Volume 1 Issue 6, January 2013

# International Journal of Recent Technology and Engineering

ISSN : 2277 - 3878

Website: www.ijrte.org



**Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.**

**Exploring Innovation: A Key for Dedicated Services**

**Address:**
# 22, First Floor, ShivLoke Phase-IV,
Khajuri Kala, BHEL-Piplani, Bhopal (M.P.)-462021, India
**Website:** www.blueeyesintelligence.org
**Email:** director@blueeyesintelligence.org, blueeyes@gmail.com
**Cell #:** +91-9669981618, **WhatsApp #:** +91-9669981618, **Viber #:** +91-9669981618
**Skype #:** beiesp, **Twitter #:** beiesp

## Technical Advisory Board

## Managing Editor



## Editorial Board

**1.**

**Authors:** Shimaa I. Sayed, M.M.Abutaleb, Zaki B. Nossair

**Paper Title:** Performance Optimization of Logic Circuits based on Hybrid CMOS and CNFET Design

**Abstract:** There is a pressing need to explore circuit design ideas in new emerging technologies in deep-submicron in order to exploit their full potential during the early stages of their development. Carbon nanotube (CNT) based technology has significant potential to replace silicon technology sometimes in the future. Single-walled carbon nanotubes are investigated for applications in logic and sensing circuits due to their superior transport properties. CMOS (complementary metal oxide semiconductor) technology is better in switching speed specially for NMOS. In this work we take advantage of the high mobility transport in p-type CNTFETs and combine them with high-performance conventional n-type MOSFETs, thereby achieving the best overall performance in a hybrid configuration. This paper presents a detailed simulation based assessment of circuit performance of this technology and compares it with 32nm CMOS and 32nm CNFET technologies. It is shown that the performance of the hybrid PCNFET-NMOS configuration is better than that of the pure CMOS in terms of noise margin (32.8% higher) and power consumption (60% lower) and therefore (2.5% lower )in PDP. The performance of PCNFET-NMOS is the same of pure CNFET for noise margin, 65% lower in power consumption and 2% lower in PDP. Also this integration of a carbon nanotube on an underlying CMOS circuit achieves a large saving in area that is amenable to future nanoscale device integration.

**Keywords:** CNFET, CMOS technology, hybrid Design, noise margin, power delay product.

**References:**

1. Subhajit Das, Sandip Bhattacharya, Debaprasad Das, "Design of Digital Logic Circuits using Carbon Nanotube Field Effect Transistors" , IJSCE, December 2011.
2. S. A. Ebrahimi, P. Keshavarzian, M. Salari Sardoueyeh, "Ultra-Low Power and High Speed Full Adder Based-on CNTFET", European Journal of Scientific Research, vol.80, no.3 (2012).
3. Rajendra Prasad S, Prof. B K Madhavi, "Design of low write-power consumption SRAM cell based on CNTFET at 32nm technology", International Journal of VLSI design & Communication Systems (VLSICS) Vol.2, No.4, December 2011.
4. Deji Akinwandeet. al., "Monolithic integration of CMOS VLSI and carbon nanotubes for Hybrid Nanotechnology applications", IEEE Transactions on Nanotechnology, vol. 7, no. 5, September, 2008.
5. J. Deng, and H.-S. P. Wong, "A Circuit-Compatible SPICE model for Enhancement Mode Carbon Nanotube Field Effect Transistors", Proc. Intl. Conf. Simulation of Semiconductor Processes and Devices, pp. 166 - 169, Sept, 2006.
6. Amlani, et al., "First Demonstration of AC Gain From a Single-walled Carbon Nanotube Common-Source Amplifier," Proc. Intl. Electron Devices Meeting, Paper 20.7, Dec., 2006.
7. http://www.eas.asu.edul-ptm/latest.html.
8. J. Deng, (2007) "Device modeling and circuit performance evaluation for nanoscale devices: silicon technology beyond 45 nm node and carbon nanotube field effect transistors" Doctoral Dissertation, Stanford University.
9. Keshavarzi, A. Raychowdhury, J. Kurtin, K. Roy and VivekDe, "Carbon Nanotube Field-Effect Transistors for High-Performance Digital Circuits—Transient Analysis, Parasitics, and Scalability" IEEE transactions on electron devices, vol. 53,no. 11, November 2006.
10. [10]Fahad Ali Usmani1, Student member, IEEE and Mohd. Hasan2, "Novel Hybrid CMOS and CNFET Inverting Amplifier Design for Area, Power and Performance Optimization", Electron devices, IEEE, 2009.
11. Mohammad H. Moaiyeriab, Reza F. Mirzaeeb, "Design and analysis of a high-performance CNFET-based Full Adder", International Journal of Electronics , 2012.
12. J. Deng and H.-SP Wong, (2007) "A compact SPICE model for carbon-nanotube field-effect transistors including non idealities and its application—Part I: Model of the intrinsic channel region"
13. IEEE Trans. Electron Devices, Vol. 54, No. 12, pp 3186-3194.
14. J. Deng and H.-SP Wong, (2007) "A Compact SPICE Model for Carbon- Nanotube Field-Effect Transistors Including Non idealities and Its Application: Part II: Full Device Model and Circuit Performance Benchmarking." IEEE Trans. Electron Devices.Vol. 54, No. 12, pp 3195-3205.
15. Geunho Cho, Yong-Bin Kim, Fabrizio Lombardi, "Performance Evaluation of CNFET-Based
16. Logic Gates ", Instrumentation and Measurement Technology Conference, IEEE, 2009.
17. Hao Lin, Yong Wook Park, and Sandip Tiwari, "A Compact Single-Walled Carbon Nanotube Transistor Integrated with a Silicon MOSFET Using a Single Common Gate", Material Research Society, 2007.

**1-4**

**2.**

**Authors:** Rajesh Nema, Teena Raikwar, Prerna Suryavanshi

**Paper Title:** Advance NOC Router with LOW Latancy & Low Power Consumption by Wormhole Switching

**Abstract:** Network on Chip (NoC) is an approach to designing communication subsystem between intelligent property (IP) cores in a system on chip (SoC). Packet switched networks are being proposed as a global communication architecture for future system-on-chip (SoC) designs. In this project, we propose a design with low latency and low power consumption and implement a wormhole router supporting multicast for Network-on-chip. Wormhole routing is a network flow control mechanism which decomposes a packet into smaller flits and delivers the flits in a pipelined fashion. It has good performance and small buffering requirements. We proposed different power consumption with different frequency with different temperature.

**Keywords:** (NoC), (SoC), (IP).

**References:**

1. Enhanced Buffer Router Design in NOC International Journal of Computer Applications (0975 – 8887) Volume 51– No.20, August 2012
2. Ye Lu, John McCanny, Sakir Sezer "Generic Low Latency Noc Router Architecture for FPGA Computing Systems ",,Journal of IEEE , Page no. 82 – 89, 978-1-4577-1484-9 , 2011 21st International Conference on Field Programmable Logic and Application IEEEs.
3. Shubha B C , Srikanta P," FPGA Implementation Of Network On Chip Framework Using HDL" Journal of IEEE ,Page no. 151 - 155 , 978-1-4244-5975-9 ,2010 IEEE 3-4 April 2010, IIT Kharagpur.
4. Khalid Latif, Tiberiu Seceleanu,, Hannu Tenhunen, "Power and Area Efficient Design of Network-on-Chip Router Through Utilization of

**5-7**

Idle Buffer", Journal of IEEE ,Page no. 131 - 138 , 978-1-4244-6537-8,2010 17th IEEE International Conference and Workshops on Engineering of Computer-Based Systems.
5. Ying Zhang, Huawei Li1, Xiaowei Li1, " Reliable Network-on-Chip Router for Crosstalk and Soft Error Tolerance" Journal of IEEE 2008
6. H.C. Freitas, T.G.S. Santos , P.O.A. Navaux," Design of programmable NoC router. Architecture on FPGA for multi-cluster NoCs", Journal of IEEE Volume: 44,Page no. 969 – 971, 0013-5194 ,31 July 2008.
7. Glenn Leary ,Krishna Mehta, Karam S. Chatha Journal of IEEE " Performance And Resource Optimization Of NOC Router Architecture For Master And Slave IP Cores ",Journal of IEEE Page no. 155 - 160 ,978-1-5959-3824-4 , 2007 .
8. Angelo Kuti Lusala, Philippe Manet, Bertrand Rousseau, Jean-Didier Legat "NOC IMPLEMENTATION IN FPGA USING TORUS TOPOLOGY", Journal of IEEE Page no. 778 - 781 978-1-4244-1060-6 ,2007
9. Balasubramanian Sethuraman,, Ranga Vemuri Sethurb, "optiMap: A Tool for Automated Generation of NoC Architectures using Multi-Port Routers for FPGAs", Journal of IEEE ,2006.
10. Vile Rantala ,Teijo Lehtonen,Juha Plosila/Turku center for Computer Science Book:-"Network on Chip Routing Algorithm" .

**3.**

**Authors:** **D.Dhanapal, S.Venkateswarlu, B. Jayachandraiah**

**Paper Title:** **Dissimilar Metal Welding Of AISI 4130 Steel To 18% NI Mararing Steel**

**Abstract:** Maraging steels are ultra-high strength and high toughness steels used in the rocket motor casing, leaf springs, landing gears etc. They obtain their strength and toughness from precipitation hardening. The strength of AISI 4130 steels is obtained by austenizing followed by quenching and tempering. They obtain their strength from martensite phase transformation. As the heat treatment for the two steels are different due to different hardening mechanisms, an optimum heat treatment needs to be developed to obtain maximum strength for the dissimilar welding of this two materials. Weldments are often made from dissimilar metals in order to satisfy different requirements for performance. A successful weld between dissimilar metals is that it possesses sufficient tensile strength and ductility so that the joint will not fail. In the present work, 18%Ni (250) maraging steel was joined to AISI 4130 low alloy steel by TIG welding with W2 maraging steel filler wire. These dissimilar welds were realized with two different material conditions. The first condition is welding of solutionised maraging steel to hardened and tempered AISI 4130 steel. The second condition is welding of aged maraging steel to hardened and tempered AISI 4130 steel. The dissimilar welds we subjected to non-destructive testing i.e. X-ray radiography and subsequently subjected to different post weld heat treatment cycles depending on the initial material condition. The joints were offered for microstructure and mechanical property evaluations such as ultimate tensile strength, yield strength and % elongation. The model of the specimen was created using the CATIA software. The model was meshed using software ABAQUS. Boundary conditions were given on the finite element model through ABAQUS.

**Keywords:** Dissimilar Metal Welding, AISI 4130, MDN 250, 18% Ni Maraging Steel.

**8-13**

**References:**

1. Welding Hand Book, Eight Editions, AWS, Vol 4, Part, pp. 48-56
2. Raymond F.Decker, "Source Book on Maraging steels", American Society of Metal, 1979.
3. F.H.Lang and N.Kenyon, WRC Bulletin 159, p.p. 1-43
4. K.R.Brown, "Ferrous Alloys – AISI 4130", Aerospace Structural Metals Handbook, Dec 1985, Code 1201, p.p. 1-48
5. T. Mohandas, G. Madhusudhan Reddy and V.S.N. Venkata Ramana, "Welding of Dissimilar Ultra-High Strength Steels", National Welding Seminar – 2002
6. Denm's Kligman, "Welding NASCAR's new Materials", Dec 2006, p.p.24-28
7. Emel Taben & Lippold, "Dissimilar friction welding of 6061-T6 aluminum AISI 1018 steel: Properties and microstructural characterization", Science Direct.Oct 2009
8. Microstructure and mechanical properties of laser welded dissimilar DP600/DP980 dual-phase steel joints, International Journal, ScienceDirect, May 2010.
9. Journal of Iron and Steel Research, International 2009, Microstructure and Hardness of T250 Maraging steel in Heat Affected Zone[HAZ].
10. Microstructure changes during welding and subsequent heat treatment of 18 Ni (250-grade) maraging steel, by Sundaresan. Feb 2000.
11. YIH CHANG, "Effect of Postweld Treatment on the Fatigue Crack Growth Rate of Electron-Bean-Welded AISI 4130 Steel", Vol 27A, 1996.

**4.**

**Authors:** **Parameshachari B D, K M Sunjiv Soyjaudah, Chaitanyakumar M V**

**Paper Title:** **A Study on Different Techniques for Security of an Image**

**Abstract:** With the rapid development of various multimedia technologies, more and more multimedia data are generated and transmitted in the medical, commercial, and military fields, which may include some sensitive information which should not be accessed by or can only be partially exposed to the general users. Therefore, security and privacy has become an important. Over the last few years several encryption algorithms have applied to secure image transmission. This paper is a review on the aspects and approaches of design an image cryptosystem. First a general introduction given for cryptography and images encryption and followed by different techniques in image encryption and related works for each technique surveyed. Finally, general security analysis methods for encrypted images are mentioned.

**Keywords:** analysis, cryptography, encryption, image, image transmission, security

**14-19**

**References:**

1. Kahn, David , (1980). Cryptology Goes Public, Communications Magazine, IEEE.
2. Kessler , Gary C., (1998). An Overview of Cryptography.
3. B. White, Gregory, (2003). Cisco Security+ Certification: Exam Guide, McGraw-Hill.
4. Shon harris, (2007). SICCP Exam Guide, fourth edition, McGraw-Hall
5. Stallings, William, (2007). Network Security Essentials, applications and Standards , Pearson Education, Inch.
6. Wayne G. Barker, "Introduction to the analysis of the Data Encryption Standard (DES)", A cryptograph-ic series, Vol. 55, p. viii + 190, Aegean Park Press, 1991.
7. Kofahi, N.A., Turki Al-Somani, Khalid Al-Zamil. "Performance evaluation of three encryption/decryption algorithms" 2005 IEEE International Symposium on Micro-NanoMechatronics and Human Science, Publication Date: 30-30 Dec. 2003. Volume: 2, pp 790-793.
8. Jean-Yves chouinard.,. Design of secure computer systems CSI4138/CEG4394 notes on the advanced encryprion standard (AES).
9. Diffie , Whitfield & Hellman, Martin E, (1976) . New Directions In Cryptography, IEEE TRANSACTIONS ON INFORMATION

THEORY.
10. W. Diffie and M. E. Hellman, New Directions in Cryptography, IEEE Transactions on Information Theory, Vol. 22, Issue 6, Nov 1976.
11. H. Shuihua and Y. Shuangyuan, An Asymmetric Image Encryption Based on Matrix Transformation, Transactions on Computer and Information Technology, Vol. 1, No. 2, 2005.
12. K.Ganesan, I. Singh and M. Narain, Public Key Encryption of Images and Videos in Real Time Using Chebyshev Maps, Fifth International Conference on Computer Graphics, Imaging and Visualization, 2008.
13. K. Gupta, S. Silakari, R. Gupta and S. A. Khan, An Ethical way for Image Encryption using ECC, First I. Conference on Computational Intelligence, Communication Systems and Networks, 2009.
14. M. Naor and A. Shamir, Visual cryptography, Advances in Cryptology- EUROCRYPT94, Lecture Notes in Computer Science, Vol. 950, Springer-Verlag, Berlin, pp. 1-12, 1995.
15. M. Jaafar and A. Samsudin, A New Public-Key Encryption Scheme Based on Non-Expansion Visual Cryptography and Boolean Operation, Int. Journal of Computer Science Issues, Vol. 7, Issue 4, No. 2, July 2010.
16. W. Effelsberg and R. Steinmetz, Video Compression Techniques, Heidelberg, Germany: Dpunkt-Verlag, 1998.
17. W. Zeng and S. Lei, Efficient Frequency Domain Selective Scrambling of Digital Video, IEEE Transactions on Multimedia, 5(1), March 2003
18. T. Maples and G. Spanos, Performance study of a selective encryption scheme for the security of networked real-time video, Proceedings of the 4th International Conference on Computer Communications and Networks, Las Vegas, 1995.
19. Agi and L. Gong, An empirical study of secure MPEG video transmission, Symposium on Network and Distributed Systems Security, 1996.
20. M. V. Droogenbroeck and R. Benedett, Techniques for a selective encryption of uncompressed and compressed images, Proceedings of ACIVS, Ghent, Belgium, September 2002.
21. M. V. Droogenbroeck, Partial Encryption of Images for Real-Time Applications, 4th IEEE Signal Processing Symposium, Hilvarenbeek, The Netherlands, pp. 11-15, 2004.
22. O. M. Odibat, M. H. Abdallah and M. B. Al-Zoubi, New Techniques in the Implementation of the Partial Image Encryption , 4th International Multi-conference on Computer Science and Information Technology, Jordan, 2006.
23. K. Hong and K. Jung, Partial Encryption of Digital Contents Using Face Detection Algorithm, Springer-Verlag, 2006.
24. J. M. Rodrigues, W. Puech, P. Meuel, J. C. Bajard and M. Chaumont, Face Protection by Fast Selective Encryption in a Video, The Institution of Engineering and Technology Press, Seattle, WA, 1993.
25. S. Lian, J. Sun, D. Zhang and Z. Wang, A Selective Image Encryption Scheme Based on JPEG2000 Codec, LNCS 3332, pp. 6572, Springer-Verlag, Berlin Heidelberg, 2004.
26. N. Tanejaa, B. Ramanb, I. Guptaa, Selective image encryption in fractional wavelet domain, In. Journal of Electronics and Communications, (AE) 65, pp. 338344, Elsevier, 2011.
27. Rivest, Shamir and Adleman, A Method for Obtaining Digital Signatures and Public-Key Cryptosystems, Communications of the ACM 21 (2): pp. 120126, 1978.
28. C. Y. Lin and S. Fu Chang, Generating Robust Digital Signature for Image/Video Authentication, Multimedia and Security Workshop at ACM Multimedia, Bristol, UK. , 1998.
29. T. Chen, J. Wang and Y. Zhou, Combined Digital Signature and Digital Watermark Scheme for Image Authentication, Int. Conferences on Infotech and Info-net, Beijing, 2001.
30. Chun-Shein Lu and H. Y. Mark Liao, Structural Digital Signature for ImageAuthentication: An Incidental Distortion Resistant Scheme, IEEE Transactions on Multimedia,Vol.5,No.2, 2003.
31. H. Zang, L. Min, Li Cao, An Image Encryption and Digital Signature Scheme Based on Generalized Synchronization Theorem, International Conference on Computational Intelligence and Security, 2009.
32. Qiang Wang, Qun Ding , Zhong Zhang, Lina Ding, "Digital Image Encryption Research Based on DWT and Chaos" IEEE Transactions pp. 494-498,2008.
33. Yong-Hong Zhang, "Image encryption using extended chaotic sequences", IEEE Transactions International Conference on Intelligent Computation Technology and Automation pp. 143-146,2011.
34. Monisha Sharma et. al. "Image Encryption Techniques Using Chaotic Schemes: A Review" International Journal of Engineering Science and Technology, Vol. 6,pp. 2359-2363, 2010.
35. Mintu Philip, Asha Das, " Survey: Image Encryption using Chaotic Cryptography Schemes" International Jounal of Computer Applications,2011.
36. Jun Lang, Ran Tao, Yue Wang, "Image encryption based on the multiple-parameter discrete fractional Fourier transform and chaos function" Optics Communications, Vol 283, pp. 2092-2096, 2010.
37. R. Matthews, On the derivation of a chaotic encryption algorithm. Cryptologia, pp. 2942, 1989.

