2013 International Conference on **Advanced Electronic Systems**

(ICAES 2013)

Pilani, India 21 – 23 September 2013



IEEE Catalog Number:

CFP1340V-POD **ISBN:**

978-1-4799-1438-8

Table of contents

2013 International Conference on Advanced Electronic Systems

(ICAES-2013)

Message from General ChairsXI
Patrons and Advisory BoardXII
Conference Organizing CommitteeXIII
ReviewersXVI
Tutorials
Open Source Embedded Controller for SMA actuated Morphing Wing MAVXIX G.M.Kamalakannan, CSIR-NAL, Bengaluru, India
Advances in Signal ProcessingXIX S.M. Vaitheeswaran, CSIR- NAL, Bengaluru, India
A glimpse of Advanced Systems Autopilot and Control of Micro Air VehiclesXIX R.Guru Ganesh, CSIR-NAL, Bengaluru, India
Frequency Regulation issues in Smart Grid Scenario with Increasing Wind Power PenetrationXX H D Mathur and Yogesh Krishan Bhateshvar, BITS Pilani, India
Emerging Trends in Wireless Communication and NetworksXX V K Chaubey, BITS Pilani, India
Invited Talks -Abstracts
Thermal aware Low Power Design and Test of Digital SystemsXXIII V. Kamakoti, Department Computer Science and Engineering, IIT Chennai ,India
Electronic Instrumentation for Agriculture and Agro-based IndustriesXXIV Pawan Kapur, Former Director, CSIR-CSIO, Chandigarh, India
Smart Camera and Distributed SurveillanceXXV Santanu Chaudhury, Indian Institute of Technology, Delhi, India
ASSISTECH: Assistive Technology for the Visually ImpairedXXVI M. Balakrishnan, CSE Department, Indian Institute of Technology, Delhi, India
Multi-core Processor Power EstimationXXVII M. Balakrishnan, CSE Department, Indian Institute of Technology, Delhi, India
Telepresence: The State of the Art Remote Handling TechnologyXXVIII

India.
Trends in Advanced Electronic SystemsXXIX Chandra Shekhar, Director, CSIR-CEERI, India
Internet of ThingsXXX P. C. Jain Prof., E. E. Department, School of Engineering, Shiv Nadar University, Dadri, India
Contributed Papers
Track: Intelligent Instrumentation and Process Control
Optimized adaptive Neuro-Fuzzy Inference System for pH1 Parikshit Kishor Singh, Surekha Bhanot and Hare Krishna Mohanta
Liver Segmentation of CT Scan Images using K Means Algorithm6 Shraddha C.Sangewar and Rupali S.Balpande
Performance analysis of Sun Sensors for Satellite Systems
ANFIS_Plasma position Controller in Aditya Tokamak
Antenna Array Synthesis by Implementing Non – uniform Amplitude using Tsukamoto Fuzzy Logic Controller
Automated Weld defect Classification from Ultrasonic Signals using statistical moments on normal distribution curves of Wavelet co-efficient24 Sudheera Kodali, Nandhitha Muthu and Paritosh Nanekar
Vibro Acoustic Signal Analysis in Fault Finding of Bearing Using Empirical Mode Decomposition29 Satish Mohanty, K. K Gupta1, Kota Solomon Raju, Arvind Singh and Snigdha S
Genetic Algorithm based Neuro Fuzzy Tuning of Pid Controller for a Nonlinear Temperature Water Bath with Feedforward Control
Sliding Surface in 1-Sliding boosts Multi-objective Optimization Program of Shielded Metal Arc Welding Process
39 Arun Kumar Paul, Fiona
PXI-based Specific-to-Type Test Equipment for Two-Level testing of an Airborne Intelligent Power Management Unit45
Sharath B Boosnur, Naveen Kumar R, Varsha Aggarwal and V Ramachandra
Implementation and Comparison of different Inverse Solver and Image Priors used in EIT using 89C51 based Setup50
Udayan Trivedi, Ravinder Agarwal, T.K. Saxena and Avneesh Mittal,
Block Frequency Domain Implementation of Feedback Active Noise Control Algorithm54 Suman Bala Behera1, Debi Prasad Das, Nirmal Kumar Rout and Santosh Kumar Behera
Multichannel FSLMS Algorithm based Active Headrest58 Debi Prasad Das, Danielle J. Moreau and Ben S. Cazzolato

