2020 11th IEEE Control and System Graduate Research Colloquium (ICSGRC 2020)

Shah Alam, Malaysia
8 August 2020

IEEE Catalog Number: CFP2005K-POD
ISBN: 978-1-7281-5314-8

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: CFP2005K-POD
ISBN (Print-On-Demand): 978-1-7281-5314-8
ISBN (Online): 978-1-7281-5313-1

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

Table of Contents

	Page
Organizing Committee	iii
Reviewers	iv
Table of Contents	vii

Paper Title & Authors

Development of an Unsaturated Differential Magnetic Probe for the Visualization of Back-side Slits with Different Directions on Carbon Steel Plate Mohd Aufa Hadi Putera Zaini, Mohd Mawardi Saari, Nurul A'in Nadzri, Zulkifly Ab Aziz, Aiman Mohd Halil and Ahmad Jamil Sulaiman Hanifah	1
Development of ECT Probe for Back Side Crack Evaluation Nurul A'in Nadzri, Mohd Mawardi Saari, Mohd Aufa Hadi Putera Zaini, Nur Huda Ramlan, Zulkifly Ab Aziz and Aiman Mohd Halil	5
Harmonic Injection by LEDs and CFLs in Electrical Distribution System Amira Syafiqa Shamsuddin, Ruhaizad Ishak, Ahmad Syahiman Mohd Shah and Airul Sharizli Abdullah	10
High Q-factor Electro-Acoustic Cavity Resonator for Sensing Applications Mujahid Shah, Muhammad Amin, Omar Siddiqui and Mokhtar Harun	16
Simulation of Triple Helmholtz Coils for Wireless Power Transfer in Photocatalytic Wastewater Photoreforming Zulkifly Aziz, Mohd Mawardi Saari, Chin Sim Yee, Mohd Aufa Hadi Putera Zaini and Nurul A'in Nadzri	20
Real-Time Baby Crying Detection in the Noisy Everyday Environment Lee Sze Foo, Wun-She Yap, Yan Chai Hum, Zulaikha Kadim, Hock Woon Hon and Yee Kai Tee	26
An Improved Rolling NGBM(1,1) Forecasting Model with GRG Nonlinear Method of Optimization for Fossil Carbon Dioxide Emissions in Malaysia and Singapore Assif Shamim Mustaffa @ Sulaiman and Ani Shabri	32
Remote Sensing Approach to Oil Palm Plantations Detection Using Xception Bu Xian Jie, Mohd Asyraf Zulkifley and Nur Ayuni Mohamed	38
The Effect of User Pairing Strategies on the Downlink Throughput of NOMA Hasyimah Ahmad, Darmawaty Mohd Ali and Wan Norsyafizan Wan Muhamad	43
An Email to Readable Vietnamese Text Conversion Algorithm for Use in TTS Application Duc Chung Tran, Hong Son Ha, Luyl-Da Quach and Mohd. Fadzil Hassan	49
Investigation of Signal Penetration Loss Variation on Different Building Components and Disparity of Receiver Location on 3G/4G Network in the Context of Bangladesh Md Mohiuddin Soliman, Md. Maruful Hasan Sabbir, Mahdi Alkaeed, Md. Razu Ahmed, Ifran Ahmed Rafi and M. M. Hasan Mahfuz	53

A Development of Fuzzy Logic Expert-Based Recommender System for Improving Students' Employability 59
Cherry D. Casuat, Ahmad Sadhiqin Mohd Isira, Enrique D. Festijo, Alvin Sarraga Alon, Jennalyn N. Mindoro and Julie Ann B. Susa

Preliminary Study on Classification of Cymbopogon Nardus Essential Oil using Support Vector Machine (SVM) 63
Noratikah Zawani Mahabob, Zakiah Mohd Yusoff, Nurlaila Ismail and Mohd Nasir Taib

