

**Volume 3 Issue 4, February 2015**

**International Journal of Emerging  
Science and Engineering**

**ISSN : 2319-6378 (Online)**

**Website: [www.ijese.org](http://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](http://www.blueeyesintelligence.org)

**Email:** [director@blueeyesintelligence.org](mailto:director@blueeyesintelligence.org), [blueeyes@gmail.com](mailto:blueeyes@gmail.com)

**Cell #:** +91-9669981618, **WhatsApp #:** +91-9669981618, **Viber #:** +91-9669981618

**Skype #:** beiesp, **Twitter #:** beiesp

## **Editor In Chief**

**Dr. Shiv K Sahu**

Ph.D. (CSE), M.Tech. (IT, Honors), B.Tech. (IT)

Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal(M.P.), India

**Dr. Shachi Sahu**

Ph.D. (Chemistry), M.Sc. (Organic Chemistry)

Additional Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal(M.P.), India

## **Vice Editor In Chief**

**Dr. Vahid Nourani**

Professor, Faculty of Civil Engineering, University of Tabriz, Iran

**Prof.(Dr.) Anuranjan Misra**

Professor & Head, Computer Science & Engineering and Information Technology & Engineering, Noida International University, Noida (U.P.), India

## **Chief Advisory Board**

**Prof. (Dr.) Hamid Saremi**

Vice Chancellor of Islamic Azad University of Iran, Quchan Branch, Quchan-Iran

**Dr. Uma Shanker**

Professor & Head, Department of Mathematics, CEC, Bilaspur(C.G.), India

**Dr. Rama Shanker**

Professor & Head, Department of Statistics, Eritrea Institute of Technology, Asmara, Eritrea

**Dr. Vinita Kumari**

Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., India

**Dr. Kapil Kumar Bansal**

Head (Research and Publication), SRM University, Gaziabad (U.P.), India

**Dr. Deepak Garg**

Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India, Senior Member of IEEE, Secretary of IEEE Computer Society (Delhi Section), Life Member of Computer Society of India (CSI), Indian Society of Technical Education (ISTE), Indian Science Congress Association Kolkata.

**Dr. Vijay Anant Athavale**

Director of SVS Group of Institutions, Mawana, Meerut (U.P.) India/ U.P. Technical University, India

**Dr. T.C. Manjunath**

Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

**Dr. Kosta Yogeshwar Prasad**

Director, Technical Campus, Marwadi Education Foundation's Group of Institutions, Rajkot-Morbi Highway, Gauridad, Rajkot, Gujarat, India

**Dr. Dinesh Varshney**

Director of College Development Counseling, Devi Ahilya University, Indore (M.P.), Professor, School of Physics, Devi Ahilya University, Indore (M.P.), and Regional Director, Madhya Pradesh Bhoj (Open) University, Indore (M.P.), India

**Dr. P. Dananjayan**

Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry, India

**Dr. Sadhana Vishwakarma**

Associate Professor, Department of Engineering Chemistry, Technocrat Institute of Technology, Bhopal(M.P.), India

**Dr. Kamal Mehta**

Associate Professor, Deptment of Computer Engineering, Institute of Technology, NIRMA University, Ahmedabad (Gujarat), India

**Dr. CheeFai Tan**

Faculty of Mechanical Engineering, University Technical, Malaysia Melaka, Malaysia

**Dr. Suresh Babu Perli**

Professor & Head, Department of Electrical and Electronic Engineering, Narasaraopeta Engineering College, Guntur, A.P., India

**Dr. Binod Kumar**

Associate Professor, School of Engineering and Computer Technology, Faculty of Integrative Sciences and Technology, Quest International University, Ipoh, Perak, Malaysia

**Dr. Chiladze George**

Professor, Faculty of Law, Akhaltsikhe State University, Tbilisi University, Georgia

**Dr. Kavita Khare**

Professor, Department of Electronics & Communication Engineering, MANIT, Bhopal (M.P.), INDIA

**Dr. C. Saravanan**

Associate Professor (System Manager) & Head, Computer Center, NIT, Durgapur, W.B. India

**Dr. S. Saravanan**

Professor, Department of Electrical and Electronics Engineering, Muthayamal Engineering College, Resipuram, Tamilnadu, India

**Dr. Amit Kumar Garg**

Professor & Head, Department of Electronics and Communication Engineering, Maharishi Markandeshwar University, Mullana, Ambala (Haryana), India

**Dr. T.C.Manjunath**

Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

**Dr. P. Dananjayan**

Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry, India

**Dr. Kamal K Mehta**

Associate Professor, Department of Computer Engineering, Institute of Technology, NIRMA University, Ahmedabad (Gujarat), India

**Dr. Rajiv Srivastava**

Director, Department of Computer Science & Engineering, Sagar Institute of Research & Technology, Bhopal (M.P.), India

**Dr. Chakunta Venkata Guru Rao**

Professor, Department of Computer Science & Engineering, SR Engineering College, Ananthasagar, Warangal, Andhra Pradesh, India

**Dr. Anuranjan Misra**

Professor, Department of Computer Science & Engineering, Bhagwant Institute of Technology, NH-24, Jindal Nagar, Ghaziabad, India

**Dr. Robert Brian Smith**

International Development Assistance Consultant, Department of AEC Consultants Pty Ltd, AEC Consultants Pty Ltd, Macquarie Centre, North Ryde, New South Wales, Australia

**Dr. Saber Mohamed Abd-Allah**

Associate Professor, Department of Biochemistry, Shanghai Institute of Biochemistry and Cell Biology, Yue Yang Road, Shanghai, China

**Dr. Himani Sharma**

Professor & Dean, Department of Electronics & Communication Engineering, MLR Institute of Technology, Laxman Reddy Avenue, Dundigal, Hyderabad, India

**Dr. Sahab Singh**

Associate Professor, Department of Management Studies, Dronacharya Group of Institutions, Knowledge Park-III, Greater Noida, India

**Dr. Umesh Kumar**

Principal: Govt Women Poly, Ranchi, India

**Dr. Syed Zaheer Hasan**

Scientist-G Petroleum Research Wing, Gujarat Energy Research and Management Institute, Energy Building, Pandit Deendayal Petroleum University Campus, Raisan, Gandhinagar-382007, Gujarat, India.

**Dr. Jaswant Singh Bhomrah**

Director, Department of Profit Oriented Technique, 1 – B Crystal Gold, Vijalpore Road, Navsari 396445, Gujarat. India

**Technical Advisory Board**



**Dr. Mohd. Husain**

Director MG Institute of Management & Technology, Banthara, Lucknow (U.P.), India

**Dr. T. Jayanthi**

Principal, Panimalar Institute of Technology, Chennai (TN), India

**Dr. Umesh A.S.**

Director, Technocrats Institute of Technology & Science, Bhopal(M.P.), India

**Dr. B. Kanagasabapathi**

Infosys Labs, Infosys Limited, Center for Advance Modeling and Simulation, Infosys Labs, Infosys Limited, Electronics City, Bangalore, India

**Dr. C.B. Gupta**

Professor, Department of Mathematics, Birla Institute of Technology & Sciences, Pilani (Rajasthan), India

**Dr. Sunandan Bhunia**

Associate Professor & Head,, Dept. of Electronics & Communication Engineering, Haldia Institute of Technology, Haldia, West Bengal, India

**Dr. Jaydeb Bhaumik**

Associate Professor, Dept. of Electronics & Communication Engineering, Haldia Institute of Technology, Haldia, West Bengal, India

