2020 IEEE 8th R10 Humanitarian Technology Conference (R10-HTC 2020)

Kuching, Malaysia
1 – 3 December 2020

IEEE Catalog Number: CFP2034U-POD
ISBN: 978-1-7281-1111-7

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:	CFP2034U-POD
ISBN (Print-On-Demand):	978-1-7281-1111-7
ISBN (Online):	978-1-7281-1110-0
ISSN:	2374-023X

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

2020 IEEE 8th R10 Humanitarian Technology Conference (R10-HTC)

Table of Contents

Paper ID	Paper Title
10	Storage Efficient Data Security Model for Distributed Cloud Storage.....1
11	Image Cryptography using Multichannel Filterbank.....7
14	Wireless EEG-based Fan Speed Control.....12
15	Fractional-order Predictive PI Controller for Process Plants with Deadtime.....15
16	Water Stress Identification in Chickpea Images using Machine Learning.....21
18	Food Traceability and Prevention of Location Fraud using Blockchain.....27
19	Simulation and Control of Inverted Pendulum System Dynamics over Control Area Network using TrueTime.....32
20	Design and development of a hydraulic ram pump for the rural communities.....38
21	Cultivating Traditional Malaysian Handicraft Market Demand through Social Media Technology.....43
22	Design and Analysis of a Highly Efficient Rectangular Cavity Based Semi-Elliptic Nanoplasmonic Coupler.....49
23	Optimal design of off-grid hybrid renewable energy system for electrification of One Fathom Bank Malaysia.....55
24	Integrating Humanitarian Technology in Computer Science Education to Internalize Independent Campus Policy: A Case in IPB University.....60
25	Analysis of Students' Experience on the Quality of Educational Services.....66
27	Evaluating Usability of Pregnancy Tracker Applications in Bangladesh: A Heuristic and Semiotic Evaluation.....69
29	An Exploration of Motion Tracking and Gamification in Telerehabilitation for Stroke Survivors.....75
30	High Performance Computing (HPC) Applications in Industry 4.0 (I4.0) for the betterment of humanity.....81
31	Exploiting Various Word Embedding Models for Query Expansion in Microblog.....87
32	Fusion of Hand-crafted Features and Deep Semantic Features in a Unified Neural Model for Irony Detection in Microblogs.....93
34	Robotic assistance for the endoscopic steering.....99
35	A Design and Trial Production of EEGNet based EEG Pattern Recognition Processor using FPGA.....104
36	Clarification of Perceived Phosphenes Positions by tACS considering Electrical Current flow and Exposed Visual Retinae.....108
38	Emotion Recognition and Discrimination of Facial Expressions using Convolutional Neural Networks.....114
39	MICD - A Framework for Designing Micro-Conclusions for Micro-Lectures.....120
40	Traffic Management Guided by the Circuit Model of Urban Traffic Networks.....125
42	Design and development of a low-cost powered air-purifying respirator for frontline medical workers for COVID-19 response.....130
45	Quantitative Analysis of Reconstructed Conductivity Images Using Phase-based Electrical Properties Method at 3T MR.....136
51	Readout and Control Circuit with non-contact temperature sensor for Multiple ISFETs with Microcontroller using I2C protocol.....140
54	A Preliminary Study on Effectiveness of an Ingeniously Developed Wearable Assistive Device.....144