Classification of Lung Cancer Stages from CT Scan Images Using Image Processing and k-Nearest Neighbours 68
Mohd Firdaus Abdullah, Siti Noraini Sulaiman, Muhammad Khusairi Osman, Noor Khairiah A. Karim, Ibrahim Lutfi Shuaib and Muhamad Danial Irfan Alhamdu

On the Training and Testing Data Preparation for End-to-End Text-to-Speech Application 73
Duc Chung Tran, M. K. A. Ahamed Khan and S. Sridevi

Analysis of the Randomness Performance of the Proposed Stream Cipher Based Cryptographic Algorithm 76
Deborah G. Brosas, Ariel M. Sison, Ruji P. Medina and Alexander A. Hernandez

ExoArm: Patient Rehabilitation, Mobility and Heavy-lifting using COTS Components 82
Muhtasim Alam Chowdhury, Kazi Azmain Faieq, Tanzim Khalid and Shahnewaz Siddique

Pneumonia Detection through Adaptive Deep Learning Models of Convolutional Neural Networks 88
Sammy V. Militante, Nanette V. Dionisio and Brandon G. Sibbaluca

The New Topology of Multilevel Inverter with Reduced Number of Switches 94
Nur Atiqah Jefry, Law Kah Haw and Wong Kiing Ing

Distributed Framework via Block-chain Smart Contracts for Smart Grid Systems against Cyber-Attacks 100
Mahdi Alkaeed, Md Mohiuddin Soliman, Khaled M. Khan and Tarek M. Elfouly

Real-Time Facemask Recognition with Alarm System using Deep Learning 106
Sammy V. Militante and Nanette V. Dionisio

Design Optimization of a Phase Shedding Two-phase Interleaved Transition Mode PFC Converter Compliant to Class A EMI Limits 111
Dave A. Cordova, Christian Dior F. Martin, Jahres Rederi M. Satur, Jesus M. Martinez Jr., Flordeliza L. Valiente and Alejandro H. Ballado Jr.

Design of a Digitally Controlled Critically Continuous-Conduction Mode Boost Converter PFC (225W) – with PLD Immunity 117
Erick Joshua Ll. Leaño, Mark Tristan R. Uy, Ricardo Roldan Jr., Jesus M. Martinez Jr., Flordeliza L. Valiente and Alejandro H. Ballado Jr.

Design and Simulation of Low Voltage Dual Supply Schmitt Trigger with Variable Hysteresis 123
Melissa B. Martin and Febus Reidj G. Cruz

ZigBee Based System for Monitoring Temperature, Ph Level, and Salinity for Fishponds with Fine Bubble Aeration 128
Melissa B. Martin, Richard G. Escoto, Brandon Kevin T. Wee, Brian Darwin T. Sy and Jesus M. Martinez Jr.

Performance Evaluation of a Two-FET Forward Synchronous Rectification Converter with Digital Housekeeping, Radiated EMI and Thermal Management 132
Jerson G. Cabelic, Jhun Rennel G. Sanchez, Ranil Montaril, Jesus M. Martinez Jr., Flordeliza L. Valiente and Alejandro H. Ballado Jr.

A Short-Term Load Forecasting Algorithm Using Support Vector Regression & Artificial Neural Network Method (SVR-ANN) 138
Abad L. A., Sarabia S. M., Yuzon J. M. and Pacis M. C.

Design of an Azimuth-Altitude Dual Axis Tracking System (AADAT) for Energy Solar Harvesting using Photovoltaic V-trough Concentrator 144
Concepcion N. D. G., Villanueva II A. R., Dalumpines A. K., Magwili G., and Pacis M. C.

