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|-------|--|---|----------|
| 1.    | <b>Authors:</b>  | <b>Vandai Le, Xinran Li, Caoquyen Le, Honghu Zhou</b>                                   |          |
|       | <b>Paper Title:</b>  | <b>A Fuzzy Logic based Adaptive Control of TCSC for Power Oscillations Damping</b>      |          |
|       | <p><b>Abstract:</b> This paper presents an approach to the designing of a fuzzy logic-based adaptive Thyristor Controlled Series Capacitor (FLBA-TCSC) controller via minimum total energy function method to improve the power oscillation damping of a wide area power system control and enhance system stability. Within the new control strategy, using a combination of a Fuzzy logic control (FLC) and SCADA signal to establish control rules, which monitor TCSC operations with respect to various working conditions of the power system. The effectiveness of proposed approach has been validated through various simulation cases of the three phase faults at different locations of the Vietnamese power network. In order to verify the performance of the proposed control, the proposed controller is compressed with a traditional and none TCSC model. The simulation results show that the proposed control scheme improves the dynamic stability and provides the effective damping of generator angle oscillations and power ones.</p> <p><b>Keywords:</b> TCSC, energy function, angle oscillation, power oscillation, dynamic stability.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>N. G. Hingorani and L. Gyugyi, "Understanding FACTS concepts and technology of flexible AC transmission syste," IEEE Press, New York, 2000.</li> <li>H. Salman, D. Biswarup and P. Vinay, "Reduced rule base self-tuning fuzzy PI controller for TCSC", Electrical Power and Energy Systems, Vol.32, 2010, pp.1005-1013.</li> <li>E. Acha, V. G. Agelidis, O. Anaya-Lara and et al, "Power electronic control in electrical system," Butterworth Heinemann Oxford, 2002.</li> <li>R. Name, J. P. Therattil and P. C. Panda, "Improving power system transient stability by PSS and hybrid Fuzzy-PI based TCSC controllers", Engineering and Systems, 2012.</li> <li>H. Salman, "Power System Stability Enhancement Using Reduced rule base self-tuning fuzzy PI controller for TCSC," IEEE transmission and distribution conference and exhibition, 2010.</li> <li>S. K. Rautray, S. Choudhury, S. Mishra and et al, "A Particle Swarm Optimization Based Approach For Power System Transient Stability Enhancement With TCSC," Procedia Technology, Vol. 6, 2012, pp.31-38.</li> <li>E. S. Ali and S. M. Abd-Elazim, "Coordinated design of PSSs and TCSC via bacterial swarm optimization algorithm in a multimachine power system," Electrical Power and Energy Systems, Vol. 36, 2012, pp. 84-92.</li> <li>J. M. Ramirez-Arredondo and R. Davalos-Marin, "TCSC control based on passivity for power system damping enhancement," Electrical Power and Energy Systems, Vol. 23, 2001, pp. 81-90.</li> <li>D. Z. Fang, Y. Xiaodong, S. Wennan and et al, "Oscillation transient energy function applied to the design of a TCSC fuzzy logic damping controller to suppress power system inter-area mode oscillations," IEE Proc-Generator Transmissionline Distribution, Vol. 150, No. 2, March, 2003, pp. 233-241.</li> <li>K. Phorang, M. Leelajindakraireak and M. Y. Leelajindakraireak, "Damping improvement of oscillation in power system by fuzzy logic based SVCstabilizer," IEEE transmission and distribution conference and exhibition, 2002, pp. 1542-1547.</li> <li>N. Vititanont and K. Hongesombut, "TCSC Based on Phase-Plane Fuzzy Logic Control for Wide-Area Power System Stabilization," IEEE International Conference, 2013.</li> <li>E. S. Ali and S. M. Abd-Elazim, "TCSC damping controller design based on bacteria foraging optimization algorithmfor a multimachine power system," Electrical Power and Energy Systems, Vol. 37, 2012, pp.23-30.</li> <li>M. Khederzadeh and T. S. Sidhu, "Impact of TCSC on the Protection of Transmission Lines," IEEE Transactions on Power Delivery, Vol. 21, No. 1, Jan, 2006, pp. 80-87.</li> <li>P. Kundur, "Power system stability and control," McGraw-Hil, New York, USA, 1994.</li> <li>W. T. Carson, "Power System Voltage Stability," McGraw-Hill, New York. 1994.</li> <li>Gomez-Exposito, A. J. Conejo and C. Canizares, "Electric Energy Systems Analysis and Operation," CRC Press, 2009</li> <li>K. N. Stanton, "Dynamic Energy Balance Studies for Simulation of Power-Frequency Transients," IEEE PICA Conference, 1971.</li> <li>M. P. Kazmierkowski, R. Krishnan and F. Blaabjerg, "Control in Power Electronics: Selected Problems," ACADEMIC Press, 2002.</li> </ol> |   | 1-7      |
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|       | <b>Paper Title:</b>  | <b>An Assembly of Discrimination Prevention Techniques in Data Mining</b>               |          |
|       | <p><b>Abstract:</b> Data mining is the extraction of implicit, previously unknown, and potentially useful information from available data. The idea is to make computer programs that come through databases automatically, seeking regularities or patterns. In data mining, the data is stored electronically and search is automated by computer. Data mining is about solving problems by analyzing data already present in databases. There are, however, negative social perceptions about data mining, among which unjustifiable access and potential discrimination. Discrimination consists of unfairly treating people on the basis of their belonging to a particular group. Automated data collection and data mining techniques such as classification rule mining gives the way to making automated decisions, for e.g., loan granting/denial, insurance premium computation, etc. If the training data sets are biased in what regards discriminatory (sensitive) attributes as gender, race, religion, etc., discriminatory decisions may happen. Due to this, antidiscrimination techniques including discrimination discovery and prevention have been introduced in data mining .Discrimination is a presuppose privileges where provide to the each separate group for the safety of the data which is stored . Discrimination can be either direct or indirect. Direct discrimination finds when decisions are made based on sensitive attributes. Indirect discrimination occurs when decisions are made based on non-sensitive attributes which are strongly correlated with biased sensitive ones. In this paper, proposed system covers discrimination prevention in data mining and propose new techniques applicable for direct and indirect discrimination prevention both at the same time.</p> <p><b>Keywords:</b> Data mining, Direct and Indirect Discrimination prevention, Antidiscrimination.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>S. Hajian, J. Domingo- Ferrer, "A Methodology For Direct And Indirect Discrimination Prevention In Data Mining," Proc. IEEE transact.</li> </ol>   |   | 8-12     |



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**Paper Title:** Acoustic Comfort of Schools in Tropical Humid Climate

**Abstract:** This paper reports the investigation on acoustic comfort of school buildings in tropical warm humid climate. In this type of climate the intrusion of external noise into the classrooms along with cross ventilation is unavoidable. Studies have been carried in 30 secondary schools located in Kollam district of Kerala in India. The two important acoustic parameters viz., background noise and reverberation time which affect the acoustical comfort were measured on site, in the school environment and a few selected classrooms in all schools. The measured values were compared to the acoustical recommendations of Bureau of Indian standards. The acoustical study on one of the schools is presented in detail. The study reveals a strong need of improving the acoustical comforts in school environments and classrooms. The study also reveals that a simple treatment to the ceiling and walls could improve the acoustic comfort in classrooms.

**Keywords:** Acoustic comfort, background noise, reverberation, ambient noise level, sound insulation, tropical climate

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**Paper Title:** Integrated Coastal Area Management

**Abstract:** An ICAM is regarded as a way to improve the quality of life of communities dependent on coastal area resource and maintain the ecosystem. The considerable efforts undertaken on all continents to carry out refine the concept of ICAM have resulted in its adoption as the key paradigm for the sustainable development of coastal areas. In this paper highlights the implementation of ICAM to develop the coastal areas both economical and environments. Here we discussed many problems, the coastal manager myth, and the positivist illusion. The results show the development of coastal area with the help of ICAM programs.

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|    | <p><b>Keywords:</b> Quality in both economical and environmental aspects</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Archer, J. H. and M.C. Jarman. 1992. Sovereign rights and responsibilities: Applying public trust principles to the management of EEZ space and resources. <i>Ocean &amp; Coastal Management</i> 17(1):251-270.</li> <li>2. Bower, B.; C. H. Ehler; and D. Basta. 1994. A Framework for Planning for Integrated Coastal Zone Management. NOAA/NOS Office of Ocean Resources Conservation and assessment, Silver Spring, Maryland.</li> <li>3. Chua Thia-Eng. 1993. Essential elements of integrated coastal zone management. <i>Ocean &amp; Coastal Management</i> 21:81-108.</li> <li>4. Cicin-Sain, B. 1992a. Multiple use conflicts and their resolution: Toward a comprehensive research agenda. In <i>Ocean Management in Global Change</i>, ed., P. Fabbri, pp. 280-307. New York: Elsevier Applied Science.</li> <li>5. _____. 1992. Research agenda on ocean governance. In <i>Ocean Governance: A New Vision</i>, ed. B. Cicin-Sain, pp. 9-16. Newark, Delaware: University of Delaware, Center for the Study of Marine Policy.</li> <li>7. _____. 1998. <i>Integrated Coastal and Ocean Management: Concepts and Practices</i>. Washington, DC: Island Press.</li> </ol>   |       |
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|    | <p><b>Paper Title:</b> Library Management Using Real Time Face Recognition System</p>   |       |
| 5. | <p><b>Abstract:</b> This paper an automated system for human face recognition in a real time background world for a large homemade dataset of persons face. The task is very difficult as the real time background subtraction in an image is still a challenge. Addition to this there is a huge variation in human face image in terms of size, pose and expression. The system proposed collapses most of this variance. To detect real time human face Ada Boost with Haar cascade is used and a simple fast PCA and LDA is used to recognize the faces detected. The matched face is then used to mark attendance in the laboratory, in our case. This library management system is real time attendance system based on the human face recognition with a simple and fast algorithms and gaining a high accuracy rate. There two data base one is student data base and other is library data base system.</p> <p><b>Keywords:</b> PCA; Principal Component Analysis,2. Fast PCA; Fast Principal Component Analysis,3. LDA; Linear Discriminant Analysis , 4.Ada Boost ;Adaptive boost ,5. GUI; Graphical user interface.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. K.Susheel kumar ,Shital Prasad ,Vijay Bhaskar Semwad .RC Tripathi “Real time Face Recognition Using Adaboost Improvbed Fast PCA Algorithm ,”IJAIA .Vol.2,No.3.July 2011.</li> <li>2. Shuicheng Yan, Huan Wang, Jianzhuang Liu, Xiaoou Tang, Huang, T.S. “Misalignment-Robust Face Recognition” Dept. of Electr. &amp;Comput. Eng., Nat. Univ. of Singapore, IEEE Xplore , march 2010,vol 19, pages 1087 – 1096</li> <li>3. L. Sirovich and M. Kirby, “Low-Dimensional procedure for the characterization of humanfaces,” J. Optical Soc. of Am., vol. 4, pp. 519-524, 1987.</li> <li>4. Xiaoyang Tan, Triggs. “Enhanced Local Texture Feature Sets for Face Recognition Under Difficult Lighting Conditions “ Dept. of Comput. Sci. &amp; Technol., Nanjing Univ. of Aeronaut.&amp;Astronaut. 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|    | <p><b>Paper Title:</b> Printed Monopole Antenna Using Inductive Stub and Defected Ground Structure</p>  |       |
| 6. | <p><b>Abstract:</b> A new type of triple band antenna is proposed for wireless applications. The proposed structure printed on FR4 substrate with <math>\epsilon_r = 4.3</math>, <math>h = 1.6</math> mm and <math>\tan \delta = 0.008</math>. The size of the radiating element is 11.2 x 6.0 mm<sup>2</sup>. Both the triple band antenna and the feeding microstrip line are printed on the same substrate, leading to a fully planar</p>  | 28-31 |