Amar Banerji, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre ,Trombay, Mumbai,

Features Extraction from Electronic Nose Employing Genetic Algorithm for Black Tea Quality Estimation64 Runu Banerjee (Roy), Nagma Samreen Khan , Sourav Mondal , Bipan Tudu, Rajib Bandyopadhyay and Nabarun Bhattacharyya
A Robust H-Infinity Based Depth Control of an Autonomous Underwater Vehicle
Track: VLSI Architectures and Reconfigurable Systems
A Novel VLSI Architecture of a Multi Membership Function based MAX-MIN Calculator Circuit74 Sajad A. Loan, and Asim M. Murshid
Design and Implementation of Single Precision Pipelined Floating Point Co-Processor
Design of Very Low Noise Amplifier for High Accuracy
FPGA based Implementation and Testing of OVSF Code
Design of 32-Bit Real Numeric Processor93 Narendra Bahadur Singh and Prashant Singh,
Clock Generation Using Delay Lock Loop with Dual Control for PET/CT98 S.Senthilnathan, S.Balaji and R.Prithiviraj
Implementation of High Speed Energy Efficient 4-Bit Binary CLA Based Incrementer Decrementer
Scheduling of Dataflow Graphs on Partial Reconfigurable Hardware in Xilinx PR Flow/32: <i>Ashish Mishra, A. R. Asati1 and Kota Solomon Raju</i>
Design and Analysis of FEM based MEMS Accelerometer for Detection of Postural Tremor in Thyrotoxicosis113 Sonali Biswas and Anup Kumar Gogoi
A Novel Processor Architecture for Sugeno-type Fuzzy Inference Systems
Design of Low Power CMOS PSRAM
Ordering and Reduction of BDDs for multi-input adders using Evolutionary Algorithm
Design of a Fast and Efficient Hardware Implementation of a Random Number Generator in FPGA
A Bottom up Approach for Placement and Compaction of Standard Modules in VLSI Circuit
A Novel VLSI Architecture of a Defuzzifier Unit for a Fuzzy Inference Processor

A Dynamic Window based Method for Binarization of Document Images	142
Analysis of Velocimetry data based on Continuous Wavelet Transform: Application to Shock Wavelet Experiments	
Amit Sur, Amit S Rav, Gaurav Pandey, K.D. Joshi and S. C. Gupta	
Disease Detection in Tasar Moth using Micrographic Image Analysis Solution Tamal Dey, Abhra Pal, Amitava Akuli and Nabarun Bhattacharyya	152
Detecting the Surface Defects on Hot Rolled Steel Sheets using Texture Analysis	157
Multi Obstacle Identification using Image Processing Technique	160
Compressive Sensing in Eigenspace for Multichannel Electrocardiaogram Signals <i>Anurag Singh, L. N. Sharma, and Samarendra Dandapat</i>	166
Real Time Histogram Computation in Kernel Based Tracking System	171
CORDIC for QAM and AM Signal Generation Narendra Bahadur Singh, Rupesh Kumar Dutta and Prashant Singh	175
Performance Evaluation of CNTFET based Dynamic Dual Edge Triggered Register	180
A Low Noise Preamplifier and Switched Capacitor Filter for Heart-rate Detection Debajit Basak, Nishanth P. V and Roy P. Paily	184
Area Optimized FPGA Implementation of Color Edge Detection	189
Implementation of Sum of Absolute Difference using Optimized Partial Summation Term Reduction Nehal N. Shah, Khyati R. Agarwal and Harikrishna M. Singapuri	192
An Adaptive Cache Coherence Protocol with adaptive Cache for Multi-core Architectures Nitin Chaturvedi, Pawan Sharma and S Gurunarayanan	197
Track: Modern Power Electronic Systems	
Performance Analysis of PSO based Hybrid Active Filter for Harmonic and Reactive Power Compensation Non-Ideal Mains	
Alok Kumar Dubey, Satya Prakash Dubey and Anurag Singh Tomar	
A Linear Approach for Synchro-to-DC Converter Using Pulse Width Modulation Deepak Ch, G. Venkat Kishore, G. Amarendra and K. Palanisami	207
Single Stage Quasi-Z Source based Solar Powered Stand-Alone Water Pumping System <i>Ajeet Kumar Dhakar and Vishal Verma</i>	212
Placement of UPFC for Minimizing Active Power Loss and Total Cost Function by PSO Algorithm <i>Arup Ratan Bhowmik,Ajoy Kumar Chakraborty and P.N.Das</i>	217
A Novel Low Power 3T Inverter	221