**Dr. Rajesh Das**

Associate Professor, School of Applied Sciences, Haldia Institute of Technology, Haldia, West Bengal, India

**Dr. Mrutyunjaya Panda**

Professor & Head, Department of EEE, Gandhi Institute for Technological Development, Bhubaneswar, Odisha, India

**Dr. Mohd. Nazri Ismail**

Associate Professor, Department of System and Networking, University of Kuala (UniKL), Kuala Lumpur, Malaysia

**Dr. Haw Su Cheng**

Faculty of Information Technology, Multimedia University (MMU), Jalan Multimedia, 63100 Cyberjaya

**Dr. Hossein Rajabalipour Cheshmehgaz**

Industrial Modeling and Computing Department, Faculty of Computer Science and Information Systems, Universiti Teknologi Malaysia (UTM) 81310, Skudai, Malaysia

**Dr. Sudhinder Singh Chowhan**

Associate Professor, Institute of Management and Computer Science, NIMS University, Jaipur (Rajasthan), India

**Dr. Neeta Sharma**

Professor & Head, Department of Communication Skills, Technocrat Institute of Technology, Bhopal(M.P.), India

**Dr. Ashish Rastogi**

Associate Professor, Department of CSIT, Guru Ghansi Das University, Bilaspur (C.G.), India

**Dr. Santosh Kumar Nanda**

Professor, Department of Computer Science and Engineering, Eastern Academy of Science and Technology (EAST), Khurda (Orisa), India

**Dr. Hai Shanker Hota**

Associate Professor, Department of CSIT, Guru Ghansi Das University, Bilaspur (C.G.), India

**Dr. Sunil Kumar Singla**

Professor, Department of Electrical and Instrumentation Engineering, Thapar University, Patiala (Punjab), India

**Dr. A. K. Verma**

Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India

**Dr. Durgesh Mishra**

Chairman, IEEE Computer Society Chapter Bombay Section, Chairman IEEE MP Subsection, Professor & Dean (R&D), Acropolis Institute of Technology, Indore (M.P.), India

**Dr. Xiaoguang Yue**

Associate Professor, College of Computer and Information, Southwest Forestry University, Kunming (Yunnan), China

**Dr. Veronica Mc Gowan**

Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

**Dr. Mohd. Ali Hussain**

Professor, Department of Computer Science and Engineering, Sri Sai Madhavi Institute of Science & Technology, Rajahmundry (A.P.), India

**Dr. Mohd. Nazri Ismail**

Professor, System and Networking Department, Jalan Sultan Ismail, Kaula Lumpur, MALAYSIA

**Dr. Sunil Mishra**

Associate Professor, Department of Communication Skills (English), Dronacharya College of Engineering, Farrukhnagar, Gurgaon (Haryana), India

**Dr. Labib Francis Gergis Rofaiel**

Associate Professor, Department of Digital Communications and Electronics, Misr Academy for Engineering and Technology, Mansoura City, Egypt

**Dr. Pavol Tanuska**

Associate Professor, Department of Applied Informatics, Automation, and Mathematics, Trnava, Slovakia

**Dr. VS Giridhar Akula**

Professor, Avanthi's Research & Technological Academy, Gunthapally, Hyderabad, Andhra Pradesh, India

**Dr. S. Satyanarayana**

Associate Professor, Department of Computer Science and Engineering, KL University, Guntur, Andhra Pradesh, India

**Dr. Bhupendra Kumar Sharma**

Associate Professor, Department of Mathematics, KL University, BITS, Pilani, India

**Dr. Praveen Agarwal**

Associate Professor & Head, Department of Mathematics, Anand International College of Engineering, Jaipur (Rajasthan), India

**Dr. Manoj Kumar**

Professor, Department of Mathematics, Rashtriya Kishan Post Graduate Degree, College, Shamli, Prabhudh Nagar, (U.P.), India

**Dr. Shaikh Abdul Hannan**

Associate Professor, Department of Computer Science, Vivekanand Arts Sardar Dalipsing Arts and Science College, Aurangabad (Maharashtra), India

**Dr. K.M. Pandey**

Professor, Department of Mechanical Engineering, National Institute of Technology, Silchar, India

**Prof. Pranav Parashar**

Technical Advisor, International Journal of Soft Computing and Engineering (IJSCE), Bhopal (M.P.), India

**Dr. Biswajit Chakraborty**

MECON Limited, Research and Development Division (A Govt. of India Enterprise), Ranchi-834002, Jharkhand, India

**Dr. D.V. Ashoka**

Professor & Head, Department of Information Science & Engineering, SJB Institute of Technology, Kengeri, Bangalore, India

**Dr. Sasidhar Babu Suvanam**

Professor & Academic Coordinator, Department of Computer Science & Engineering, Sree Narayana Gurukulam College of Engineering, Kadayiuruppu, Kolenchery, Kerala, India

**Dr. C. Venkatesh**

Professor & Dean, Faculty of Engineering, EBET Group of Institutions, Kangayam, Erode, Caimbatore (Tamil Nadu), India

**Dr. Nilay Khare**

Assoc. Professor & Head, Department of Computer Science, MANIT, Bhopal (M.P.), India

**Dr. Sandra De Iaco**

Professor, Dip.to Di Scienze Dell'Economia-Sez. Matematico-Statistica, Italy

**Dr. Yaduvir Singh**

Associate Professor, Department of Computer Science & Engineering, Ideal Institute of Technology, Govindpuram Ghaziabad, Lucknow (U.P.), India

**Dr. Angela Amphawan**

Head of Optical Technology, School of Computing, School Of Computing, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia

**Dr. Ashwini Kumar Arya**

Associate Professor, Department of Electronics & Communication Engineering, Faculty of Engineering and Technology, Graphic Era University, Dehradun (U.K.), India

**Dr. Yash Pal Singh**

Professor, Department of Electronics & Communication Engg, Director, KLS Institute Of Engg.& Technology, Director, KLSIET, Chandok, Bijnor, (U.P.), India

**Dr. Ashish Jain**

Associate Professor, Department of Computer Science & Engineering, Accurate Institute of Management & Technology, Gr. Noida (U.P.), India

**Dr. Abhay Saxena**

Associate Professor & Head, Department of Computer Science, Dev Sanskriti University, Haridwar, Uttarakhand, India

**Dr. Judy. M.V**

Associate Professor, Head of the Department CS &IT, Amrita School of Arts and Sciences, Amrita Vishwa Vidyapeetham, Brahmasthanam, Edapally, Cochin, Kerala, India

**Dr. Sangkyun Kim**

Professor, Department of Industrial Engineering, Kangwon National University, Hyoja 2 dong, Chuncheon, Gangwondo, Korea

**Dr. Sanjay M. Gulhane**

Professor, Department of Electronics & Telecommunication Engineering, Jawaharlal Darda Institute of Engineering & Technology, Yavatmal, Maharashtra, India

**Dr. K.K. Thyagarajan**

Principal & Professor, Department of Information Technology, RMK College of Engineering & Technology, RSM Nagar, Thiruvallur, Tamil Nadu, India

**Dr. P. Subashini**

Assoc. Professor, Department of Computer Science, Coimbatore, India

**Dr. G. Srinivasrao**

Professor, Department of Mechanical Engineering, RVR & JC, College of Engineering, Chowdavaram, Guntur, India