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|  | <p>structure. The Defected Ground Structure is employed to enhance the bandwidth. The measured -10 dB return loss impedance bandwidth for the first band is about 4.0 - 4.5 GHz (11.76%) with a resonance mode excited at 4.2 GHz, for the second band is about 5.2 - 5.8 GHz (10.90%) with a resonance mode excited at 5.9 GHz and for the third band is about 6.2 - 7 GHz (12.12%) with a resonance mode excited at 6.5 GHz. The performances of the antenna with optimized parameters are characterized in terms of reflection coefficient, gain, and radiation pattern.</p> <p><b>Keywords:</b> monopole antenna; bandwidth; radiation pattern; return loss</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>Liu, W.-C., C.-M. Wu, and Y. Dai, "Design of triplefrequency microstrip-fed monopole antenna using defected ground structure," IEEE Transactions on Antenna and Propagation, Vol. 59, No. 7, 2457–2463, July 2011.</li> <li>Kumar C &amp; Guha D 'A new look into the cross-polarized radiation form a circular microstrip antenna and suppression using dot shaped DGS', IEEE Antennas and Propagation Symposium Digest. 2010,</li> <li>Liu WC, Wu CM, &amp; Dai Y , 'Design of triple-frequency microstrip-fed monopole antenna using defected ground structure', IEEE Trans. Antennas and Propag., vol. 59, no. 7, pp. 2457-2463. 2011</li> <li>Kang, L., H. Wang, X. H. Wang, and X. Shi, "A Compact ACS fed antenna with rectangular SRRs for tri-band operation," Electron. Lett., Vol. 50, No. 16, 1112-1114, Jul. 2014.</li> <li>G. Teni, N. Zhang, J. Qiu, and P. Zhang, "Research on a novel miniaturized antipodal Vivaldi antenna with improved radiation," IEEE Antennas and Wireless Propagation Letters, vol. 12, pp. 417–420, 2013.</li> </ol>  |                 |  |                     |  |  |  |       |
| 7.   | <table border="1"> <tr> <td><b>Authors:</b></td> <td><b>Pankaj Banyal, N Singh, A.A Kazmi</b></td> </tr> <tr> <td><b>Paper Title:</b></td> <td><b>Assessment of Decentralized Wastewater Treatment Systems for Sanitation of Small Communities using A Qualitative Approach Methodology: A Case Study from Northern India</b></td> </tr> <tr> <td colspan="2"> <p><b>Abstract:</b> To date different technologies based wastewater treatments have been actualized at full scale level over the world; however the integral elements for the determination of most suitable treatment framework are still obscure. The present study is fervent to the investigation of 11 decentralized sewage treatment plants in Northern India using a qualitative approach methodology in which distinctive focus was paid to economic indicator of these plants. 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The results of this study allow users and engineer to choose the treatment system according to their resources available viz. –a- viz. requirement.</p> <p><b>Keywords:</b> Decentralized sewage treatment plants; Specific power consumption; Operation and maintenance; Economic analysis</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>Massoud, M. A., Tarhini, A. &amp; Nasr, J. A. 2009. Decentralized approaches to wastewater treatment and management: Applicability in developing countries. Journal of Environmental Management 90, 652–659.</li> <li>Chong, M. N., Sharma, A. K., Burn, S. &amp; Saint, C. P. 2012. Feasibility study on the application of advanced oxidation technologies for decentralized wastewater treatment. Journal of Cleaner Production 35, 230–238.</li> <li>Ho, G. 2005. Technology for sustainability: the role of onsite, small and community scale technology. Water Science &amp;Technology 51 (10), 15–20.</li> <li>Singh, N.K., Kazmi, A.A., &amp;Starkl, M. 2014. 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research paper presents a peculiar Hybrid Wavelet Transform technique for Image compression using three orthogonal transforms. The concept of hybrid wavelet transform is to combine the attributes of two or more different orthogonal transform wavelet to attain the vitality of multiple transform wavelet. Proposed approach is to generate hybrid wavelet transform with three orthogonal transform using together which are Discrete Cosine transform, Discrete Wavelet transform and Discrete Kekre Transform. These all are lossy compression techniques. On several image simulation has been carried out. The experimental result has shown that hybrid transform wavelet performance is best as compared to transform wavelets. Here the hybrid of DWT, DCT and DKT provides the best result amongst the individual mentioned transforms.

**Keywords:** Image compression; Hybrid Wavelet Transform; Discrete Wavelet Transform; DWT; Discrete Cosine Transform; DCT; Discrete Kekre Transform; DKT

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**Authors:** **Aparna Gale, S.S.Salankar**

**Paper Title:** **Performance Analysis on Iris Feature Extraction Using PCA, Haar Transform and Block Sum Algorithm**

**Abstract:** Iris recognition is the most accurate biometrics which has received increasing attention in departments which require high security. In this paper, we make a Comparative study of performance of image transforms using Haar transform, Principle of Component Analysis (PCA), Block sum algorithm technique for iris verification. to extract features on specific portion of the iris for improving the performance of an iris recognition system. The main aim of this paper is to show that how can we get better overall accuracy than the existing methods of feature extraction of iris recognition system. The proposed methods are evaluated by combining Haar transform and block sum algorithm based upon False Rejection Rate (FRR) and False Acceptance Rate (FAR) and the experimental results show that this technique produces good performance on CASIA VI iris database.

**Keywords:** Iris recognition, biometrics, Block sum algorithm, Haar transform, PCA.

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| 10. | <p><b>Authors:</b> <b>T. Sivackani</b></p>   |  |
|     | <p><b>Paper Title:</b> <b>DC-DC Boost and Buck/Boost Converter with Electrolyser and Fuel Cell</b></p>   |  |
|     | <p><b>Abstract:</b> Now a day’s Electrical energy is the most important and powerful one used as large energy level. Fuel cell energy is used as alternate and non harmful energy source used in many applications. For this generation an Electrolyser is used to produce hydrogen through Electrolysis. Due to this Electrolysis H2 gas is produced and stored. This H2 gas is send to fuel cell and produce electricity whenever it is needed. This electrolyser is connected to an DC bus via a DC-DC boost converter.This boost converter give a constant voltage to Electrolyser even if there is any variation in DC bus voltage. A Buck/Boost converter is used in between fuel cell and DC bus.This will Boost when the bus voltage is reduced and Buck the voltage if the bus vottage is high.This type generation will not produce any harmful gases and hazard’s</p> <p><b>Keywords:</b> Electrolyser, Electrolysis, DC_DC boost converter, Buck/Boost s.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Tsai-Fu Wu, Senior Member, IEEE, Chia-Ling Kuo, Kun-Han Sun, Yu-Kai Chen, Yung-Ruei Chang, Member, IEEE, and Yih-Der Lee, Member, IEEE “Integration and Operation of a Single-Phase Bidirectional Inverter With Two Buck/Boost MPPTs for DC-Distribution Applications”, IEEE TRANSACTIONS ON POWER ELECTRONICS, VOL. 28, NO. 11, NOVEMBER 2013</li> <li>2. Application Deepak S. Gautam, and Ashoka K.S. Bhat, Fellow, IEEE “A Two-Stage Soft-Switched Converter for Electrolyser”, Fifteenth National Power Systems Conference (NPSC), IIT Bombay, December 2008</li> <li>3. Emmanuel Zoulias1, Elli Varkarak1, Nicolaos Lymberopoulos1, Christodoulos N. Christodoulou2 and George N. Karagiorgis2 1 Centre for Renewable Energy Sources (CRES), Pikermi, Greece 2 Frederick Research Center (FRC), Nicosia, Cyprus “A review on water electrolysis”</li> <li>4. R. Samuel Rajesh Babu, Joseph Henry “A Comparison of Half Bridge &amp; Full Bridge Isolated DC-DC Converters for Electrolysis Application” International Journal of Soft Computing and Engineering (IJSC) ISSN: 2231-2307, Volume-1, Issue-4, September 2011</li> <li>5. J. A. Sabate, V. Vlatkovic, R.B. Ridley, F.C. Lee and B.H. Cho, "Design considerations for high voltage, high power, full-bridge ZVS PWM converters," IEEE Applied Power Electronics Conf., 1990, pp. 275-284.</li> <li>6. D.J. Shortt, W.T. Michael, R.L. Avert, and R.E. Palma, “A 600 W four stage phase-shifted parallel DC to DC converter,” IEEE Power Electronics Specialists Conf., 1985, pp. 136-143.</li> <li>7. V. Nguyen, J. Dhayan Chand, and P. Thollot, “A multiphase topology series-resonant DC-DC converter,” in Proceedings of Power conversion International, 1985, pp. 45-53.</li> <li>8. D.S. Gautam and A.K.S. Bhat, “A comparison of soft-switched DC-to- DC converters for Electrolyser application”, IEEE IICPE Conf. Record CD, Chennai, 2006.</li> <li>9. D. S. Gautam, “Soft-Switched DC-to-DC Converters for Power Conditioning of Electrolyser in a Renewable Energy System,” M.A.Sc Thesis, Dept. of ECE, University of Victoria, 2006.</li> <li>10. H. Bodur and A. F. Bakan, “A new ZVT-PWM DC-DC converter,”IEEE Trans. on Power Electr., vol. 17, no. 1, Jan. 2002, pp. 40-47.</li> <li>11. R. Streit and D. Tollik, “High efficiency telecom rectifier using a novel soft-switched boost based input current shaper”, IEEE INTEL Conf. Record, 1991, pp.720-726.</li> </ol> |  |
| 11. | <p><b>Authors:</b> <b>Shubhangi Kolhe, Chaitrali Dhumal, Pratik Kumar, Achal Badgujar</b></p>  |  |
|     | <p><b>Paper Title:</b> <b>Image Encryption Using Reversible Data Hiding by Reserving Room before Encryption</b></p>  |  |
|     | <p><b>Abstract:</b> This work proposes a novel scheme for reversible data hiding in encrypted images reserving room before encryption. In the first phase, a content owner performs the image partition and creates space for data accommodation and then encrypts the image using an encryption key. Then, a data-hider accommodates the data inside the image and hide it using data-hiding key to encrypt it. With an encrypted image containing additional data, if a receiver has the data-hiding key, he can extract the additional data though he does not know the image content. If the receiver has the encryption key, he can decrypt the received data to obtain an image similar to the original one, but cannot extract the additional data. If the receiver has both the data-hiding key and the encryption key, he can extract the additional data and recover the original content. The rapid development of data transfer through internet made it easier to send the data accurate and faster to the destination. There are many transmission media to transfer the data to destination like e-mails; at the same time it is may be easier to modify and misuse the valuable information through hacking. So, in order to transfer the data securely to the destination without any modifications, there are many approaches like cryptography and steganography. This project deals with the image steganography as well as with the different security issues, general overview of cryptography approaches and about the different steganography algorithms like Least Significant Bit (LSB) algorithm and blow fish algorithms. It also compares those algorithms in means of speed, accuracy and security.</p> <p><b>Keywords:</b> encrypted image containing additional data, data-hiding key, modifications, cryptography and steganography, Least Significant Bit (LSB) algorithm. .</p> <p><b>References:</b></p>   |  |

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**Authors:** S. Vimala, P. Usha Rani, J. Anitha Joseph

**Paper Title:** A Hybrid Approach to Compress Still Images using Wavelets and Vector Quantization

**Abstract:** This paper presents a hybrid technique for compression using Wavelet and Vector Quantization (VQ). Wavelet is a technique for representing the image into various degrees of resolution. The input image of size 256 \*256 pixels is divided into 4 sub-bands named LL, HL, LH, HH by applying Discrete Wavelet Transform. Vector Quantization is then applied for the lower sub band (LL). The size of lower sub-band is 128\*128 pixels. VQ is a lossy image compression technique used to have improved coding efficiency. In the proposed study, the different types of wavelets such as Haar Wavelet, Coiflet Wavelet, Symlet Wavelet, Daubechies Wavelet and Bioorthogonal Wavelet are applied to the input images and the respective lower bands are then subjected to Vector Quantization in the Encoding process. The compressed image is then transmitted or stored in the form of Codebook and the Index Map, which are the outcomes of VQ. In the decoding phase, an image of size 128 x 128 pixels is reconstructed from the stored/transmitted Codebook and Index map. The reconstructed image is then subjected to Inverse DWT to get an output image of size 256 x 256 pixels. Standard images such as Lena, Baboon, Boats, Bridge and Cameraman are used to test the performance of the proposed method. With all the wavelets, the proposed technique leads to better compression ratio without losing the visual effect.

**Keywords:** image compression, wavelet, vector quantization, haar, coiflet, symlet, daubechies, bioorthogonal.

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**Authors:** Sreeni K. G, Abhijith Joshi

**Paper Title:** GPU based Cloth Simulation for Real Time Interaction using Multiple Haptic Interfaces

**Abstract:** In this paper we propose a solution to the simulation of a real time deformable cloth for haptic interaction. The simulated environment consists of a deformable cloth, corners of which can be attached to a number of independent haptic devices through a client server mechanism. The users can feel the tensile force which is acting on the cloth due to its own weight through the haptic interface. A ball with a known mass is also rolled over the simulated cloth so as to effect an external force variation on the cloth. The cloth is modeled using a sufficiently dense mass spring model. A Graphic Processing Unit (GPU) is used at the server to speed up computation of cloth motion to make the computation time comparable with the haptic updation time of 1ms. We also use the environment as a possible gaming platform with several players interacting asynchronously using their respective haptics devices.

**Keywords:** Haptic rendering, Deformable object, GPU computation, CUDA, Parallelization.

**13.** **60-65**



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| 14. | <b>Authors:</b>     | <b>Rittu Angu, R. K. Mehta</b>   |       |
|     | <b>Paper Title:</b> | <b>Robust Stabilization of Single Area LFC Loop through Extended State Observer</b>  |       |
|     | <b>Abstract:</b>    | <p>An Extended State Observer (ESO) based design approach has been presented for a Load Frequency Control (LFC) loop of a single area. The design approach utilizes the full state feedback as well as an estimated signal for parameter uncertainty and disturbances due to load demand changes to form the control law. The ESO-based design approach is capable of estimating state as well as disturbances together in order to compensate system in presence of parameter uncertainty and disturbances due to load demand changes. The proposed design methodology achieves performance satisfying the specified stability margins. The methodology provides a control over peak values of the frequency and control signal deviations which may be utilized to meet hardware constraints. An illustrative example illustrates the effectiveness of the developed methodology.</p> <p><b>Keywords:</b> Load frequency control, Control area, extended state observer, augmented system, MATLAB simulation.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Olle I. Elgerd, Electric Energy Systems Theory; an introduction (2nd Edition, McGraw-Hill Inc. 1982).</li> <li>2. K. Ogata, Modern Control Engineering (4th edition, Prentice Hall Inc. 2002).</li> <li>3. Gene F. Franklin, David Powell and Abbas Emami-Naeini, Feedback Control of Dynamic Systems (4th Edition, Pearsons Education Inc. 2002).</li> <li>4. S.K. Goswami and K.Datta, On estimation errors in linear systems due to parametric variations, Journal of the institute of engineers (India), vol. 86, Dec. 2005, p(s) 192.</li> <li>5. P. Kundur, Power System Stability and Control (McGraw Hill Inc. 1994).</li> <li>6. Prof. D.P. Kothari, Centre for Energy Studies on Automatic Generation Control, IIT Delhi, Lecture 24.</li> <li>7. R.K. Mehta, S.K. Goswami and K. Datta, An observer -based lateral autopilot for tail-controlled missiles, IE(I) Journal-EL, Vol 88, sept. 2007, p(s): 17-22.</li> <li>8. Dr. R.K. Mehta and Rittu Angu, An Observer-Based Robust Load Frequency Control, proceeding on IOSR Journal of Electrical and Electronics Engineering (IOSR-JEEE) e-ISSN: 2278-1676,p-ISSN: 2320-3331, Volume 9, Issue 4 Ver. I (Jul – Aug. 2014), PP 23-31.</li> <li>9. Rittu Angu and Dr. R.K. Mehta, Robust Stabilization of AVR Loop through Extended Reduced-Order Observer, proceeding on International Journal of Emerging Science and Engineering (IJESE) ISSN: 2319–6378, Volume-3 Issue-2, December 2014.</li> </ol>   | 66-73 |
| 15. | <b>Authors:</b>     | <b>Irshad Ahmed, Imran Iqbal</b>   |       |
|     | <b>Paper Title:</b> | <b>Benchmarking of Buildings for Energy Consumption in Pakistan</b>  |       |
|     | <b>Abstract:</b>    | <p>Pakistan suffers a continuous energy crisis and needs all out efforts to overcome this problem. The use of locally available renewable energy and energy conservation offers a viable solution to the energy crisis. As Pakistan consumes 50% of its primary energy in the building sector, and therefore, offers a huge potential for energy saving. This study estimates the energy consumption in buildings as a function of heating and cooling degree days for all climate zones of the country. Both components (weather independent and dependent) of the energy used in buildings are calculated using EnergyPlus software. Energy consumption is estimated both for conventional buildings and buildings built approximating Building Energy Code of Pakistan (BECP). The results show a huge reduction in energy consumption in BECP buildings. The paper also demonstrates how to calculate energy consumption in houses in all zones of Pakistan.</p> <p><b>Keywords:</b> Building Energy Consumption, Cooling Degree Days, EnergyPlus Software, Heating Degree Days.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Zaid Alahdad, Pakistan's Energy Sector: From Crisis to Crisis–Breaking the Chain, Pakistan Institute of Development Economics</li> </ol>  | 74-77 |

