# Volume 2 Issue 9, August 2015

## International Journal of Advanced Engineering and Nano Technology





# 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

#### **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. Vijav 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 Counceling, 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, Schhool 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. Sarayanan

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, Mulllana, Ambala (Haryana), India

#### Dr. T.C.Manjunath

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

#### Dr. P. Dananjavan

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. Anuranian 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. Jayanthy

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 Skils, 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 Informetics, 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, Prabudh 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 Cordinator, 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, Uttrakhand, 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, ChuncheOnsi, Gangwondo, Korea

#### Dr. Sanjay M. Gulhane

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

#### Dr. K.K. Thyagharajan

Principal & Professor, Department of Informational Technology, RMK College of Engineering & Technology, RSM Nagar, Thiruyallur, 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 Cheshmejgaz

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 Advanced Engineering and Nano Technology (IJAENT)

#### **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 Froks, 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, Deprtment 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

S. No	Volume-2 Issue-9, August 2015, ISSN: 2347-6389 (Online) Published By: Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.					
	Authors:	Ramy Ahmed Mohamed, Mahmoud Fathy Mahmoud, Hossam Labib Abdel Zayed	l Fattah			
	Paper Title:  Identification of Persons by Fingerprint Recognition and Verification using Minimum Extraction Technique with Compression Technique					
	Abstract: Fingerprint identification and recognition is one of the most common biometric features used for personal recognition. There are many techniques used for finding the features of the fingerprint to manage the way to make it more dependable when matching it with other images of fingerprints. In this paper, the minutiae extraction technique has been used for fingerprint recognition and verification. Two types of compression techniques (Huffman compression code and Arithmetic compression code) have been used to improve the problem of the large size of the storage space of the database used for fingerprint images. Huffman compression technique was the most accurate technique for compression of fingerprint images due to the resulting of the factors of Compression Ratio (CR), Matched score (S), False Matching Ratio (FMR) and False Non Matching Ratio (FNMR), and that when the adaptive threshold has been used to improve the system.  Keywords: Arithmetic code compression, Compression ratio, False matched ratio, False non matched ratio, Fingerprint recognition and verification, Huffman code compression, Matched score.					
1.	Scientific & Engin 2. S. T. e. al, "A Hy Mumbai, India, 20 3. J. Yang, "Fingerp Australia, 2011. 4. K.Parnima, "Losle innovative researc 5. Seema Loonker, " of Science & Tech 6. S. L. D. D. S. Mr Using Binary Tree 2012. 7. Efficient adaptive Imaging. 19(2), 02 8. Dr. Younus Jave University of Scie 9. D. S. F. S. Marco Italy, 2005.	Rahul Sharma, "Fingerprint Recognition System and Tehniques: A Survey," in International Journal of neering Research, Volume 4, Issue 6, June-2013, Ghaziabad, India, 2013. brid System for Fingerprint Identification," in Department of Computer Engineering, Mumbai University, 2010.  In Matching using A Hybrid Shape and Orientation Descriptor," in Charles Sturt University, Sydney, 2013. System Compression Using traditional and lifting based wavelet transform," in International Jornal of the and studies, 2013. Huffman Coding Technique For Image Compression And Reconstruction Using Binary Trees," in College 2013. Huffman Coding Technique For Image Compression And Reconstruction Using Binary Trees, in International Journal of Computer Technology and Applications IJCTA, Jodhpur, Rajasthan, India, 2014 (June 01,2010). The International Journal of Computer Engineering, College of Electrical & Mechanical Engineering National 2015 (Department of Computer Engineering, College of Electrical & Mechanical Engineering National 2015 (Department of Computer Report," in University of Milan Department of Information Technologies, Milan, 2015 (Peature Extraction Algorithms For Automatic Fingerprint Recognition Ystems," in faculty of the graduate	1-5 //, of e n n n n n n n n n n n n n n n n n n			
	school of state, university of new york, NewYork, USA, 2007.  V. G. Khurd, Nitish M. Patil					
	Paper Title:	Experimental Study of Properties of Pervious Concrete as a Pavement Material				
2.	Abstract: Pervious concrete also referred to as "No-fine Concrete" or "Porous Concrete" is material comprised of narrowly graded coarse aggregates, cementitious materials, water and admixture and in some cases fibers. Carefully controlled amount of water and cementitious materials are used to create a paste that forms a thick coating around aggregate particles without flowing off during mixing and placing. The pervious concrete is a special high porosity concrete that allows water from precipitation and other sources to pass through, thereby reducing the runoff and recharging ground water level. Its void content ranges from 18 to 35%, compressive strength from 4Mpa to 30Mpa. The infiltration rate is fall in range of 100 to 750 liter per m2. And due to high void content pervious concrete is also lightweight with density 1600 Kg/m3 to 2100 Kg/m3. Pervious concrete traditionally used in parking areas, area with light traffic, pedestrian walkways and green houses, contributing to sustainable development. In present paper the various mixes of previous concrete were prepared with different amount of aggregates, cement and fly ash to find the properties like compressive strength, permeability and flexural strength to check its suitability as pavement material					
	<ul> <li><b>References:</b></li> <li>Obla, K.H., "Pervious Concrete-An overview", The Indian Concrete Journal, August 2010, pp. 9-18</li> <li>Neithalath, N., Weiss, J., and Olek, J Characterizing Enhanced Porosity Concrete using electrical impedance to predict acoustic and hydraulic performance." Int. Journal of Cement and Concrete Research, Vol.36, No.11, (2006), pp. 2074-2085.</li> <li>Zouaghi, A., and Kumagai, M., "Adaptability of Porous Concrete to the Environment", A monthly report of Civil Engineering Research Institute For Cold Region, No.566, (2000), pp.11-24</li> <li>Ravindrarajah, R. and Aoki, Y. "Environmentally Friendly Pervious Concrete", International Conference on Advances in Concrete and Construction (ICACC-2008), Hyderabad, Andhra Pradesh, India,(2008)</li> <li>Matsuo, Y., Morino, K., and Iwatsuki, E "A Study of Porous Concrete Using Electric Arc Furnace Oxidizing Slag Aggregate", Bulletin of Aishi Institute of Technology, No. 40, (2005), pp. 167-174.</li> <li>Schaefer, V. R., Wang, K., Suleiman, M., T, and Kevern, J., T., "Mix Design Development for Pervious Concrete in Cold Weather Climates", National Concrete Pavement Technology Centre Publication, USA, (2006), 85p</li> </ul>					

