

PROCEEDING

INTERNATIONAL CONFERENCE ON ELECTRICAL ENGINEERING, INFORMATICS, AND ITS EDUCATION

COMMITTEE OF CEIE 2015

Head Advisor	: Rector of State University of Malang Prof. Dr. Ahmad Rofi'uddin, M .Pd.
Advisor	: Dean of Engineering Faculty Dr. Andoko, S.T, M.T.
Responsible Person	: Head of Electrical Engineering Departement Dr. Hakkun Elmunsyah, S.T., M.T.
Head of Conference	: Dr. Eng Siti Sendari ST., MT.
Secretary	: Triyanna Widiyaningtyas ST.,MT.
Reviewer	: Dr. Muladi, S.T., M.T. Dr. H. Tri Atmadji S., M.Pd. Drs. Setiadi C.P., M.Pd., M.T.
Steering Committee	: Utomo Pujianto, S.Kom., M.Kom. Aji Prasetya Wibawa, S.T., M.MT., Ph.D. Didik Dwi Prasetya, S.T., M.T. Yuni Rahmawati, S.T., M.T. Dyah Lestari, S.T. M.Eng Dr. Eng. Arif Nur Afandi, S.T., M.T. Ahmad Fahmi, S.T., M.T. Heru Wahyu Herwanto, S.T., M.Kom. Andriana Kusuma Dewi, S.T., M.T. Irawan Dwi Wahyono, S.T., M.T.

PREFACE

Welcome to the International Conference on Electrical Engineering, Informatics, and Its Education (CEIE) 2015, held in Malang, Indonesia. It is a great pleasure for the committees of Department of Electrical Engineering, Faculty of Engineering State University of Malang to be able to hold this conference as the 3rd biannual conference since 2011, which also coincides with the Gold Anniversary of Faculty of Engineering. This conference will be a part of the faculty's spirit to strengthen the aim, that is, "Go International" in near future.

The theme of the CEIE 2015 is "Green Technology and Its Education for Providing Sustainable Energy" to spread the energy awareness in both of technology and its education. The aim of this International conference is to provide an international forum for exchanging knowledge and expertise on various fields of science, engineering and related education, especially to support the sustainable energy.

The CEIE 2015 is held in "Graha Cakrawala", State University of Malang on October 2-3. Two keynote speakers for sharing fruitful experiences and knowledge. The first keynote speaker is Prof. Hajime MIYAUCHI from Kumamoto University who experts in in power system engineering and power system economics The second keynote speaker is Mr. Hanan Nugroho as the Principal Planner at National Development Planning Agency/Ministry of Planning (BAPPENAS), Indonesia. The conference received 61 Papers from various universities and institutions both from domestic and overseas.

In this good opportunity, I would like to express our gratitude to all members of organizing committee, reviewers, faculty staff, students, and volunteer for supporting us. I also would like to express my deepest appreciation to our speakers, observers, sponsor, and supported parties who gave us their generous supports.

As the recent, It is our pleasure to serve you all. We wish you all pleasant and enjoying all activities. Thank you and we hope to meet you again at CEIE 2017.

Malang, October 5th, 2015
General Chair of CEIE 2015

Dr. Eng. Siti Sendari, S.T., M.T

PREFACE FROM RECTOR STATE UNIVERSITY OF MALANG

On behalf of electrical engineering department of Universitas Negeri Malang, I would like to welcome all guests, authors and participants of the International Conference on Electrical Engineering, Informatics and its Education (CEIE). Since 2011, in every two years, CEIE has been serving as a non-profit venue for discussion, exchange of ideas and promote excellence on current issues of technology and education. This peer reviewed and refereed conference also proves the continuous commitment and serious effort of the department on building up the worldwide science and technology.

The big issue of CEIE 2015 is “Green Technology and Its Education for Providing Sustainable Energy”. This topic encompasses concepts and techniques of sustainable energy generation from non-toxic materials. Since it is continuously evolved, green technology may change people’s way and quality of life. In the future, green technology is expected to substitute the use of harmful fossil energy, which is now largely used by the society. Thus, the role of education may boost the synchronization between the emerging green technology and its prospective users.

Enough thanks cannot be expressed to CEIE keynote speakers and authors on writing and presenting their papers, to editors and reviewers during paper evaluation process and to CEIE committees who organize this event.

Finally, with a growing diversity of participants from around Asia-Pacific region, I wish CEIE 2015 reach another great accomplishment as its two predecessors: SEIE 2011 and SEIE 2013. I hope that all participants may not only embrace fruitful and friendly discussions and valuable learning experience from the conference but also enjoy the scenic East Java culture and environment.