**Dr. Rajesh Verma**

Professor, Department of Computer Science & Engg. and Deptt. of Information Technology, Kurukshetra Institute of Technology & Management, Bhor Sadian, Pehowa, Kurukshetra (Haryana), India

**Dr. Pawan Kumar Shukla**

Associate Professor, Satya College of Engineering & Technology, Haryana, India

**Dr. U C Srivastava**

Associate Professor, Department of Applied Physics, Amity Institute of Applied Sciences, Amity University, Noida, India

**Dr. Reena Dadhich**

Prof. & Head, Department of Computer Science and Informatics, MBS MArg, Near Kabir Circle, University of Kota, Rajasthan, India

**Dr. Aashis. S. Roy**

Department of Materials Engineering, Indian Institute of Science, Bangalore Karnataka, India

**Dr. Sudhir Nigam**

Professor Department of Civil Engineering, Principal, Lakshmi Narain College of Technology and Science, Raisen, Road, Bhopal, (M.P.), India

**Dr. S. Senthil Kumar**

Doctorate, Department of Center for Advanced Image and Information Technology, Division of Computer Science and Engineering, Graduate School of Electronics and Information Engineering, Chon Buk National University Deok Jin-Dong, Jeonju, Chon Buk, 561-756, South Korea Tamilnadu, India

**Dr. Gufran Ahmad Ansari**

Associate Professor, Department of Information Technology, College of Computer, Qassim University, Al-Qassim, Kingdom of Saudi Arabia (KSA)

**Dr. R. Navaneetha krishnan**

Associate Professor, Department of MCA, Bharathiyar College of Engg & Tech, Karaikal Puducherry, India

**Dr. Hossein Rajabalipour Cheshmeigaz**

Industrial Modeling and Computing Department, Faculty of Computer Science and Information Systems, Universiti Teknologi Skudai, Malaysia

**Dr. Veronica McGowan**

Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

**Dr. Sanjay Sharma**

Associate Professor, Department of Mathematics, Bhilai Institute of Technology, Durg, Chhattisgarh, India

**Dr. Taghreed Hashim Al-Noor**

Professor, Department of Chemistry, Ibn-Al-Haitham Education for pure Science College, University of Baghdad, Iraq

**Dr. Madhumita Dash**

Professor, Department of Electronics & Telecommunication, Orissa Engineering College, Bhubaneswar, Odisha, India

**Dr. Anita Sagadevan Ethiraj**

Associate Professor, Department of Centre for Nanotechnology Research (CNR), School of Electronics Engineering (Sense), Vellore Institute of Technology (VIT) University, Tamilnadu, India

**Dr. Sibasis Acharya**

Project Consultant, Department of Metallurgy & Mineral Processing, Midas Tech International, 30 Mukin Street, Jindalee-4074, Queensland, Australia

**Dr. Neelam Ruhil**

Professor, Department of Electronics & Computer Engineering, Dronacharya College of Engineering, Gurgaon, Haryana, India

**Dr. Faizullah Mahar**

Professor, Department of Electrical Engineering, Balochistan University of Engineering and Technology, Pakistan

**Dr. K. Selvaraju**

Head, PG & Research, Department of Physics, Kandaswami Kandars College (Govt. Aided), Velur (PO), Namakkal DT. Tamil Nadu, India

**Dr. M. K. Bhanarkar**

Associate Professor, Department of Electronics, Shivaji University, Kolhapur, Maharashtra, India

**Dr. Sanjay Hari Sawant**

Professor, Department of Mechanical Engineering, Dr. J. J. Magdum College of Engineering, Jaysingpur, India

**Dr. Arindam Ghosal**

Professor, Department of Mechanical Engineering, Dronacharya Group of Institutions, B-27, Part-III, Knowledge Park, Greater Noida, India

**Dr. M. Chithirai Pon Selvan**

Associate Professor, Department of Mechanical Engineering, School of Engineering & Information Technology Manipal University, Dubai, UAE

**Dr. S. Sambhu Prasad**

Professor & Principal, Department of Mechanical Engineering, Pragati College of Engineering, Andhra Pradesh, India.

**Dr. Muhammad Attique Khan Shahid**

Professor of Physics & Chairman, Department of Physics, Advisor (SAAP) at Government Post Graduate College of Science, Faisalabad.

**Dr. Kuldeep Pareta**

Professor & Head, Department of Remote Sensing/GIS & NRM, B-30 Kailash Colony, New Delhi 110 048, India

**Dr. Th. Kiranbala Devi**

Associate Professor, Department of Civil Engineering, Manipur Institute of Technology, Takyelpat, Imphal, Manipur, India



**Dr. Nirmala Mungamuru**

Associate Professor, Department of Computing, School of Engineering, Adama Science and Technology University, Ethiopia

**Dr. Srilalitha Girija Kumari Sagi**

Associate Professor, Department of Management, Gandhi Institute of Technology and Management, India

**Dr. Vishnu Narayan Mishra**

Associate Professor, Department of Mathematics, Sardar Vallabhbhai National Institute of Technology, Ichchhanath Mahadev Dumas Road, Surat (Gujarat), India

**Dr. Yash Pal Singh**

Director/Principal, Somany (P.G.) Institute of Technology & Management, Garhi Bolni Road, Rewari Haryana, India.

**Dr. Sripada Rama Sree**

Vice Principal, Associate Professor, Department of Computer Science and Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh. India.

**Dr. Rustom Mamlook**

Associate Professor, Department of Electrical and Computer Engineering, Dhofar University, Salalah, Oman. Middle East.

**Managing Editor**

**Mr. Jitendra Kumar Sen**

International Journal of Emerging Science and Engineering (IJESE)

**Editorial Board**

**Dr. Saeed Balochian**

Associate Professor, Gonaabad Branch, Islamic Azad University, Gonabad, Iratan

**Dr. Mongey Ram**

Associate Professor, Department of Mathematics, Graphics Era University, Dehradun, India

**Dr. Arupratan Santra**

Sr. Project Manager, Infosys Technologies Ltd, Hyderabad (A.P.)-500005, India

**Dr. Ashish Jolly**

Dean, Department of Computer Applications, Guru Nanak Khalsa Institute & Management Studies, Yamuna Nagar (Haryana), India

**Dr. Israel Gonzalez Carrasco**

Associate Professor, Department of Computer Science, Universidad Carlos III de Madrid, Leganes, Madrid, Spain

**Dr. Guoxiang Liu**

Member of IEEE, University of North Dakota, Grand Forks, N.D., USA

**Dr. Khushali Menaria**

Associate Professor, Department of Bio-Informatics, Maulana Azad National Institute of Technology (MANIT), Bhopal (M.P.), India

**Dr. R. Sukumar**

Professor, Sethu Institute of Technology, Pulloor, Kariapatti, Virudhunagar, Tamilnadu, India

**Dr. Cherouat Abel**

Professor, University of Technology of Troyes, France

**Dr. Rinkle Aggrawal**

Associate Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India

**Dr. Parteek Bhatia**

Associate Professor, Department of Computer Science & Engineering, Thapar University, Patiala (Punjab), India

**Dr. Manish Srivastava**

Professor & Head, Computer Science and Engineering, Guru Ghasidas Central University, Bilaspur (C.G.), India

**Dr. B. P. Ladgaonkar**

Assoc. Professor&Head, Department of Electronics, Shankarrao Mohite Mahavidyalaya, Akulj, Maharashtra, India

**Dr. E. Mohan**

Professor & Head, Department of Computer Science and Engineering, Pallavan College of Engineering, Kanchipuram, Tamilnadu, India