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| 16. | <p><b>Authors:</b> Ravi Kumar Sharma, Nikhil Narayan, Ankit Verma</p>  |       |
|     | <p><b>Paper Title:</b> Hydrogen Fuel Cell Vehicles and Hydrogen Storage Techniques</p>   |       |
|     | <p><b>Abstract:</b> - At the present day, Hydrogen is an especially attractive transportation fuel. It is the least polluting fuel available, and can be produced anywhere there is water and a clean source of electricity. A fuel cycle in which hydrogen is produced by solar-electrolysis of water, or by gasification of renewably grown biomass, and then used in a fuel-cell powered electric-motor vehicle (FCEV), would produce little or no local, regional, or global pollution. Hydrogen FCEVs would combine the best features of battery-powered electric vehicles (BPEVs) -- zero emissions, high efficiency, quiet operation and long life -- with the long range and fast refuelling time of internal-combustion-engine vehicles (ICEVs). If fuel-cell technology develops as hoped, then hydrogen FCEVs will be a significant advance over both hydrogen ICEVs and solar BPEVs: they will be cleaner and more efficient than hydrogen ICEVs, have a much shorter refuelling time than BPEVs, and have a lower lifecycle cost than both. Solar-hydrogen fuel-cell vehicles would be general-purpose zero-emission vehicles, and could be an important component of strategy for reducing dependence on imported oil, mitigating global warming, and improving urban air quality, at an acceptable cost. The only problem behind this technology is storage of hydrogen in on-board Vehicles.</p> <p><b>Keywords:</b> Hydrogen fuel cell, Connecting cells, Gas supply and cooling, Fuel cell types, Hydrogen storage.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>FreedomCAR and Fuel Technical Partnership: Technical goals. <a href="http://www.eere.energy.gov/vehiclesandfuels/about/partnerships/freedomcar/index.shtml">www.eere.energy.gov/vehiclesandfuels/about/partnerships/freedomcar/index.shtml</a> -</li> <li>A.W. McLaine, ER.W.Breault, C. Larsen, R.Konduri, J.Rolf, F.Becker and G.Miskolery; Proc 2000 US DoE Hydrogen Program Review, NREL/CP-570-28890</li> <li><a href="http://www.bmwworld.com/models/750h1.htm">http://www.bmwworld.com/models/750h1.htm</a></li> <li>U. Bossel, B. 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| 17. | <p><b>Authors:</b> D. Venugopal, A. Jayalaxmi</p>  |       |
|     | <p><b>Paper Title:</b> Optimal Location of Thyristor Controlled Series Capacitor Using Bat Algorithm</p>   |       |
|     | <p><b>Abstract:</b> This paper proposes optimal location of FACTS devices in power system using Evolutionary algorithms. The location of FACTS controllers, their type and rated values are optimized simultaneously by using the proposed Algorithm. From the FACTS devices family, series device Thyristor controlled series capacitor (TCSC) is considered. The proposed BAT algorithm is a very effective method for the optimal choice and placement of TCSC device to improve the performance of power systems. The proposed algorithm has been applied to IEEE 30 bus system.</p>   | 87-91 |

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| 18. | <p><b>Authors:</b> Gowher Mushtaq, Shashank Singh, Neeraj Kumar Tiwari</p> <p><b>Paper Title:</b> To Study the Energy Efficient Departments of Existing Attributes for Next Generation Network Infrastructures</p> <p><b>Abstract:</b> The Survey on energy-efficient Green networking has begun to spread in the past few years, gaining increasing popularity. With the rapid development of new and innovative applications for mobile devices like smartphones, approaches in battery technology have not retained momentum with promptly arising energy utilization demands. Thus energy utilization has become one of the major and fundamental issue for smartphone devices. In order meet the demanding s of saving energy, it is analytical to study and survey the energy utilization of applications on smartphones. In this study we will try to survey the energy efficient networking to find out and study existing smartphone attributes for the next generation network infrastructures.</p> <p><b>Keywords:</b> Attributes, Energy Utilization, Next Generation, Smartphones, Applications</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Mauro De Sanctis, Ernestina Cianca, Viraj Joshi, "Energy Efficient Wireless Networks Towards Green Communications", 59:537-552, DOI 10.1007/s11277-011-0244-4, Wireless Pers Commun (2011).</li> <li>2. And He, Ashwin Amanna, Thomas Tsou, Xuetao Chen, Dinesh Datla, Joseph Gaeddert, Timothy R. Newman, S.M. Shajedul Hasan, Haris I. Volos, Jeffery H. Reed, and Tamal Bose, "Green Communications: A Call for Power Efficient Wireless Systems", Bradley Department of Electrical and Computer Engineering, Virginia Tech, Blacksburg, VA, USA, Journal of Communications, vol. 6, no. 4, July 2011.</li> <li>3. Daquan Feng, Chenzi Jiang, Gubong Lim, Leonard J. Cimini, Jr "A Survey of Energy-Efficient Wireless Communications" IEEE communications surveys &amp; tutorials, vol. 15, no. 1, first quarter 2013.</li> <li>4. Tao Zhang, Pei-Luen Patrick Rau, Jia Zhou "Consumers perception on mobile phone attributes" Department of Electrical Engineering and Computer Science Vanderbilt University, TN 37211, USA. 2011.</li> <li>5. Vida Owusu-Prempeh, Cosmos Antwi-Boateng, Samuel Yeboah Asuamah "what are the important attributes in the purchase of mobile phones? The case of marketing students in Sunyani polytechnic, Ghana, west Africa," IJRFM Volume 3, (ISSN 2231-5985) Issue 5 (May 2013).</li> <li>6. Yu Takamatsu, Weihua Sun, Yukiko Yamauchi, Keiichi Yasumoto, and Minoru Ito "Energy Aware Cooperative Download Method among Bluetooth Ready Mobile Phone Users", 2012.</li> <li>7. Min Goo Lee, Yong Kuk Park, Kyung Kwon Jung, June Jae Yoo "Android Platform based Power Consumption Monitoring System" 2012.</li> <li>8. Narseo Vallina-Rodriguez and Jon Crowcroft, Fellow, "Energy Management Techniques in Modern Mobile Handsets" IEEE Communications Surveys &amp; Tutorials, Accepted for Publication 2012.</li> <li>9. Fangwei Ding, Feng Xia, Wei Zhang, Xuhai Zhao, Chengchuan Ma "Monitoring Energy Consumption of Smartphones" School of Software, Dalian University of Technology, Dalian 116620, China.</li> </ol>  | 92-98  |
| 19. | <p><b>Authors:</b> Ankit Verma, C. Thamotharan, Ravi Kumar Sharma</p> <p><b>Paper Title:</b> Evaluation of Engine Performance and Emissions of a Twin Cylinder Diesel Engine Fuelled with Biodiesel and Ethanol Blends</p> <p><b>Abstract:</b> A comprehensive study on the fuel mixture containing ethanol and bio-diesel as an alternative fuel has been carried out. This report deals with the exhaust emission of bio-diesel on twin cylinder diesel engine. The objectives of this report are to analyse the fuel consumption and the emission characteristic of a twin cylinder diesel engine that are using bio-diesel obtained from Jetropa plant seeds compared to usage of ordinary diesel that are available in the market. This report describes the setups and the procedures for the experiment which is to analyse the emission characteristics and fuel consumption of diesel engine due to usage of the both fuels. Detail studies about the experimental setup and components have been done before the experiment started. Data that are required for the analysis is observed from the experiments. Calculations and analysis have been done after all the required data needed</p>  | 99-101 |



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|            | <p>for the thesis is obtained. The experiment used diesel engine with no load conditions. A four stroke Twin cylinder diesel engine was adopted to study the brake thermal efficiency, brake specific energy consumption, mechanical efficiency, brake power, volumetric efficiency, indicated thermal efficiency and emissions at full load with the fuel of fraction ethanol in bio-diesel. In this study, the diesel engine was tested using ethanol blended with bio-diesel at certain mixing ratios of (B:E)- 75:25, 70:30 ethanol to bio-diesel respectively with the addition of diesel additive available in the store for trouble free starting. By the end of the report, the successful of the project have been started which is Kirloskar engine is able to run with bio-diesel blend but the engine needs to run by using diesel fuel first, then followed by bio-diesel blend and finished with diesel fuel as the last fuel usage before the engine turned off. The performance of the engine using blended fuel compared to the performance of engine with diesel fuel. Experimental results of blended fuel and diesel fuel are also compared.</p> <p><b>Keywords:</b> Alternative fuels, Biodiesel- Ethanol blend (BE-blend), Diesel, Ethanol, Performance, Emissions.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Xiaoyan Shia, Xiaobing Panga, Yujing Mua, Hong Hea, Shijin Shuaib, Jianxin Wangb, Hu Chenb, Rulong Lib, "Emission reduction potential of using ethanol-biodiesel-diesel fuel blend on a heavy-duty diesel engine" www.elsevier.com/locate/atmosenv Elsevier Ltd. Received 6 September 2005; received in revised form 25 November 2005; accepted 7 December 2005</li> <li>2. Prommes Kwanchareona, Apanee Luengnaruemitchaia*, Samai Jai-Inb, "Solubility of a diesel-biodiesel-ethanol blend, its fuel properties and its emission characteristics from diesel engine" The Petroleum and Petrochemical College, Chulalongkorn University, Bangkok 10330, Thailand Received 6 June 2006; received in revised form 25 September 2006; accepted 28 September 2006</li> <li>3. Nadir Yilmaz*, "Comparative analysis of biodiesel-ethanol -diesel and Biodiesel-methanol-diesel blends in a diesel engine" www.elsevier.com/locate/energy 2012 Elsevier Ltd.</li> <li>4. Yage Dia b, C. S. Cheunga &amp; Zuohua Huangb, "Comparison of the Effect of Biodiesel-Diesel and Ethanol-Diesel on the Particulate Emissions of a Direct Injection Diesel Engine" http://www.tandfonline.com/loi/uast20, Published online: 25 Feb 2009</li> <li>5. S. Fernando*, M. Hanna, "Development of a Novel Biofuel Blend Using Ethanol-Biodiesel-Diesel Microemulsions: EB-Diesel" Energy &amp; Fuels 2004, 18, 1695-1703 10.1021© 2004 American Chemical Society Published on Web 09/24/2004 Received June 7, 2004.</li> <li>6. Nubia M. Ribeiro, Angelo C. Pinto, Cristina M. Quintella, Gisele O. da Rocha, O Leonardo S. G. Teixeira, L'lian L. N. Guarieiro, Maria do Carmo Rangel, Marcia C. C. Veloso, Michelle J. C. Rezende, Rosenira Serpa da Cruz, Ana Maria de Oliveira, Ednildo A. Torres, and Jailson B. de Andrade*, "The Role of Additives for Diesel and Diesel Blended (Ethanol or Biodiesel), Fuels Energy &amp; Fuels, Vol. 21, No. 4, 2007</li> <li>7. M. Al-Hassan , H. Mujafet and M. Al-Shannag, "An Experimental Study on the Solubility of a Diesel-Ethanol Blend and on the Performance of a Diesel Engine Fueled with Diesel-Biodiesel - Ethanol Blends" Jordan Journal of Mechanical and Industrial Engineering Volume 6, Number 2, April 2012 ISSN 1995-6665 Pages 147 – 153.</li> <li>8. Najafi and T. F Yusaf, "Experimental investigation of using methanol-diesel blended fuels in diesel engine" International Conference on Thermal Engineering: Theory and Applications January 12-14, 2009, Abu Dhabi, UAE.</li> <li>9. C. Mishra, N. Kumar, B.S. Chauhan, H.C Lim, M. Padhy, "Some Experimental Investigation on use of Methanoland Diesel Blends in a Single Cylinder Diesel Engine" International Journal of Renewable Energy Technology Research (IJRETR) Vol. 2, No. 1, PP: 01 -16, January 2013, ISSN: 2325-3924.</li> <li>10. Renique J. Murray , Sharaaz Hosein and Solange Kelly, "An Investigation of Methanol-Coconut Oil Fuel Blends in Diesel Engines for Caribbean Power Generation Using Bio-diesel as a Co-solvent" The West Indian Journal of Engineering Vol.34, Nos.1/2, January 2012, pp.52-58, ISSN 0511-5728.</li> <li>11. Shi, X., Yu, Y., He, H., Shuai, S., Wang, J., Li, R., 2005. Emission characteristics using methyl soyate-ethanol-diesel fuel blends on a diesel engine. Fuel 84, 1543-1549.</li> </ol> |                |
|            | <p><b>Authors:</b> Gummadi Yamini, KVRs Santhosh, P. Chandrasekhar</p>  |                |
|            | <p><b>Paper Title:</b> A Novel Micro Strip Fractal Fork Antenna for Digital Broadcasting Applications</p>   |                |
| <p>20.</p> | <p><b>Abstract:</b> The design of a novel microstrip fractal fork antenna with parasitic patch and double substrate layers for Broad Casting applications has been proposed. The proposed antenna can be used in military satellite communications, weather monitoring, air traffic control, terrestrial broadband, and amateur radio. The antenna's dimensions are 40mm*40mm*2.3mm. The antenna has shown a return loss of -50.89dB at 9.54GHz. Far field pattern is calculated at 9.54GHz. The entire simulation is done using CST Microwave Studio.</p> <p><b>Keywords:</b> Antenna, Broad Casting applications, far field pattern, fork, fractal, micro strip and return loss.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. H.Yoon, H. Kim, et.al, "Design of triangular slot antenna for triple-band (2.4/5.2/5.8 GHz) antenna with fork-like tuning stub", Microwave and Optical Technology Letters, volume 49, issue 7, 1561-1565, July, 2007.</li> <li>2. M.N.Shakib, M.Moghavvemi, et.al, "Design of a compact tuning fork-shaped notched ultrawideband antenna for wireless communication application", The Scientific World Journal, Article ID 874241, 2014.</li> <li>3. G. Deschamps and W. Sichak, "Micro strip microwave antennas", Proceedings of Third Symp. on USAF Antenna Research and Development Program, 1953.</li> <li>4. R. E. Munson, "Micro strip phased array antennas", Proceedings of Twenty- Second Symp. on USAF Antenna Research and Development Program, October 1972.</li> <li>5. R. E. Munson, "Conformal micro strip antennas and micro strip phased arrays", IEEE Trans. On Antennas Propagation, Volume 22, issue 1, January 1974.</li> <li>6. David M. Pozar, "Microwave engineering", John Wiley &amp; Sons, Inc., Fourth Edition, 2011.</li> <li>7. Constantine A. Balanis, "Antenna theory: analysis and design", John Wiley &amp; Sons, Inc., second edition, 1997.</li> <li>8. Mathew M. Radmanesh, "Advanced RF &amp; microwave circuit design: The ultimate guide to superior design", Author House, 2009.</li> <li>9. Roger L Freeman, "Fundamentals of telecommunications", John Wiley &amp; Sons, Second Edition.</li> <li>10. Satish Kumar Sharma, et.al, "Investigation of wide-band microstrip slot Antenna", IEEE transactions on antennas and propagation, Volume 52., issue 3, March 2004.</li> <li>11. Qinjiang Rao, et.al, "A new aperture coupled microstrip slot antenna", IEEE transactions on antennas and propagation, Volume 53, issue 9, September 2005.</li> <li>12. Sunil Kumar Rajgopal, et.al, "Investigations on ultra wideband pentagon shape micro strip slot antenna for wireless communications", IEEE transactions on antennas and propagation, Volume 57, issue 5, May 2009.</li> <li>13. Huda A. Majid, et.al, "Frequency-reconfigurable microstrip patch-slot antenna", IEEE Antennas and Wireless Propagation Letters, Volume 12, 2013.</li> <li>14. P. Tilanthe, et.al, "A monopole microstrip antenna with enhanced dual band rejection for UWB applications", PIER B, Volume 38, 315-331, 2012.</li> </ol>   | <p>102-104</p> |

