptography, Integrity, Privacy, Security, Secrecy, Steganography, Text stenography.

DESIGN OF SPHERICAL VESSEL CONSIDERING BAUSCHINGER EFFECT

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This paper provides a brief discussion on mechanical stresses of spherical pressure vessel . Elasto-plastic radius r_c is a basic design parameter in autofrettage of a spherical vessel and The autofrettage pressure p_a depends upon the parameter Elasto-plastic radius(r_c). Relationship between The critical autofrettage pressure and the reverse yielding This work contains an analysis of spherical autofrettage model considering the material(A723) strain-hardening relationship with the Bauschinger effect coefficient (b_{ef}), based on the actual tensile-compressive curve of the material and the modified yield criterion and plane strain. Based on this model, relationship between yield criteria and Bauschinger effect coefficient (

b_{ef}) on residual stress distribution are analysed. The smaller Bauschinger effect coefficient causes the reverse yielding to take place more easily and affects the residual stress distribution.. The residual stress distribution for different value of Bauschinger effect coefficient (b_{ef}) with respect to different percentage of overstrain.

Keywords: Spherical vessel ,Residual stress, Autofrettage, Critical Autofrettage pressure ,Reverse yielding, Bauschinger effect.

WIRELESS COMMUNICATION APPLICATIONS:

WI-FI VS. 3G

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In this paper main area of networking compares two technologies for delivering broadband wireless Internet access services: "3G" vs. "Wi-Fi". 3G refers to the collection of 3rd generation cellular technologies that are designed to allow cellular operators to offer integrated and high speed data and voice services over cellular network. Wi-Fi refers to the 802.11b wireless Ethernet standard that was designed to support wireless LANs. Although both the technologies are very different from each other they are both intended to provide broadband wireless internet access to portable devices.

Keywords: Internet, Broadband, Wireless, 3G, WLAN, Ethernet.

EDUCATIONAL IMPLEMENTATION OF TECHNOLOGY

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Efficient learning is an important issue in this era of technology. In this paper we have discussed the role of information technology in the fields of languages, natural sciences, mathematics, social sciences, arts, measurement, modeling and simulation, robots and feedback devices, statics, Graphics, Music, Databases. Information Technology can be used as a practical and realistic approach to curriculum. Moreover, according to the resources available, teacher development can be exercised efficiently and cost effectively. Use of

Information and communication technology in education not only increases the learning power of pupil but also helps in developing their interest in the subject being taught. Focus should be on 'applied subject teaching' as it helps in creating professionalists. Information technology can also be used by teachers for the evaluation of students which help in creating quick and efficient assessment charts.

Keywords: ICT in education, Technology in curriculum, Education and information technology.

PRODUCTIVITY IMPROVEMENT BY DEFECT ANALYSIS IN INDIAN AUTOMOBILE INDUSTRY

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This case study is about the productivity improvement in a small scale Indian automobile industry. Industry produces the parts of light commercial vehicle for a multi-national company. Industry is unable to produce a nut steering knuckle component used in light commercial vehicle at economic rate due to a problem of higher rejection rate having average 15.18 % defective pieces per month. Study is carried out by applying the fishbone method of root cause analysis on planning and manufacturing processes of nut steering knuckle component. Findings of this study show that wrong process planning and routing of processes as well as lack of technologically capability of industry are the major factors of its production incapability. Modified process planning and sequence of manufacturing operations with use of advance CNC lathe machine are suggested and implemented and a satisfactory result is obtained. When production after applying suggested modifications is run, an 11.35% reduction is observed in rejection rate of that particular component.

EFFECT OF VARIOUS BLADE COOLING MEANS ON INTER COOLED RECUPERATED (IRCGT) GAS TURBINES

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Co-generation refers to the simultaneous generation of power and heat. Heat in the form of steam for process heating is generated from the exhaust of gas turbine in heat recovery steam generator. The system is efficient and the cost of power production per kW is less compared with normal power plants. The current emphasis is on the development of gas turbine cycle for further enhancement in its performance, by increasing turbine inlet temperature (TIT), compressor pressure ratio (r_p), increased component efficiencies, better materials, better turbine blade cooling techniques and mediums, and innovative configurations with intercooling, reheating and regeneration.

The present work deals with the first law thermodynamic analysis of Intercooled recuperated cogeneration gas turbine cycle (IRcGT) employing different means of turbine blade cooling for various configurations.

The cooling of hot turbine components has been achieved by two main schemes using either an open loop or a closed loop cooling. The coolants considered are air, steam and water. The air is bled from compressor at appropriate point. The steam is available from heat recovery steam generator using turbine exhaust gas. The cooling techniques which have been considered are Internal convection, Film and Transpiration cooling.

Based on modeling and governing equations of components a computer program has been constructed in C++ language, to do the first law thermodynamic analysis of inter cooling and recuperation (IRcGT) configurations of cogeneration cycle. With the help of input data, results have been plotted in terms of dependent and independent parameters.

Results shows that transpiration steam cooling technique provides minimum coolant requirement followed by steam film cooling, convection/closed loop steam cooling, transpiration air cooling, film air cooling and maximum internal convection air cooling.

There is a significant improvement in plant specific work for steam cooling over air cooling scheme. The maximum efficiency is found to be in the case of air convection cooling. The results show that specific fuel consumption for the case closed loop steam cooling is higher than other considered cooling schemes. The maximum and minimum coolant requirements are exhibited by air convection cooling and steam transpiration cooling means respectively. The result presented in present study will help the design engineers of Intercooled recuperated cogeneration gas turbine cycle power plants to select the better operating parameters along with cooling means yielding better performance.

DETECTION AND CLASSIFICATION OF PLANT LEAF DISEASES

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Images form important data and information in biological sciences. Plant diseases have turned into a dilemma as it can cause significant reduction in both quality and quantity of agricultural products. Automatic detection of plant diseases is an essential research topic as it may prove benefits in monitoring large fields of crops, and thus automatically detect the symptoms of diseases as soon as they appear on plant leaves. The proposed system is a software solution for automatic detection and computation of texture statistics for plant leaf diseases. The developed processing scheme consists of four main steps, first a color transformation structure for the input RGB image is created, then the green pixels are masked and removed using specific threshold value, then the image is segmented and the useful segments are extracted, finally the texture statistics is computed. From the texture statistics, the presence of diseases on the plant leaf is evaluated. Experimental results on a database of about 500 plant leaves of 30 different plants confirm the robustness of the proposed approach.

Keywords: HSI, Color Co-occurrence Matrix, Texture, Plant Leaf Diseases.

SECURITY ANALYSIS OF WIRELESS SENSOR NETWORKS

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Wireless sensor network have great potential to be employed in various situations and applications. Originating from military research projects, WSNs are expected to be used in more civil applications. Wireless sensor network faces the challenge to securely sense the physical environment, process the sensed data collectively and securely communicate among nodes. All this based on trust among the nodes. The security threats of WSN comes not only from the external attacker but also from the internal node misbehavior. Misbehavior of nodes may range from simple selfishness or lack of collaboration due to the need for power saving to active attacks. Cryptography & authentication only suitable for external attacks. This paper discusses a wide variety of attacks in WSN, cryptography attacks, trust based routing methods, key management and dynamic host configuration in WSN.

Keywords: Wireless Sensor Network, Attacks, Key Management, Cryptography Attacks.

SURFACE WEAR CHARACTERIZATION OF THERMALLY SPRAYED COATING OF $Al_2O_3-13TiO_2$ AND $Wc-10Co-4Cr$ ON EN-31 SUBSTRATE

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Wear of the surface is the major problem of all materials. This wear can be of many types and can be reduced by doing some coating on the surface of material. On En-31 substrate, thermal spray coating is done using Detonation spray gun and two different coating powders are used and these are mixture of oxides ($Al_2O_3-13TiO_2$) and carbides ($Wc-10Co-4Cr$). The thermal-sprayed coatings are characterized by SEM, EDS analyses. Wear tests are carried on both coated and un-coated material on a pin-on- disc wear test rig and results are evaluated that $Wc-10Co-4Cr$ coatings are having less wear as compared to $Al_2O_3-13TiO_2$ and maximum wear of substrate material is being observed.

Keywords: - Thermal Sprayed Coatings, Sliding Wear, Sem, Eds, En-31.

UNDERSTANDING DATA MINING & ITS APPLICATION TO INTELLIGENCE ENVIRONMENTS

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This paper focuses on the data mining and the current trends associated with it. It begins with the overview of Data mining system and clarifies how data mining and knowledge discovery in databases are related both to each other and to related fields, such as machine learning, statistics, and databases. Various steps are involved in Knowledge discovery in databases (KDD) which helps to convert raw data into knowledge. Data mining is just a step in KDD which is used to extract interesting patterns from data that are easy to perceive, interpret, and manipulate. Several major kinds of data mining methods, including generalization, characterization, classification, clustering, association, evolution, pattern matching, data visualization, and meta-rule guided mining will be reviewed. Techniques for mining knowledge in different kinds of databases, including relational, transaction, object-oriented, spatial, and active databases, as well as global information systems, will be discuss. The explosive growth of databases makes the scalability of data mining techniques increasingly important. DM algorithms have the ability to rapidly mine vast amount of data. It also defines various Data Mining tools that are used to analyze different kinds of data. This paper also defines problems associated with data mining and applications of data mining in different fields.

DESGIN AND FABRICATION OF A THREE DIMENSIONAL VALVELESS MICROPUMP WITH SHAPE DEPOSITION MANUFACTURING PROCESS (SDM)

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The present work is focused on manufacture of three-dimensional valveless micropump with inexpensive approach. The design of the micropump is such that it consists of three horizontal inlet channels and one outlet (vertical) channel. The 3D geometry of the channels with minimum width of 80 μm gives great challenges in fabrication and is difficult to be achieved by traditional fabrication techniques. For manufacture the chamber and channels of the micropump the Shape Deposition Manufacturing (SDM) process, a layered manufacturing technique is involved into the repeated material deposition and removal. CAD/CAM software is used to slice the 3D model and plan the manufacturing sequences. The piezoelectric buzzer was attached to the fabricated valveless micropump chamber to test the performance. Three different channel width designs were manufactured successfully and tested at various piezo-triggered frequencies.

This research provides a solution to manufacture the three-dimensional micropump geometry inexpensively. SDM process was proved to be a suitable approach to generate pre-assembled valveless micropump structure with micro channels, and is applicable to other similar applications also.

Keywords: Micropump, Design, Fabrication, 3D, Manufacturing

PERFORMANCE METRICS FOR EVALUATION OF MULTICAST ROUTING PROTOCOLS

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With the ever increasing demand of multimedia traffic on the Internet, the interest in deploying multicast for distribution of these contents have increased. One hurdle however in this regard is quantifying the multicast protocol performance. Many efforts have been put into defining multicast metrics for evaluating protocol performance. This paper defines the performance metric for evaluation of multicast protocols like DVMRP, MOSPF, PIM-SM, PIM-DM and CBT and also outlines the simulation parameters and different methods to evaluate the performance of protocol.

Keywords: Multicast, Performance evaluation, network topology, node density, link capacity, end to end delay, re link usage, bandwidth consumption

A REVIEW OF FACE RECOGNITION

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Face Recognition is non-intrusive method of identifying individual faces by the feature extraction and classification of faces. Recently face recognition has received lots of attention of researcher; it can be conclude that it is mature yet fruitful area for researcher. In past decades lots of approaches for face recognition and feature extraction techniques have been developed, along with their modification. This paper provides a brief review of major face recognition techniques. Earlier section presents an overview of face recognition and its applications. Then, a literature review of face recognition approaches followed by recent techniques is given. The most prominent feature extraction and techniques are also given. A Brief overview of classifiers is also presented. Finally paper summarized all research results discussed.

CFD ANALYSIS OF IMPINGEMENT CONVECTIVE COOLING FOR A LOCALLY HEATED SKIN

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A computational study of the potentiality of impingement convective cooling for a locally heated skin is carried using CFD package ANSYS-CFX. The simulations are carried for an idealized cooling problem for a thermal load representative of a shock-shock interaction on the engine cowl leading edge of a hypersonic study vehicle (NASP). The parameters investigated are Prandtl number by varying coolant type (liquid sodium, liquid water, or supercritical cryogenic hydrogen), Reynolds number by variation with inlet Jet velocities), jet diameter and coolant channel height (jet to target spacing) with single jets in the absence of phase change. The results indicate that for specific combinations of parameters, all three coolants may yield temperatures within the temperature limits of a copper-alloy, engine cowl leading edge. However, a liquid sodium coolant is the least sensitive of the three coolants to the assumed flow conditions and to the other parameters investigated in the study.

Keywords: Heat Transfer, Impingement Cooling, Hypersonic Cowl.

SHAININ DOE - SIX SIGMA METHODOLOGY

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Customer satisfaction is the main issue to any organization in today's world. If you want to sold your product in the market then you have only single option i.e. the product should be of low cost & high quality. Now a days mostly all SMEs are facing this problem because of high rejection rate. If the process is running with high variation of required parameter then definitely rejection will occur. Taguchi & Shainin has given their statistical techniques to control the variation . In manufacturing industry, Shainin six sigma methodology is highly adopted because of lesser data collection to achieve the target.

In this research article, the methodology for Shainin six sigma implementation in the organization and its utilization to reduce the process variation is detailed.

COMMUNICATION SECURITY: BIOMETRICS OVER WIRELESS NETWORKS

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Biometrics is a technology for authenticating a person's unique identity with security, speed and ease of use. Biometric techniques relied on a person's fingerprint, palm, iris, voice recognition, and other features of a person. Biometrics authentication requires an encrypted mechanism to securely transmit data over a network. Various access networks today are the Global System for Mobile (GSM) wireless communication network which enables digital wireless duplex communication with security and data encryption algorithms build in, Fiber-to-the-premises (FTTP) network which provide a large bandwidth to the enterprise and the Wireless Biomedical Sensor Networks (WBSNs) which are used to gather real time and continuous medical data from different parts of the human beings. Biometrics approach is an

efficient way to overcome the insecurity of the wireless biosensor networks. The technology will allow customers of wireless services and products to authenticate their identities when conducting electronic transactions. This paper also describes the advantages, disadvantages and defines how biometrics has helped securing data in wireless networks.

