2020 7th International Conference on Information Technology, Computer, and Electrical **Engineering (ICITACEE 2020)**

Semarang, Indonesia 24 – 25 September 2020



IEEE Catalog Number: CFP2089Z-POD **ISBN**:

978-1-7281-7227-9

Copyright © 2020 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP2089Z-POD

 ISBN (Print-On-Demand):
 978-1-7281-7227-9

 ISBN (Online):
 978-1-7281-7226-2

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



Program

A. Circuit & Control (Thursday: September 24, 2020. 13.00 – 17.20)

Chair: Munawar A Riyadi

Finger Robotic Control Use M5Stack Board and MQTT Protocol Based

Puput Dani Prasetyo Adi

Presenter bio: lam Lecturer at electrical engineering department unmer - malang pp. 1-6

Liquid Flow Control Design Based on PID-Fuzzy Controller with anti-Windup Compensator

<u>Sofian Yahya</u>, <u>Adnan Rafi Al Tahtawi</u>, Kartono Wijayanto, KW and Bani Faizah

Quasi Input to State Stability of a Quaternion-Based Attitude Control System with an Augmented Dynamical System

<u>Harry Septanto</u> and Djoko Suprijanto pp. 13-18

Design of Gain-Scheduled Fuzzy PID Controller for AFR Control System of SI-Based Motorcycle Engine Model

<u>Joshua Harbangan Dharmarakel Panjaitan</u>, <u>Andra Kurniahadi</u>, Aris Triwiyatno and Iwan Setiawan

pp. 19-24

A Hammerstein-Wiener Mean Value Engine Model for Small Automatic Motorcycle Engine

Andra Kurniahadi, Joshua Harbangan Dharmarakel Panjaitan, Aris Triwiyatno and Iwan Setiawan

pp. 25-30

Design of Camber Angle Control on MacPherson Strut

Zener Sukra Lie and Ian Prayoga

pp. 31-35

EMG Signal Processing from the Myo Armband Sensor for the Prosthetic Hand Control System Input Using RMS and ANFIS

Moh. Arozi, Mochammad Ariyanto, Asa Kristianto, Munadi Munadi and Joga Dharma Setiawan

pp. 36-40

Trajectory Planning with Obstacle Avoidance of 3 DoF Robotic Arm for Test Tube Handling System

<u>Hadha Afrisal</u>, Budi Setiyono, Muhammad Fahmi Yusuf, Rose Mutiara Suin and Olimjon Toirov

pp. 41-46

Design of Air-Fuel Ratio Control Using Gain-Scheduled Fuzzy-PID for Small Scooter Engine

<u>Aris Triwiyatno</u>, Budi Setiyono, <u>Joshua Harbangan Dharmarakel Panjaitan</u>, <u>Andra Kurniahadi</u> and Iwan Setiawan

pp. 47-51

Development of Dynamic Model of Autonomous Sailboat for Simulation and Control Joga Dharma Setiawan, Deddy Chrismianto, Mochammad Ariyanto, <u>Candra Wahyu Sportyawan</u>, Robby Dwianto Widyantara and Sabri Alimi

B. Information & Communications Technology 1 (Thursday: September 24, 2020. 13.00 - 17.20)

Chair: Aghus Sofwan

Development of Mobile Skin Cancer Detection Using Faster R-CNN and MobileNet V2 Model

Cahyo Adhi Hartanto and Adi Wibowo

Presenter bio: I received my B.S degree from Diponegoro University, M.S. degrees from Universitas Indonesia, Indonesia, in 2005 and 2011, and Ph.D. degrees from Nagoya University in 2016. My research interests include molecular robotics, DNA computing, signal processing and machine learning.

pp. 58-63

Automated Item Generation: Model and Development Technique

<u>Septian Eko Prasetyo</u>, Teguh Bharata Adji and Indriana Hidayah

Functional Suitability Measurement Based on ISO/IEC 25010 for e-Commerce Website Luthfi Atikah, Novrindah Alvi Hasanah and Siti Rochimah

A New Model of Poverty Index Prediction Using Triple Exponential Smoothing Method <u>Kristoko Dwi Hartomo</u>, Sri Yulianto Joko Prasetyo and Asni Valentina pp. 76-79

How Agile Software Development Affect Software Reusability (Study Case: New Student Admissions Portal)

<u>Akbar Noto Ponco Bimantoro</u>, <u>Ivanda Zevi Amalia</u> and Siti Rochimah pp. 80-84

Size-based Feature Extraction on Blood Cells Calculation Process Using k-Means Clustering

<u>Isya Sulistyo</u>, R Rizal Isnanto and Munawar Riyadi pp. 85-89

Sentiment Analysis of Indonesians Response to Influencer in Social Media

Syafi Muhammad Tauhid and Yova Ruldeviyani

Presenter bio: My name is Syafi Muhammad T, I am a Master Student in Universitas Indonesia. Currently, I am at my second semester and this is my first paper submission! pp. 90-95

