

2021 IEEE International Conference on Automatic Control & Intelligent Systems (I2CACIS 2021)

**Shah Alam, Malaysia
26 June 2021**



**IEEE Catalog Number: CFP21H61-POD
ISBN: 978-1-6654-4786-7**

**Copyright © 2021 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:	CFP21H61-POD
ISBN (Print-On-Demand):	978-1-6654-4786-7
ISBN (Online):	978-1-6654-0343-6

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

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

	Page
<i>Organizing Committee</i>	iii
<i>Technical Reviewers</i>	iv
<i>Paper Title & Authors</i>	
ID03	Non-Linear Analytical Mathematical Modelling of a Hybrid Fixed-Wing Unmanned Aerial Vehicle in Pusher Configuration.....1 <i>Zairil Zaludin, Chen Chia, Ermira Abdullah.</i>
ID06	A Smart Microgrid Approach for Distributed Network Combined with Power Line Fault Location Detection.....7 <i>Farha Khushi, S. M. A. Motakabber, Amit Bhattacharjee, A. H. A. Zahirul Alam, Amelia Wong Azman, Fayaz Hussain.</i>
ID07	Vulnerability Assessment on Ethereum Based Smart Contract Applications.....13 <i>Nurul Aida Noor Aidee, Md Gapar Md Johar, Mohammed Hazim Alkawaz, Asif Iqbal Hajamydeen, Mohammed Sabbih Hamoud Al-Tamimi</i>
ID11	Implementation of Nonlinear Optimal Control of Two-wheel Robot with Extended Kalman Filter.....19 <i>Surapong Kokkrathoke, Xu Xu</i>
ID12	Convolutional Neural Network Based Electroencephalogram Controlled Robotic Arm.....26 <i>Zheng You Lim, Neo Yong Quan.</i>
ID13	Pulse-Width Modulation (PWM) Signal Simulation with User-Defined Sampling Frequency and Modulating Frequency Using MATLAB.....32 <i>Melissa B. Martin</i>
ID14	Changing Input Shape Dimension Using VGG16 Network Model.....36 <i>Elbren Antonio, Cyrus Rael, Elmer Buenavides.</i>
ID15	Development of 4D Printed PLA Actuators with an Induced Internal Strain Upon Printing.....41 <i>Yousif Saad Alshebly, Marwan Nafea, Haider A. F. Almurib, Mohamed Sultan Mohamed Ali, Ahmad Athif Mohd Faudzi, Michelle T. T. Tan</i>
ID16	Social Spider Optimization for Solving Inverse Kinematics for Both Humanoid Robotic Arms.....46 <i>Saif F. Abulhail, Mohammed Z. Al-Faiz</i>
ID18	State Feedback Controller Tuning for Liquid Slosh Suppression System Utilizing LQR-LMI Approach.....52 <i>Nurul Najihah Zulkifli, Mohd Syakirin Ramli</i>
ID21	Employing Technology Acceptance Model (TAM):An Analysis on Students' Reception on Online Learning Platforms during Covid-19 Pandemic.....58 <i>Rowell M. Hernandez</i>