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|     | <p><b>Authors:</b> P. Gowtham Kumar, Chinnarappa Gari Raghava Reddy, P. Chandrasekhar</p> <p><b>Paper Title:</b> Study on Triple-Band Fork Shaped Microstrip Antenna</p>  |         |
| 21. | <p><b>Abstract:</b> In this paper, new Fork shaped microstrip patch antenna is designed to be operated in X-band and is used in applications like radar and in satellite communications. The dimensions of the ground plane, substrate and patch are (40 x 40) mm, (40 x 40) mm and (20 x 20) mm respectively. Copper annealed is used as the ground plane and also as the patch, the substrate is FR4 (lossy) material. The proposed antenna has the return loss of -34.064083dB, -27.912185dB and -24.539951dB at the operating frequencies of 11.352GHz, 10.04GHZ and 8.4682GHZrespectively. The directivities of the proposed antenna are 9.227dBi, 8.802dBi and 7.010dBi at respective frequencies of 11.352GHz, 10.04GHz and 8.4682GHZ. The results are simulated in CST Studio Suite software.</p> <p><b>Keywords:</b> Antenna, Alchemy Ferment patch, Directivity, Multiband, Return Loss and VSWR.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Constantine A. Balanis, "Antenna Theory: Analysis and Design", John Wiley &amp; Sons, Inc., Second Edition, 1997.</li> <li>2. Omar Noori, Jalel Chebil and et.al, "Design and Analysis of Triple-Band Microstrip Patch Antenna with h-shaped Slots", International Conference on Computer and Communication Engineering, 3-5 July 2012, Kuala Lumpur, Malaysia.</li> <li>3. Md. Tanvir Ishtaique-ul Huque , Md. Kamal Hosain and et.al, "Design and Performance Analysis of Microstrip Array Antennas with Optimum Parameters for X-band Applications," (IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 2, No. 4, 2011.</li> <li>4. N.A. Zainuddin, Z. Zakaria and et.al, "Investigation of Meander Slots to Microstrip Patch Antenna", IEEE International Conference on RFID Technologies and Applications, 4 – 5 September, 2013, Johor Bahru, Malaysia .</li> <li>5. Amit A. Deshmukh, M.Mansi, A.Amrita and K. P. Ray," Broadband Proximity fed Equilateral Traingular Microstrip Antenna," 2012 International Conference on Advances in Computing and Communications.</li> <li>6. Z. Faiza, M.T. Ali and et.al, "Design of Reconfigurable Dual-Band E-Shaped Microstrip Patch Antenna", International Conference on Computer and Communication Engineering, 5-7 July 2012, Kuala Lumpur, Malaysia.</li> <li>7. Trupti Ingale , Chaitali Ingale and et.al, " Effect of Different Substrate Material on Performance of H Shaped Patch Antenna", International Journal of Innovative Research in Computer and Communication Engineering, Vol. 2, Issue 11, November 2014.</li> <li>8. Thana Pakkiam .K, JS. Mandeep and M.T Islam, "Design of Microstrip Antenna for Modern Wireless Communication", 1st IEEE International Symposium on Telecommunication Technologies.</li> <li>9. Ritu, Krishan Sherdia, "Microstrip Antenna Design for UWB Applications," International Journal of Advanced Research in Computer and Communication Engineering, Vol. 2, Issue 10, October 2013.</li> </ol> | 105-107 |
| 22. | <p><b>Authors:</b> Kamal Hajari</p> <p><b>Paper Title:</b> Improving Iris Recognition Performance using Local Binary Pattern and Combined RBFNN</p> <p><b>Abstract:</b> Biometric is constantly evolving technology due toincreased concerns in security. It exploits discriminable behavioral or physiological characteristics to identify a legitimate individual. The physiological features like DNA, Iris, Retina, Palm print, face, Ear, Fingerprint and Hand geometry etc. are being extensively used as biometric features to discriminate among different individuals. Iris recognition is a challenging problem, because iris is distinct and intrinsic organ, which is externally visible and yet secured one. It is well protected by the eyelid and the cornea from environmental damage. Our primary focus is to develop reliable system and increase the iris recognition rate on CASIA iris dataset. In this paper, a novel texture features are derived from iris images using histogram of Local Binary Pattern (LBP) and the Neural Network based classifier, namely Radial basis function networks is implemented for classification. Before feature extraction, pre-processing of iris images is performed including iris localization, Segmentation and Normalization. The proposed system give high recognition rate of 93.5% on CASIA iris dataset compared with other methods.</p> <p><b>Keywords:</b> Local Binary Pattern, Radial basis Neural Network Classifier, CASIA, Histograms.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Ross and A. Jain, "Introduction to Informational Biometrics", Pattern Recognition Letter, vol. 14, pp. 2115-2125, 1995.</li> <li>2. K. Jain, A. Ross, and S. Prabhakar, "An Introduction to Biometric Recognition", IEEE Trans. on Circuits and Systems for Video Technology, vol. 14, no. 1, pp. 4–20, 30, Jan. 2004.</li> <li>3. J. Daugman, "How iris recognition works", IEEE Trans. On Ccircuits and Systems for Video technology, vol. 14, no. 1, pp. 21 – 30, Jan. 2004.</li> <li>4. P. Richard, Wildes, "Iris Recognition: An Emerging Biometric Technology", Proc. of the IEEE Int'l conf. on image processing, vol. 85, no. 9, sept. 1997.</li> <li>5. L. Masek, A. Kumar, "Comparison and Combination of Iris Matchers for Reliable Personal Authentication", Science Direct Pattern Recognition, vol. 43, pp. 1016-1026, 2010.</li> <li>6. K. Jain, A. Ross, "Biometrics: A Grand Challenge", IEEE Conf. on Pattern Recognition , Cambridge, UK, vol. 2, pp. 935–942, 23 Aug. 2004.</li> <li>7. Peng-Fei Zhang, Qiu-Ming Li, "Research on Iris image processing algorithm", Proc. of the 4th Int'l Conf. on Machine Learning and Cybernetics, Guangzhou, pp. 18-21, Aug. 2005.</li> <li>8. L. Flom and A. Safir, "Iris Recognition System", US Patent 4641394, 1987.</li> </ol>  | 108-112 |

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| 23. | <p><b>Authors:</b> AbdulQader S. Najmi, Razan H. Marahlah</p> <p><b>Paper Title:</b> Swimmer Bars as Shear Reinforcement in Reinforced Concrete Flat Slabs</p> <p><b>Abstract:</b> Punching shear failure takes the form of a truncated pyramid or truncated cone. A counteract steel cage truncated pyramid using swimmer bars will generate four inclined planes intercepting at perpendicular angles approximately the four inclined planes of the failure. The swimmer bars themselves are a new type of shear reinforcement; these are short inclined bars welded to the steel rectangles forming the base and the top of the truncated steel cage pyramid. The number of steel cages needed depends on the thickness of the concrete plate, the grade of the concrete, and the size of the punching shear force. The results obtained from testing proved the effectiveness of this new system. The slope of swimmer bars may be used an extra parameter to force more than one steel cage truncated pyramid to resist punching shear force. The number of truncated pyramid-crack interceptor may be increased for heavy punching shear forces. The main advantage of this new system will enable the designers to use slabs with uniform economical thickness.</p> <p><b>Keywords:</b> Punching shear, swimmer bars, truncated pyramid, truncated cones.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Robert Park and William L. Gamble, (2000), "Reinforced Concrete Slabs", Second Edition, John Wiley &amp; Sons, Inc., ISBN: 978-0-471-34850-4.</li> <li>2. Wight, James K. and Macgregor, James G. Mac, (2005), "Reinforced Concrete Mechanics and Design" 4th Edition, Pearson Prentice Hall, New Jersey, USA, ISBN-13:978-0132176521.</li> <li>3. ACI. Building Code Requirements for Structural Concrete (ACI 318M-11) - Metric Building Code Requirements for Structural Concrete and Commentary, an AC Standard and Commentary, 2011.<a href="http://www.concrete.org/pubs/newpubs/318M11.htm">http://www.concrete.org/pubs/newpubs/318M11.htm</a> .</li> <li>4. Asha, N. , Al-Nasra, M. , Najmi, A. , "Optimizing the Use of Swimmer Bars as Shear Reinforcement in the Reinforced Concrete Beams", International Journal of Civil and Structural Engineering, Vol. 3, No. 2, November 2012, Pages 313-320, ISSN 0976-4399, DOI: 10.6088/ijcser.201203013030.</li> <li>5. AL-Nasra, M., Najmi, A., Duweib, I., "Effective Use of Space Swimmer Bars in Reinforced Concrete Flat Slabs", International Journal of Civil and Structural Engineering, Feb., 2013, ISSN: 2277-9655.</li> <li>6. AL-Nasra, M., Duweib, I., Najmi, A., "The Use of Pyramid Swimmer Bars as Punching Shear Reinforcement in Reinforced Concrete Flat Slabs", Journal of Civil Engineering Research 2013, 3(2): 75-80, DOI: 10.5923/j.jce.201303.</li> </ol>  |  | 113-117 |
| 24. | <p><b>Authors:</b> Ananthakrishnan V.K, R. Vignesh Kumar, C. Jagadeesh Vikram, C. Thamotharan</p> <p><b>Paper Title:</b> Design and Fabrication of Black Box for Automobiles</p> <p><b>Abstract:</b> The research paper is been developed in order to record informational data, such as engine, vehicle speed and its temperature, etc. to revolutionize the field of motor vehicle accident investigation. It can be also used for vehicle mapping and accident alert with the help of GPS and GSM technology. This paper is designed with the use of embedded systems. Embedded systems are playing important role in our lives every day, even though they might not necessarily be visible. An embedded system can be defined as a control system or computer system designed to perform a specific task and also be defined as a single purpose computer. Some of the embedded systems we use every day are menu control system on television, the timer in a microwave oven and so on with some amount of intelligence built-in. An embedded system contains at least one microprocessor which performs the logic operations for the system. Many embedded systems use one or more microcontrollers, in the type of microprocessor that emphasizes self-sufficiency and cost-effectiveness, instead of a general-purpose microprocessor. A typical microcontroller contains sufficient memory and interfaces for simple applications. This device is used to identify that flow of information at</p>  |  | 118-121 |