Hyper-Parameter Tuning Based on Random Search for DenseNet Optimization Ari Nugroho

pp. 96-99

Herbal Leaf Pattern Analysis Using Principal Component Analysis (PCA) and Canberra Distance

Vidia Susilo.

pp. 100-104

A Decision Support System for Undergraduate Students Admissions Using Educational Data Mining

Gunawan Dewantoro and Nathanael Ardisa

pp. 105-109

New Hybrid Algorithm Implementation on Spread Wireless Sensor to Determine the Point of Fire in the Building

<u>Irawan Dwi Wahyono</u>

pp. 110-114

Understanding Indonesian Citizen's Continuance Intention to Use Mobile-based Smart City: A Perspective of Modified Expectation Confirmation Model (M-ECM)

<u>Aang Kisnu Darmawan, Dr.</u>, Daniel Siahaan, Tony Dwi Susanto, Hoiriyah Hoiriyah, Busro Umam and Bakir Bakir

Presenter bio: I am a lecturer and researcher on Departement of Information Systems at Madura Islamic University. my research concern on fields e-government, smart city, technology accepatance, technology adoption, human computer interaction/user experience pp. 115-120

Design of Multisensor Data Acquisition System (Oxygen, Hydrogen, Temperature, and Pressure) Through Android-Based Website

Darjat Darjat

pp. 121-125

C. Information & Communications Technology 1 (Thursday : September 24, 2020. 13.00 - 17.20)

Chair: Agung Prasetijo

Development of Indonesian Language Speech Recognition Algorithm Model in Knowledge Database

Emny Yossy, Syaeful Karim and Dannys Rachmantyo

Presenter bio: I am Emny, a lecturer at Universitas Bina Nusantara, School of Computer Science major in software engineering. pp. 126-129

Applicant Mapping of Predicting Seriousness in Choosing Private University Using Self Organizing Map (SOM) Algorithm

Bambang Hadi Kunaryo

pp. 130-134

Application of Message Queuing Telemetry Transport (MQTT) Protocol in the Internet of Things to Monitor Mushroom Cultivation

<u>Fauzan Masykur</u>, <u>Angga Prasetyo</u>, <u>Adi Fajaryanto Cobantoro</u>, Mohammad Bhanu Setyawan and Ida Widaningrum

pp. 135-139

Classification of Big Five Personality Behavior Tendencies Based on Study Field with Twitter Analysis Using Support Vector Machine

Denis Eka Cahyani

pp. 140-145

Predicting Future Potential Flight Routes via Inductive Graph Representation Learning Arie Wahyu Wijayanto and Farid Ridho

pp. 146-151

Performance Analysis of Neo4j and MySQL Databases for Public Policies Decision Making

Rahmatian Jayanty Sholichah

pp. 152-157

A New Experiment of the Capacitive Sensors for Identification of Signal Fluctuations Melinda Melinda, Yunidar Yunidar, Muhammad Irhamsyah and Agus Santoso Tamsir Presenter bio: Teaching staff member at electrical engineering of Syiah Kuala university Banda Aceh pp. 158-163

Computational Analysis of Different Design Hip Joint Prostheses Using Finite Element Method

Rilo Berdin Taqriban, Rifky Ismail, Jamari J. and A Bayuseno pp. 164-168

Matching Images on the Face of A Buddha Statue Using the Scale Invariant Feature Transform (SIFT) Method

<u>Linda Marlinda</u>, Supriadi Rustad, Ruri Basuki, Budiman Fikri and Muhamad Fatchan, Ftn

pp. 169-172

Text-Driven Talking Head Using Dynamic Viseme and DFFD for SIBI

Sultan Muzahidin and Erdefi Rakun

pp. 173-178

Extended Planning Poker: A Proposed Model

<u>Pantjawati Sudarmaningtyas</u> and Rozlina Mohamed pp. 179-184

Assessment on Image Quality Changes as a Result of Implementing Median Filtering, Wiener Filtering, Histogram Equalization, and Hybrid Methods on Noisy Images

R Rizal Isnanto, Yudi Windarto and Mutiara Victorina Mangkuratmaja

Presenter bio: Associate Professor Dr. R. Rizal Isnanto Lecturer in Computer Engineering Department, Diponegoro University, Semarang, Indonesia.

pp. 185-190

Profile Analysis of Landmark Visitors Based on Global Positioning System Data Collection

<u>Yosua Alvin Adi Soetrisno</u>, Aghus Sofwan and Sumardi Sumardi.