DISAMBIGUATION TECHNIQUE FOR POLYSEMOUS WORDS

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With the rapid growth of the Web, providing relevant pages of the highest quality to the users based on their queries becomes increasingly difficult and the level of difficulty increases with search for polysemous words. Usually users get easily fade out in the rich hyper text while searching over the web for the polysemous word. The Word Sense Disambiguation (WSD) technique is designed to identify which one of the multiple senses of a polysemous word that can be associated in a particular context around the word during the web search. In this paper an attempt is made to disambiguate polysemous word by selecting the most appropriate meaning or sense to a given ambiguous word which will result in more relevant and intelligent search from user's perspective.

Keywords: Word Sense Disambiguation , Polysemous Words

ENHANCED BONDING BASED WEB PAGE INFORMATION RETRIVAL USING CLUSTERING ALGORITHM

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In the rapid development of internet technologies, search engines play a vital role in information retrieval. To provide efficient search engine to the user, Enhanced Bond Based Search Engine (EBBSE) for information retrieval has been developed. The traditional search engines provide users with a set of non-classified web pages to their request based on its ranking mechanism. In order to satisfy the needs of the user, an enhanced search engine called EBBSE has been proposed. The improvement of information retrieval process can be divided into two parts such as: Extraction & comparison of co-occurrence terms and

clustering of documents. In this information retrieval, the relevancy of documents is obtained based on the number of occurrences of each co-occurrent term (in- bonds and out -bonds) in a particular web page and also the text in the web pages. A Tree is generated based upon the threshold value of each and every documents .After that, a boost up factor is given to a web page based on the relevancy of content from title and summary. Here the Spam Like pages are clustered as Bad Page Set(BPS) to avoid the inconvenience. The documents can be classified into most relevant, relevant and irrelevant clusters. K- Means clustering algorithm is used to cluster the relevant web pages in order to increase the relevance rate of search results and reduce the computational time of the user.

Keywords: Clustering, Information retrieval, Information Extraction, K-Means algorithm.

CHALLENGES FOR DATA MINING

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With the fast development of computer and information technology in the last many years, an enormous amount of data in science and engineering has been and will continuously be generated in massive scale, either being stored in gigantic storage devices or flowing into and out of the system in the form of data streams. Moreover, such data has been made widely available, e.g., via the Internet. Such tremendous amount of data, in the order of tera- to peta-bytes, has fundamentally changed science and engineering, transforming many disciplines from data-poor to increasingly data-rich, and calling for new, data-intensive methods to conduct research in science and engineering.

In this paper, we discuss the research challenges in science and engineering, from the data mining perspective, with a focus on the following issues: (1) information network analysis, (2) discovery, usage, and understanding of patterns and knowledge, (3) stream data mining, (4) mining moving object data, RFID data, and data from sensor networks, (5) spatiotemporal and multimedia data mining, (6) mining text, Web, and other unstructured data, (7) data cube-oriented multidimensional online analytical mining, (8) visual data mining, and (9) data mining by integration of sophisticated scientific and engineering domain knowledge.

Keywords: Data Mining, Data Engineering, Knowledge Discovery.

A SURVEY OF ROUTING PROTOCOLS AND WORMHOLE ATTACK IN MOBILE AD HOC NETWORKS

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A mobile ad hoc network is a set of wireless devices called wireless nodes which are dynamically connected by wireless links. Because of its characteristics of self configuration, wireless medium and absence of any established infrastructure, it is easy to set up and thus has become attractive to users. Security has been the primary concern in MANETs so as to provide the protected communication between the wireless nodes. The open and dynamic environment of MANET makes it vulnerable to various security attacks. One of the severe attacks on routing protocols in MANETs is the wormhole attack. In wormhole attack, two or more attackers connect to each other via a link called as tunnel or wormhole link which is a private high speed network. This attack in MANET is quite challenging to defend against. In this paper, we will discuss some basic routing protocols like DSDV, OLSR, WRP, DSR and AODV. Also we examine the wormhole attack in existing MANET protocols.

EVALUATION OF COMPLEXITY FOR COMPONENTS IN COMPONENT BASED SOFTWARE ENGINEERING

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Component Based Software Engineering (CBSE) is focused on assembling existing components to build a software system, with a potential benefit of delivering quality systems by using quality components. In the present paper, complexity metric is proposed for component based on the different constituents of the component like, Component Dynamic Complexity, methods and properties with different weights assigned to them. This metric is

applied on various JavaBeans components for empirical evaluation. Further, correlation study has been conducted for this metric with quality characteristics, like, customizability, readability and Throughput rate. The study conducted shows negative correlation between them, which confirms the assumption that high complexity of the components leads to the high cost of maintainability.

APPLICATION OF WEB SERVICES SECURITY USING AIRLINE RESERVATION MODEL

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Web Services Security (WSS) is a specification that protects SOAP messages to ensure end-to-end security for web services. Business applications of WS-Security have not yet been fully investigated. Applying WS-Security to actual businesses is the next step. We applied WS-Security to airline (flight) booking transactions and succeeded in ensuring end-to-end security by signing and encrypting credit card & Visa card numbers. We give an overview of the experiment, point out the problems experienced and provide a possible solution. The experiment revealed that problems still remain with respect to communication via an intermediary.

Keywords: Web Services, Security, XML, SOAP.

SURVEY REPORT ON CHAOS BASED CRYPTOGRAPHY

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In recent years, encryption technology has been developed quickly the chaos based cryptographic algorithms have suggested several advantages over the traditional encryption algorithms such as high security, speed, reasonable computational overheads and

computational power. This paper presents survey of some encryption methods based on chaos system.

Keywords: Chaos System, Modern Cryptosystem, Encryption, Chaotic Map.

EFFECT ON DIESEL ENGINE EMISSIONS WITH APPLICATION OF BIODIESEL FUEL

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The increasing industrialization and motorization of the world has led to a steep rise for the demand of petroleum-based fuels. Petroleum-based fuels are obtained from limited reserves. These finite reserves are highly concentrated in certain regions of the world. Biodiesel has received, and continues to receive, considerable attention for its potential use as alternative fuels. Biodiesel is methyl or ethyl ester of fatty acid made from animal fat or vegetable oils. The main resources for biodiesel production can be non-edible oils obtained from plant species such as *Hevea brasiliensis* (Rubber), *Jatropha curcas* (Ratanjyot), *Pongamia pinnata* (Karanj), *Calophyllum inophyllum* (Nagchampa) etc. Application of biodiesel in diesel engine results in lower emissions. The fuel properties of biodiesel are very similar to the diesel fuel so it can work in existing infrastructure for conventional diesel without any modification in diesel engine. A wide range of diesel engine sizes and types was tested in the reviewed literature. This article provides a review on emission characteristics and comparison between the performance characteristics, efficiency of biodiesel and diesel engine in compression ignition (CI) engines.

Keywords: Diesel engine, Biodiesel, Emission Characteristics.

STUDY OF ISSUES RELATED TO IMPROVE ROUTE STABILITY AND CHANNEL AVAILABILITY IN AODV ROUTING PROTOCOL IN VANET

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Vehicular Ad Hoc Network (VANET) is a sub class of mobile ad hoc networks. VANET provides wireless communication among vehicles and vehicle to road side equipments, according to IEEE 802.11 p standard for end to end communication between vehicles . For end to end communication between vehicles a routing protocols is used to find a route based on link properties. One of the most important routing protocols used in ad hoc networks is AODV. This protocol is a connectivity based reactive protocol that searches routes only when they are needed. It always exchanges control packets between neighbor nodes for routing. In this article author present cross layer technique that find channel availability (CAV) at link layer to AODV routing protocol to improve the communication in vehicles for safety purpose. To eliminate route discovery routers, propose PAODV as routing protocol. It improves AODV control overhead and makes routes more stable.

Keywords: Ad hoc network, VANET, AODV, PAODV, Channel availability (CAV).

GROUP KEY APPLICATIONS IN BLUETOOTH PICONET

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Bluetooth is a wireless technology, where Bluetooth devices are connected in ad-hoc fashion to form a piconet. Through the analysis of the piconet group key generation based on authenticated Diffie-Hellman group key generation protocol [1], each device in the Bluetooth piconet requires large memory space to store the keys. Although the protocol serves good security features, the number of messages exchange and total number of round is more so it requires high computing capability of each unit. The protocol has high overhead to compute the group key when a new member joins or leave into or from the group, it leads computational and communicational cost. In the present work Dynamic GKE(Group Key Exchange) protocol is more suitable to generate group key for Bluetooth piconet than GDH.2 and ECDH protocols. Diffie-Hellman based Dynamic GKE (Group Key Exchange) protocol [47] has comparatively low round as well as communication cost for group key generation then existing one. The Dynamic GKE protocol is non-authenticated one, so before applying this we assume each mobile client (slave) and the powerful node(master) is already been authenticated manually or some other Diffie-Hellman based method have been used to authenticate the devices. The Dynamic GKE protocol is applicable for piconet group key generation. Dynamic GKE protocol is more efficient in the case of member join/leave operations and secure for piconet group key generation.

Keywords: Dynamic GKE (Group Key Exchange), Authenticated, Non-authenticated, Piconet, Master/Slave, Diffie-Hellman Key, Exchange Key.

APPLICATION OF FUNCTIONALLY GRADED MATERIALS AS THERMAL INSULATOR IN HIGH TEMPERATURE ENGINEERING COMPONENTS

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The future predicted scenario of energy crisis is emphasizing today on the development in the area of energy saving, particularly in the high temperature engineering components such as gas turbines and Internal Combustion engines. Higher the operating temperature more is the

efficiency of the system. However, increase in the operating temperature strictly affects the longevity of material. Use of certain ceramic layers as thermal barrier coatings (TBCs) over such high temperature components sufficiently reduces the heat penetration into the substrate and hence increases the efficiency and performance of the system. Further, high temperature stability is one of the key issues in this regard, which restricts the use of as such coating of ceramic layers and necessitates the use of some functionally graded materials (FGMs). This paper presents the need, status and effects of coatings of such functionally graded materials in improving performance of gas turbine systems and diesel engines. Certain coating techniques suitable in this context have also been discussed.

Keywords: Diesel engine, Gas turbine, Thermal barrier coating, Functionally graded material, Partially stabilized zirconia (PSZ), Plasma spray technique.

CONTENT BASED MEDICAL IMAGE RETRIEVAL USING TEXTURE DESCRIPTOR

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In the medical field, images, and especially digital images, are produced in ever increasing quantities and used for diagnostics and therapy. Content based access to medical images for supporting clinical decision making has been proposed that would ease the management of clinical data and scenarios for the integration of content-based access methods into Picture Archiving and Communication Systems (PACS) have been created. Still only few systems were developed and used in real clinical environment. It rather seems that medical professional define their needs and computer scientists develop system based on data sets they receive with little or no interaction between the two groups. In earlier study on the diagnostic use of medical image retrieval also shows an improvement in diagnostic techniques such as radiology, histopathology, and computerized tomography when using CBMIRs which underline the potential importance of this technique. CBMIRs can be of great use in managing large medical image databases. In this paper a feature, named structured local binary Haar pattern (SLBHP), is used for pixel based graphics retrieval the SLBHP is a hybrid of local binary pattern (LBP) and Haar wavelet. The SLBHP encodes the polarity

rather than the magnitude of the difference between accumulated grey values of adjacent rectangles. The polarity relationships are then considered as a binary value as in LBP. Experiment results on graphics retrieval show that the discriminative power of SLBHP is good even in noisy condition.

FAST BLOCK LMS ADAPTIVE FILTER DESIGN

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This paper proposes a design and adaptive digital filter using Fast Block Least Mean Squares (FBLMS) adaptive algorithm. The filter structure is based on Distributed Arithmetic (DA), which is able to calculate the inner product by shifting, and accumulating of partial products and storing in look-up table, also the desired adaptive digital filter will be multiplier less. Thus a DA based implementation of adaptive filter is highly computational and area efficient. Furthermore, the fundamental building blocks in the DA architecture map well to the architecture of today are Field Programmable Gate Arrays (FPGA). FPGA implementation results conform that the proposed DA based adaptive filter can implement to significantly smaller area.

General Terms: Fast Block Least Mean Squares (FBLMS) adaptive algorithm, Distributed Arithmetic (DA), Field Programmable Gate Arrays (FPGA), Look-up-table (LUT).

Keywords: Fast Fourier transform(FFT), Read Only Memory (ROM), Inverse Fast Fourier Transform (IFFT), FBLMS, DA.

ENERGY ANALYSIS AND CARBON CREDIT EARNED BY BIOGAS SYSTEM

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An attempt has been made to estimate embodied energy from the building materials used in construction of various type of biogas plants, energy payback time and potential carbon dioxide (CO₂) mitigation using renewable energy and different biomass for domestic cooking in India. Using the data available in literature survey and the simple frameworks presented in

this paper results of some typical calculations are presented and discussed. The payback periods have also been computed by considering the equivalent savings in alternate fuels, viz. firewood, coal, kerosene, Liquid Petroleum Gas (LPG) and electricity. The payback periods have been calculated by considering the compound annual interest rate, maintenance cost and inflation in fuel prices and maintenance cost per year. If this type of project is installed only in 20% of the Indian rural areas, then the carbon credit earned by the biogas system becomes Rs. 8900 crores annually.

