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Dr. Abhishek Singh  
Associate Professor, Department of Mathematics, African Institute for Agrarian Studies, Amity University, Noida- 201304. (U.P). India.
Abstract: Wireless communication has become an essential part of our day to day life. Printed antennas are leading technology for these wireless systems. With the ever growing demand of higher data rate and larger channel capacity, Multiple Input Multiple Output (MIMO) technology finds its place among various existing wireless technologies. Like other technologies this also has limitations due to system size and space related issues. Fortunately researchers are successfully find way to address these problems. Lot of intense research work is done and lot more is yet to be done. This survey is mainly aimed towards summarizing various isolation techniques used in MIMO systems. To the best of author’s knowledge this kind surveys are very few and more need to be carried out. The focus of present survey is on categorization of various isolation techniques.

Keywords: Channel Capacity, Decoupling Structures, Isolation, Multiple Input Multiple Output, Mutual Coupling, Wireless Communication.

References:
Abstract: Construction joints cannot be avoided in any type of construction when the size of a structure is too large or construction is carried out in stage-by-stage. As construction is made on stages, joints between concretes are formed and these interfacial joints play a major role in overall efficiency of the structural system which take part in transferring loads and stresses from one section to other section. Shear stress transfer mechanism between two concrete layers is a complex phenomenon. Several parameters like roughness of interfaces, dowel action due to aggregates used, compression resistance of weaker concrete and reinforcement crossing the interface influence the shear transfer mechanism. Performance of the joints should be studied since the sections connected by the joints may be of different properties. Concrete layers having difference in aggregate types, cement content and water cement ratio should be analyzed for interface shear. This paper reports tests in which direct shear forces are applied across the High Strength Concrete joints between concretes forming a composite action. Push-off specimens are used for experimental study. Specimens were cast with Manufactured sand (M sand) and river sand as fine aggregates. Surface textures are varied by imparting smoothness and roughness at interface and shear transfer mechanism is studied. Also effect of variation in shear transfer capacity due to fine aggregates used at interface is studied.

Keywords: Construction joints, Dowel action, High Strength Concrete, Push-off, Shear transfer.

References:

Authors: Sheeba Jeba Malar J, Jayaraju M.

Paper Title: Voltage Profile Improvement of Distribution System using Dynamic Evolution Controller for Boost Converter in Photovoltaic System

Abstract: The existing electrical network faces problem for control and operation, since the power flow from the PV system is inconstant and hence there will be voltage fluctuation in the AC grid. This study focuses on the analysis of PV system connected to the utility grid through boost converter whose duty cycle is generated by Dynamic Evolution Controller (DEC) that applies the control law which is a function of input voltage, output voltage and inductor current, that generates a control signal which will be applied to the boost converter in such a way that it takes the voltage to a value which will operate the PV at its maximum power. The constant DC voltage thus obtained is converted to AC by using an inverter before connecting to the grid. To check the voltage variation due to the injection of PV and the effect of DEC, load flow analysis is done on IEEE 33 bus radial distribution system by connecting it in the weaker bus. The simulation is done using MATLAB/SIMULINK and the results shows that there is considerable improvement in system voltage profile at the terminal nodes in the radial distribution system than the rest of the nodes.

Keywords: Radial distribution system, Photo Voltaic source, Dynamic Evolution Controller, Boost converter, duty cycle.

3. References:

Authors: Rakesh Prajapati, Mitul Gandhi, Purvik Patel, Saurabh Modi

4. Paper Title: Fixturer Modification of a 5- Axis CNC Machine (Makino)

Abstract: Now a day’s many industries use CNC machines for the production of turbo machinery components like turbine blades, impellers, rotors, propellers etc, minimum workpiece deformation due to clamping and cutting forces is
essential to maintain the machining accuracy. Fixtures are work holding devices designed to hold, locate and support work pieces during manufacturing operations. Fixtures provide a means to reference and align the cutting tool to the workpiece but they do not guide the tool. The L&T – MHPS Turbine Generators Pvt Ltd company is design and manufacture turbine blade parts. Many of the parts required sophisticated fixturing in order to be machine. L&T-MHPS Company Pvt Ltd, Hazira was used fixture (MAKINO) brand and L&T Company is recently used to 4-axis CNC fixture machine. This fixture is movement of spindle and chuck rotate on x, y and z direction the motion of cutting tool A and B is spindle motion. We are design and modification of 5-axis fixture system which would eliminate the need for different fixture for each machine.