- ID24 Precise Speed Control of DC Motor by Implementing Cascade PI Controller.....64**
Alfiyah Shaldzabila Yustin, S.T., Herminarto Nugroho, S.T., Dr.Eng Wahyu Kunto Wibowo
- ID25 Analysis on Parameter Effect for Solar Radiation Prediction Modeling using NNARX.....69**
Mohd Rizman Sultan Mohd, Juliana Johari, Fazlina Ahmat Ruslan, Noorfadzli Abdul Razak, Salmiah Ahmad, Ahmad Syahiman Mohd Shah.
- ID32 Production Control System for Compressed Natural Gas (CNG) with Web-based Monitoring Technology and Leak Detection System.....75**
Caseserano, D.D., Nagales, M.R.M, Santos, P.S., and Pacis, M.C.
- ID34 An Optimal Phasor Measurement Unit (PMU) Placement Algorithm with (N-1) Contingency Using Integer Linear Programming (ILP).....81**
Aaron Kyle Monton, Vanessa Larioza, Michael Pacis
- ID35 Optimal Directional Overcurrent Relay Settings Using Automated Interval Coordination Matrix Algorithm.....87**
J. P. Felix, K. G. Gonong, E. J. Macadaeg, M. Pacis, G. Magwili, K. K. Quiao.
- ID38 A Survey on Product Promotion via E-commerce Platforms - Case Study in Malaysia.....93**
Mohammad Ahmed Alomari¹, Ismail Ahmed Al-Qasem Al-Hadi, M.Hafiz Yusoff, Ibrahim Mohammed Sulaiman
- ID39 Comparison of Different Kernel Parameters using Support Vector Machine for Agarwood Oil Grading.....99**
A. F. M. Amidon, N. Z. Mahabob, N. Ismail, M. H. F. Rahiman, Zakiah Mohd Yusoff, M. N. Taib, S. N. Tajuddin, N. A. M. Ali.
- ID40 Driving Alert System Based on Facial Expression Recognition.....104**
Fariz Redzuan bin Monir, Rusyaizila Ramli, Nabilah Rozzani.
- ID41 Analysis of Kaffir Lime Oil Chemical Compounds by Gas Chromatography-Mass Spectrometry (GCMS)and Z-Score Technique.....110**
Nor Syahira Jak Jailani, Zuraida Muhammad, Mohd Hezri Fazalul Rahiman, Mohd Nasir Taib
- ID42 User Experience / User Interface (UX/UI) Design for Autistic Spectrum Disorder (ASD) Color Based Emotion Detection System: A Review.....114**
Ummi Umniah Ismail, Rusyaizila Ramli, Nabilah Rozzani
- ID44 Discomfort Monitoring System using IoT applied to a Wheelchair.....120**
Aiesha Zoe Elevado, Elaine Sagao, Angela Faye Sales, Joseph Byran Ibarra, Leonardo Valiente
- ID46 Emergency Vehicle Type Classification using Convolutional Neural Network.....126**
Muhammad Akmal Hakim bin Che Mansor, Nor Ashikin Mohamad Kamal, Mohamad Hafiz bin Baharom, Muhammad Adib bin Zainol
- ID47 Development of Non-Parametric Model and Speed Tracking Control of Tracked Vehicle Electric Motor.....130**
Muhammad Akhimullah Subari, Khisbullah Hudha, Zulkiffli Abd Kadir, Syed Mohd Fairuz Syed Mohd Dardin, Noor Hafizah Amer.
- ID51 Design and Development of Energy Harvesting Ramp Through Brushed DC Generator Using Gear System.....134**
Jessie R. Balbin, Edward James A. Joves, Mico C. Parreno, Esperanza E. Chua, Daniel R. Ranque

