Volume 1 Issue 8, June 2013

# International Journal of Emerging Science and Engineering

ISSN : 2319-6378 (Online)

Website: www.ijese.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

**Volume-1 Issue-8, June 2013, ISSN: 2319–6378 (Online)**
**Published By: Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.**

| S. No | | | Page No. |
|---|---|---|---|
| 1. | **Authors:** | **Shirish Tripathi** | |
| | **Paper Title:** | **Design of Low Glitch Dynamic Phase Detector for Delay Locked Loop** | |
| | **Abstract:** A simple Low Glitch Dynamic Phase Detector is proposed in this paper. The Dynamic PD helps Delay Locked Loop to achieve phase error detection in high speed synchronous circuits and plays an important role in improving the performance of the complete DLL block. A high speed, low glitch phase detector is proposed in 180 nm technology with VDD=1.8V in Cadence Schematic Composer for schematic capture, analog artist (Spectre) Tool for simulations and Virtuoso for layouts. The proposed PD is having a better phase sensitivity, phase noise and less power dissipation. Simulation results show that the proposed PD has low glitch as compared to conventional PD based on D flip-flop. So, the speed of the proposed Dynamic PD is also high.<br><br>**Keywords:** Delay Locked Loop, Phase Detector, Cadence, CMOS Technology.<br><br>**References:**<br>1. Y. SINAN. HANAY, "Delay Locked Loop Design", ECE 658 Project, December 2007.<br>2. C. JIA, "A Delay-Locked Loop for Multiple Clock Phases/Delays Generation, Doctoral Thesis, Georgia Institute of Technology, 2005.<br>3. M. G. JOHNSON AND E. L. HUDSON, "A Variable Delay Line PLL for CPU-Coprocessor Synchronization," IEEE J. Solid-State Circuits, vol. 23, pp. 1218-1223, Oct. 1988.<br>4. M. MANSURI, D. LIU AND C. K. K. YANG, "Fast Frequency Acquisition Phase-Frequency Detectors for GSamples/s Phase-Locked Loops," IEEE J. Solid-State Circuits, vol. 37, pp. 1331-1334, Oct. 2002. | **1-4** |
| 2. | **Authors:** | **Srikanth Mandarapu, Sreedhar Lolla, M. V. Suresh Kumar** | |
| | **Paper Title:** | **Nonlinear Digital PID Controller for Position Controlled Electric Drive Systems** | |
| | **Abstract:** This paper discusses the implementation of Nonlinear digital PID controller for position controlled electric drive systems. The drawback with PD controller is that it produces a non aperiodic response, when it encounters a maximum torque limit. To overcome this drawback, the nonlinear PD controller is redesigned so to produce aperiodic response. The applicability of PD controller is limited only for the cases of reference input changes, while along with reference input, if disturbance inputs are also considered, the output results in a steady state error (S.S.E), which is proportional to the disturbance value. To minimize the S.S.E while producing a strong aperiodic response, it is proposed to implement a nonlinear digital PID controller. The proposed scheme in this paper is compared with the linear mode, is implemented in MATLAB and from the obtained results its possible use, limitations and counter measures have been studied.<br><br>**Keywords:** Anti wind-up, non linear PID controller, PD controller, quantizer, S.S.E, torque limiter.<br><br>**References:**<br>1. H. K. Khalil, Nonlinear Systems, third edition. Prentice Hall, 2000.<br>2. J Alvarez-Ramirez, R Kelly, I Cervantes, "Semiglobal stability of saturated linear PID control for robot manipulators"- Automatica, 2003, Elsevier.<br>3. PR Ouyang, WJ Zhang, FX Wu ,"Nonlinear PD control for trajectory tracking with consideration of the design for control methodology"- IEEE Transactions on Robotics and Automation, 2002<br>4. Discrete-time control systems, K.Ogata, Prentice Hall 1995.<br>5. S. Kulkarni and M. A. El-Sharkawi, "Intelligent Precision Position Control of Elastic Drive Systems", IEEE Transactions on Energy Conversion, vol. 16, no. 1 March 2001, pp 26-31.<br>6. Slobodan N. Vukosavic, Digital control of electric drives, Springer, 2007, pp __-__.<br>7. Rao V. Dukkipati, "Analysis and design of control systems using MATLAB",New age, 2006.<br>8. C. Bohn and D. P. Atherton. An analysis package comparing pid antiwindup strategies. IEEE Systems Magazine, 15(2):34—40, April 1995.<br>9. Digital control in power electronics, Simone Buso and Paolo Mattavelli, ISBN – 10: 1598291130, 2006 by Morgan & Claypool. | **5-8** |
| 3. | **Authors:** | **A. Srinagesh, K. Aravinda, G. P. Saradhi Varma, A. Govardhan, M. Sree Latha** | |
| | **Paper Title:** | **A Modified Shape Feature Extraction Technique for Image Retrieval** | |
| | **Abstract:** Semantic based Image retrieval is an emerging research area and is currently the mainstay in variety of applications or domains. In recent times, there exists a lot of gap between the high level semantics and low level features. The process of Features extraction is Application-specific or options are limited. In this paper, we propose a new Modified Shape Descriptor (MSD) feature extraction technique which is used as descriptive feature to discriminate Objects in an image database. In Object recognition after initial Pre-processing, feature extraction is the next crucial step which determines the efficiency of the technique or method. In our approach, a test image is taken from the database, which is then divided into 8x8 Blocks each; shape structure is detected using edge detection technique with Threshold method to generate the shape feature vector. Then, texton-based texture, color features are extracted using the existing Multi-texton Histogram (MTH) method. To form the final discriminating feature vector for that image in total, three features are extracted namely shape, texture and color for that particular image to form a discriminating feature vector which this then stored in a feature library. When a query image is given Euclidean distance between the query image and the test images feature values available in the feature library are computed. Based on the similarity characteristics top-k images are retrieved. Our proposed method gives better results when compared with other existing techniques.<br><br>**Keywords:** Content-based image retrieval, Pattern Recognition, Image Retrieval, Multi-texton Histogram, Shape Descriptor. | **9-13** |