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|   | <p>the near-crash situation the information so obtained are of immense use to diagnose the causes of impending accident that gives subtle information for a crime investigation. Also with the introduction of this novel designs there is an ample scope to distinguish the erring drivers from the rest. Presently the most manufacturers of automobiles have introduced a good number of safety devices and in conjunction with safety devices, this device articulated by the present researcher may complements the entire safety mechanism thoroughly. In India the introduction of this device in the novel and innovative attempt by the researcher.</p> <p><b>Keywords:</b> Vehicle Black box technology, GPS tracking device, Microcontroller, Data storage device.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>Melgard .TE, G.Lachapelle and H.Gehuer, "GPS Signal Availability in an Urban area- Receiver Performance Analysis", IEEE, 1994, pp.1-3.</li> <li>Grewal et al., Global Positioning Systems, Inertial Navigation and Integration, John Wiley &amp; Sons, New York, 2001, p.56.</li> <li>Daesik Ko and Hwase Park, "A design of the Intelligent Black-Box using Mining Algorithm", InternationalJournal of Smart Home, Vol.6, No.2, April 2012, pp1-4.</li> <li>C.Jagadeesh Vikram, "An Implementation of Crash Data Automatic Monitoring System (CDAMS) in Automobiles, International Journal of Mechanical Engineering (IJME), ISSN 2319-2240, Vol. 2, Issue 1, Feb 2013, 103-110 © IASET</li> <li>P.Ajay Kumar Reddy, P.Dileep Kumar et al., "Blackbox for Vehicles" International Journal of Engineering Inventions, and ISSN: 2278-7461, www.ijejournal.com, Volume 1, Issue 7(October2012) PP: 06-12</li> <li>Dae Geun Lee, Se Myoung Jung , Myoung Seob Lim, —System on Chip design of Embedded Controller for Car Black Boxl, Intelligent Vehicles Symposium IEEE, Istanbul, 13-15 June 2007, pp 1174-1177, Print ISBN : 1-4244-1067-3, DOI : 10.1109/IVS.2007.4290277.</li> <li>Liewei Jiang, Chunxuan Yu, —Design and Implementation of Car Black Box Based on Embedded Systeml, International Conference on Electrical and Control Engineering, Wuhan, 25-27 June 2010, pp 3537 –3539, Print ISBN: 978-1-4244-6880-5, DOI: 10.1109/ICECE.2010.860.</li> <li>Chulhwa Hong, Truong Le, Kangsuk Chae, and Souhwan Jung, —Evidence Collection from Car Black Boxes using Smartphonesl, IEEE Consumer Communications and Networking Conference, Las Vegas, NV, pp 836 – 837, Print ISBN: 978-1-4244-8789-9, DOI : 10.1109/CCNC.2011.5766619.</li> <li>Lilia Filipova-Neumann, Peter Welzel, —Reducing asymmetric information in insurance markets: Cars with black boxesl, Telematics and Informatics, 2010, pp 394-403, DOI: 10.1016/j.tele.2010.03.003.</li> <li>Dheeraj Pawar, Pushpak Poddar, —Car Black Box with Speed Control in Desired Areas for Collision Avoidancel, ETASR - Engineering, Technology &amp; Applied Science Research, 2012, pp 281-284, Vol. 2.</li> <li><a href="http://www.wikipedia.com">http://www.wikipedia.com</a></li> </ol> |                 |  |                     |  |  |  |   |  |   |  |         |
| 25.   | <table border="1"> <tr> <td><b>Authors:</b></td> <td><b>R. Vignesh, R. Vignesh Kumar, Ananthakrishnan V.K, C. Thamotharan</b></td> </tr> <tr> <td><b>Paper Title:</b></td> <td><b>Mechanical Characteristics and Analysis of Composite Leaf Spring Reinforced With Aluminum</b></td> </tr> <tr> <td colspan="2"> <p><b>Abstract:</b> The objective of this paper is to present a composite material as an alternative to conventional steel leaf spring. The subject gives a brief look on the suitability of composite leaf spring on vehicles and their advantages. Efforts have been made to replace the composite leaf spring to that of steel leaf spring, without affecting the properties and strength. 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|                     | <p>3. oPass: A User Authentication Protocol Resistant to Password Stealing and Password Reuse Attacks[IEEE TRANSACTIONS ON INFORMATION FORENSICS AND SECURITY, VOL. 7, NO. 2, APRIL 2012]by Hung-Min Sun, Yao-Hsin Chen, and Yue-Hsun Lin.</p> <p>4. A Perrig and D. Song, "Hash visualization: A new technique to improve real- world security," in Proc. Int.Workshop Cryptographic TechniquesE-Commerce, Citeseer, 1999, pp. 131–138.</p> <p>5. S. Gawand E. W. Felten, "Password management strategies for online accounts," in SOUPS '06: Proc. 2nd Symp. Usable Privacy. Security,New York, 2006, pp. 44–55, ACM.</p> <p>6. D. Florencio and C. Herley, "A large-scale study of web password habits," in WWW '07: Proc. 16th Int. Conf. World Wide Web., New York, 2007, pp. 657–666, ACM</p>   |                 |   |                     |  |         |
| 27.                 | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Authors:</b></td> <td><b>Attipalli Avinash, Tarik Eltaeib</b></td> </tr> <tr> <td><b>Paper Title:</b></td> <td><b>The Selection of Mesh in Networks</b></td> </tr> </table> <p><b>Abstract:</b> The mesh network structure is vastly implemented in Multi-computers and networks for parallel and distributed computing. In mesh network each computer or processor have maximum of four neighbors. This kind of architecture is implemented in dedicated supercomputers. But, the problem occurs when it comes to the practical implementation in networks. In networks each computer is connected to each other. In this we implement an algorithm to make the mesh network more efficient. The efficient mesh structure is possible in between the best nodes in a network. The proposed algorithm in this mesh network is AGMS ie., Adaptation Genetic Algorithm.</p> <p><b>Keywords:</b> AGAMS algorithm, cost of link, topology.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>S. B. Yoo and C. R. Das , "A Fast and Efficient Processor Allocation Scheme for Mesh-Connected Multi-computers", IEEE Trans. on Computers, vol. 51, January 2002.</li> <li>J. Kim, C. R. Das and W. Lin, "A Top-Down Processor Allocation Scheme for Hypercube Computers", IEEE Trans. on Parallel and Distributed Systems, vol. 2, January 1991.</li> <li>S. M. Yoo, H. Y. Youn and B. Shirazi, "An Efficient Allocation Scheme for 2D Mesh Architectures", IEEE Trans. on Parallel and Distributed Systems., vol. 8, September 1997.</li> <li>D. D. Sharma and D. K. Pradhan, "A Fast and Efficient Strategy for Submesh Allocation in Mesh-Connected Parallel Computers", Proc. 5th IEEE Symp. on Paral. and Distr. Proc., 1993.</li> <li>Y. Y. Yang and J. C. Wang, "Pipelined All-to-All Broadcast in All-Port Meshes and Tori", IEEE Trans. on Computers, vol. 50, October 2001.</li> <li>D. Das, M. De and B. P. Sinha, "A New Network Topology with Multiple Meshes", IEEE Trans. on Computers, vol. 48, May 1999.</li> <li>T. Liu, F. W. Huang, Lombardi and L. N. Bhuyan, "A Submesh Allocation Scheme for Mesh-Connected Multiprocessor Systems", Parallel Processing, 1995, pp. 159-163.</li> <li>D. Lisowski and L. Koszalka, "Fast and Efficient Processor Allocation Algorithms for Mesh-Connected Multicomputers", Proc. of 16th Intern. Conf. on Systems Engineering, vol. 2, Coventry, 2003, pp. 231-235.</li> <li>M. De, D. Das and B. P. Sinha, "An Efficient Sorting Algorithm on the Multi-Mesh Network", IEEE Trans. on Computers, vol. 46, October 1997.</li> <li>L. O. Zhang, "Fault-Tolerant Meshes with Small Degree", IEEE Trans. on Computers, vol. 51, May 2002.</li> <li>D. Lisowski and I. Pozniak-Koszalka, "Efficiency Analysis for Task Allocation Algorithms in Mesh Networks", Sci. Report, Faculty of Electronics, WUT, July 2004 (in Polish).</li> <li>Karbowski, A., and E. Niewiadomska, Parallel and Distributed Computing, WUT, 2001 (in Polish).</li> <li>Agarwal, "The MIT Alewife Machine: Architecture and Performance", Computer Architecture, 1995, pp. 2-13.</li> <li><a href="http://www.hp.com">http://www.hp.com</a>.</li> <li><a href="http://www.top500.org">http://www.top500.org</a>.</li> <li><a href="http://www.beowulf.org">http://www.beowulf.org</a>.</li> <li><a href="http://www.gomez.com">http://www.gomez.com</a>.</li> <li><a href="http://www.seti.org">http://www.seti.org</a>.</li> <li>Davis, L., Handbook of Genetic Algorithms, Van Nostrand Reinhold, New York, 1991.</li> <li>Michalewicz, Z., Genetic Algorithms + Data Structure = Evolution Programs, Springer Verlag, New York, 2001.</li> <li>M. Gen. and Cheng R., Genetic Algorithms and Engineering Design, John Wiley &amp; Sons, New York, 1999.</li> <li>K. T. Ko and S. Kwong , "Using Genetic Algorithms to Design Mesh Networks", Computer, vol. 30, August 1997.</li> <li>Kasprzak, A., Design of Wide Area Networks, Wyd. Pol. Wroc., Wroclaw, 1999 (in Polish).</li> <li>L. Koszalka, D. Lisowski and I. Pozniak-Koszalka, "Comparison of Task Allocation Algorithms for Mesh Structured Networks", Lecture Notes in Computer Science, 3886, Springer, 2006, pp. 21-30.</li> </ol> | <b>Authors:</b> | <b>Attipalli Avinash, Tarik Eltaeib</b>             | <b>Paper Title:</b> | <b>The Selection of Mesh in Networks</b>   | 129-132 |
| <b>Authors:</b>     | <b>Attipalli Avinash, Tarik Eltaeib</b>   |                 |   |                     |  |         |
| <b>Paper Title:</b> | <b>The Selection of Mesh in Networks</b>  |                 |   |                     |  |         |
| 28.                 | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Authors:</b></td> <td><b>Rahul Patel, Ramji Tripathi, Sukhdev Gangwar</b></td> </tr> <tr> <td><b>Paper Title:</b></td> <td><b>Conventional Analysis of Performance of Cooling Tower Used for Industrial Purpose</b></td> </tr> </table> <p><b>Abstract:</b> Several types of machines and equipment's that transfer heat from one fluid to other. Cooling tower is one of them that transfer heat of high temperature water of heat exchanger to low temperature water and then cooled water circulates to heat exchanger again. Cooling tower generate cooled water in large amount and store in a water reservoir. If cooling tower is not design properly it can affect the cooling performance. These cooling towers are enormous and have various unique specifications depending on the environment that they will operate under and the extent to which the owners want to remain efficient and environment friendly. Cooling towers may either use the evaporation of water by removing heat from rest water and cool them near the wet-bulb temperature of air or, in the case of closed circuit as dry cooling tower in which working fluid cool near to the dry-bulb temperature of air. Several parameters as Cooling range, Wet bulb temperature, Mass flow rate of water, Tower height, Air velocity through tower and many other things that affect the performance of cooling tower. For a good designer all this parameter would want to mind for proper designing and functioning of cooling tower.</p> <p><b>Keywords:</b> Cooling tower, Effectiveness, Water flow rate, Tower demand and Wet bulb temperature.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>Betz Laboratories Handbook of Industrial Water Conditioning (7th Edition) Betz Laboratories (1976).</li> <li>Kemmer, Frank N. The NALCO Water Handbook McGraw-Hill (1979).</li> <li>Thermodynamic, an engineering approach- Yunus A. Cengel.</li> </ol>   | <b>Authors:</b> | <b>Rahul Patel, Ramji Tripathi, Sukhdev Gangwar</b> | <b>Paper Title:</b> | <b>Conventional Analysis of Performance of Cooling Tower Used for Industrial Purpose</b> | 133-138 |
| <b>Authors:</b>     | <b>Rahul Patel, Ramji Tripathi, Sukhdev Gangwar</b>   |                 |   |                     |  |         |
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| 29. | <p><b>Authors:</b> Sanjay R. Lohar, Narendra D. Vanjara, Rishi A. Dhokad, Sumit S. Pawar Ketaki P. Kini</p> <p><b>Paper Title:</b> Comparative Analysis of Conventional and Inflatable Seat Belt</p> <p><b>Abstract:</b> - Cars are increasing day by day on street, that is more and more people of different age groups are using a passenger car for transportation. Safety of these occupants is and important aspect of car design, also new safety features are becoming more important as awareness of safety and market competitiveness of manufacturers is increasing. Seatbelts are generally used for restraining occupants during a collision but since long time no innovations have been made in this system. Seatbelts also cause various injuries in severe conditions to adults and also to children, called seatbelt syndrome (Contusion of anterior abdominal wall caused by lap seat belts, which may produce lumbar spine fractures with horizontal splitting of the vertebral body and posterior arch, trauma to bowel, vessels, spleen and liver)1. Thus to combat seatbelt syndrome and improve current seatbelt and safety we introduce inflatable seat belts. These are a combination of seat belt and airbag which helps distributing force on the body of the wearer to a greater area during collision, thus preventing localization of forces causing organ damage. It also can be used where using air bags is not possible and they are cheaper in operation and maintenance than airbags. This paper investigates the difference between the regular seatbelts and inflatable seatbelts by finite element analysis using ANSYS</p> <p><b>Keywords:</b> Car Accidents, Inflatable Seatbelt, Passenger Safety, Seat Belt Syndrome.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Seat Belt Syndrome. (n.d.) Segen's Medical Dictionary. (2011). Retrieved April 22 2015 from <a href="http://medical-dictionary.thefreedictionary.com/Seat+Belt+Syndrome">http://medical-dictionary.thefreedictionary.com/Seat+Belt+Syndrome</a></li> </ol> | 139-140 |
| 30. | <p><b>Authors:</b> Vijay Jumb, Jason Martin, Phyllis Figer, Aniket Rebello</p> <p><b>Paper Title:</b> Mobile Voting Using Finger Print Authentication</p> <p><b>Abstract:</b> - In today's world due to advance technology and rapid growth of mobile technology the old voting methods can be changed to the advanced technology. The Mobile voting system provides an convenient, easy and efficient way to vote. This guarantees a safe and efficient way of voting. This research paper provides the specification and requirements for Mobile Voting which is on Android platform. Mobile voting means voting from an android device. The Android is used to develop the application</p> <p><b>Keywords:</b> mobile; voting; digital voting;one time password(otp)</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>2. Electronic voting (2009), Available from <a href="http://www.Hwskioskprinter.com/terminology%20electronic%20voting.pdf">http://www.Hwskioskprinter.com/terminology electronic voting.pdf</a>.</li> <li>3. Gentles, D and Suresh, S (2011). "Biometric Secured Mobile Voting", Proceedings of Second IEEE/IFIP Asian Himalayas International Conference on Internet, Kathmandu, Nepal.</li> <li>4. <a href="http://www.andhranews.net/India/2008/January/25-Kerela-invents-30938.asp">http://www.andhranews.net/India/2008/January/25-Kerela-invents-30938.asp</a>.</li> <li>5. Kim, K and Hong, D (2007), "Electronic Voting System using Mobile Terminal. World Academy of Science, Engineering and Technology, Vol .3(2), pp.33-37.</li> <li>6. Jsn Scripting:- <a href="http://www.w3schools.com/json.html">http://www.w3schools.com/json.html</a> <a href="http://code.google.com/p/google-gson/">http://code.google.com/p/google-gson/</a></li> <li>7. Php Scripting:- <a href="http://www.w3schools.com/php">http://www.w3schools.com/php</a></li> </ol>   | 141-146 |
| 31. | <p><b>Authors:</b> Abdullatif Abdulkarim Zankawi</p> <p><b>Paper Title:</b> Semiconductors, Diodes, Transistors and Applications</p> <p><b>Abstract:</b> This paper presents and reviews the Semiconductors , Diodes , Transistors to show how can we use these electronic devices in important applications</p> <p><b>Keywords:</b> Semiconductors - Diodes - Bipolar Transistor - FET Transistor – Applications</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. S. Bednarek, B. Szafran, and J. Adamowski, "Solution of the Poisson Schrodinger problem for a single-electron transistor", Phys. Rev. B, Vol. 61, pp. 4461-4464, 2000.</li> <li>2. H. K. Gummel and H. C. Poon, "An integral charge control model of bipolar transistors," Bell Syst. Tech. J., vol. 49, pp. 827–852, May–June 1970.</li> <li>3. G. Wang and G. C. M. Meijer, "The temperature characteristics of bipolar transistors fabricated in CMOS technology," Sens. Actuators A, vol. 87, pp. 81–89, Sept. 2000.</li> <li>4. G. C. M. Meijer, J. van Drecht, P. C. de Jong, and H. Neuteboom, "New concepts for smart signal processors and their application to PSD displacement transducers," Sens. Actuators A, vol. 35, pp. 23–30, 1992.</li> <li>5. K. Matsumoto, M. Ishii, K. Segawa, Y. Oka B. J. Vartanian and J. S. Harris, "Room temperature operation of a single electron transistor made by the scanning tunneling microscope nano oxidation process for the TiOx/Ti system", Appl. Phys. Lett. 68 (1), pp. 34-36, 1996.</li> <li>6. Ken Uchida, Jugli Kaga, Ryuji Ohba and Akira Toriumi, "Programmable Single-Electron Transistor Logic for Future Low-Power Intelligent LSI: Proposal and Room-Temperature Operation", IEEE Transactions on Electron Devices, Vol. 50, No. 7, July 2003.</li> <li>7. T.A. Fulton and G.D. Dolan, "Observation of single electron charging effect in small tunneling junction", Phys. Rev. Lett., Vol. 59, pp. 109-112, July 1987.</li> </ol>   | 147-155 |

