

# **2021 3rd International Conference on Research and Academic Community Services (ICRACOS 2021)**

**Surabaya, Indonesia  
9 – 10 October 2021**



**IEEE Catalog Number: CFP21U80-POD  
ISBN: 978-1-6654-4335-7**

**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:	CFP21U80-POD
ISBN (Print-On-Demand):	978-1-6654-4335-7
ISBN (Online):	978-1-6654-4334-0

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

## Table of Content

Welcome Speech and Keynote Speakers .....	iii
Organizers and Organizing Committee .....	xvii
Programme Schedule .....	xxi
Paper ID: 569 <i>(Dany Iman Santoso, I Wayan Susila, Dewanto, Yunus, Akhmad Hafizh Ainur Rasyid, Rachmad Syarifudin Hidayatullah)</i>	1-6
Investigation of the droplet properties along their trajectory in the cooling tower	
Paper ID: 572 <i>(Murry Raditya, Purwardi Agus Darwito, Anton S.R Ansori, Bintang Kalahari, Pandu Galih Saputro, Hasna Mufidah)</i>	7-11
Schematics Monitoring System Temperature, PH and Turbidity Based on LORA (Long Range) to Improve the Quality of The Harvest	
Paper ID: 573 <i>(Widi Aribowo, Reza Rahmadian, Mahendra Widyartono, Ayusta Lukita Wardani, Aditya Chandra Hermawan, Unit Three Kartini)</i>	12-16
Implementation Of The Arithmetic Optimization Algorithm For Economic Load Dispatch	
Paper ID: 574 <i>(Erlangga, Yaya Wihardi, Eki Nugraha)</i>	17-22
User Experience Evaluation by Using a User Experience Questionnaire (UEQ) Based on an Artificial Neural Network Approach	
Paper ID: 575 <i>(Handini Novita Sari, I Made Arsana, Ika Nurjannah)</i>	N/A
Implementation of Problem Based Learning to Improve Students Motivation And Learning Outcomes As a Solution For Distance Learning (PJJ) During The Covid 19 Pandemic Case Study on Heat And Mass Transfer Subjects	
Paper ID: 577 <i>(Saiful Anwar, Made Arsana, Ika Nurjannah, Handini Novitasari)</i>	29-33
The Effect Of Hydraulic Diameter Variations and Distance of Rods Square Profile in The Four Channel	

<p>Paper ID: 580 (Usman Mulbar, Nasrullah Pemu) e-Portfolio as OLEA to Identify Higher Ability for Students in Higher Education</p>	N/A
<p>Paper ID: 581 (Wahyu Dwi Kurniawan, Agung Prijo Budijono, Rachmad Syarifudin Hidayatullahc, Purbodjati) Design And Build of Energy Proportional Electric Folding Bike According to Rider Needs</p>	38-42
<p>Paper ID: 582 (G H B A De Silva, T C Sandanayake, M F M Firdhous) An investigation of visually impaired learners marginalized in an online classroom environment</p>	43-49
<p>Paper ID: 584 (Rini Puji Astutik, Hendra Ari, Winarno, Eliyani, Risma Wahyuni) Wireless Nurse Call System Using IoT Implementation</p>	50-55
<p>Paper ID: 588 (Bambang Bagus Harianto, Yuyun Suprpto, Suhanto, Edwardo Subagyo) Evaluation of Multiple Choice Items in the Telecommunication and Navigation Engineering Department with Validation</p>	N/A
<p>Paper ID: 592 {Agung Prijo Budijono, Djoko Suwito, Muh.Syariffuddien Zuhrie, Wahyu Dwi Kurniawan, Rachmad Syarifudin .H, Bidya Nur Habib) Paramedic Assistant Robot : Feature Review from Generation 1.0 to 3.0</p>	61-65
<p>Paper ID: 593 (Ilham A.E. Zaeni, Ahsan Walad, Arizal Ismoyo Wijanarko, Dessy Rif'a Anzani, Anik N. Handayani) Applying Decision Tree for Utility Control System on Patient Room using Eye Activity Command</p>	66-71
<p>Paper ID: 594 (Testa Adi Nugraha, Achmad Widodo, Awang Firmansyah, Muhammad Dzul Fikri, Syaifathul Jannah, Mokhammad Riyad) Implementation Of Monitoring Load Exercise in Finswimming to Preparation for Porprov 2022</p>	N/A
<p>Paper ID: 595 (Farid Baskoro, Supari Muslim, I G P Asto B, Miftahur Rohman, Lilik Anifah, Bambang Suprianto) Teaching Factory Management in the Edutel Sector at SMK Negeri 1 Surabaya</p>	N/A