**References:**

1. B.Julesz, Textons, the elements of texture perception and their interactions, Nature 290(5802) (1981)91–97.
2. B.Julesz, Texton gradients: the texton theory revisited, Biological Cybernetics 54 (1986)245–251.
3. G-H. Liu, L. Zhang, et al., Image retrieval based on multi-texton histogram, Pattern Recognition 43 (7) (2010) 2380–2389.
4. Guang -Hai Liu , Zuo-Yong Li, Lei Zhang , Yong Xu" Image retrieval based on micro-structure descriptor" Pattern Recognition 44(7) (2011) 2123–2133
5. S. Belongie, C. Carson, H. Greenspan, and J. Malik. Color- and texture based image segmentation using EM and its application to content-based image retrieval. In Proceedings of the Sixth International Conference on Computer Vision, 1998.
6. Petrakis E. and Faloutsos A., "Similarity searching in medical image databases," Journal of IEEE Transaction on Knowledge and Data Engineering, vol. 9, pp435-447, 1997.
7. P. S. Hiremath and Jagadeesh Pujari, "Content Based Image Retrieval based on Color, Texture and Shape features using Image and its complement" -Dept. of P.G. Studies and Research in Computer Science, Gulbarga University, Gulbarga, Karnataka, India-2007.
8. Pentland, R.W. Picard, and S. Sclaroff. Photobook: Content-based manipulation of image databases. Int. J. Computer Vision, 18(3):233–254, 1993.
9. Greg Pazz, Ramin Zabih and Justin Miller, "Region of Image Indexing System by DCT and Entropy," International Journal of Engineering Science and Technology, Vol. 8, No. 2, pp. 93-101, 2002.
10. Anil K. Jain, Aditya Vailaya, Image retrieval using color and shape, Pattern Recognition, Volume 29, Issue 8, August 1996, Pages 1233-1244, ISSN 0031-3203,
11. Ryszard S. Choraś, Tomasz Andrysiak, Michał Choraś, Integrated color, texture and shape information for content-based image retrieval" Pattern Analysis and Applications ,October 2007, Volume 10, Issue 4, pp 333-343.
12. Prabhakar Sharma, Deepty Dubey: A Modified Color Averaging Technique for "Content based Image Retrieval:" International Journal of Computer Applications (0975 –8887) Volume 51– No.20, August 2012. pp 25-28.
13. A.Sri Nagesh, G.P.Saradhi Varma and A.Govardhan "A Novel Approach for Information Content Retrieval and Analysis of Bio-Images using Datamining techniques" IJCSI International Journal of Computer Science Issues, Vol. 9, Issue 6(2), November 2012 pp 464-473.
14. Chanda et al. "A Differentiation/enhancement edge detector and its properties', IEEE trans on System, Man and Cyberbetics, SMC-15., pp162-168(1985).
15. Sang-Mi Lee, Hee-Jung Bae and Sung-Hwan Jung, "Efficient Content based Image Retrieval Methods using Color & Texture," ETRI Journal, Vol. 20, No. 3, pp.272-283, 1998.
16. Remco C. Veltkamp and Mirela Tanase, "Content Based Image Retrieval Systems: A Survey," International Journal of Engineering Science and Technology, Vol. 20, No. 5, pp. 1-62, 2002.
17. Design of Feature Extraction in Content Based Image Retrieval (CBIR) using Color and Texture, Swati V. Sakhare & Vrushali G. Nasre Dept. of Electronics Engg., Bapurao Deshmukh College of Engg., Sevagram, Wardha (India).
18. Dr. Fuhui Long, Dr. Hongjiang Zhang and Prof. David Dagan Feng, "fundamentals of content-based image retrieval.J. Weszka, C. Dyer, and A. Rosenfeld. A comparative study of texture measures for terrain classification. IEEE Transactions on Systems, Man and Cybernetics, 6(4):269– 285, 1976.
19. P.s.suhasini, dr. k.sri Rama Krishna, dr. i. v. murali Krishna.S. Nandagopalan, Technology "cbir using color histogram processing"Journal of Theoretical and Applied Information Technology.
20. A.Sri Nagesh, Dr.G.P.S.Varma, Dr A Govardhan, "An Improved iterative Watershed and Morphological Transformation Techniques for Segmentation of Microarray Images" , IJCA Special Issue on "Computer Aided Soft Computing Techniques for Imaging and Biomedical Applications" CASCT, Volume 2, 2010.PP 77-87,August 2010
21. Dr. B. S. Adiga, and N. Deepak, ", A Universal Model for Content-Based Image Retrieval" International Journal of Electrical and Computer Engineering, vol.4, no.4, 2009.
22. Armitage, L and Enser, P G B (1997) "Analysis of user need in image archives." Journal of Information Science, 23(4), 287-299.
23. Ey¨up Sabri Konak, August, 2002."A content-based image retrieval system for texture and color queries", A thesis submitted to the department of computer engineering and the institute of engineering and science of bilkent university, By
24. A.Sri Nagesh, Dr.G.P.S.Varma, Dr.A.Govardhan, "Evaluating the performance of morphology segmentation on micro array spot images." IEEE Sponsored 2nd international conference on computing communication and networking technologies(ICCCNT)uly 2010.
25. C. Nastar, M. Mitschke, C. Meilhac, and N. Boujemaa. Surfimage: a flexible content-based image retrieval system. In ACM Multimedia 98, pages 339– 344, Bristol, UK, 1998.
26. E.L. van den Broek, L.G. Vuurpijl, P. Kisters and J.C.M. von Schmid Nijmegen, "Content Based Image Retrieval: Color Selection exploited," International Journal of Engineering Science and Technology, Vol. 30, No. 3, pp. 456-462.
27. B.S. Manjunath, J.-R. Ohm, V.V. Vasudevan, A. Yamada, Color and texture descriptors, IEEE Transactions on Circuit and Systems for Video Technology 11 (6) (2001) 703–715.
28. F. Mahmoudi, J. Shanbehzadeh, et al., Image retrieval based on shape similarity by edge orientation autocorrelogram, Pattern Recognition 36 (8) (2003) 1725–1736.
29. D.G. Lowe, Distinctive image features from scale-invariant key points, International Journal of Computer Vision 60 (2) (2004) 91–110.
30. M. Banerjee, M.K. Kundu, Edge based features for content based image retrieval, Pattern Recognition 36 (11) (2003) 2649–2661.
31. J. Luo, D. Crandall, Color object detection using spatial-color joint probability functions, IEEE Transactions on Image Processing 15 (6) (2006) 1443–1453.

**4.**

**Authors:** **M. N. Praphul, K. R. Nataraj**

**Paper Title:** **FPGA Implementation of Hybrid Cryptosystem**

**Abstract:** With the development of Computer Network and Communication Technology, a great mass of data and information need to be exchanged by public communication networks. High efficiency and high safety of data transmission become much more important. There are several information encryption algorithms of which, Advanced Encryption Standard (AES) and Rivest Shamir Adleman (RSA) are widely used two algorithms of symmetric encryption technology and asymmetric encryption technology respectively. The existing symmetric scheme-AES algorithm provides high speed stream for large data and uses less amount of computer resources but induces less degree of security in large amount of data. The asymmetric cryptographic algorithm or a public key cryptographic algorithm-RSA is more secure comparatively, as it has two keys one for encryption and another one for decryption, but is much slower and uses a huge amount of computer resources. In order to cope up with these short comings, a proposal to use an improved version of the hybrid encryption scheme is done, which is a combination of Advanced Encryption Standard (AES) and Rivest Shamir Adleman (RSA) with cross encrypted keys for secure key exchange and hybrid encryption for enhanced cipher-text security. This system is implemented on Spartan 3 FPGA using VHDL as the programing language.Synthesizing and implementation of the code is carried out on Xilinx -Project Navigator, ISE 12.1i suite.

**Keywords:** Advanced Encryption Standard (AES), FPGA, hybrid encryption, Rivest Shamir Adleman (RSA).

**References:**

1. Ohyoung Son and Jiho Kim "Compact Design of the Advanced Encryption Standard Algorithm for IEEE 802.15.4 Devices "Journal of Electrical Engineering & Technology Vol. 6, 2013,
2. Avi Kak , Avinash Kak, "Computer and Network Security on Public-Key Cryptography and RSA" May 15, 2013 Purdue University
3. N.Singh, G .Raj. "Security on bccp trough AES encryption technique",Special Issue of INTERNATIONAL journal of engineering science & advanced technology (2250–3676) Jul-Aug.2012.
4. Jeneba mary.B "hybrid cryptography by the implementation of rsa and aes"international Journal of Current Research, Vol. 3, Issue, April, 2011
5. Alan Daly and William Zhenzhen Liu. "Implementation of AES Encryption based on FPGA". Modern electronic technology.
6. Marnane "Efficient Architectures for implementing Montgomery Modular Multiplication and RSA Modular Exponentiation on Reconfigurable Logic". -University College Cork Ireland 2010.
7. Yu; Tong Li; Na Zhao; Fei Dai "Design and implementation of an improved RSA algorithm", April 2010
8. Song J. Park "Analysis of AES Hardware Implementations" Department of Electrical & Computer Engineering Oregon State UniversitCorvallis,
9. Tim Good and Mohammed Benaissa. "AES on FPGA from the Fastest to the Smallest".
10. Panu Hämäläinen, Marko Hännikäinen, Timo Hämäläinen, and Jukka Saarinen. "Hardware implementation of the improved wep and rc4 encryption algorithms for wireless terminals" ,2010
11. Tim Güneysu. J Cryptogram Eng "Utilizing hard cores of modern FPGA devices for high-performance cryptography". 2011
12. Benjamin Leperchey, Charles Hymans "FPGA implementation of the Rijndael algorithm" June 9, 2009
13. Shanxin Qu,Guochu Shou,Yihong Hu,Zhigang Guo,Zongjue Qian. "High Throughput Pipelined Implementation of AES on FPGA". International Symposium on Information Engineering and Electronic Commerce.2009
14. Behrouz A.Forouzan "Cryptography and network security "TATA Mcgraw hill publication 2007 edition.

**5.**

| | |
|---|---|
| **Authors:** | **Oinam Suchitra Devi, Hemanth Kumar P, S. Basavaraj Patil** |
| **Paper Title:** | **Novel Compression Techniques for Time Series Signals** |

**Abstract:** A time series signal can be defined as a sequence of data items which is measured through repeated measurements over uniform time intervals. Time series analysis comprises techniques for analyzing time series data in order to obtain meaningful statistics and other characteristics of the data transmission time. Compression is the techniques of reduction in size of data in order to save space or transmission time. Wavelet compression technique is a form of data compression well defined for image compression. The design of time series signal compression techniques involves trade-offs among various factors which includes the degree of compressing the data, the amount of distortion introduced and the computational resources required to compress and decompress the time series data. This paper analyzes different wavelet compression techniques like Wavelet Decomposition, Wavelet Packet, Decimated Discrete Wavelet, Fixed encoding, Huffman encoding and Novel Encoding Compression technique. Analyzing this paper discuss about novel approach for compressing time series signal. There exist several measures to know the quality of the reconstructed time series signal after compression of signal data. The most popularly used measured parameters are Percentage Root mean square Difference (PRD), Peak Signal to Noise Ratio (PSNR) and Maximal Absolute Difference (MAD) etc. From the results it is observed that Novel Compression Encoding technique gives better performance in compression of time series signal as it achieve high PSNR with better quality of compression, smaller PRD and MAD with less distortion compare to other compression techniques.

