2012 International Conference on System Engineering and Technology

(ICSET 2012)

Bandung, West Java, Indonesia
11-12 September 2012

IEEE Catalog Number: CFP1275P-PRT
ISBN: 978-1-4673-2375-8

TABLE OF CONTENTS

PLENARY

Model Checking, the Technology and the Tools 1
C. Pronk

The Design of Stable Multirate Implementations of Anti-windup Schemes for Input Saturated Discrete Time Systems 3
Arief Syaichu-Rohman

Real-Time Adaptive Feedforward Zero Phase Error Tracking Control for X-Y Motion 10
Ramli Adnan, Hashimah Ismail, Norlela Ishak, Mazidah Tajjudin, Mohd Hezri Fazalul Rahiman

PAPERS

Design Simulation and Theoretical Analysis of Glucose Sensing using Polysilicon-based CMOS Micromachined Piezoresistive Microcantilever 16
Nina Korlina Madzhi, Sarah Addyani binti Shamsuddin, Nurul Akmal bin Zakaria

Prediction System of Economic Crisis in Indonesia Using Time Series Analysis and System Dynamic Optimized by Genetic Algorithm 22
Siti Sa'adah, The Houw Liong

IT Risk Management Framework Based on ISO 31000:2009 28
Tati Ernawati, Doddi R.Nugroho

Interval Type-2 Fuzzy System In Supplier Selection For New Product Development 36
Bambang Riyanto T. Humaira

The Breath Sound Analysis For Diseases Diagnosis and Stress Measurement 41
Ria Lestari Moedomo, M. Sukrisno Mardiyanto, Munawar Ahmad, Bachti Alisjahbana, Tjahjono Djatmiko

Interactive Question Answering For Customer Service Representative Using Information State Concept 47
Ayu Purwarianti, Zulfikar Hakim

On The Stability Analysis of A Discontinuous Quaternion Attitude Control System 52
Harry Septanto, Bambang Riyanto Trilaksono, Arief Syaichu-Rohman, Ridanto Eko Poetro

Basic 3D Interaction Techniques in Augmented Reality 56
Yoki Ariyana, Aciek Ida Wuryandari

Comparison Between Self-Tuning Fuzzy-PID and Pole-Placement PID with Application to Saturated Steam Temperature Regulation 62
Ramli Adnan, Mazidah Tajjudin, Norlela Ishak, Hashimah Ismail, Mohd Hezri Fazalul Rahiman, Norhashim Mohd Arshad

Short-time Fourier Transform Analysis of EEG Signal Generated During Imagined Writing 67
A.Zabidi, W. Mansor, Y. K. Lee, C.W.N.F. Che Wan Fadzal

Generic PSV Systems and Their Engine Models 71
Armein Z. R. Langi

Smart Engineering using PSV-S Concepts 75
Armein Z. R. Langi

A Second-Order PSV-S and Its Performance Model 79
Armein Z. R. Langi

Histogram Equalization based on Cumulative Density Function, Linear Function, and Pixel Position Schemes for Still Image 83
B. Homnan, W. Benjapolakul

3D GIS System Architecture for the Aircraft Simulation Route of Search and Rescue Operation 90
Beni Krisbiantoro, Hilwadi Hindersah, Tunggal Mardiono

Application of Lung Segmentation Algorithm to Disease Quantification from CT Images 95
Nihad Mesanovic, Svjetlana Mujagic, Haris Huseinagic, Samir Kamenjakovic

Feature Based Iris Recognition System functioning on Extraction of 2D Features 102
Gundeep Singh Bindra, Arjun Agrawal, Priyanka Sharma

Detection and Removal of Co-operative Blackhole and Grayhole Attacks in MANETs 107
Gundeep Singh Bindra, Ashish Kapoor, Ashish Narang, Arjun Agrawal