**Dr. M. Shanmuga Priya**

Assoc. Professor, Department of Biotechnology, MVJ College of Engineering, Bangalore Karnataka, India

**Dr. Leena Jain**

Assoc. Professor & Head, Dept. of Computer Applications, Global Institute of Management & Emerging Technologies, Amritsar, India

**Dr. S.S.S.V Gopala Raju**

Professor, Department of Civil Engineering, GITAM School of Technology, GITAM, University, Hyderabad, Andhra Pradesh, India

**Dr. Ani Grubisic**

Department of Computer Science, Teslina 12, 21000 split, Croatia

**Dr. Ashish Paul**

Associate Professor, Department of Basic Sciences (Mathematics), Assam Don Bosco University, Guwahati, India

**Dr. Sivakumar Durairaj**

Professor, Department of Civil Engineering, Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai Tamil Nadu, India

**Dr. Rashmi Nigam**

Associate Professor, Department of Applied Mathematics, UTI, RGPV, Airport Road, Bhopal, (M.P.), India

**Dr. Mu-Song Chen**

Associate Professor, Department of Electrical Engineering, Da-Yeh University, Rd., Dacun, Changhua 51591, Taiwan R.O.C., Taiwan, Republic of China

**Dr. Ramesh S**

Associate Professor, Department of Electronics & Communication Engineering, Dr. Ambedkar Institute of Technology, Bangalore, India

**Dr. Nor Hayati Abdul Hamid**

Associate Professor, Department of Civil Engineering, Universiti Teknologi Mara, Selangor, Malaysia

**Dr. C.Nagarajan**

Professor & Head, Department of Electrical & Electronic Engineering Muthayammal Engineering College, Rasipuram, Tamilnadu, India

**Dr. Ilaria Cacciotti**

Department of Industrial Engineering, University of Rome Tor Vergata Via del Politecnico Rome-Italy

**Dr. V.Balaji**

Principal Cum Professor, Department of EEE & E&I, Lord Ayyappa Institute of Engg & Tech, Uthukadu, Walajabad, Kanchipuram, Tamil Nadu, India

**Dr. G. Anjan Babu**

Assoc. Professor, Department of Computer Science, S V University, Tirupati, Andhra Pradesh, India

**Dr. Damodar Reddy Edla**

Assoc. Professor, Department of Computer Science & Engineering, National Institute of Technology, Goa, India

**Dr. D.Arumuga Perumal**

Professor, Department of Mechanical Engg, Noorul Islam University, Kanyakumari (Dist), Tamilnadu, India

**Dr. Roshdy A. AbdelRassoul**

Professor, Department of Electronics and Communications Engineering, Arab Academy for Science and Technology, Electronics and Communications Engineering Dept., POBox 1029, Abu-Qir, Alexandria, Egypt

**Dr. Aniruddha Bhattacharya**

Assoc. Professor & Head, Department of Computer Science & Engineering, Amrita School of Engineering, Bangalore, India

**Dr. P Venkateswara Rao**

Professor, Department of Mechanical Engineering, KITS, Warangal, Andhra Pradesh, India

**Dr. V.Mahalakshmi M.L**

Assoc. Professor & Head, Institute of Management Studies, Chennai CID Quarters, V.K.Iyer Road, Mandaveli, Chennai

S. No	Volume-3 Issue-4, February 2015, ISSN: 2319-6378 (Online) Published By: Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.		Page No.
1.	Authors:	Ravi Raj, Yogesh Shriram Solunke	
	Paper Title:	A Modified RSA Cryptosystems and Analysis	
	<p><b>Abstract:</b> As the growth of the Internet and electronic commerce have brought to the forefront the issue of privacy in electronic communication. Large volumes of personal and sensitive information are electronically transmitted every day. In this paper we present modified RSA algorithm and analysis for secure data transmission. The security of RSA public key cryptosystem is based on the assumption that factoring of a large number (modulus) is difficult. In RSA if one can factor modulus into its prime numbers then the private key is also detected and hence the security of the cryptosystem is broken. Encryption is the standard method for making a communication private with RSA Algorithm. In which one public key and one private have introduced, resulted from two prime number introduced. Here we have introduce n Prime number with evolve method in a modified RSA cryptosystem to provide security over the networks. So, the security of RSA public key cryptosystem is increased due to increase in difficulty of the factoring of a large number (modulus) with increase in prime number and this technique provides more efficiency and reliability over the networks.</p> <p><b>Keywords:</b> Key, Encryption, Decryption, n prime numbers, RSA Algorithm.</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. Ajay Kakkar, M. L. Singh and P. K. Bansal, "Comparison of Various Encryption Algorithms and Techniques for Secured Data Communication in Multinode Network", International Journal of Engineering and Technology, Volume 2 No. 1, pp. 87-92, January 2012</li><li>2. Behrouz A Forouzan, "Data Communications and Networking", McGraw-Hill, 4th Edition.</li><li>3. Xin Zhou, Xiaofei Tang, "Research and Implementation of RSA Algorithm for Encryption and Decryption", IEEE The 6th International Forum on Strategic Technology, 2011, Volume 2, page 22-24.</li><li>4. Davis, R, "The data encryption standard in perspective", Communications Society Magazine, IEEE, 2003, pp. 5 – 9, ISSN 0148-9615.</li><li>5. Shashi Mehrotra Seth, Rajan Mishra, "Comparative Analysis of Encryption Algorithms for Data Communication", International Journal of Computer Science and Technology, June 2011, Vol. 2, Issue 2, pp. 292-294.</li><li>6. Rajan.S.Jamgekar, Geeta Shantanu Joshi, "File Encryption and Decryption Using Secure RSA", International Journal of Emerging Science and Engineering (JESE), February 2013, Volume-1, Issue-4, ISSN: 2319-6378.</li><li>7. S. Sharma, P. Sharma, R. Shankar Dhakar, "RSA Algorithm Using Modified Subset Sum Cryptosystem", Computer and Communication Technology (ICCCCT), 2011 2nd International Conference, Sept. 2011, pp. 457 - 461</li><li>8. Yunfei Li, Qing Liu, Tong Li, "Design and implementation of an improved RSA algorithm" E-Health Networking, Digital Ecosystems and Technologies (EDT), 2010 International Conference (Volume:1 ), April 2010, pp. 390 – 393.</li></ol>		
2.	Authors:	Omar AL-Masari, Musa AL-Masari	
	Paper Title:	Enhancement of Small Signal Stability of Wind Farms by Using STATCOM and HVDC Link	
	<p><b>Abstract:</b> Small signal instability problems in wind farms often lead to power system blackouts. This paper reports a comprehensive study of small signal stability in three different types of wind generator when coupling to a power system: doubly-fed induction generators (DFIG), squirrel cage induction generators (SCIG) and permanent magnet synchronous generators (PMSG). Time-domain analysis and Eigenvalue analysis were used to identify small signal instability problems in wind farm power systems. A static synchronous compensator (STATCOM) and power system stabilizer (PSS) was modelled and applied to the power system to enhance small signal stability. In addition, the performance of high voltage direct current (HVDC) and high-voltage alternating current (HVAC) links was examined in connecting the wind farm to the grid. The results show improvement in small signal stability by using HVDC rather than HVAC. The IEEE 14 Bus test system and all simulation models were implemented using the DIgSILENT PowerFactory software tool.</p> <p><b>Keywords:</b> Wind Turbine Generators, Small Signal Stability, Oscillatory Stability, Eigenvalue analysis, SCIG, PMSG, DFIG, STATCOM, PSS, HVDC, HVAC, IEEE 14 Bus test system, DIgSILENT PowerFactory.</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. K. R. Steve Sawyer, "Global Wind Report," belgium 2010.</li><li>2. K. R. Steve Sawyer, "Global Wind energy Outlook 2010," belgium 2010.</li><li>3. S. Heier, Grid Integration of Wind Energy Conversion System, 1998.</li><li>4. D. Thakur and N. Mithulananthan, "Influence of Constant Speed Wind Turbine Generator on Power System Oscillation," Electric Power Components and Systems, vol. 37, pp. 478-494, 2009.</li><li>5. G. Rogers, power system Oscillations: Kluwer Academic Publishers, 2000.</li><li>6. P. W. Sauer, Power System Dynamics and Stability: Prentice-Hall, Inc., 1998.</li><li>7. P. Kundur, Power System Stability and Control. New York: McGraw-Hill, Inc., 1994.</li><li>8. O. A. Almasari, "Low Frequency Oscillatory Stability Study of Power System with Wind Farms," Master Degree, School of Information Technology and Electrical Engineering, The University of Queensland, Brisbane, 2011.</li><li>9. W. Chen, S. Libao, W. Liming, and N. Yixin, "Small signal stability analysis considering grid-connected wind farms of DFIG type," in Power and Energy Society General Meeting - Conversion and Delivery of Electrical Energy in the 21st Century, 2008 IEEE, 2008, pp. 1-6.</li><li>10. F. Snyder, "Inter-Area Oscillation Damping with Power System Stabilizers and synchronized Phasor Measurements," Master thesis, Electrical Engineering, Virginia Polytechnic Institute and State University, 1997.</li><li>11. F. J. Swift and H. F. Wang, "The connection between modal analysis and electric torque analysis in studying the oscillation stability of multi-machine power systems," International Journal of Electrical Power &amp; Energy Systems, vol. 19, pp. 321-330, Jun 1997.</li><li>12. J. G. Slootweg and W. L. Kling, "The impact of large scale wind power generation on power system oscillations," Electric Power Systems Research, vol. 67, pp. 9-20, Oct 2003.</li><li>13. R. C. Burchett and G. T. Heydt, "Probabilistic Methods For Power System Dynamic Stability Studies," Power Apparatus and Systems, IEEE Transactions on, vol. PAS-97, pp. 695-702, 1978.</li><li>14. R. D. Fernández, R. J. Mantz, and P. E. Battaiotto, "Impact of wind farms on a power system. An eigenvalue analysis approach," Renewable Energy, vol. 32, pp. 1676-1688, 2007.</li></ol>		