62 Utilization of Photon Energy Collector Circuit in Harnessing Electrical Energy from a Compact Fluorescent Lamp (CFL).....149
63 CaneFX – An Interactive White Cane Learning Tool for People with Visual Impairment.....154
64 An Analysis of Impact of Urban Beekeeping Projects on Community: Ginza Bee Projects brought not only bees, but also a more sophisticated image to Ginza.....160
65 Identification and Mitigation Tool For Cross-Site Request Forgery (CSRF).....167
68 Aquaphotomics Determination of Total Organic Carbon and Hydrogen Biomarkers on Aquaponic Pond Water and Concentration Prediction Using Genetic Programming.....172
74 Solar Irradiance Prediction Based on Weather Patterns Using Bagging-Based Ensemble Learners with Principal Component Analysis.....178
75 A Multiple-Criteria Decision Analysis Clustering and Cluster Head Selection Algorithm in Vehicular Network.....184
76 An Intelligent Framework for Malware Detection in IoT Ecosystem.....190
77 Dengue Prediction using Machine Learning Algorithms.....196
78 SmartCop: An Automated Platform to Mitigate the Impact of Road Accidents.....202
79 Noninvasive Blood Glucose Measurement Using Live Video by Smartphone.....208
80 An Investigation On Distributive Leadership Practice In A Malaysian Public University.....214
81 Short Term Performance Investigation of Solar PV Module: A Machine Learning Based Approach.....220
85 Feature Selection Based Twin-Support Vector Machine for the Diagnosis of Parkinson's Disease.....226
86 Prediction of Road Accident and Severity of Bangladesh Applying Machine Learning Techniques.....232
88 Automatic Detection of COVID-19 Disease in Chest X-Ray Images using Deep Neural Networks.....238
89 Blood Type Identification Through Spectrophotometry and Optical Density Analysis.....244
93 Lettuce Leaf Water Stress Estimation Based on Thermo-Visible Signatures Using Recurrent Neural Network Optimized by Evolutionary Strategy.....250
94 Indirect Measurement of Dissolved Oxygen Based on Algae Growth Factors Using Machine Learning Models.....256
96 Understanding Business Intelligence in The Context of Mental Healthcare Sector of Bangladesh for Improving Health Services.....262
98 Rebuilding Health Tourism Destination Image After Covid-19: The Case of Malaysia And Indonesia.....266
99 Financial sustainability of the construction firms towards the era of industrial revolution 4.0: The role of technological innovation.....272
100 Development of Isometrical 3-Finger Underactuated Robot Gripper.....278
103 Internet Based Heart Rate Monitoring System for IR 4.0 Healthcare Technologies.....283
108 Content Development for study of Mechanical and Electrical behavioural aspects of Three Phase Induction Machine on a 3D platform.....289
109 Using Human Centered Design to Improve Socio-economic Livelihoods with Modernized Irrigation Systems.....295
110 Assessment of Waste Management Practices and its Impact on the Village Ecosystem in Himachal Pradesh, India.....301
112 Technology for Addressing Income Insufficiency in Rural India.....307
113 A Blockchain-based Collaboration Framework for Educational Material Sharing.....313
114 Accelerating innovations through literature-based discovery: Qualitative analysis of an early usability evaluation.....318
117 Efficiency Optimization of Supercapacitor Assisted Low Dropout (SCALDO) Regulators.....324

118 Wideband Circularly Polarized Metamaterial based Antenna employing Metasurface Structure.....330
119 SimboWika: A Mobile and Web Application to Learn Filipino Sign Language for Deaf Students in Elementary Schools.....336
121 Towards an Efficient and Secure Blood Bank Management System.....342
122 Smart Traffic Systems Guided by Principles of Traffic Circuit Theorems.....348
124 A Cross-sectional Study on Awareness and Correlating Factors Towards COVID-19 among Adult Women in Dhaka City.....353
128 Assessment of Sustainable Agriculture Practices in Uttarakhand, India.....359
129 Women Empowerment through Productivity, Rural Development and Technology: Assessment of Cross Linkages within a Village of Maharashtra, India.....365
130 Problem Assessment and Interventions for Improving Agricultural Methods and Practices among Small and Marginal Farmers in Rajasthan, India.....371
131 Tsunami Fighters: Collaborative Multilingual Mobile Game for Earthquake and Tsunami Disaster Preparedness Education.....377
132 Agricultural Problems and Technology-Based Sustainable Solutions for an Impoverished Village of Bihar, India.....383
135 Challenges and Possibilities for Sustainable Income Generation through Efficient Use of Available Resources in a Village in Odisha, India.....388
140 Label Card Segmentation and Calibration for Computerized Wound Measurement System.....394
141 Enhanced Cnn-Based Superpixel Classification for Automated Wound Area Segmentation.....400
143 Effectiveness of an Automated Reading Tutor Design for Filipino Speaking Children.....406
149 Design of a Mixed Signal Bladder Control System with Sensor Front-End Readout and Drug Delivery Actuator based on TSMC 0.18um Technology.....411
150 Query Oriented Topical Clusters Detection for Top-k Trending Topics in Twitter.....416
151 Automation of Rail Gate Control with Obstacle Detection and Real Time Tracking in the Development of Bangladesh Railway.....422
152 Micromotion Artefact Reduction of a Wrist Worn PPG Sensor Using Green Light PPG and Surface EMG.....428
154 Developing Smart COVID-19 Social Distancing Surveillance Drone using YOLO.....433
156 Thermal Imaging for Smart Agriculture Irrigation System to support IR 4.0 Initiative.....439
158 Factors Influencing Pre-University Students' Interests towards STEM Programs and Careers.....444
160 Innovative Use of TPOA Telecentres for Covid-19 Awareness among the Orang Asli Communities.....450
164 Calculation of Data Rates for Varying Scenarios Using Free Space Path Loss and Okumura-Hata Model in the TVWS Frequency Band.....456
165 TRIZ for Shaping Life-Long Learning.....462
168 Nudge Theory and Social Innovation: An analysis of citizen and government initiatives during Covid-19 outbreak in Malaysia.....468
169 Learning Programming using Lego Mindstorms: Analysis of Learner Experiences.....474
172 Optimizing learning in associative networks and gamification: Lessons learnt and implications.....480
173 Arsenate Removal Performance of Magnetite Nanoparticles.....486