2013 6th International Conference on Emerging Trends in Engineering and Technology

(ICETET 2013)

Nagpur, India
16-18 December 2013
# Table of Contents

Welcome from ICETET 2013 General Chairs................................................................. xi
Message from Honorary Chair.................................................................................... xii
Message from Organizing Committee....................................................................... xiii
Message from Honourable Vice Chancellor,
Rashtrasant Tukadoji Maharaj Nagpur University.................................................................................................................. xiv
Message from IEEE SMCS Technical Committee on Human Centered Transportation Systems........................................................................................................ xv
Message from IEEE SMCS Technical Committee on Maritime Ergonomics.............. xvi
Organizing Committee ................................................................................................. xvii
Technical Program Committee and Reviewers.......................................................... xviii
Plenary Talk ................................................................................................................... xix
Keynote Address .......................................................................................................... xxi
Invited Talks ................................................................................................................ xxii

## Intelligent Systems

Experimental Study of Active Vibration Control of a Cantilever Beam ......................... 1
*S.M. Khot, Nitesh P. Yelve, and Shoaib Shaik*

Comparison of Personalised Systems .......................................................................... 7
*Sanya Abbey, Sachin Joglekar, and Mangesh Bedekar*
Fingerprint Matching Using Rotational Invariant Image Based Descriptor and Machine Learning Techniques .................................................................13
   Ravinder Kumar, Pravin Chandra, and Madasu Hanmandlu

Semi-blind Image Watermarking Using High Frequency Band Based on DWT-SVD ......................................................................................19
   Ramandeep Kaur and Sonika Jindal

Intelligent Classroom System for Qualitative Analysis of Students' Conceptual Understanding ...........................................................................25
   Jannat Talwar, Shree Ranjani, Anwaya Aras, and Mangesh Bedekar

Robots and Embedded Systems

Wireless Control of Autonomous Wheeled Robot through GPRS -- Design and Real Time Validation ...............................................................30
   G.S. Vasantha Kumar and M. Meenakshi

Design of RMDMTS Protocol for Efficient Scheduled Co-operative Buffer Management and Streaming in Ad Hoc Network ......................35
   Bhushan Narayan Mahajan and Anjali Mahajan

Computer Independent USB to USB Data Transfer Bridge .................................................40
   Tushar Sawant, Bhagya Parekh, and Naineel Shah

   Swapnil P. Karmore and Anjali R. Mahajan

Industrial Power Electronics and PLC System Solution for Enhancing the Performance of DC/AC Drive for Specific Application .................48
   K.G. Bante, S.G. Tarnekar, and D.R. Tutakane

Realization of Basic Gates Using Universal Logic Blocks in Quantum Dot Cellular Automata .................................................................50
   N. Prameela Kumari, Prashant V. Joshi, and K.S. Gurumurthy

Instruction Level Power Analysis for Low Power VLSI Applications ............................52
   Prashant V. Joshi, N. Prameela Kumari, and K.S. Gurumurthy

Auto-Reconfigurable Routing in a Wireless Sensor Network .......................................54
   Abhay Kshirsagar and Amol Deshmukh

Enterprise Information Systems

   Dinesh Hadiya, Rohit Save, and Geetu Geetu

Impact of Non-functional Requirements on Requirements Evolution .............................61
   Kiran Khatrer and Arvind Kalia
Network Performance Evaluation of Jumbo Frames on a Network ..................................................69
Shaneel Narayan and Paula Raymond Lutui

Intelligent Transportation Systems
Design of Low Cost Versatile Microcontroller Based System Using Cell Phone
for Accident Detection and Prevention ....................................................................................................73
Vasif Ahmed and Naresh P. Jawarkar
VANET: Challenges, Issues and Solutions ..............................................................................................78
Komal Mehta, L.G. Malik, and Preeti Bajaj
Design of VANET for Improvement of QoS with Different Mobility Patterns ..................................80
Prabhakar D. Dorge and Sanjay S. Dorle
Performance Analysis of Vehicular Ad Hoc Networks Handovers
with Metaheuristic Algorithms: A Review ...............................................................................................82
Pravin Wararkar and S.S. Dorle
Measurement of a Navigator's Mental Workload for Ship Handling Based
on Saliva Nitric Oxide Assay .....................................................................................................................84
Kenichi Kitamura, Koji Murai, Keiichi Fukushi, Yuji Hayashi, Takashi Miyado,
and Shin-Ichi Wakida

Wireless Sensor Networks
An Application of Wireless Sensor Network in Intelligent Transportation
System .........................................................................................................................................................90
D.P. Mishra, G.M. Asutkar, and S.S. Dorale
Analyzing Gateway Association in Wireless Mesh Network .................................................................92
Geeta J. Tripathi and A.R. Mahajan
A Clustering Solution for Wireless Sensor Networks Based on Energy
Distribution & Genetic Algorithm ...........................................................................................................94
Sunil R. Gupta, N.G. Bawane, and Sudhir Akojwar
Efficient & Robust Reprogramming Architecture for Multihop Code Generation
in Wireless Sensor Network .....................................................................................................................96
Veena Gulhane and Latesh Malik
A Hybrid Sink Relocation Model for Data Gathering in Wireless Sensor
Networks ......................................................................................................................................................98
Prerana Shrivastava, S.B. Pokle, and S.S. Dorle
Strategies for Performance Evaluation of Wavelet Packet Modulation
in Wireless Ad Hoc Networks ................................................................................................................101
Megha Chakole, S.B. Pokle, and S.S. Dorle
   A.N. Thakare and Latesh G. Malik