- Tennis, P. D., Leming, M. L., and Akers, D. J., "Pervious Concrete Pavement", Portland cement Association, National Ready Mixed Concrete Association, (2004), 25p.
- 8. Ghafoori, N., and Dutta, S., "Laboratory Investigation of Compacted No-Fines Concrete for Paving Materials", Journal of Materials in Civil Engineering, Vol7, No. 3, (1995), pp.183-191
- 9. Yang, J., and Jiang, G., "Experimental study on properties of pervious concrete pavement materials", Int. Journal of Cement and Concrete Research, Vol.33, No.3, (2003), pp.381-386.
- 10. American Concrete Institute, "Pervious Concrete", ACI 5222R-06, Detroit, USA, (2006)
- 1. IS: 516:1999, Methods of Tests for Strength of Concrete, BIS, 2002, New Delhi.

## Authors: Anuranjan Misra, Upawan Kishor, Md Muazzam

Paper Title: Challenges in Implementing Smart Grid in Power Systems

**Abstract:** Electricity, considered by most to be energy, is actually an energy currency. Power collected from a variety of sources, such as falling water, burning fuel, wind and solar is used to create electricity for delivery to customers. Electricity has proven to be a convenient and efficient means of delivering energy. Electricity is delivered at the speed of light and is consumed the instant it is created. There is no means to store electricity without converting it to another form of energy. As a result, the demand for power, driven by users, must match the supply of power from the available sources (e.g. generators and energy storage devices) at all times. As the Smart Grid continues to evolve, and demand-side management, which is available today, builds on its growing reputation as a cost-effective way for industrial users to manage energy usage and costs, buy-in from both residential and industrial consumers will become simpler. In this paper we have discussed use of ICT in Smart Grid, concept of Smart Grid, Goals and Objectives of Smart Grid, Characteristics of Smart Grid, Smart Grid Applications and Services, and Challenges in Smart Grid.