**5.**

| | |
|---|---|
| **Authors:** | **Rajashekarappa, K M Sunjiv Soyjaudah** |
| **Paper Title:** | **Investigation on Advanced Encryption Standard Techniques Using SMART Copyback for Data** |

**Abstract:** Advanced Encryption Standard (AES) is a symmetric block cipher that is intended to replace DES as the approved standard for a wide range of applications. Advanced Encryption Standard (AES) is the current standard for secret key encryption. NIST selected Rijndael as the proposed AES algorithm. The two researchers who developed and submitted Rijndael for the AES are both cryptographers from Belgium: Dr. Joan Daemen and Dr. Vincent Rijmen. Ultimately the Federal Information Processing Standard (FIPS PUB 197) used a standardized version of the algorithm called Rijndael for the Advanced Encryption Standard. The algorithm uses a combination of Exclusive-OR operations (XOR), octet substitution with an S-box, row and column rotations, and a MixColumn. It was successful because it was easy to implement and could run in a reasonable amount of time on a regular computer. In this paper we Investigate on Advanced Encryption Standard Techniques with some applications like Military, finance sector and maintain the research data for long time without fail. Finally these data could be store for long time with help of Self Monitoring Analysis and Reporting Technology (SMART) Copyback technique.

**Keywords:** Advanced Encryption Standard, Key search space.

**References:**

1. Rajashekarappa and Dr. K M S Soyjaudah "Heuristic Search Procedures for Cryptanalysis and Development of Enhanced Cryptographic Techniques" Published at International Journal of Modern Engineering Research (IJMER), May 2012, Vol.2, Issue.3, pp-949-954.
2. William Stallings, "Cryptography and Network Security Principles and Practices", Third edition, McGraw- Hill, 2006.M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.
3. Announcing the ADVANCED ENCRYPTION STANDARD (AES), Federal Information Processing Standards Publication 197 November 26, 2000.
4. Advanced Encryption Standard (AES). FIPS. November 23, 2001. http://csrc.nist.gov/publications/fips/fips197/fips-197.pdf
5. Behrouz A. Forouzan, "Cryptography and Network Security", Firstedition, McGraw- Hill, 2006.
6. Kaufman, C., Perlman, R., and Speciner, M. Network Security: Private Communication in a Public World. 2nd Ed. Upper Saddle River, N. J.:Prentice Hall PTR, 2002.

7. Rajashekarappa and Dr. K M S Soyjaudah "Self Monitoring Analysis and Reporting Technology (SMART) Copyback", proceedings of International Conference on Information Processing 2011 (ICIP 2011), 8th-9th Aug, Bangalore, pp 463 - 469, 2011. © Springer-Verlag Berlin Heidelberg, 2011.
8. Data Encryption Standard, Federal Information Processing Standards Publication No. 46, National Bureau of Standards, January 15, 1977.
9. Krishnamurthy G N, V Ramaswamy, "Making AES Stronger: AES with Key Dependent S-Box", IJCSNS International Journal of Computer Science and Network Security, Vol.8, No.9, pp 388-398, September 2008.
10. P. Noo-intara, S. Chantarawong, and S. Choomchuay "Architectures for MixColumn Transform for the AES" Department of Electronics, Faculty of Engineering, and Research Center for communications and Information Technolohy (ReCCIT) King Nongkut's Institute of Technology Ladkrabang (KMITL), Bangkok 10520, Thailand.

**6.**

**Authors:** **Anand Kumar Singh, Abdul Manan**

**Paper Title:** **Design and Performance analysis of Constantgm Low-Power Rail-to-Rail Operational Amplifier**

**Abstract:** A low power CMOS op-amp rail to rail op-amp. We realizes in SCNO 180nm technology. Under 1.8 power supply voltage. A constant transcondutance is ensured for the whole common-mode input range. The class AB output stage also has a full voltage swing. The circuit provides a gain bandwidth of 17.3-MHz and a DC gain of 83.67 dB. The input transistors operate in weak inversion, which have big gm/Id value, so the power consumption is reduced. .

**Keywords:** CMOS, SCNO, DC, 173-MHz..

**References:**

1. Yi Zhang, Qiao meng and Zigong Wang "Constant-gm Low-Power Rail-to-Rail Operational Amplifier", 2009, IEEE.
2. B. Razavi, Design of Analog CMOS Integrated Circuits. McGraw-Hill.
3. Phillip E. Allen and Douglas R. Holberg, CMOS Analog Circuit Design. New York: Oxford University Press, 2002"
4. J.M.Carrillo, J.F.Duque-Carillo, G.Torelli and J.L.Ausin, "1-V QuasiConstant-gm Input/Output Rail-to-Rail CMOS Op-amp",INTEGRATION, the VLSI Journal, vol.36, no. 4, pp.161-174, 2003
5. K. Lasanen, E. Raisanen-Ruotsalainen and J. Kostamovaara, "A 1-V 5μW CMOS-Opamp with Bulk-Driven Input Transistors" Proc. 43rdIEEE Midwest Symp. on Circuits and Systems, vol. 2, pp. 1038-1041,Aug. 2000
6. T. Lehmann and M. Cassia, "1-V Power Supply CMOS CascodeAmplifier", IEEE J. Solid-State Circuits, vol. 36, no. 7, pp. 1082-1086,July 2001.
7. E. Raisanen-Ruotsalainen, K. Lasanen and J. Kostamovaara, "A 1.2 VMicropower CMOS Op Amp with Floating-Gate Input Transistors", Proc. 43rd IEEE Midwest Symp. Circuits and Systems, vol. 2, pp. 794-797, Aug. 2000

**26-29**

**7.**

**Authors:** **Gopalakrishnan.B, P.K.Bhaba**

**Paper Title:** **Computation of the Optimal Value of Operating Parameters in a Reactor – Heat Exchanger System by Differential Evolution Techniques**

**Abstract:** In this research work, the modern soft computing technique of Differential Evolution (DE) algorithm is considered to determine global optimal values of the operating parameters in a Reactor -Heat Exchanger (RHE) system. In addition, a penalty term is incorporated in the objective function and thereby computing annual cost of the RHE system in terms of operating and investment costs. A comparative study is also made with Genetic Algorithm (GA) in RHE system. Results clearly indicate the supremacy of DE for global optimization of operating parameters in RHE system. A convergence test is performed and reported here.

**Keywords:** Optimization, Differential Evolution Algorithm, Genetic Algorithm, Reactor - Heat Exchanger System.

**References:**

1. Storn.R., Price.K,, Differential Evolution – A simple and efficient adaptive scheme for global optimization over continuous spaces, Technical Report TR-95-012, International Computer Science Institute, Berkeley, 1995.
2. Storn.R.,Price.K., Differential Evolution – A Simple and Efficient Heuristic for Global optimization over Continuous Spaces, Journal of Global Optimization,Vol.11, 1997. pp.341 – 359.
3. Price K., Storn R., Lampinen J., Differential Evolution - A Practical Approach to Global Optimization, Springer, Berlin, 2005.
4. Millie Pant, Radha Thangaraj and V. P. Singh, Optimization of Mechanical Design Problems Using Improved Differential Evolution Algorithm, International Journal of Recent Trends in Engineering, Vol. 1, No. 5, 2009,pp.21 -25.
5. Fernando P. Bernardo., Efstratios N. Pistikopoulos .,Pedro M. Saraiva .,Quality costs and robustness criteria in chemical process design optimization,Computer and Chemical Engineering Journal,Vol.25,2001,pp.27 – 40.
6. Fernando P. Bernardo., Pedro M. Saraiva .,Robust optimization framework fo process parameter and tolerance design. AICHE Journal, Vol. 44(9), 1998, pp.2007–2017.
7. Halemane.K.P., Grossmann.I.E., Optimal process design under uncertainty. AICHE Journal,Vol. 29(3),1983,pp.425–433.
8. Vikrant Bansal,John D. Perkins,and Efstratios N. Pistikopoulos ., Flexibility analysis and design using a parametric programming framework. AICHE Journal, Vol.48(12),2002,pp.2851–2865.
9. Grossmann.I.E., David A. Straub. Recent developments in the evaluation and optimization of flexible chemical processes. In COPE91, pp. 41. Elsevier, 1991.
10. Gopalakrishnan.B , Govindarajan.L ,Karunanithi.T and Bhaba.P.K , Genetic Algorithm Based Design Optimization Of Reactor - Heat Exchanger System , Modeling and Simulation, Allied Publisher ,Vol. 1,2007,pp. 214 – 219.

**30-33**

**8.**

**Authors:** **Harish Kumar Pal, Anand Kumar Singh, Prerna Sharma**

**Paper Title:** **Simulation of Carbon Nano Tube Field Effect Transistor (CNTFET) for Reconfigurable Logic Gate Design**

**Abstract:** With the help of scaling down of CMOS, we have achieved higher integration density, the higher performance of devices, low power consumption and more complex functions. But with the increasing the complexity at nanometer scale in conventional Si CMOS technology, it is very difficult to maintain the pace of scale downing and it will limits in few years. The main objective of this project is to detail study of carbon nanotube Field Effect Transistor, types of CNTFETs and it is very important to show that the Carbon Nanotube Field Effect Transistor work properly with respect to conventional transistor and is more efficient than the conventional MOSFETs at nano scale regime which is shown in this project with the help of simulation studies of Top Gate CNTFET and Coaxial CNTFETs with the help of tools provided by online tools of Nano Hub. In the project at last a reconfigurable logic gate is also designed with the help of CNTFETs

**34-36**

**Keywords:** CNTFET, GRAPHENE, NANOTUBES, RECONFIGURABLE LOGIC

**References:**


1. Nor Zaidi Haron, Said Hamdioui, and Sorin Cotofana, "Emerging Phenomena dependent Non CMOS Nano electronic Devices What Are They?" , Computer Engineering Laboratory, Delft University of Technology, Mekelweg 4, 2628 CD Delft, the Netherlands.
2. International Technology Roadmap for Semiconductor 2007 Edition online at http://www.itrs.net/Links/2007ITRS/ExecSum2007.pdf.
3. Toshinori Numata (2005), "Control of Threshold Voltage and short Channel Effects in Ultrathin Strained SOI CMOS Devices". IEEE Transactions on Electron Devices, Vol. 52, No. 8, August 2005.
4. Jeffrey Lutze and Suresh Venkatesan (1995), "Techniques for Reducing the Reverse short Channel Effect in Sub0.5um CMOS". IEEE Electron Device Letters, Vol. 16, No. 9, September 1995.
5. Riichiro Saito (1998), "Physical Properties of Carbon Nanotubes". London. Imperial College Press.


**9.**

**Authors:** **Surabhi Dwivedi, Vivekanand Mishra, Y.P.Kosta**

**Paper Title:** **Design and Comparative analysis of a Metamaterial included Slotted Patch Antenna with a Metamaterial Cover over Patch**


**Abstract:** A metamaterial is introduced into the cover of a patch antenna and its band structure is analyzed. The metamaterial cover with correct selection of the working frequency increases the patch antenna's directivity. Based on the methodology, optimization of structure is proposed for the application of metamaterials as antenna substrate to primarily enhance directivity by minimizing its refractive index. The experimental results are presented thoroughly and compared with the analytic calculations. This paper aims to review and critically discuss the comparision of a metamaterial included patch and metamaterial cover over the patch. An analytical method is used to predict the features of the simulation results, implying that within a certain frequency range, comparision can be made between these two models. The S-parameters as a performance matrix are obtained from antenna simulations carried on CADFEKO Silverlite version 5.5. Simulations have been carried out for different shapes of microstrip patch antenna in the microwave regime. © 2010 ISRO – Indian Space Research Organisation



**Keywords:** Microstrip antenna (MSA), Antennas, Patch cover, Directivity, Negative refractive Index (NRI), metamaterials.


**References:**


1. Deschamps, G. A., ''Microstrip Microwave Antennas,'' Proc. 3rd USAF Symposium on Antennas, 1953.
2. Munson, R. E., ''Single Slot Cavity Antennas Assembly,'' U.S. Patent No. 3713162, January 23, 1973.
3. Munson, R. E., ''Conformal Microstrip Antennas and Microstrip Phased Arrays,'' IEEE Trans. Antennas Propagation, Vol. AP-22, 1974, pp.
4. Howell, J. Q., ''Microstrip Antennas,'' IEEE Trans. Antennas Propagation,Vol. AP-23, January 1975, pp.90–93.
5. Bahl, I. J., and P. Bhartia, Microstrip Antennas, Dedham, MA: Artech House, 1980.
6. Carver, K. R., and J. W. Mink, ''Microstrip Antenna Technology,'' IEEE Trans. Antennas Propagation, Vol. AP-29, January 1981, pp. 2–24.
7. Girish Kumar, K. P. Ray, "Broadband Microstrip Antenna", Boston London, Artech House , 2003, pp. 26-46.
8. Enoch, S., Tayeb, G., Sabouroux, P., Guerin, N., Vincent, P.,2002. A metamaterial for directive emission. Phys. Rev.Lett., 89(21):213902(1-4).
9. J B Pendry, A J Holden, D J Roddins, W J Stewart, Magnetism from Conductors, and Enhanced non- Linear Phenomena London: Imperial College, 1999
10. HU Jun ,YAN Chun-sheng, LIN Qing-chun, "A new patch antenna with metamaterial cover" Zhejiang University,China,2005; revision accepted Nov. 28, 2005
11. Ashwin K.IYER and Gearge V. Eleftheriades,"Negative refractive-Index Transmission-Line Metamatrials",University of Toronto,Canada.
12. Okoshi, T., and T. Miyushi, ''The Planar Circuit—An Approach to Microwave Integrated Circuitry,'' IEEE Trans. Microwave Theory Tech., Vol. 20, April 1972, pp. 245–252.
13. James, J. R., and P. S. Hall, Handbook of Microstrip Antennas, Vol. 1, London: Peter Peregrinus, Ltd., 1989.
14. HU Jun, YAN Chun-sheng, LIN Qing-chun "A new patch antenna with metamaterial cover", China, Nov. 28, 2005.


**37-41**

**10.**

**Authors:** **K.Maharaja, S.N.Vijayan, S.Sendhil Kumar**

**Paper Title:** **Design and Fabrication of Convergent Wind Mill**


**Abstract:** Nowadays electrical energy is very essential for human beings to fulfill the requirements of day to day activities in various measures. The demand of the electrical energy increases day by day. It is most essential to promote renewable energies so that they definitely become a strong alternative to generate electrical power for small scale needs of society. This paper discusses the convergent horizontal axis wind mill which uses the bicycle wheel instead of using propeller blades for producing power. Design of the horizontal axis wind mill is discussed and presented in this paper considering the various design factors. The results observed through various experiments in the various time zones which validate the results obtained analytically.



**Keywords:** Convergent turbines, Renewable energy, Wind power ..


**References:**


1. J. Manuel Feliz Teixeira, 2006, "Low-cost Convergent Turbine for Wind Power Usage",. Windmill Bicycle Wheel by EYEWE.
2. S K Tewari, Ningaiah, D V Subramanyam and A C. Samraj. "A Horizontal axis sail windmill" for use in irrigation. Proceedings of the Indian Academy of Sciences, March 1979, pp. 107-116
3. Chun Su, Quan Jin, and Yequn Fu "Correlation analysis for wind speed and failure rate of wind turbines using time series approach" Journal of Renewable And Sustainable Energy ,2012, 4, 032301
4. Sajad Tabatabaei and Taher Niknam, "Impact of wind
5. generators on distribution feeder reconfiguration", Journal Of Renewable And Sustainable Energy, 2012, 4, 053101
6. M. Veigas and G. Iglesias, "Evaluation of the wind resource and power performance of a turbine in Tenerife", Journal of Renewable And Sustainable Energy 2012, 4, 053106
7. K. Aboul-Seoud, Alaa El-Din Sayed Hafez, Mohamed Abd El-latif, A. Abou-Raya, "Wind Speed Behavioral Modeling for Economical Energy Generation using Windmills" , International Journal of Scientific & Engineering Research Volume 3, Issue 7, June-2012
8. R.S. Bajpai, Rajesh Gupta, "Design of simulator for modelling of wind turbine and transfer of maximum power using buck-boost


**42-45**

converter", Int. J. of Renewable Energy Technology, 2011 Vol.2, No.4, pp.373 – 391
9. Gilles Notton, Vladimir Lazarov, Ludmil Stoyanov, "Productivity of small wind turbines for various wind potentials conditions: application in Bulgaria and Corsica", Int. J. of Renewable Energy Technology, 2010 Vol.1, No.3, pp.237 – 255
10. Lars Henriksen, "Wind Energy literature survey No. 26" Wind Energy Volume 15, Issue 7, pp 945–949, October 2012
11. http://www.fe.up.pt/feliz

**11.**

| **Authors:** | **Arun W. Dhawale** |
|---|---|
| **Paper Title:** | **Runoff Estimation for Darewadi Watershed using RS and GIS** |

**Abstract:** An accurate understanding of the hydrological behavior of a watershed is important for effective management. Runoff is the most basic and important data needed when planning water control strategies/ practices, such as, waterways, storage facilities or erosion control structures. The most popular method used for runoff estimation is SCS runoff curve number method. In the present study Darewadi watershed was taken as case study for highlighting the role of GIS and RS in estimation of runoff from the watershed by SCS curve number method using OVERLAY techniques. 20 years daily rainfall data was acquired from Indian Metrological Department (IMD), Pune. The study reveals that the SCS-CN model can be used to estimate surface runoff depth when adequate hydrological information is not available.