<p>Paper ID: 605  <i>(fendi achmad, Supari Muslim, Daeng Rahmatullah, Setya Cendrah Wibawa, Edy Sulistiyo)</i>            An Influence of Problem Based Learning Models Assisted by Media Trainer Programmable Logic Control and Achievement Motivation on Skills Competence</p>	<p>N/A</p>
<p>Paper ID: 609  <i>(Mochamad Arif Irfan'i, Andita N. F Ganda, I Made Arsana, Retno Eka Prमितasari dan Dzulkifliih)</i>            Analysis of Tensile Strength and Hardness of Al-Si alloy Using Sand Casting and Centrifugal Casting Methods</p>	<p>87-92</p>
<p>Paper ID: 610  <i>(Rifqi Firmansyah, Rudi Irmawanto)</i>            Comparison Study of PI Controller Tuning Method to Regulate the DC Motor Speed</p>	<p>93-97</p>
<p>Paper ID: 611  <i>(Russul Khalid Abdulsattar, Taha A. Elwi, Zaid A. Abdul Hassain)</i>            Microwave Resonator based a Fractal Moore Structure for Modern Wireless Reconfigurable Systems</p>	<p>98-102</p>
<p>Paper ID: 612  <i>(I Made Arsana, Wahyu Dwi Kurniawan, Kukuh Uzia Bramantyo)</i>            Performance Analysis of Electric Coolers Tec1-12706 And Tec1-12715 With Heatsinks at Semi-Conductor Cooler Boxes</p>	<p>N/A</p>
<p>Paper ID: 613  <i>(Zainab Salam Muqdad , Taha Ahmed Elwi , Zaid Asaad Abdul hassain )</i>            Novel Reconfigurable Fractal Antenna Design based Metasurface Layer for Modern Wireless Systems</p>	<p>108-112</p>
<p>Paper ID: 616  <i>(Asnun Parwanti, Slamet Imam Wahyudi, Moh Faiqun Ni'am, Machrus Ali, Iswinarti, Muhammad Agil Haikal)</i>            Modified Firefly Algorithm for Optimization of the Water Level in the Tank</p>	<p>113-116</p>
<p>Paper ID: 617  <i>(Indarti; Jihan Alya Salsabilla; Li Hsun Peng)</i>            Computerized Embroidery: Utilizing Technology in Making Decorative designs for Muslim Wedding Dress</p>	<p>N/A</p>
<p>Paper ID: 618  <i>(Ery Safrianti, Linna Oktaviana Sari, Nur Aprilia Sari)</i>            Real-Time Network Device Monitoring System with Simple Network Management Protocol (SNMP) Model</p>	<p>122-127</p>

<p>Paper ID: 620 (Noveri Lysbetti Marpaung , Ficky Galang Prasetya) The Making of PWCPs Building Video of Riau Province Based on Three Dimensional Animation</p>	128-133
<p>Paper ID: 622 (Noveri Lysbetti Marpaung, Rahyul Amri, Syafitri, Edy Ervianto, Nurhalim) Application of Single Moving Average Method for Population Growth Forecasting</p>	134-139
<p>Paper ID: 628 (Haruki Ohira, Takeshi Fukusako, Ryuji Kuse) Single Feed Waveguide Antenna with Orbital Angular Momentum Mode.</p>	140-143
<p>Paper ID: 632 (Kisyani Laksono, Endah Budi Rahaju, Ari Kurniawan, Zulaikhah Abdullah, Raras Tyasnurita, Ahmad Bayu Prastyo) The Instrument for Evaluating Websites: A review</p>	144-147
<p>Paper ID: 634 (Mesita Evi Ramadani, Brian Raafi'u, Mahirul Mursid, Rizaldy Hakim Ash-Shiddieqy, Alex Taufiqurrohman Zain, Ahmad Fauzan 'Adziimaa) Design and Development Of Monitoring System On Carp Farming Ponds As IoT-Based Water Quality Control</p>	148-153
<p>Paper ID: 636 (Yusnita Rahayu and J.R.M Simanihuruk) Design of 4x4 Butler Matrix for Beamforming 5G Antenna</p>	154-159
<p>Paper ID: 644 (Jessie Retorca Paragas, Ellen Joyce B. Nartia, Neil M. Pascual) Detection of Students' Mental Health Status: A Decision Support System</p>	160-165
<p>Paper ID: 666 (Jonabell Y. Bacaoco, Jay Gabriel E. Mencias, Ritchell S. Villafuerte, Jessie R. Paragas, Deborah G. Brosas, Diane B. Remot) SARS-COV-2: Symptoms Severity Assessment using Data Mining</p>	166-170
<p>Paper ID: 667 (Setya Chendra Wibawa, Mashudi, Subuh Isnur Haryudo, Fendi Achmad, Dewa Gede Hendra Divayana, Ramadhani Rani Relifian, Edy Sulistiyo, Anderson Ngelambong) The Media Application using Markerless Augmented Reality to Learn The Technique of Angle of Photography</p>	N/A