Keywords: Fixture, LM Guide ways, Lead Screw, Plates, Carriage, Bed

References:
5. Balaji Badavath & Dr. S. Chakradhara Goud, “ DESIGN OF A MULTI PURPOSE FIXTURE FOR 4-AXIS CNC MACHINE”, AJREAS VOLUME 1 ISSUE 4 (2016, April) (ISSN-2455-6300).
10. Introduction to Computer Numerically Controlled (CNC) Machines,” Version 2 EE IIT, Kharagpur”.

Authors: M. I. Youssef, A. E. Emam, M. ABD Elghany

Paper Title: Performance Evaluation of MIMO-OFDM Communication Systems

Abstract: This paper evaluates the bit error rate (BER) performance of MIMO-OFDM communication system. MIMO system uses multiple transmitting and receiving antennas with different coding techniques to either enhance the transmission diversity or spatial multiplexing gain. Utilizing Alamouti algorithm were the same information is transmitted over multiple antennas in different time intervals and then collected again at the receivers to minimize the probability of error, combat fading and thus improve the received signal to noise ratio. While utilizing V-BLAST algorithm the transmitted signals are divided into different transmitting channels and transferred over the channel to be received by different receiving antennas to increase the transmitted data rate and achieve higher throughput. The paper provides a study for different diversity gain coding schemes and spatial multiplexing coding for MIMO systems. A comparison of various channels estimation and equalization techniques are given. The simulation is implemented using MATLAB and the results had shown the performance of transmission models under different channel environments.

Keywords: Alamouti, BER, Channels, MIMO communication, Space Codes, V-BLAST.

References:

Authors: Eed A. Abdel-Hadi, Sherif H. T., Ahmed S. K., A. A. Al-Shafai

Paper Title: The Influence of Natural Gas Velocity on Hot Tapping Process

Abstract: The paper presents a numerical modeling of an arc welding as a heat source for the in-service natural gas pipeline at operating pressure 45 bar and 2 m/s velocity to allow predict peak temperature and cooling rate at specific points. Taking in to consideration all boundary conditions of fluid properties, ambient condition, and material specifications to achieve a sufficient model for the influence of natural gas velocity on the welding process to prevent the risk of hydrogen induced crack and burn through risk. Experiments were carried out on the national natural gas transmission pipeline in Egypt, during a hot tapping process for new branch execution, measurements and boundary conditions were recorded and then compared with numerical modeling analysis, furthermore, changing of natural gas velocity from 2 m/s to 20 m/s in numerical modeling were carried out to predict the risk of hydrogen induced crack and burn through; and to precise the safe range of gas velocity during hot tapping process.

Keywords: hot-tapping process, velocity influence in-service welding, natural gas

References:


Authors: Poornaa Pathak, Sunil Kumar Singh

Paper Title: Isolation Enhancement in a Printed UWB-MIMO Antenna System

Abstract: UWB printed antennas are essential part of most of the wireless portable devices. Due to the induction of 4G and upcoming 5G technologies, the demand of higher data rate and larger channel capacity has become a serious issue. Multiple Inputs Multiple Output (MIMO) technology find its place among various existing wireless technologies as a solution to various short comings of UWB like multi path fading. The isolation performance of a previously proposed UWB-MIMO antenna is improved using meandered line parasitic monopole and a reflector composed of hexagonal ring cells. The proposed antenna works over 3.1-10.6GHz band with mutual coupling less than -21 dB. All simulations are done in ANSOFT HFSS 13.0.

Keywords: Isolation, Multiple Input Multiple Output, Mutual Coupling, Ultra Wide Band, Wireless Communication.

