2022 IEEE 20th Student Conference on Research and Development (SCOReD 2022)

Bangi, Malaysia
8-9 November 2022

IEEE Catalog Number: CFP22526-POD
ISBN: 978-1-6654-7489-4

Copyright © 2022 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:	CFP22526-POD
ISBN (Print-On-Demand):	978-1-6654-7489-4
ISBN (Online):	978-1-6654-7488-7
ISSN:	2643-2439

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

Automated Essay Scoring (AES) Using English Essay Question 1
Nasharuddin Zainal, Muhammad Hafiz Abu Hassan

Paths Planning for Agricultural Robots: Recent Development, Taxonomy, Challenges, and Opportunities for Future Research 7
Zimit Aminu Yahaya, Salinda Buyamin, Haruna Chiroma, Mohd Saiful Azimi Mahmud, Fazilah Hassan, Abubaker Ahmed H Badi

Image Fusion for Single-Trait Multimodal Biometrics: A Brief Review 13
Syed Mohd Zahid Syed Zainal Ariffin, Nursuriati Jamil, Vinothini Kasinathan

Heart Sounds Frequency Analysis for Development of Auto Diagnosis System of Heart Disease 19
Nur Afifah Yousri, Nurul Usna Abd Rahman, Nabilah Ibrahim

Smart Street Lighting with Prediction Algorithm 24
Gurjeet Singh, Effariza Hanafi

Integrated Invoicing Solution: A Robotic Process Automation with AI and OCR Approach 30
Nur Ashikin Rohaime, Nur Idora Abdul Razak, Norashikin M. Thamrin, Chua Wei Shyan

Smoothing of Hip Angle Kinematics Data During Parachute Landing Using Functional Data Analysis Approach 34
Syazwana Aziz, Muhammad Shahimi Ariffin, Kok Beng Gan, Normurniyati Abd Shattar

LoRa System with IOT Technology for Smart Agriculture System 39
Leslie Edwin, Hui J. Lee, Pin J. Ker, Md Z. Jamaludin, Mohd Anif Akhmal Abu Bakar, Ramlah Awang, Farah A. M. Yusuf

Segmentation of Brain Glioma in MRI Images Using Deep Learning 45
Nurul Fatihah Ali, Nurul Nadhirah Md Nasry, Idris Shah, Siti Salasiah Mokri, Ashrani Aizuddin Abd Rahni

Tire Condition Classification Based on Tread Depth Using Machine Learning 51
Mostafizur Rahman, Noorfazila Kamal, Nor Fadzilah Abdullah, Fikri Mat Hussin

Implementation of Ground Penetrating Radar in Assessing Leachate in Sanitary Landfill 56
Mohd Syuib Umar, Mimi Diana Ghazali, Abd Manan Samad, Othman Zainon, Khairulazhar Zainuddin, Faradina Marzuki

A ReRAM-Based Nonvolatile FPGA 62
Hock Leong Chee, T. Nandha Kumar, Haider Af Almurib

Modified March MSS for Unlinked Dynamic Faults Detection 68
Loh Wan Ying, Razaidi Hussin, Norhawati Ahmad, Lee Weng Fook, Aiman Zakwan Jidin

Negative Bias Temperature Instability Analysis of a 15 nm P-Channel Junctionless Fin Field Effect Transistor (p-JLFinFET) 73
M. Naziiruddin Hamzah, N. Ezaila Alias, M. L. Peng Tan

Simulation of Inkjet Printed MIMCAP for Flexible Electronics Application 77
Lee Zhi Shuang, Mastura Shafinaz Zainal Abidin

Automated Fault Analyzer for March Algorithm Dynamic Fault Detection Analysis 83
Loh Wan Ying, Razaidi Hussin, Norhawati Ahmad, Lee Weng Fook, Aiman Zakwan Jidin

Comparison of Energy Encryption Techniques for Near-Field WPT Security Application 88
S N A Ghani, L. Mohamed, A. Ali

Hybrid Reaching Law-Based Integral Sliding Mode Control for DC Microgrid 92
Babangida Modu, Md. P. Abdullah, Abba Lawan Bukar