**Keywords:** Decimated Discrete Wavelet, Fixed encoding, Huffman encoding, Wavelet Decomposition, Wavelet Packet.

**References:**

1. Goudarzi, M.M, and Moradi, H. M., 2005, "Electrocardiogramsignal compression Using multiwavelet transform," Transactions on Engineering, Computing and Technology.
2. Benzid, R., Marir, F., and Bouguechal, N. E., 2006, "Qualitycontrolled compression method using wavelet transform for electrocardiogram signals," International Journal of Biomedical Science.
3. Benzid, R., Marir, F., Benyoucef, M., and Arar, D., 2003, "Fixed percentage of wavelet coefficients to be zeroed for ECG compression "Electronics Letters Vol 39 No 11.
4. Bell,T.C.,Cleary,J.G.,W.,Written,I.H.,Text Compression,(Prentice Hall,Englewood Cliffs(1990)).
5. Donoho,D.L.,Vetterli,M.,Devore,RA.,Daubechies,I.,"Data Compression and Harmonic Analysis", IEEE Trans . Inf. Theory.
6. H.C.Liu and G.L. Zick ,"Automatic determination of scene changesnin MPEG compressed video,"in Proc.ISCAS –IEEE Int .Symp.Circuits and System,1995.
7. J. M. Shapiro. Embedded image coding using zerotrees of wavelet coefficients .IEEE Trans. Signal Processing.
8. D. Sinha and A. Tewfik. Low bit rate transparent audio compression using adapted wavelets. IEEE Trans. Signal Processing,1993.
9. R. Baraniuk. Optimal tree approximation using wavelets. In A. J. Aldroubi and M. Unser, editors, Wavelet Applications in Signal Processing, volume VII, pages 196–207. SPIE, 1999.
10. Blelloch, E., 2002. Introduction to Data Compression, Computer Science Department, Carnegie Mellon University.
11. Phillips, Dwayne, "LZW Data Compression," The Computer Applications Journal, Circuit Cellar Ink, vol. 27, June/July 1992.
12. Al-Nashash, H. A. M., 1994, "ECG data compression using adaptive Fourier coefficients estimation", Med. Eng. Phys., Vol. 16.

**20-25**

| | |
|---|---|
| **Authors:** | **Prajakta K. Sarolkar, Meghna Nagori** |
| **Paper Title:** | **Planned Events Across Social Media Sites Using Association Rule Mining Based on Autocorrelation** |

**Abstract:** User-contributed Web data contains rich and diverse information about a variety of events in the physical world, such as shows, festivals, conferences and more. This information ranges from known event features (e.g., title, time, location) posted on event aggregation platforms (e.g. Event Brite, Face book events) to discussions and reactions related to events shared on different social media sites (e.g., Twitter, YouTube, Flickr). In this paper, we propose the challenge of automatically identifying user-contributed content for events that are planned and, therefore, known in advance, across different social media sites. We mine event aggregation platforms to extract event features, which are often noisy or missing. We use these features to develop query formulation strategies for retrieving content associated with an event on different social media sites.

**6.**

**Keywords:** Propose the challenge of automatically identifying user-contributed.

**References:**


1. E. Agichtein, C. Castillo, D. Donato, A. Gionis, andG. Mishne. Finding high-quality content in social media. InProceedings of the First ACM International Conference on Web Search and Data Mining (WSDM '08), 2008.
2. J. Allan, editor. Topic Detection and Tracking: Event-basedInformation Organization. Kluwer Academic Publisher, 2002.
3. H. Becker, F. Chen, D. Iter, M. Naaman, and L. Gravano.Automatic identi_cation and presentation of Twitter contentfor planned events. In Proceedings of the Fifth InternationalAAAI Conference on Weblogs and Social Media (ICWSM'11), 2011.
4. H. Becker, M. Naaman, and L. Gravano. Learning similaritymetrics for event identi_cation in social media. In Proceedingsof the Third ACM International Conference on Web Search and Data Mining (WSDM '10), 2010.
5. H. Becker, M. Naaman, and L. Gravano. Beyond trendingtopics: Real-world event identi_cation on Twitter. InProceedings of the Fifth International AAAI Conference onWeblogs and Social Media (ICWSM '11), 2011.
6. H. Becker, M. Naaman, and L. Gravano. Selecting qualityTwitter content for events. In Proceedings of the FifthInternational AAAI Conference on Weblogs and Social Media (ICWSM '11), 2011.
7. E. Benson, A. Haghighi, and R. Barzilay. Event discovery insocial media feeds. In Proceedings of the 49th Annual Meetingof the Association for Computational Linguistics: HumanLanguage Technologies (ACL-HLT '11), 2011.
8. R. Crane and D. Sornette. Robust dynamic classes revealedby measuring the response function of a social system.Proceedings of the National Academy of Sciences,105(41):15649{15653, 2008.
9. W. B. Croft, D. Metzler, and T. Strohman. Search Engines:Information Retrieval in Practice. Addison-Wesley Publishing Company, 2009.
10. W. Dakka and P. G. Ipeirotis. Automatic extraction of useful facet hierarchies from text databases. In Proceedings of the IEEE 24th International Conference on Data Engineering (ICDE '08), 2008.
11. N. Diakopoulos, M. Naaman, and F. Kivran-Swaine.Diamonds in the rough: Social media visual analytics forjournalistic inquiry. In Proceedings of the IEEE Symposiumon Visual Analytics Science and Technology (VAST '10),2010.
12. Events, 2002. In Stanford Encyclopedia of Philosophy.Retrieved June 2nd, 2010 from http://plato.stanford.edu/entries/events/.
13. V. Hatzivassiloglou, L. Gravano, and A. Maganti. Aninvestigation of linguistic features and clustering algorithmsfor topical document clustering. In Proceedings of the 23rdACM International Conference on Research andDevelopment in Information Retrieval (SIGIR '00), 2000.


**26-28**

**7.**

| **Authors:** | **Imlitoshi Jamir, Leo Satminlien Singsit** |
|---|---|
| **Paper Title:** | **Improved IPTV Services in IPv4 and IPv6 Environments Based on Wireless Networks** |


**Abstract:** Today's modern Internet Technology is based on Internet Protocol for all means of communication between two end systems. The current Internet usage is predominantly dominated by IPv4 version of IP but due to the outburst in the number of Internet users in the past years IPv4 addresses will soon be depleted. Ipv4 provided a limited address space so there is a need to move to IPv6 which is an enhancement over its older version and overcomes most of the drawback seen in the earlier version. However migrating to IPv6 from IPv4 would be a herculean task since the present infrastructure is built to suit the IPv4 environment. Here in this paper the primary objective is to implement IPTV by considering the Video on Demand services. The network type is converted to WaveLan for effective bandwidth utilization and efficient communication. The present work here involves 2 types of works. First TCP IPv4 based work and second is TCP IPv6 Based work, where the TCP IPv6 Based work is again comprised of the outcome without optimization and with optimization. The presented work is expected to improve the network QOS and the network reliability in case of overloading and underloading conditions. We performed the various simulations on Network Simulator 2.35 and analyzed the three types of traffic. Video on Demand services generally involves transmitting huge amount of data over such networks requiring a considerable data rate.



**Keywords:** AODV, DVB-IPTV, IPTV, VOD.


**References:**


1. Yang Xiao, xiaojiang DU, Jingyuan Zhang, Fei Hu, Sghaier Guizani, "IPTV the Killer Application for the next generation Internet", IEEE 2007.
2. Benjamin Alfonsi (2005), " I want my IPTV, IPTV predicted winner", IEEE 2005.
3. C. Perkins," Ad hoc On-Demand Distance Vector (AODV) Routing", Request for Comments: 3561, 2003.
4. Digital Video Broadcasting (DVB), Transport of MPEG-2 TS Based DVB Services over IP Based Networks (DVB-IPTV Phase 1.4) DVB BlueBook A086 Rev.7 2008.
5. Eugen Mikóczy (2010)," Personalization of Internet Protocol Television (IPTV) Services in Next-Generation Networks(NGN) Architectures", IEEE 2010
6. Hiroaki Hazeyama," How much can we survive on an IPv6 network?", AINTEC 2011.
7. Jordi Mongay Batalla and Piotr Krawiec, "On Implementing IPTV Platform with IPv4 and IPv6 Devices", Journal of Telecommunication and Information Technology 2011.
8. Kuo-Chang Chen, "The Open Source IPTV Service Development Environment- IPTV Service Execution Environment", ICUIMC 2010.
9. Shuai Qu, Jonas Lindqvist, and Claus Popp Larsen, "Experimental IPTV and IPv6 Extended Provisioning in a Virtual Testbed", ICN 2011.


**29-31**

| **Authors:** | **Sonia Hammami** |
|---|---|
| **Paper Title:** | **Nonlinear Observer Design for Chaotic Systems Synchronization with Known or Unknown Parameters** |


**Abstract:** This paper deals with the nonlinear observer-based synchronization problem for coupled chaotic systems. At the outset, complete synchronization conditions of coupled chaotic systems for known master and slave systems parameters, is provided. The active control law developed is based on the use of aggregation techniques for error dynamics stability study and the arrow form matrix for systems description. Then, by the design of an adequate nonlinear state observer, a new synchronization scheme is formulated for two identical chaotic systems. As a final point, the proposed observer-based synchronization between two nearly identical chaotic systems with unknown parameters is carried out. Numerical simulations are presented to assess the performance and the efficiency of the proposed contributions.



**Keywords:** Aggregation techniques, Arrow form matrix, Chaotic systems, Synchronization, Nonlinear observer, Unknown parameters.