- ID52 A Novel Flower Pollination Algorithm for Auto-Grading of Edible Birds Nest.....140**
Wei Wen Lee, Weng Kin Lai
- ID53 Arrhythmia Detection using Electrocardiogram and Phonocardiogram Pattern using Integrated Signal Processing Algorithms with the Aid of Convolutional Neural Networks.....146**
Jessie R. Balbin, Aldwin Ian T. Yap, Benedict D. Calicdan, Lester Allan M. Bernabe
- ID54 Wireless Cloud-based Scan Conversion through a Single Element Transducer for Fetal Heart Rate Assessment using Doppler Ultrasonography with Mobile Application.....152**
Jessie R. Balbin, Marianne M. Sejera, Vernadette B. Borcena, Bebeth Jean B. Olivar, Albert Elli G. Paragas
- ID56 Automated Waste Segregation Bin with IoT-based Mobile Monitoring Application.....158**
Jessie R. Balbin, Irish Joy N. Maliban, Joshua Mark A. Marquez
- ID57 Golf Driving Posture Analysis Using Joint Comparison via Kinect V2 Sensor.....163**
Jessie R. Balbin, Jp Ysrael P. Damilig, Marcos G. Pelayo Jr.
- ID58 Minimizing Energy Consumption in Roadside Unit of Zigzag Distribution Based on RS-LS Technique.....169**
Hazem Noori Abdulrazzak, Nadia M. L. Tan, Nurul Asyikin Mohd. Radzi
- ID59 Foot Deformity Determination and Health Risk Prediction Through Foot Plantar Analysis Using Pressure Sensor Matrix.....174**
Jessie R. Balbin, John Paul B. De Guzman, Joaquin Gerard N. Trinidad IV, Francis Dominic S. Yaya
- ID60 SMS based Curfew Monitoring System for Detecting Minors from a Facial Database to Aid the Local Government Unit Using Image Processing.....180**
Jessie R. Balbin, John Maverick Ramos, Joseph Nathaniel Reyes, Chile Marie Santiago
- ID61 Design and Nonlinear Static Simulation of a Small-Scale Vortex Bladeless Wind Power Generator.....185**
Angela Ciara R. Buela, Rodolfo Rey M. Torres, Fermin II G. Unisa, Paulo Rafael V. Meris, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Roderick C. Tud
- ID62 Design, Fabrication, and Testing of a Portable, Solar-Powered Evaporative Cooling System for the Cabin of Parked Class-1 Automobiles.....191**
Ezequiel Sedgwig C. Cunanan, Paolo Jayvee C. Galo, Allen Justin P. Layson, Cj Nica A. Refuerzo, Ricky Umali, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Roderick C. Tud
- ID63 Design, Fabrication, and Testing of Thermoelectric Generators Integrated on a Residential Window Frame.....197**
Michael Brian L. Indab, Jamie Anne T. Ng, Livan Austin Fernando P. Reyeg, Ralph Audric G. Tuppil, Ricky Umali, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Roderick C. Tud
- ID64 Development of a Non-Intrusive Load Monitoring (NILM) with Unknown Loads using Support Vector Machine.....203**
Anjon S. Hernandez, Alejandro H. Ballado, Jr., Aaron Paulo D. Heredia
- ID65 pH ISFET Stabilization Time Measurement Analysis and Its Readout and Control Circuit.....208**
Abdul Hadi Nograles, Jennifer Chua Dela Cruz, Wen-Yaw Chung
- ID66 Evaluation of the Effects of Using Different Blade Material in the Performance of an Icewind Turbine.....213**
Marison C. Angeles, Bonaobra, Paolo Luis V. Bonaobra1, Dave Carlo S. Matibag, Marc Daniel N. Molina, Ricky Umali, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Roderick C. Tud