Design and Fabrication of a Portable Solar Powered Thermoelectric Refrigerator for Insulin Storage 150
Julian Albert D. Nohay, John Karl H. De Belen, John Vernon B. Claros, Ron Benjo P. Lupo, Amiel Benedict Barrato, Jennifer C. Dela Cruz, Timothy M. Amado and Mark Christian E. Manuel

Machine Learning-Based Indoor Air Quality Baseline Study of the Offices and Laboratories of the Northwest and Southwest Building of Mapúa University – Manila 155
Jennifer C. Dela Cruz, Timothy M. Amado, Jovvin Q. Hermogino, Myron Lawrence C. Andog, Francis T. Corpuz, Joshua Ritchie T. Ng, Juan Carlos Miguel B. Gonazales, John Nicko D. Inacay, Julian Paolo D. C. Redoblado and Mark Christian E. Manuel

Design, Fabrication, and Testing of a Portable Rope Making Machine for Multi-Stranded Twisted Rope Using Abaca (Musa Textilis) Fibers 161
Mark Christian E. Manuel, Jennifer C. Dela Cruz, Roderick C. Tud, Mark Rian B. Chavez, Jarod Mark E. Dantes, Brett Jasper I. Gastardo and Kenta B. Yagi

Design and Development of an Efficient Power – Generating Revolving Door 167
Jaime Honra, Jennifer C. Dela Cruz, Roderick C. Tud, Jeff C. Aclan, Frederick Brenz M. Conejar, Gio Kent D. Onda and Mark Christian Manuel

Design and Fabrication of Two-Row Self-Propelled Paddy Transplanter Machine 173
Paulo Rafael V. Meris, Jennifer C. Dela Cruz, Roderick C. Tud, Thomas Gianno M. Dator, John Adrian J. Dolores, Rjuae S. Fragata, Gian Lorenzo M. Laraya, Mark Christian E. Manuel

Design, Fabrication and Testing of a Rectangular Heating Surface Pattern Fins to Improve Heat Transfer in Cooking Pots 179
Mark Christian E. Manuel, Emmanuelle R. Biglete, Jennifer C. Dela Cruz, Marvin S. Verdadero, Lorenzo Miguel R. Martinez, Joyce Mavirich C. Masangcay, Ron Ericsson I. Tañedo and John Albert E. Flores

Dimensional Accuracy Evaluation of 3D - Printed Parts Using a 3D Scanning Surface Metrology Technique 185
Emmanuelle R. Biglete, Jennifer C. Dela Cruz, Marvin S. Verdadero, Mark Christian E. Manuel, Allison R. Altea, Argel Joseph O. Lubi, Allan Gabriel R. Gatpayat and Christian Dale B. Santos

Surface Roughness Analysis of 3D Printed Parts Using Response Surface Modeling 191
Emmanuelle R. Biglete, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Marvin S. Verdadero, John Michael B. Diesta, Daniel Niko G. Miralpez, Ryan Angelo C. Javier and Jemuel Ian C. Picato

Comparative Study of Vietnamese Part-of-Speech Tagging Tools 197
Luyl-Da Quach, Dat Do Thanh, Duc Chung Tran and Mohd Fadzil Hassan

Evapotranspiration-based Irrigation System for Mustard Green Crop Cultivation using Public Weather Forecast 203
Jennifer C. Dela Cruz, Meo Vincent C. Caya, Alejandro H. Ballado Jr., Marc Christian R. Aggabao, Eugenie Irene Bacolor, Harley Ann Gayle G. Riego and Mae Erika M. Vergara

A Study on the Aspects of Quality of Big Data on Online Business and Recent Tools and Trends Towards Cleaning Dirty Data 209
Md Ismail Hossen, Michael Goh, Abid Hossen and Md. Armanur Rahman

Shallow-Water Bathymetry Estimation Using Single Band Algorithm and Green Band Algorithm 214
Nur Syahirah Hashim, Wiwin Windupranata and Saiful Aman Sulaiman

Application of Success Factor Model for Green Highway Projects in Malaysia 220
Fatin Najwa Mohd Nusa, Siti Hamidah Abdull Rahman, Mimi Mohaffyza Mohammad, Che Maznah Mat Isa and Rudiah Md Hanafiah

The Determination of Vehicle Speed at the Passing Distance in the Actual Traffic Flow 226
Jezan Md Diah, Raha Abd Rahman and Afikah Zakaria