References:

Abstract: In this paper a PV array mathematical model with different MPPT techniques in a standalone mode is validated. The array current characteristics are highly non-linear as they depend on irradiation and temperature. Therefore it is important to extract the optimum possible power from PV panels with control algorithms. The total efficiency of photovoltaic generation conversion is reduced due to partial shading. PV array along with buck converter and MPPT controller are simulated in MATLAB/Simulink environment. When climatic conditions vary, the parameters of capacitance and inductance of DC-DC converter will change to attain optimal efficiency. The effect of climatic conditions on design of two elements (inductance, capacitance) for buck topology is also discussed. This paper presents different MPPT techniques like Perturb & observe, Incremental conductance, Fractional open circuit voltage, Constant current and intelligent control methods to extract the optimum power from PV panel. This paper proposes differential power converter to overcome the PV partial shading problem along with INC control algorithm.

Keywords: Maximum Power Point Tracking (MPPT), Perturb & Observe (P&O), Incremental Conductance (INC), Fuzzy Logic Controller, partial shading, Differential power converter.

References:
13. N. Bhushan Kumar, Sr. Assistant Professor, Department of EEE, Sir C R Reddy College of Engineering, Eluru “Fast tracking of the maximum power point of pv arrays using fuzzy logic controller” IJERIA2012-13 ISSN: 2248-9278/Sept-Oct 13/Vol-2/Issue-1/Pg.1439-1444.
14. N. Bhushan Kumar, Sr. Assistant Professor, Department of EEE, Sir C R Reddy College of Engineering, Eluru "Advanced Fuzzy Logic Controller for Tracking the Maximum Power Point of PV Arrays" (IJERT) ISSN: 2278-0181 Vol. 2 Issue 11, November – 2013.
References:


Authors: Y. N. S. Mounika, J. Ayyappa, S. N. V. Bramareswara Rao

Paper Title: Modeling And Design of Hybrid Control Strategy for Power Quality Improvement in Grid Connected Renewable Energy Source

Abstract: The demand for power is growing rapidly due to fast depletion of fossil Fuels. Under such conditions environment friendly and pollution free Renewable Energy Sources (RES) have emerged. In this paper a new control strategy for 3 phase 4 wire inverter is introduced for effective utilization of renewable energy source with grid. In the proposed control strategy load current (i.e reduce harmonics), load voltage (i.e reduce harmonics) are compensated using Shunt Active Power Filter(SAPF). The Renewable Energy Source used in this paper is Wind of capacity 1.5MW. The main objective of this paper is nonlinear unbalanced load compensation for power quality improvement. All these works of the inverter is done either individually or combined to overcome the unbalanced effects of nonlinear loads at distribution level. This new hybrid control strategy is simulated in MATLAB/Simulink and compared the results at different times with existing methods.

Keywords: Renewable Energy Sources, Wind energy, Active Power Filter, Nonlinear loads, Power quality.

References:


Authors: K. Geetha Sai Sree, M. Sunilkumar, Ch. Prasanna Lakshmi

Paper Title: Control of a Grid Connected Wind Energy Conversion System using Sliding Mode Control (SMC)

Abstract: As the penetration of the wind energy is increased day by day in modern power systems all over the world, the Wind Farm Systems (WFS) are today required to participate actively in electric network operation by an appropriate generation control strategy. The paper deals with the extraction of maximum power using various techniques in permanent magnet wind energy conversion systems. The various techniques include PI control, SMC control and neural control to extract maximum power from the turbine. The d axis current is set to zero to reduce copper loss and the q axis current is varied to extract maximum power. Out of the two loops PI controllers are employed in current loop and the speed controller is varied according to the controller used. A sliding mode control strategy is used to regulate the output voltage and frequency of the grid. The active and reactive powers injected to the grid are controlled by controlling the d and q axis currents. Results are verified using Matlab/Simulink environment.

Keywords: Permanent Magnet Synchronous Generator (PMSG), Model Reference Adaptive System (MRAS), estimated speed, optimum speed, Sliding Mode Control (SMC), PI Control, Neural Control, PMSG Power With
Various Controllers.

References:
8. Weiliang Liu et al. “Simulation of PMSG wind turbine system with sensorless control strategy based on model reference adaptive system”.

Authors: P. Sathvik, A. Srinivasa Reddy, B. Sambasiva Rao

Paper Title: Simulation of Shunt Active Power Filter with Pi and Fuzzy Logic Controller

Abstract: In this paper the main objective is to improve the performance of shunt active power filter using PI controller and Fuzzy logic controller. Generally shunt active power filters are used to compensate load harmonic currents and reactive power which are produced by non-linear loads by using different controllers. In PI controllers the complexity is more because it requires mathematical model whereas, Fuzzy logic controller does not require a mathematical model it is based on linguistic variables. Hence, this paper proposed control approach and analysed by simulations.