Evaluating Energy Drain Rate of Mobile Nodes for Effective Route Lifetime in MANET 112
Gundeep Singh Bindra, Prashant Kumar, Krishen Kant Kandwal, Seema Khanna
Implementation of Gesture Recognition on Aquarium Application 118
Adi Sucipto, Agung Harsoyo, Pranoto Hidaya Rusmin
Face Recognition Based on Auto-Switching Magnetic Door Lock System Using Microcontroller 122
Harnani Hassan, Raudah Abu Bakar, Ahmad Thaqib Fawwaz Mokhtar
Investigation on Perceptual and Robustness of LSB Digital Watermarking Scheme on Halal Logo Authentication 128
Cik Ku Haroswati Che Ku Yahaya, Harnani Hassan, Mohd Izwan Bin Md Kahmi
Smart Home System for Disabled People Via Wireless Bluetooth 133
R.A.Ramlee, D.H.Z.Tang, M.M.Ismail
Identification of Water/Solid Flow Regime Using Ultrasonic Tomography 139
I.R.Muhamad, Y.A.Wahab, S.Saat
Design and Implementation of BeatME as A Networked Music Performance (NMP) System 144
Randy Erfa Saputra, Ary Setijadi Prihatmanto
Design and Implementation of GIS Data Server Development for 3D Simulation in SAR Operation 150
Dimas Wicaksono, Ary Setijadi Prihatmanto, Tunggal Mardiono
Full design of a low-cost quadrotor UAV by student team 156
Jean-Baptiste Devaud, Stephane Najko, Pierre Le Nahedic, Cedric Maussire, Etienne Zante
Design of Sliding Mode Control with Observer Based Linear Matrix Inequlity for Input Saturation System 162
Mirza Zoni, Arief Syaichu Rohman
Design and Implementation of Architecture, Classifier and Integrator for the Next Generation Urban Transportation U-Board 166
M. Vicky Ghani Aziz, Ary Setijadi Prihatmanto, Hilwadi Hindersah
Fuzzy PID Controllers Using 8-Bit Microcontroller for U-Board Speed Control 172
Sereyvatha Sarin, Hilwadi Hindersah, Ary Setijadi Prihatmanto
MIDI Commands Formulation for Chord Music Application (Case Study: Major and Minor Chord) 178
Hadi Prasetyo Utomo, Aciek Ida Wuryandari, Yoga Priyana
Early Flood Alerts Using Short Message Service (SMS) 184
Endrowednes Kuantama, Leonardy Setyawan, Jessie Darma
Simple PID Tuning Using Relay Perturbation with Error Switching 189
Mazidah Tajjudin, Mohd Hezri Fazalul Rahiman, Norlela Ishak, Hashimah Ismail, Norhashim Mohd Arshad
Prototype of Train Ticketing Application Using Near Field Communication (NFC) Technology on Android Device 195
Surya Michrandi Nasution, Emir Mauludi Husni, Aciek Ida Wuryandari
Autocatalytic Set of Chemical Reactions of Circulating Fluidized Bed Boiler 201
Sumarni Abu Bakar, Noor Ainy Harish, Fatin Hazirah Osman, Shafawati Ismail
E-mail System for Delay Tolerant Network 207
Emir Husni, Agus Wibowo
Shopping Application System with Near Field Communication (NFC) Based on Android 214
Emir Husni, Sugeng Purwantoro
Role of Environmental Factors in Modeling of Air Temperature Element in Peninsular Malaysia 220
Fariza Yunus, Jasmee Jaafar, Zamalia Mahmud, Aziz Shafie, Roslina Idris
Quantitative Assessment of LiDAR Dataset for Topographic Maps Revision 226
Roslina Idris, Zulkiflee Abd Latif, Jasmee Jaafar, Nasri Mohammad Rani, Fariza Yunus
Investigation on Effect of Antenna Positions to Tag Detection Pattern in RFIWS System 230
M.F. Saaid, I. Ismail, M.Z.H. Noor
Simulation of a LNG Tanker Track-keeping Autopilot in Canal Water 234
Agoes Priyanto, Adi Maimun, Ang Yit Sian
A Study on Qualitative Assessment of LiDAR Based Digital Orthophotos Generation 240
Norshafinaz Mohd Disa, Khairil Afendy Hashim, Anuar Ahmad, Abd. Manan Samad
Multi-Criteria Selection for TNB Transmission Line Route Using AHP and GIS 244
Faizah Husain, Nur Aishah Sulaiman, Khairil Afendy Hashim, Abd. Manan Samad
Longitudinal Dynamic System Modeling of a Fixed-Wing UAV towards Autonomous Flight Control System Development – A Case Study of BPPT Wulung UAV Platform – 250
Fadjar R. Triputra, Bambang R. Trilaksono, Rianto A. Sasongko, M. Dahsyat
Three, Four Transmit Antennas Space Time Block Coded MIMO in Rayleigh Fading Channel :Performance Results 256
Subuh Pramono
Trusted Platform for Support Services in Cloud Computing Environment 260
Sneha Kolhe, Sudhir Dhage