**Keywords:** SCS CN, Runoff estimation, AMC, GIS, RS.

**References:**

1. Babu Suresh P., Muralidharan C, Venugopal K, "Watershed Runoff Estimation Using Remote Sensing and GIS Based SCS Method." Proceedings of the International Conference on Hydrology and Watershed Management,2002 Dec 18 to 20, Vol-II, Editors B. Venketeshwara Rao, et. al, pp 447-455.
2. Dutta Subashisa, Mishra A., Kar S., Panigrahy Sushma, "Estimating Spatial Curve Number for Hydrologic Response Analysis of a Small Watershed." Journal of Spatial Hydrology, 2006, vol. 6, No. 2, pp57-67.
3. Gupta K. K., Deelstra, et. al, "Estimation of water harvesting potential for a semiarid area using GIS and remote sensing." Proceedings of Rabat Symposium S3, 1997,pp 53-62.
4. Jabari AL. S., Sharkh Abu M., et. al, "Estimation of Runoff for Agricultural Watershed using SCS Curve Number and GIS." 13th International Water Technology Conference, IWTC, Hurghada, Egypt, 2009, pp 1213-1229.
5. Jena S.K. and Tiwari K. N, "Runoff Estimation Using Distributed Curve Number Technique: A Remote Sensing and GIS Approach." Proceedings of the International Conference on Hydrology and Watershed Management, 2002 Dec 18 to 20, Vol-II, Editors B. Venketeshwara Rao, et. al, pp 456-465.
6. Joy K. J., Paranjape Suhas, "Watershed Development Review: Issues and Prospects" Centre for Interdisciplinary Studies in Environment and Development (CISED) Technical Report, 2004.
7. Khan Subhan, Goel Deepak and Gulshan, "Micro- Watershed Management Using Geographic Information System (GIS) & Remote Sensing (RS) In Mewat Region of Haryana." Proceedings of the International conference on Water and Environment (WE 2003) Dec 15 to 18,Bhopal (India), Edited by Vijay P. Singh & Ram Narayan Yadava, 2003, pp 190-196.
8. Kumar P. S., Babu M. J. R. K., et. al, "Analysis of the Runoff for Watershed using SCS-CN Method and Geographic Information Systems." International Journal of Engg. Sci. and Tech, 2010,Vol. 2(8), pp 3947-3954.
9. Mahboubeh Ebrahimian, Lai Food See. et. al, "Application of Natural Resources Conservation Service-Curve Number Method for Runoff Estimation with GIS in the Kardes Watershed, Iran." European Journal of Scientific Research, 2009, Vol. 34, No. 4, pp 575-590.
10. Nagaraj M. K., C. Subhash. et. al, "Runoff Estimation Using GIS Technique." Proceedings of the International Conference on Hydrology and Watershed Management, 2002 Dec 18 to 20, Vol-II, Editors B. Venketeshwara Rao, et. al, pp 466-473.
11. Pandey A. and sahu A. K., "Estimation of Runoff Using and Geographic Information System." Proceedings of the International Conference on Hydrology and Watershed Management Dec 18 to 20, Vol-II, Editors B. Venketeshwara Rao, et. al, 2002, pp 503-509.
12. Pandey A., Chowdary V. M., et. al, "Estimation of runoff from agricultural watershed using SCS Curve Number and Geographic Information System." Map India Conference, 2003.
13. Patil J. P., Sarangi A., Singh A.K., Ahmad T, "Evaluation of Modified CN Methods for Watershed Runoff Estimation Using a GIS-based Interface." Biomass Engineering 100, 2008, pp 137-146.
14. Prasad M. A., A. Rama Murthy, and M. D. N. Kumar, "Selection of Suitable Sites for Rain Water Harvesting Structures And Runoff Potential Areas Using GIS And RS." Proceedings of the International Conference on Hydrology and Watershed Management, 2002 Dec 18 to 20, Vol-II, Editors B. Venketeshwara Rao, et. al, pp 514-521.
15. Silveira L, Charbonnier F, Genta J. L. (2000). "The Antecedent Soil Moisture Condition of the Curve Number Procedure." Journal of hydrological sciences , 2000,45(1), pp 3-12.

**46-50**

**12.**

| **Authors:** | **Puneet Kumar Chaudhary, Ranjan Maheshwari** |
|---|---|
| **Paper Title:** | **A Critical Review on Photovoltaic Base Maximum Power Generation System** |

**Abstract:** This paper focuses on the review of solar systems, converters and control techniques of MPPT with power generation. Photovoltaic cells provide an additional method of acquiring energy, converting sunlight directly into electricity through the use of semiconductors. Effective photovoltaic implementation is reviewed, focusing on semiconductor properties and overall photovoltaic system configuration. Solid-state switch-mode converters have reached a matured level for improving power quality reduced total harmonic distortion and precisely regulated dc output by Buck, Boost, Buck -Boost & Cuck regulators and also about the multilevel inverter topology. This paper deals with a comprehensive review of power converters and inverters unit. The photovoltaic generators have a nonlinear V-I characteristics and maximum power points which vary with the illumination level and temperature. Using maximum power point tracker (MPPT) with the intermediate converter can increase the system efficiency by matching the PV systems to the load. This paper presents a maximum power point tracker based on different control schemes for a single-phase or three-phase and multilevel inverter connected to the utility grid.

**Keywords:** Photovoltaic power systems; dc-dc converters MPPT controller, Multilevel inverters.

**References:**

1. M. F. Mahmoud and Fred C. Y. Lee, "Analysis and Design of an Adaptive Multiloop Controlled Two-Winding Buck/Boost Regulator," IEEE Transactions On Industrial Electronics, Vol. Ie-29, No. 1, February 1982
2. Shah, A. Torres, P., Tscharner, R., "Photovoltaic technology: the case for Thin-film solar cells", Neuchatel, Switzerland. University of Applied Science, Avenue de l'Hotel-de-Ville 7, CH-2400 Le Locle
3. Wohlre, Dieter. Meissner, Dieter.,"Organic Solar Cells." Advanced Materials. Volume 3, Issue 3. Verlag GmbH & Co. KGaA, 1991.

**51-62**

4. McCann,MichelleJ. Catchpole,KylieR. Weber, Klaus J., “A review of thin film crystalline silicon for solar cell applications. Part 1: native substrates.”, 2001
5. V. Quaschning and R. Hanitsch. ,“Numerical Simulation Of Photovoltaic Generators With Shaded Cells,” Berlin University of Technology,UPEC Greenwich, pp. 583-586, 5-7Sept1995
6. http://www.blueplanet-energy.com/images/solar/PV-cell-module-array.gif
7. http://alexgomez.com/autoxtra.htm.
8. http://en.wikipedia.org/wiki/Solar_panel
9. E. Skoplaki, J.A. Palyvos ,”On the temperature dependence of photovoltaic module electrical performance: A review of efficiency/power correlations”, Solar Energy 83 pp.614–624, 2009
10. Oliva Mah NSPRI, “Fundamentals of Photovoltaic Materials,” National Solar power institute, Inc. 12/21/98
11. Md. Rabiul Islam, Youguang Guo, Jian Guo Zhu, and M.G Rabbani, “Simulation of PV Array Characteristics and Fabrication of Microcontroller Based MPPT,” University of Technology Sydney, Australia, 6th International Conference on Electrical and Computer Engineering ICECE 2010, , Dhaka, Bangladesh, 18-20 Dec 2010
12. Meena Dadu, A. Kapoor, K.N. Tripathi , “ Effect of operating current dependent series resistance on the fill factor of a solar cell,” Solar Energy Materials a Solar Cells 71pp 213–218, 2002
13. W. Xiao, W. G. Dunford, and A. Capel, “A novel modeling method for photovoltaic cells”, in Proc. IEEE 35th Annu. Power Electron. Spec. Conf. (PESC), vol. 3, pp. 1950–1956,2004
14. L.Umanand, Indian Institute of Science Bangalore, chap.04,Non -Conventional Energy System
15. Salas, V. Barrado, A. Lazaro, “Review of the Maximum Power Point Tracking Algorithms for Stand-alone Photovoltaic Systems,” Solar Energy Materials & Solar Cells 90: 1555–1578,2006
16. D. P. Hohm and M. E. Ropp, “Comparative study of maximum power point tracking algorithms,” in Proc. 28th IEEE Photovoltaic Specialists Conf., pp. 1699–1702, Sep. 2000
17. K.H. Hussein, I. Muta, T. Hoshino and M. Osakada, “Maximum photovoltaic power tracking an algorithm for rapidly changing atmospheric conditions,” IEE Proc.-Gener. Trans. Distrib., Vol. 142, No. 1, January 1995
18. Weidong Xiao, Dunford W.G.: “A modified adaptive hill climbing MPPT method for photovoltaic power systems” Power Electronics Specialists Conference, IEEE, PESC 04, 2004
19. Hohm, D. P. and Ropp, M. E., “Comparative study of maximum power point tracking algorithms”, Prog. Photovolt: Res. Appl. 2003, 11 pp. 47-62.
20. N.Femia, G.Petrone, GSpagnuolo and M.Vitelli, “Optimizing Duty-cycle Perturbation of P&O MPPT Technique,” IEEE Power Electronics Specialists Conferenre, Aochen, Germay. 2004
21. Nicola Femia, Giovanni Petrone, Giovanni Spagnuolo, and Massimo Vitelli, “Optimization of Perturb and Observe Maximum Power Point Tracking Method,” IEEE transactions on power electronics, vol. 20, no. 4, july 2005
22. Nicola Femia, Giovanni Petrone, Giovanni Spagnuolo, and Massimo Vitelli, “A Technique for Improving P&O MPPT Performances of Double-Stage Grid-Connected Photovoltaic Systems ,” IEEE transactions on industrial electronics, vol. 56, no. 11, Nov 2009
23. Sachin Jain, Vivek Agarwal, “A new algorithm for rapid tracking of approximate maximum power point in photovoltaic systems” IEEE Power Electronics Letters, Vol: 2 Nº: 1 March 2004
24. W. Xiao, W. G. Dunford, P. R. Palmer, and A. Capel, “Regulation of photovoltaic voltage,” IEEE Trans. Ind. Electron., vol. 54, no. 3, pp. 1365–1374, June 2007.
25. J. Kouta, A. El-Ali, N. Moubayed and R. Outbib, “Improving the incremental Conductance control method of a solar energy conversion system,” Lebanese University, IEEE-2005.
26. M. Bodur and M Ermis, ”Maximum Power Point Tracking for Low Power Photovoltaic Solar Panels,” IEEE Electrotechnical Conference Proc., vol. 2, pp. 758-761, 1994
27. Weidong Xiao, Dunford W.G.: “A modified adaptive hill climbing MPPT method for photovoltaic power systems” Power Electronics Specialists Conference, IEEE, PESC 04, 2004
28. Muhammad H. Rashid, “Power Electronics Circuits, Devices and Applications”, Third Edition
29. Wai, R., “High-performance stand-alone photovoltaic generation system,” IEEE Trans.on Industrial Electronics Vol.55: 240-250, et al. 2007
30. White J.L., Muldoon W.J., “Two Inductors Boost and Buck Converter”,Proceedings of the Power Electronics Specialists Conference, 1987.
31. Matsui M., Kitano T., De-hong Xu, Zhong-qing Yang: “A new maximum photovoltaic power tracking control scheme based on power equilibrium at DC link”, Industry Applications Conference, 1999. Thirty-Fourth IAS Annual Meeting. Conference Record of the 1999 IEEE, Volume: 2, 3-7 Oct. 1999
32. E. Lapeña, P. Rueda, O. García, J. Rancaño et al. “Boost-Based MPPT for the MTM PCDU of the Bepi Colombo Mission”, Proceedings of the European Space Power Conference held in Konstanz, 2008.
33. Olivier Mourra, Arturo Fernandez and Ferdinando Tonicello, “Buck-Boost Regulator (B²R) for Spacecraft Solar Array Power Conversion,” European Space Agency, ESTEC – Keplerlaan 1 – P.O,2200 AG Noordwijk ZH – The Netherlands
34. Jingquan Chen, Dragan Maksimovic and Robert Erickson, “Buck-Boost PWM Converters Having Two Independently Controlled Switches”, Proceedings of the Power Electronics Specialists Conference, 2001.
35. Weissbach, R. S., and Torres, K. M., “A Non-inverting Buck-Boost Converter with Reduced Components Using a Microcontroller”. SoutheastCon, 2001. Proceedings. IEEE, pp.79-84, 30 March-1 April 2001
36. Sahu B., and Rincon-Mora, G.A, “A Low Voltage, Dynamic,Noninverting, Synchronous Buck-Boost Converter for PortableApplication”, IEEE Transactions on Power Electronics, Vol.19, No.2,: pp. 443-452., 2004,
37. Gaboriault, M., and Notman, A., “A High Efficiency, Non-Inverting, Buck-Boost DC-DC Converter”, Applied Power Electronics Conference and Exposition, APEC’04. Niniteenth Annual IEEE, vol.3, pp. 1411-1415, 2004.
38. Qiao, H., Zhang, Y., Yao, Y., and Wei, L., “Analysis of Buck-Boost Converter for Fuel Cell Electric Vehicles”. IEEE International Conference on Vehicular Electronics and Safety, pp.109-113, 13-15 DEC. 2006
39. S . Cuk and R. D. Middlebrook, “A general unified approach to modeling switching dc-to-dc converters in discontinuous conduction mode,’’ in IEEE Power Electronics Specialists Con5 Rec.,pp.36-57 (IEEE Publication 77CH1213-8 AES, 1977.
40. K. Ogura, T. Nishida, E. Hiraki, M. Nakaoka, and S. Nagai,“ Time-sharing boost chopper cascaded dual mode single-phase sine wave inverter for solar photovoltaic power generation system”,in Proc. 35th IEEE Power Electron. Spec. Conf. (PESC’04), Aachen, Germany, pp. 4763–4767, 2004.
41. S. B. Kjaer, J.K. Pedersen, and F. Blaabjerg, “power inverter topologiesfor photovoltaic modules—A review,” in Proc. 37th IEEE Ind. Appl.Soc. Conf. (IAS’02), pp. 782–788,2002.
42. G. Walker and P. Sernia, “Cascaded DC/DC converter connection of photovoltaic modules,” IEEE Transactions on Power Electronics, vol. 19, pp. 1130–1139, 2004.
43. S. Ali Khajehoddin_, Praveen Jain, and Alireza Bakhshai, “Cascaded Multilevel Converters and Their Applications in Photovoltaic Systems,” Canadian Solar Buildings Conference Calgary, June 10 - 14, 2007
44. J. Rodriguez, J. Lai, and F. Peng, “Multilevel inverters: A survey of topologies, controls, and applications,” IEEE Transactions on Industrial Electronics, vol. 49, pp. 724–738, 2002
45. Nabae, I. Takahashi, and H. Akagi, “A new neutral-point clamped PWM inverter,” IEEE Trans. Ind. App., vol. 17, pp. 518–523, 1981.
46. Pedro Gomes Barbosa,Henrique Antonio Carvalho Braga,Márcio do Carmo Barbosa Rodrigues and Estevão Coelho Teixeira, “Boost Current Multilevel Inverter and Its Application on Single-Phase Grid-Connected Photovoltaic Systems,” IEEE transactions on power electronics, vol. 21, no. 4, july 2006
47. H. A. C. Braga and I. Barbi, “A new technique for parallel connection of commutation cells—Analysis, design and experimentation,” in Proc.IEEE PESC’95, 1995, pp. 81–86.
48. H. A. C. Braga and I. Barbi, “Current multilevel DC-DC converters,”in Proc. III Brazilian Power Electron. Conf. (COBEP’95), São Paulo,Brazil, pp. 417–422, 1995.

49. H. A. C. Braga, F. M. Antunes, and I. Barbi, "Application of a generalized current multilevel cell to current-source inverters," IEEE Trans. Ind. Electron. vol. 46, no. 1, pp. 31–38, Feb. 1999.
50. E. C. Teixeira and H. A. C. Braga, "A high power factor single-phase rectifier based on a current multilevel buck converter," in Proc. 6thBrazilian Power Electron. Conf. (COBEP'01), Florianópolis, Brazil, pp. 180–185, Nov. 2001
51. R. L. Naik, K. R. Y. Udaya, "A novel technique for control of cascaded multilevel inverter for photovoltaic power supplies" European Conference on Power Electronics and Applications, 11-14 Sept. 2005.
52. E. Ozdemir, S. Ozdemir, L. M. Tolbertand B. Ozpineci, "Fundamental Frequency Modulated Multilevel Inverter for Three-Phase Stand-Alone Photovoltaic Application," Kocaeli, 41380, Turkey, TN 37996-2100, USA
53. Poh Chiang Loh,Donald Grahame Holmes, and Thomas A. Lipo, "Implementation and Control of Distributed PWM Cascaded Multilevel Inverters With Minimal Harmonic Distortion and Common-Mode Voltage," IEEE trans. on power electronics, vol. 20, no. 1, january 2005
54. V.G. Agelidis, A. Balouktsis, I. Balouktsis, and C.Cossar,"Multiple sets of solutions for harmonic elimination PWM bipolar waveforms: Analysis and experimental verification," IEEE Trans. Power Electron., vol. 21, no. 2, pp. 415–421, March 2006.
55. P. Maruthu Pandi, N. Devarajan "Comparative Analysis of Power Quality Issue in Cascaded Multilevel Inverter Using PWM Techniques," European Journal of Scientific Research ISSN 1450-216X Vol.60 No.3 pp.440-450,2011
56. J. Chiasson, L. M. Tolbert, K. J. McKenzie, Z. Du, "Control of a multilevel converter using resultant theory, IEEE Trans. on Control Systems Technology, vol.11, no.3, pp. 345-354Z, 2003
57. Pan, F. Z. Peng, et.al., "Voltage balancing control of diode-clamped multilevel rectifier/inverter systems" IEEE Trans. on Industry Applications, vol. 41, no. 6, pp. 1698 – 1706, 2005
58. Z. Pan, F.Z. Peng, et.al., "Voltage balancing control of diode-clamped multilevel rectifier/inverter systems," IEEE Transactions on Industry Applications, Volume 41, pp. 1698 – 1706, 2005.
59. Engin Ozdemir, Sule Ozdemir, and Leon M. Tolbert, "Fundamental Frequency Modulated Six-Level Diode-Clamped Multilevel Inverter for Three-Phase Stand-Alone Photovoltaic System," 07-TIE-01087,2007
60. Fang Zheng Peng,, "A Generalized Multilevel Inverter Topology with Self Voltage Balancing," IEEE transactions on industry applications, vol. 37, no. 2, march/April 2001


**13.**

**Authors:** **Arihant Khicha**

**Paper Title:** **Problems in Mobile Agent System Security**


**Abstract:** In spite of its many practical profit, mobile agent technology results in significant new security threats from both malicious agents and hosts. In this paper we explore the approaches and problems of mobile agent system, which shows that layered security and bi-directional model, may be a good initiative to resolve the security problems in mobile agent systems. Other topics about mobile agent security, such as virus detection and constrained execution are also discussed.