**8.**

**References:**


1. L. M. Pecora and T. L. Carroll, "Synchronization in chaotic systems", Phys Rev Lett, vol. 64, 1990, pp. 821-824.
2. M. Ogorzalek, "Taming chaos-I: Synchronization", IEEE Trans Circ Syst-I, vol. 40, 1993, pp. 693-699.
3. S. Hammami, "Sur la stabilisation de systèmes dynamiques continus non linéaires exploitant les matrices de formes en flèche. Application à la synchronisation de systèmes chaotiques", Ph.D. thesis, National Engineering School of Tunis, Tunis, Tunisia, 2009.
4. S. Hammami, K. Ben Saad and M. Benrejeb, "On the synchronization of identical and non-identical 4-D chaotic systems using arrow form matrix", Chaos, Solitons & Fractals, vol. 42, 2009, pp. 101-112.
5. C. W. Wu and L. O. Chua, "A simple way to synchronize chaotic systems with applications to secure communication systems", Int J Bifurcation Chaos, vol. 3, 1993, pp. 1619-1627.
6. K. M. Cuomo, A. V. Oppenheim and S. H. Strogatz, "Synchronization of lorenzed-based chaotic circuits with applications to communications", IEEE Trans Circ Syst-II, vol. 40, 1993, pp. 626-633.
7. Ö. Morgül and M. Feki, "A chaotic masking scheme by using synchronized chaotic systems", Phys Lett A, vol. 251, 1999, pp. 169-176.
8. L. Chua, M. Itoh, L. Kocarev and K. Eckert, "Chaos synchronization in chua's circuit", J Circuit Syst Comput, vol. 3, 1993, pp. 93-108.
9. M. Hasler, "Synchronization principles and applications", in IEEE international symposium on circuits and systems, 1994, vol. 3, pp. 314-327, New York.
10. S. Chen and J. Lü, "Synchronization of an uncertain unified chaotic system via adaptive control", Chaos Solitons & Fractals, vol. 14, 2002, pp. 643-647.
11. K. Sakthidasan and B. V. Santhosh Krishna, "A new chaotic algorithm for image encryption and decryption of digital color images", Int J of Information and Education Technology, vol. 1, 2011, pp. 137-141.
12. H. Xiping and Q. Zhang, "Image encryption based on chaotic modulation of wavelet coefficients", in Congress on IEEE Image and Signal Processing, 2008, vol. 1, pp. 622-626, Sanya, Hainan.
13. L. Kocarev and U. Parlitz, "Generalized synchronization, predictability, and equivalence of unidirectionally coupled dynamical systems", Phys Rev Lett, vol. 76, 1996, pp. 1816-1819.
14. S. S. Yang and K. Duan, "Generalized synchronization in chaotic systems", Chaos, Solitons & Fractals, vol. 10, 1998, pp. 1703-1707.
15. G. R. Michael, S. P. Arkady and K. Jürgen, "Phase synchronization of chaotic oscillators", Phys Rev Lett, vol. 76, 1996, pp. 1804-1807.
16. I. S. Taherion and Y. C. Lai, "Observability of lag synchronization of coupled chaotic oscillators", Phys Rev E, vol. 59, 1999, pp. 6247-6250.
17. S. Hammami, M. Benrejeb, M. Feki and P. Borne, "Feedback control design for Rössler and Chen chaotic systems anti-synchronization", Phys Lett A, vol. 374, 2010, pp. 2835-2840.
18. S. Hammami and M. Benrejeb, "Coexistence of synchronization and anti-synchronization for chaotic systems via feedback control", Chaotic systems, Croatia: Editions INTECH, 2011, pp. 203-224.
19. Y. Zhang and J. Sun, "Chaotic synchronization and anti-synchronization based on suitable separation", Phys Lett A, vol. 330, 2004, pp. 442-447.
20. G. H. Li, "Synchronization and anti-synchronization of Colpitts oscillators using active control", Chaos, Solitons & Fractals, vol. 26, 2005, pp. 87-93.
21. Ö. Morgül and E. Solak, "Observer-based synchronization of chaotic signals", Phys Rev E, vol. 54, 1996, pp. 4803-4811.
22. Ö. Morgül and E. Solak, "On the synchronization of chaotic systems by using state observers", Int J Bifurcation Chaos, vol. 7, 1997, pp. 1307-1322.
23. H. Nijmeijer and I. Mareels, "An observer looks at synchronization", IEEE Trans Circ Syst-I, vol. 44, 1997, pp. 882-890.
24. Q. H. Alsafasfeh and A. I. Alshbatat, "Image encryption based on synchronized communication chaotic circuit", J of Applied Sciences Research, vol. 7, 2011, pp. 392-399.
25. S. Bu and B. H. Wang, "Improving the security of chaotic encryption by using a simple modulating method", Chaos, Solitons & Fractals, vol. 19, 2004, pp. 919-924.
26. P. Borne and M. Benrejeb, "On the representation and the stability study of large scale systems", International Journal of Computers Communications and Control, vol. 3, 2008, pp. 55-66.
27. J. C. Gentina, "Contribution à l'analyse et à la synthèse des systèmes continus non linéaires de grande dimension", D.Sc. thesis, University of Sciences and Techniques of Lille, Lille, France, 1976.
28. S. Hammami, M. Benrejeb and P. Borne, "New nonlinear output feedback controller for stabilizing the Colpitts oscillator", Int J on Sciences and Techniques of Automatic control and computer engineering, vol. 3, 2009, pp. 996-1011.
29. S. Hammami, M. Benrejeb and P. Borne, "On nonlinear continuous systems stabilization using arrow form matrices", Int Review of Automatic Control, vol. 3, 2010, pp. 106-114.
30. S. Hammami and M. Benrejeb, "New stabilizing controller nonlinear system design using the generalized thin arrow form matrix. Application to the chaos synchronization", in the 12th Int Federation of Automatic Control Large Scale Systems Symposium: Theory and Applications, 2010, Lille.
31. H. C. Juhn, K. C. Hsien and K. L. Yu, "Synchronization and anti-synchronization coexist in Chen–Lee chaotic systems", Chaos, Solitons & Fractals, vol. 39, 2009, pp. 707-716.


**32-38**

**9.**

**Authors:** **Y. Y. Nandurkar, S. S. Akant, S. L. Bankar, R. G. Bodkhe**

**Paper Title:** **Alternative Fuels for IC Engines**


**Abstract:** The main purpose of fuel is to store energy, which should be in a stable form and can be easily transported to the place of production. Almost all fuels are chemical fuels. We as a user use this fuel to perform mechanical work, such as powering an engine. The historical and the present- day civilization are closely interwoven with energy and in future, our existence will be more dependent upon energy. The conventional sources of energy, the single most important pre-requisite for power generation, are depleting fast. The world is heading towards a global energy crisis mostly due to running out of these energy sources; decreasing the dependency on fossil fuels is recommended. Yet, the sources of energy are infinite. The greatest task today is to exploit the non-conventional energy resources for power generation. Alternative energy sources provide many benefits. Renewable energy development can create quality jobs and promote economic development, especially in rural areas. If used to diversify utility resource portfolios, alternative energy technologies can provide a hedge against rising fuel prices and can be valuable risk management tools.



**Keywords:** Decreasing the dependency on fossil fuels is recommended.


**References:**


1. "Batteries, Supercapacitors, and Fuel Cells: Scope". Science Reference Services. 20 August 2007.
2. http://www.loc.gov/rr/scitech/tracer-bullets/batteriestb.html#scope. Retrieved 11 February 2009.
3. "Fuel Cell Basics: Benefits". Fuel Cells 2000.
4. http://www.fuelcells.org/basics/benefits.html.


**39-45**

**Authors:** **M. N. Balakrishna, M. C. Nataraja**

| | | |
|---|---|---|
| | **Paper Title:** | **Proportioning of Fly Ash Concrete Mixes A Comprehensive Approach** |

**Abstract:** The Concrete as a material synonymous with strength and longevity has emerged as the dominant construction material for the infrastructure needs of the 21st century. In addition to being durable, concrete is easily prepared and fabricated from readily available constituents and is therefore widely used in all types of structural systems. However, the environmental drawbacks of cement production have come under increased scrutiny as expanding industrialization and urbanization fuel the accelerated growth of infrastructure worldwide. As a consequence of that, Fly ash is one such supplementary cementing material which in turn more concern about environmental and cost-effective objectives. In this research investigation, the influencing factors of Fly ash and Cement to arrive at appropriate combinations so to satisfy the requirement of placement, development of strength with age has been examined. Also in this investigation that, the applicability of Generalized Abrams law [1] developed for single cementing materials has been examined to two components like Cement and Fly ash. In addition to that, with the determination of workability and strength of trail mix at different ages, how adjustments can be made in water/cementitious ratio in order to arrive at matching micro-structure in hardened states, so as to result in strength development of Fly ash cement concrete mixes, in turn to obtain identical strength levels are to be investigated. Analysis of experimental data reveals that even with high grade of cement, Fly ash admixture could not be effective despite the fineness requirement is satisfied provided if carbon content is high. On the contrary if Fly ash satisfies fineness consideration without unburnt carbon, the development of strength could not approach as that of normal concrete at later ages provided when the grade of cement is not high enough such as 53 grade of cement. Thus finally in order to achieve judicious combinations of Fly ash and Cement in concrete mixes, its very essential to satisfy the requirement of cementitious materials like grade of cement, fineness of Fly ash with very low unburnt carbon content.