	<p>15. D. Gautam, V. Vittal, and T. Harbour, "Impact of increased penetration of DFIG based wind turbine generators on transient and small signal stability of power systems," in Power and Energy Society General Meeting, 2010 IEEE, 2010, pp. 1-1.</p> <p>16. Y. Sun, L. Wang, G. Li, and J. Lin, "A review on analysis and control of small signal stability of power systems with large scale integration of wind power," in Power System Technology (POWERCON), 2010 International Conference on, 2010, pp. 1-6.</p> <p>17. D. Devaraj and R. Jeevajyothi, "Impact of wind turbine systems on power system voltage stability," in Computer, Communication and Electrical Technology (ICCCET), 2011 International Conference on, 2011, pp. 411-416.</p> <p>18. G. Michalke and A. D. Hansen, "Modelling and control of variable speed wind turbines for power system studies," Wind Energy, vol. 13, pp. 307-322, May 2010.</p> <p>19. D. Margaris and N. D. Hatzigiorgiou, "Direct drive synchronous generator wind turbine models for power system studies," in Power Generation, Transmission, Distribution and Energy Conversion (MedPower 2010), 7th Mediterranean Conference and Exhibition on, 2010, pp. 1-7.</p> <p>20. Kotsi S. K. M, Canizares C. "Modeling and Simulation of IEEE 14 Bus System with FACTS controllers", Technical report 2003-3, University of Waterloo, On, Canada, 2003.</p>	
	<p><b>Authors:</b> Tasnim N. Shaikh, Satyaajeet Chaudhari, B. H. Patel, Megha Patel</p> <p><b>Paper Title:</b> Study of Conductivity Behavior of Nano Copper Loaded Nonwoven Polypropylene Based Textile Electrode for ECG</p> <p><b>Abstract:</b> ECG technique is employed in medical science for measuring electrical activity of the heart. This technique often criticized for skin irritation due to the wet gel media applied on the body. The condition becomes more crucial for long-term monitoring. Wet electrodes need to be replaced with dry one and in that disposable form. Textile electrode is a potential choice for the purpose. Many reports are also available where knitted and woven polyester, nylon; cotton and acrylic fabrics were used as conductive electrode. The desired conductivity was imparted by conductive material surface treatment for woven or using conductive steel filaments in knitted. But due to higher stiffness they sound uncomfortable on use. The present research therefore designed to develop highly conductive textile material with better comfort properties. Polypropylene nonwoven fabric, a most versatile, economical and highly preferred base material in medical textile is used for the purpose. It is loaded with different concentrations of copper Nano particles. The prepared polypropylene nonwoven fabric was then characterized using polarized microscope and FTIR technique. The electrical conductivity of copper loaded textile was measured by Precision Multimeter 8846A tester. Better conductivity is observed with increased deposition.</p> <p><b>Keywords:</b> Electrocardiogram, FTIR, Conductivity, polypropylene, Nano particles.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. N. Muthu Kumar &amp; G. Thilagavathi, Journal of the Textile Association, vol-74, July-Aug 2013, pg 81-86.</li> <li>2. T Kannaian, R Neelaveni and G Thilagavathi, Journal of Industrial Textiles, 42(3), 300-318</li> <li>3. Chattopadhyay, D.P. and Patel, B.H., Improvement in physical and dyeing properties of natural fibres through pre-treatment with silver nanoparticles, Indian Journal of Fib &amp; Tex Res, Vol 34, 2009, pp 368-373.</li> <li>4. Chattopadhyay, D.P. and Patel, B.H., Effect of nanosized colloidal copper on cotton fabric, Journal of Engi Fib Fab, Vol 5, No 3, 2010, pp 1-6.</li> <li>5. Chattopadhyay, D.P. and Patel, B.H., Modification of cotton textiles with nanostructural zinc particles, Journal of Natural Fibres, Vol 8, No 1, 2011, pp 39-47.</li> <li>6. Patel, B.H and Patel, P. N, Synthesis and application of nano-sized SiO<sub>2</sub> to textiles: A review, International Dyer, Vol 5, 2012, pp 35-39.</li> <li>7. Chaudhari S.B., Mandot A.A. and Patel B.H., Functionalized nano-finishing to textiles using Ag nano-colloids, Meliand International, 15(5-6) (2009), 214-216.</li> <li>8. Mandot A.A., Chaudhari S.B. and Patel B.H., Nanocomposite: Manufacturing and applications in textiles, Meliand International, 18(3) (2012), 188-189.</li> <li>9. Chattopadhyay D.P. and Patel B.H., Preparation, characterization and stabilization of nano sized copper particles, Interantional Journal of Pure &amp; App. Sci. &amp; Tech., 9(1) (2012), 1-8.</li> <li>10. Chaudhari S.B., Mandot A.A. and Patel B.H., Effect of nano TiO<sub>2</sub> pretreatment on functional properties of cotton fabric, International Journal of Eng. Res. and Devt., 1(9) (2012), 24-29.</li> <li>11. Patel B.H. and Chattopadhyay D.P., Nano-particles &amp; their uses in textiles, The Indian Textile Journal, 118(3) (2007), 23-31.</li> <li>12. Bhattacharya S.S. and Chaudhari S.B., Change in physico-mechanical and thermal properties of polyamide/silica nanocomposite film, International Journal of Eng. Res. and Devt., 7(2013), 1-5.</li> <li>13. Raut S.B., Vasavada D.A. and Chaudhari S.B., Nano particles-Application in textile finishing, Man-made textiles in India, 53(12), 2010, 7-12.</li> <li>14. Chaudhari S.B., Shaikh T.N. and Pandey P., A Review on Polymer Tio<sub>2</sub> Nanocomposites, International Journal of Engineering Research and Application, 3 (5), 2013, 1386-1391.</li> <li>15. Patel B.H., Chaudhari S.B., Patel P.N., Nano silica loaded cotton fabric; Characterization and Mechanical testing, Research Journal of Engineering Sciences, 3 (4), 2014, 19-24.</li> <li>16. Chaudhari S B, Patel B H and Mandot A A, Effect of nano TiO<sub>2</sub> pretreatment on functional properties of cotton fabric, International Journal. of Eng. Res. and Devt., 1(9), 2012, 24-29.</li> <li>17. SS Bhattacharya, SB Chaudhari, Study on Structural, Mechanical and Functional Properties of Polyester Silica Nanocomposite Fabric, International Journal of Pure and Applied Sciences and Technology, 21 (1), 2014, 43-52.</li> <li>18. P.J.Xu, H.Zhang and X.M.Tao, Institute of Textiles and Clothing, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong(2008).</li> <li>19. Naylor G R. S and Phillips D. G., 9th International Wool Textile Research Conference, 203-209,(1995).</li> <li>20. Alessio Becheri, Maximilian Du`rr, Pierandrea Lo Nostro, Piero Baglioni, Jouranal of Nanopart Research, (2008) 10:679-689.</li> <li>21. AATCC Technical Manual Volume 83, 2008.</li> <li>22. Barbara Stuart, Infrared spectroscopy: Fundamentals and application, Wiley publication, 46, Page 116.</li> <li>23. International Journal of Innovative Research in Science, Engineering and Technology, Vol. 3, Issue 4, April 2014.</li> <li>24. Karilainen A, Hansen S, Muller J, 8th Annual Workshop on Semiconductor Advances, 156(2005).</li> <li>25. Scilingo, EP, Gemidgani, A. Paradiso, R. Taccini, N. Ghelarducci, B, and De rossi, IEEE Transactions on Information Technology in Bio Medicine 9(3), 345-352, (2005).</li> <li>26. V.B. Gupta, A.K. Mukherjee and S.S. Cameotra, Manufactured Fibre Technology, Champman &amp; Hall, London, (1997), ISBN: 0412540304.</li> </ol>	11-14
4.	<p><b>Authors:</b> Pushpalata Pujari, Babita Majhi</p> <p><b>Paper Title:</b> A Survey on Odia Character Recognition</p>	