Malang, October 5th, 2015
Rector
State University of Malang, Indonesia

Prof. Dr. AH. Rofi'uddin, M.Pd

TABLE OF CONTENTS

STEERING COMMITTEE.....	i
PREFACE.....	ii
PREFACE FROM RECTOR OF STATE UNIVERSITY OF MALANG.....	iii
TABLE OF CONTENTS.....	iv

A. Education

1.	Yuni Rahmawati	Development of Inverter Trainer With Frequency Regulator to Improve Student Competence on Power Plant Subject	A - 1
2.	Yoto	Developing Instructional Materials for Garage Management Course at The Mechanical Engineering Department Faculty of Engineering State University of Malang	A - 5
3.	Setiadi Cahyono Putro	Online Learning of Fundamental Control System	A - 12
4.	Triyanna Widyaningtyas	Development of Web-Based Database Learning Media	A - 18
5.	Tri Atmadji Sutikno	Perception of Teachers About 2013 Curriculum Management at The Vocational High School in East Java Province	A - 22
6.	Husnul Rahmawati Sakinnah	Classification of Metacognitive into Two Categories to Support The Learning Process (Case Study : SMKN 2 Singosari, Malang)	A - 26
7.	Riana Nurmalasari	Talent Scouting Program for Student' Perceptions on Vocational High School	A - 31
8.	Hakkun Elmunsyah	Studies ICT Laboratory Management of Vocational Education of Computer Network Engineering (CNE) Skills	A - 34
9.	Didik Dwi Prasetya	Interactive Mobile Learning for Self-Learning of Vocational High School	A - 39
10.	Hary Suswanto	The Contribution of Management Prakerin, the Management UKK, and The Competence Of The Student against Absorption of Graduates in the Partnership Process on Skills Program Architecture Engineering of SMK Negeri 6 Malang	A - 45
11.	Widiyanti	Actualization of Dual Education System For Career Guidance In Vocational High School	A - 49

B. Electronic and Electrical

1.	Ratna Ika Putri	Maximum Power Point Tracking Using Perturb & Observe Method For Photovoltaic System Based on Microcontroller	B - 1
----	-----------------	--	-------

2.	Tibyani Tibyani	Improving Accuracy and Efficiency of Spin-Image Algorithm using Interest Points Detection for 3-D Surface Registration	B - 6
3.	Yousef Abuseta	The Impact of Architectural Styles on Self Adaptive Systems Engineering	B - 12
4.	Syafriyudin	Increasing Seed Production Capacity Chrysan Flowers With Light Ultraviolet Irradiation Method	B - 19
5.	Siti Sendari	Trainer Development of Portable Solar Cell Using Dynamic Rotation With Microcontroller	B - 23
6.	Dhendik Dwi Prasetyo	Keyboard-Gen to Produce Electrical Energy using Macro Fibre Composite(MFC)	B - 27
7.	Hasti Afianti	Management Strategy of Hybrid Microgrid to Reduce Multiple Conversion	B - 31
8.	Era Budi Prayekti	The Analysis of Electrical Properties in Soybean Seed Variety Using Color Sensor	B - 35
9.	Yuki Nishiya	Study on Voltage Controls of Solid State Transformer	B - 39
10.	M. Rodhi Faiz	Quality Improvement In Inverter Voltage With Increasing Frequency Switching	B - 43
11.	Irawan Dwi Wahyono	Optimization Bandwidth and Delay for Mobile Ad-hoc Networks (MANET) in Protocol Service Discovery	B - 47
12.	Andi Chairunnas	Control system through android applications on robot vision detection of color using microcontroller	B - 52
13.	Akhmad Hendriawan	Control System In Balance System Uni wheel mobile robot using PID-Fuzzy	B - 60
14.	Tibyani Tibyani	Corner Detection Algorithms in Text of Natural Scene Images	B - 66
15.	Sugiono	The Use of Solar Reflector for Heating Up The Air Column In Cyclone Wind Turbine As Low Capacity Electrical Generator	B - 69
16.	Aripriharta	Fuzzy Shortest Path for Solving Link Failure Problem in Body Area Network	B - 73

C. Informatics

1.	Reynaldo Joshua Salaki	Decision Support Systems Major Selection Vocational High School In Using Fuzzy Logic Android Based	C - 1
2.	Muhamad Arifin	Academic Information System Design For Vocational High School In Web-Based 2013 Curriculum	C - 7
3.	Bety Etikasari	The Design of Learning Style Decision Support System Using	C - 14