Keywords: Shunt Active Power Filter, PI controller, Fuzzy logic controller, Hysteresis controller, Total Harmonic Distortion.

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2. Dayi Li, Jun Tian, “ A Novel Active Power Filter for the Voltage-Source Type Harmonic Source”.

Authors: Basavaraj S. Hasu, S. Mohan Kumar, Chiranjeevi V.

Paper Title: Experimental Investigation for Optimum Process Parameters in Wire Cut EDM Process using Taguchi Method

Abstract: The intention of the prevailing paintings is to investigate the results of the numerous Wire lessen EDM machine parameters on the surface high-quality, most material elimination fees and achieve the most useful devices of technique parameters just so the super and MRR of machined additives may be optimized. Experiments are accomplished on the Aluminum alloy 7075 portions by using various parameters. The system parameters several and their respective values are Pulse Time on - 102µsec, a hundred and five µsec, 114 µsec & Pulse Time off – fifty-three
μsec, fifty-five μsec, fifty-seven μsec & Input Current - zero.5Amp, 1.1Amp, and 1.8Amp. Other parameters are saved constantly along with Wire Dia - zero.25mm, Wire feed – 8.4mm/mini, Servo Voltage – 20V, Coolant is Distilled water, Wire Tension – 7Kgf. The optimization is finished by way of the usage of Taguchi method considering L9 orthogonal array. Optimization is done in Minitab software program.

Keywords: EDM, MRR, 7075 portions, 102μsec, 114μsec, Wire Tension – 7Kgf.

References:
2. Performance Analysis of Wire Electric Discharge Machining (W-EDM) by means of manner of Atul Kumar, DR.D.K.Singh
3. Analysis of Process Parameters in Wire EDM with Stainless Steel Using Single Objective Taguchi Method and Multi Objective Grey Relational Grade via M. Durairajub, D. Sudharsanau, N. Swamyuthan
4. Optimization of technique parameters of micro-cord EDM via Ricky Aguarral
5. A Study to Achieve a Fine Surface Finish in Wire-EDM with the aid of the use of J.T. Huang, Y.S. Liao and Y.H. Chen

Authors: Diuha Sacko, Alpha Amadou Keïta

Paper Title: Techniques of Modulation: Pulse Amplitude Modulation, Pulse Width Modulation, Pulse Position Modulation

Abstract: The modulation technique aims at adapting the frequency band of the informative signal to that of the transmission channel. This avoids a great attenuation of certain frequencies on the transmission channel and also reduces the effects of the noise. In addition, the modulation technique, which requires a transposition of the low frequencies towards the high frequencies, is used during the transmission of the informative signal (or useful signal) on long distances: the narrow band transmission. There are several types of modulation according to the nature of the informative signal (analogical or digital) and that of carrier signal (analogical or digital). In fact, the type of modulation to choose depends of practical application. In the transmission in baseband, i.e. on short distances, any frequency transposition is needed. This type of transmission utilizes copper wire, coaxial cable, the twisted pair or optical fiber as physical support; to transport pulse trains. In this article, we consider the narrow band transmission. We choose an informative signal of low frequency analogical nature (for example the human voice) and a carrier signal of high frequency digital nature (for example the clock signal). For frequency transposition, we use modulator with adapted sensitivity. Indeed, we simulate signals modulated in amplitude (PAM, Pulse Amplitude Modulation), in width (PWM, Pulse Width Modulation) and in position (PPM, Pulse Position Modulation). On an illustrative basis, we simulated the case of an audio informative signal. We analyze obtained results from simulation and recall advantages, disadvantages and applicability of each type of modulation. The modulation software used is ISIS from proteus. Let us mention that obtained results from simulation are little different from those of the real world and also because of the performance of the utilized software and other environmental parameters. PAM, PWM and PPM modulations are particularly employed for the analogical transmissions of the signals on optical fibers, in remote control IRE or telemetry.