**Abstract:** Recognition of Odia handwritten and machine characters and numerals is an emerging area of research and finds extensive applications in banks, offices and industries. Very little standard research work has been reported on recognition of handwritten and machine characters and numerals. This paper makes an in depth study on the existing literature on recognition of machine and handwritten Odia characters and numerals. The key steps [44] such as preprocessing, segmentation, feature extraction and classification involved in the recognition process of Odia characters are dealt in details. The well known techniques employed for segmentation, feature extraction and classification tasks of Odia characters are reviewed and their relative strengths and weaknesses are outlined. The paper also discusses the current trends and future research scope in the area of Odia character recognition. It is expected that this paper will be useful to those who will be interested to work in the fields of recognition of Odia characters.

**Keywords:** Preprocessing, Segmentation, Feature extraction, Classification, Post Processing

## References:

1. Soumya Mishra, Debashish Nanda , Sanghamitra Mohanty , Oriya Character Recognition using Neural Networks , Special Issue of IJCCCT Vol. 2,3,4, 2010 for International Conference (ICCT-2010), pp. 88-92.
2. B. B. Chaudhuri, U. Pal and M. Mitra, Automatic recognition of printed Oriya script, *Sadhana* (27) (Part 1) (February 2002), 23–34.
3. Debananda Padhi, Novel Hybrid approach for Odia Handwritten Character Recognition System ,*International Journal of Advanced Research in Computer Science and Software Engineering* , 2 (5) (May 2012) 150-157.
4. Jyotsnarani Tripathy, Reconstruction of Oriya Alphabets Using Zernike Moments, *International Journal of Computer Applications*, 8(8) (October 2010) 26-32
5. Pradeepta K. Sarangi, Ashok K. Sahoo, P. Ahmed, Recognition of Isolated Handwritten Oriya Numerals using Hopfield Neural Network, *International Journal of Computer Applications* , 40(8) (February 2012) 37-42.
6. Pradeepta K. Sarangi, P. Ahmed, Recognition of Handwritten Odia Numerals Using Artificial Intelligence Techniques, *The International Journal of Computer Science & Applications (TIJCSA)*, 2(2) (April 2013) 41-48.
7. N.Tripathy and U. Pal, Handwriting segmentation of unconstrained Oriya text, *Sadhana*, 31(6)( December 2006), 755–769.
8. Debasish Basa and Sukadev Meher, Handwritten Odia Character Recognition, *National conference on Recent Advances in Microwave tubes , Devices and Communication, System ,JNIT , Jaipur, March4-5 2011*.
9. K. Roy and U. Pal, Word-wise Hand-written Script Separation for Indian Postal automation, In : *Proceedings of 10th International Workshop on Frontiers in Handwriting Recognition* , (2006) 521-526.
10. Mamata Nayak, Ajit Kumar Nayak, Odia Characters Recognition by Training Tesseract OCR Engine, *International Conference in Distributed Computing & Internet Technology (ICDCIT-2014)*, *International Journal of Computer Applications* (2014) 25-30.
11. Bhagirath Kumar, Niraj Kumar, Charulata Palai, Pradeep Kumar Jena, Subhagata Chattopadhyay, Optical Character Recognition using Ant Miner Algorithm: A Case Study on Oriya Character Recognition, *International Journal of Computer Applications* , 61(3) (2013)17-22.
12. Debananda Padhi, Debabrata Senapati, Sasmita Rout, Morphological Approach for Extracting Single Character from Odia Handwritten Text: A survey, *International Journal of Emerging Trends in Engineering and Development (IJETED)* , 2(2)(2012) 138-146.
13. Pradeepta K. Sarangi, P. Ahmed and Kiran K. Ravulakollu, Naïve Bayes Classifier with LU Factorization for Recognition of Handwritten Odia Numerals, *Indian Journal of Science and Technology*, 7(1) (January 2014)35-38.
14. Rasmi Ranjan Das, Swati Sucharita Das, Shom Prasad Das, Support Vector Machines for Odiya Handwritten Numeral Recognition, *International Journal of Advanced Research in Computer Science*, 4( 9) (2013),139-143.
15. Manoj Kumar Mahto, Archana Kumari and S. C. Panigrahi, A System for Oriya Handwritten Numeral Recognition for Indian Postal Automation, *International Journal of Applied Science & Technology Research Excellence* 1(1)(Nov-Dec 2011) 17-23
16. Priyaranjan Behera, Odia Offline Character Recognition, Thesis, 2012, [http://ethesis.nitrkl.ac.in/3823/1/Thesis\\_Odia\\_Offline\\_Character\\_Recognition\\_108CS021.pdf](http://ethesis.nitrkl.ac.in/3823/1/Thesis_Odia_Offline_Character_Recognition_108CS021.pdf), Access Date : 12/09/14
17. Avijeeta Mohanty , Debananda Padhi, Soumya Mishra, A Novel WVD Approach for Estimating and Correcting Skew angle of Odia Handwritten Document Image, *International Journal of Advanced Research in Computer Science and Software Engineering*, 2(3)(2012)175-181
18. Peeta Basa Pati , A.G.Ramakrishnan, U.K.Aravinda Rao, Machine Recognition of Printed Oriya Characters, In: *Proceedings of III International Conference on Information Technology ICIT 2000, Bhubaneswar, Decemeber 21-23, 2000*, pp. 227-232.
19. T.K.Mishra, B.Majhi, S.Panda, A comparative analysis of image transformations for handwritten Odia numeral recognition, In : *proceedings of IEEE International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, Mysore, 22-25 Aug. 2013, pp. 790-793.
20. D. Senapati, S. Rout and M. Nayak, A Novel Approach to Text Line and word Segmentation on Odia Printed Documents , In : *Proceedings of IEEE Third International Conference on Computing Communication and Networking Technologies 2012*, 6th - 28th July 2012, pp.1- 6.
21. Sukhpreet Singh, Optical Character Recognition Techniques: A Survey, *Journal of Emerging Trends in Computing and Information Sciences*, 4(6 )(June 2013)545-550.
22. S.D.Meher and D. Basa, An Intelligent Scanner with Handwritten Odia Character Recognition Capability ,In: *proceedings of IEEE Fifth International Sensing Technology (ICST)*, Palmerston North ,Nov 28 2011-Dec.1 2011, pp 53-59.
23. U.Pal, T. Wakabayashi, F.Kimura , A System for Off-Line Oriya Handwritten Character Recognition Using Curvature Feature, In: *Proceedings of 10th International Conference on Information Technology(ICIT) 10th ,Orissa , 17-20 Dec.2007*, pp: 227-229.
24. B. Majhi, J. Satpathy , M.Rout, Efficient Recognition of Odia Numerals using Low Complexity Neural Classifier, 2011, *IEEE International Conference on Energy, Automation and Signal (ICEAS)*, Bhubaneswar, 30-Dec. pp.1-4
25. T. K. Bhowmik, S. K. Parui, U. Bhattacharya and B. Shaw, An HMM based Recognition Scheme for Handwritten Oriya Numerals, In: *Proceedings of the 9th International Conference on Information Technology(ICIT )*, Bhubaneswar, India, S. P. Mohanty & A. Sahoo (Eds), IEEE Computer Society Press, December 18-21, 2006, pp. 105-110.
26. K.Roy, T.Pal, U.Pal, F.Kimura, Oriya handwritten numeral recognition system, In: *Proceedings of IEEE Eighth International Conference on Document Analysis and Recognition* ,29 Aug-1 Sept, 2005, pp.770-774.
27. S. Mohanty, Pattern Recognition in Alphabets of Oriya Language using Kohonen Neural Network, *International Journal on Pattern Recognition and Artificial Intelligence* , 12(07),(November 1998) 1007-1015.
28. N. Tripathy, M. Panda, U. Pal, System for Oriya handwritten numeral recognition, In: *Proceedings of Document Recognition and Retrieval XI*, San Jose, California; December 15, 2003; pp. 174-181.
29. Mansi Shah and Gordhan B Jethava , A Literature Review on Hand Written Character Recognition ,*Indian Streams Research Journal* ,3(2)(2013) 1-19.
30. Youssef Bassil and Mohammad Alwani, OCR Post-Processing Error Correction Algorithm U sing Google's Online Spelling Suggestion, *Journal of Emerging Trends in Computing and Information Sciences*, 3( January 2012),90-99 .
31. Debanandan Padhi and Debabrata Senapati, Zone Centroid Distance and standard Deviation Based Feature Matrix for Odia Handwritten Character Recognition, In: *Proceedings of the International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA)*, *Advances in Intelligent Systems and Computing*, Springer 199(2013) 649-658.
32. Swati Nigam and Ashish Khare, Multifold Oriya Character Recognition using Curvelet Transform, *Information systems for Indian languages, Communication in computer and information science*, 139(2011)150-156.
33. Chandana Mitra, Arun K. Pujari, Directional Decomposition for Odia Character Recognition, *Mining Intelligence and Knowledge*