Genetic Algorithm for Inter-frame Region Object Temporal Correlation in Binary Partition Tree 266
Arief Setyanto, John Charles Woods, Mohammed Ghanbari
Joint Action Optimation for Robotic Soccer Multiagent Using Reinforcement Learning Method 271
Safreni C. Sari, Ary S. Prihatmanto
Decision System for Robosoccer Agent based on OODA Loop 278
Safreni C. Sari, Ary S. Prihatmanto
The Analyze of Android's Microphone Audio Streaming BeatME 285
Anna Ratnaningsih, Aciek Ida Wuryandari, Yoga Priyana
The Studies on Horizontal Coverage Pattern (HCP) for Bus Detection Devices (BDD) 291
M. Z. H. Noor, I. Ismail, M. F. Saaid
Design and Implementation of Real Time Simulator with Modelica 295
M. Hakim Adiprasetya, Ary Setijadi Prihatmanto
Design and Implementation Multiple Models of Learning in 3D Simulation Game of Nuclear Application (SAN) (Case Study : Diagnosis of Coronary Artery Disease using ^{99m}Tc-Tetrofosmin) 302
Mira Rosalina, Aciek Ida, Tunggal Mardiono
Design and Implementation of the Interface of Simulation Game of Nuclear Application (San) (Case Study: Diagnosis of Coronary Artery Disease Using ^{99m}Tc-Tetrofosmin) 307
Pratiwi Rahadiani, Aciek Ida, Tunggal Mardiono
Design and Implementation of Interactive Cyber Exhibition on Virtual Museum of Indonesia 313
Arief Syaichu Rohman, Ary Setijadi Prihatmanto, Ratri Dwi Kayungyun
The Design and Analysis of the Space Exploration 3D Simulation Game 319
Rudi Kurniawan, Arief Syaichu Rohman, Emir Maulidi Husni
Design and Implementation Character Behavior of Doctor and Patient in Coronary Heart Disease Diagnosis Game Using ^{99m}Tc-Tetrofosmin (SAN) 325
Sapdo Utomo, Aciek Ida Wuryandari, Tunggal Mardiono
Design and Implementation of BeatME Server for Networked Musical Performance 330
Sri Ariyani, Aciek Ida Wuryandari, Yoga Priyana
Space Exploration 3D Game for Classical Learning in Junior High School Nine Grade Class 335
Arief Syaichu Rohman, Emir Maulidi Husni
The Design and Implementation Discovery Learning Method on Virtual Museum of Indonesia (A Case Study Museum of Geology for Rock Materials) 340
Lia Laela Sarah, Ary Setijadi Prihatmanto, Pranoto Hidaya Rusmin
Experimental Study of Extremum Seeking Control for Maximum Power Point Tracking of PEM Fuel cell 345
Muhammad Zakiyullah Romdlony, Bambang Riyanto Trilaksono, Romeo Ortega
Model Predictive Control of Hybrid Fuel Cell/Battery/Supercapacitor Power Sources 351
Bambang Riyanto Trilaksono, Arif Sasongko, Arief Syaichu Rohman, Cees Jan Dronkers, Romeo Ortega
Smartphone-based Pedestrian Dead Reckoning as an Indoor Positioning System 357
Azkario Rizky Pratama, Risanuri Hidayat
Design and Construction of Remote-Controlled Quad-copter Based on STC12C5624AD 363
Stevie Jeremia, Endrowednes Kuantama, Julinda Pangaribuan
The Design and Implementation Determining Age of Fossils Game Simulation at Virtual Museum of Indonesia (A Case Study at a Museum of Geology) 368
Yeni Nurhasanah, Arief Syaichu Rohman, Ary Setijadi Prihatmanto
Classification of Forest Change by Integration of Remote Sensing Data with Neural Network Techniques 374
Ahmed A Mehdawi, Baharin bin Ahmad
Some Framework, Architecture and Approach for Analysis A Network Vulnerability 379
Tito Waluyo Purboyo, Budi Rahardjo
Image Contrast Enhancement for Film-Based Dental Panoramic Radiography 383
E. Juliastuti, Lusi Epsilawati
Green Microwave Radiation Absorbing Paint 388
Hasnain Abdullah, Dayang Suhaida Awang Damit, Mohd Nasir Taib, Norhayati Mohamad Noor, Khairuddin Wan Ali
Using Infrared Radiation to Measure Burger Fat Content 393
N. Buniyamin, M.A. Mohd Shari, M.H. Abdul Halim, R. Sam
Development of an Integrated Knowledge Management and Simple Process Monitoring System 398
Norayu Mohamad, Aisah Mohamed, Zainuddin Mohamad, Norlida Buniyamin
Simulation of Pick and Place Robotics System Using Solidworks Softmotion 404
Rosidah Sam, Kamarul Arrifin, Norlida Buniyamin