Keywords: Modulation, PAM, PWM, PPM, Simulation

References:
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9. Wayne TOMASI « Electronic Communications
11. Robert DUBOIS : Structure et applications des émetteurs et des récepteurs, Presses polytechniques et universitaires romandes

Authors: D. Tulasi Phani Swamy, T. Kranti Kiran

Paper Title: Effective Utilization of Renewable Energy Sources To Generate and Control Power in Ac Isolated Micro Grid

Abstract: This paper presents new technology to regulate the power from energy resources existing on our 109-113
requirements in micro grid (or) load balances. Power control by using battery banks in existing power electronic converter is employed to form AC grid GFC (grid former converter), associate energy source supported to a wind turbine and solar energy. To generate the power with its respective power electronics converter GSC (grid supplier converter) and therefore utilizes of this proposed strategy is to generate the power from wind turbine (WT), photovoltaic (PV) generation and to regulate the power distributed through battery banks by keeping the ESS from over charge (or) over discharge conditions through regulating the voltage terminals by controlling the power generated by wind and solar. This is done without using dump loads or any physical communication among the power electronic converters or the individual energy source controllers. The electrical frequency of the micro grid is used to inform the power sources and their respective converters about the amount of power that they need to generate in order to maintain the battery-bank charging voltage below or equal its maximum allowable limit. The primary merit for proposal method is to make the generated power at normal cost for military purpose and development progress.

Keywords: Battery Banks, Power Electronics Converters, Controllers, Renewable Energy Sources (RES’S), State of Charge (SOC).

References:

Authors: Sharmishta Chakraborty, Utpal Bhattacharjee

Paper Title: Review of Jets in a Cross Flow-Experimental and Numerical Approach

Abstract: A literature review was performed on experimental and numerical studies of open channel and open channel with cross flow. Open channel flow was studied because it was used to obtain the flow behaviour without any impingement. Open channel with a jet flow was studied to see the mixing behaviour of fluids in a cross flow situation. In addition, it has been used to validate the numerical model with experimental data. Both turbulent and laminar jets in cross flow were studied so that basic insight into such structures can be gained and by that, correlation of jet trajectories can be understood in both the cases. Finally, in this section some basics of computational fluid dynamics (CFD) and earlier work of the transverse jet by the CFD analysis have been discussed. This can provide insight on the modelling procedures and techniques to obtain accurate results.

Keywords: Open Channel, Cross Flow, Jet Trajectories, Transverse Jet, CFD.

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Visible light communication is a hot and novel area of research in indoor wireless applications. In VLC, information is transmitted using LEDs; therefore unipolar signals are used. OFDM technology is used in wireless communication very efficiently for data transfer, however, in VLC OFDM cannot be directly applied, due to unipolar nature. The VLC counterpart of OFDM is known as O-OFDM where only positive part of time domain signal is transmitted. However, O-OFDM also suffers from PAPR. This paper discusses PAPR reduction technique based on non-linear companding scheme, along with clipping schemes.

Keywords: VLC, OFDM, and PAPR.

References:

Authors: Ramesh Kumar A, Jayabal S, Ramkumar P, Daniel Lawrence I

Paper Title: Investigation of Indoor Air Quality Characteristics in Automotive Compartments

Abstract: Indoor air quality is an indicator level of human comfort confined with thermal conditions. This study mainly focuses on to predict the indoor air quality in inside car cabin at the time of traffic. Three different car has been used were SUV, sedan and hatchback types, mainly chosen is to differentiate the vehicle inside space diversely. To measure PM 2.5, PM 10, CO2, temperature and RH were recorded by using IAQ monitor with Data Acquisition (DAQ). At the time of measurement, four different cases are concern window open (WO), window half open (WHO), window close (WC) and air conditioning with window close (ACWC). SUV achieved a better low temperature of 30ºC in ACWC and hatchback has a more temperature of 42.8ºC in WC due to vehicle space difference and severe concentrations of CO2 and particulate matter. RH are increased by the way of temperature get increased in indoor cabin. Hatchback indoor cabin rapidly generate CO2 emission, because indoor spaces is congested compared to other two cars. Windows and indoor spaces more in SUV, so outdoor pollutant easily get exposure to indoor pollutant while in the cases of window open (WO) and window half open (WHO).

Keywords: automotive, car cabin, IAQ, pollutant.