A REVIEW OF SECURITY ISSUES AND MITIGATION MEASURES IN GSM

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Under European telecommunication Standards Institute (ETSI), GSM is named as “Global System for Mobile Communication“. It is a globally accepted standard for digital cellular communication. Global System for Mobile (GSM) is a 2G-3G cellular standard developed to cater voice services and data delivery using digital modulation. Its aim was to replace the analog system. Today many users all over the world use GSM. GSM provides Tele-services i.e telecommunication services that enable voice communication, bearer services i.e Short Messaging Service (SMS), Supplementary Services i.e call related services. Security of GSM is crucial. With the greatest number of users worldwide GSM suffers from various security problems. This paper describes all the existing security mechanisms in GSM and security shortfalls and various attacks on GSM networks which include Authentication, Encryption, Equipment Identification and Subscriber Identity Confidentiality, Denial of service Attacks, Brute force attack, Replay Attack as well as the manifestation of network vulnerabilities including SMS attacks, encryption and signaling attacks and security measures to prevent GSM network from these attacks.

Keywords: Short message service security, mobile communication, Global System for Mobile Communication.

ANOMALY DETECTION BASED ON DIVERSE APPROACHES IN NETWORK TRAFFIC

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Network anomaly detection is a vibrant research area. Researchers have to come nearer this problem using various methods. Earliest work in traffic analysis has revealed that modern network produces traffic stream that are self similar over several time scales from microseconds to minutes. Anomaly detection focuses at getting the existence of anomalous patterns in network traffic. Automatic detection of such patterns can give network administrators with an additional source of information to analyze network behavior or finding the root cause of network faults. Network always undergoes from the traffic anomaly such as router rate change, device restart or the worm attack. The early detection of unusual anomaly in the network is a main factor to fast recover and avoidance of future serious problem to offer a stable network transmission. This paper discusses a statistical approach to analysis the distribution of network traffic to recognize the normal network traffic behavior. The EM algorithm is discussed to approximate the distribution parameter of Gaussian mixture distribution model. Another time series analysis method is studied.

This paper also discusses a method to recognize anomalies in network traffic, based on a nonrestricted α -stable first-order model and statistical hypothesis testing.

Keywords: Statistical approach, α -Stable Model, Anomaly detection, EM algorithm

DEPLOYMENT OF MOVING DIVERSE SENSORS AT STABLE LOCATION IN AREA OF INTEREST

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By considering traditional quandary in uniform placement has difficult to place diverse sensors at Area of Interest. We discussed uniform network failed when used in various changing operation.

Unluckily, device uniformity & network is an unlikely assumption in most practical deployments. In order to deal with realistic scenarios, we discussed combination of Voronoi approach with Laguerre geometry. We notionally show the appropriateness of our approach to the managing the diverse networks. In addition we demonstrated that VorLag can be extended to deal with dynamically generated events or uneven energy depletion due to communications.

Furthermore, by following, we have an idea regarding to VorLag provides a very constant sensor behavior, speedy and guaranteed termination and sensible energy utilization. We also discuss that VorLag has better performance to other methods based on virtual forces.

NEURAL NETWORK AS A NOVEL TOOL FOR CHARACTER RECOGNITION

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Nowadays it has been an evergreen topic based on the simulation processes that has its healthy existence in the field of Soft Computing and Artificial Intelligence. The very different work that can be emphasized in the basis of biometrics also. The number of hidden layers are multiple the errors can be obtained which can be eliminated as well as reduced .The technique that has been thought to be applicable able to detect the number of possible errors. Once we have the errors we put them into dataset again as the input set that would go under certain processing to give some results which we can say the feedback of multilayer neural network. Always it is preferred to go for a multilayer neural network. Character recognition has served as one of the principal proving grounds for neural network methods and has emerged as one of the most successful applications of this technology. In this paper, a new network is designed to recognize a set of handwritten characters. This new network consists of two stages. The first is to recognize the main shape of the character, and the second stage is for dots recognition. Also, the characteristics, structure, and the training algorithm for the network are presented. The recognition of characters from scanned images of documents has

been problem that has received much attention in the fields of image processing, pattern recognition and artificial intelligence.

Classical method sin pattern recognition do not as such suffice for the recognition of visual characters due to the following reasons-

1. The 'same' characters differ in sizes , shapes and styles from person to person and even from time to time with the same person
2. Like any image, visual characters are subject to spoilage due to noise.
3. There are no hard-and-fast rules that define the appearance of a visual character. Hence rules need to be heuristically deduced from samples.

Neural Networks are being used for character recognition from last many years but most of the works were reported to English character recognition. Character recognition is one of the applications of pattern recognition, which has enormous scientific and practical interest. Many scientific efforts have been dedicated to pattern recognition problems and much attention has been paid to develop recognition system that must be able to recognize a character. The main driving force behind neural network research is the desire to create a machine that works similar to the manner our own brain. Here kohonen map is adopted for learning and training purpose.

A NOVEL APPROACH FOR INTRODUCING E-INTERACTIVE CLASSROOM

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In the current era the powerpoint presentations containing study slides has emerged vastly for the students or learner by the effective/efficient teachers The discussed topics is hugely used with the help of the cloud computing having its application in it. Interactive Classroom has always been a discussed in the huge crowd of the learners and educators. Here a face to face interaction is available along with quick process of teaching and good understandability between the two way process of teaching and learning. Our system aims at exploiting the potential of computer technology for improving the way we teach and learn. The objective of our research is to enable students within the campus to interact with the lecturer's computer, where lecture notes are available for projection. It enables the lecturer to improve the organization of the course material, present lectures and give a means of simplifying

extensive content. It monitors students' activities through receiving immediate feedback regarding how well they have learned the material in an interactive way. For students, the new system encourages them to participate and complete the coursework with more variety in learning experiences, such as:

- (i) Answering questions directly,
- (ii) Taking quizzes,
- (iii) Downloading lecture files,
- (iv) Reviewing past lectures,

Our system comes at low cost. It has the advantages of being flexible, easy to use, and has the ability to run at any place within the campus where a networking connection is available.

By means of this project termed as '**Interactive Classroom**', concepts of networking can be implemented for educational purposes using STANDARD JAVA API. It requires a computer Lab (any lab in college). All we require is a server computer which will be handled by Faculty and several Client computers (one for each student as per availability). The subjects that are taught using power point slides and a projector can be implemented by this. All client computers will be connected to each other via a LAN Connection or Wi-Fi. It mainly consists of five modules:

1. Classroom Teaching
2. Monitoring
3. Tests and Exercises
4. Private Messages
5. Common Discussion Room

A COMMUNICATION SCHEDULING STRATEGY FOR SAFETY- CRITICAL EMBEDDED SYSTEMS

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Scheduling in an embedded system has been researched for long in the recent past. Number of scheduling algorithms proposed and implemented for general architectures and recently in

particular applications for the embedded systems. As the time triggered paradigm is taking control in safety critical applications, progressively change in scheduling strategies has come up, in this move we propose a scheduling strategy that will be optimal for implementation on distributed system. Pre-emptive algorithms have been in existence basically for event-triggered architectures. Considering a non pre-emptive execution environment in which the activation of processes and communications is triggered at certain point of time, for which we generate a schedule table. In order to run a predictable real-time application, the overhead of the kernel and a worst case delay has to be determined which can be guaranteed under any condition. Such a scheduling policy will be well suited for safety-critical application class. For evaluation purpose, we used conditional process graphs to represent the scheduled processes and the communication protocol used is Flexray as it provides flexibility and time-triggered assignments.

Keywords: Reliability, Safety-Critical Systems, Embedded systems, Time-triggered systems.

DESIGN AND ANALYSIS OF SECURITY ALGORITHMS FOR ROUTING IN WSN

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The aim of this master paper is the implementation of simulation models and the simulation of energy-efficient network initialization algorithms. First of all, it is presented a survey of state-of-the-art strategies for network initialization and exploration in wireless ad-hoc networks. Among the routing approaches presented in the survey it has been chosen the clustering-based approach due to it is the most suitable for ad-hoc sensor networks. Following are explained the features and properties of the clustering-based routing algorithms that have been selected for their implementation on this work. These implemented routing protocols are LEACH, LEACH-C, the solaraware extensions of both, HEED and a protocol based on direct transmission just as a reference in the comparison among the rest of them. On the other hand, all these routing protocols have been implemented and simulated. Subsequently, all the protocols have been simulated with different parameters and conditions to prove their functionality and to find out their behavior in different sorts of sensor networks.

Next, the simulations of the algorithms are compared among each other especially in terms of communication and energy efficiency. There are presented different comparisons such as LEACH and LEACH-C with their respective solar-aware extensions of both, a comparison between HEED with optimized parameters and non-optimized parameters, and finally a general comparison among One-hop, LEACH, LEACH-C and HEED. To sum up, some conclusions are drawn about the performance of the different protocols and some key points are given for future work. Furthermore, it is presented a brief study of the environmental impact this work may have.

A SECURE DATA AGGREGATION APPROACH IN WSN USING ANN

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Security is one of the major concern to achieve the secure communication. When the data is over the network there are more chances of some Active or passive attack. The proposed approach is about to detect the Active attack in the network. It means if some user add some extra information with data packet or destroy some information, the proposed approach can detect such kind of false data packets. We are presenting a neural network based approach to detect the fault in data packets. The proposed approach is non-linear sensor model, in which nodes are placed dynamically. This approach will combine the concept of data verification and user authentication along with data aggregation. The approach is driven to both the integrity as well as the security to transfer data.

Keywords: Security, False Data, Aggregation, Neural, Sensor Network.

TPM REVIEW AND OEE MEASUREMENT IN A FABRICATED PARTS MANUFACTURING COMPANY

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In today's date manufacturing companies are interested to improve their production system as it has become very important in competitive and globalize market for survival. Companies

are looking in different direction to their problems to get the competitive advantages. But the most important is to find out weak areas of the production system for making improvements. The overall equipment effectiveness (OEE) calculation is used to find out the current situation of the production system of the case company. It calculates the availability of the production system which shows that maintenance system's effectiveness. The quality rate calculations of the work stations show the conditions of the machines and the worker's skill and the calculations of the performance efficiency of the work stations show the utilization of the machines. The result shows that there is a problem in the utilization of the machines. Most of the time the machines remain idle or wait for the maintenance if it fails. Detailed analysis of case company is presented in this paper with valuable comments given to company.

Keywords: Total Productive Maintenance (TPM), Overall equipment effectiveness (OEE), Quality Rate, Availability, Performance Efficiency.

PROPAGATION OF WAVES IN MICROPOLAR GENERALIZED THERMOELASTICITY AT AN IMPERFECT INTERFACE

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This present investigation is concerned with the wave propagation between two isotropic, homogeneous micropolar generalized thermoelastic half-spaces of different micropolar and thermal properties in the context of generalized theory of thermoelasticity developed by Lord and Shulman. It is found that there exist four types of waves namely longitudinal displacement wave (LD-wave), thermal wave (T-wave) and two coupled transverse displacement and microrotational waves (CD I-wave and CD II-wave). The amplitude ratios of different reflected and transmitted waves are obtained for an imperfect boundary and deduced for normal force stiffness, transverse force stiffness, transverse couple stiffness, thermal contact conductance and perfect bonding. The variations of amplitude ratios with angle of incidence have been shown graphically for longitudinal displacement wave (LD-wave), thermal wave (T-wave). It is noticed that the amplitude ratios of reflected and transmitted waves are affected by the stiffness, micropolarity and thermal property of the media. Some particular cases of interest have been deduced from the present investigation.

REFLECTION OF TRANSVERSE AND MICROROTATIONAL WAVES IN MICROPOLAR GENERALIZED THERMOELASTIC DIFFUSION HALF-SPACE

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The Problem of reflection of plane waves in micropolar thermoelastic diffusion half-space in the context of generalized theory of thermoelasticity developed by Lord and Shulman. The amplitude ratios of various reflected waves are continuous function of the angle of incidence and material parameters of the medium. Graphical representation of amplitude ratios is presented and the impact of micropolarity and diffusive property of the medium is observed to be significant. Some special cases of interest have been deduced from the present article.

PROPAGATION OF PLANE WAVES IN MICROPOLAR THERMOELASTIC SOLID WITH TWO TEMPERATURES

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The present investigation is concerned with wave propagation in micropolar thermoelastic solid half space with two temperatures i.e. distinct conductive and thermodynamic temperatures. Reflection phenomenon of plane waves impinging obliquely at the free surface of micropolar thermoelastic solid half space with two temperatures is investigated. The incident wave is assumed to be striking at the free surface after propagating through the micropolar generalized thermoelastic solid with two temperatures. Amplitude ratios of the various reflected waves are obtained in closed form and it is found that these are function of angle of incidence, frequency and are affected by the elastic properties of the media. Micropolarity and two temperature effects are shown on these amplitude ratios for a specific model. Results of some earlier workers have also been deduced from the present investigation.

COMPARISON AND PERFORMANCE EVALUATION OF BNP SCHEDULING ALGORITHMS IN HOMOGENEOUS ENVIRONMENT OF PARALLEL PROCESSORS

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This paper discusses different scheduling algorithms that allocate a parallel program to a set of homogeneous processors and are represented by weighted directed acyclic graphs. The algorithms are classified into various categories which are BNP (Bounded number of processors) based algorithms, UNC (unbounded number of clusters) based algorithms, TDB (task duplication based) algorithms and (APN) arbitrary processors based algorithms. The main objective of the paper is to analyse, evaluate and compare the performance of BNP scheduling algorithms which are categorized into four types HLFET (Highest Level First Estimated time) algorithms, MCP (Modified Critical Path) algorithms, ETF (Earliest Time First) algorithms and DLS (Dynamic Level Scheduling) algorithms. Based upon their performance considering various factors, best algorithm is selected.

IDENTIFICATION OF SYSTEM PARAMETERS USING TUNED VIBRATION ABSORBER FOR CAPTURING SYSTEM DYNAMICS

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For the systems, excited externally or internally the Tuned Vibration Absorber (TVA) are the passive device that absorb the vibration energy. Here we have focused on the effect of damping ratio and mass ratio of the TVA on the vibration characteristics of the combined system. The effect of alteration of attachment of the damping element of TVA on system dynamics and the effect of the primary system damping on combined system dynamics has been identified. The equation of motion are formed by using Lagrange's method and the dynamic response of the optimally tuned combined system are simulated in matlab.

Keywords: Tuned Vibration Absorber, Damped TVA, Damped Primary system, Optimum Damping ratio, Mass ratio.