Paper ID: 669 <i>(Mark Julius P. Tiozon , Jessie R. Paragas, Neil M. Pascual)</i> Implementation of Traditional Transposition Cipher with Salting Principle	175-178
Paper ID: 674 <i>(Miftahur Rohman, Nur Kholis, Farid Baskoro)</i> Development Of Employability Of Fresh Graduate Alumni Through Tracer Study By Evaluating The Likert Scale Method	N/A
Paper ID: 677 <i>(Erick O. Juan, Leo D. Bentoso, Deborah G. Brosas, Jessie R. Paragas, Lyra K. Nuevas, Ma. Windie C. Velarde)</i> Web-Based Solution for Flood Warning Decision Support in the Province of Leyte, Philippines	185-190
Paper ID: 690 <i>(Yeni Kustiyahningsih, Eza Rahmanita, Devie Rosa Anamisa, Jaka Purnama)</i> Selection SMEs of Batik Bangkalan Using Fuzzy Interval Type-2 Method based on Group Support System	191-196
Paper ID: 691 <i>(Glenn Gumba, Jessie R. Paragas, Deborah G. Brosas)</i> Assessment of SIAS Application Using Software Quality Model	197-202
Paper ID: 692 <i>(S.Prasad Jones Christydass, Nurhayati Nurhayati)</i> Multiband THz Rectangular Microstrip Patch Antenna with Hexagonal Complementary Split Ring Resonator	203-208
Paper ID: 693 <i>(Murry Raditya, Purwadi Agus Darwito, Zakiah Nurul Fahmi, Arviandi Cikadiarta, Andreas Pratama Putra, Sulthon Sidiq Wicaksana)</i> Multiple Linear Guide Actuator (LGA) Controller Based on Modbus RTU	209-213
Paper ID: 694 <i>(Lukman Medriavin Silalahi ,Setiyo Budiyanto, Freddy Artadima Silaban, Imelda Uli Vistalina Simanjuntak, Agus Dendi Rochendi, Gunawan Osman)</i> Design a Temporary Package Storage System Using Arduino Mega 2560-Based Password	214-218
Paper ID: 695 <i>(Lukman Medriavin Silalahi ,Setiyo Budiyanto, Freddy Artadima Silaban, Imelda Uli Vistalina Simanjuntak, Agus Dendi Rochendi, Gunawan Osman)</i> Optimizing The Performance Of The Power Station Generator Space Lighting System Performance Based On Internet Of Things Using ESP32	219-224