Fuzzy Logic

4.	Iwan Sonjaya	Making of the Animated Movie "Pangeran Diponegoro" With Stop Motion Techniques to Support Learning History	C - 20
5.	Entin Martiana Kusumaningtyas	Implementation of Analytical Hierarchy Process for Tourism Decision Support System	C - 25
6.	Reynaldo Joshua Salaki	Design Mobile Learning (M-LEARNING) Android English For Young Learners	C - 31
7.	Rudi Nurdiansyah	Differential Evolution Algorithm vs Genetic Algorithm for Multi-Objective Flow Shop Scheduling Problem	C - 34
8.	Agusta Rakhmat Taufani	Expert System for Diseases Detection in Canary Birds	C - 39
9.	M Zainal Arifin	Impact of Irresistible Sensational Offer on Digital Marketing	C - 42
10.	Yuliana Setiowati	M-Trav : Application of Tour Guide in Indonesia with RSS Services Based Mobile	C - 46
11.	Nana Ramadijanti	A* Algorithm for Path Finding on General Sudirman Battle Game Based on Mobile	C - 54
12.	Ratri Martyasari	Assessment Application System Web-Based Employee Performance Objective	C - 63
13.	Reza Andrea	Developing level Intelligent Agent for Battle of Etam Earth With Finite State Machine (FSM)	C - 67
14.	Asep Nurhuda	Classification and Prediction Student Graduation Using C4.5 on Data Mining Students STMIK Wicida Samarinda	C - 71
15.	Sefty Wijayanti	Application of K -Means Clustering for Students Graduate Group Analysis	C - 75
16.	Novi Trisman Hadi	Vmap (Virtual Mapping) Leap Motion-Base on Facilitating The Making Of Environmentally Green Building Design	C - 79
17.	Tita Karlita	Short Message Security System on Android-Based Mobile Phone Using Hill Cipher Algorithm and Arithmetic Code	C - 83
18.	Aisyah Larasati	A Perspective on Analyzing Ordinal Data using Statistics Analysis and Data Mining Techniques	C - 92
19.	Rosa Andrie Asmara	Comparisons between 2D Discrete Cosine Transforms (2D DCT), 2D Discrete Fourier Transforms (2D DFT), and 2D Discrete Wavelet Transforms (2D DWT) in Digital Image Watermarking	C - 96
20.	Aditya Yudha Pratama	The Development of MTOS	C - 100

21.	Teguh Bharata Adji	Expert System For Diagnosis Of Personality Disorders With Certainty Factor Approach	C - 105
22.	Anik Nur Handayani	Mobile Braille Touch : Improving The Accessibility of Touchscreen-Based Mobile Devices for the Visually Impaired Person As One of Learning Media	C - 110
23.	Giri Wahyu Wiriasto	LOK-Viewer :Software Application for Geomagnetic Data in Geomagnetic Lombok Observatory	C - 114
24.	Ahmad Mursyidun Nidhom	EJIP as an Instructional Media for Image Processing	C - 120
25.	Kartika Candra Kirana	Binary Adaptive Histogram Equalization Segmentation for Light Spot Detection in Tomato Maturity Classifications	C - 124
26.	Yonik Meilawati Yustiani	Development of Information Technology of Water Quality of Urban Rivers - Case Study of Cikapundung River, Bandung, Indonesia	C - 129
27.	Aji Prasetya Wibawa	A Promising Off-Grid Solar-Powered Water Pumping System for Indonesian Rural House	C - 134
28.	Wahyu Sakti Gunawan Irianto	Design and Implementation of Rpp Generator With Text Mining Method	C - 137
29.	Kartika Dewantari	The Design of Online Expert System as an Alternative Guidance with the Academic Advisory Lecturer of University Students of State University of Malang	C - 141
30.	Achmad Hamdan	Information Systems Appraisal Self Evaluation In College Study Program Accrediting Web-Based	C - 147
31.	Muladi	Brightness Data Collection Application For Adaptive Visualization In Mobile Learning System	C - 150

D. Mechanical

1.	Noranugerahatul Akmal	Examination of the Catalyst Layer Forming Method of the Anion Exchange Membrane Fuel Cell by Using the Electrostatic Spraying Deposition Method	D - 1
2.	Boldson H. Situmorang	The Application of Prediction of Cocoa Yields with Exponential Smoothing Method	D - 5
3.	Andika Bagus Nur Rahma Putra	Effect of Diameter Hole Size Main Jet on Performance and Emissions on The Use of Fuel Liquid Petroleum Gas (LPG) Motorcycles	D - 12
4.	Unung Lesmanah	Enhancing the Mechanical Properties of Low Carbon Steel Through Variation of Holding Times in Gas Carburizing and Quenching Media, According to AS	D - 19