**Keywords:** Mobile agents, Security, Bi-directional Security mechanism, layered security mechanism .


**References:**


1. Lingnau, O. Drobnik et al. An Infrastructure for Mobile Agents: Requirements and Architecture. 1995.
2. William M. Farmer, Joshua D. Guttmann, and Vipin Swarup. Security for mobile agents: Issues and requirements. In Proceedings of the 19th National Information Systems Security
3. Conference, pages 591-597, Baltimore, Md., October 1996.
4. Dan S. Wallach. A new approach to mobile code security. Ph.D. thesis, Department of Computer Science, University of Princeton, Jan. 1999.
5. Jonathan Dale. A Mobile Agent Architecture for Distributed Information Management. Ph.D. thesis, University of Southampton, Sep. 1997.
6. Joseph Tardo and Luis Valenta. Mobile agent security and Telescript. In Proceedings of IEEE COMPCON '96, Feb. 1996.
7. Dag Johansen, Robbert van Renesse, and Fred B. Schneider: Operating system support for mobile agents. In Proceedings of the 5th IEEE Workshop on Hot Topics in Operating Systems, pages 42-45, Orcas Island, Wash., May 1994.
8. Object Management Group, Mobile Agent Facility Specification Draft Version 7 (Joint Submission).OMG Common Facilities Request for Proposal 3, Jun. 1997.
9. Colin G. Harrison, David M. Chess. Mobile agents: Are they a good idea? IBM Research Report, IBM Research Division, IBM, Mar. 1995.


**63-65**

**14.**

**Authors:** **P.Nallathai and N.Nithiyanandam**

**Paper Title:** **Simulation of Coherent PSK Circuit for Wireless Data Communication with Zero Bit Error Rate**


**Abstract:** A Coherent phase-shift-keyed (CPSK) wireless data communication circuit, based on differential signaling, is simulated for error-free data recovery. The simulated circuit is tested and the results are reported, indicating error-free data recovery. In these simulation tests, data with bit rates varying from 1Kb/s to 1Mb/s are transmitted through simulated AWGN channels with channel noise variance ranging from 1 to 10,000. All the test results indicate error-free data recovery.



**Keywords:** Coherent PSK, Differential signaling, Wireless communication, Zero BER data recovery


**References:**


1. Bernard Sklar , Digital communications: Fundamentals and Applications, Prentice-Hall, Inc. NJ, USA,1988
2. W. W. Peterson and E. J. Weldon, Error-Correcting Codes, 2nd ed.Cambridge, Mass.: M.I.T. Press, 1972
3. "IEEE Standard for Low-Voltage Differential Signals (LVDS) for Scalable Coherent Interface (SCI)", IEEE Std 1596.3-1996


**66-68**

**15.**

**Authors:** **Geetha J K, Monika M**

**Paper Title:** **Web Application Testing: A Survey**


**Abstract:** Web applications have become more crucial in many fields. This paper presents some of the basic testing techniques in the field of testing Web applications developed in current years. Some challenges related to performance testing are also outlined.



**Keywords:** Functional testing, Usability testing, Navigation testing, Security testing, Interoperability testing.


**References:**


1. Roger S Pressman, Software Engineering A Practitioner's Approach, 5th ed., McGraw Hill. International Edition.
2. William E. Perry. Effective Methods for Software Testing, 3rd ed., Wiley publishing, Inc, Indianapolis, IN46256.
3. Ron Paltson, Software testing, 2nd ed., Pearson Education, Inc and Dorling Kindersley Publishing Inc.


**69-71**

4. Srinivasan Desikan, Gopalaswamy Ramesh. Software Testing Principles and Practices, 1st ed., Dorling Kindersley (INDIA) Pvt.Ltd.
5. Louise Tamers, Introducing Software Testing, Dorling Kindersley (INDIA) Pvt.Ltd.
6. Henry Bequet, Meeraj Maidoo Kunnumpurath, Sean Rhody, Andre Tost, Beginning Java Web Services, Wrox press Ltd, Arden House,1602 war wick road, Acocks Green, Birmineham.
7. Fang Youyuan and Gu Tianyang, "Research on Web Service Interoperability Testing Framework with Conformance Testing", World Academy of Science, Engineering and Technology 45 2010
8. http://wordpress.org/support/topic/lesson-web-page-design-and-accessibility

**16.**

| **Authors:** | **A.Siva Kumar, K.Vijaya Kumar Reddy, E.Ramjee** |
|---|---|
| **Paper Title:** | **Experimental Investigation on LHR Extended Expansion DI Diesel Engine Emission Controlling Injection Timing** |

**Abstract:** Fossil fuels are depleting rapidly because of incremental consumption rate due to population growth and necessary comforts on par with civilization. In this connection, the conventional fuels especially petrol and diesel for internal combustion engines, are getting exhausted at an alarming rate. In order to conserve the fossil fuels or to plan for survival of technology in future it is essential to plan for alternate fuels. Further, these fossil fuels cause serious environmental problems as they release toxic gases into the atmosphere at high temperatures and concentrations. Some of the pollutants released by the internal combustion engines are HC, CO, NOx, smoke and particulate matter. The predicted global energy consumptions are double by 2030 and quadruple by 2100. In view of this, an attempt is made to study a Low Heat Rejection (LHR) concept as one of the measures. The ignition delay will vary as the injection timing of the engine is varied. The variation in the injection timing will be effecting the performance and exhaust emissions of the engine strongly. The experimental results of the effects of variation in injection timings on the emission of LHR extended expansion engine is presented and analyzed.

**Keywords:** Injection Timing, Emission and LHR Extended Expansion Engine.

**72-75**

**References:**

1. C.S.Reddy, N.Domingo and R.L.Graves, Low Heat Rejection Engine Research Status: Where Do We Go From Here? SAE Paper No: 900620, 1990.
2. Lavanya N., Tamilporai P., Chandrasekaran.S and Jancirani.J, Simulation of Expanded and Exhaust Cam in LHR DI Diesel Engine,Proceeding of the 19th National Conference on I.C.Engines and Combustion, Annamalai University, pp: 547-554, 2005.
3. Nazar.J, Gopala Krishnan K.V, and Nagesh S.Mavinahalli, Naturally Aspirated Low Heat Rejection Single Cylinder Extended Expansion (Miller Cycle) C.I Engine, SAE Paper No: 970202, 1997.
4. Bolton B. and D. N. Assanis, Optimum Breathing Strategies for Turbocharged Diesel Engines Based on the Miller Cycle Concept, Second Biennial European Joint Conference on Engineering Systems Design and Analysis ESDA Proceedings, London, England, July 4-7, ASME PD-Vol.64-8.2, pp:253-262, 1994
5. Hitomi .M, Sasaki.J, Hatamura.K and Yano Y., Mechanism of Improving Fuel Efficiency by Miller Cycle and Its Future Prospect, SAE Paper No: 950974, 1995.
6. Mavinahally. N., Kamo R., Bryzik, W. and Reid M., Insulated Miller Cycle Diesel Engine, SAE Paper No: 961050, 1996.
7. Roy Kamo and Nagesh Mavinahally. Insulated Miller Cycle Diesel Engine, SAE Paper No: 961050, 1996.
8. Shimogata .S, Homma .R, Zhang F.R, Okamoto. K and Shoji F. Study on Miller Cycle Gas Engine for Co-Generation Systems – Numerical Analysis for Improvement of Efficiency and Power, SAE Paper No: 971709, pp: 61-67, 1997.
9. M. D.Basset. Et al., A Simple Two-State Late Intake Valve Closing Mechanism, Proc. Instn. Mech. Engrs, Vol: 211, pp: 237-241, 1997.
10. Yu.Shahed, Effects of Injection Timing and EGR on Emissions from a DI Diesel Engine, SAE Paper No: 811234, 1981.

**17.**

| **Authors:** | **Prabir Ranjan Kasari, Prashanta Saha, Abanishwar Chakrabarti, Bikram Das** |
|---|---|
| **Paper Title:** | **Transformer Winding Insulation Measurement Using Phase Difference Technique** |

**Abstract:** This paper describes the condition monitoring of Transformer winding. Condition Monitoring means capable to predict health condition of the electrical machine. A successful continuous condition monitoring scheme for electrical machines offers significant advantages, since it would be capable of providing adequate warning of failures of a variety of its components and would enable maintenance to be scheduled most effectively. In diagnosing faults in electrical machines, research has focused on parameters such as, insulation, capacitance, temperature, phase angle etc. In this paper a test procedure has been establish to determine the phase difference accurately. Based on this phase difference, the capacitance of the transformer winding has been calculated. The value of the capacitance basically indicates the insulation of the transformer winding. Accelerated life testing arrangement conducted to transformer winding, from this accelerated life test, approximate prediction of life of insulating material has been analysed. As the paper describes the continuous monitoring of transformer winding, so the ageing and the winding deterioration of transformer can be detected.

**Keywords:** Condition monitoring, predictive maintenance of machine, insulation of transformer winding, dissolve gas analysis, current signature analysis

**76-80**

**References:**

1. V.G. Manohar and P Kumar, "comprehensive predictive maintenance of electrical motors in Indian nuclear power plants."
2. P Werle, H Borsi," Diagnosing the insulation condition of Dry type transformer using a multiple sensor partial discharge localizing technique."
3. Mohammad R. meshkatoddini,"Ageing Study and Lifetime Estimation"
4. Tobias Stirl, Raimund Skrzypek, Stefan Tenbohlen, Rummiya Vilaithongn,'On-line Condition Monitoring and Diagnosis for Power Transformers their Bushings, Tap Changer and Insulation System', AREVA Energietechnik GmbH Activity Schorch Transformers Rheinstrasse 73, 41065 Mönchengladbach, Germany
5. Garry E. Paulson, Ph. D., P. Eng.Mervin J. Savostianik, P. "Monitoring Neutral-Grounding Resistors—An Update", Eng.Startco Engineering Ltd.406 Jessop Avenue Saskatoon, skatchewan.
6. Troy V. Nguyen Lockheed, "A System Approach to Machinery Condition Monitoring and iagnostic", Martin Information Systems Ship Automation Systems Orlando, Florida.
7. Thierry JUNG, Stefan TENBOHLEN, Jean ALTWEGG, Philippe ROUSSEL ,Carl HARFOUCH, "Implementation of new monitoring tools and optimisation of maintenance through the use of Web-based technology".
8. Peter Werle, Hossein Borsi,"Diagnosing the Insulation Condition of Dry Type Transformers using a Multiple Sensor Partial Discharge

Localization Technique", Ernst Gockenbach University of Hannover, Institute of Electric Power Systems Division of High Voltage Engineering, Schering – Institute Callinstrasse 25 A, D-30167 Hannover, Germany.
9. Engr. Mohammed Hanif, "Principles & Applications of Insulation testing with DC", ABB Electrical Industries Co. Ltd. Riyadh, Saudi Arabia.
10. Du, Yanqing, "Measurements and modeling of moisture diffusion processes in transformer insulation using interdigital dielectrometry sensors", 1971- Advisor: Markus Zahn and Bernard C. Lesieutre.
11. G W A McDowell, M L Lockwood,"Real Time Monitoring of Movement of Transformer Winding", ERA Technology Ltd.
12. ," Implementation of new monitoring tools and optimization of maintenance through the use of web-based technology."
13. R Skrzypek, S Tenbohlen," On-line condition monitoring and diagnosis for power transformer for their bushings, tap changers and insulation system."
14. Marian Dumitru, Negrea,"Electromagnetic Flux Monitoring for Detecting Faults in ElectricalMachines".
15. S. Grzybowski, S. Bandarn, "Effect of Frequency, Temperature and Voltage on the Lifetime Characteristics of Magnet Wires under Pulse Voltages", Dept. of Electrical and Computer

**18.**

**Authors:** **Yuvraj Singh Gurjar, Vijay Singh Rathore**

**Paper Title:** **Cloud Business Intelligence – Is What Business Need Today**

**Abstract:** The present economic crisis experienced by all the states of the world orients more and more the information technology industry towards efficiency. Organizations are striving to become intelligent and achieve competition advantages through the use of Business Intelligence (BI) solutions. One of the instruments that can bring about the technology requirements of evolving BI solutions is Cloud Computing. The present paper identifies the key factors responsible for evolution of New Business Intelligence on the Cloud, the various models available to port BI solution on Cloud, the primary drivers for Cloud BI, the impact of implementing Cloud BI as well as issues around it.

**Keywords:** Business Intelligence, Cloud, Cloud BI, BI in the Cloud.

**References:**

1. Bharat Chandra and Meena Iyer, BI in the Cloud – Defining the Architecture for Quick Wins. Available: http://www.infosys.com/infosys-labs/publications/Documents/BI-in-a-cloud.pdf
2. Don Deloach, It's a Brave New World for Business Intelligence. Available: http://cloudcomputing.sys-con.com/node/1927082
3. M Peter and G Timothy, The Nist Definition of Cloud Computing (draft) (2011). National Institute of Standards and Technology Special Publication, 800 -145
4. http://www.gartner.com/it/page.jsp?id=707508
5. Bogdan GHILIC –MICU, Marinela MIRCEA, Marian STOICA , "Main Aspects of Adoption of Cloud Solutions in Managing Service Oriented Organizations – the case of higher education" , Economy Informatics, Vol. 11 no 1/2011 page 27
6. Business Intelligence. Available: http://en.wikipedia.org/wiki/Business_intelligence
7. Business Intelligence (BI). Available: http://www.gartner.com/it-glossary/business-intelligence-bi/
8. The Top 10 Tech Priorities of CIO's. Available:
9. http://www.computerworld.com/s/article/9223502/The_top_10_tech_priorities_of_CIOs
10. 2012 Wisdom of Crowds Cloud Business Intelligence. Available:
11. http://www.articlesbase.com/software-articles/key-drivers-for-business-intelligence-making-the-move-to-the-cloud-6354376.html
12. http://www.gartner.com/newsroom/id/1903814
13. RameshKumar,"BISolutionsonCloud–SOaaSModel",MahindraSatyam.Available: http://www.mahindrasatyam.com/corporate/documents/BI_SaaS_Whitepaper.pdf
14. Eumir P. Reyes , "A Systems Thinking Approach to Business Intelligence Solutions Based on Cloud Computing". Available: http://dspace.mit.edu/bitstream/handle/1721.1/59267/667715636.pdf?...1
15. Ravi Prashad, Business Intelligence in Cloud. Available: http://ers.hclblogs.com/2011/01/business-intelligence-in-cloud/
16. Menon L. and Rehani B., Business Intelligence on the Cloud – Overview and use case. Available: http://www.tcs.com/SiteCollectionDocuments/White%20Papers/HighTech_Whitepaper_Business_Intelligence_Cloud_0412-1.pdf
17. Mukund Deshpande, Shreekanth Joshi, Incorporating Business Intelligence in the Cloud. Available: http://www.b-eye-network.com/view/11143
18. "Why Business Intelligence Software as a Service (SaaS) Makes Sense for your Organization?" Available: http://www.sengen.com/download/pdf/Why-Business-Intelligence-Software-as-a-Service.pdf
19. DimensionalResearch(www.dimensionalresearch.com)SurveyJune2012.Available: http://www.hostanalytics.com/sites/default/files/HostAnalytics_CIO-v4.pdf
20. "TDWI – BI in the Cloud". Available:
21. http://www.isaca.org/chapters1/phoenix/events/Documents/business_intelligence_overview.ppt

**81-86**

**19.**

**Authors:** **Zhi-bin Gui, Antonio Piras, Li-min Qiao**

**Paper Title:** **Improving Tree Seed Germination by Electrostatic Field**

**Abstract:** Tree species with shallow dormancy are used for reforestation by airplane sowing in order to establish forest in mountain areas. To enhance germination, the quality of young seedling, an electrostatic field is used to treat pine seeds. Experiments found that treatment effect depended on the dosage, process and vigor index of seeds, and the optimal dosage was 500 kV/m 10 minutes for dry or wet seeds to improve germination, seedling height and root length during initial germination and middle and later stages of seedling development.

**Keywords:** Dosage, Electrostatic Field, Germination, Tree Seed Pretreatment.

**References:**

1. . Jorgensen, and J. H. Priestley, "The distribution of the overhead electrical discharge employed in recent agricultural experiments", J. Agriculture science, 1914, 6, 337-348.
2. . P. Krueger, S. Kotaka, and P.C. Andriese, "Studies on the effects of gaseous ions on plant growth. I. The influence of positive and negative air ions on the growth of Avena sativa", J. Gen. Physiol., 1962, 45, 879-895.
3. W.C. Levengood, and M. P. Shinkle, "Environmental factors influencing progeny yields in Drosophila" Science, 1960, 132, 34-5.
4. D. K. Edwards, "Influence of electrostatic field on pupation and oviposition in Nepytia", Nature, 1961, 191, 976.
5. L. E. Murr, "Plant growth response in a simulated electric field-environment", Nature, 1963, 200, 490.
6. L. E. Murr, "Mechanism of plant cell damage in an electrostatic field", Nature, 1964, 201, 1305.
7. L. E. Murr, "Biophysics of plant growth in an electrostatic field", Nature, 1965, 206, 467.
8. G. H. Sidaway, "Influence of electrostatic field on seed germination", Nature, 1966, 211, 303.
9. L. Yan, X.Y. Bai, "Application of electrostatic technology to agriculture", J. Research on Agricultural Modernization, 1987, No. 5, 53-56,

**87-89**

(Chinese).
10. Z. X. Luo and T. C. Jannett, “Modeling Sensor Position Uncertainty for Robust Target Localization in Wireless Sensor Networks”, in Proc. of the 2012 IEEE Radio and Wireless Symposium, Jan. 2012, Santa Clara, CA.
11. Z. X. Luo and T. C. Jannett, “Energy-Based Target Localization in Multi-Hop Wireless Sensor Networks”, in Proc. of the 2012 IEEE Radio and Wireless Symposium, Jan. 2012, Santa Clara, CA.
12. R. Szewczyk, E. Osterweil, J. Polastre et al., “Habitat monitoring with sensor networks,” Communications of the ACM, 2004, vol. 47, no. 6, pp. 34-40.
13. Z. X. Luo and T. C. Jannett, “A Multi-Objective Method to Balance Energy Consumption and Performance for Energy-Based Target Localization in Wireless Sensor Networks”, in Proc. of the 2012 IEEE Southeastcon, Orlando, FL. Mar. 2012.
14. International Seed Testing Association, International Rules for Seed Testing, Rules 1996.