Keywords: Electricity, ICT, Grid, Smart, power

11-13

#### References:

3.

- 1. U.S. Department of Energy. Office of Electricity Delivery and Energy Reliability, Recovery Act Financial
- E. Hau. Wind Turbines. Fundamentals, Technologies, Application, Economics (2nd ed.). Berlin: Springer, 2006.
- F.J. García-Martín, M. Berenguel, A. Valverde, and E.F. Camacho. "Heuristic knowledge-based heliostat field control for the optimization on the temperature distribution in a volumetric receiver," Solar Energy, vol. 66,no. 5, pp. 355-369, August 1999. ISSN 0038-092X.
- 4. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.
- 5. European Wind Energy Association. Wind Energy The Facts. Earthscan, 2009.
- 6. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.
- 7. Assistance Funding Opportunity Announcement, Smart Grid Investment Grant Program, DE-FOA-0000058, June 25, 2009.

## Authors: Anuranjan Misra, Deshraj, Md Muazzam

## Paper Title: Importance for Smart Grid in The ICT Perspective

**Abstract:** A smart grid is a modernized electrical grid that uses analog or digital information and communications technology to gather and act on information - such as information about the behaviours of suppliers and consumers - in an automated fashion to improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity. [2] Electronic power conditioning and control of the production and distribution of electricity are important aspects of the smart grid.

Keywords: smart, grid, efficiency, Electronic, power, such

## 4. References:

14-16

- U.S. Department of Energy. Office of Electricity Delivery and Energy Reliability, Recovery Act Financial
- 2. Assistance Funding Opportunity Announcement, Smart Grid Investment Grant Program, DE-FOA-0000058, June 25, 2009.
- 3. E. Hau. Wind Turbines. Fundamentals, Technologies, Application, Economics (2nd ed.). Berlin: Springer, 2006.
- F.J. García-Martín, M. Berenguel, A. Valverde, and E.F. Camacho. "Heuristic knowledge-based heliostat field control for the optimization on the temperature distribution in a volumetric receiver," Solar Energy, vol. 66,no. 5, pp. 355-369, August 1999. ISSN 0038-092X.
- 5. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.
- 6. European Wind Energy Association. Wind Energy The Facts. Earthscan, 2009.
- J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.

## Authors: Anuranjan Misra, Raj Kumar Baghel, Raoashu

#### Paper Title: Security Considerations in Implementing Smart Grid

**Abstract:** Smart Grid facilitates efficient and reliable end-to-end intelligent two-way delivery system from source to sink as well as integration of renewable energy sources • Smart grid will be able to coordinate the needs and capabilities of distribution utilities, end users and electricity market stakeholders in such a way. It can optimize asset utilization, resource optimization, control and operation. Reduction in losses, performance improvement • It encompasses Integration of Power, Communication, intelligent devices, intelligent computing system for improved electrical infrastructure that serves consumers with reliability, quality & affordable price • Helps both Utility and consumers to participate in the management of electricity sector including efficient utilization of assets — bringing efficiency and sustainability .In This Paper we had discuss Communication Plane, Energy Plane, required Security features.

17-18

5.

Keywords: Smart, Grid, efficient, Power, electricity, Energy, Plane, Security, management, coordinate

#### References:

- 1. U.S. Department of Energy. Office of Electricity Delivery and Energy Reliability, Recovery Act Financial
- 2. E. Hau. Wind Turbines. Fundamentals, Technologies, Application, Economics (2nd ed.). Berlin: Springer, 2006.
- F.J. García-Martín, M. Berenguel, A. Valverde, and E.F. Camacho. "Heuristic knowledge-based heliostat field control for the optimization on the temperature distribution in a volumetric receiver," Solar Energy, vol. 66,no. 5, pp. 355-369, August 1999. ISSN 0038-092X.
- 4. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.
- 5. European Wind Energy Association. Wind Energy The Facts. Earthscan, 2009.
- 6. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.
  - Assistance Funding Opportunity Announcement, Smart Grid Investment Grant Program, DE-FOA-0000058, June 25, 2009.