**Keywords:** Fly ash, Mix proportioning; Cementitious materials; Fineness; Grade of concrete; Age of Concrete; Compressive strength.

**10.**

**References:**

1. Abrams, Duff., "Design of Concrete Mixtures", Bulletin No.1, Structural materials Research Laboratory Lewis Institute, Chicago, 1918, 20 pp.
2. Nagaraj,T.S., Shashiprakash, S.G., and Kameshwara Rao, B., "Generalized Abrams Law", Paper for Rilem colloquium, Properties of Fresh Concrete, Hanover, Federal Republic of Germany, Oct 1990, pp.242-252.
3. Fulton AA and Marshall WT. "The use of fly ash and similar materials in concrete", Proc. Inst. Civil Eng. Part 1, 5:714 - 730 (1956).
4. Anon, "An investigation of the pozzolanic nature of coal ashes", Engineering News, V.71, No.24, 1914, pp.1334 - 1335.
5. Davis RE, Carlston RW, Kelly JW, and Davis HE., "Properties of cements and concretes containing fly ash", ACI Journal, 33:577 - 612 (1937).
6. Dhir RK, Munday JGL, and Ong LT., "Strength variability of OPC/ fly ash concrete", Concrete, 15(6), (a) 33 - 37, (1981).
7. Dhir RK, Apte AG and Munday JGL., "Effect of in-source variability of pulverized fuel ash upon the strength of OPC/fly ash concrete", Magazine of Concrete Research, 33(117), (b):119 - 207, (1981).
8. Dhir, R K, Jones, M R. and Munday, J G L., "A practical approach to studying carbonation of concrete", Concrete V.19, No. 1, October 1985, pp.32-34.
9. Dhir, R K, Jones, M R, Munday, J G L. and Hubbard, F H., "Physical characterisation of UK pulverized-fuel ashes for use in concrete", Magazine of Concrete Research, V.37, No. 131, June 1985, pp.75-87.
10. Dhir, R.K., Jones, M.R. and McCarthy, M.J., "PFA Concrete: chloride ingress and corrosion in carbonated cover", roceedings of the Institution of CivilEngineers,Structures and Buildings, V. 99, No 2, 1993, pp.167-172.
11. Dhir, R.K., Jones, M.R. and McCarthy, M.J. "PFA Concrete: carbonation-induced reinforcement corrosion rates", Proceedings of the Institution of Civil Engineers, Structures and Buildings, V. 94, No 3, 1992, pp.335 - 342.
12. McCarthy, M.J. and Dhir, R.K., "Development of high fly ash volume cements for use in concrete construction", Fuel Journal, V.84, No 11, 2005, pp.1423-1432.
13. McCarthy, M.J., Tittle, P.A.J., Dhir, R.K. and Kii, H.K., "Mix proportioning and engineering properties of conditioned PFA concrete", Cement and Concrete Research, V.31, 2001, pp.321 -326.
14. McCarthy., M.J., Tittle, P.A.J and Dhir, R.K., "Influences of conditioned PFA as a cement component in concrete", Magazine of Concrete Research, V.52, No.5, 2000, pp.329-343.
15. Swamy, R.N., "Utilization of Fly ash: A Challenge to Concrete Technology", Proceedings, Indian Concrete Journal, May-June1985, pp.119-140 and 147-167.
16. ACI 116R (1985) Cement and Concrete Terminology, ACI Journal, Detroit.
17. Mukherjee, P.K., Loughborough, M.T., and Malhotra, "Development of High-Strength Concrete Incorporating Large Percentage of Fly Ash and Superplasticizers", ASTM Cement, Concrete and Aggregates, V.4, No.2, Winter 1993, pp.81-86.
18. W.S, Lanley., G.G, Carrette., and V.M, Malhotra., "Structural Concretes Incorporating High Volumes Of ASTM Class F Flyash", ACI Materials Journal, V.86, No.5, 1989, pp.507-514.



| | | |
|---|---|---|
| | **Authors:** | **Gaurav Aggarwal, Pooja Sehrawat, Neha Charaya** |
| | **Paper Title:** | **Improving the Joint Attention and Intelligibility in Speech of Autistic Children by an Assistive Robot** |

**Abstract:** This paper presents an assistive robot for the children with autism to improve their joint attention and intelligibility in the speech over some traditional approaches for rehabilitation of children with autism spectrum disorder (ASD) where the robot can detect the affective cues of the children implicitly and response to them appropriately. Autism spectrum disorder (ASD) is a developmental brain disorder that is characterized by abnormal social behaviour, reduced interest in communicating with others, language disorders, repetitive and obsessive behaviours and rituals and narrowly focused rigid interests. A reinforcement learning based adaptation mechanism is employed to allow the robot to adjust its behaviors autonomously as a function of the predicted children's affective state. Although there is no definite treatment or medicine for autism so doctors and therapists can help kids over some kind of difficulties by different psychological and physical therapies. In the above scenario robot detect the child attention at each session. We detect the child attention by reading the child eye gaze pattern and improve the intelligibility by using some training data. Here robot is able to change the scenarios according to the performance of the child.

**Keywords:** Assistive robot; Autism.

**References:**


1. Center for Disease Control and Prevention, CDC. Autism Information Center, DD, NCBDDD, CDC, Atlanta, April 25, 2007.
2. Karla Conn, Changchun Liu, Nilanjan Sarkar, Wendy Stone, and Zachary Warren "Affect-sensitive Assistive Intervention Technologies for Children with Autism: an Individual-specific Approach" Proceedings of the 17th IEEE International Symposium on Robot and Human Interactive Communication, Technische Universität München, Munich, Germany, August 1-3, 2008
3. Karla Conn, Changchun Liu, Nilanjan Sarkar,, Wendy Stone, and Zachary Warren "Affect-sensitive Assistive Intervention Technologies for Children with Autism: an Individual-specific Approach roceedings of the 17th IEEE International Symposium on Robot and Human Interactive Communication, Technische Universität München, Munich, Germany, August 1-3,
4. D. Strickland, L. Marcus, K. Hogan, G. Mesibov, and D. McAllister, "Using virtual reality as a learning aid for autistic children," in Proceedings of the Autism France Third International Conference on Computers and Autism, 1995, pp. 119–132.
5. D. Strickland, "A virtual reality application with autistic children," PRESENCE: Teleoperators and Virtual Environment, vol. 5, no. 3, pp. 319–329, 1996.
6. P. Mitchell, S. Parsons, and A. Leonard, "Using virtual environments for teaching social understanding to 6 adolescents with autistic spectrum disorder" J Autism Dev Disord, vol. 37, pp. 589-600, 2007.
7. K. Dautenhahn and I. Werry, "Towards interactive robots in autism therapy: background, motivation and challenges," Pragmatics & Cognition, vol. 12, pp. 1-35, 2004.
8. APA. Diagnostic and statistical manual of mental disorders: DSM-IVTR, 4th ed., Washington, DC: American Psychiatric Association. On, 2000. Spectrum disorders," J Autism Dev Disord, vol.37, pp. 589-600, 2007
9. Md. Mustafizur Rahman, S. M. Ferdous, Syed Ishtiaque Ahmed "Increasing Intelligibility in the Speech of the Autistic Children by an Interactive Computer Game" Multimedia (ISM), 2010 IEEE International Symposium on Date of Conference: 13-15 Dec. 2010
10. L. Kanner, "Autistic Disturbances of Affective Contact," in Kanner, L. ed. Nervous Child 2, V.H. Winston, 1943, pp.217-250.
11. K. Dautenhahn and A. Billard, "Games children with autism can play with robota, a humanoid robotics doll," in In Proceedings of the 1st Cambridge Workshop on Universal Access and Assistive Technology, 2002, p. CWUAAT
12. B. Robins, K. Dautenhahn, R. Boekhorst, and A. Billard, "Robotic assistants in therapy and education of children with autism: Can a small humanoid robot help encourage social interaction skills," Special issue of Universal Access in the Information Society, vol. 4, no. 2, pp. 105–120, 2005.
13. S. R. Leekama, E. Hunnisett, and C. Moore, "Targets and cues: Gazefollowing in children with autism," Journal of Child Psychology and Psychiatry, vol. 39, pp. 951–962, 1998.
14. I. Werry, K. Dautenhahn, B. Ogden, and W. Harwin, "Can social interaction skills be taught by a social agent? The role of a robotic mediator in autism therapy," in CT '01: Proceedings of the 4th International Conference on Cognitive Technology. London, UK: Springer-Verlag, 2001, pp. 57–74.
15. I. I. Lovaas, "The Autistic Child". John Wiley & Sons, Inc, New York, 1977.
16. C. B. Baskett, "The effect of live interactive video on the communicative behavior in children with autism", University of North Carolina at Chapel Hill, Chapel Hill, 1996
17. N. Parés, A. Carreras, et al. "Promotion of creative activity in children with severe autism through visuals in an interactive multisensory environment" The 2005 conference on Interaction design and children, ACM Press, Boulder, Colorado, 2005.
18. P. Ravindra S. De Silva, Katsunori Tadano, Azusa Saito, Stephen G. Lambacher, and Mastake Higashithe "the development of an assistive robot for improving the joint attention of autistic children" International Conference on Intelligent RObots and Systems - IROS - IROS , pp. 3561-3567, 2009
19. B. Robins1, P. Dickerson, P. Stribling, and K. Dautenhahn, "Robot mediated joint attention in children with autism: A case study in robot human interaction," Interaction Studies, vol. 5, no. 2, pp. 161–198, Nov 2004
20. P. Ravindra S. De Silva, Katsunori Tadano, Azusa Saito, Stephen G. Lambacher, and Mastake Higashithe "the development of an assistive robot for improving the joint attention of autistic children" International Conference on Intelligent RObots and Systems - IROS - IROS , pp. 3561-3567, 2009


**11.** **52-54**

| | |
|---|---|
| **Authors:** | **Prashanth N. G, Manojkumar S. B, Balaji B. S, Naveena Pai G, Havyas V. B** |
| **Paper Title:** | **Design and Synthesis of Reversible Fault Tolerant Carry Skip Adder/Subtractor** |


**Abstract:** Reversible logic will be having more demand in future computation technology because of its zero power dissipation under ideal conditions. This paper proposes the fault tolerant carry skip adder/subtractor by using parity preserving reversible logic gates. According to the control logic input the proposed design can works as a carry skip adder or carry skip subtractor.