IOT Based – Automated Indoor Air Quality and LPG Leak Detection Control System using Support Vector Machine 231
Paulo Rafael Meris, Ericson Dimaunahan, Jennifer C. Dela Cruz, Nemilyn A. Fadchar, Mark Christian Manuel, Jan Chastise C. Bonaobra, Ferdyn Joshua I. Ranosa, Jeshua Luis D. Mangaoang and Patrick C. Reyes

Design, Fabrication and Performance Evaluation of a Hybrid Linear Generator Reciprocating-Air Compressor Using a Magnetic Coupled Piston 236
Ricky Umali, Jennifer C. Dela Cruz, Nemilyn A. Fadchar, Mark Christian Manuel, Seongsik Kim, Ali R. Mahmud, Wooam Lee and Avelino C. Messele

Fabrication and Analysis of Manufacturing Propellers for Unmanned Aerial Vehicles (UAV) Using Stereolithography Rapid Prototyping 242
Mark Christian Manuel, Jennifer Dela Cruz, Rose Ellen N. Macabiog, Elton Dennis S. Gasic, John Paul V. Lapitan, John Levi L.Vibal and Yoshikazu E. Yamada

Implementation of Kinematics Bicycle Model for Vehicle Localization using Android Sensors 248
K. M. Ng, S. A. C. Abdullah, A. Ahmad and J. Johari

Complexity Factors During Pre-Construction Stage Affecting Quality Performance in Infrastructure Projects 253
Akhtarul Norfaiza Che Nen, Che Maznah Mat Isa, Fatin Najwa Mohd Nusa and Che Khairil Izam Che Ibrahim

Adaptive Neuro-Fuzzy Inference System for Indoor Air Quality (IAQ) Assessment of a Korean Unlimited Grill Restaurant in Metro Manila 259
Jennifer C. Dela Cruz, Timothy M. Amado, Paulo Rafael V. Meris, Mark Christian E. Manuel, Jann Michael A. Camaddo and Euigi Lee

Risk Allocation in Construction Projects for Government-Linked Company (GLC) 265
Nur Izzati Ab. Rani, Muhammad Taufiq Razak, Fatin Najwa Mohd Nusa, Che Maznah Mat Isa and Nur Kamaliah Mustaffa

An Evaluation of Parking at Residential College of Public University 271
Jezan Md Diah, Raha Abd Rahman and Mohammad Abid Yusof

Shoreline Changes Analysis Along the Coast of Kuala Terengganu, Malaysia using DSAS 276
Nur Aini Md Nor, Khairul Nizam Tahar, Totok Suprijo and Saiful Aman Sulaiman

An Empirical Panel Data Analysis on Technology Adoption and Economic Growth in 12-Selected Asian Countries 282
Siti Ayu Jalil and Wan Mazlina Wan Mohamed

Global Positioning System: Monitoring the Fuel Consumption in Transport Distribution 287
Tarudin N. F. and Adlan M. A. A.

Ultrasound-Assisted Extraction Increases Pectin Yield from Watermelon (Citrullus Lanatus) Rind 291
Siti Aimi Sarah Zainal Abidin, Nurul Shuhada Ahmad Badarudin and Siti Roha Ab Mutalib

Road-Rail Intermodal Freight System Towards Reducing CO2 Emission 295
Shahrin Nasir and Abdul Khabir Rahmat

Design, Fabrication and Testing of a Pressurized Resistance Heating Kiln for Ceramics 300
Ricky D. Umali, Jennifer C. Dela Cruz, Mark Christian E. Manuel, Angelo Martin Y. Espiritu, Gina L. Hanopol, Karen Aira Yazmin A. Lagyap, Bianca P. Ocbeña and Aaron A. Clerigo

Design, Fabrication and Testing of Portable Thermoelectric Refrigerator with Arduino-Based Temperature Controller for Prevnar 13 Vaccine 306
Paulo Rafael V. Meris, Jhester B. Bregonia, Aaron J. Cabago, Jennifer C. Dela Cruz, Gina L. Hanopol, Joseph Karl N. Hufalar, John Raphael R. Moredo and Mark Christian E. Manuel