	<p>Exploration , Lecture Notes in Computer Science, Springer, 8284 (2013) 270-278.</p> <p>34. C. Bihari, Babita Majhi and G. Panda, A critical review on offline handwritten Odia character recognition techniques, In: Proceedings of International Conference on Emerging Trends in soft Computing and ICT, GG Central University, Bilaspur, 16-17, March 2011, pp.86-89.</p> <p>35. Z. Shi and V. Govindaraju, Skew Detection for Complex Document Images/using Fuzzy Runlength, In: Proceeding of 7th ICDAR, 2003, pp. 715-719.</p> <p>36. Mamta Maloo, K.V. Kale, Gujarati Script Recognition: A Review, International Journal of Computer Science (IJCSI) ,8(4)(No 1)(July 2011) 480-489.</p> <p>37. K. Mahata, Optical Character Recognition for Printed Tamil Script, Master's Thesis, Department of Electrical Communication and Engineering, Indian Institute of Science Bangalore, 2000.</p> <p>38. Gaurav Kumar, Pradeep Kumar Bhatia and Indu, Analytical Review of Preprocessing Techniques for Offline Handwritten Character Recognition, International Journal of Advances in Engineering Sciences ,3 (3)(July, 2013)14-22.</p> <p>39. Nafiz Arica and Fatos T. Yarman-Vural, An Overview of Character Recognition Focused on Off-Line Handwriting, IEEE Transactions on Systems, man and Cybernetics-Part C: Applications and Reviews, 31( NO. 2) (2001) 216-233.</p> <p>40. K. Mahata and M.Rama Krishnan, Precision Skew Detection through Principal Axis, In proceedings of International Conference on Multimedia on Processing and Processing, IIT Chennai, Aug 13-15, 2000,pp.186-188.</p> <p>41. Iping Supriana*, Albadr Nasution, Arabic Character Recognition System Development, The 4th International Conference on Electrical Engineering and Informatics (ICEEI 2013, Procedia Technology 11 ( 2 0 1 3 ) 334 – 34.</p> <p>42. Amit Choudhary, Rahul Rish, Savita Ahlawat, "Off-Line Handwritten Character Recognition using Features Extracted from Binarization Technique ",2013 AASRI Conference on Intelligent Systems and Contr, AASRI Procedia 4 ( 2013 ) 306– 312.</p> <p>43. Hacene Belhade, Mohamed Khireddine Kholadi, Aicha Eutamene, Ontology of graphemes for Latin character recognition, 2011 International Conference on Advances in Engineerin, a Engineering 24 (2011),579-584.</p> <p>44. Anju K Sadasivan, T.Senthilkumar, Automatic Character Recognition in Complex Image, International Conference on Communication Technology and System Design 2011, Procedia Engineering 30 ( 2012 ) 218 –225</p> <p>45. Amit Choudhar, Rahul Rishi, Savita Ahlawat, A New Character Segmentation Approach for Off-Line Cursive Handwritten Words , Information Technology and Quantitative Management (ITQM2013, Procedia Computer Science 17 ( 2013 ) 88 –95</p> <p>46. N. Shanthi /E. K. Duraiswamy, A novel SVM-based handwritten Tamil character recognition System, Pattern Anal Applic (2010) 13:173–180, DOI 10.1007/s10044-009-0147-0</p> <p>47. Subhadip Basu,, Nibaran Das, Ram Sarkar, Mahantapas Kundu, Mita Nasipuri*, Dipak Kumar Basu, A hierarchical approach to recognition of handwritten Bangla characters, Pattern Recognition 42 (2009) 1467 -1484</p> <p>48. Vijay Laxmi Sahu, Babita Kubde, Techniques using Neural Network: A Review, International Journal of Science and Research (IJSR), Volume 2 Issue 1, January 2013, pp:87-94, India Online ISSN: 2319-7064</p> <p>49. Meher.S, .D, An intelligent scanner with handwritten odia character recognition capability, Sensing Technology(ICST), 2011 Fifth International Conference, Palmerston North on Nov 28 2011-Dec.1 2011, pp 53-59, ISSN: 2156-8065, Print ISBN:978-1-4577-0168-9, Digital Object Identifier: 10.1109/ICSensT.2011.6137038</p> <p>50. Sanghamitra Mohanty, Himadri Nandini Das Bebartta, Performance Comparison of SVM and K-NN for Oriya Character Recognition, (IJACSA) International Journal of Advanced Computer Science and Applications, Special Issue on Image Processing and Analysis,pp:112-116</p>					
	<table><tr><td><b>Authors:</b></td><td><b>Gaurav Jambhulkar, Vibhor Nitnaware, Manisha Pal, Neha Fuke, Purva Khandelwal, Pallavi Sonule, Sneha Narnawre, V. P. Katekar</b></td></tr><tr><td><b>Paper Title:</b></td><td><b>Performance Evaluation of Cooking Stove Working on Spent Cooking Oil</b></td></tr></table>	<b>Authors:</b>	<b>Gaurav Jambhulkar, Vibhor Nitnaware, Manisha Pal, Neha Fuke, Purva Khandelwal, Pallavi Sonule, Sneha Narnawre, V. P. Katekar</b>	<b>Paper Title:</b>	<b>Performance Evaluation of Cooking Stove Working on Spent Cooking Oil</b>	