ISSUES AND CHALLENGES IN INTEGRATION OF AGILE PROCESSES TO TRADITIONAL SOFTWARE PROCESS MODELS

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Agile software development is finding a new dimension in software development process models. As tools and techniques used to develop software has been changed drastically. Software development processes need to keep pace with changing technologies and new demands from clients. Today's changing business needs have given rise to adaption of structures, strategies, and policies to suit the new environment by the organizations. These organizations need to upgrade their information systems to meet their changing requirements but the traditional and plan-driven software development methodologies lack the flexibility to adjust the development process as the process runs in the defined or standardized manner. Agile development method has the ability of overcoming the limitations of traditional approach. A number of software development methods such as extreme programming (XP), feature-driven development, scrum and adaptive software development are part of agile development method [3,7]. We cannot neglect traditional methods as they are the base of software development but they need to be altered with respect to the demands of agile software development process thus making software industry move towards agility.

STRUCTURAL DYNAMIC ANALYSIS OF CANTILEVER BEAM STRUCTURE

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Structural dynamic analysis is required to understand the vibration related behavior of structures including their eigenvalues, modeshapes and frequency response functions. In this

paper, structural dynamic analysis of a cantilever beam structure has been performed. Spatial finite element model of the beam structure is formulated and then analyzed further to produce modal model and response model of the structure. The work is helpful in understanding the dynamic behavior such as extreme versus intermediate positions of modeshapes and point versus transient frequency response functions of the cantilever beam structure.

Keywords: Structural Dynamic Analysis, Finite Element Method.

SMART GRID: POWER GRID OF FUTURE

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The power sector across the world is facing numerous challenges including generation diversification, demand for reliable and sustainable power supply, energy conservation and reduction in carbon emission. It is evident that such critical issues cannot be addressed within the confines of the existing electricity grid. Smart Grid is next generation digitally enhanced power system assimilating concepts of modern communications and control technologies which allows much greater robustness, efficiency and flexibility than today's power systems. As smart grid is identified as solution to various challenging problems of power system, so aspects regarding its implementation are important. A smart grid impacts all the components of a power system especially the distribution level.

Keywords: Conventional Grid, Information and Communication Technology, Smart Grid.

EXTRACTING THE OPINION THROUGH CUSTOMER FEEDBACK DATA FROM WEB RESOURCES

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As the customer opens their views for the product and their services, so it is necessary that it is classifying and categorizing these views in feature manner. The job of analyzing such information is collectively called as customer product reviews, also called as opinion mining. Basically it consists of some steps, and different task achieved by applying different techniques. This paper basically explains such techniques that have been used for the implementation of task of opinion mining. On the basis of this analysis we provide an overall system design for the development of opinion mining approach.

Keywords: Opinion mining, customer reviews, Blogs, linguistic resource, NLP techniques, Rough Set Theory, Sentiment Classification Methods.

A RIGOROUS STUDY OF SOFTWARE PROCESS IMPROVEMENT MODELS IN SOFTWARE INDUSTRY

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Now-a-days Software Process Improvement programs are being integrated with the key processes practiced in different software organizations, who really want to improve their processes continuously in order to enhance their quality of the products. Software Process Improvement (SPI) encompasses a set of activities that will lead to a better software process, and as a consequence, higher quality software delivered in a desired time span .Software Process Improvement is an important activity which starts when an organization plans to enhance the capabilities of its ongoing processes. There are many Software Process Models those exist in software industry. There exist a set of key processes those are practiced and are being applied by different organizations to improve quality of these products. This paper summarizes important SPI models those comprise of effective set of practices which can enhance the maturity of software organisations.

Keywords: Capability Maturity Model, CMMI, MIL-STD-498, Software Engineering Institute, Software Process Improvement.

AN EFFECTIVE APPROACH OF ERP-BASED HR MODULE FOR ACADEMIC INSTITUTE

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With the computerization of business, the HR Module in ERP has a set of rich features and integrates seamlessly with other modules. Enterprise Resource Planning (ERP) systems are adopted by the various academic institutes for key administrative and academic services. ERP based HR module offers wide solutions for HR department making it possible for other department to access specific employee data. This paper focuses on approach of ERP-based HR module for Academic institutes to utilize the Human resources.

Keywords: ERP System, HR Module, Payroll Management, Personnel Management, Time Management and Organizational Management.

E -CRM – A NEW PARADIGM FOR MANAGING CUSTOMERS

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In this era of globalization and cut throat competition, the fast changing economic environment is witnessing a paradigm shift. The existence and success of any organization depends on three elements viz technology, people and customers, where technology and people are working to service the customers and increasing the customer delight. The organizations around the globe are striving hard to attract and retain the customers and hence the customer relationship management is the key area of interest for the organizations. The concept of CRM when visualized in the context of e-business, it translates to e-CRM, which is the latest buzzword in the corporate sector now a days. The organizations are using latest e-CRM tools and techniques for customer segmentation and profitability, marketing and customer relationship management. The paper throws light on the concept, need, process and

ins and outs of managing the customer interactions over the web and making the ultimate use of IT to serve the people.

Keywords: Economic Growth, Risk Management, Data Mining, Customer Delight.

ON THE DETERMINATION AND COMPARISON OF THE NATURAL FREQUENCIES BY EXPERIMENTAL AND NUMERICAL (FE MODAL ANALYSIS) METHODS

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Finite Element Analysis (FEA) is the best analysis package as it gives nearly equal results as found experimentally. For complex structures like car door the natural frequencies are determined both with FE Modal analysis and experimental method. The results of both are compared and they found closely matching.

Keywords: FE Modal analysis, Experimental Modal Analysis, Natural Frequency, Shaker.

AGILE SOFTWARE DEVELOPMENT AND REUSABILITY

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The increased speed and change in business world increased the need to develop software faster and cheaper as well as higher quality and more adaptable to constant change. New software development methods were developed and named as being agile. Despite the variety of literature about agile software development, we could not find any that would discuss possible bottlenecks of agile software development. However, according to Goldratt [10] every process has a bottleneck – a weakest link in the chain that limits throughput.

Identifying and eliminating bottlenecks, it will increase throughput what leads to more profit. Reusability is one of the bottlenecks of Agile Software Development process. Reusability finds limited scope in Agile Software Development and therefore adding reusability to Agile Software Development is a challenge. Essence of Agile Software Development is rapid software development and less cost. Thus, somewhere it compromises with quality and also

unable to provide reusability of its developed components. Agile Software Development provides specific solutions whereas Reuse and Component based Development believe in generalized solutions.

DESIGN OF WEATHER FORECASTING SYSTEM THROUGH UNIFIED MODELING LANGUAGE

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Among modeling languages Unified Modeling Language (UML) has become most popular. UML is commonly used in the design and implementation of any system and software architectures. To achieve functional and non functional requirements of the system UML model helps. In order to initiate the programming phase of building software UML tools enabled the creation of source code from UML diagram. The main objective of this paper to model a Weather Forecasting System (An ANN approach) using UML. Weather forecasting is a challenging area. To protect life and property weather warnings is important forecast. The future weather conditions is predicted by trained ANN. In this paper we proposed a UML model for Weather Forecasting using Neural Network which provide a technique for predicting weather. This proposed enhanced method for weather forecasting has advantages over other techniques.

Keywords: UML model, Artificial Neural Networks, Weather Forecasting, Single Layer Perceptron , Multi Layer Perceptron, Back Propagation.

IMAGE COMPRESSION TECHNIQUES FOR MEDICAL IMAGES: A REVIEW

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We can see the rapidly increasing use of images in various applications like in automation, security systems, in robotics and in medical treatments. The medical images like Ultrasound, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) contains large volume of data. These medical images produce the human body pictures in digital form and due to rapid growth in technology various mobile equipments has been developed for the medical treatments which uses digital medical images so it is very important to reduce the size of medical images. The efficiency should be very high in medical images because it can cause loss of a life so medical image compression requires negligible information loss. In this paper we have presented various effective algorithms used for compression.

Keywords: CT, MRI, LZW, PSNR, Entropy, Huffman Coding, Arithmetic Coding, RLE Coding & Wavelet Compression.

IMPLEMENTATION OF HYBRID DWT-DCT ALGORITHM FOR IMAGE COMPRESSION: A REVIEW

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Digital image in their raw form require an enormous amount of storage capacity. Considering the important role played by digital imaging and, it is necessary to develop a system that produces high degree of compression while preserving critical image information. There are various transformation techniques used for data compression. Discrete Cosine Transform (DCT) and Discrete Wavelet Transform (DWT) are the most commonly used transformation. DCT has high energy compaction property and requires less computational resources. On the other hand, DWT is multi resolution transformation. In this paper, we propose a hybrid DWT-DCT algorithm for image compression and reconstruction taking benefit from the advantages of both algorithms. The algorithm performs the Discrete Cosine Transform (DCT) on the Discrete Wavelet Transform (DWT) coefficients. Simulations have been conducted on several natural, bench marks, medical and endoscopic images. Several QCIF, high definition, and endoscopic videos have also been used to demonstrate the advantage of the proposed scheme. The simulation results show that the proposed hybrid DWT-DCT algorithm performs much better than the standalone JPEG-based DCT, DWT, and WHT algorithms in terms of

peak signal to noise ratio (PSNR), Bit Error Rate(BER), Mean Square Error(MSE),energy compaction, time taken for processing as well as visual perception at higher compression ratio. The new scheme reduces “false contouring” and “blocking artifacts” significantly. Furthermore, the proposed algorithm is also compared with the some existing hybrid algorithms. The comparison results show that, the proposed hybrid algorithm has better performance and reconstruction quality.

IMPORTANCE OF PROCESS CAPABILITY AND PROCESS PERFORMANCE INDICES IN MACHINE TOOL

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A process is a unique combination of machines, tools, methods and personnel engaged in providing a product or service. Process capability indices have been used in the manufacturing industry to provide quantitative measures on process potential and performance. The output of a process can be product characteristic or process output parameter. Process capability indices (C_p , C_{pk} , C_{pm}) provide a common metric to evaluate and predict the performance of processes. In this study, at the first the process capability indices are presented Then machine capability indices are discussed Finally, process performance indices P_p , P_{pk} , P_{pm} nad difference between C_{pk} and P_{pk} are presented.

Keywords: Process Control, Process Capability, Machine Capability, Process Performance, Indices.

AN EXPERIMENTAL REVIEW OF AUTHENTICATION USING IRIS

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Iris as a biometric is very rich in terms of information content. It provides one of the most secure methods of authentication and identification thanks to its unique characteristics. Once the image of the iris has been captured using a standard camera, the authentication process,

involving comparing the current subject's iris with the stored version, is one of the most accurate with very low false acceptance and rejection rates.

This work proposes two alternative algorithms for iris recognition. The first involves the arrangement of spatial patterns of the iris image, and is detected by application of canny edge detector. The second algorithm describes the use of an Iris Signature which employs discrete wavelet transform for the same. The results of authentication for the two algorithms have been obtained and compared. Further, noise caused in the image due to variant illumination and eyelashes were also removed successfully. In the later phase of the paper, we extracted iris as an ellipse instead of a circle, and concluded that this approach enhanced the accuracy of authentication considerably.

Keywords: Iris, Image, Ellipse, Recognition, Significance.

MODELING OF CCPP BY NEURO-FUZZY AND HYBRID APPROACH

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In this paper, an automation system is being proposed to efficient operations of CCPPs using Neuro-Fuzzy System and Hybrid Approach. Hybrid System has been applied for achieving systems evolution according to continuous dynamics, discrete dynamics, and logic rules. The possibility of turning on/off the gas and steam turbine, the operating constraints (minimum up and down times) and the different types of start up of the turbines characterize the hybrid behavior of a combined cycle power plant [1]. CCPPs are efficient and more power generators than the single power plants. Application of CCPPs has become wide spread and due to their advantages they are being accepted and implemented. Along with several advantages CCPPs offer, they have certain troubles in operating them efficiently. The most critical of these is operating the secondary Turbine on/off as per the heat generation by the primary turbine. I am proposing a Neuro-Fuzzy based Hybrid Modeling System which will produce the outputs on the basis of the historical data of the plant finding when to switch on/off the secondary turbine. The outputs can be attached to an automatic system so that manual operations of the turbine control can also be eliminated. Inclusion of Neuro-Fuzzy not only makes the accurate and quick decision but also uses historical data of the plant to make the decisions related with switch operations.

Keywords: Co-generation Power Plant, Neuro Fuzzy, Hybrid system, MLD.

CORRELATION BETWEEN SOAKED CBR VALUE AND CBR VALUE OBTAINED WITH DYNAMIC CONE PENETROMETER

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For the design of flexible pavement, the sub-grade soil strength is estimated with California Bearing Ratio test (IRC-37-2001). In 1929, this test was developed by California Division of Highway and is used to evaluate the suitability of sub grade and the materials used in sub base and base course. This test can be done in the laboratory as well as in the field. But this conventional CBR testing has low repeatability. It is an expensive and time consuming test. Moreover, it is very difficult to mould the sample at desired insitu density in the laboratory. Therefore, to overcome these problems, the other method (Dynamic Cone Penetrometer) is used in this study. This is an instrument used to evaluate insitu strength of pavement base , sub base and sub grade materials. The CBR values are obtained by conventional method and with the help of Dynamic Cone Penetrometer (DCP) and both the values are correlated to find the conventional CBR value by using DCP in the field. So, with the help of this relationship , it will be easy to get information about the strength of sub grade over the length of road.

SECURITY OF MOBILE AGENTS ON NETWORK FOR DISTRIBUTED DATABASE

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In distributed database networks Mobile agent is a very important concept & utilization of the resources available on the connected network can be improved using mobile agents because of their capability of operation on different environments, that is why, the approach is used for many network based applications like data crawling, information exchange, distributed system integrity etc. but it lacks the security aspects when applied to open network where nodes cannot be classified as they are malicious or not, hence for the cases where the security of data or reliability of agent become must we need some method to insure the security of mobile agents. Situation becomes critical when mobile agent has travelled multiple nodes and contains information from multiple nodes.