Optimal Scheduling of Plug-In Electric Vehicles Using Binary Gravitational Search Algorithm with a Suitable Decision Function 96
Ahmad Asrul Ibrahim, Shazreen Syuhada A. Wahid, Nor Azwan Mohamed Kamari, Mohd Hairi Mohd Zaman, Mohd Asyraf Zulkifley

Economic Load Dispatch Solution Via MFPA Approach 101
Yoganash Putthisigamany, Nor Azwan Mohamed Kamari, Syahirah Abd Halim, Mohd Asyraf Zulkifley, Ahmad Asrul Ibrahim, Mohd Hairi Mohd Zaman

Structure and AC Breakdown Performance of Polypropylene/Propylene-Based Elastomer Blends 105
N. A Azrin, N. A Ahmad, K. Y Lau, S. N. H Kamarudin

Marker Free Gait Analysis Using Pose Estimation Model 109
Chang Soon Tony Hii, Kok Beng Gan, Nasharuddin Zainal, Norlinah Mohamed Ibrahim, Shahrul Azmin Md. Rani, Normurniyati Abd Shattar

Range of Motion Measurement Using Single Inertial Measurement Unit Sensor: A Validation and Comparative Study of Sensor Fusion Techniques 114
Md. Mahmudur Rahman, Kok Beng Gan

Morphology and Electron Circulation of ZTO (Zinc Tin Oxide) on SLG for CZTS Thin Film Solar Cell 119
Kang Jian Xian, Huda Abdullah, Brian Yuliarto, Md Akhtaruzzaman, Mohd Hafiz Dzarfan Othman, Yap Wing Fen, Md Fauzi Mohamad

High Flow Rate Peristaltic Electromagnetic Micropump Fabricated Using Multiple Photolithography 126
Ayub Subandi, Jumril Yunas, Azrul Azlan Hamzah, Iskandar Yahya

Power Over Fiber for Phone Charging Application 130
Eric P. P. Amin, Najwan A. Noorazmin, Hui J. Lee, Pin J. Ker, Md Z. Jamaludin, Ramlah Awang, Farah A. M. Yusof

Comparison of RGB and White LED Illumination in Honey Imaging System Using Histogram Approach 134
Sabiran Abubakar, Nur Hazliza Ariffin, Rajendran Parthiban, Norhana Arsad

A ReRAM-Based Nonvolatile PIM 140
Wilson Ng June Xian, Hock Leong Chee, T Nandha Kumar, Haider Af Almurib

Model Reduction of Discrete-Time Bilinear Second Order-Structured Systems in Infinite and Finite Frequency Intervals 145
Sadaqat Ali, Rosmiwati Mohd-Mokhtar, Shafiq Haider, Aamina Bintul Huda

Development of a 4D Printed Variable Stiffness Gripper 151
Wei Han Lee, Yousif Saad Alshebly, Mohamed Sultan Mohamed Ali, Marwan Nafea

Facial Expression Image Based Emotion Detection Using Convolutional Neural Network 157
Faza N Azizi, Arrie Kurniawardhani, Irving V Paputungan

Control of 4D Printed Actuators Twisting Behavior Via Printing Direction..... 163
Yousif Saad Alshebly, Marwan Nafea

Variable Stiffness Strategies for Multi-Segment Soft Robot Actuator..... 168
Seri Mastura Mustaza, Duale Mahdi, Mohd Hairi Mohd Zaman, Mohd Faisal Ibrahim, Chakravarthini Saaj

Monitoring the Trend of Energy Consumption During the Pandemic..... 174
Muhammad Naim Bin Che Kamarudin, Afida Binti Ayob, Aini Binti Hussain, Mohamad Hanif Bin Md Saad, Muhammad Uzair Jasmin Bin Zamzuri Jasmin, Abrisam Bin Zahari

A Review of 6G Enabler: Vertical Heterogeneous Network (v-HetNet) 180
Shujat Ali, Asma Abu-Samah, Nor Fadzilah Abdullah, Nadhiya Liyana Mohd Kamal

A GPS TEC-Based Ionospheric-M Index Over Malaysia 185
Sadia Mostofa, Mardina Abdullah, Mohammad Tariqul Islam, Siti Aminah Bahari, Mohammad Badal Ahmmed

Wireless Airborne IoT Network for Rural Water Quality Monitoring..... 190
Nor Fadzilah Abdullah, Haider A. H. Alobaidy, Rosdiadee Nordin

Author Index