The Designing and Implementation of a Problem Based Learning in Collaborative Virtual Environments Using MMOG Technology 410
Ferdinand Aruan, Ary Setijadi Prihatmanto, Hilwadi Hindersah
MEMS-based Piezoelectric Micropump for Precise Liquid Handling 417
Juliana Johari, Burhanuddin Yeop Majlis
Analysis of Human's Brainwave Pattern among Active and Inactive Person 421
Rosni Abu Kassim, Ahmad Shahran Ibrahim, Norlida Buniyamin, Zunairah Hj Murat
A Comparison on Fish Freshness Determination Method 426
Roziah Jarmin, Lee Yoot Khuan, Hadzli Hashim, Nur Hidayah Abdul Rahman
Gathering Information Realtime and Anywhere (GIRA) Using an ANN Algorithm 432
Aciek Ida Wuryandari, Rifki Wijaya
Design and Implementation of Blood Pressure Measuring and Oximetry (Android Based) 438
Aciek Ida Wuryandari, Herwin Suprijono
Preliminary Design of Smart HealthCare System 444
Tunggal Mardiono, Ary Setijadi, Rifki Wijaya
OpenSURF Performance in Windows Phone 7 449
Rifki Wijaya, Aciek Ida Wuryandari, Haritz Cahya Nugraha
Pattern Recognition of Finger Movement Detection Using Support Vector Machine 454
Reza Darmakusuma, Ary S. Prihatmanto, Adi Indrayanto, Tati L. Mengko
Design and Implementation Infrared Guitar Based on Playing Chords 457
Riyanto Setiyono, Ary Setijadi Prihatmanto, Pranoto Hidaya Rusmin
Case Study: Three Dimensions Biomedical Visualisation on a Full Parallax Hologram Display 462
Aryo Wicaksono, Ary Setijadi Prihatmanto, Agung Harsoyo
Three Dimensions Medical CBCT Reconstruction and Visualisation Analysis 467
Aryo Wicaksono, Agung Harsoyo, Ary Setijadi Prihatmanto
Author Index