**20.**

**Authors:** **R.Uday Kumar**

**Paper Title:** **Simulation and Modeling Analysis in Manufacturing Process**

**Abstract:** In the modern world class manufacturing it is of prime importance for modern management to make crucial decisions quickly and accurately to stand at the global competitive cutting edge. In many real life situations the main interest concern the prediction of how a system will perform under various conditions of change in the environment as well as with in the system. Experimenting on real system is not always feasible, so it is carried on some representative unit of the system. This unit is called a model and the process modeling. Simulation is a technique of systems modeling and analysis that involves mathematical models of a dynamic nature which are solved numerically. Simulation is a powerful and scientific method, which is widely, applied methodology for studying the behaviour of a variety of systems in order to develop solutions to problems in their design and operation. An overview of simulation modeling and analysis is recent advancements in this field, recommendations for selecting right simulation software, related technologies like artificial intelligence techniques, how they are integrated with computer simulation modeling and benefits due to development of these hybrid technologies.Computer simulation is one of the popular experimental investigation techniques as it involved reduced costs, time and risks compared to experimenting decision alternatives with real world system in real time. In the computer simulation, developing the models of the real systems on the computer has carried out experimentation. The use of simulation mathematical models has been proposed to reduce the computer costs of simulation while making use of its potential of predicting the performance of complex system..

**Keywords:** Simulation, modeling, manufacturing process

**References:**

1. Muller, D., Jackman, J., and, Fitzwater, C., “A simulation-based work order release mechanism for a flexible manufacturing System” Proceedings of the 1990 Winter Simulation Conference, pp. 599-602.
2. Naylor, T. H., J. L. Balintfy, D. S. Burdick, and K. Chu. “Computer simulation techniques” John Wiley and Sons, New York, New York, 1996.
3. Yücesan, E. And Fowler, J. ,“Simulation analysis of manufacturing and logistics systems” Encylclopedia of Production and Manufacturing Management, Kluwer Academic Publishers, Boston, P. Swamidass ed. , pp. 687-697., 2000.
4. Schruben, L., and T. Roeder, “Fast simulations of large-scale highly congested systems”, Transactions of the Society for Modeling and Simulation International, Vol. 79, No. 3, 2003, pp. 115-125.
5. Jankauskas, L. and S. McLafferty, “BESTFIT, “Distribution fitting software by palisade corporation” Proceedings of the 1996 Winter Simulation Conference, 1996, pp. 551-555.
6. Law, A.M. and M.G. McComas, “Pitfalls to avoid in the simulation of manufacturing systems” Industrial Engineering, Vol. 31, 1989, pp. 28-31,69.
7. Law, A.M. and D.W. Kelton “Simulation modeling and analysis” (3rd Ed.), McGraw-Hill, New York, 2000.
8. Chong, S., Sivakumar, A., and Gay, R. (2002) “Design, development and application of an object oriented simulation tool kit for real-time semiconductor manufacturing scheduling” Proceedings of the 2002 Winter Simulation Conference, pp. 1849-1856.
9. Jackson, M., and Johansson, C. (1997) “Real Time Discrete Event Simulation of a PCB Production System for Operational Support”. Proceedings of the 1997 Winter Simulation Conference, pp. 832-837.
10. Katz, D., and Manivannan, S. (1993) “Exception Management on a Shop Floor Using Online Simulation”. Proceedings of the 1993 Winter Simulation Conference, pp. 888-896.
11. Chance, F., Robinson, J., and J. Fowler, “Supporting manufacturing with simulation: model design, development, and deployment”, Proceedings of the 1996 Winter Simulation Conference, San Diego, CA, 1996, pp. 1-8.
12. Barker, R.C., “Value chain development: an account of some implementation problems”, International Journal of Operations & Production Management, Vol. 16, No. 10, 1996, pp. 23-36.
13. Rogers, P., and Gordon, R. (1993) “Simulation for real-time decision making in manufacturing systems” Proceedings of the 1993 Winter Simulation Conference, pp. 866-874.
14. Schumann, M., E. Blümel, T. Schulze, S. Straßburger, K.-C. Ritter. “Using HLA for Factory Simulation” Proceedings of the 1998 Fall Simulation Interoperability Workshop. September 1998. Orlando, Florida, USA.
15. Strasburg, S., A. Hamm, G. Schmidgall, S. Haasis “Using HLA Ownership Management in Distributed Material Flow Simulations” Proceedings of the 2002 European Simulation Interoperability Workshop. June 2002. London, UK.
16. M. Myjak, S. Sharp, T. Lake, K. Briggs “Object Transfer in HLA” 1999 Spring Simulation Interoperability Workshop, Mar. 14-19, 1999. Paper Number 99S-SIW-140.
17. Lendermann, P., Julka, N., Gan, B. P., Chen, D., McGinnis, L.F., and J.P. McGinnis, “Distributed supply chain simulation as a decision support tool for the semiconductor industry”, Transactions of the Society for Modeling and Simulation International, Vol. 79, No. 3, 2003, pp. 126-138.
18. Peters, B., Smith, J., Curry, J., LaJimodiere, C., and, Drake, G. (1996) “Advanced Tutorial – simulation-based scheduling and control” Proceedings of the 1996 Winter Simulation Conference, pp. 194-198.
19. Umeda, S., and A. Jones, “An integration test-bed system for supply chain management” Proceedings of the 1998 Winter Simulation Conference, 1998, pp. 1377-1385.
20. Heita, S., “Supply chain simulation with LOGSIM - Simulator” Proceedings of the 1998 Winter Simulation Conference, 1998, pp. 323-326.
21. Jain, S., Lim, C., Gan, B., and Y. Low, “Criticality of detailed modeling in semiconductor supply chain simulation” Proceedings of the 1999 Winter Simulation Conference, 1999, pp. 888-896.
22. Duarte, B.M., Fowler, J.W., Knutson, K., Gel, E., and D. Shunk, “Parameterization of fast and accurate simulations for complex supply networks” Proceedings of the 2002 Winter Simulation Conference, 2002, pp. 1327-1336.
23. Nance, R.E., “A history of discrete event simulation programming languages” Proceedings of the Second ACM SIGPLAN History of Programming Languages Conference, Vol. 23, No. 3, 1993, pp. 149-175.

**90-92**

24. Shikalgar, S.T., Fronckowiak, D., and E.A. MacNair, "300mm wafer fabrication line simulation model" Proceedings of the 2002 Winter Simulation Conference, 2002, pp. 1365-1368.
25. Mercier D., Bonnin, O., and P. Vialletelle, "Achieving optimal cycle time improvement in a 300mm semiconductor fab using dynamic simulation and design of experiements" Transactions of the Society for Modeling and Simulation International, Vol. 79, No. 3, 2003, pp. 171-179.
26. Jain R.S., Integrated Manufacturing Technology Initiative, Integrated Manufacturing Technology Road mapping Project: Modeling & Simulation, 2000.
27. Low, M.Y.H., "Manufacturing simulation using BSP time warp with variable number of processors" Proceedings of the 14th European Simulation Symposium, 2002.
28. Ozdemirel, N.E., Mackulak, G.T., and J.K. Cochran, "A group technology classification and coding scheme for discrete manufacturing simulation models" International Journal of Production Research, Vol. 33, No. 3, 1993, pp. 579-601.
29. Lendermann, P., Julka, N., Gan, B. P., Chen, D., McGinnis, L.F., and J.P. McGinnis, "Distributed supply chain simulation as a decision support tool for the semiconductor industry" Transactions of the Society for Modeling and Simulation International, Vol. 79, No. 3, 2003, pp. 126-138.
30. Ozdemirel, N.E., Mackulak, G.T., and J.K. Cochran, "A group technology classification and coding scheme for discrete manufacturing simulation models" International Journal of Production Research, Vol. 33, No. 3, 1993, pp. 579-601.
31. Lendermann, P., Julka, N., Gan, B. P., Chen, D., McGinnis, L.F., and J.P. McGinnis, "Distributed supply chain simulation as a decision support tool for the semiconductor industry", Transactions of the Society for Modeling and Simulation International, Vol. 79, No. 3, 2003, pp. 126-138.

**21.**

**Authors:** **Avisek Sen, Partha Mitra, Debarshi Datta**

**Paper Title:** **Low Power MAC Unit for DSP Processor**

**Abstract:** Power dissipation is one of the most important design objectives in integrated circuit, after speed. Digital signal processing (DSP) circuits whose main building block is a Multiplier-Accumulator (MAC) unit. High speed and low power MAC unit is desirable for any DSP processor. This is because speed and throughput rate are always the concerns of DSP system. This paper explores the design of low power MAC unit with block enable technique to reduce power dissipation. The MAC unit is implemented using 130-nm CMOS process technology. The whole MAC chip is operated at 200 MHz with1.5V supply voltage. The result analysis shows that the power consumption is reduced by using block enable technique.

**Keywords:** Adders, block enable, CAD tools, low power, MAC, multipliers.

**References:**

1. S. J. Jou, C. Y. Chen, E. C. Yang and C.C.Su, "A pipeline Multiplier-Accumulator using a high speed, low power static and dynamic full adder design", IEEE custom Integrated circuit conference, 1995, pp. 593-596
2. West and Harris, CMOS VLSI Design: a circuits and systems perspective, Addison-Wesley Publishing Company,3rd ed.
3. Design and VLSI Implementation of Pipelined Multiply Accumulate Unit: Shanthala S, Cyril Prasanna Raj, Dr. S.Y.Kulkarni.
4. T.H.Harun, "High Speed 8-bits X 8-bits Wallace Tree Multiplier", Chapter 3, May 2007.
5. F. Lu and H. Samulei," A 200-MHZ CMOS pipeline MAC using a quasi-domino dynamic full adder cell design", IEEE J. Solid state circuits, vol.28, pp. 123-132, Feb 1993.
6. Haikun Zhu, Chung-Ruan Cheng Renald Graham," Constructing Zero Deficiency parallel prefix adder of minimum depth", Proceeding of 2005 Asp-DAC, Shanghai, Vol.2,pp. 883-888.
7. P. Ramanathan, P. T. Vanathi, "A Novel Power Delay Optimized 32-bit Parrel Prefix Adder for High Speed Computing", IJRTE, Vol. 2, No. 6, November 2009.
8. S. Knowles, " A Family of Adders", Proceedings of the 15th IEEE Symposium of Computer Arithmetic, pp. 271-281, June 2001.
9. Cadence, "Encounter user guide", Version6.2.4, March 2008.

**93-95**

**22.**

**Authors:** **K.Vaithiyanathan, P.K.Bhaba**

**Paper Title:** **Real Time Implementation of Fractional Order Controller (PI λ) in an Air Flow Temperature System**

**Abstract:** A fractional order Proportional-Integral controller ( PIλ ) for Air Flow Temperature System (AFTS) is designed and implemented in real time . Controller parameters KP & KI are derived from the Fractional Order Characteristic Polynomial (FOCP) in terms of frequency ω and fractional order λ .The global stability region in KP - KI plane is constructed for each λ . By optimization techniques, K P average, KIaverage and corresponding λ are identified. The real time implementation of PIλ controller in AFTS is done. The PIλ controller performances such as ISE and IAE are analyzed. A comparison with other conventional based control technique is made and the results reveal the effectiveness and validity of the proposed methodology. PIλ controller outperforms the conventional PI controllers. The load disturbance studies is also carried out and justifies the supremacy of PIλ controller.

**Keywords:** Fractional order Proportional-Integral controller (PIλ), AFTS, Global stability region.

**References:**

1. Aidan O'Dwyer , " Handbook of PI and PID controller tuning rules ", 3 rd edition , Imperial college Press , London . ( Chapter 3 ).
2. Bhaba . P.K , Vaithiyanathan . K , Hamamci .S.E, ,"Design and implementation of PI λ controller in a liquid level system", International Conference on Modeling and Simulation , CIT , (CITICOMS 2007) , Coimbatore , India , 27-29 August 2007 , Vol 1, PP 183-188.
3. Hamamci . S.E , Kanthabhabha . P , Vaithiyanathan . K , "Computation of all stabilizing First order controllers for fractional order systems ", Procedings of 27th Chinese control conference , July 16-18 , 2008, Kunming, Yunan , China. DOI :- 10.1109/CHICC.2008.4605635
4. Hamamci . S.E , (2008) ," Stabilization using fractional – order PI and PID controllers" , Nonlinear Dyn 51: 2008,pp329-343 . DOI:- 10.1007/S11071-007-9214-5
5. Hsiao-Ping Huang , Jyh-Cheng Jeng , Kuo-Yuan Luo ., " Auto-tune system using single run relay feedback test and model-based controller design" , Journal of Process Control ,15,2005,pp 713-727. DOI:- 10.1016/j.jprocont.2004.11.004
6. Igor.Podlubny ," Fractional – order systems and PIλDμ -controllers", IEEE Trans. Automatic control , 1999,Vol.44, No. 1 , pp.208-214. DOI: 10.1109/9.739144
7. Ivo Petras , " Fractional-order feedback control of a DC motor", Journal of Electrical Engineering , 2009, Vol . 60, No. 3, pp117-128.
8. Manabe . S , " The non-integer integral and its application to control systems "., J. of IEE of Japan ,1960,80(860), pp 589-597.
9. Oustaloup . A ," CRONE control principle , synthesis , performances with nonlinearities and robustness"- control and information sciences ,1990,144,pp 767-777 DOI: 10.1007/BFb0120098
10. Padma Sree . R , Srinivas . M.N , Chidambaram . M , " A Simple method of tuning PID controllers for stable and unstable FOPTD

**96-100**

systems" , Computers and chemical Engineering ,2004,, 28 ,pp 2201-2218 . DOI:-10.1016/j.compchemeng.2004.04.004
11. Sunderasan. . K .R and Krishnaswamy . P. R , " Estimation of time delay , time constant parameters in time , frequency and laplace domains" , Can J. Chem. Eng ,1978,56 , pp 257-262. DOI: 10.1002/cjce.5450560215
12. Vaithiyanathan.K,, P.K.Bhaba, "Design and Real time implementation of fractional order Proportional-Integral controller( Iλ) in a Liquid level system" , Modern Applied Science , vol 5, No., 6, December 2011. DOI: 10.5539/mas.v5n6 pp188.
13. Valerio. D, Toolbox ninteger for Matlab,v.2.3 . 2005.
14. http://web.ist.utl.pt/duarte.valerio/ninteger/ninteger.htm.

**23.**

**Authors:** **Neha Rani, Tejinder Thind**

**Paper Title:** **Segmentation of Ultrasound Images Using Closest Neighbour Approach**

**Abstract:** As we know image segmentation is field which is uses in automated recognition of objects in medical fields, traffic analysis, face recognition and many more. In past few year as image processing goes on hike researches continuously exploring the field of image segmentation with various algorithm. Main problem of this field is overcome from over segmentation and the merging criteria for various clusters to segment an object. Medical images are difficult to segment due to low contrast and speckle noise. We are going to overcome over segmentation and will use closest element approach to merge various objects for segmentation. Also compare it with other technique of segmentation.

**Keywords:** closest neighbour approach, segmentation, US images.

**References:**

1. Anita Khanna, Dr. Manish Shrivastva (2012), "Unsupervised Techniques of Segmentation on Texture Images: A comparison"IEEE.
2. Haryalli Dhillon, Gagandeep jindal, Akshay Girdhar(2011), " A Novel Threshold Technique for Eliminating Speckle Noise In US images"IPCSIT Vol. 10.
3. Khaled Hammouda, Prof. Ed Jernigan, "Texture Segmentation Using Gabor Filters", University of Waterloo, Ontario, Canada, 2001.
4. K. Jain, F. Farrokhnia, "Unsupervised texture segmentation using Gabor filters", Pattern Recognition, Vol. 24, No. 12,pp.1167-1186, 1991.
5. Jappreet kaur, Jaspreet kaur, Manpreet Kaur, "Survey of Despeckling Techniques for Medical US Images"IJCTA 2011.
6. Juan Shan, "A Fully Automatic Segmentation Method For Breast Ultrasound Images", Ph.D. Thesis(Utah State University)2011.
7. Mei wang, Hsiung-Cheng Lin, Xiao-Wei Wu, Jian-ping Wang (2012) "Image segmentation Using Proportion of Foreground to Background Algorithm"IEEE.
8. Ali Kermani, Ahmad Ayatollhi, Ahmad Mirzaes, Mohammad Barekatain, " Medical US image Segmentation by modified Local Histogram range image method", JBSE 2010.
9. Ashish Thakur, Radhey Shyam Anand, "Local statistics based Region Growing segmentation method for US medical images", world academy of Science,Engineering and Technology 10 , 2007.
10. P.R Tamilselvi, P.Thangaraj, "Improved Gabor filter for extracting texture edge features in US kidney images" Modern applied science vol. 4, 2010.

**101-103**

**24.**

**Authors:** **Deeksha Garg, Richa Sharma**

**Paper Title:** **Color Transformation of Images for the Color Blind Viewers using Bacteria Foraging Optimization Technique**

**Abstract:** Color Transformation of image is modify the color of image in the another one. Till yet many researchers did work in this field to enhance images for the people suffering from color blindness and to enhance image contrast. Many methods are used to transfer the color of image and color blind viewers are enhancing the image contrast and differentiate those colors. These methods Linear Color Transformation PSO, daltonization are used and make a optimize color table that are taking more time .Here we are going to propose the BFO technique and optimize color table with BFO for the given number of generations. Using BFO makes color transform table more accurately rather than the normal morphological and mathematical based approaches and reduce the processing time.

**Keywords:** BFO, Color Transformation CVD, Daltonization.

**References:**

1. http://ee.lamar.edu/gleb/dip/063%20%20Color%20image%2 0processing.pdf
2. AnimeshPandey and Siddharth Shrotriya, "Comparing the Effect of Matrix Factorization Techniques in Reducing the Time Complexity for Traversing the Big Data of Recommendation Systems"2012
3. http://daltonize.org
4. http://wordpress.mrreid.org/2011/01/14/colour-blindness/
5. Yang Yang, Xiuqin Wang, Di Zhang, "Preprocessing of Color Images Based on the Principal Components Analysis" 2012 IEEE.
6. Jinsan Park, Jongho Choi, Dongil Han "Applying enhanced confusion line color transform using color segmentation for mobile applications" 2011 IEEE
7. Hyun-Ji Kim, Jae-Yun Jeong, Yeo-Jin Yoon, Young-Hyun Kim, and Sung-Jea Ko "Color Modification for Color-blind Viewers Using the Dynamic Color Transformation" 2012 IEEE.
8. Rajinder Kaur, Akshay Gidhar and Surbhi Gupta"Color image quantization based on bacteria foraging optimization"2011
9. Apurba Gorai, Ashish Ghosh, "Hue Preserving Color Image Enhancement Using Particle Swarm Optimization"2011 IEEE.
10. Nikhil Kushwaha, Vimal Singh Bisht and Gautam Shah, "Genetic Algorithm based Bacterial Foraging Approach for Optimization"2012.
11. Paul Doliotis, George Tsekouras , Christos-Nikolaos Anagnostopoulos , andVassilis Athitsos,"Intelligent Modification of colors in Digitized Paintings for Enhancing the Visual Perception of Color Blind Viewers".
12. Jeng-Shyang Pan. Bin-Yih Liao, "Control Systems Magazine"2002 IEEE.
13. Surbhi Gupta, Vaishali Sharma, Neeraj Mohan and Parvinder Singh Sandhu, "Color Reduction in RGB based on Bacteria Foraging Optimization" 2012 ICCCT.