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|     | <b>Authors:</b> Ivan N. Mitev   |         |
|     | <b>Paper Title:</b> Influence of the Type of Iron Powder on the Tensile Strength of Iron Carbon Powder Materials Alloyed with Cooper  |         |
|     | <b>Abstract:</b> In the present study the influence of the monitored type iron powder, and the process of sintering in the presence of a liquid phase on the tensile strength of the powder metallurgical samples of the system Fe-C-Cu. Research samples are subjected made of three types of iron powders – ASC 100.29, SC 100.26 and NC 100.2. Thereto is added of 0,2 to 0.8% carbon and 2.5% copper. After sintering the measured density of the samples in the range of $6,20 \div 7,00\text{g/cm}^3$ . Are presented graphics, amending the tensile strength of the samples depending on their density and the concentration of copper and carbon in the iron matrix.  |         |
|     | <b>Keywords:</b> powder metallurgy; tensile strength; sintering; liquid phase; density; carbon; cooper.   |         |
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|     | <b>Authors:</b> Sanjay R. Lohar, Kaustubh M. Pimple, Smit S. Mhatre, Pramod D. Pansare, Rahul U. Mishra   |         |
|     | <b>Paper Title:</b> Experimental Investigation of Performance of Single Cylinder Diesel Engine Using Various Blends   |         |
|     | <b>Abstract:</b> Fast depletion of fossil fuel, rapid increase in the price of petroleum products and harmful exhaust emission from the engine jointly created renewed interest among researchers to find out suitable blend. In the present study of 4 stroke single cylinder diesel engine which was tested with three different blends. In the first case, Diesel-Kerosene blend (with 5% to 20% by volume), in the second case Diesel-Methanol blend (with 5% to 20% by volume) and in the third case Diesel-Ethanol blend (with 5% to 20% by volume) along with diesel was tested at constant engine speed of 2200 rpm. Different engine exhaust emission such as Carbon Monoxide (CO) and Carbon Dioxide (CO <sub>2</sub> ) were compared with Diesel. Using diesel-kerosene blend, exhaust emissions from diesel engine were more as compared to pure diesel. For Diesel-Methanol blend value of %CO was reduced at any mixing ratio i.e. the fuel combustion is proper and more CO was gets converted into CO <sub>2</sub> . For Diesel-Ethanol blend value of %CO was reduced at any mixing ratio i.e. the fuel combustion was proper and more CO was gets converted into CO <sub>2</sub> . %CO was reduced by 57.14% as compared to Diesel for D20E. The performance characteristics of the blends were also compared with Diesel. For Diesel-Kerosene blend the fuel consumption was lower as compared to the Diesel and the lowest fuel combustion was observed for the 10% Kerosene blend. For Diesel-Methanol blend the fuel consumption was increases for all the mixing ratio and highest fuel consumption was observed for the 20% Methanol blend and for Diesel-Ethanol blend the fuel consumption was lower as compared to the Diesel and the lowest fuel consumption was observed for the 20% Ethanol blend.                                  |         |
|     | <b>Keywords:</b> Diesel engine, Kerosene, Methanol, Ethanol, Performance, Fuel properties, emission.  |         |
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|     | <b>Authors:</b> Shalaka V. Parmar, Roshani B. Kharche, Payal V. Mamankar, Hasan M. Raza   |         |
|     | <b>Paper Title:</b> Architecture and Design of 4x4x4 NOC for Multicore SOC  |         |
|     | <b>Abstract:</b> Network on Chip (NoC) architecture provides a good way of realizing efficient Interconnections in  | 165-167 |



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|     | <p>multiprocessors. 3D NoC uses a mesh topology with wormhole switching and stall-go flow control scheme. It improves scalability, diminished concurrent communication, and low power consumption. NoC communication is realized by data packets and forwarded among the network which routes according to Look-Ahead-XYZ routing algorithm (LA-XYZ). The proposed paper focuses on design and verification of 4x4x4 3D NoC. The proposed 3D Network on Chip is designed in VHDL language at RTL level and verified on Xilinx using ISE 14.1 tools. The targeted device is FPGA Virtex-6 XC5VLX30. The minimum input arrival time before clock and maximum output time required time after clock is estimated as 13.094 ns and 10.107 ns respectively.</p> <p><b>Keywords:</b> 3D-NoC; Concurrent; LA-XYZ;</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. P. Magarshack and P.G. Paulin- System-on-Chip beyond the Nanometer Wall, h Proceedings of 40th Design Automation Conf. (DAC 03), ACM Press, 2003, pp. 419-424.</li> <li>2. Ashish khodwe, C. B. (2013). Area Efficient FPGA Based Bidirectional Network on Chip Router through Virtual Channel Regulator. Seventh Sense Research Group.</li> <li>3. Aizu-Wakamastu, Akram ben Ahmed, Abderazek ben Abdallah-LA-XYZ: Low latency, high throughput look-ahead routing algorithm for 3D-Netork-On-Chip (3D-NoC) architecture</li> <li>4. Kenichi Mori- OASIS Network-On-Chip prototyping on FPGA (February 2012).</li> <li>5. Li-Shiuan Pen-Flow control and micro architectural mechanisms for extending the performance if interconnection network (August 2001).</li> <li>6. Akram Ben Ahmed-On the design of a 3D-Network-On –Chip for many-core Soc (February 2012)</li> <li>7. Akram Ben Ahmed, Abderazek Ben Abdallah, Kenichi Kuroda-Architecture and design of efficient 3D-Network-On-Chip (3D-NOC) for custom multicore SoC.</li> <li>8. Ben Abdallah, and M. Sowa- Basic Network-on-Chip Interconnection for Future Gigascale MpSoC Applications: Communication and Computation Orthogonalization, In Proceedings of Tunisia-Japan Symposium on Society, Science and Technology (TJASSST), Dec. 4-9th, 2006.</li> <li>9. K. Tatas, C. Kyriacou, A. Bartzas, K. Siozios, D. Soudris,- A Novel NoC Architecture Framework for 3D Chip MpSoC Implementations.</li> </ol>  |         |
|     | <p><b>Authors:</b> Mirza Anwarullah Baig, Syed Abdul Sattar</p>  |         |
|     | <p><b>Paper Title:</b> Enhanced QoS Control Mechanisms for Distributed Multimedia Applications</p>   |         |
| 35. | <p><b>Abstract:</b> Distributed multimedia applications make use of high-speed networks to transmit data packets and the processing is done at the end-systems. In such an integrated multimedia environment where assured quality of service is to be delivered to the clients and high availability predictability reliability and timeliness is required. To provide seamless quality of service support and data stream control in a truly end-to-end fashion the need for integration of network and transport service arises. An appropriate control mechanism support is required for unified processing and communication of continuous multimedia data streams.</p> <p><b>Keywords:</b> multimedia, bandwidth, delay, jitter</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. F. Garcia, et al., QoS Support for Distributed Multimedia Communications, Proceedings of IFIP/IEEE International Conference on Distributed Platforms, Dresden, Germany, 1996</li> <li>2. B. Li and K. Nahrstedt, Configurable Adaptors for Multimedia Delivery and End System Middleware Solution, Technical Report UIUIDCS-R-97-2018, Department of Computer Science, University of Illinois at Urbana-Champaign, July, 1997</li> <li>3. Campbell, A., Coulson, G., Garcia, F., Hutchison, D., and H. Leopold, "Integrated Quality of Service for Multimedia Communications", Proc. IEEE Infocom'93, Hotel Nikko, San Francisco, CA, March 1993.</li> <li>4. Geoff Coulson, Gordon S. Blair, Philippe Robin, and Doug Shepherd. Extending the Chorus Micro-Kernel to Support Continuous Media Applications. In Proceedings of the 4th International Workshop on Network and Operating Systems Support for Digital Audio and Video, pages 49–60, 11 1993.</li> <li>5. Jeff Kramer and Jeff Magee. Dynamic Configuration for Distributed Systems. IEEE Transaction on Software Engineering, SE-11(4):424–436, 4 1985.</li> <li>6. Jeff Magee, Jeff Kramer, Morris Sloman, and Naranker Dulay. An Overview of the REX Software Architecture. In 2nd IEEE Computer Society Workshop on Future Trends of Distributed Computing Systems, 10 1990.</li> <li>7. Interactive Multimedia Association, Compatibility Project, Annapolis, MD, USA. Request for Technology: Multimedia System Services, Version 2.0, 1992.</li> <li>8. Hewlett-Packard Company and International Business Machines Corporation and SunSoft Inc. Multimedia System Services, Version 1.0, 1993.</li> <li>9. Danthine, A., Baguette Y., Leduc G., and L. Leonard, "The OSI 95 Connection-Mode Transport Service - Enhanced QoS", Proc. 4th IFIP Conference on High Performance Networking, University of Liege, Liege, Belgium, December 1992.</li> <li>10. Wolfinger, B. and M. Moran, "A Continuous Media Data Transport Service and Protocol for Real-time Communication in High Speed Networks." Second International Workshop on Network and Operating System Support for Digital Audio and Video, IBM ENC, Heidelberg, Germany, 1991.</li> <li>11. Ferrari, D., "The Tenet Experience and he Design of Protocols for Integrated Services Internetworks", Multimedia Systems Journal, November 1995.</li> <li>12. Hehmann, D.B., Herrtwich, R.G., Schulz, W., Schuett, T. and R. Steinmetz, Implementing HeITS: Architecture and Implementation Strategy of the Heidelberg High Speed Transport System, Proc. Second International Workshop on Network and Operating System Support for Digital Audio and Video, IBM ENC, Heidelberg, Germany, 1991.</li> <li>13. Schulzrinne, H. and S. Casner, "RTP: A Transport Protocol for Real-Time Applications", Internet Draft, 1995.</li> <li>14. Kanakia, H., Mishra, P., and A. Reibman, "An Adaptive Congestion Control Scheme for Real Time Packet Video Transport", Proc. ACM SIGCOMM '93, San Francisco, USA, October 1993.</li> <li>15. Keshav, S., "Report on the Workshop on Quality of Service Issues in High Speed Networks", ACM Computer Communications Review, Vol 22, No 1, pp 6-15, January, 1993.</li> <li>16. Kurose, J.F., "Open Issues and Challenges in Providing Quality of Service Guarantees in High Speed Networks", ACM Computer Communications Review, Vol 23, No 1, pp 6-15, January 1993.</li> <li>17. Braden R., Clark, D., and S. Shenker, "Integrated Services in the Internet Architecture: an Overview", Request for Comments, RFC-1633.</li> <li>18. Campbell, et al., A Quality of Service Architecture, ACM Computer Communications Review, Vol. 24, Number 2, 1994, pp6-27</li> <li>19. T. Campbell and G. Coulson, QoS Adaptive Transports: Delivering Scalable Media to the Desk Top, IEEE Network, Vol. 11, No. 2, March/April 1997, pp18-27</li> <li>20. Gopalakrishna, G. and G. Parulkar, Efficient Quality of Service in Multimedia Computer Operating System, Department of Computer Science, Washington University, Report WUCS-TM-94-04, August 1994</li> </ol> | 168-170 |