Although many other methods are proposed by many authors but some of them required a pre survey [1], encryption of important data [2] acknowledgement schemes [3], transfer of dummy & monitoring agents [4].

Here I am proposing a scheme which not only confirms the security of data but also guarantees the uninterrupted operation of agent by utilizing a dummy agent and composite acknowledgement technique as by [4] but improving the same by encryption of the data sent. This algorithm will keep two databases on each sender nodes to classify the intended nodes in two different categories. One database if of malicious nodes in which they will keep the details of the malicious nodes for which they will keep information related with the nodes informed to be malicious by the dummy agents and second will keep the information of the healthy nodes, which are found to be non malicious by the dummy agents. This will reduce the unnecessary delays in retrieving information from the distributed database network system and will avoid lot of security setback beforehand. Introduction of the database at the sender will be updated periodically by sending dummy packets on the intended nodes so it will have updated information all the times. The proposed mechanism also ensures that if in case anywhere mobile agent is being captured by the malicious node its upstream node will send the available information to the starting node so that the collected information will not be lost up to the upstream node.

Keywords: Mobile Agent, Security, Distributed database, Computing, Encryption.

INVESTIGATION OF SUPERSONIC COMBUSTION WITH CAVITY BASED INJECTION IN A SCRAMJET COMBUSTOR

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CFD analysis of supersonic combustion of air with hydrogen fuel has been performed for a scramjet engine. As the combustion is taking place at supersonic speeds, the flow has very less residence time (milliseconds) in the combustor. Primary objective of this analysis is to improve residence time thereby increasing fuel-air mixing and combustion efficiency. The eddies or vortices generated in the cavity acts as a flameholding device and increases the residence time of flow. The two-dimensional coupled implicit Navier-Stokes equation, the realizable $k-\epsilon$ turbulence model and the finite-rate/eddy-dissipation reaction model have been applied to numerically simulate flow field of hydrogen fueled scramjet combustor with a cavity flameholder under two different working conditions, namely, cold flow and engine ignition. Hydrogen and H_2O mass fractions left at the outlet are considered as the results efficiency for complete fuel-air mixing and combustion.

Keywords: Aft Ramp Angle, Vorticity, Flame Holding.

IDENTIFICATION OF EFFECTIVE KEY PROCESSES IN SOFTWARE PROCESS IMPROVEMENT MODELS FOR SMES

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Software Process Improvement (SPI) is recognized as a new era in modern software development or software engineering. SPI actually finds its actual place in software process re-engineering and giant software organizations are heading towards SPI in search of excellence. Only self sufficient and extensively matured organizations think to afford SPI initiatives. It seems miserable that these SPI initiatives are not a cup of tea for Small and Medium Scale Enterprises (SMEs) as Indian software industry composes a large chunk of SMEs contributing to nation's economy. Existing software process improvement standards were not written for SMEs. Scarcity of resources, budget and time hampers SMEs to implement expensive software process improvement initiatives. A large number of universities, industrial research centres, and associations have tried to find their own answers to the issue being faced by most SMEs, and are proposing dedicated software process models for SMEs. However, no one has been able to propose a one-size-fits-all SPI solution for SMEs. In this paper, more than a dozen SPI models are analyzed. And the intent is to find a customized solution for SPI in SMEs. Here, we try to identify important key processes which directly or indirectly have impact on software process improvement in SMEs.

IMPROVED ROUTING TECHNIQUE USING ZIGBEE NETWORK: AN ANALYTICAL STUDY

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ZigBee is a wireless network standard based on IEEE 802.15.4. It is a wireless sensor network technology its main characteristics are low transmission range, data rate, price and

power consumption. The aims of this network are to reduce the energy consumption and latency by enhancing routing algorithm. In a traditional tree routing when a node wants to transmit a packet to the destination, the packet has to follow child/parent relationship and go along tree topology, even if the destination is lying at nearby source. In order to solve this problem, an Enhanced Tree Routing Algorithm is introduced using ZigBee network. This algorithm can find the shortest path by computing the routing cost for all of router that stored in neighbor table, and transmit the packet to the neighbor router that can reduce the hop count of transmission. The enhanced tree routing algorithm can achieve more stable and better efficiency than the previous traditional tree routing algorithm. There are various goals of present study like studying routing techniques using ZigBee network, design of enhanced routing algorithm for routing the packets and comparison of traditional and enhanced tree routing algorithms.

Keywords: IEEE 802.15.4, ZigBee, Neighbor-Table, Tree Routing.

IMAGE SEGMENTATION AND EDGE DETECTION USING AN AUTOADAPTIVE NEURO-FUZZY SYSTEM

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An autoadaptive neuro-fuzzy segmentation and edge detection architecture is presented. The system consist of a multilayer perceptron (MLP)-like network that performs image segmentation by adaptive thresholding of the input image using labels automatically pre-selected by a fuzzy clustering technique. The proposed architecture is feedforward, but unlike the conventional MLP the learning is unsupervised. The output status of the network is described as a fuzzy set. Fuzzy entropy is used as a measure of the error of the segmentation system as well as a criterion for determining potential edge pixels. The proposed system is capable to perform automatic multilevel segmentation of images, based solely on information contained by the image itself. No *a priori* assumptions whatsoever are made about the image (type, features, contents, stochastic model, etc.). Such an “universal” algorithm is most useful for applications that are supposed to work with different (and possibly initially unknown) types of images. The proposed system can be readily employed, “as is,” or as a basic building

block by a more sophisticated and/or application-specific image segmentation algorithm. By monitoring the fuzzy entropy relaxation process, the system is able to detect edge pixels.

Keywords: Adaptive Thresholding, Fuzzy Entropy, Image Segmentation, Neuro-Fuzzy System, Self-Organizing System.

SURFACE DEFECTS DETECTION FOR CERAMIC TILES USING IMAGE PROCESSING AND MORPHOLOGICAL TECHNIQUES

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Quality control in ceramic tile manufacturing is hard, labour intensive and it is performed in a harsh industrial environment with noise, extreme temperature and humidity. It can be divided into colour analysis, dimension verification, and surface defect detection, which is the main purpose of our work. Defects detection is still based on the judgment of human operators while most of the other manufacturing activities are automated so, our work is a quality control enhancement by integrating a visual control stage using image processing and morphological operation techniques before the packing operation to improve the homogeneity of batches received by final users. An automated defect detection and classification technique that can ensure the better quality of tiles in manufacturing process as well as production rate.

Keywords: Quality Control, Defects Detection, Visual control, Image Processing, Morphological Operation.

EFFECTIVE SESSION ESTABLISHMENT AND DATA TRANSMISSION IN MANET

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Mobile Ad hoc Network (MANET) is an infrastructure less and decentralized network. Many routing protocols for MANET have been proposed. From all of them the protocols like DSR, DSDV and AODV are quite popular ones. Here in this paper, we are emphasizing the concept

of distance sequence number in AODV protocol. Distance sequence number in AODV protocol are use to find the most recent path to destination. In this paper we have presented the modified algorithm use for distance sequence number as to increase parameters like Routing Packet Overhead, Path optimality, Packet loss etc.

Keywords: Ad hoc Networks, Routing Protocols, Distance Sequence Number, AODV Protocol.

A FRAMEWORK FOR RECOGNATION AND MODIFICATION OF DESIGN PATTERN

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Today, the requirements of market and software technology are changing dynamically, software systems are growing rapidly and changing. The design pattern plays an important role for documentation of software systems architecture. Thus, there is a need in computer science and industry for recognizing these patterns. In this paper we present a framework that recognize design pattern from the source code and modify it on the basis of customer need. The framework required some precise information like inheritance, composition, aggregation and association for modification in design pattern.

Keywords: Design pattern, DPML, C++, UML.

VIDEO SHOT BOUNDARY DETECTION – COMPARISION OF COLOR HISTOGRAM AND GIST METHOD

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Many algorithms have been proposed for detecting video shot boundaries and classifying shot and shot transition types. Here we are using two different methods for comparison, using GIST¹, Color Histogram.

Keywords: Shot, Cut, Gradual, Color Histogram, Motion Descriptor, GIST, Segmentation.

²Gist means *Gesture Interpretation Using Spatio-Temporal Analysis*, where *Spatio-Temporal* means which has both space as well as time properties like the movement of hand which shows the variation in both space as well as time

LUNG CANCER DETECTION USING IMAGE PROCESSING

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In recent years the image processing mechanisms are used widely in several medical areas for improving earlier detection and treatment stages, in which the time factor is very important to discover the disease in the patient as possible as fast, especially in various cancer tumors such as the lung cancer, breast cancer. Lung cancer has been attracting the attention of medical and sciatic communities in the latest years because of its high prevalence allied with the difficult treatment. Statistics from 2008 indicate that lung cancer, throughout world, is the one that attacks the greatest number of people. Early detection of lung cancer is very important for successful treatment. Diagnosis is mostly based on CT images. Our current work focuses on finding nodules, early symptoms of the diseases, appearing in patients' lungs. We use a modified Watershed segmentation approach to isolate a lung of an CT image, and then apply a small scanning window to check whether any pixel is part of a disease nodule. Most of the nodules can be detected if process parameters are carefully selected. We are aiming at computerizing these selections. We passed the available lung cancer images and its database in basic three stages to achieve more quality and accuracy in our experimental results: pre-processing stage, feature Extraction stage and Lung cancer cell identification.

CBIR BASED ON LEARNING OF NEURAL NETWORK

WITH FEEDBACK RELEVANCE

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To achieve the knowledge and information from web there must be use of retrieval of images from web databases because of effective information in images .For more effective and efficient image retrieval, learning is most important. Learning is also most important concept for feedback method to any data mining task. Using the retrieval pattern-based learning is the most effective that aim to establish the relationship between the current and previous query sessions by analyzing retrieval patterns. User's feedback is utilized for updating the high level semantic features of query image and each database image. We propose a new feedback based and content based image retrieval system using neural network based pattern learning to achieve effective classification and with neural network we use decision tree algorithm to make less complex mining of images.

Keywords: Pattern-Based Learning, Image Retrieval, Neural Network.

A COMPARISON OF DISTRIBUTED METHOD OF LOCALIZATION FOR MWSN WITH AOA BASED ON ANTENNA

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The primary difficulty in sensor networks is localization, such that determining the position of the sensors node in dance area of wireless sensor network. Node localization is an enabling expertise for mobile wireless sensor networks (MWSNs) for the motive that sensor nodes deployed in an area of interest frequently necessitate position information for routing and purpose - specific tasks, for instance - temperature and pressure monitoring. In recent years, directional antenna scheme has been extensively used in designing protocols for wireless sensor networks because omni-direction antenna radiate energy in all directions and signal is easily interfered with wide range of environment noises which may increases localization error, In disparity a directional antenna concentrate its energy in a particular direction which increases localization efficiency.

Numerous localization schemes using anchor nodes equipped with low gain omni directional antenna have been proposed. Since the omni directional antenna radiate energy in all directions, wanted signal is easily interfered with wide range of environment noise. This paper outlines recent work and analyzes the accuracy of the directional antenna and omni

directional antenna.

Keywords: Wireless sensor network, Localization, Directional antenna, Omni Directional Antenna, AOA.

LOCATION BASED MOBILE SOCIAL NETWORKING

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The widespread use of cellular telephones and the availability of user-location information are facilitating personalized location-based applications. This paper just analyzes and compares the existing MSNS applications, and proposes the concept of MSNS mobile social networking (MSN) systems have emerged rapidly, being a revolution for our everyday life. Based on the analysis of general requirements of MSN and location-based services (LBS), this paper presents the design of a mobile social networking system, as well as a Scheduler, Instant messaging implementation. Scheduler is an important service to business people to remind our daily schedule. In this paper, we present a distributed multi-agent meeting scheduling system for mobile devices. This mobile system supports people on the move to locate feasible timeslots to meet with each other, using their mobile devices. An interactive, multimedia, location-based application approach has been proposed to address the needs that frequently arise in the field work of providing supportive social services. Combining location aware search technology and personnel profile matching, the proposed modular and general architecture enables social workers, their colleagues, and other participating professionals to keep each other connected, informed, and organized as a mobile community and a supportive network for those in need.

Keywords: Mobile Social Network Service, Scheduler & Instant Messaging Service, Geographic Information System, Global Positioning System.

CAM DYNAMICS AND VIBRATION CONTROL BY DETECTING JUMP

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Typical industrial cam-follower systems include a force closed cam joint and a follower train containing both substantial mass and stiffness. Providing the cam and follower remain in contact, this is a one degree-of freedom (DOF) system. It becomes a two-DOF system once the cam and follower separate or jump, creating two new natural frequencies. A study was conducted to determine whether imperfections in the cam surface, while the contact force is on the brink of incipient separation, may cause a spontaneous switch to the two-DOF mode and begin vibrations at resonance. A force-closed translating cam-follower train was designed for the investigation. The system is designed to be on the cusp of incipient separation when run. One of the many potential problems with unwanted vibrations in high-speed machinery is the possible introduction of follower jump in a cam-follower mechanism. Jump is a situation where the cam and follower physically separate. When they come back together the impact introduces large forces and thus large stresses, which can cause both vibrations and early failure of the mechanism. This paper will suggest different methods to detect the jump practically with the accuracy. The illustrative experimentation with results will be discussed in this paper.

LEAN & RELATIONSHIP MANAGEMENT

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Up to now lean is supposed to concern with management of internal relationships of different persons and operations in organization but now the real challenge for the companies turns out to be the adoption of innovative practices which concerns the management of external relationships with customers and suppliers. Organizations are moving from operations

management to relationships management. A lot of studies show that involvement of supplier and customer in organizational activities as well as production activities affects the performance of an organization as a lean organization. Leanness in relationship with supplier and customer depends upon various internal as well as external factors like- *with suppliers*- structure and size of the company, complexity of the product, delivery performance, fluctuation in delivery schedule and *with customers*- new dimension of customer service, appropriate path to introduce service capabilities in manufacturing organization, servicing of complex product etc. This paper reviews the factors of relationship management with suppliers and customers which are necessary to making an organization leaner.