**104-106**

**25.**

**Authors:** **Erna Sri Sugesti, Purnomo Sidi Priambodo, Kalamullah Ramli, Bagio Budiardjo**

**Paper Title:** **Performance Evaluation of WLAN Channel Utilization of TXOP-HCCA for Real-time Applications**

**Abstract:** This paper discusses the characteristics of Transmission Opportunity Hybrid Coordination Function Controlled Channel Access (TXOP-HCCA) for real-time application. This works presents the evaluation of TXOP duration limits based on IEEE 802.11e standard, and IEEE 802.11g for physical layer of ERP-OFDM and DSSS-OFDM technologies. HCCA 802.11e stated that superframe consists of Contention Free Period (CFP) and

**107-113**

Contention Period (CP). In this work we utilized the CFP to transmit TXOP with different traffic rates for real time packet transmission. This TXOP consists of the packets with different payload and packet numbers. We optimize the payload to achieve maximum local TXOP. We present the detailed analysis of characteristics of TXOP-HCCA which is based on detailed logical explanation of tracing the superframe values. The evaluation stage is conducted in uniform traffic rate. Subsequently we evaluate the combined traffic rates by varying the packet's payload and TXOP. Knapsack optimization method has been used to achieve the optimum TXOP in combined traffic rate. The simulation result shows that the optimum CFP utilization value is 88.12 %.

**Keywords:** channel utilization, TXOP-HCCA, CFP, Knapsack optimizatio

**References:**


1. Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, IEEE Standard 802.11, 2007.
2. Webtorials, WLAN Deployment Trends, 2008. Available at www.webtorials.com.
3. B. Walke, S. Mangold, L Berlemann, IEEE 802 Wireless Systems, John Wiley & Sons, 2006.
4. E.S. Sugesti, P.S. Priambodo, K. Ramli, B. Budiardjo, "Delay Bound Analysis for Hybrid Network: IEEE 802.11g ERP-OFDM WLAN over Fiber", Proceedings of Australasia Telecommunication Network and Application Conference (ATNAC), pp 120-123, Auckland-New Zealand, November, 2010.
5. E.S. Sugesti, P.S. Priambodo, K. Ramli, B. Budiardjo, "Delay Bound Analysis for Hybrid Networks: Interoperable IEEE 802.11b/g WLAN over Fiber", Proceedings of International Conference on Ultra Modern Telecommunication (ICUMT), pp. 1017-1021, Moscow-Russia, October 2010.
6. M. Mjeku, NJ. Gomes, "Use of Different Acknowledgement Policies for Burst Transmission in Fiber-fed Wireless LAN", IEEE Communications Letters, Vol. 11, No. 7, pp. 601 – 603, July 2007.
7. Y. Higuchi, A. Foronda, C. Ohta, M. Yoshimoto, Y. Okada, "Delay Guarantee and Service Interval Optimization for HCCA in IEEE 802.11e WLANs", Proceedings WCNC 2007, pp. 2082-2087, 2007.
8. R. Ghazizadeh, P. Fan, Y. Pan, "A Priority Queuing Model for HCF Controlled Channel Access (HCCA) in Wireless LANs", International Journal Communications, Network and System Sciences, 1, 1-89, Scientific Research Publishing, pp. 30 – 43, 2009.
9. M. M. Rashid, E. Hossain, V. K. Bhargava, "Queuing Analysis of 802.11e HCCA with Variable Bit Rate Traffic", IEEE ICC 2006, pp. 4792-4798, Istanbul-Turkey, 2006.
10. S. Hantrakoon, A. Phonphoem, "Priority based HCCA for IEEE 802.11e", IEEE Computer Society, International Conference on Communications and Mobile Computing (CMC), pp. 85 – 489, 2010.
11. Arora, S. G. Yoon, Y. J. Choi, S. Bahk, "Adaptive TXOP Allocation Based on Channel Conditions and Traffic Requirements in IEEE 802.11e Networks", IEEE Transaction on Vehicular Technology, Vol. 59, No. 3, March 2010.
12. E. K Kim, Y. J. Suh, "ATXOP: An Adaptive TXOP Based on the Data Rate to Guarantee Fairness for IEEE 802.11e Wireless LANs", IEEE Vehicular Technology Conference (VTC), pp. 2678 - 2682, Vol. 4, 2004.
13. Q. Zhao, D. H. K. Tsang, "Enhancing QoS Support in IEEE 802.11 HCCA", Proceedings of IEEE GLOBECOM'07, 2007.
14. K. Medepalli, P. Gopalakrishnan, D. Famolari, T. Kodama, "Voice Capacity of IEEE 802.11b, 802.11a and 802.11g Wireless LANs", IEEE Communications Society, GLOBECOM, pp 1549 – 1553, 2004.
15. H. A. Taha, Operation Research: An Introduction, 8th ed., Pearson Education Inc, 2007, USA.
16. H. Zen, D. Habibi, A Rassau, I. Ahmad, "Optimized WLAN MAC Protocol for Multimedia Applications", Proceedings of Wireless and Optical Communication Networks (WOCN), pp. 1-5, Surabaya Indonesia, 2008.


**26.**

**Authors:** **Utpal Bhattacharjee**

**Paper Title:** **Recognition of the Tonal Words of BODO Language**

**Abstract:** The performance of a state-of-art speech recognition system degrades considerably when the recognizers are used to recognize the tonal words. This is due to the fact that at the time of developing those recognizers, the tonal property has not been considered.Bodo is a tonal language like other Sino-Tibetan languages. In this paper we consider how current models can be modified to recognize the tonal words. Two approaches have been investigated in this paper. In the first approach attempt has been made to develop a feature level solution to the problem of tonal word recognition. In the second approach, a model level solution has been suggested. Experiments were carried out to find the relative merits and demerits of both the methods.

**Keywords:** Experiments were carried out to find the relative merits and demerits of both the methods.

**References:**


1. Stephenson, T.A.; Doss, M.M.; Bourlard, H.; , "Speech recognition with auxiliary information," Speech and Audio Processing, IEEE Transactions on , vol.12, no.3, pp. 189- 203, May 2004
2. Venayagamoorthy, G.K.; Moonasar, V.; Sandrasegaran, K.; , "Voice recognition using neural networks," Communications and Signal Processing, 1998. COMSIG '98. Proceedings of the 1998 South African Symposium on , vol., no., pp.29-32, 7-8 Sep 1998
3. Abushariah, A.A.M.; Gunawan, T.S.; Khalifa, O.O.; Abushariah, M.A.M.; , "English digits speech recognition system based on Hidden Markov Models," Computer and Communication Engineering (ICCCE), 2010 International Conference on , vol., no., pp.1-5, 11-12 May 2010
4. Baro, M.R.; "The Boro Structure – A Phonological and Grammatical Analysis", Priyadini Printing Press, 2001.
5. Williams, R.J., Zipser, D: A learning algorithm for continually running fully recurrent neural networks. Neural Computation 1, 270--280 (1989).
6. Stevens, S., Volkmann, J., and Newman, E., "A Scale for the Measurement of the Psychological Magnitude Pitch." Journal of the Acoustical Society of America 8: 185–190, 1937.
7. Ng, Raymond WM, et al, "Analysis and Selection of Prosodic Features for Asian Language Recognition", International Journal of Asian Language Processing, 19(4):139-152, 2009.
8. Adami, A., Mihaescu, R., Reynolds, D., and Godfrey, J., "Modeling prosodic dynamics for speaker recognition", In Proc. Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP 2003), pp. 788–791, 2003.
9. Bartkova, K., D.L.Gac, Charlet, D., and Jouvet, D, "Prosodic parameter for speaker identification", In Proc. Int. Conf. on Spoken Language Processing (ICSLP 2002), pp. 1197–1200, 2002.
10. Reynolds, D. et al, "The SuperSID project: exploiting high-level information for high-accuracy speaker recognition", In Proc. Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP 2003), pp. 784–787, 2003.
11. Li Tan and MontriKarnjanadecha, "Pitch Detection Algorithm: Autocorrelation Method and AMDF", Proceedings of the 3rd International Symposium on Communications and Information Technology, vol. 2, pp. 541-546, September 2003.
12. Wong, P.F. and Siu, M.H.; "Integration of Tone Related Features for Chinese Speech Recognition", Proceedings of ICSP' 02, PP 476-479, 2002.
13. Bhattacharjee, U.; "Environment and Sensor Robustness in Automatic Speech Recognition", International Journal of Innovation Science


**114-118**

and Modern Engineering, Vol.1. No.2, pp 31-37, 2013.

**27.**

**Authors:** **Srinivasa Reddy V, Jyothi Kumar K S, Seshagiri Rao M V, Sasikala Ch**

**Paper Title:** **Studies on Permeability of Self-Healing Built-In Bacteria Concrete**

**Abstract:** Permeability is the most crucial internal factor in concrete durability. The durability of a concrete is closely related to its permeability. The permeability dictates the rate at which aggressive agents can penetrate to attack the concrete and the steel reinforcement. Water penetrability is defined as the degree to which a material permits the transport gases, liquids or ionic species through it. Water can be harmful for concrete, because of its ability to leach calcium hydroxide from the cement paste, to carry harmful dissolved species such as chlorides or acids into the concrete, to form ice in large pores in the paste, and to cause leaching of compounds from the concrete. Water absorption, sorptivity and water permeability measurement are some methods to determine the water penetrability of concrete. A triaxial cell permeability apparatus and method for determining water permeability of concrete are presented in this paper. This method utilizes Darcy's Law for steady flow so as to relate water permeability to the rate of water flow under a pressure head. The major drawbacks commonly encountered in triaxial cell permeability apparatus are addressed by evaluating the water permeability as per as per German standard DIN 1048(Part 5):1991 specifications and MORT&H (Ministry of Road Transport & Highways) 4th Revision specifications. Test results indicated that bacterial concrete is highly impermeable than normal concrete. Permeability measurement techniques and durability modeling are based on the Darcy equation for permeability based on measurement of flow rate, and the Valetta equation for permeability based on measurement of penetration depth and time. Bacteria built-in concrete works on the phenomenon of microbiologically induced calcite precipitation. Calcite crystals formed, due to microbial activities of bacteria Bacillus subtilus JC3, seals the cracks and pores in concrete and enhances the strength and durability of concrete by making concrete impermeable to transport different fluids or gases, like water, chlorides, sulfates or oxygen.

**Keywords:** water permeability, durability, bacterial concrete, DIN 1048, IS 3085:196

**References:**

1. Bamforth P.B , " The Water Permeability of Concrete and its Relationship with Strength" , Magazine of Concrete Research, 1991, 43,233-241.
2. Khatri R.P, Sirivivantnanon V., "Methods for the Determination of Water Permeability of Concrete", ACI Materials Jl.,1997, 94, 257-261.
3. IS: 3085-1965, "Method for Determination of Permeability of Concrete". Bureau of IndianStandards, 1965, New Delhi.
4. DIN 1048 (Part-5):1991 German Standard for Determination of Permeability of Concrete
5. Concrete Society. "Permeability of Concrete and its control", Papers for a one-day Conference,130 p. 12th December 1985.
6. "Permeability of Concrete", ACI SP-108, D. Whiting and A. Walitt, ed., Detroit, Michigan, pp.145-158. 1988.
7. Hooton, R.D., and Wakeley, L.D. "Influence of test conditions on water permeability of concrete in a triaxial cell, in Pore Structure and Permeability of Cementitious Materials". Materials Research Society Symposium Proceedings, Vol. 137, ed by L.R. Roberts and J.P. Skalny, Pittsburgh: Materials Research Society, pp.157–164. 1989.
8. Janssen, D.J. "Laboratory Permeability Measurement, in Permeability of Concrete", ACI SP-108, D. Whiting and A. Walitt, ed., Detroit, Michigan, pp.145-158. 1988.
9. Meulen, G.J.R. and Dijk, J. "A Permeability-Testing Apparatus for Concrete", Magazine of Concrete Research, 21, No. 6, pp.121-123. 1969.
10. Hope, B.B. and Malhotra, M.V. "The Measurement of Concrete Permeability", Canadian Journal of Civil Engineering, 11, pp.287-292. 1984.
11. Bisiallon, A. and Malhotra, V.M. "Permeability of concrete using a uniaxial water flow method, Permeability of Concrete", ACI SP-108, D. Whiting and A. Walitt, ed., Detroit, Michigan, pp.175-193. 1988.
12. El-Dieb, A.S. and Hooton, R.D. "A High Pressure Triaxial Cell with Improved Measurement Sensitivity for Saturated Water Permeability of High Performance Concrete", Cement and Concrete Research, 24, No. 5, pp.854-862. 1994.
13. Mehta, P.K. and Manmohan, D. "Pore Size Distribution and Permeability of Hardened Cement Pastes," Proceedings of the 7th International Conference on Chemistry of Cements, Paris, v. 3, 1980.
14. Hughes, D.C. "Pore Structure and Permeability of Hardened Cement Paste," Magazine of Concrete Research, v. 37, n. 133, 1985, pp. 227-233.
15. Banthia, N. "Water Permeability of Cement Paste," Cement and Concrete Research, v. 19, 1989, p. 727.
16. Li, Zong Yin and Chau, Chung-Kong. "New Water Permeability Test Scheme for Concrete," ACI Materials Journal, v. 97, n. 1, January-February 2000, pp. 84-90.
17. Mater, B., Callan, E.J., McCoy, E.E., Carson, R.W., Permeability and triaxial test on lean mass concretes, Vicksburg US Army Waterways Exp. St., Tech. Mem. G-380.

**119-125**

**28.**

**Authors:** **Uma Shankar Modani, Anubhav Kanwaria**

**Paper Title:** **A Survey on Polarization Reconfigurable Patch Antennas**

**Abstract:** Polarization reconfigurability in a microstrip patch antenna system is one of the desired characteristics that have been the focus of research in recent years. Reconfigurable antenna with ability to radiate in more than one polarization state offers several degrees of freedom to antenna designer. The researches on polarization reconfigurable antennas are categorized into simple and complex feed structures. In this paper, several polarization reconfigurable antenna designs with and without loading which have been reported in the literature are discussed.

**Keywords:** Loading, Microstrip patch antenna, Polarization, Reconfigurable antenna.

**126-129**

**References:**

1. W. B. Wei, Q.Z. Liu, Y. Z. Yin, and H. J. Zhou, "Reconfigurable microstrip patch antenna with switchable polarization,"IEEE Transactions on Antennas and Propagation, Vol. 28, No.11, 2010.
2. Chia Luan Tang, Jui Han Lu, and Kin-Lu Wong, "Circularly polarized equilateral-triangular microstrip antenna with truncated tip."Electronics Letters Vol. 34, No. 13, 25th June 1998.
3. Aly E Fathy, Louis S Napoli, Ed Denlinger, Fran McGinty, David McGee, Gary Ayers, and Charlie E Rodeffer, "Novel planar polarizer feed for dual circular polarization," Electronics Letters Vol. 38, No. 25, 2005.
4. W.K. Lo, C.H. Chan, K.M. Luk, "Circularly polarised patch antenna array using proximity-coupled L-strip line feed," Electronics Letters