**Keywords:** Reversible Logic Gates, Parity Preserving reversible Logic Gates, Full Adder/Subtractor, Parallel Adder/Subtractor, Carry Skip Adder/Subtractor.


**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 Reversibility of Computation", IBM J. Research and Development, pp. 525-532, November 1973.
3. B. Parhami , "Fault tolerant reversible circuits", in Proceedings of 40th Asimolar Conf. Signals, Systems, and Computers, Pacific Grove, CA, pp. 1726-1729, October 2006.
4. E. Fredkin and T. Toffoli, "Conservative logic", Intl. Journal of Theoretical Physics, pp. 219-253, 1982. B.
5. R. Feynman, "Quantum mechanical computers", Optical News, vol. 11, 1985, pp. 11-20.
6. M. S. Islam, M. M. Rahman, Z. Begum, M. Z. Hafiz and A. A. Mahmud, "Synthesis of fault tolerant reversible logic circuits", In Proc. IEEE International Conference on Testing and Diagnosis, Chengdu, China, 28-29 April, 2009.
7. Islam S. and M. Mahbubur Rahman, 2009b. "Efficient Approaches for Designing Fault Tolerant Reversible Carry Look-Ahead and Carry-Skip Adders", MASAUM Journal of Basic and Applied Sciences, 1(3): 354-360.
8. Majid Haghparast and Keivan Navi, "A Novel Fault Tolerant Reversible Gate For Nanotechnology Based Systems", American Journal of Applied Sciences 5 (5): 519-523, 2008 ISSN 1546-9239
9. Prashanth N G, Savitha A P, M.B.Anandaraju, Nuthan A C, "Design and Synthesis of Fault Tolerant Full Adder/Subtractor using Reversible Logic Gates". International Journal of Engineering Research and Applications (IJERA) ISSN: 2248-9622 Vol. 3, Issue 4, Jul-Aug 2013 pp137-142
10. Himanshu Thapliyal, M.B Srinivas, "A New Reversible TSG Gate and Its Application for Designing Efficient Adder Circuits" arXiv preprint cs/0603091, 2006
11. Parminder Kaur & Balwinder singh Dhaliwal "Design of Fault Tolerant Full Adder/Subtractor Using Reversible Gates" 2012 International Conference on Computer Communication and Informatics (ICCCI -2012), Jan. 10 – 12, 2012, Coimbatore, INDIA


**12.** **55-58**

| | |
|---|---|
| **Authors:** | **Veena Abraham, Soumen Basak, Sabi S** |

| | | | |
|---|---|---|---|
| **13.** | **Paper Title:** | **Design of AXI4 Protocol Checker for SoC Integration** | |
| | **Abstract:** System-on-a-Chip (SoC) design has become more and more complex because Intellectual Property (IP) core with different functions are integrated within a single chip. Each IPs have completed design and verification but the integration of all IPs may not work together. The bus-based architecture has become the major integration methodology for implementing a SoC. The main issue is to ensure that the IP works correctly after integrating to the corresponding bus architecture. Advanced extensible interface 4 (AXI4) is an on chip bus architecture introduced by ARM to interact with its peripherals. A synthesizable AXI4 protocol checker which contains a set of rules to check on-chip communication properties accuracy is proposed to ensure proper SoC integration. A prototype of AXI4 Master and AXI Slave is also designed to generate the AXI4 signals. The protocol checker will continuously monitor the signals from AXI4 Master and AXI4 Slave to check whether any rule is broken or not. The proposed AXI4 protocol checker will check both the Write Channel and Read Channel transactions. As the AXI4 checker is synthesizable it can be used in FPGA (Field Programmable Gate Array) and Emulation where functional checks are difficult to detect and pin point. The AXI4 Master, AXI Slave and AXI4 protocol checker have been modeled using Verilog and implemented on Digilent Basys2 Spartan 3E FPGA board.<br><br>**Keywords:** System on a Chip, AXI4 protocol, Intellectual Property cor, Write Channel, Read channel.<br><br>**References:**<br>1. S. Pasricha, N. Dutt, On-Chip Communication Architectures: System on Chip Interconnect, Morgan Kaufmann, 2008.<br>2. IBM, Core connect bus architecture. IBM Microelectronics. Available at http://www.ibm.com<br>3. Wishbone system-on-chip (soc) interconnection architecture for portable IP cores. Available at http://www.opencores.org<br>4. ARM, "AMBA Specification (Rev 2.0)". [Online] Available: http://www.arm.com<br>5. A. Shrivastava, G.S Tomarand A.K. Singh, "Performance Comparison of AMBA Bus-Based System-On-Chip Communication Protocol", in Proc. Int. Conf. Communication Systems and Network Technologies (CSNT), June 2011, pp. 449- 44.<br>6. ARM, "AMBA AXI protocol specifications (Version 2), March 2010", [Online] Available: http://www.arm.com.<br>7. Hyun-min Kyung , Gi-ho Park , Jong Wook Kwak , Tae-jin Kim and Sung-Bae Park, "Design and implementation of Performance Analysis Unit (PAU) for AXI-based multi-core System on Chip (SOC)" , Elsevier Trans. Microprocessors and Microsystems, vol. 34, pp. 102-116, March 2010.<br>8. M. Daneshtalab, M. Ebrahimi, P. Liljeberg, J. Plosila and H. Tenhunen, "Memory-Efficient On-Chip Network with Adaptive Interfaces", IEEE Trans. Computer-Aided Design of Integrated Circuits and Systems, vol. 31, issue 1, pp. 146 -159, Jan. 2012.<br>9. Jun Zheng, Kang Sun , Xuezeng Pan, and Lingdi Ping "Design of a Dynamic Memory Access Scheduler", in Proc. IEEE 7 th Int. Conf. ASIC, Oct. 2007, pp. 20-23.<br>10. Na Ra Yang, Gilsang Yoon, Jeonghwan Lee, Intae Hwang, Cheol Hong Kim, Sung Woo Chung and Jong Myon Kim, "Improving the System-on-a-Chip Performance for Mobile Systems by Using Efficient Bus Interface", in Proc. IEEE Int. Conf. Communications and Mobile Computing, Vol 4, March 2009, pp. 606-608.<br>11. Bruce Mathewson "The Evolution of SOC Interconnect and How NOC Fits Within It", in Proc. IEEE 47 th Int. Conf . Design Automation( DAC), June 2010, pp. 312-313.<br>12. Kanna, Shimizu, David L. Dill and Alan J. Hu. "A monitor-based formal specification of PCI", in Proc. Springer-Verlag London 3rd Int. Conf. on Formal Methods in Computer-Aided Design, Nov. 2000, pp. 335-353.<br>13. Marcio T. Oliveira, Alan J. Hu, "High level specification and design: High-Level specification and automatic generation of IP interface monitors", in Proc. 39th Conf. on Design automation, June 2002, pp. 129-134.<br>14. M. S. Jahanpour, E. Cerny, "Compositional verification of an ATM switch module using interface recognizer/suppliers (IRS)", in Proc. IEEE Int. Conf. International High-Level Design, Validation, and Test Workshop, 2000, pp. 71-76.<br>15. Y.-T. Lin, C.-C. Wang, and I.-J. Huang, "AMBA AHB Bus Protocol Checker with Efficient Debugging Mechanism," In Proceedings of the IEEE International Symposium on Circuits and Systems(ISCAS'08), May 2008, pp. 929-931.<br>16. Chien-Hung Chen, Jiun-Cheng Ju, and Ing-Jer Huang, "A Synthesizable AXI Protocol Checker for SoC Integration", in Proc. IEEE Int. Conf. SoC Design (ISOCC) , Nov. 2010, pp.103-106.<br>17. Digilent Basys2 Board Reference Manual. [Online] Available: http://www.digilentinc.com<br>18. Adept™ Application User's Manual. [Online] Available: http://www.digilentinc.com | **59-65** |
| **14.** | **Authors:** | **Sarita Poonia, Mamtesh Nokhwal, Ajay Shankar** | |
| | **Paper Title:** | **A Secure Image Based Steganography and Cryptography with Watermarking** | |
| | **Abstract:** In this paper we uses the steganography and cryptography techniques with the watermarking so that to protect the particular information. Steganography is accomplished through hiding the information in the other information, thus by hiding the existence of the communicated information and steganography can be amplified by combining it with the cryptography and watermarking. And the cryptography is used for the security purpose. Cryptography uses two main styles or forms of encrypting data, symmetrical and asymmetrical. Watermarking technology is used for copyright protection of images, audios and videos. Watermarking process to signal modulation model. The basic idea of the proposed system is that it will allow an average user to securely transfer the text information by hiding them in a digital image file using the local characteristics within the image, which will provide a strong backbone for its security.<br><br>**Keywords:** Cryptography, PSNR, steganography, Water marking.<br><br>**References:**<br>1. N. Provos, "Defending Against Statistical Steganography," Proc 10th USENEX Security Symposium 2005.<br>2. N. Provos and P. Honeyman, "Hide and Seek: An introduction to Steganography," IEEE Security & Privacy Journal 2003.<br>3. Steven W. Smith, The Scientist and Engineer's Guide to Digital Signal Processing.<br>4. Katzenbeisser and Petitcolas,"Information Hiding Techniques for Stenography and Digital watermaking" Artech House, Norwood, MA. 2000.<br>5. L. Reyzen And S. Russell, "More efficient provably secure Steganography" 2007.<br>6. S.Lyu and H. Farid , "Steganography using higher order image statistics , " IEEE Trans. Inf. Forens. Secur. 2006.<br>7. Venkatraman, s, Abraham, A. & Paprzycki M." Significance of Steganography on Data Security " ,Proceedings of the International Conference on Information Technology : coding and computing , 2004.<br>8. Fridrich, J ., Goljan M., and Hogea , D ; New Methodology for Breaking stenographic Techniques for JPEGs. "Electronic Imaging 2003".<br>9. http:/ aakash.ece.ucsb.edu./data hiding/stegdemo.aspx.Ucsb data hiding online demonstration. Released on Mar .09,2005. | **66-70** |