A SECURITY IN ZONE ROUTING PROTOCOL FOR MANET

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It is a collection of wireless mobile nodes, which dynamically form a temporary network without using any existing network infrastructure or centralized administration. MANET is a collection of independent mobile nodes that can communicate to each other via radio waves. These are often called infrastructure less network. This security solution is provide secure routing and effective key management mechanism. Their main applications are Military applications ,Emergency systems, Wireless mess networks and wireless sensor networks. In this paper, we proposed a secure hybrid ad-hoc routing protocol, called Secure Zone Routing Protocol (SZRP),by combining the best properties of both proactive and reactive routing approaches. The proposed protocol is based on the zone routing protocol (ZRP). It used the approach of digital signature and both the symmetric and asymmetric key encryption techniques to achieve the security goals like message integrity, data confidentiality and authentication at IP layer. The proposed scheme successfully defeats all the identified threats and achieves a good security at the cost of acceptable overhead. Together with existing approaches for securing the physical and MAC layer within the network protocol stack, the

Secure Zone Routing Protocol (SZRP) can provide a foundation for the secure operation of an ad hoc network.

SECURITY AND INFORMATION MANAGEMENT IN E-COMMERCE SYSTEM

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E-Commerce is common in most countries as they promise a more citizen-centric environment and reduce optimal cost. Due to increment in E-Commerce system we require more security for the challenges. For E-Commerce system Trustworthiness and Controllability are require to provide the purpose of Intensifying. We focus a trustworthy environment for e-commerce system, user behaviours and Maintenance strength of e-commerce systems. This paper is related to the circumstance of the trustworthy computing, trustworthy validation and identity and behaviour related active protection for trustworthy e-commerce system.

DESIGN OF SMOOTH AND EFFICIENT STAIR CLIMBING MECHANISM FOR WHEEL CHAIRS.

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Many people in our society, who are paralytic and unable to walk, are having a miserable life. They cannot move around and always look for help from others in doing even their

routine works. Society has always been looking for effective ways and mechanisms to help such deprived people. It definitely requires determination and special resolve for anyone to design an effective mechanism for staircase climbing. Many suggestions and ideas have been put forward as possible solutions but all of them have their own limitations. Here a novel method for the design of the wheel chair for the smooth movement and stability of the weight lifted by the wheel chair is being presented. The wheel chair is electrically operated and moves on two pair of wheels whose dimensions are designed to best suit the standard height of staircase. When the wheelchair is near the staircase, one wheel of each pair starts rotating about the center of the other wheel until it climbs the first step of the staircase. The seat along with the person slides forward through a linear guide way and takes position so that the weight of the person is perpendicular to the centre of front wheel thereby achieving stability. Similarly, the wheels at the back again are rotated about the centre of the current front wheels and take position at the next step. Sliding of the seat takes place next and following the rotation of the other wheel; and the process continues likewise. This system for staircase climbing is cost effective and reliable and it will definitely suit the needs of the physically deprived people.

SHORT-TIME SQUEEZING EFFECT IN HIGHER ORDER AMPLITUDE IN EIGHTH HARMONIC GENERATION

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The quantum effect of squeezing of the electromagnetic field is investigated in the fundamental mode in eighth harmonic generation with the approximation $|gt|^2 = 1$, where g is coupling constant and 't' is the interaction time between waves during the process in nonlinear medium. Higher order amplitude squeezing in fundamental mode is found to be dependent on the selective phase values of the field amplitude. The effect of photon number on squeezing and signal to noise ratio in higher order field amplitude in fundamental mode has also been investigated.

Keywords: Harmonic generation, Nonlinear optics: Squeezing.

AUTOMATIC EFFICIENT TEST DATA GENERATION BASED ON GENETIC ALGORITHM FOR PATH TESTING

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Software system should be reliable and quality product. To achieve this objective we need to test the software thoroughly with adequate test data. But the automatic generation of test suite and its adequacy is the key issues during testing of a software product. This paper presents automatic generation of test data for path coverage testing using genetic algorithm. We select a target path and apply a sequence of operators iteratively to generate the test data. This test data is executed for achieve the selected target path. In this paper, we have presented an algorithm for automatic generation of test data to satisfy path coverage and a basic process flow for generation of test cases for path testing using genetic algorithm. The experimental result shows the efficiency of test data in terms of execution time and generates more effective test cases. This paper is organized into four parts: part I discuss the usages of genetic algorithm in software testing, part II describes the functionality of genetic algorithm and its operations, part III discuss the previous related works, part IV present the algorithm for generation of test cases and basic process flow of test data generation for path oriented testing, part V shows implementation of proposed algorithm and its results.

Keywords: Software Testing, Path Coverage, Genetic Algorithm, Test-data generation.

MOBILE BANKING TRANSACTION SECURITY USING STEGANOGRAPHY

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With the help of modern information communication technology, mobile banking, as a new type of financial services carrier, can provide efficient and effective financial services for clients. Compare with Internet banking, mobile banking is more secure and user friendly. The

implementation of wireless communication technologies may result in more complicated information security problems. Based on the principles of information security, this paper presented issues of information security of mobile banking and discussed the security protection measures such as: Encryption technology, identity authentication and digital signature.

This paper presents general information about steganography, the art of data hiding. The paper provides an overview of steganography, general forms of steganography, specific steganographic methods, and recent developments in the field.

Keywords: Information Security, Encryption Technology, Steganalysis, Data Hiding, Data Security, Data Embedding, Stego-Objects.

REACTIONS OF INDUSTRIAL LOADS AND THEIR COMPENSATION SCHEMES

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Industrial loads which draw power from the grid network of a utility cause repercussions in the network which lead to additional losses in the generation and transmission systems and interfere with the supply of energy to other customers. Such loads have low power factor, produce voltage fluctuations, create unbalances in the system, generate harmonics and produce flicker problems. . Interference due to power system reaction has become greater with the increased use of power electronics, especially to the variable speed converter drives. Compensating equipment which included: switched shunt capacitors, filter banks and static compensators are used to reduce these reactions. The paper analyses the different reactions of various industrial loads and suggests compensation schemes by which these can be reduced to acceptable levels.

VARIATION OF BEAM STRENGTH OF STEEL GEAR FOR MARINE APPLICATIONS

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Gears are one of the most critical components in mechanical power transmission system and they are advantage over friction and belt drives. They are positive drives, a feature which most of the machine tools require, since exact speed ratios are essential. Gear design has evolved to a high degree of perfection, the constant pressure to build less expensive, quieter running, lighter weight, reliable, less cost and more powerful machinery has lead to steady change in gear design. The work is to focus on investigating the effects of gear ratio, face width, normal module, speed, pressure angle on beam strength of tooth of steel helical gear for marine applications.

Keywords: Optimization, Helical Gear Design, Modeling, Beam Strength.

COMPARATIVE ANALYSIS OF IMAGE FUSION TECHNIQUES: A REVIEW

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The image fusion came into existence with the rapid advancements in technology which merges images from multisource images to obtain new and improved image. However, all the physical and geometrical information required for detailed assessment might not available by analyzing the images separately. In multi-sensory images , there is a trade off between spatial and spectral resolutions resulting in image loss. Image fusion fuses two or more images and synthesizes them into one that contains all the significant or clear information from each input image. These images may be acquired from different sensors, or may be from the same

scene with focus on different parts on it. So, the image fusion can be divided into pixel, feature and decision /symbol levels. The most commonly used image fusion techniques are: Principal Component Analysis(PCA),Intensity-Hue-Saturation (HIS) technique,High-pass filtering (HPF) technique and Wavelet Transform technique(WT). This paper presents detailed information and comparisons between the techniques used in image fusion.

DATA MINING ON HETEROGENEOUS DATABASES SYSTEM

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Distributed system facilitates the Storage, bandwidth and CPUs utilization. It allows the number of people and devices connected to the internet to grow continually. Data storage requirements increase as data accumulation from all sources grows as does the number of sources. Distributed system supports two types of architectures namely homogeneous and Heterogeneous. Today all the industries use the homogeneous approach. As the today's need is to use the different data modeling schemas at different databases, this cannot be done in the homogeneous system. This problem can be easily solves by using the heterogeneous distributed system.

Evaluating the performance of any organization is an essential part for overcoming their weaknesses. The main purpose of this paper is how different data mining techniques can extract respectable knowledge from the larger database and analyze user behavior to improve the business performance of an organization. Heterogeneous distributed data mining techniques have become necessary for large and multi-scenario data sets requiring resources, which are heterogeneous and distributed.

Keywords: Data mining, Heterogeneous database system, Data cube, Homogeneous database, ETL process.

STUDY & COMPARISON OF SOFTWARE DEVELOPMENT LIFE CYCLE MODELS

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This paper deals with a vital and important issue in software engineering world. It is concerned with the software development processes which are known as software development life cycle. There are tons of SDLC models. This paper represents some of those models namely Waterfall model, Iterative model, V-shaped model, Spiral model & Agile model. Each model contains specific activities to be performed to develop software and also have advantages and disadvantages as well. Therefore, the main objective of this paper is to represent different models of software development and make a comparison between them to show the features and defects of each model.

Keywords: Software Development Life Cycle, SDLC models, Comparison.

STUDY OF SOFTWARE DEVELOPMENT PROCESS AND DEVELOPMENT MODELS

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This paper is concerned with explaining software development process and various development models. Software development process presents the task or activities used to produce a software product. A software development life cycle model is either a descriptive or prescriptive characterization of how software is or should be developed. There are tons of SDLC models. Each model contains specific activities to be performed to develop software. Many companies adopt their own model. The aim of this paper is to provide a brief study about software development life cycle, common activities to develop software and various development models.

Keywords: Software Development, Software Development Life Cycle, Development models.

STUDY OF SEARCH ENGINE OPTIMIZATION

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Search Engine Optimization (SEO) is a technique that comes under internet marketing and plays a vital role in making sure that the site is a success and it gets maximum number of views. One can't expect their site to get optimized and gain the top ranking over a fore night, optimizing a web site is a tedious and time taking process and requires a certain level of expertise which only trained professionals have got. This procedure is compulsory to market and advertise your product in the market and hence attain a good reputation in the global market scenario. So aim of this paper is to describe some strategy which can optimize the rank of a website in search engine.

Keywords: Search Engine, Search Engine Optimization, Internet.

A COMPARATIVE STUDY OF RDF AND RDFa

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For a long time now, RDF has shown great promise as a flexible format for storing, aggregating, and using metadata. Maybe for too long—its most well-known syntax, RDF/XML, is messy enough to have scared many people away from RDF. The W3C is developing a new, simpler syntax called RDFa (originally called "RDF/a") that is easy enough to create and to use in applications that it may win back a lot of the people who were first scared off by the verbosity, striping, container complications, and other complexity issues that made RDF/XML look so ugly.

RDF/XML doesn't have to be ugly, but even simple RDF/XML doesn't fit well into XHTML, because browsers and other applications designed around HTML choke on it. So, while the general plan for RDFa is to make it something that can be embedded into any XML dialect, the main effort has gone into making it easy to embed it into XHTML. This gives it an important potential role in the grand plan for the Semantic Web, in which web page data is readable not only by human eyes but by automated processes that can aggregate data and

associated metadata and then perform tasks that are much more sophisticated than those that typical screen scraping applications can do now. In fact, the relationship between RDFa metadata and existing content in web pages has been an important driver in most use cases driving RDFa's progress.

Keywords: RDF, RDFa, Semantic Web, XML files.

NUMERICAL SIMULATION OF TWO STAGE CASCADE REFRIGERATION SYSTEM USING REFRIGERANT R 12 – R170, R 502 – R 1150 AND R 717- R 1270

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The single stage vapour compression refrigeration system using various refrigerants is limited to an evaporator temperature of -40°C . Below temperature of -40°C the either cascade system or multi stage vapour compression system is employed. Capacity and Efficiency of any refrigerating system diminish rapidly as the difference between the evaporating and condensing temperature is increased by reduction in evaporator temperature. Present work describes the variation of Heat extracted by evaporator, mass flow rate required at High Temperature state and low temperature state and work input of individual compressors. Three different combinations of refrigerant R 12 – R170, R 502 – R 1150 and R 717 R - 1270 are taken in high temperature state and low temperature state respectively in two stage cascade refrigeration system. It has been observed that condensing and evaporating temperatures have strong effect on coefficient of performance of cycle. Most of exergy losses occur in compressor due to heat generation. The second law efficiency and the COP increases, and the total exergy loss decreases with decreasing temperature difference between the evaporator and refrigerated space and between the condenser and outside air.

Keywords: Refrigeration, Simulation, Heat transfer, simulink.

MODELING OF HARD TURNING PROCESSES PARAMETERS BY EVOLUTIONARY TECHNIQUES USING MICRO-GENETIC ALGORITHM

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In this paper we focus on describing the Multi-Objective Optimization Problem considering a case study from real-world production processes like hard turning, for non-ferrous metals and abrasive non-metals, which demands high precision tools. A drawing of experiments has been made in order to determine the empirical non-linear relationship between the selected parameters from the process, the tool life and material removal rate, which are mutually dependent objectives needs to be optimized simultaneously. Micro-Genetic Algorithm procedures have been applied to solve the problem, which are characterized as one of the Evolutionary Algorithm conceptual tools. Further the relationships have been applied to develop the evolution simulation model for adapting the cutting parameters.

Keywords: Hard turning process, Multi-objective Optimization, Evolutionary Algorithms, Micro-Genetic Algorithms.