- ID67 Numerical Investigation on the Effects of Varying Centrifugal Impeller Blade Number on Pump Head and Efficiency Using ANSYS 2020 R2.....219**
Karl Joseph Angelo T. Ellorde, Klye John Isiah E. Ignacio, Edward Vincent A. Sanchez, Akira Amerie A. Sesima, Ricky D. Umali, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Marvin S. Verdadero, Roderick C. Tud
- ID69 IoT-Based: Design an Autonomous Bus With QR Code Communication System.....225**
Arisa Nalia Binti Hanif, Safaa Najah Saud Al-Humairi, R. Junaidi Daud
- ID73 Design, Fabrication, and Testing of a Biomass-Insulated Cooking Pot.....231**
Jon Kenneth D. Argel, John Remigio W. Badiola, Patrick M. Orcio, Gerardo III R. Pascasio, Ricky D. Umali, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Marvin S. Verdadero
- ID74 Design, Modeling, and Simulation of a Wheeled, Wall-Pressed, In-Pipe Inspection Robot for Pipes with 6-8 inches Inside Diameter.....235**
Carl Kenneth F. Flores, John Ira C. Nagar, Zachary Raphael B. Origenes, Bryle Evan M. Reyes, Ricky D. Umali, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Marvin S. Verdadero
- ID75 Developing an Interactive 360 Walkthrough of MME Shop and Laboratory for ME136P, ME123L, and ME137L.....241**
Marl D. Barroquillo, Patrick Stephen L. Duque, Eugene S. Bellosillo, Jazer Mesha V. Espanola, Sherwin S. Magon, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Marvin S. Verdadero
- ID76 Fabrication, Testing and Statistical Analysis of a Project-Based Single-Screw Filament Extruder.....247**
Christian Dale B. Comprado, Justin A. Dino, Francis Rafael P. Mateo, Paul Michael H. Salazar, Mark Christian E. Manuel, Jennifer C. Dela Cruz, Marvin S. Verdadero
- ID79 Comparison of the CRONE-1 and FOPID Controllers for Steam Temperature Control of the Essential Oil Extraction Process.....253**
Nor Syafikah Pezol, Mohd Hezri Fazalul Rahiman, Ramli Adnan, Mazidah Tajjudin
- ID81 Smart Skim Pinjaman Buku Teks (SBPT) School Operation System in Malaysia.....259**
Nor-Syahidatul N. Ismail, Muhammad Ashraf Bin Zakaria, Nor Aishah Binti Muhammad, Farizah Binti Yunus
- ID84 Development of a Laboratory-Scale Pipeline Crack Inspection Robot.....265**
Wee Ying Heng, M. K. A. Ahamed Khan, Manickam Ramasamy, Chun Kit Ang, Lim Wei Hong, Kalaiselvi Aramugam, C. Deisy, S. Sridevi, M. Suresh
- ID87 Maneuver Control and Avoidance System For Tracked Vehicle Robot.....270**
Muhammad Afiq Alimi, Syed Mohd Fairuz Syed Mohd Dardin, Zuhairi Abdul Rashid, Akram Abdul Azid, Asnor Mazuan Ishak, Ahmad Shukri Abu Hasim
- ID88 Predicting University's Students Performance Based on Machine Learning Techniques.....276**
Dindar Mikaeel Ahmed, Adnan Mohsin Abdulazeez, Diyar Qader Zeebaree, Falah Y. H. Ahmed
- ID90 Intrusion Detection Systems Based on Machine Learning Algorithms.....282**
Sandy Victor Amanoul, Adnan Mohsin Abdulazeez, Diyar Qader Zeebaree, Falah Y. H. Ahmed
- ID94 Telecontrol of Prosthetic Robot Hand Using Myo Armband.....288**
Muhammad Yunus bin Yakob, Mohd Zafri bin Baharuddin, Ahmad Rafiq Mohd Khairudin, Muhammad Hanif Bin Abdul Karim