10. Mitsugu Iwanmoto and Hirosuke Yamamoto, "The Optimal n-out-of-n Visual Secret Sharing Scheme for GrayScale Images", IEICE Trans. Fundamentals, vol.E85- A, No.10, October 2002, pp. 2238-2247.
11. Doron Shaked, Nur Arad, Andrew Fitzhugh, Irwin Sobel, "Color Diffusion: Error Diffusion for Color Halftones", HP Laboratories Israel, May 1999.
12. Z.Zhou, G.R.Arce, and G.Di Crescenzo, "Halftone Visual Cryptography", IEEE Tans. On Image Processing,vol.15, No.8, August 2006, pp. 2441-2453.
13. M.Naor and A.Shamir, "Visual Cryptography", in Proceedings of Eurocrypt 1994, lecture notes in computer science, 1994, vol.950, pp. 1-12.
14. Robert Ulichney, "The void-and-cluster method for dither array generation", IS&T/SPIE Symposium on Electronic Imaging and Science, San Jose, CA, 1993, vol.1913, pp.332-343.
15. E.R.Verheul and H.C.A. Van Tilborg, "Constructions and properties of k out of n visual secret sharing scheme", Designs, Codes, and Cryptography, vol.1, no.2, 1997, pp.179-196.
16. ANSI, ANSI X9.44: KEY MANAGEMENT USING REVERSIBLE PUBLIC KEY CRYPTOGRAPHY FOR THE FINANCIAL SERVICES INDUSTRY. WORKING DRAFT.
17. M. BELLARE AND P. ROGAWAY. OPTIMAL ASYMMETRIC ENCRYPTION-HOW TO ENCRYPT WITH RSA. IN ADVANCES IN CRYPTOLOGY-EUROCRYPT '94, PP. 92-111, SPRINGER-VERLAG, 1994.
18. M. BELLARE AND P. ROGAWAY. THE EXACT SECURITY OF DIGITAL SIGNATURES-HOW TO SIGN WITH RSA AND RABIN. IN ADVANCES IN CRYPTOLOGY-EUROCRYPT '96, PP. 399-416, SPRINGER-VERLAG, 1996.
19. D. Bleichenbacher. Chosen Ciphertext Attacks against Protocols Based on the RSA Encryption Standard PKCS #1. To appear in Advances in Cryptology-Crypto '98.
20. D. Bleichenbacher, B. Kaliski and J. Staddon. Recent Results on PKCS #1: RSA Encryption Standard. RSA Laboratories' Bulletin, Number 7, June 24, 1998.

**15.**

| | |
|---|---|
| **Authors:** | **Shanu Singh, Amit Kumar Pandey, Minu Rani** |
| **Paper Title:** | **Generalized Black Hole Attack and Comparative Solution for MANET** |

**Abstract:** MANET is widely used by defense and civilians for wide range of application. There are various applications in wide range of communication. It's various routing technique makes it more flexible for various operations. Mobile Ad-Hoc network which leads to an autonomous system, where station or nodes are connected with each other through air medium links. There is no boundaryconditions on the nodes to join or leave the network, therefore the overall operation is being freely. MANET topology is dynamic that can change rapidly because the nodes move freely and it can organize themselves randomly. Such a property of the nodes makes the mobile Ad-Hoc networks unpredictable from the point of view of topology and scalability. In this paper we fetch the various attacks on MANET and compare the technique to various solutions of MANET infrastructure which does not posses attacks. This paper also contains the protocol which leads to protect the MANET by attacks.

**Keywords:** MANET, DSDV, DRI, Cross Checking, AODV.

**References:**

1. Sanjay Ramaswamy, Huirong Fu, Manohar Sreekantaradhya, John Dixon and Kendall Nygard, "Prevention of Cooperative Black Hole Attack in Wireless Ad Hoc Networks" Department of Computer Science, IACC 258 North Dakota State University, Fargo, ND 58105.
2. Charles E. Perkins, and Elizabeth M. Royer, "Ad-hoc On-Demand Distance Vector (AODV) Routing," Internet Draft, November 2002.
3. Hongmei Deng, Wei Li, and Dharma P. Agrawal, "Routing Security in Wireless Ad Hoc Network," IEEE Communications Magzine, vol. 40, no. 10, October 2002.
4. S. Marti et al,"Mitigating Routing Misbehavior in Mobile Ad Hoc Networks," 6th Int'l. Conference Mobile Comp. Net., pp. 255-265, August 2000.
5. Vesa Kärpijoki,"Security in Ad hoc Networks," http://www.tcm.hut.fi/Opinnot/Tik- 110.501/2000/papers/karpijoki.pdf.
6. Srdjan Capkuny, Levente Butty´an, and Jean-Pierre Hubaux, "Self-Organized Public-Key Management for Mobile Ad Hoc Networks," Technical Report at EPFL, http://ic2.epfl.ch/publications/documents/IC_TECH_REPORT_200234.pdf.
7. Lidong Zhou, and Zygmunt J. Haas, "Securing Ad Hoc Networks," IEEE Network Magazine, vol. 13, no.6, November/December 1999.
8. Janne Lundberg, "Routing Security in Ad Hoc Networks," http://citeseer.nj.nec.com/cache/papers/cs/19440/http:zSzzSzwww.tml.hut.fizSz~jluzSznetseczSz netsec-lundberg.pdf/routing-security-in-ad.pdf
9. P.V.Jani, "Security within Ad-Hoc Networks," Position Paper, PAMPAS Workshop, Sept. 16/17 2002.
10. M.Parsons and P.Ebinger, "Performance Evaluation of the Impact of Attacks on mobile Ad-Hoc networks"
11. D.B.Roy, R.Chaki and N.Chaki, "A New Cluster-Based Wormhole Intrusion Detection Algorithm for Mobile Ad-Hoc Neworks," International Journal of Network Security and Its Application (IJNSA), Vol. 1, No.1, April, 2009.
12. N.Shanti, Lganesan and K.Ramar, "Study of Different Attacks On Multicast Mobile Ad-Hoc Network".
13. C.Wei, L.Xiang, B.yuebin and G.Xiaopeng, "A New Solution for Resisting Gray Hole Attack in Mobile Ad-Hoc Networks," Second International Conference on Communications and Networking in china, pp.366-370, Aug, 2007.
14. S.Marti, T.J.Giuli, K.Lai, M.Baker, "Mitigating Routing Misbehavior in Mobile Ad-Hoc Networks".
15. Zhu, C. Lee, M.J.Saadawi, T., "RTT-Based Optimal Waiting time for Best Route Selection in Ad-Hoc Routing Protocols," IEEE Military Communications Conference, Vol. 2, pp. 1054-1059, Oct, 2003.
16. M.T.Refaei, V.Srivastava, L.Dasilva, M.Eltoweissy, "A Reputation-Based Mechanism for Isolating Selfish nodes in Ad-Hoc Networks," Second Annual International Conference on Mobile and Ubiquitous Systems, Networking and Services, pp.3-11, July, 2005.
17. V.Mahajan, M.Natue and A.Sethi, " Analysis of Wormhole Intrusion attacks in MANETs," IEEE Military Communications Conference, pp. 1-7, Nov, 2008.
18. F.Stanjano, R.Anderson, "The Resurrecting Duckling: Security Issues for Ubiquitous Computing," Vol. 35, pp. 22-26, Apr, 2002.
19. H.L.Nguyen,U.T.Nguyen, "Study of Different Types of Attacks on Multicast in Mobile Ad-Hoc Networks," International Conference on Networking, Systems, Mobile Communications and Learning Technologies, Apr,2006.
20. H.Deng, W.Li and D.P.Agrawal, "Routing Security in Wireless Ad-Hoc Networks," University of Cincinnati, IEEE Communication Magzine, Oct, 2002.
21. K. Biswas and Md. Liaqat Ali, "Security threats in Mobile Ad-Hoc Network", Master Thesis, Blekinge Institute of Technology" Sweden, 22nd March 2007
22. G. A. Pegueno and J. R. Rivera, "Extension to MAC 802.11 for performance Improvement in MANET", Karlstads University, Sweden, December 2006
23. S. Lu, L. Li, K.Y. Lam, L. Jia, "SAODV: A MANET Routing Protocol that can Withstand Black Hole Attack.," International Conference on Computational Intelligence and Security, 2009.