CONCEPTUAL DESIGN OF SOLAR-WIND POWERED HALE AUTONOMOUS SYSTEM WITH PRESSURIZED STRUCTURE

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Pioneering the future aerial systems and motivated by long-endurance mission requirements for defense, communication etc., this paper focuses on the aerodynamic design, airfoil selection, stability and component selection to be used for long endurance solar-wind

powered unmanned aerial vehicle. The amount of fuel that is carried by unmanned aerial vehicle will severely limit the aircraft's endurance to a few days at most; the only source of energy available to very long endurance platforms is solar energy and wind energy. The design process was an interdisciplinary approach, and included a selection of high lift aerofoil, aerodynamic optimization of wing, weight balance, structural, reliability and maintainability analysis, safety improvement, cost and performance optimization. Humans have always wanted to achieve more. Thin-film flexible solar cells, high energy density batteries, miniaturized MEMS and CMOS sensors and highly efficient wind turbines have become vital for the endurance of UAVs within the past decade. Here also we can add some more features to the UAV which will help in enhancing the vehicle's performance. This added feature is the force of Buoyancy. In this project, we have designed UAV in such a way that a considerable percentage of its weight is supported by or constructed from inflatable structures containing helium gas or any other gas lighter than air.

Keywords: Unmanned Aerial system, Solar power, Wind Power, Solar cells, Wind Turbine, High Altitude Long Endurance (HALE), Buoyancy effect.

ENERGY EFFICIENT PROTOCOLS FOR SMART DUST

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Smart dust is comprised of vast number of ultra-small particles, cubic millimetre in size. These particles together form an autonomous sensing and communication system. We can say that these are extremely small computers in huge quantities working together. Smart dust particles, called "motes," could be as small as the size of a grain of sand. We need that these motes must have long life. To increase the life span of such networks different protocols have been used. In this paper various protocols like S-MAC protocol, LEACH, PFR, SW-PFR, H-TEEN and SPIN are discussed and analysed.

BENEFITS AND APPLICATIONS OF RFID BASED INVENTORY SYSTEMS

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Radio frequency identification, or RFID, is a generic term for technologies that use radio waves to automatically identify people or objects. There are several methods of identification, but the most common is to store a serial number that identifies a person or object, and perhaps other information, on a microchip that is attached to an antenna. RFID combined with GPS is an even more mind-blowing combination that has thousands of applications. Automatic Vehicle identification, Inventory Management, Document/ Jewellery tracking, Patient Monitoring, Biometrics, PCB tracking, Asset tracking, Animal tracking, Contactless payments etc are the lots of applications of RFID. RFID provides a unique identification for any product and GPS provides location-awareness. The use of RFID reduces the amount of time required to perform circulation operations. other Benefits of using RFID based inventory systems are High-Speed inventorying ,long tag life ,Provides total asset visibility, Gives full inventory history ,Allows reduced inventory-stocking levels, Provides full process control for products in the facility, Reduces lead-time, Shortens cross docking time.

ENUMERATING BACTERIAL COLONIES USING WATERSHEDING

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There are several methods for enumeration of bacterial colonies. An increased area of focus in Microbiology is the automation of counting methods. Several obstacles need to be addressed for methods that count colonies. These obstacles include how to handle confluent growth or growth of colonies that touch or overlap colonies, how to identify each colony as a unit in spite of differing shapes, sizes, textures, colors etc. This method is designed to provide a degree of accuracy in counting that could be correlated to the counts that would be obtained using a well-trained operator. This method is used to overcome these obstacles are thresholding, segmentation, Watershedding, edge detection and mathematical morphology.

Edge detection is a terminology for feature detection and extraction to refer the algorithm which aims at identifying points in a digital image at which the image brightness changes sharply or more formally has discontinuities. Thresholding is used to discard irrelevant data. In this paper used mathematical morphology technique for analysis and processing of geometrical structures, based on set theory. Image segmentation is the process of dividing image according to its characteristics. Watershed algorithm can generate over segmentation or under segmentation on badly contrast images.

NANOTECHNOLOGY IMPACT ON INFORMATION TECHNOLOGY

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Research on the nanoscale has led to the development of completely novel materials that will undoubtedly find numerous applications. The integrated circuit which, during recent years has become the basis of modern digital electronics functions by making use of electron range. However, electronics also possess the quantum mechanical property of spin, which is responsible for magnetism. New “spintronic” technologies seek to make use of this electron spin. Some time in conjunction with electron charge, in order to achieve new types of devices. Several spintronic devices are currently being developed that outperform traditional electronics. Often this results from an increased functionality, which means that a single spintronic element performs an operation that requires several electronic elements. Different approaches to spintronics have been developed by semiconductor and magnetism properties. Although there have been some very impressive demonstrations of spin polarized charge transport and ferromagnetism in cooled semiconductors, the lack of reliable room temperature semiconductor ferromagnet has hampered their applications. Within the magnetism community considerable success has been achieved at room temperature by using common ferromagnetic materials such as $\text{Ni}_{81}\text{Fe}_{19}$. This approach offers the benefit of low power operation, non-volatile data storage and a high tolerance of both impurities and radiation.

A great success of electronics has been the ability to use group of transistors for performing the Boolean logic operations. Magnetic logic seeks to perform the necessary for a logic system with ferromagnetic metals to make use of advantages that these materials offer. One approach has been to use magnetic/non-magnetic/magnetic tri-layer structures known as

magnetic tunnel junctions (MTs). These have an electrical resistance that depends on the relative orientation of magnetization of the two magnetic layers, and are commonly used in magnetic random access memory (MRAM) logic gates made from MTs can perform logic operations such as AND, OR, NAND, NOR, XOR. Alternatively, MTs may be used to provide a switchable bias to CMOS transistors so that a logic gate may be capable of performing one of two logic operations, say logical AND and OR as desired.

TO PROVIDE AN ULTIMATE SECURITY TO BANK LOCKERS USING MULTI-MODEL BIOMETRIC SYSTEMS

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This paper improves the safety & security of bank lockers using multi-model biometric technology. Biometrics can provide a high level of security while eliminating the need to remember multiple passwords, PINs and need not carry identity proof & keys etc. Biometric is most foolproof technology which recognizes the identity of a person on the behalf of their physical biological traits such as finger prints, Iris etc. This paper is based on the multi-spectrum imaging technology which improves the image quality many times captured from the biometrics sensors. Multi-spectrum imaging technology is most efficient technology for liveness detection because it uses different images, different polarization conditions, different wavelengths, and different optical geometry. It also scans surfaces as well as sub surface features.

This system will reduce the misuse and fraud by stealing Keys, Passwords, PIN and ID proofs. If the working hand of a person is injured, then he does not capable sign properly. In such case, the person can use another finger or hand or foot finger prints which will increase convenience. However, as privacy issues & challenges are addressed. The purpose of this paper is to get information from multiple biometric sources to overcome limitations such as non-universality, noisy sensor data, large intra-user variations and susceptibility to spoof attacks that are commonly encountered in mono modal biometric systems.

Keywords: Biometrics, Fingerprint Scanner, Hand Geometry, Multi-spectrum Imaging, FAR, FRR, PINs.

ENVIRONMENTAL SOUND MANAGEMENT OF LACTOSE MOTHER LIQUOR THROUGH BACTERIAL FERMENTATION

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Lactose mother liquor is very high strength waste water generated by the lactose manufacturing milk plants. It is the residual liquor left behind after recovery of lactose from concentrated whey permeate. Due to its high strength, it is not easily amenable for treatment to meet the prescribed effluent standards. Every 10 liters of raw milk processed in the milk plant to produce lactose, generates 1 liter of lactose mother liquor. LML has high residual lactose (up to 15% or more), whey proteins (up to 8% or more) and milk minerals and the salts (as high as 7%) hence it can't be viewed as waste water. Instead it should be used as a resource or efforts should be made to recover byproducts and resources from it, and appropriate techniques should be developed for enhancing its recycling and reuse potential. Due to high lactose content (15% or more), LML was used as a base culture medium for the production of value added products using biochemical conversion process. The utilization of mother liquor as fermentation feed stock generates usable and valuable products while reducing waste disposal problem. The produced lactic acid can be used in the milk plant for curdling the skimmed milk in place of HCl.

Keywords: Lactic acid, Lactose Mother Liquor, Whey, Lactose, Fermentation.

SIMULATION AND COMPARISON OF SPWM AND SVPWM CONTROL FOR THREE PHASE R-L LOAD

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Pulse Width Modulation variable speed drives are increasingly applied in many new industrial applications that require superior performance. Recently, developments in power electronics and semiconductor technology have lead improvements in power electronic systems. A number of Pulse width modulation (PWM) schemes are used to obtain variable

voltage and frequency supply. The most widely used PWM schemes for three-phase voltage source inverters are carrier-based sinusoidal PWM and space vector PWM (SVPWM). There is an increasing trend of using space vector PWM (SVPWM) because of their easier digital realization and better dc bus utilization. In this paper first a model for Space vector PWM is made and simulated using MATLAB/SIMULINK software and its performance is compared with Sinusoidal PWM. The simulation study reveals that Space vector PWM utilizes dc bus voltage more effectively and generates less THD when compared with sine PWM.

Keywords: SVPWM, SPWM, THD.

IMPACTS OF URBANIZATION ON ENVIRONMENT

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Urbanization refers to general increase in population and the amount of industrialization of a settlement. It includes increase in the number and extent of cities. It symbolizes the movement of people from rural to urban areas. Urbanization happens because of the increase in the extent and density of urban areas. Due to uncontrolled urbanization in India, environmental degradation has been occurring very rapidly and causing many problems like land insecurity, worsening water quality, excessive air pollution, noise and the problems of waste disposal. This paper emphasizes on the effect of urbanization on environmental components mainly climate, biosphere, land and water resources. A case study of urbanization in India and metropolitan cities have been carried out leading to conclude on the existing causes of damage to the environment due to urbanization and preventive measures to keep a check on them. Although it is impossible to restrict urbanization it has to be ensured that urbanization proceeds in the right path causing minimum impact on environment.

CUSTOM POWER DEVICES FOR POWER QUALITY IMPROVEMENT: A REVIEW

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During Last decade power quality problems has become more complex at all level of power system. Recently, the Power electronics controllers are gaining concern to provide the quality of power for both power suppliers and consumers. Various power filtering technology i.e. passive filters, active power filters, hybrid filters have applied from time to time for giving the solution of power quality problems to users, But could not fully satisfied them. Now day's a new concept of custom power is used for customers' satisfaction. This paper present a comprehensive survey of custom power devises in distribution level. Classified references are also presented, would be very useful for researchers dealing with power quality problems.

Keywords: Custom power, Distribution Static Compensator (DSTATCOM), Dynamic Voltage Restorer (DVR), Unified Power Quality Compensator (UPQC).

RECENT TRENDS IN POWER CONVERTERS FOR WIND ENERGY CONVERSION SYSTEM WITH GRID INTEGRATION IMPACT

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This paper discusses trends of the most emerging renewable energy source, wind energy. The current status of wind energy and Wind Energy Conversion System (WECS) with different wind turbine generators with their technical features and converter topologies are presented in this paper. Grid integration of variable wind power is confronted with many challenges. These challenges and issues also summarized in this paper. The main focus of this paper is two main electrical aspects: 1) Different converter topologies for Permanent Magnetic Synchronous Generator (PMSG), emphasizing on advantages, and control techniques, 2) Issues and impact of wind energy integration into the grid.

Keywords: BDFIG (Brushless Doubly Fed Induction Generator), BDFRG (Brushless Doubly Fed Reluctance Generator), PECs (Power Electronic Converters), PMSG (Permanent Magnetic Synchronous Generator), Grid impact, Wind energy.

ADVANCEMENTS IN MICROWAVE BREAST IMAGING TECHNIQUES

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This paper outlines the applicability of microwave radiations for breast cancer detection. Due to high contrast in dielectric properties between normal and cancerous tissues this technique has received a significant attention from the researchers. This paper outlines the ongoing research going on in the field of microwave breast imaging techniques. The advantages and disadvantages of various techniques are discussed. The fundamental tradeoff is indicated between various requirements to be fulfilled in the hardware architecture of an imaging system for breast cancer detection.

Keywords: Component, Microwave Breast Imaging , Breast Cancer.

REUSE IN IRRIGATION: SECONDARY TREATED INDUSTRIAL EFFLUENT

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Untreated effluent generated from industries cause environmental problems like water and soil pollution. In the present work attempt has been made to study the parameters like Salinity, Residual Sodium Carbonate, Chloride, Organic loading, pH and Oil & grease were used to access the suitability of secondary treated effluent from dairy industry for reuse in irrigation. The secondary treated effluent is reused for eco-plantation site. The plants which are grown are Eucalyptus, Poplar, Teak and Jatropha. The high transpiration capacity of plants grown in soil matrix enables the system to serve as biopump. The plants transpire water equivalent of 7 to 13 times the potential evapo-transpiration from the soil matrix alone. Nutrients present in the water are used by the plants and partially retained in the soil matrix without affecting the soil eco. The suitability of effluent for irrigation purpose after primary and secondary treatment which involves Oil & grease trapping unit, Equalization tank, Aeration tanks (Activated sludge process), Secondary clarifier than reuse in irrigation. The excess sludge generated during treatment is dried at sludge drying beds.

Keywords: Industrial Effluent, Wastewater Treatment, Characterization, Land Disposal, Reuse for Irrigation.

DESIGN OF DIESEL ENGINE EXHAUST SYSTEM WITH OPTIMIZED SOOT TRAPPING CAPABILITY

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In the interest of both environmental pollution and health, the harmfulness of diesel exhaust emissions has been highlighted due to bad influence of its toxic components on the environment and human body. To improve the light of performance of diesel particulate filter two monolithic designs are studied. Both the designs have same dimensions of length 200 millimetres and width of 10 millimeters but the difference lies in the shape. Inlet velocity is taken to be 10 m/s and temperature of 340 Kelvin. An optimal design has been identified which captures the maximum particles. Much effort has been devoted to control the emission through the exhaust system of diesel engine. The flow distribution in the monolith has been widely investigated.