D. Power System (Thursday: September 24, 2020. 13.00 - 17.20)

Chair: Susatyo Handoko

Impact of Arrester Models in Placement Determination at 150 kV Srondol Substation Setyo Adi Nugroho, Mochammad Facta and Abdul Syakur pp. 196-200

Interline Wind Power Plant and SVC in Electrical Power System

Langlang Gumilar

pp. 201-206

Analysis of the Effect of Installing Capacitor Bank in the Photovoltaic on - Grid 122 kWp for Power Factor Correction

<u>Pangestuningtyas Diah Larasati</u>, Hermawan Hermawan and Susatyo Handoko pp. 207-212

Study of Power Transformer Noise Prediction

Wahyudi Pramono

pp. 213-218

Combination Detuned Reactor and C-Type Filter for Electrical Power System Under Harmonic Condition

Langlang Gumilar

pp. 219-223

Analysis of Electrical Energy Consumption for Lighting System in Polyclinic, Radiology, and Patient Rooms of Hospital Building

Catur Nofianto, Mochammad Facta, Hermawan Hermawan and Omar Abouzeid

Presenter bio: I work at Kariadi Hospital as an Electrical Planner. I studied at Diponegoro University in Semarang by majoring in Electrical Engineering.

pp. 224-229

Calculation of Photovoltaic Reliability for Assessing Loss of Load Probability Yani Kamisa Putri and Adrianti Adrianti

pp. 230-235

Experimental Analysis Design of Solar Panel Energy Monitoring Prototype

<u>Lin Prasetyani</u>, <u>Mada Jimmy Arifianto</u>, <u>Djoko Subagio</u>, Wiliam Sarfat and April Yanto pp. 236-240

Sinusoidal Current Control Strategies for Single Phase Grid-Connected Renewable Power Generation Systems

<u>Iwan Setiawan</u>, Mochammad Facta, Hermawan Hermawan, Trias Andromeda, Mauridhi Hery Purnomo and Taufik Taufik
pp. 241-246

Electric Load Management on Solar Power Plant System

Bambang Winardi, Enda Wista Sinuraya, Agung Nugroho and Susatyo Handoko pp. 247-251

An Automatic Tuning Scaling Factor of PID-Fuzzy Controller for Frequency Regulation of an Off-Grid Renewable Power System

Ferdian Ronilaya, <u>Salma Ilmawati</u>, Widamuri Anistia, Mohammad Hidayat, Ika Noer Syamsiana and A. Aripriharta

pp. 252-257

E. Telecommunications, Biomedical Engineering & Green Application (Thursday : September 24, 2020. 13.00 - 17.20)

Chair: Teguh Prakoso

Innovation Architecture Smart Car Parking System with Wireless Sensor Networks <u>Erick Fernando</u> and Harco Leslie Hendric Spits Warnars pp. 258-262

Wi-fi Communication Methods for Internet of Things-based Sensor Telemetry with a Visual Basic-based User Interface

Iswanto Iswanto, Is, <u>Prisma Megantoro</u>, Brahmantya Aji Pramudita and Hendra Ari Winarno

pp. 263-266

Design and Analysis of Optical Fiber Network for Railway Communication Lines B. Pratiknyo Adi Mahatmanto, Catur Apriono, Rosza Madina and Ali Syahputra Nasution

pp. 267-271

Nutrient Solution Acidity Control System on NFT-Based Hydroponic Plants Using Multiple Linear Regression Method

Helmy Helmy, <u>Dian Ayu Janah</u>, Arif Nursyahid, Thomas Agung S, Ari Sriyanto Nugroho and Muhlasah Mara

pp. 272-276

Freshness Detection of Snake Fruit Using A Combination of Gaussian Classifier and FCM

Muhammad Muslim

pp. 277-281

Development of Controller for Internet of Things Based anti Pollution Smart Toll Gate System

<u>Wahyul Amien Syafei</u>, Achmad Hidayatno, Raihan Afiq and Wahyudi Wahyudi pp. 282-287

Computational Analysis of Running Prosthesis Design Using Finite Element Method Rifky Ismail, Deni Fitriyana, Mukhamad Alfian Habibi, S. Sugiyanto and A. Bayuseno

Presenter bio: An assistant professor in Department of Mechanical Engineering, Diponegoro University, Indonesia. A researcher in Center for Biomechanics, Biomaterial, Biomechatronics and Biosignal Processing (CBIOM3S) Diponegoro University. I conduct a research on biomechanics, biomaterial, biomechatronics, tribology and engineering design. pp. 288-293

Implementation and Testing of Rooftop Solar Power Plant with On-Grid System 1215 Wp Household Scale

<u>Jaka Windarta</u>, <u>Denis Denis</u>, Singgih Saptadi, <u>Johanes S Silaen</u> and <u>Dimas Adi Satrio</u> pp. 294-299

Design and Development of Automatic Transfer Switch System, Energy Saving Emergency Panel

Nugroho Agus Darmanto and <u>Bhaskara Wisnu Ardli Mahardika</u> pp. 300-303