Track: Signal & Image Processing

Multi-unit Iris biometric fusion using Gray Level Co-occurrence Matrix features	225
Improved Method of Image Segmentation and Feature Extraction for Embedded Fingerprint Identification Syste	
Rishi Ranjan1, Kota Solomon Raju, and Pramod K. Tanwar	230
Classification of Data Obtained from Portable ECG Devices using Support Vector Machines	
Identification of Selected Medicinal Plant Leaves using Image Features and ANN	238
A Boundary Expansion Method for Analysis of Cell Neighborhoods and Identification of Cells in Plant Of Sectional Images	
Track: Wireless Sensor Networks (WSN)	
Wireless Implementation of Mems Accelerometer to Detect Red Palm Weevil on Palms	248
Towards the Design and Development of a Multinode Wireless System for Pulsating Sensors K. Praveen, A. D. Arun, P. Sahoo, N. Murali and S. A. V. Satya Murty	253
An Energy Efficient and Dynamic Security Protocol for Wireless Sensor Network	257
Hybrid Mine Wide Communication System for Surveillance and Safety of the Miners in Underground Coal Min	nes
Navjot Kumar , PC Panchariya1, Srinath K and P. Bhanu Prasad	262
Experimental WSN setup using Xmesh Networking Protocol	267
Parameterized Placement Algorithm of WSN for Structural Health Monitoring	272
Track: WSN & Real Time Embedded System (RTES)	
High Speed Autonomous Embedded Software for High Accuracy Star Sensors	277
GPS and Ethernet based Real Time Train Tracking System	282
Implementation of Online Optical Character Recognition System using Embedded DSP Platform	287
Elliptic Curve based Digital Envelope in WSN	292
Wireless Sensor Networks based Public Addressing System Kota Solomon Raju, Sameer Huddar, Pramod Tanwar and Amit Patwardhan	297

Poster Papers

Performance Analysis of Different Photovoltaic Technologies Arun Kumar V, Rashmitha M, Naresh B, Rajagopal V and Bangarraju J	301
Ternary logic implementation and its applications using CNTFET	304
A Probabilistic Approach Based Filtered Location Updates in a Mobile Grid Network	307
Tremor acquisition and reduction for robotic surgical applications Pragya Gopal, Sanjeev Kumar and Amod Kumar	310
Effect of dead time approximation on controller performance designed for a second order delayed model Mayank Chaturvedi and Pradeep Juneja	313
Measurement of Position (angle) Information of BLDC Motor for Commutation used for e-bike Naveen Vemula Kumar, Abhay Egoor, Dinesh Kuruganti, Sai Vemuri and Azeemuddin Syed	316
A Novel Frequency Allocation Mechanism with Seperation in Mobile Cellular Network Based on D Setting	istributed 319
Electromagnetic Modeling of Non-Uniform serpentine flexure based RF-MEMS switch	322
Energy Aware Real Time Scheduling Algorithm for Mixed Task Set	325
Transient Analysis of Bridge Microhotplate	328
Modulation Switching in OFDM for WiMAX through Rayleigh fading channel using GNU RadioLakshmi Boppana, Ravi Kodali and Abhimanyu Srivastava	331
ASIC Implementation of High Speed Processor for Computing Fast Hartley Transformation Prabir Saha, Partha Bhattacharyya, Deepak Kumar and Anup Dandapat	334
Channel Estimation and Equalization in OFDM Receiver for WiMAX with Rayleigh Distribution	337
Clustering algorithm based on K-means and Fuzzy entropy for E-nose applications <i>Jyoti Sharma, PC Panchariya and Gn Purohit</i>	340
Mismatch Losses in SPV Systems Subjected to Partial Shading Conditions	343
New High Performance Low Power 4 bit Full Adder with Reduce Ground Bounce	346
A system for remote operation of devices: helpful for elderly and disabled people Anurag Satapathy and Debi Prasad Das	350