**71-75**

| | |
|---|---|
| **Authors:** | **Priti Jadhao, Lalit Dole** |
| **Paper Title:** | **Implementation of Secure Authentication Scheme for Mobile Device** |

**16.**

**Abstract:** Authentication is a fundamental aspect of system security. It confirms the identity of any user trying to log on to a domain or access network resources. Due to the numerous advantages of authentication systems, it can be used in various applications. The common application involving authentication is, a computer program using a blind credential to authenticate to another program, Using a confirmation E-mail to verify ownership of an e-mail address, using an internet banking system, Withdrawing cash from an ATM .The main purpose of these systems is to validate the user's right to access the system and information, and protect against identity theft and fraud.

**Keywords:** Image Processing, Watermarking Techniques, Walsh code, DCT (Discrete Cosine Transform).

**References:**

1. Fermi National Accelerator Laboratory, Office of Science / U.S Department of Energy: Strong Authentication at Fermilab, Sept 2006
2. Bin Hu, Qi Xie, Yang Li- Automatic verification of password based authentication protocols using smart card (2011).
3. W. E. Burr, D. F. Dodson, W. T. Polk. Electronic Authentication Guideline. Technical Report 800-63, National Institute of Standards and Technology,2008 <http://csrc.nist.gov/publications/nistpubs/800-63/SP800-63V1_0_2.pdf>.
4. CA.Managing strong Authentication: A Guide to Creating an Effective Management System, 2007.
5. Fadi Aloul, Syed Zahidi and Wassim El-Hajj "Two factor authentication using mobile phones" in Pro 2009 IEEE/ACS International Conference on Computer Systems and Applications, ISBN: 978-1-4244-3807-5.
6. Do van Thanh; Jorstad, I Jonvik, T, Do van Thuan "Strong authentication with mobile phone as security token" in Pro Mobile Adhoc and Sensor Systems, 2009. MASS '09. IEEE 6th International Conference on.
7. Pernilla Stolpe Johansson "Economic aspects of web authentication" in Project Report for Information Security Course Linköping University, Sweden. In 2011.

**76-78**

**17.**

| **Authors:** | **Suprava Das, Rakesh Ch. Balabantaray** |
|---|---|
| **Paper Title:** | **Hybrid Approach for Transliteration of Odia Named Entity to English** |

**Abstract:** Transliteration of NAMED ENTITIES plays an important role for cross language information retrieval processes. This paper shows the design of a hybrid (rule based + fuzzy based) transliteration system for named entities of person, location, organizations written in Odia script to English (Roman Script). For this purpose, we have also created a database of specialized spelling i.e. location names, organization names...etc. which helped for performance improvement with accuracy 87%.

**Keywords:** Transliteration, Odia named entity, hybrid approach.

**References:**

1. Ekbal Asif, Sudip Kumar Naskar and Sivaji Bandyopadhyay, "A Modified Joint Source-Channel Model for Transliteration", Proceedings of ACL 2006, pp 191-198, 2006.
2. Vijaya ,VP, Shivapratap and KP CEN(2009) "English to Tamil Transliteration using WEKA system‖ International Journal of Recent Trends in Engineering, May 2009, Vol. 1, No. 1, pages: 498-500.
3. Malik, "Punjabi Machine Transliteration System", In Proceedings of the 21st International Conference on Computational Linguistics and 44th Annual Meeting of the ACL (2006), pages: 1137-1144.
4. Haque, Dandapat, Srivastava, Naskar and Way (2009) "English—Hindi Transliteration Using Context-Informed PB-SMT: the DCU System for NEWS 2009‖ Proceedings of the 2009 Named Entities Workshop, ACL-IJCNLP 2009, pages 104–107,Suntec, Singapore, 7 August 2009. ACL and AFNLP.
5. Monika Bhargava, M.Kumar, Sujoy Das, "Rule Based Hindi to English Transliteration System for Proper Names", (IJCSIS) International Journal of Computer Science and Information Security, Vol. 10, No. 8, August 2012.
6. Lehal G.S and Saini T.S., "A Hindi to Urdu Transliteration System", Proceedings of ICON, pp 235-240, 2010

**79-82**

**18.**

| **Authors:** | **Davesh Singh Som, Parma Nand Astya, Ankur garg** |
|---|---|
| **Paper Title:** | **A Comparative Performance Analysis of AODV, DSR and TORA Routing Protocols in MANETs** |

**Abstract:** A mobile ad hoc network is a collection of autonomous mobile nodes that communicate with each other over wireless links. It is seen that mobile ad hoc networks will be an integral part of next generation networks because of its flexibility, infrastructure less nature, ease of maintenance, auto configuration, self administration capabilities, and costs effectiveness. MANETs can operate without fixed infrastructure and can survive rapid changes in the network topology. They can be studied formally as graphs in which the set of edges varies in time. The main method for evaluating the performance of MANETs is simulation. In this paper, an attempt has been made to compare three well know protocols AODV, DSR and TORA by using two performance metrics packet delivery fraction and end to end delay by varying the number of nodes and pause time with identical environment conditions. The comparison has been done by using simulation tool NS2 which is the main simulator, NAM (Network Animator) and excel graph which is used for preparing the graphs from the trace files.

**Keywords:** MANET, AODV, DSR, TORA.

**References:**

1. Amit N. Thakare, Mrs. M. Y. Joshi, "Performance Analysis of AODV & DSR Routing Protocol in Mobile Ad hoc Networks" IJCA Special Issue on "Mobile Ad-hoc Networks" MANETs 2010, pp. 211-218
2. Krishna Gorantala, "Routing Protocols in Mobile Ad-hoc Networks", Umea University, Sweden, June-2006.
3. Geetha Jayakumar and Gopinath Ganapathy, "Performance Comparison of Mobile Ad-hoc Network Routing Protocol", International Journal of Computer Science and Network Security (IJCSNS), VOL.7 No.11, pp.77-84 November 2007.
4. Elizabeth M. Royer and Chai-Keong Toh,"A review of current routing protocols for ad hoc mobile wireless networks", Technical report, University of California and Georgia Institute of Technology, USA, 1999.pp.46-55
5. Anuj K. Gupta, Dr. Harsh Sadawarti, Dr. Anil K. Verma, "Performance analysis of AODV, DSR & TORA Routing Protocols" IACSIT International Journal of Engineering and Technology Vol.2, No.2, April 2010
6. Baruch Awerbuch and Amitabh Mishra, "Dynamic Source Routing (DSR) Protocol", johns hopkins university,US.
7. C.Y. Chong and S.P. Kumar, "Sensor Networks: Evolution, Opportunities, and Challenges," Proc. IEEE, vol. 91, no. 8, pp.1247-1256, Aug. 2003.

**83-87**

8. Liu, Z.; Kwiatkowska, M.Z; Constantinou, C. A Biologically Inspired QOS Routing Algorithm for Mobile Ad Hoc Networks. In 19th International Conference on Advanced Information Networking and Applications, 2005; pp. 426–431.
9. Luke Klein-Berndt, "A Quick Guide to AODV Routing", National Institute of Standards and Technology, US.
10. Abdul Hadi Abd Rahman and Zuriati Ahmad Zukarnain, "Performance Comparison of AODV, DSDV and I-DSDV Routing Protocols in Mobile Ad Hoc Networks", European Journal of Scientific Research, ISSN 450-216X Vol.31 No.4, pp.566-576, 2009.
11. Padmini Misra, "Routing Protocols for Ad Hoc Mobile Wireless Networks"
12. Larry L. Peterson and Bruce S. Davie "Computer Networks –A Systems Approach", San Francisco, Morgan Kaufmann Publishers, fifth edition
13. M. Zonoozi and P. Dassanayake, "User mobility modeling and characterization of mobility patterns", IEEE Journal on Selected Areas in Communications, pp.1239-1252, September 1997.
14. Baruch Awerbuch and Amitabh Mishra, "Ad hoc On Demand Distance Vector (AODV) Routing Protocol", johns Hopkins university, US.