EyeBill-PH: A Machine Vision of Assistive Philippine Bill Recognition Device for Visually Impaired 312
Alvin Sarraga Alon, Rhowel M. Dellosa, Nino U. Pilueta, Honeylet D. Grimaldo and Estrelita T. Manansala

Edge Detection Comparison of Hybrid Feature Extraction for Combustible Fire Segmentation: A Canny vs Sobel Performance Analysis 318
Mon Arjay F. Malbog, Luisito Lolong Lacatan, Rhowel M. Dellosa, Yolanda D. Austria and Christopher Franco Cunanan

LPG Leakage and Flame Detection with SMS Notification and Alarm System: Rule-Based Method 323
Mon Arjay F. Malbog, Honeylet D. Grimaldo, Luisito Lolong Lacatan, Rhowel M. Dellosa and Yolanda D. Austria

Capturing Students' Attention Through Visible Behavior: A Prediction Utilizing YOLOv3 Approach 328
Jennalyn N. Mindoro, Niño U. Pilueta, Yolanda D. Austria, Luisito Lolong Lacatan and Rhowel M. Dellosa

e-SALPAKAN: Development of a Rule-Based Arbiter for Games of the Generals' Pieces Ranking Detection using RFID 334
Cherry D. Casuat, Luisito L. Lacatan, Yolanda D. Austria, Julius C. Castro and Deanne Cameren P. Evangelista

Performance Analysis of Playfair Cipher Color Substitution Variants 340
Arnold C. Licayan, Bobby D. Gerardo and Alexander A. Hernandez

Unmanned Aerial Vehicle Indoor Navigation using Wi-Fi Trilateration 346
Rufo I. Marasigan Jr., Yolanda D. Austria, Jennifer B. Enriquez, Luisito Lolong Lacatan and Rhowel M. Dellosa

Optimization of Bike Sharing Service: Its Acceptance and Preferences 352
Tengku Nurul Aishah Tengku Aziz, Muhammad Faiz Mazlan, Nur Farizan Tarudin, Nurul Elma Kordi, Muhammad Izwan Mohd Badrillah and Azlin Abdul Latif

Halalan Toyyiban Warehouse performance Model: An Adapted Balanced Scorecard Approach 357
S. Sarifah Radiah Shariff, Hezlin Shadan, Siti Aimi Sarah Zainal Abidin, Azlina Muhammad and Shahrin Nasir

A Conceptual Framework of Halal Green Supply Chain Management (HGSCM) 361
Irwan Ibrahim, Abdul Khabir Rahmat, Noor Fadhiha Mokhtar, Afizan Amer, Izhal Abdul Halin and Nor Ratna Masrom

Surface Electromyography Signal for Artificial Hand Control 366
Jonathan Victor Patricks, Goh Thing Thing, Lip Zhan Hong and Alireza Zourmand

Ranking the Logistics Uncertainty in Malaysian Road Transport Operations 371
Mohammad Al-Yanieff Iqkhmal Mohamad, S. Sarifah Radiah Shariff, Saifulaman Sulaiman and Wan Mazlina Wan Mohamed

ET-based Irrigation System with Automated Bird Deterrent System 375
Jennifer C. Dela Cruz, Alejandro H. Ballado Jr., Sive Janle B. Galela, Rigil Kent D. Olegario and Carl Francis John M. Reyes

A Deep Learning-Based Prediction and Simulator of Harmful Air Pollutants: A Case from the Philippines 381
Lloyd H. Macatangay and Rowell M. Hernandez

An Emergency-Incident Reporting and Response Mobile Application in State University Setup 387
Jed Tolentino and Rowell M. Hernandez

Artificial Neural Network Optimization in Prediction Baseline Energy Consumption to Quantify Energy Savings in Commercial Building 393
Wan Nazirah Wan Md Adnan, Nofri Yenita Dahlan and Ismail Musirin

Author's Index 398