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|                     | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Authors:</b></td> <td><b>Manish Kothari, S. K. Mishra</b></td> </tr> <tr> <td><b>Paper Title:</b></td> <td><b>Environmental Flows Assessment by Drought Analysis</b></td> </tr> </table>  | <b>Authors:</b> | <b>Manish Kothari, S. K. Mishra</b> | <b>Paper Title:</b> | <b>Environmental Flows Assessment by Drought Analysis</b>        |         |
| <b>Authors:</b>     | <b>Manish Kothari, S. K. Mishra</b>  |                 |                                     |                     |  |         |
| <b>Paper Title:</b> | <b>Environmental Flows Assessment by Drought Analysis</b>  |                 |                                     |                     |  |         |
| 36.                 | <p><b>Abstract:</b> Environmental Flows (EFs) have been accepted as one of the most important factors deciding the survival of a river. This concept is fairly well understood in few developed countries however, in developing countries like India, EFs consideration in river water resource development and management poses great challenges. In this paper, EFs variability was estimated using Tennant's method, Hughes and Munster method and further comparing it with drought severity of study area using SPEI (Standardized Precipitation Evapotranspiration Index). The computed values further helps to establish a link between EF and drought severity and as a results helps to assess the health EF condition of the river basin. The estimated results could be used in future water resource and river health assessment in the basin. .</p> <p><b>Keywords:</b> Environmental flows, SPEI, Drought, Tennant method, Hughes and Munster method</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Blake J.H David 2(006) - E-Flows in the Nam Songkhram River Basin IUCN vol. 49 No.1</li> <li>2. Brismar A. (2002)- River systems as providers of goods &amp; services: basis for comparing desired &amp; undesired effects of large dams projects. Environmental Management 29:598-609.</li> <li>3. Caissie D, El-Jabi N, Bourgeois G. (1998)- Instream flow evaluation by hydrologically based &amp; habitat preference (hydrobiological) techniques. Revue des Sciences de l'Eau 11(3): 347-363.</li> <li>4. Flynn R.H. (2003)- A Stream gauging network analysis for the 7-day, 10 year annual low flow in New Hampshire streams. U.S.Geological Survey Water Resources Investigations Report 03-4023, 31p.</li> <li>5. Hughes D.A (2001)- Providing Hydrological Information &amp; data analysis tools for the determination of ecological instream Flow requirements for South African rivers. Hydrology Journal 241:140-151.</li> <li>6. Jha R, Sharma K.D, Singh V.P (2008)- Critical Appraisal of methods for the assessment of environmental flows and their application in two river systems of India. KSCE journal of civil engineering (2008) 12(3):213-219.</li> <li>7. Jha R (2010)- Environmental flow assessment using various techniques in a typical river basin of India. Journal of hydrological research &amp; development vol.25, 2010, INCOH.</li> <li>8. Jorde K, Schneider M (1998)- Determining the Instream Flow requirements using the PHABSIM simulation system. Wasser Und Boden 50(4):45-49.</li> <li>9. Keeffe J.O, Kaushal N, Luna B &amp; Vladimir S. (2012)- Assessment of environmental flows for the upper Ganga basin. WWF report IND-12.</li> <li>10. Kiragu, Home, Mati &amp; Gathanya (2007)- Assessment of suspended sediment loadings &amp; their impact on the environmental flows of upper streams Mara river, Kenya. Ministry of water &amp; Irrigation report KNY/HYD/07/12.</li> <li>11. Pyrc R.S (2004)- Hydrological low flow indices and their uses. WSC Report No. 04-2004.</li> <li>12. Singh K.P &amp; Stall J.B (1974)- Hydrology of 7day 10 yr low flows. Journal of the Hydraulics division, hy12:1753-1771. International Conference on Innovative Technologies and Management for Water Security 12-14 February 2014, Chennai, India</li> <li>13. Smakhtin V.U(2001)- Low Flow Hydrology: A review Journal Of hydrology 240:147-186.</li> <li>14. Smakhtin V.U &amp; Anputhas M. (2006)- An assessment of environment flow requirements of Indian river basins. Research Report 107, International water management Institute, Sri lanka.</li> <li>15. Smakhtin V.U, Shilpakar R.L &amp; Hughes D.A (2006)- Hydrology based assessment of Environmental flows: an example from Nepal. Hydrological Sciences Journal, 51(2), 207-222.</li> <li>16. Smakhtin V.U (2007)- An assessment of Hydrology and Environment Flows in the Walawe River Basin, Sri Lanka, Working paper 103, International Water Management Institute, Sri Lanka.</li> <li>17. Sugiyama H.V, Vudhivanich &amp; Lorsirirat (2003)- Stochastic flow duration curves for the evaluation of the flow regimes of the rivers, J. Am. Water Resources Assoc., Vol. 39, No.1, pp. 47-58.</li> <li>18. Tharme R.S (2003)- A Global perspective on environmental flow assessment: emerging trends in the development and application of environmental flow methodologies for rivers. River Research and Applications Vol.19: 397-441.</li> <li>19. Vladimirov A.M &amp; Lobanova H.V (1998)- Classification of Rivers to Assess Low Flow impacts on Water Quality, Hydrology in a changing Environment vol. I John Wiley and Sons: Baffins Lane Chi Chester W, Sussex PO19 1UD UK; 329-334.</li> <li>20. Vogel (1994)- Flow duration curves. I. A new interpretation and confidence intervals.</li> </ol> | 171-182         |                                     |                     |  |         |
| 37.                 | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Authors:</b></td> <td><b>A. Nachev, T. Teodosiev</b></td> </tr> <tr> <td><b>Paper Title:</b></td> <td><b>Using Support Vector Machines for Direct Marketing Models</b></td> </tr> </table> <p><b>Abstract:</b> This paper presents a case study of data mining modeling for direct marketing, based on support vector machines. We address some gaps in previous studies, namely: dealing with randomness and 'lucky' set composition; role of variable selection, data saturation, and controlling the problem of under-fitting and over-fitting; and selection of kernel function and model hyper-parameters for optimal performance. In order to avoid overestimation of the model performance, we applied a double-testing procedure, which combines cross-validation, and multiple runs. To illustrate the points discussed, we built predictive models, which outperform those discussed in previous studies.</p> <p><b>Keywords:</b> classification, data mining, direct marketing, support vector machines</p>  | <b>Authors:</b> | <b>A. Nachev, T. Teodosiev</b>      | <b>Paper Title:</b> | <b>Using Support Vector Machines for Direct Marketing Models</b> | 183-190 |
| <b>Authors:</b>     | <b>A. Nachev, T. Teodosiev</b>   |                 |                                     |                     |  |         |
| <b>Paper Title:</b> | <b>Using Support Vector Machines for Direct Marketing Models</b>   |                 |                                     |                     |  |         |

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**Authors:** A. Soleymani

**Paper Title:** Thermal Model for Prediction of Deposition Dimension of a Deposited Nickel Superalloy

**Abstract:** Reduction of the final cost of products, complexities of the geometry of the products, as well as speed of the productions are some of the reasons for using rapid prototyping methods in material fabrication processes. Rapid prototyping enables the user to make near net-shape products. Having a good understanding of the thermal history is one of the main challenges of the materials made by rapid prototyping methods. Since the final product is gradually made under a continuous process, a small area can be heated multiple times during different passes of depositions. A series of heating and cooling (with different rates) cycles can importantly affects the microstructural evolution and the chemical compositions (in the case of alloys). In this paper, a finite-element-based thermal model for the manufacturing of nickel-based superalloy on a steel substrate heated by a laser source was developed using COMSOL multiphysics software. The model was assessed based on measuring and comparing the depth and width of the molten with the reported values in the literature. The model results were in good agreement (maximum error of 16%) with the experimental results available in the literature. It was concluded that the developed thermal model can be used for the optimization of the used parameters in the manufacturing process in order to get the desired properties.

**Keywords:** Thermal model, Finite elements, rapid prototyping, Nickel

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**Authors:** Ahmed Ebrahim Abu El-Maaty, Abdulla Ebrahim El-Moher

**Paper Title:** Evaluation of Hot Asphalt Mixtures Containing Reclaimed Asphalt Pavements

**Abstract:** The conventional method of providing bituminous surfacing on flexible pavements require significant amount of energy for production of bituminous mix at hot mix plant. Due to economical reasons and the need for

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environmental conservatism, there has been an increasing shift towards the use of reclaimed asphalt pavement (RAP) materials in the pavement construction industry. Hot mix recycling is the process in which RAP materials are combined with new materials to produce hot mix asphalt mixtures. The amount of the added reclaimed asphalt depends on mineral materials and their homogeneity. The main objective of this paper is to investigate the use of a homogeneity reclaimed asphalt pavement in the pavement industry in Egypt evaluating the effects of partial and total replacements of aggregates by RAP on the mechanical and volumetric response of dense-graded HMA mixtures. Laboratory studies were carried out on asphalt mixes with RAP material and their performance was compared with virgin asphalt mixes. Various performance tests such as indirect tensile strength, resilient modulus, absorbed energy and wheel tracking test were carried out. In addition the effect of moisture damage or stripping on strength of RAP mixtures was investigated. Moreover an economic study was achieved to determine the saving in cost of materials due to using RAP in HMA. The laboratory results indicated that when properly designed, the asphalt mixes with RAP especially at 50% to 100% replacement ratio provided better performance compared to those of new conventional HMA mixtures. While cost analysis showed at least 45-64% savings in material cost related expenses.

**Keywords:** Reclaimed asphalt pavement, Mechanical properties, Moisture Susceptibility, Indirect Tensile Strength, Marshall Stability, Rutting.

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**Authors:**

**Yasaman Ganji, Mehran Kasra, Soheila Salahshour Kordestani**

**Paper Title:**

**Mechanical and Degradation Properties of Castor Oil-Based Polyurethane**



|                     |   |                 |                                     |                     |  |                  |   |                |
|---------------------|---|-----------------|-------------------------------------|---------------------|--|------------------|---|----------------|
|                     | <p><b>Abstract:</b> Castor oil based polyurethanes (PU) with different degradation and mechanical properties have many applications both in industry and medicine. In this study, polyethylene glycol (PEG), castor oil (CO) and 1, 6 - hexamethylene diisocyanate (HDI) were used for synthesis of different kinds of vegetable oil based polyurethanes. Five different chemical compositions of PU with different molar ratios of PEG, CO, and HDI were prepared and casted as solid and porous samples. The samples were then characterized by Fourier transform infrared spectroscopy, dynamic mechanical thermal analysis, and differential scanning calorimetry. Changes in mechanical properties, degradation rate, density, and contact angle were also studied. The results showed that degradation and mechanical properties were related to the ratio of castor oil to polyethylene glycol which made these properties controllable. These properties were also affected by the porosity, as storage and loss moduli were decreased and degradation rate was increased in porous samples compared to those of solid ones.</p> <p><b>Keywords:</b> Biomaterials, Degradation, Polyurethane, viscoelastic properties.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. dos Santos D, Tavares L, Batalha G. Mechanical and physical properties investigation of polyurethane material obtained from renewable natural source. <i>Journal of Achievements in Materials and Manufacturing Engineering</i> 2012;54:211-7.</li> <li>2. Chou CW, Hsu S, Wang PH. Biostability and biocompatibility of poly (ether) urethane containing gold or silver nanoparticles in a porcine model. <i>Journal of Biomedical Materials Research Part A</i> 2008;84:785-94.</li> <li>3. Madbouly SA, Otaigbe JU. 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| <b>41.</b>          | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Authors:</b></td> <td><b>Abdul Khader Jilani Saudagar</b></td> </tr> <tr> <td><b>Paper Title:</b></td> <td><b>Extracting Graphical Information from Arabic e-Documents for Visually Impaired People</b></td> </tr> <tr> <td><b>Abstract:</b></td> <td>Information graphics play a crucial role in a variety of multimodal documents, especially when the concern is about Arabic language which is widely used by many people in the world for communication. Alas, visually impaired people who utilize screen reader software's to steer through such electronic documents have restricted access to the graphics. This research work facilitates blind users to put on access to information graphics that materialize on web pages of Arabic websites and electronic documents. The interface is put into operation as a browser adjunct that instigate by a key hit combination. The result of this research work is a textual synopsis of the graphic, the basic content of which is the hypothesized message of the graphic creator. The textual synopsis of the graphic is then passing on to the end user by screen reader software. The carried work has the following benefits 1) not entails any action on the side of the website developer, and 2) giving the end user with the message that individual can gain the knowledge from viewing the graphics. Overall this work results in a system interface which is easy to handle and an effective way of communicating the informational content of graphics to the visually impaired people in Kingdom of</td> </tr> </table>  | <b>Authors:</b> | <b>Abdul Khader Jilani Saudagar</b> | <b>Paper Title:</b> | <b>Extracting Graphical Information from Arabic e-Documents for Visually Impaired People</b> | <b>Abstract:</b> | Information graphics play a crucial role in a variety of multimodal documents, especially when the concern is about Arabic language which is widely used by many people in the world for communication. Alas, visually impaired people who utilize screen reader software's to steer through such electronic documents have restricted access to the graphics. This research work facilitates blind users to put on access to information graphics that materialize on web pages of Arabic websites and electronic documents. The interface is put into operation as a browser adjunct that instigate by a key hit combination. The result of this research work is a textual synopsis of the graphic, the basic content of which is the hypothesized message of the graphic creator. The textual synopsis of the graphic is then passing on to the end user by screen reader software. The carried work has the following benefits 1) not entails any action on the side of the website developer, and 2) giving the end user with the message that individual can gain the knowledge from viewing the graphics. Overall this work results in a system interface which is easy to handle and an effective way of communicating the informational content of graphics to the visually impaired people in Kingdom of | <b>214-219</b> |
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**Keywords:** Accessibility, Information Graphics, Multimodal Documents, Visually Impaired.