References:

Authors: M. Sghiar

Paper Title: The Mertens Function and The Proof of The Riemann's Hypothesis

Abstract: I will prove that $M(n) = O(n^{1/2+\epsilon})$ where $M$ is the Mertens function, and I deduce a new proof of the Riemann's hypothesis.

Keywords: Prime Number, number theory, distribution of prime numbers, the law of prime numbers, the Riemann hypothesis, the Riemann zeta function, the Mertens function.

References:
Abstract: Big data analytics is rapidly expanding in various fields and it has started to play a crucial role in Medical field. It is providing various tools to store, manage, analyze, and assimilate massive data sets of disparate, structured, and unstructured data produced by current Medical systems. Big data in medical field can build better health profiles and predict outbreaks of epidemics, Clinical decision support for patients with accurate diagnosis and can build novel treatment for diseases. This paper provides Big Data concepts and its characteristics used in Medical field. This paper also reviews the analysis of Big Data Analytics in Medical Field.

Keywords: Medical field, Diagnosis, Clinical decision support, Big Data Concepts, Big Data Analytics.

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J. Archanaa1 and E.A. Mary Anita A Survey Of Big Data Analytics in Healthcare and Government


In this work, one critical geodetic issue in Egypt is discussed. The dynamic nature of the International Terrestrial Reference Frame (ITRF) as a geodetic datum, while the Global Positioning System (GPS) network in Egypt is tied to a static datum (ITRF94 epoch 1996) is considered a very critical geodetic issue. Tying any derived ITRF coordinates to the Egyptian network cannot be directly applied due to the effect of the tectonic motion of the African plate, in addition to the datum definition change from one ITRF realization to another. The simplest solution for this problem is neglecting the effect of the datum definition change and using a Plane Motion Model (PMM) for the backward propagation of coordinates until the specified epoch of the static datum. However, the most opportune solution is applying the 14-parameter datum transformation. Assessment the quality of both solutions based on recent Global Navigation Satellite System (GNSS) observations will be presented in this study. In addition, a new set of 14 parameters is derived to describe the transformation process of the African plate in a better way. Four stations of the Egyptian network were used in the assessment by comparing the transformed coordinates to the known coordinates, tied to ITRF94 epoch 1996. Also, 5 different PMM(s) were used to assess the compatibility of the recent PMM(s) with the actual tectonic plate motion in Egypt. This study shows that using the derived parameters in the 14-parameter transformation model gives the best results among all approaches. In addition, using PMM: APKIM2005D or ITRF2008-PMH as the adopted PMM gave the best results, while using NNR-MORVELS6 and PB2002 gave the worst results. For the horizontal component differences, the 14-parameter transformation model with the derived parameters approach could reach to 1.3cm with Root Mean Square (RMS) 3.1cm in case of using APKIM2005D and 1cm with RMS 2.3cm in case of using ITRF2008-PMH. On the other hand, for the vertical component differences, they ranged from 0.8cm to 10.9cm with RMS 8.6cm. Generally, using the derived parameters in the 14-parameter transformation model adopting APKIM2005D or ITRF2008-PMH as the used PMM can be applied to any recently derived coordinates, tied to the latest ITRF realization, to tie them to the Egyptian static datum.

Keywords: Datum Transformation, Dynamic Datums, GNSS, ITRF, Plate Motion Models, Static Datums.

References:

Authors: V. B. Chandra Lekha, A. Surya Prakasa Rao

Paper Title: Multiobjective Transmission Pricing Using MW-MLE Method

Abstract: With regards to focused power markets, transmission settled expenses ought to be reasonably allotted to transmission clients. A sensible assignment technique could prompt effective uses of existing transmission offices and in the meantime, give financial signs to controlling future era arranging and load sitting. The proposed technique considers the active power flow in the network and power factor with loss cost and it is the first pricing strategy to consider the real network conditions and power flow in the network. MW mile method is a simple method useful to cover the total transmission system cost among all network users. The main objective of this paper is to provide cost economically to the customers by considering not only the active power flow but also the power factor with loss cost. The paper proposes the multi objective MW-Mile method which gives solution to transmission pricing with power factor and loss cost. The proposed technique is tested on IEEE-24 Bus system and it is simulated using MATLAB software.

Keywords: Cost Allocation on Transmission, MW Method, MW Power Factor, Loss Calculation.