Routing Algorithms for NoC Architecture: A Relative Analysis ................................................................. 105
   Bharati B. Sayankar, Pankaj Agrawal, and S.S. Dorle

Analysis of Quality of Service of Cognitive Radio Systems ...................................................................... 107
   Neeta Nathani, G.C. Manna, and S.S. Dorle

Signal Processing

A Survey of Extractive and Abstractive Text Summarization Techniques .................................................. 109
   Vipul Dalal and Latesh Malik

Clinical Depression Analysis Using Speech Features .................................................................................. 111
   Shamla Mantri, Pankaj Agrawal, S.S. Dorle, Dipti Patil, and V.M. Wadhai

Review on Feature Extraction Technique for Handwritten Marathi Compound Character Recognition ................................................................ 113
   Snehal S. Golait and L.G. Malik

VLSI/MEMS

Design Strategies for EDGE Based Image Representation System with VLSI ........................................... 115
   S.R. Dixit and A.Y. Deshmukh

Design of Mobile Robot Navigation System Using vSLAM and Distributed Filter Techniques ................................................................ 117
   Kapil K. Jajulwar and Amol Y. Deshmukh

Implementation of Electronic Sensor for Assessment of Explosive Performance by Velocity of Detonation Measurement .......................................................... 119
   Aruna D. Tete, A.Y. Deshmukh, and R.R. Yerpude

Vehicular Suspension Controller Based on Adaptive Neuro Fuzzy Inference System ............................................... 121
   Mannjurkha M. Pathan and A.Y. Deshmukh

Modeling of CGRA to Improve Power Efficiency for Computationally Intensive Application ................................................................ 123
   Vaishali Tehre, Pankaj Agrawal, R. V. Kshirsagar, and S.S. Dorle

Industrial Engineering

A Review on Healthcare Service Quality Dimensions .................................................................................. 126
   G.N. Akhade, S.B. Jaju, and R.R. Lakhe

Development of Methodology for Collecting Quality Cost in Rubber Processing Industry ............................................... 128
   V.V. Kale and S.B. Jaju
Network Security and Forensics

Exploration of Schemes for Authenticated Key Agreement Protocol Based on Elliptic Curve Cryptosystem ................................................................. 134

S.U. Nimbhorkar and L.G. Malik

Survey and Review of Location Privacy Techniques in Location Based Services ........................................................................................................ 136

B.N. Jagdale and J.W. Bakal

Cloud Forensics: Issues and Challenges .................................................................................................................. 138

J.J. Shah and L.G. Malik

Soft Computing

Generation of Test Cases from Software Requirements Using Natural Language Processing ................................................................. 140

Ravi Prakash Verma and Md. Rizwan Beg

Phishing Detection Using PSOAANN Based One-Class Classifier ............................................................................................................... 148

M. Pandey and V. Ravi

Representation of Knowledge from Software Requirements Expressed in Natural Language ........................................................................................................ 154

Ravi Prakash Verma and Md. Rizwan Beg

Large Scale Social Simulation with more Than a Hundred Million Agents ........................................................................................................ 159

Tadahiko Murata and Takuya Harada

Quantification of Balanced Scorecard Using Crisp and Fuzzy Multi Attribute Decision Making: Application to Banking ........................................................................ 164

U. Shivakumar, V. Ravi, and T. R. Venkateswaran

Analysis of Chaos in Double Pendulum .................................................................................................................. 171

Himanshu Jain, Ashish Ranjan, and Kshitij Gupta

Pattern Based Real Time Disk Scheduling Algorithm for Virtualized Environment ........................................................................................................ 177

Urmila Shrawankar, Ashwini Meshram, Reetu Gupta, and Jashweeni Nandanwar

Performance Optimization of Flagged BCD Adder ........................................................................................................ 183

Nidhi Chandak, H.V. Jayashree, Ghanshyam N. Patil, and Nidhi C. Rao

A Novel Genetic Algorithm Approach to Achieve Steady State Power Flow Solution ........................................................................................................ 189

Shilpa S. Shrawane Kapse, Manoj B. Diagavane, and Narendra G. Bawane
Reconfiguration of Spiking Neural Network for Optimization with Applications to Image Processing ................................................................. 191
  Soni Chaturvedi, A.A. Khurshid, and S.S. Dorle

Intelligent Gesture Recognition to Design more Efficient & Intelligent Multimodal System .................................................................................................................. 193
  S.A. Chhabria, R.V. Dharaskar, and V.M. Thakare

Author Index .................................................................................................................................................................................. 195