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| <b>Authors:</b>     | <b>Yousif Ismail Mohammed, Safwan Mawlood Hussein</b>        |
| <b>Paper Title:</b> | <b>Modeling and Simulation of Industrial SCARA Robot Arm</b> |

**Abstract:** Many industrial applications needed inelegant robot, especially with trajectory processing for movement and pressing things with very accurate points. This paper presents study of Adaptive Neuro Fuzzy Inference Scheme (ANFIS) for Selective Compliant Assembly Robot. Detail description of a Four degrees of freedom (DOFs) mathematical model of an industrial-application SCARA robot with three (shoulder, elbow, wrist) controlled by servo motors and one pneumatics. DC servomotor driving each of the robot-arm joint is modeled and analytical inverse kinematic problem (IKP) and the forward kinematic solution by D-H parameters. Neural networks with fuzzy logic controller (FLC) select the proper rule base through the RBFNN algorithm as inelegant controller for driving the robot with specific trajectory and apply specific handling processing suitable with certain job. The simulation of mathematical model is done by using Matlab Ver. 2014a, satisfactory results was obtained proved the implement of the system design as practical implement with accurate industrial application.

**Keywords:** SCARA robot, Adaptive Neuro Fuzzy Inference Strategy (ANFIS), Industrial applications

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| <b>Authors:</b> | <b>Youness El Hammami, Mohamed El Hattab, Rachid Mir, Touria Mediouni</b> |
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| <b>Paper Title:</b> | <b>Numerical Study of Natural Convection of Nanofluid in a Square Enclosure in the Presence of the Magnetic Field</b> |
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**Abstract:** This article reports a numerical study on natural convection in an enclosure that is filled with a water–Cu nanofluid and is influenced by a magnetic field. Side walls are the heated surfaces (hot and cold walls). Top and bottom walls of the cavity are assumed to be adiabatic. Theoretical models of Maxwell–Garnetts (MG) and Brinkman are employed to predict the thermal conductivity and viscosity of the nanofluid respectively. The transport equations for continuity, momentum and energy are solved with finite volume approach using the SIMPLE algorithm. This study is carried out to predict the effect of Rayleigh number, Hartmann number and the solid volume fraction of nanoparticles on the flow and heat transfer rate. Results show, There is an opposite effect of Ra and Ha on flow regime, by increasing the magnetic force (higher Hartmann number), the conduction heat transfer becomes the dominate mechanism in heat transfer; this increment causes thermal dissipation in the flow of nanofluid to be enhanced. When the Rayleigh number is high and the Hartmann number is low, the streamlines and isotherms are distributed strongly in the enclosure domain and the heat is transferred due to convection.

**Keywords:** Copper-water nanofluid; Magnetic field; Heat transfer; Natural convection; Numerical study

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|     | <p><b>Authors:</b> <b>Aneesh G Nath, Sreeram G, Sharafudeen K, Sreeraj M C</b></p>  |         |
|     | <p><b>Paper Title:</b> <b>Image Denoising based on Sparse Representation and Dual Dictionary</b></p>  |         |
| 46. | <p><b>Abstract:</b> Learning-based image denoising aims to reconstruct a denoised image from the prior model trained by a set of noised image patches. In this paper, we address the image denoising problem, where zero-mean white and homogeneous Gaussian additive noise is to be removed from a given image. Image denoising method via dual-dictionary learning and sparse representation consists of the main dictionary learning and the residual dictionary learning to recover denoised image. The approach taken is based on sparse representations over trained dictionaries. Using the K-SVD algorithm, we obtain a dictionary that describes the image content effectively. Using the corrupted or noised image primary main dictionary training is done. Since the K-SVD is limited in handling small image patches, we extend its deployment to arbitrary image sizes by defining a global image prior that forces sparsity over patches in every location in the image. We provide a residual dictionary learning phase which leads to a simple and effective denoising mechanism. This leads to a better denoising performance, and surpassing recently published leading alternative denoising methods. Extensive experimental results on test images validate that by employing the proposed two-layer progressive scheme, more image details can be recovered and much better results can be achieved in terms of both PSNR and visual perception.</p> <p><b>Keywords:</b> sparse representation, dictionary learning, image denoising, K-SVD, residual dictionary.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. D. L. Donoho and I. M. Johnstone, "Ideal spatial adaptation by wavelet shrinkage," <i>Biometrika</i>, vol. 81, no. 3, pp. 425–455, Sep. 1994.</li> <li>2. D. L. Donoho, "De-noising by soft thresholding," <i>IEEE Trans. Inf. Theory</i>, vol. 41, no. 3, pp. 613–627, May 1995.</li> <li>3. D. L. Donoho, I. M. Johnstone, G. Kerkycharian, and D. 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| 47. | <p><b>Authors:</b> <b>Jagdish Shivhare, B. V. R. Reddy</b></p> <p><b>Paper Title:</b> <b>A High Performance and Small Sized Four-Fold Microstrip Hairpin Line Bandpass Filter at 2.250 GHz for Communication Systems</b></p> <p><b>Abstract:</b> The contents of this technical paper is presented a new class of multi-folded hairpin line microstrip bandpass filter with improved performance, low cost and great reduction (60-65%) in size compared to a conventional hairpin line bandpass filter. The expected frequency responses have been simulated/optimized by using The Agilent-</p>   | 254-260 |

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|     | <p>make ADS/IE3D-Zealand softwares. The measured results are very close to the simulated/optimized results.</p> <p><b>Keywords:</b> Substrate, folded-hairpin line resonator, miniaturized microstrip filters, narrow band, selectivity, slow wave, ADS/IE3D softwares.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>Deng,P.H., Y. S. Lin, C.H. Wang and C.H.Chen “Compact Microstrip bandpass filters with good stopband rejection” IEEE Transactions on Microwave Theory and Techniques,Vol.54, No.2, 533-539, February 2007</li> <li>Hong, J. S. and M. J. Lancaster, “Coupling Microstrip Square Open-Loop Resonators for Cross-Coupled Planar Microstrip Filters” IEEE Trans.Microw.Theory Tech. Vol., No. 5, October 2006.</li> <li>Prayoot Akkaraethalin and Jaruek Jantree “ Microwave slow wave open-loop resonator filters with reduced size and improved stopband characteristics” ETRI Journal,Vol 28, No. 5, October 2006.</li> <li>Kazerooni M.and A Cheldavi “Simulation,analysis,design and applications of microstrip structure filters using multistrip method “Progerss in Electromagnetic Research” PIER, 63, 193-207, 2006</li> <li>Xiao, J.K., S.W MA, S. Zhang,and Y Li, “Novel compact band pass filters “Journal of Electromagnetic Waves and Applications,Vol.21, No.10,1341-1351, 2007.</li> <li>Singh Jit, Singh Mandeep,S. Prabhu and Sinisa Jovanovic “Design of Capacitive Coupled Resonator Microstrip Filter” Microwave and Optical Technology Letters, Vol 50, No. 2,pp 460-462, February 2008.</li> <li>Ilija G. Iliev and Marin V Nedelchev “CAD of Cross Coupled Miniaturized Hairpin Bandpass Filters” Microwave Review, pp-49-52, December 2002.</li> <li>Pozar, Microwave Engineering , Third Edition, Wiley 2005, pp. 416-438.</li> <li>Lai, X., N. Wang,B. Wu a“Design of tri-band filter based on stub loaded resonator and DGS resonator” IEEE Microwave Wireless Component Letters, 20:265-267, 2010.</li> <li>Tsai,W. L.and R. B. Wu “Tri-band Filter design using Substrate integrated waveguide resonators in LTCC. Proceeding of the IEEE International Symposium on MTT-S Microwave Digest.2011.</li> <li>Fei,L.,H.Gan,Z.Wang and W Lu, “ Novel Compact triple-bandpass filter using <math>\lambda/4</math> resonator pairs with common via ground” proceeding of the Progress in the Electromagnetics Research Symposium, pp-1220-1224, 2012.</li> <li>ADS Agilent-make softwares for design and simulation/optimization</li> <li>IE3D-Zealand software for design and simulation/optimization</li> </ol>  |         |
|     | <p><b>Authors:</b> Shalina Garg, Ratish Kumar</p> <p><b>Paper Title:</b> Multi Band U-Slot Microstrip Patch Antenna for WLAN and Wi-MAX Applications</p>  |         |
| 48. | <p><b>Abstract:</b> A dual U-slot Microstrip patch antenna for WLAN &amp; WI-MAX applications is presented. The proposed antenna is designed using FR4 substrate having dielectric constant 4.4 and fed through 50 ohm Microstrip line. The patch antenna is designed and simulated in CST microwave studio. The proposed antenna generates the three frequency bands 2.431GHz, 5.16GHz 5.518GHz for WLAN and Wi-MAX .The measured results demonstrate that the proposed antenna has appreciable bandwidth, return loss, VSWR and radiation pattern is thus suitable for WLAN and Wi-MAX applications. The return loss of antenna are -12.831dB, -24.65dB,-35.74dB and bandwidth 2.18%, 1.9%, 4.7%. Which suggest good antenna performance.<br/>Microstrip Antenna, W-LAN, WI-MAX, Dual U-slot, CST Microwave studio.</p> <p><b>Keywords:</b> Microstrip Antenna, W-LAN, WI-MAX, Dual U-slot, CST Microwave studio..</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>C. A. Balanis, Antenna theory, 3rd edition, John Wiley, New York, 2005.</li> <li>Jaswinder Kaur, Rajesh Khanna “Co-axial Fed Rectangular Microstrip Patch Antenna for 5.2 GHz WLAN Application” Universal Journal of Electrical and Electronic Engineering, 2013.</li> <li>M. Mahmoud, “Improving the Bandwidth of U-slot Microstrip Antenna Using a New Technique (Trough-Slot Patch)” Region 5 IEEE Conference.</li> <li>Mei-jing Song,Jiu-Sheng Li “A Compact Broadband Micro strip Patch Antenna For WirelessRouter”,IEEE-2011.</li> <li>Garima1, Amanpreet Kaur, Rajesh Khanna3 “Dual- and Triple- Band U-slot Micro strip Patch Antenna for WLAN Applications” International Journal of Advanced Research in Computer and Communication Engineering Vol. 2, Issue 5, May 2013.</li> <li><a href="http://en.wiki.edia.org/wiki/wiMAX/WLAN">http://en.wiki.edia.org/wiki/wiMAX/WLAN</a>.</li> <li>Aleš ČÁP, Zbyněk RAIDA, Eduardo de las HERAS PALMERO, Roberto LAMADRID RUIZ “Multi-Band Planar Antennas A Comparative Study” VOL. 14, NO. 4, DECEMBER 2005.</li> <li>Pradeep Kumar, Neha Thakur, Aman Sanghi, “Micro strip Patch Antenna for 2.4 GHZ Wireless Applications” International Journal of Engineering Trends and Technology (IJETT) – Volume 4 Issue 8- August 2013.</li> <li>Vinod K. Singh, Zakir Ali” Dual Band U- shaped microstrip antenna for wireless Communication” International Journal of Engineering Science and Technology Vol. 2(6), 2010, 1623-1628.</li> <li>Pradeep Kumar, Ritika Saini “CPW fed Inverted U-Shape Microstrip Patch Antenna for WLAN/Wi-MAX Applications” International Journal of Engineering Research, Volume No.3, Issue No.8, pp : 497-500, 01 Aug 2014</li> <li>K. R. Dharani, D. Pavithra” A Simple Miniature U-Shaped Slot Antenna For Wimax Applications” International Journal of Advances in Engineering &amp; Technology, July 2013.</li> <li>Sukhbir Kumar, Hitender Gupta” Design and Study of Compact and Wideband Microstrip U-Slot Patch Antenna for Wi-Max Application” IOSR Journal of Electronics and Communication Engineering (IOSR-JECE), Volume 5, Issue 2 (Mar. - Apr. 2013).</li> <li>Abhinav Bhargava, Samrat Ghosh, Savan Kumar Oad” A Multi (U) Slotted Rectangular Micro-strip Multiband Patch Antenna” International Journal of Engineering and Advanced Technology , Volume-2, Issue-4, April 2013.</li> <li>David M.Pozar,Microwave Engineering,3rd edition,wiley international edition,2005.</li> </ol> | 261-265 |