,2006, Vol.3, Issue: 1
5. W.K. Lo, C.H. Chan, K.M. Luk, "Circularly polarised microstrip antenna array using proximity coupled feed,"Electronics Letters ,2005,Vol.3, Issue: 2
6. Kin Fai Tong, G. Lacotte, "Novel Single feed proximity coupled wideband circularly polarized slot antenna," Asia-Pacific Microwave Conference, APMC 2008.
7. M. Zawadzki, A multi-layer circularly polarized microstrip patch antenna with proximity coupling and increased gain, "IEEE Antennas and Propagation Society International Symposium," 2001, Vol. 3
8. Kin-Fai Tong, Jingjing Huang, "New Proximity Coupled Feeding Method for Reconfigurable Circularly Polarized Microstrip Ring Antennas," IEEE Transactions on Antennas and Propagation, 2006, Vol.56, Issue: 7.
9. E. Nishiyama, S. Egashira, A. Sakitani, "Stacked circular polarized Microstrip antenna with wide band and high gain," Antennas and Propagation Society International Symposium, 1992.
10. S. Assailly, C Terret,. J.P Daniel, K. Mahdjoubi, "Low cost stacked circular polarized microstrip antenna," Antennas and Propagation Society International Symposium, 1989.
11. O.P. Falade, M.U. Rehman, Yue Gao, Xiaodong Chen, C.G. Parini, "Single Feed Stacked Patch Circular PolarizedAntenna for Triple Band GPS Receivers," IEEE Transactions on Antennas and Propagation, 1998, Vol. 60 , Issue: 10.
12. S. Shekhawat, P. Sekra, D. Bhatnagar, V.K. Saxena, J.S. Saini, "Stacked Arrangement of Rectangular Microstrip Patches for Circularly Polarized Broadband Performance," IEEE Antennas and Wireless Propagation Letters,2001, Vol.9.
13. S. Kaffash, M. Kamyab, "A sequentially rotated RHCP stacked patch antenna array for INMARSAT-M land applications," 6th European Conference on Antennas and Propagation (EUCAP), 2012 .
14. Hu Da-cheng, Wang Jian, Gao Jin-rui , "Design a wide-scan angle phased-array antenna with circular polarization using a new cross-dipole," Microwave and Millimeter Wave Circuits and System Technology (MMWCST), 2012 International Workshop.
15. Soliman, S.Brebels, E. Beyne, G.A.E. Vandenbosch, R. Mertens, "Sequential-rotation arrays of circularly polarized CPW-fed aperture antennas in the MCM-D technology," Microelectronics, ICM, 1999.
16. Shih-Kai Lin,Yi-Cheng Lin, "A Compact Sequential-Phase Feed Using Uniform Transmission Lines for Circularly Polarized Sequential-Rotation Arrays,"IEEE Transactions on Antennas and Propagation, Vol.59 , Issue: 7.
17. Aixin Chen, Yanjun Zhang, Zhizhang Chen, Chuo Yang, "Development of a -Band Wideband Circularly Polarized 64-Element Microstrip Antenna Array with Double Application of the Sequential Rotation Feeding Technique,"IEEE Antennas and Wireless Propagation Letters, 2001, Vol.10.
18. M. Thiel, A. Dreher, "Sequential rotation in a smart antenna terminal for broadband communication,"IEEE, Vol.1.
19. Kin-FaiTong,JieDu,JingjingHuang,"Novel sequential rotation technique for broadband circularly polarized microstrip ring antennas," Loughborough Antennas and Propagation Conference, 2008.
20. K.D. Palmer, J.H.Cloete, J.J. van Tonder, "Bandwidth improvement of circularly polarized arrays using sequential rotation," Antennas and Propagation Society International Symposium, 1992.
21. U.R. Kraft, Main-beam polarization properties of four-element sequential-rotation arrays with arbitrary radiators,"IEEE Transactions on Antennas and Propagation, 2006, Vol. 44, Issue: 4.
22. A.B. Smolders, U. Johannsen, "Axial Ratio Enhancement for Circularly-Polarized Millimeter-Wave Phased-Arrays Using a Sequential Rotation Technique," IEEE Transactions on Antennas and Propagation ,2005, Vol.59 , Issue: 9.
23. Hing Kiu Kan, R.B. Waterhouse, "A small CP-printed antenna using 120° sequential rotation,"IEEE Transactions on Antennas and Propagation, Vol.50, Issue: 3.
24. A.B. Smolders, U.Johannsen, "The effect of phase and amplitude quantization on the axial ratio quality of mm-wave phased-arrays with sequential rotation,"IEEE Antennas and Propagation (APSURSI), 2011.
25. Yu Ushijima, Eisuke Nishiyama, and Masayoshi Aikawa, "Linear polarization switchable patch array antenna,"IEEE 978-1-4244-3647-7/09/ ©2009.
26. Eisuke Nishiyama and Masayoshi Aikawa, "Circular polarization controllable microstrip antenna," IEEE 1-4244-0878-4/07/ ©2007.
27. Xue-Xia Yang, Bing Chang Shao, Fan Yang Elsherbeni, and Bo Gong, "A polarization reconfigurable patch antenna with loop slots on the ground plane," IEEE Antenna and Wireless Propagation Letters, VOL. 11, 2012.
28. Won-Sang Yoon, Jung-Woo Baik, Hun-Sung Lee, Seongmin Pyo, Sang-Min Han, and Young-Sik Kim, "A Reconfigurable Circularly Polarized Microstrip Antenna with a Slotted Ground Plane,"IEEE Antennas and Wireless Propagation Letters, VOL. 9, 2010.
29. Won-Sang Yoon1, Sang-Min Han2, Jung-Woo Baik3, Seongmin Pyo3, and Young-Sik Kim, "A Compact Microstrip Antenna on a Cross-Shape Slotted Ground with Switchable Circular Polarization,"IEEE Transactions on Antennas And Propagation, Vol. 30, No. 7, 2009.
30. Won-Sang Yoon, Dong-Hyo Lee, Kyoung-Joo Lee, Sun-Hyung Kim, Sang-Min Han, and Young-Sik Kim, "Circular Patch Antenna for a Switchable Circular Polarization Sense with a Slotted Ground Structure," Loughborough Antennas & Propagation Conference, 2009.
31. Ali Khaleghi and M. Kamyab, "Reconfigurable single port antennas with circular polarization diversity,"IEEE Transactions on Antennas and Propagation, Vol. 57, No. 2, February 2009.
32. Ally Y. Simba, Manabu Yamamoto, Soichi Watanabe, Toshio Nojima, and Kiyohiko Itoh, "Improving the input characteristics of a circularly polarized proximity-fed microstrip antenna with polarization switching ability,"IEEE 1-4244-0123-2/06/ ©2006.
33. Fabien Ferrero, Cyril Luxey, Robert Staraj, Gilles Jacquemod, Matthew Yedlin, and Vincent Fusco, "A novel quad-polarization agile patch antenna,"IEEE Transactions on Antennas and Propagation", Vol. 57, No. 5, May 2009.
34. T. Teshirogi, M. Tanaka, W. Chujo, "Wideband circularly polarized array antenna with sequential rotations and phase shift of elements," Proceedings ISAP, pp. 117-120, August 1985.
35. Kin-Fai Tong, Jie Du, and Jingjing Huang, "Novel sequential rotation technique for broadband circularly polarized microstrip ring antennas," IEEE Transactions on Antennas and Propagation, Vol. 26, No. 13, 2010.
36. Kin-Fai Tong, "A new single-feed proximity coupled circularly polarized square ring antenna," Proceeding of APMC Yokohama, Japan. pp 69-72, 12-15 December 2006.

**29.**

**Authors:** **Kanu Priya, Rajesh Mehra**

**Paper Title:** **FPGA Based Cost Efficient Fir Filter Using Factored CSD Technique**

**Abstract:** In this paper, an FPGA based area and power efficient FIR filter for wireless communication systems is presented. The implementation is based on Factored Canonic signed digit (FCSD) which eliminates the use of embedded multipliers. The proposed FIR filter has been implemented using Equiripple Symmetric structure on an FPGA. The developed FIR filter has been optimized in terms of MAC operation using symmetric structure. The symmetric structure requires less hardware for implementation as compared to transposed structure and also reduces hardware complexity. The performance of both symmetric and transposed structure is almost same but implementation cost varies significantly. A 20 tap FIR filter has been designed and simulated using 16 bit input and output precision with the help of Matlab. Factored Canonic signed digit (FCSD) approach is used to implement an FIR Filter taking optimal advantage of the look up table structure of FPGA. The behavioural simulation of proposed VHDL model has been performed using Modelsim simulator. The simulated model has been synthesized using Xilinx synthesis tool (XST) on Virtex 2 based xc2v3000-4ff1152 target FPGA device. The results show that symmetric FIR filter require 52.3 % less hardware as compare to transposed FIR structure. The developed symmetric FIR structure can operated at a maximum frequency of 45 MHz by consuming 6% slices, 2% flip flops and 5% Look up tables (LUTs) to provide cost effective solution for Digital Signal Processing Applications.

**130-133**

**Keywords:** DSP, FCSD, FIR, FPGA, VHDL

**References:**


1. M. M. Peiro, E. I. Boemo, and L. Wanhammar, "Design of high-speed multiplierless filters using a nonrecursive signed common subexpression algorithm," IEEE Transaction Circuits System II, Vol. 49, No. 3, Mar. 2002
2. Charles D. Howard, "Minimizing FIR FILTER designs implemented in FPGA'S utilizing minimized adder graph techniques", Spring Semester, 2009.
3. Vijender Saini, Balwinder Singh ,Rekha Devi "Area Optimization of FIR Filter and its Implementation on FPGA", International Journal of Recent Trends in Engineering, Vol 1, No. 4, May 2009.
4. K.N. Macpherson and R.W. Stewart "Area efficient FIR filters for high speed FPGA Implementation", IEEE Proceeding -Visual Image Signal Process., Vol. 153, No. 6, December 2006.
5. Bjarne Petersen,"FPGA Signal Preprocessing for Digital Wireless Receivers", Kongens Lyngby , pp -IMM-102, 2012.
6. Fabio Fabian Daitx, Vagnor S Rosa, Eduardo Coasta, Poulo Flores, Sargio Bampi. "VHDL Generation of Optimized FIR Filters", International Conference on Signals, Circuits and Systems IEEE, 2008.
7. Mathworks, "Users Guide Filter Design Toolbox-4", March-2007.
8. R. Maheh and A. P. Vinod, "New Reconfigurable Architectures for Implementing FIR Filters with Low Complexity" IEEE Transaction Computer Aided Design Integrated Circuits System, Vol. 29, Feb. 2010.


**30.**

| | |
|---|---|
| **Authors:** | **Sanjay Patil** |
| **Paper Title:** | **Thermodynamic Modelling for Performance Analysis of Compression Ignition Engine Fuelled With Biodiesel and its Blends With Diesel** |


**Abstract:** In this work, computer simulation framework for compression ignition engine cycle simulation is developed and engine performance is predicted. Double wiebe's function is used to model the rate of heat release due to combustion to predict heat released during premixed as well as diffusive phase of combustion. Effect of convective heat transfer and variation in specific heat of test fuels are also considered during development of model. Suitable correlations are established between adjustable parameters of wiebe's function, relative air-fuel ratio and engine operating conditions, such that the simulated heat release profile matches closely with experimental results. The simulation model is used to analyze the performance, combustion and emission characteristics of single cylinder 3.5 kW rated power diesel engine fuelled with Diesel (D0), Palm Oil Methyl Ester (POME) and POME-diesel blends. The model validation is done by comparing the predicted parameters like brake thermal efficiency and in-cylinder pressure with experimental results and are found in closer approximation. The model is also used to predict net heat release rate, exhaust gas temperature, NOx and soot.



**Keywords:** biodiesel, C. I. engine, POME, simulation.


**References:**


1. B.K. Venkanna and C. Venkataramana Reddy. "Performance, emission and combustion characteristics of direct injection diesel engine running on calophyllum inophllum linn oil (honne oil)" .International journal of Agric and Biol. Eng. Vol. 4, No 1 March 2011, page no 1-7.
2. K. Purushothaman a, G. Nagarajan. "Performance, emission and combustion characteristics of a compression ignition engine operating on neat orange oil". Renewable Energy 34 (2009) 242–245.
3. Silvio C.A. de Almeidaa, Carlos Rodrigues Belchiora, Marcos V.G. Nascimento, Leonardo dos S.R. Vieira, Guilherme Fleury. "Performance of a diesel generator fuelled with palm oil". Fuel. Volume 81, Issue 16, 1 November 2002, Pages 2097–2102.
4. N.R.Banapurmath, P.G.Tewari, R.S. Hosmath. "Performance and emission characteristics of a DI compression ignition engine operated on Honge, Jatropha and sesame oil methyl esters". Renewable Energy 33 (2008) 1982–1988.
5. Ahmet Necati Ozsezen, Mustafa Canakci, and Cenk Sayin "Effects of Biodiesel from Used Frying Palm Oil on the Performance, Injection, and Combustion Characteristics of an Indirect Injection Diesel Engine" Energy & Fuels 2008, 22, 1297–1305.
6. Dr. J.G. Suryawanshi. "Palm Oil Methyl Ester: A New Fuel for CI Engines" ISESCO Science and Technology Vision, volume 5- Number 7- May 2009 (36-40).
7. A.S. Ramadhas, S. Jayaraj, C. Muraleedharan," Theoretical modeling and experimental studies on biodiesel-fueled engine". Renewable Energy 31 (2006) 1813–1826.
8. M. Venkatraman and G. Devaradjane. "Computer Modeling of a CI Engine for Optimization of Operating Parameters Such as Compression Ratio, Injection Timing and Injection Pressure for Better Performance and Emission Using Diesel-Diesel Biodiesel Blends". American Journal of Applied Sciences 8 (9): 2011, 897-902.
9. Ganesan, V., Computer simulation of Compression-Ignition engine processes, University Press(India) Ltd., Hyderabad, India, 2000.
10. Hohenberg GF. Advanced approaches for heat transfer calculations,1979,SAE 790825.
11. J.B. Heywood, Internal Combustion Engines Fundamentals, Mc Graw Hill, 1988, ISBN 0-07-100499-8.
12. Shroff, H. D., Hodgetts, D., Simulation and Optimization of Thermodynamic Processes of Diesel Engine, SAE 740194, 1974.
13. S.R.Turns, "An introduction to combustion-concepts and applications", McGraw Hill Series in Mechanical Engineering, 2000.
14. Patterson, M. A., Kong, S. C., Hampson, G. J., Reitz, R. D., "Modeling the Effects of Fuel Injection Characteristics on Diesel Engine Soot and NOX Emissions", SAE Paper 940523.


**134-138**

**31.**

| | |
|---|---|
| **Authors:** | **Ravi.T, Irudaya Praveen.D, Kannan.V** |
| **Paper Title:** | **Design and Analysis of High Performance Double Edge Triggered D-Flip Flop** |


**Abstract:** The power consumption of a system is a crucial parameter in modern VLSI circuits especially for low power applications. This paper proposed a new Double Edge Triggered D-Flip Flop (DETFF) which is suitable for low power applications. The proposed DETFF is having less number of clocked transistors than existing designs. The proposed DETFF is simulated with different clock frequencies ranging from 1MHz to 2GHz. Simulation results show lowest average power and least delay than existing designs. Further, the average power and the PDP are improved by 77.23% and 89.11% when compared with existing design respectively, which claims that proposed design is suitable for low power and high performance applications.



**Keywords:** DETFF, power, delay, PDP


**References:**

**139-142**

1. Imran Ahmed Khan, Danish Shaikh and Mirza Tariq Beg,, "2 GHz Low Power Double Edge Triggered flip- flop in 65nm CMOS Technology," IEEE Conference, 2012.
2. Xiaowen Wang and William H. Robinson, "A Low-Power Double Edge-Triggered Flip-Flop with Transmission Gates and Clock Gating," IEEE Conference, pp 205-208, 2010.
3. Yu Chien-Cheng,, "Low-Power Double Edge- Triggered Flip-Flop Circuit Design," Third International Conference on Innovative Computing Information and Control (ICICIC'08), IEEE Conference, 2008.
4. G. M. Blair, "Low-power double-edge triggered flip-flop", Electron. Lett., Vol. 33, No. 10, pp. 845-847, 8 May 1997.
5. Peiyi Zhao, Jason McNeely, Pradeep Golconda and Jianping Hu, "Low Power Design of Double-Edge Triggered Flip-Flop by Reducing the Number of Clocked Transistors," IEEE Conference, 2008.
6. Sandeep Sriram, Arun Ramnath, Haiqing, Hojoon Lee and Ken Choi "A Novel Dual Edge Triggered Near-Threshold State Retentive Latch Design," IEEE Conference, 2011.
7. M. W. Phyu, W. L. Goh and K. S. Yeo, "A Low-Power Static Dual Edge-Triggered Flip-Flop using an Output-Controlled Discharge Configuration" IEEE Conference, 2005.
8. M. Pedram, Q. Wu, and X. Wu, "A New Design of Double Edge Triggered Flip-Flops," Proceedings of the Asia and South Pacific Design Automation Conference (ASP-DAC), pp. 417–421, 1998.
9. Troy A. JohnsonP and Ivan S. Kourtev , "A Single Latch, High Speed Double-Edge-triggered flip-flop (DETFF)" IEEE, 2001, in press.
10. Yu Chien-Cheng, "Design of Low-Power Double Edge-Triggered Flip-Flop Circuit", Second IEEE Conference on Industrial Electronics and Applications, pp 2054-2057, 2007.
11. S.H.Rasouli, A.Amirabadi, A.Seyedi and A.Afazali-kusha, "Double Edge Triggered Feedback Flip-Flop in Sub 100nm Technology," IEEE Conference, 2006.
12. Wing-Shan Tam, Sik-Lam Siu, Chi-Wah Kok, and Hei Wong. "Double Edge-Triggered Half-Static Clock-Gated D-Type Flip-Flop". IEEE International Conference of Electron Devices and Solid-State Circuits (EDSSC), 2010.
13. Keisuke Inoue and Mineo Kaneko," Variable-Duty -Cycle Scheduling in Double-Edge-Triggered Flip-Flop-Based High-Level Synthesis," IEEE Conference, 2011.
14. Fatemeh Aezinia, Sara Najafzadeh, and Ali Afzali-Kusha, "Novel High Speed and Low Power Single and Double Edge-Triggered Flip-Flops," IEEE Conference 2006.
15. Hossein Karimiyan Alidash, Sayed Masoud Sayedi and Hossein Saidi, "Low-Power State-Retention Dual Edge-Triggered Pulsed Latch," Proceedings of ICEE 2010, May 11-13, IEEE 2010.
16. M. Pedram, "Power minimization in IC Design: Principles and applications," ACM Transactions on Design Automation of Electronic Systems, vol. 1, pp.3-56, Jan. 1996.
17. G. E. Tellez, A. Farrahi, and M. Sarafzadeh, "Activity-Driven Clock Design for Low Power Circuits," Proceedings of the IEEWACM International Conference on Computer-Aided Design (ICCAD), pp. 62-65, 1995.


**32.**

| | |
|---|---|
| **Authors:** | **Sundaram Arvind Narayan, Sutha Shobana, Anand Sundaram, Jeyaprakash Dharmaraja** |
| **Paper Title:** | **Isolation, Spectral Characterization, Thermal Efficiency and Microbial Evaluation Studies on Indian Rubber (Hevea Brasiliensis) Seed Oil** |


**Abstract:** Hevea brasiliensis rubber seeds were collected and were extracted by using n-hexane as the solvent in the Soxhlet Extractor. The extracted semi drying oil was characterized by various physio-chemical and thermal properties. Fatty acid composition of the lipid was investigated using gas chromatography techniques. Vibrational studies of the oil show that the characteristic strong absorption at 1741 and 1644cm-1 for –C=O and –C=C– groups respectively. Both the 1H NMR and 13C NMR spectral studies indicate that the presences of triacylglycerol groups were saturated as well as unsaturated in nature. Photo pyroelectric technique (PPE) was used for thermal characterization of the extracted oil. The effect of the fuels on engine components and exhaust gas emissions such as total hydrocarbon, carbon monoxide, and smoke and brake specific fuel consumption were also investigated. Antimicrobial activity was compared with the standard control drug of chloramphenicol at a concentration of 10 µg/ml at 30, 37 and 42 oC.



**Keywords:** Hevea brasiliensis rubber seeds, Photo pyroelectric technique, Spectral Studies, Thermal emissions, Microbial screening.