NUMERICAL STUDY OF EFFECT OF THERMOPHORESIS ON PARTICLES TRAJECTORY IN A RECTANGULAR MICRO-CHANNEL

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A numerical study has been presented in this paper to predict the micro motion of particles under the action of thermophoresis. A two-dimensional, incompressible and viscous fluid flow model is proposed to simulate the fluid flow and particle trajectory in rectangular micro-channel with a length of 2000 μm and a height of 500 μm . The governing equations are discretized by using finite volume method using second order upwind scheme. The coupling of velocity and pressure terms of momentum equations are solved by using SIMPLE algorithm. The effect of thermophoretic force on particles is calculated using Discrete Phase Model which works on lagrangian approach. The objective of this study is to examine the effects of particle size and temperature difference between bottom side and top side on particle trajectories in a micro-channel. It is found that thermophoretic force increases with the increase of temperature gradient in micro-channel. The results also show that particle with smaller diameter and smaller gravity acceleration can pass through the micro-channel more easily and thermophoretic force plays vital role in capturing such small particles.

Keywords: Thermophoresis, Particle Trajectory, DPM, Particles, ANSYS FLUENT.

EFFECT OF BOUNDARY CONDITIONS AND STIFFENERS ON THE NATURAL FREQUENCIES OF RECTANGULAR PLATE

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The present work is aimed at vibration analysis of the rectangular plate with angle shaped stiffeners. The rectangular thin plate is considered and its natural frequencies are simulated by modal analysis using FEA software. In all the previous work the plate with rib stiffeners and beams having rectangular cross section was considered, here the analysis is performed for the rectangular plates with angle shaped stiffeners. The rigid coupling condition is assumed between the plate and stiffeners. The modal analysis is performed for different thickness and angles of stiffeners. Also two sets of boundary conditions are considered, All edges free (FFFF) and all edges clamped (CCCC).

Keywords: Rectangular plate, Stiffeners, Boundary conditions, Dynamic analysis, FEA.

A FUZZY APPROACH FOR TASK SCHEDULING IN A REAL TIME DISTRIBUTED SYSTEM

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All practical real-time scheduling algorithms in distributed systems present a trade-off between performance and computational complexity. In real-time distributed systems, tasks have to be performed correctly and timely. The research till date on task scheduling has primarily focused upon computation time, laxity, priority etc. Further all existing task scheduling algorithms are based upon Boolean Arithmetic. Introduction of Fuzzy theory in scheduling algorithms can really make the study very interesting. Finding an optimal schedule in distributed systems, with real-time constraints is shown to be NP-hard.

Deterministic and reliable behavior is an important characteristic for system's robustness analysis. The intrinsic uncertainty in dynamic real-time systems increases the difficulties of scheduling algorithms. To alleviate these deficiencies, we have proposed a fuzzy scheduling approach to arrange real-time periodic and non-periodic tasks with reference to optimal utilization of distributed processors. The present piece of research has been simulated on *MATLAB 7.0.4 Mamdani Fuzzy Inference Engine* to evaluate the performance of the proposed methodology. Experimental results have shown that the proposed fuzzy scheduler creates feasible schedules for homogeneous and heterogeneous tasks.

Keywords: Fuzzy Scheduling, CPU Time, Laxity, Priority, Deadline, System Utilization, Feasible Schedule.

DESCRIBING LOG4UNIT LIBRARY & ADDRESSING ITS IMPLEMENTATION ISSUES

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This paper describes the Log4Unit Library and addresses issues experienced during its implementation. Log4Unit provides the capability of logging test results along with testing java classes. It provides the capability to log messages from within the testcase methods. It supplies extension to JUnit's TestCase class (LoggedTestCase). It has inbuilt logging functionality, based on Log4J framework, to document initial test settings, test case execution and results. Attractive feature of LoggedTestCase class is that it redirects the log messages to console if Log4J library is not present in the classpath at runtime. This makes it easy for users who do not want to download Log4J and put it in their classpath. LoggedTestCase instantiates a Log4J logger instance and implements utility logging methods such as info, debug, etc. Developer just needs to call the method in order to log messages according to required log levels. GUI of Log4Unit uses a customized Swing-based test runner that shows logged statements and test summary information in a dialog box. This work was prompted due to lack of published results concerning the implementation of Log4Unit. This paper portrays our experiences and lists benefits & limitations of Log4Unit & several recommendations are outlined for future work on it.

Keywords: Document test results, JUnit, Log4Unit, logging, Test protocols

LIQUEFACTION SUSCEPTIBILITY ASSESSMENT OF A SOIL DEPOSIT

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It is important for civil engineers to know whether the soil at the site is liquefiable or not under any seismic conditions, so that suitable methods can be adopted, if required before construction of any building or any other project. Recently a lot of research has been done in this regard. In the past, number of investigators made their investigations in this field and developed various methods to assess the proneness of soil deposit to liquefaction at various depths. Out of these methods the cyclic stress approach is most commonly used. In this paper the cyclic stress approach has been discussed.

AN EXPERIMENTAL INVESTIGATION ON THE FRESH PROPERTIES OF SELF-COMPACTING CONCRETE CONTAINING FLY ASH, SILICA FUME AND LIME POWDER

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Self compacting concrete (SCC) is an innovative development of conventional concrete, which requires high binder content to increase its segregation resistance. This paper presents a comparative study on the use of different materials as binder content in SCC and their effects on the workability properties are checked. Different combinations of fly ash, silica-fume and lime powder are used with keeping percentage of OPC constant at 70% of total binder content. Fly ash content is varied from 0 to 30% and silica-fume and lime powder content are varied from 0 to 15%. Water to binder ratio was maintained at 0.41%.

Workability tests like V-funnel test, Slump flow test, L-box test and J-Ring test were executed and effects of different combinations of binder content is checked.

VIBRATION CHARACTERIZATION OF C-C-C-C VISCO-ELASTIC SQUARE PLATE WITH VARYING TEMPERATURE

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Visco- Elastic Plates are being increasingly used in the aeronautical and aerospace industry as well as in other fields of modern technology. Plates with variable thickness are of great importance in a wide variety of engineering applications i.e. nuclear reactor, aeronautical field, naval structure, submarine, earth-quake resistors etc. A mathematical model is presented for the use of engineers and research workers in space technology; have to operate under elevated temperatures. In this paper, the thickness and thermal effect varies parabolic in one direction and plate is C-C-C-C (Clamped on four edges). Rayleigh Ritz method is used to evaluate the fundamental frequencies. Both the modes of the frequency are calculated by the latest computational technique, MATLAB, for the various values of taper parameters and temperature gradient.

Keywords: Visco-elastic, Square plate, Parabolic, Thermal gradient, Taper constant.

AN ANALYSIS OF OPTIMUM WORKING CONDITIONS OF HCCI ENGINES

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The time when fuel cells are ready for significant use seems to be far off. Therefore it is necessary to find alternative fuels to be used in the standard internal combustion engine to

bridge this gap. Simultaneously it is necessary to improve the combustion engine in terms of fuel efficiency and emissions. The necessity to further improve the conventional internal combustion engine is the main challenge scientists and engineers now face. The homogenous charge compression ignition (HCCI) is a promising new engine technology that combines elements of the diesel and gasoline engine operating cycles. As a way to increase the efficiency of the gasoline engine, the attractive properties are increased fuel efficiency due to reduced throttling losses, increased expansion ratio and higher thermodynamic efficiency. The implementation of homogenous charge compression ignition (HCCI) to gasoline engines is constrained by many factors. The main drawback of HCCI is the absence of direct combustion timing control. Therefore all the right conditions for auto ignition have to be set before combustion starts. This paper investigates the past and current research done and considerable success in doing detailed modeling of HCCI combustion. This paper aims at studying the fundamentals of HCCI combustion, the strategy to control the limitation of HCCI engine and finding optimum operating conditions for HCCI engine operation, work on the combustion timing and the engine operating zone for HCCI engines. Four main areas of timing control were identified in an investigation of the available literature: thermal control through exhaust gas recirculation (EGR), variable compression ratio (VCR), variable valve timing (VVT), fuel injection systems and fuel mixtures or additives. To investigate HCCI Combustion Process a detail CFD (Computational Fluid Dynamics) approach will be used to limit the drawback of HCCI Engine.

Keywords: HCCI, Diesel Engine, Combustion, VVT, Fuel Injection, CFD.

VISUALIZATION OF FLOW BEHAVIOR AND ITS EFFECTED CONTOUR IN SUDDEN CONTRACTION, SUDDEN ENLARGEMENT AND SUDDEN ELBOW BY ANSYS

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This paper describes an analytical approach to describe the areas where Pipes (used for flow) are mostly susceptible to damage. Their basic contours are discussed to know pressure values

and velocity values at various sections of the pipe. ANSYS 13 software was used to plot the characteristics of the flow. Numerical simulations of the flow past pipes of various geometries were performed. Comparisons were made with the experimental and computational results presented in various studies previously. Paper tries to visualize the flow behavior in various geometric conditions of a pipe.

CURRENT TRENDS AND REASERCH ISSUES IN BLUETOOTH COMUNICATION

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Bluetooth is a recently proposed protocol for local wireless communication and has become a de facto standard for short-range ad hoc radio connections. Security concern is one of the most important problems delaying the mass adoption of Bluetooth. This article provides a study on the security issues behind the Bluetooth standard. After a overview of the general Bluetooth protocol, a security framework is introduced for the description of the Bluetooth security layout. Then both link-level and service-level security schemes are discussed in detail on the basis of the framework. Some weaknesses of the Bluetooth security strategies are analyzed, together with potential risks and possible attacks against the vulnerabilities. Corresponding countermeasures are also proposed in order to improve the Bluetooth security.

Keyword: Bluetooth, E0, E1, E2, E3, Key Stream, Data Transmission.

TECHNOLOGICAL ASPECTS OF NANO ELECTRO MECHANICAL SYSTEMS

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Nanotechnology allows the materials to be built up atom by atom. One of the advancement using nanotechnology is in the field of electromechanical systems called “Nano Electro

Mechanical System (NEMS)”. NEMS are characterized by small dimensions, where the dimensions are relevant for the function of the devices. Critical feature sizes may be from hundreds to a few nanometers. Due to nanometer dimensions, and the use of light materials, the devices achieve performance in terms of speed, sensitivity and versatility that challenges or surpasses the limitations of technological achievement to date. The possibility of simple, low cost fabrication, made possible by developments in Nano Imprint Lithography (NIL). NEMS consume only little energy, this will allow continuous monitoring of all the important functions in hospitals, in manufacturing plants, on aircrafts, or even within the human body. This paper first discusses the manufacturing aspects of NEMS considering the latest trends in miniaturization. Also it focuses on materials used for nanoscale components. Further it reviews the current applications in the military, defense, space, medical, & engineering. The paper also gives the various design aspects like modeling, characterization, simulation, and control for some of the applications. It also focuses on the packaging aspects nanoscale systems and its components. The paper finally gives the environmental impacts of Nano Electro Mechanical Systems.

Keywords: Nanotechnology, Nano Electro Mechanical Systems, NEMS, micromachining, nano imprint lithography.

WEB SCRAPING AND IMPLEMENTATION USING PROLOG SERVER PAGES IN SEMANTIC WEB

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Web scraping is a process of extracting useful information from HTML pages. Web scraping is implemented with powerful string matching operations. Scraping can be performed in various ways. In this paper scraping is performed as text grepping which was originally performed for UNIX. Prolog Server Pages (PSP) is a scripting language that can be embedded in HTML with some changes. PSP is based on a language known as ‘Prolog’. This paper attempts to establish a technique to scrap HTML pages and utilize it as per the requirements of the data and its data type. Further it tries to overcome the disadvantages of ‘XML user defined tags’ problem in semantic web.

Keywords: Prolog Server Pages, Prolog, Semantic Web, Weather Forecasting.

SOLAR RESOURCE ASSESSMENT BASED ON SATELLITE DATA

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Detailed information about solar radiation availability at any location is essential for the design and economic evaluation of solar energy systems. Satellite data is used by researchers to estimate solar radiation where long term measured data are not available. This paper reviews the HELIOSTAT method, the DLR method for direct normal irradiance and a method based on physical modeling which relates the satellite derived earth atmospheric reflectivity from visible channel of geostationary satellite to the transmissivity of the atmosphere to map solar radiation in tropical environment. It is observed that both HELIOSTAT method and DLR method provides comparable results for computing direct and global irradiance with high temporal and spatial resolution. Whereas the third method based on physical modeling is useful for mapping solar radiation in tropical environment characterized by high spatial and temporal variability in humidity and high levels of aerosols.

Keywords: Solar radiation mapping, Satellite data.

WEB CONTENT MINING TECHNIQUES – A COMPREHENSIVE SURVEY

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The World Wide Web (WWW) is rich source of information and continues to expand in size and complexity in order to get maximum details on-line. However, it is becoming challenging task to retrieve the required web pages/information very effectively and efficiently on the web. The paper contains techniques of web content mining, review, various algorithms, examples and comparison. Web mining is one of the well-know technique in data mining and it could be done in three different ways (a)web usage mining, (b)web structure mining and (c)web content mining. Web usage mining allows for collection of web access information for web pages. Web content mining is the scanning and mining of text, pictures and graphs of web page to determine relevance of content to the search query. Web structure mining is used to identify the relationship between the web pages linked by information. The paper presents various examples based on web content mining techniques in detail, results and comparison to extract necessary information effectively and efficiently.

Keywords: Data mining, web mining, web content mining, web structure mining, web usage mining, clustering, segmentation.

SOFTWARE CLONING IN EXTREME PROGRAMMING ENVIRONMENT

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Software systems are evolving by adding new functions and modifying existing functions over time. Through the evolution, the structure of software is becoming more complex and so the understandability and maintainability of software systems is deteriorating day by day. These are not only important but one of the most expensive activities in software development. Refactoring has often been applied to the software to improve them. One of the targets of refactoring is to limit Code Cloning because it hinders software maintenance and affects its quality. And in order to cope with the constant changes, refactoring is seen as an essential component of Extreme Programming. Agile Methods use refactoring as important key practice and are first choice for developing clone-free code. This paper summarizes my overview talk on software cloning analysis. It first discusses the notion of code cloning, types of clones, reasons, its consequences and analysis. It highlights Code Cloning in Extreme Programming Environment and finds Clone Detection as effective tool for Refactoring.