<b>Authors:</b>	<b>Gaurav Jambhulkar, Vibhor Nitnaware, Manisha Pal, Neha Fuke, Purva Khandelwal, Pallavi Sonule, Sneha Narnawre, V. P. Katekar</b>					
<b>Paper Title:</b>	<b>Performance Evaluation of Cooking Stove Working on Spent Cooking Oil</b>					
	<p><b>Abstract:</b> This paper deals with the use of spent cooking as a fuel in kerosene stove In order to avoid the reuse of spent cooking oil for cooking which has adverse effects on the health of human being, corrective steps are needed to be taken. With an approach of alternative fuel for kerosene pressurized cooking stove, blends of kerosene and spent soya bean cooking oil of various proportions have been prepared. These samples were tested one by one in an existing kerosene pressurized cooking stove at various pressures. From the study, it has been found that at 1.5 bar pressure, efficiency of 50% proportion of spent soya bean oil with 50% proportion of kerosene is better than pure kerosene.</p> <p><b>Keywords:</b> kerosene stove, spent soya bean oil, magnetization, efficiency, calorific value.</p> <p><b>References:</b></p> <ol style="list-style-type: none"><li>1. Paritosh Rustogi , Shivang Batra, "Kerosene Bubbler Stove", Proceedings of 4th SARC International Conference, 30th March 2014, Nagpur, India, ISBN.978-93-82702-70-2.</li><li>2. Nelson Sakosono, "Magnetizing Kerosene For Increasing Combustion Efficiency", JURNAL TEKNOLOGI, Edisi No. 2, Juni 2005, 155-162 ISSN 0215-1685.</li><li>3. M.S.Murthy, S.A.Agiwala, M.A.Bharambe, A.Mishra and A.Raina, "Modified Kerosene Stove for Burning High Percentage Non Edible Straight Vegetable Oil Blends", S.S.B.T College of Engineering and Technology, Jalgaon Published in Clean Energy and Technology (CET), 2011 IEEE First Conference on Date of:27-29 June 2011.</li><li>4. Anil K Rajvanshi , S M .Patil and B.Mendoca, "Development Of Stove Running On Low Ethanol Concentration", Nimbkar Agricultural Research Institute(NARI) , Nov 2004, Phaltan.</li><li>5. Article: Tropentag of Kassel-Witzenhausen And University Of Gottingen October 9-11, 2007, "Development Of A Plant Oil Pressure Stove".</li><li>6. Dan Li, Wenjun Fang , "Preparation And Stability Of Silver/Kerosene Nanofluids" , Department of Chemistry and Chemical Engineering, Weifang University, Weifang , Shandong Province , 261061, China. Department of Chemistry, Zhejiang University , Hangzhou, Zhejiang Province, 310027, China Corresponding author. Danli : danli830109@163.com ; Wenjun Fang :fwjun@zju.edu.cn Received March 22, 2012; Accepted July 2, 2012. Copyright©2012 Li and Fang; licensee Springer (Nanoscale Res Lett. 2012; 7(1): 362.PMCID: PMC3464727)</li><li>7. R. Natarajana , N. S. Karthikeyana , Avinash Agarwal, K. Sathiyarayanan, "Use Of Vegetable Oil As Fuel To Improve The Efficiency Of Cooking Stove", Energy Centre, School of Mechanical and Building Sciences, Vellore Institute of Technology University, Vellore 632 014, IndiaChemistry Division, School of Science and Humanities, Vellore Institute of Technology University, Vellore 632 014, IndiaReceived 7 June 2007; accepted 30 January 2008 ,Available online 28 March 2008 (ScienceDirect Renewable Energy 33 (2008) 2423-2427)</li><li>8. Y. Nagaraju, Dr. Lasya Gopal, "Development and Performance Assessment of a Pressurized Cook Stove Using a Blend of Pongamia Oil and Kerosene", The Energy and Resources Institute (TERI), Southern Regional Centre, 4th Main, 2nd Cross, Domlur 2nd stage, Bangalore – 560 071.</li><li>9. Mohd. Yunus Khan, Faraz Ahmad Khan, Mirza Shariq Beg, "Ethanol-Kerosene Blends: Fuel Option for Kerosene Wick Stove", International Journal of Engineering Research and Applications (IJERA) ISSN: 2248-9622 www.ijera.com Vol. 3, Issue 1, January -February 2013, pp.464-466.</li><li>10. Patent US4605498- "Apparatus Of Magnetic Treatment Of Liquids", -Google Patents.</li><li>11. K. Arumugama, S. Veerarajab and P.Esakkimuthu, "Combustion of Waste/ Used Oil by Using Specialized Burner", International Journal of Applied Engineering Research. ISSN 0973-4562, Volume 8, Number 15 (2013) pp. 1839-1846 © Research India Publications <a href="http://www.ripublication.com/ijaer.htm">http://www.ripublication.com/ijaer.htm</a></li></ol>					