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Authors: Rohaya Alias, Anuar Kasa, Siti Jahara Matlan

Paper Title: Comparison of ANN and ANFIS Models for Stability Prediction of Cantilever Reinforced Concrete Retaining Walls

Abstract: Artificial Neural Network (ANN) and Adaptive Neuro-Fuzzy Inference Systems (ANFIS) models are used to predict the external stability of cantilever reinforced concrete (RC) retaining walls. A total of 235 different designs of cantilever RC retaining walls using procedure of BS: 8110 were used. Three input parameters were used namely: height of wall, angle of slope, and surcharge, while the output parameters consist of the external stability namely: factors of safety (FOS) for sliding, overturning and bearing capacity. The output data generated through design is used as a target for both models. Two criteria involving the determination coefficient (R2) and root mean square error (RMSE) were used to evaluate the accuracy of prediction models. The results showed that prediction made using ANFIS more accurate compared with ANN.

Keywords: Adaptive Neuro-Fuzzy Inference System (ANFIS), Artificial neural network (ANN), Retaining wall, Stability.

References:

Authors: Amit Kumar Chouksey, Mayank Namdev

Paper Title: An Analysis of User Behavior using Closed Set of Agglomerative Approach with GRC Constraints

Abstract: In the current scenario every Organization need to understand their customers' behavior, preferences and future needs which depend upon past behavior. Web Usage Mining is an active research area in which customers session clustering is done to find out the customer’s activities. It investigates the problem of mining frequent pattern and especially focuses on reducing the number of rules using closed pattern technique. It also reduce scans the size of the database using Agglomerative clustering technique using partial database scan. It is perform by Profile based Closed Sequential Pattern Mining with Agglomerative Clustering. It searches the next request page in advance using only partial web data not in whole web data. There is an advantage to no need take input as number of cluster. So it utilized a personalized weighted recommendation system based on user's interest with less execution time.

Keywords: Web Usage Mining, Prefix Span, Gap, Recency, Compactness, Data Stream, Closed Pattern, Data Mining, Personalization, Sequential Pattern Mining, Web Services, Agglomerative Clustering.

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Authors: Venu Gopal Prathimala, Prudhwee Raju, Roshan Puvvada, Sushanth Varma

Paper Title: Static and Dynamic Analysis of All Terrain Eco-Green Vehicle (ATV)

Abstract: This paper provides an in-detail description of the design considerations, static & dynamic analysis and mathematical data involved in the design of an ELECTRIC MOTOR POWERED ALL TERRAIN VEHICLES (ATV). The main objective of this paper is to reduce the usage of organic fuel powered vehicles and to design a vehicle which works efficiently in the emerging electric vehicle sector. The fast moving metropolitan cities necessitates preplanning of transportation and mobile network. With the advancements in automobile industry, these problems has been tackled to a certain extent but has also brought a concern to vehicular pollution. Air pollution today being a major point of debate persuades engineers and scientists to think of something new and pose a solution
to this ever growing issue. Going green seems an only feasible solution to this and that’s the reason for choosing the electric motor as the main power source for this all terrain vehicle. In order to maintain the speed levels of the vehicle, seamless decision was made in motor selection. In today’s world, Electric cars are gaining a great demand with increasingly new features established in them and rising demand of eco friendly status for each one of us. Electric cars which uses electricity to charge up their batteries; have replaced gasoline and diesel cars with features like high speed, less carbon emission, less maintenance, up to certain level with better mileage [1]. Hence the main focus has been laid on the simplicity of the design, high performance, easy maintenance and safety at a very affordable price. During the entire design process, consumer interest through innovative, inexpensive, and effective methods was always the priority. Most of the components have been chosen based on their easy availability and reliability. According to recognition of customer’s need the vehicle is designed to be ergonomic, aerodynamic, highly engineered and easily manufactured. Hence, it makes the vehicle more efficient. This vehicle can navigate through almost all terrains, which ultimately is the main purpose behind the making of any all-terrain vehicle [7]. This report aimed at designing, analysing, fabrication and testing of steering, braking and power transmission for an eco-green all terrain vehicles (ATV) in a nutshell.

**Keywords:** All Terrain Vehicle, Electric Motor, Power Train, Steering, Braking System, Suspension, Eco friendly.

**References:**