<p>Paper ID: 696  <i>(Lukman Medriavin Silalahi ,Setiyo Budiyanto, Freddy Artadima Silaban, Imelda Uli Vistalina Simanjuntak, Agus Dendi Rochendi, Ucuk Darusalam)</i>            Integration Of Lifting Pump Monitoring System Using ESP32 And Hostinger With Internet Of Things Based</p>	225-229
<p>Paper ID: 697  <i>(Setiyo Budiyanto ,Lukman Medriavin Silalahi, Andi Adriansyah, Ucuk Darussalam, Septi Andryana, Agus Dendi Rochendi)</i>            Development Of Internet Of Things Based Fertigation System For Improving Productivity Of Patchouli Plantation</p>	230-233
<p>Paper ID: 698  <i>(Sugianto Eko Cahyono, Nabila Zoraidha Damayanti, Alldino Syaman, Dina Fitria Murad, Nora Fitriawati)</i>            The Smart Application Approval Feasibility Of Potential Customers Based On Decision Support System</p>	234-238
<p>Paper ID 699  <i>(Annisa Ayu Avrillia, Riri R. Siregar, Shalahuddin M. Nur, Dina Fitria Murad, Lena)</i>            The Use of Satellites for Analysis of Plantation Locations, Minimize Land Fires and Improve Fertilization</p>	239-244
<p>Paper ID 701  <i>(Firman Yasa Utama, Zulfa Ludfi Diana Sari)</i>            Development of Automatic Fuel Meter Trainer Control System Using Microcontroller</p>	245-250
<p>Paper ID 705  <i>(Aris Ansori , Denny Widhiyanuriyawan, Sudjito Soeparman, Teguh Dwi Widodo)</i>            Enhanced Performance Triboelectric Nanogenerator With Strach Biopolymer Composite Interface Layer</p>	251-253
<p>Paper ID 708  <i>(Lilik Anifah, Haryanto)</i>            Decision Support System Erythemato-Squamous Diseases Classification Diagnosis using Linear Vector Quantization Based Clinical Attributes</p>	254-258
<p>Paper ID 711  <i>(Nurhayati Nurhayati, Eko Setijadi, Alexandre M. De Oliveira , Takeshi Fukusako, Bagus E. Sukoco, Fitri Adi Iskandarianto)</i>            Coplanar Vivaldi Antenna with Koch Fractal Lens for L and S-band application</p>	259-262



<p>Paper ID 713 <i>(Oce Wiriawan , Siswantoyo, Donny Ardy Kusuma, Awang Firmansyah, Azmawati Binti Mohamad Nor, Afif Rusdiawan)</i> The Difference Between Level of Physical Activity, Nutritional Status, Sedentary Lifestyle in Students in Mountain and Coastal Areas</p>	N/A
<p>Paper ID 715 <i>(Mohammad Syahidul Haq, Nur Aini Dwi Setyowati)</i> Development of Codeigniter-Based E-Office Applications</p>	269-274
<p>Paper ID 720 <i>(Daeng Rahmatullah, Iradiratu Diah PK, Belly Yan Dewantara, Fendi Achmad)</i> Design and Build of 3 Phase Induction Motor Speed Regulation on Programmable Logic Controller (PLC) Using PID Control Method</p>	275-280
<p>Paper ID 721 <i>(Machrus Ali, Muhammad Ruswandi Djalal, Saiful Arfaah, Muhlasin, Muhammad Fakhrurozi, Ruslan Hidayat)</i> Application of Energy Storage-PID For Load Frequency Control In Micro Hydro Using Flower Pollination Algorithm</p>	281-285
<p>Paper ID 725 <i>(Raimundo Eider Figueredo; Alexandre Maniçoba de Oliveira; Nurhayati Nurhayati; Alexandre Jean Rene Serres; Antonio R de França Filho; João F. Justos; Marcelo B. Perotoni; Arnaldo de Carvalho Jr.)</i> An Antipodal Vivaldi Antenna Using Radiant Side Slot Edge Based on the Star Trek Dominion Insignia</p>	286-289
<p>Paper ID 732 <i>(Wahyu Nur Hidayat, Syaad Patmanthara, Sry Mulyani Tosepu, Tri ASutikno, Rokhimatul Wakhidah)</i> Gamified Mobile Learning For Digital Business Model Course</p>	290-295
<p>Paper ID 733 <i>(Lilik Anifah, Muhamad Syariffuddien Zuhrie, Muhammad)</i> Sensor Positioning Effectiveness Analysis of Smart Pirates on Pencak Silat Sport</p>	296-300
<p>Paper ID 734 <i>(Nurhayati Nurhayati, Tri Rijanto, Puput R Wanarti, Ahmad Abimanyu, S. Prasad Jones Christydass, Alexandra Paleologoudias)</i> Impedance Bandwidth Enhancement of Monopole Antenna with Triangle Slot in the Ground plane and Modified Patch for UWB applications</p>	301-304
<p>Paper ID 753 <i>(Auzair Ripardo de Alexandria, Matheus Cruz Ferreira, Elene Firmeza Ohata, Tarique da Silveira Cavalcante, Francisco Alan Xavier da Mota, Ingrid Correia Nogueira, Victor Hugo Costa Albuquerque, Victor José Timbó Gondim, Edson Cavalcanti Neto)</i> Automated classification of dynamic renal scintigraphy exams to determine the stage of chronic kidney disease, an investigation.</p>	305-310