## Authors: Anuranjan Misra, Yogesh Kumar, Md Muazzam

## Paper Title: Challenges in Smart Grid of Future

**Abstract:** Our nation's infrastructure for generating, transmitting, and distributing electricity – "The Grid" – is a relic based in many respects on century-old technology. It consists of expensive, centralized generation via large plants, and a massive transmission and distribution system. It strives to deliver high-quality power to all subscribers simultaneously – no matter what their demand – and must therefore be sized to the peak aggregate demand at each distribution point. In this paper we describe what the electricity grid could look like in 10 years, and specifically how Federal investment in data analytics approaches is critical to realizing this vision.

Keywords: nation's, generating, electricity, Grid, power, paper, system

**References:** 

6.

19-21

- 1. U.S. Department of Energy. Office of Electricity Delivery and Energy Reliability, Recovery Act Financial
- 2. E. Hau. Wind Turbines. Fundamentals, Technologies, Application, Economics (2nd ed.). Berlin: Springer, 2006.
- F.J. García-Martín, M. Berenguel, A. Valverde, and E.F. Camacho. "Heuristic knowledge-based heliostat field control for the optimization on the temperature distribution in a volumetric receiver," Solar Energy, vol. 66,no. 5, pp. 355-369, August 1999. ISSN 0038-092X.
- 4. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.
- 5. European Wind Energy Association. Wind Energy The Facts. Earthscan, 2009.
- 5. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.
- Assistance Funding Opportunity Announcement, Smart Grid Investment Grant Program, DE-FOA-0000058, June 25, 2009.

## Authors: Anuranjan Misra, S.M. Ashhad Usmani, Md Muazzam

## Paper Title: Issues in Implementing Smart Grid in Power Systems

**Abstract:** In this paper an attempt has been made to analyze the key challenges in implementing the Smart Grid concept in India. In most of the advanced countries Utilities have made major achievements in terms of productivity, reliability, and efficiency through the use of Smart Grid technology. Indian utilities are still lagging far behind when compared to other countries. Today their main focus is on providing energy at reasonable price but soon the day will come when the utilities will be focusing on encompassing sustainable use and environmental improvement into their agendas.

Keywords: concept, India, Smart, Grid, energy, key

## **References:**

7.

- 1. U.S. Department of Energy. Office of Electricity Delivery and Energy Reliability, Recovery Act Financial
- 2. E. Hau. Wind Turbines. Fundamentals, Technologies, Application, Economics (2nd ed.). Berlin: Springer, 2006.
- F.J. García-Martín, M. Berenguel, A. Valverde, and E.F. Camacho. "Heuristic knowledge-based heliostat field control for the optimization on the temperature distribution in a volumetric receiver," Solar Energy, vol. 66,no. 5, pp. 355-369, August 1999. ISSN 0038-092X.
- 4. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of WAMS implementation in North America," in Proc. 2005 IEEE/PES Transmission and Distribution Conference & Exhibition: Asia and Pacific, Dalian, China, 2005.
- 5. European Wind Energy Association. Wind Energy The Facts. Earthscan, 2009.
- 5. J.Y. Cai, Z. Huang, J. Hauer, and K. Martin. "Current status and experience of
- 7. http://smartgrid-for-india.blogspot.com/
- 8. http://www.smartgridnews.com/artman/publish/article\_303.html
- 9. http://www.projectsmonitor.com/ELECTRICITY/india-is-gearing-up-for-smart-grid-technology
- 10. http://gigaom.com/cleantech/5-reasons-why-developing-countries-need-smart-grids-too/
- 11. http://www.metering.com/node/17642
- 12. http://panchabuta.wordpress.com/2010/11/17/first-pilot-project-of-smart-grid-technology-in-electronic-city-bangalore-india/
- 13. http://www.energyandcapital.com/articles/smart-grid-developments/1257
- 14. http://spectrum.ieee.org/tag/smart+grids
- 15. http://www.drumindia.org/smartgrid/agenda.asp
- 6. http://en.wikipedia.org/wiki/Smart\_grid

22-25