**References:**


1. M. M. Gui, K. T. Lee, and S. Bhatia, "Feasibility of edible oil versus non-edible oil versus waste edible oil as biodiesel feedstock", Energy, vol. 33, Nov. 2008, pp. 1646–1653.
2. F. A. L. Machado, E. B. Zanelato, A. O. Guimaraes, E. C. da Silva, and A. M. Mansanares, 'Thermal Properties of Biodiesel and Their corresponding Precursor Vegetable oils", Int J Thermophys., vol. 33, Nov. 2012, pp.1848–1855.
3. G. Knothe, J.V. Gerpen, J. Krahl, and L.P. Ramos, The Biodiesel Handbook, AOCS Press, Champaign, IL (USA), 2005.
4. H. Vargas, and L.C.M. Miranda, "Photothermal tecniques applied to thermophysical properties measurements", Rev. Sci. Instrum, vol. 74, Jan. 2003, pp. 794–799.
5. O.E. Ikwuagwu, I.C. Ononogbu, and O.U. Njoku, "Production of biodiesel using rubber [Hevea brasiliensis] seedoil", Industrial Crops and Products, vol. 12, Jan. 2000, pp. 57–62.
6. A.S. Ramadhas, C. Muraleedharan, and S. Jayaraj, "Performance and emission evaluation of a diesel engine fueled with methyl esters of rubber seed oil", Renewable Energy, vol. 30, Oct. 2005, pp. 1789–1800.
7. D. Narahari and P. Kothandaraman, "Chemical composition and nutritional value of para-rubber seed and its products for chickens", Animal Feed Science and Technology", vol. 10, Dec. 1983, pp.257–267.
8. S. Arvind Narayan, S. Shobana, S. M. Swamy, and J. Dharmaraja, National Conference on "Advanced materials processing Characterization and Applications", PSN College of Engineering and Technology, Tirunelveli, Jan. 2013, pp. 240–244.
9. A.I. Aigbodion, and C.K.S. Pillai, "Preparation, analysis and applications of rubber seed oil and its derivatives in surface coatings", Progress in organic coatings, vol.38, Jun. 2000, pp.187–192.
10. D. Dadarlat, and C. Neamtu, "High Performance Photopyroelectric Calorimetry of Liquids", Acta Chim. Slov. vol. 56, Feb. 2009, pp. 225–236.
11. D. Dadarlat, C. Nematu, M. Streza, C. Socaciu, C. Bele, and F. Dulf, "Highly accurate photopyroelectric measurement of thermal diffusity of vegetable oils", Eur. J. Lipid Sci. Technol., vol.111, Feb. 2009, pp.148–154.
12. G. Gelbard, O. Bres, R. M. Vargas, F. Vielfaure and U. Schuchardt, "1H Nuclear magnetic resonance determination of the yield of the transestterification of rapeseed oil with methanol", J. Am. Oil Chem. Soc., vol. 72, Oct. 1995, 1239-1241.
13. C.V. Bindhu, S.S. Harilal, V.P.N. Nampoori, and C.P.G. Vallabhan, "Thermal diffusivity measurements in organic liquids using transient thermal lens calorimetry", Opt. Eng., vol. 37, Apr. 1998, pp. 2791– 2794.
14. A.O. Guimarae, F.A.L. Machado, E.C. da Silva, and A.M. Mansanares, "Investigating thermal properties of biodiesel/diesel mixtures using photopyroelectric technique", Thermochimica Acta, vol. 527, Oct. 2012, pp. 125–130.
15. M.A. Kalam, and H.H. Masjuki, "Emissions and Deposit Characteristic of a Small Diesel Engine When Operated on Preheated Crude Palm Oil", Biomass and Bioenergy, vol.27, Oct. 2004, pp. 289–297.
16. Y. Rajeshwar, R. Ahmed, A. S. Sunder, J. Devilal, M. Gupta, and P. Mazumder, "In Vitro Lipid Peroxidation Inhibitory and antimicrobial


**143-147**

Activity of Phyllanthus niruri Euphorbiaceae) Extract", Iranian Journal of Pharmacology & Therapeutics, vol. 7, Aug. 2008, pp.67-70.

**33.**

**Authors:** **Rajesh Mehra, Shaily Verma**

**Paper Title:** **Area Efficient Interpolator Using Half-Band Symmetric Structure**

**Abstract:** In this paper a cost effective Interpolator has been designed and simulated. An area efficient method has been presented to implement cost effective interpolator for wireless communication systems. Interpolator is particularly useful for smoothing signals such as sinusoids or baseband I/Q waveforms. For these signals, interpolation filter is used to accurately produce new samples of the waveform without reducing signal quality. In this paper three structures for interpolator has been used namely Direct Form FIR Polyphase, Nyquist Filter and Half-Band Low pass Filter. The developed interpolator has been compared for performance and implementation cost using Mat Lab. The results show that the performance of all the designs is almost similar, but cost variation is very high. The Half-Band structure shows 52% of reduction in multipliers as compared to Direct Form FIR Polyphase structure. The Half-Band structure is further implemented in Transposed Structure and Symmetric Structure. The Half-Band symmetric structure shows 27% reduction in multipliers as compared to Direct Form FIR Polyphase, Nyquist Filter and Half-Band Low pass Filter structure to provide cost effective solution for wireless applications.

**Keywords:** DSP, Filter, FIR, Interpolator,

**References:**

1. Rajesh Mehra and Ravinder Kaur, "Reconfigureurable Area and Speed Efficient Interpolator Using DALUT Algorithm", Springer-Verlag Berlin Heidelberg 2010 , Conference in Computer Science and Information Technology 2011, CCIS 132, Page(s):117-125 .
2. Rajesh Mehra, "FPGA Design of optimised CIC Interpolator for DSP based Wireless Communication System". IMS MANTHAN Journal , Vol. 5 , December 2010, Page(s):43-46.
3. Mukhtar, A.; Jamal, H.; Farooq, U,"An Area Efficient Interpolation Filter for Digital Audio Applications". IEEE Transactions on Consumer Electronics, Vol. 55, No. 2, MAY 2009, Page(s): 768 – 772.
4. Xiaowei HUANG, Yan HAN, Lei CHEN, "The Design and FPGA Verification of a General Structure, Area-optimised Interpolation Filter Used in delta Sigma DAC", IEEE Conference on Solid State and Integrated circuit Technology (ICSICT) , October 2006, Page(s):2111-2113 .
5. Jing Li; Xiao-Bo Wu; Jin-Chen Zhao," An improved area-efficient design method for interpolation filter of Sigma-Delta audio DAC ", IEEE Conference on Solid State and Integrated Circuit Technology , Page(s):327-329, November 2010
6. M.D. Lutovac, and L.D. Milic, "Approximate linear phase Multiplier less IIR half-band filter," IEEE Signal Processing Letters, Vol.7, Page(s): 52-53, March 2000.
7. Navjot Singh, Amandeep singh, "Design and implementation of optimum interpolator filter using Farrow structure", International Journal of Engineering Science and Technology(IJEST), Vol. 3, No.5, May 2011, Page(s):4108:4113
8. Zhao De-An; Lian Xian-Guo; Yang Ping," Multi-rate Signal Processing For Software Defined Radio(SDR) and realize on FPGA", IEEE conference on Computer Science Technology and Applications , Vol. 1,Decmber 2009, Page(s):251-254.
9. Allred, D.J, Heejong Yoo, Krishnan, V, Huang, W, Anderson, D.V, "A novel high performance distributed arithmetic adaptive filter implementation on an FPGA", IEEE International Conference on Acoustics speech and signals , Vol. 5, August 2004, Page(s): V - 161-4.
10. AI-Haj, A , "An Efficient Configureurable Hardware Implementation of Fundamental Multirate Filter Banks". IEEE Conference on Systems, Signals and Devices, Page(s): 1–5, July 2008.

**148-152**

**34**

**Authors:** **Aparna A. Kamble , Vivek S. Deshpande**

**Paper Title:** **Analyzing Data Collection Strategies Using Mobile Sink**

**Abstract:** One of the most important task of Wireless Sensor Network (WSN) is data collection . In sensor network the sensors are sensing the information and will be collected by the sink node with multi hoping. In such a scenario the energy is consumed by the node is more. In recent years the researchers are focusing on how to minimize the energy of the node and how it will help to improve the life of the node. One of the idea to do this is minimize the hop. The proposed framework is maximizing the lifetime of the wireless sensor networks (WSNs) by using a mobile sink. Proposed work is having the cluster with cluster head. The mobile sink moves towards the cluster head only upon the occurrence of an event .The cluster head is collecting the data from the sensor node and storing the same. Once the data is available to the cluster head, head will inform to the Mobile Sink. The Mobile Sink will move to respective position of the cluster head and data will be collected by Mobile sink.

**Keywords:** Wireless Sensor Networks, Cluster, Cluster head, Mobile Sink.,

**References:**

1. Harshavardhan Sabbineni and Krishnendu Chakrabarty, "Datacollection in Event-Driven Wireless Sensor Networks with Mobile Sinks", Hindawi Publishing Corporation International Journal of Distributed Sensor Networks. Volume 1, 2010, pp 345-357 Article ID 402680
2. Hanieh Alipour and Alireza Nemaney Pour, "An Efficient Data Collection Approach for Wireless Sensor Networks", World of Science, Engineering and Technology 80 2011
3. Long Cheng , Yimin Chen , Canfeng Chen and Jian Ma ,"Query-Based Data Collection in Wireless Sensor Networks with Mobile Sinks ",proceeding IWCMC '09 proceedings of the 2009 International Conference on Wireless Communications and Mobile Computing Connecting the World Wirelessly Pages 1157-1162 ACM New York, NY, USA ©2009
4. Amar Rasheed, Student Member, IEEE, and Rabi N. Mahapatra, Senior Member, IEEE The Three-Tier Security Scheme in Wireless Sensor Networks with Mobile Sinks, IEEE Transactions on parallel and distributed systems, Vol. 23, ,pp 958-965 MAY 2012
5. T. T. Truong, K. N. Brown,C. J. Sreenan Using Mobile Sinksin Wireless Sensor Networks to Improve Building Emergency.
6. Wang Liu, Kejie Lu, Senior Member, IEEE, Jianping Wang, Liusheng Huang, and Dapeng Oliver Wu, Senior Member, IEEE, On the Throughput Capacity of Wireless Sensor Networks With Mobile Relays, Vehicular Technology Vol. 61, No. 4, Pp 1801-1809 May 2012 1801
7. Baggio, K. Langendoen, "Monte Carlo localization for mobile wireless sensor networks", Elsevier Science Pub., pp. 718-733, 2008.
8. S. Jain, R. C. Shah, W. Brunette, G. Borriello, and S. Roy, "Exploiting mobility for energy efficient data collection in wireless sensor networks," Mobile Networks and Applications, vol. 11, no. 3, pp. 327–339, 2006.
9. B.Manimekala1, M.Kayalvizhi2 "A Data Transfer in Wireless Sensor Networks Using AODV Protocol" IJCSI International Journal of Computer Science Issues, Vol. 9, Issue 1, No 1,pp191-200, January 2012
10. YoungSang Yun, Student Member, IEEE, and Ye Xia, Member, IEEE " Maximizing theLifetime of Wireless Sensor Networks with Mobile

**153-156**

Sink in Delay-Tolerant Applications" IEEE Transactions on mobile computing, vol. 9,pp1308-1318 no. 9, september 2010
11. Shuai Gao, Hongke Zhang, and Sajal K. Das, Senior Member, IEEE "Efficient Data Collection in Wireless Sensor Networks with Path-Constrained Mobile Sinks" ieee transactions on mobile computing, vol. 10, pp 592-608 April 2011
12. M. Marta and M. Cardei, "Using Sink Mobility to Increase Wireless Sensor Networks Lifetime," Proc. Ninth IEEE Int'l Symp.World of Wireless, Mobile and Multimedia Networks (WoWMoM), pp. 1-10, 2008.
13. J. Luo, J. Panchard, M. Piorkowski, M. Grossglauser, and J. Hubaux, "MobiRoute: Routing towards a Mobile Sink for Improving Lifetime in Sensor Networks," Proc. Second IEEE/ ACM Int'l Conf. Distributed Computing in Sensor Systems (DCOSS),vol.56 no.3 pp. 480-497, 2006.
14. S. Jain, R.C. Shah, W. Brunette, G. Borriello, and S. Roy, "Exploiting Mobility for Energy Efficient Data Collection in Sensor Networks," Mobile Networks and Applications, vol. 11,no. 3, pp. 327-339, 2006.
15. L. Song and D. Hatzinakos, "Architecture of Wireless Sensor Networks with Mobile Sinks: Sparsely Deployed Sensors," IEEE Trans. Vehicular Technology, vol. 56, no. 4, pp. 1826-1836, July 2007.

**35**

**Authors:** **Divyansh Mathur, Arti Saxena, Abneesh Saxena**

**Paper Title:** **Arithmetic and Logic Unit Designing Using Reversible Logic Gate**

**Abstract:** Owing to its unique technique of One-to-One Mapping between the inputs and the corresponding outputs, the ReversibleLogicGates are now finding profound as well as promising applications in emerging growing paradigms such as Quantum Computing, Quantum Dot Cellular Automata, Optical Computing, Digital Signal Processing, Low Power CMOS Design, Nanotechnology etc. The ReversibleLogic has received great attention in the past recent years due to its ability in reducing the power dissipation, the major concern in digital designing. To generate a useful gate function the ReversibleGates require constant inputs, called Ancillary Inputs, and some additional unused outputs, called Garbage Outputs, in order to maintain the reversibility of the digital circuits. The paper presents a novel design of different Arithmetic and Logic Units such as Half Adder, Half Subtracter and 1-Bit Comparator, using the existing ReversibleGates and the proposed new ReversibleCNOT, BJN, and PeresGates.

**Keywords:** CNOT Gate, Peres Gate, BJN Gate.

**157-160**

**References:**
1. R. Landauer, "Irreversibility and Heat Generation in the Computational Process", IBM Journal of Research and Development, 5, pp. 183-191, 1961.
2. C. H. Bennett, "Logical and Reversibility of Computation", IBM Journal of Research and Development, pp. 525-532, November 1973.
3. T. Toffoli, "Reversible Computing", Tech Memo MIT/LCS/TM-151, MIT Lab for Computer Science, 1980.
4. E. Fredkin and T. Toffoli, "Conservative Logic", International Journal of Theoretical Physics, Volume 21, pp. 219-253, 1982.
5. R. Feynman, "Quantum Mechanical Computers", Optics News, Volume 11, pp. 11-20, 1985.
6. Peres, "Reversible Logic and Quantum Computers", Physical ReviewA, 32:3266-3276, 2002.
7. Rangaraju H G, Venugopal U, Muralidhara K N, Raja K B, "Low Power Reversible Parallel Binary Adder/Subtracter", International Journal of VLSI Design and Communication Systems (VLSICS), Volume 1, Number 3, September 2010.
8. Himanshu Thapliyal, A P Vinod, "Design of Reversible Sequential Elements with Feasibility of Transistor Implementation", IEEE International Symposium on Circuits and Systems (ISCAS), pp. 625-628, June 2007.

**36**

**Authors:** **Divyansh Mathur, Arti Saxena, Abneesh Saxena**

**Paper Title:** **Comparative Study between Wireless Regional Area Network (IEEE Standard 802.22) and WiMAX and Coverage Planning of a Wireless Regional Area Network Using Cognitive Radio Technology**

**Abstract:** The first worldwide application of cognitive radio (CR) networks in unlicensed television broadcast bands is IEEE 802.22 wireless regional area network (WRAN). This paper introduces the implementation of IEEE 802.22 Wireless Regional Area Network (WRAN) for broadband Internet access in sub-urban areas. We have investigated how CR through dynamic spectrum access facilitates the efficient use of underutilized spectrum (white spaces). To do this, we have analyzed a coverage planning for WRAN and compared it with a traditional wireless communication standard, IEEE standard 802.16e. We have also observed the comparison for different modulation schemes and shown the results in graphical form.

**Keywords:** CR, TVWS, WiMAX, WRAN..

**161-163**

**References**
1. Thomas,Charles.(2011).CognitiveRadioforBroadbandAccessinRuralAfrica.Available: http://etheses.whiterose.ac.uk/2280/1/MSc_Thesis_Charles_Thomas.pdf. Last accessed 20th November 2012.
2. Link Budget Analysis for Broadband Services in IEEE 802.22b. Bingxuan Zhao, Shigenobu Sasaki, Hiromu Niwano. s.l. : IEEE 802.22-12/0071r0, July 17, 2012.
3. IEEE 802.22 WRAN Overview. Kim, Yun Hee. Keyung Hee University, KOREA : School of Electronics and Information. IEEE 802.22: The First Cognitive Radio Wireless Regional Area Network. Carl R. Stevenson,WK3C Wireless,Gerald Chouinard, Communications Research Centre, Canada,Zhongding Lei, Institute for Infocomm Research, Singapore,Wendong Hu, STMicroelectronics, Inc.Stephen J. Shellhammer, Qualcomm Inc.Winston Caldwell, Fox Technology G. s.l. : IEEE Communications Magazine, January ,2009.
4. IEEE 802.22: The First Cognitive Radio Wireless Regional Area Network. Carl R. Stevenson, WK3C Wireless,Gerald Chouinard, Communications Research Centre, Canada,Zhongding Lei, Institute for Infocomm Research.
5. http://en.wikipedia.org/wiki/WiMAX#The_IEEE_802.16_Standard.
6. http://en.wikipedia.org/wiki/IEEE_802.22.

**37**

**Authors:** **H.S. Hota, Akhilesh Kumar Shrivas, S.K. Singhai**

**Paper Title:** **Artificial Neural Network, Decision Tree and Statistical Techniques Applied for Designing and Developing E-mail Classifier**

**Abstract:** Due to increased bandwidth and strong infrastructure available for accessing internet, internet users are growing rapidly. Internet users frequently use e-mail for fast data communication of audio, vedio and textual data but at the same time they are facing problem due to unwanted e-mail known as spam e-mail. In order to filter this unwanted e-mail, a classifier must be placed in the network or in computer. In this paper three different types of technique: Artificial Neural Network (ANN), Decision tree and statistical technique are explored for designing and developing e-mail classifier. Experimental work has been performed on e-mail data set obtained from UCI

**164-169**

repository site and is partitioned into three different partitions to find out best suitable partition to be applied for various model. A suitable ensemble model is chosen based on various error measures calculated after training and testing the models. A final ensemble model is measured in terms of accuracy, precision, recall, F-measure and Gain Chart. Highest accuracy of 94.35% is obtained in case of ensemble of C5.0 and SVM with 60%-40% (training – testing) partition.

**Keywords:** Terms:C5.0, Support Vector Machine (SVM), Artificial Neural Network (ANN), Ensemble model.

**References**

1. Elsayad, A. M., 2010, "Predicting the severity of breast masses with ensemble of Bayesian classifiers", Journal of Computer Science, 6(5), pp.576-584.
2. Jiawei Han and Micheline Kamber, 2006, "Data Mining Concepts and Techniques ", Morgan Kaufmann, San Francisco, Second Edition.
3. John Wang, 2003, "Data Mining: opportunities and challenges", Idea Group, USA.
4. Lei SHI, Qiang WANG, Xinming MA, Mei WENG, Hongbo QIAO,2012, "Spam E-mail classification using Decision Tree Ensemble", Journal of Computational Information Systems, pp. 949-956.
5. Omar Saad, Ashraf Darwish and Ramadan Faraj,2012," A survey of machine learning techniques for Spam filtering", IJCSNS International Journal of Computer Science and Network Security, vol.12 No.2.
6. R. Parimala, Dr. R. Nallaswamy, 2011,"A study of a spam E-mail classifications using feature selection package", global journals Inc. (USA), vol.11.
7. V. N. Vapnik, 1998, "Statistical Learning Theory", New York: John Wiley and Sons.
8. SPSS Clementine help file, 2007. http//www.spss.com.
9. Hota H.S. et al. ,2012,"Data mining techniques and its ensemble model applied for classification of e-mail data", proceeding of review of business and technology research (RBTR) in International conference EPPICTM 2012,vol. 5 ,No. 1, ,pp. 473-479.
10. UCI Machine Learning Repository of machine learning databases (2010). University of California, school of Information and Computer Science, Irvine.C.A. http://www.ics.uci.edu/~mlram,?ML.Repositary.html