- ID96** **Toward a Novel Design for Mechanical Ventilator System to Support Novel Coronavirus (COVID-19) Infected Patients Using IoT Based Technology.....294**
M. N. Mohammed, Halim Syamsudin, Mnel A H Abdelgnei, Dharshini Subramaniam, Mohamad Amirul Aznil Mohd Taib, Nurhasliza Hashim, S. Al-Zubaidi, Eddy Yusuf
- ID97** **Data Integration Using Data Mining and SMS Reminder for Automation of Blood Donation.....299**
Guhdar Youcif Izadeen, Adnan Mohsin Abdulazeez, Diyar Qader Zeebaree, Dathar Abas Hasan, Falah Y. H. Ahmed
- ID99** **Impacts of COVID-19 Pandemic on the Road and Transport Sectors using Relative Importance Index.....305**
Che Maznah Mat Isa, Fatin Najwa Mohd Nusa, Siti Zaharah Ishak, Soo-Fen Fam
- ID100** **Energy- and Spectral- Efficient Optimization in Cloud RAN based on Dueling Double Deep Q- Network.....311**
Amjad Iqbal, Mau-Luen Thamand Yoong Choon Chang
- ID102** **Decision Tree Learning Algorithm and Naïve Bayes Classifier Algorithm Comparative Classification for Mango Pulp Weevil Mating Activity.....317**
Ivane Ann P. Banlawe, Jennifer C. Dela Cruz, John Christian P. Gaspar, Edrian James I. Gutierrez
- ID105** **Real-time Design and Implementation of Nonlinear Speed Controller for Permanent Magnet DC Motor Based on PSO Tuner.....323**
Ali Kadhim Mohammed, Ayad Qasim Al-Dujaili, Nabil Kadhim Al-Shamaa
- ID107** **Bradykinesia Detection System Using IoT Based Health Care System for Parkinson’s Disease Patient.....329**
S.F. Desyansah, M. N. Mohammed, S. Al-Zubaidi, Halim Syamsudin, Ibrahim Abdullah, Eddy Yusuf
- ID108** **Comparative Study of PID Controllers for Time-Varying of Steam Distillation Process.....334**
Haslizamri Md Shariff, Mohd Hezri Fazalul Rahiman, Ramli Adnan, Mohd Hezri Marzaki, Mazidah Tajjudin, Mohd Hafiz A. Jalil
- ID110** **Assessment of Technical Impacts of EV Charging to Malaysian Distribution Grid.....340**
Mohd Syahmi Hashim, Jia Ying Yong, Vigna K. Ramachandaramurthy, Muhamad Mansor, Kang Miao Tan
- ID111** **Technical and Vocational Education Students’ Perception of Using Learning Videos during Covid-19 Pandemic Period.....346**
Hamzah, N., Ahmad, M.F., Zakaria, N., Ariffin, A., Rubani, S. N. K.
- ID115** **A Hybrid E-nose System based on Metal Oxide Semiconductor Gas Sensors and Compact Colorimetric Sensors.....352**
Aung Khant Maw, Pakpum Somboon, Werayut Srituravanich, Arporn Teeramongkonrasmee
- ID116** **Classification of Oil Palm Fruit Ripeness Using Artificial Neural Network.....358**
Tan Say Hong, Fazida Hanim Hashim, Thinal Raj, Aqilah Baseri Huddin
- ID117** **Real Time Monitoring Approach for Underground Mine Air Quality Pollution Monitoring System Based on IoT Technology.....364**
Aulia Choiri, M. N. Mohammed, S. Al-Zubaidi, Omar Ismael Al-Sanjary, Eddy Yusuf
- ID119** **Conceptual Design of Human Detection via Deep Learning for Industrial Safety Enforcement in Manufacturing Site.....369**
Marizwana Mat Daud, Hanif Md Saad, Mohamad Taha Ijab

- ID120** **Reduced Computational Burden Model Predictive Current Control of Asymmetric Stacked Multi-Level Inverter Based STATCOM.....374**
Mostafa Q. Kasim, Raaed F. Hassan
- ID121** **Impacts of Losses Functions on the Quality of the Ultrasound Image by Using Machine Learning Algorithms.....380**
Soufiane DANGOURY, Saad ABOUZAHIR, Abdelhakim ALALI, Mohammed SADIK
- ID122** **Improved Grey Wolf Optimizer Algorithm for PIDF Controller for AGC of Multi-Area Multi- Source Interconnected Power System.....386**
Faeq J. Zwayyer, Afaneen A. Abood, Jasim F. Hussein
- ID123** **Supervised and Unsupervised Machine Learning for Cancer Classification: Recent Development.....392**
Aina Umairah Mazlan, Noor Azida binti Sahabudin, Muhammad Akmal Remli, Nor Syahidatul Nadiyah, Mohd Saberi Mohamad, Nor Bakiah Abd Warif
- ID124** **A Smoothed Kalman filter Trained MRAS Based Recurrent Neural Observer for Indirect Vector Controlled Induction Motor Drive.....396**
Uma Syamkumar, Jayanand B.
- ID125** **Efficacy of Machine Learning-Based Classifiers for Binary and Multi-Class Network Intrusion Detection.....402**
Toya Acharya, Ishan Khatri, Annamalai Annamalai, and Mohamed F Chouikha
- ID126** **Efficacy of Heterogeneous Ensemble Assisted Machine Learning Model for Binary and Multi-Class Network Intrusion Detection.....408**
Toya Acharya, Ishan Khatri, Annamalai Annamalai, Mohamed F Chouikha
- ID127** **Variance Component Estimation Dilemma in Cadastral Network Adjustment.....414**
Mohd Azwan Abbas, Norshahrizan Mohd Hashim, Akram Zulkifli, Saiful Aman Sulaiman, Mohamad Asrul Mustafar, Tengku Afrizal Tengku Ali