

# **2021 International Electronics Symposium (IES 2021)**

**Surabaya, Indonesia  
29 – 30 September 2021**



**IEEE Catalog Number: CFP21D37-POD  
ISBN: 978-1-6654-4347-0**

**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:	CFP21D37-POD
ISBN (Print-On-Demand):	978-1-6654-4347-0
ISBN (Online):	978-1-6654-4346-3

**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 CONTENTS

<b>HARMFUL INTERFERENCE MITIGATION IN SUB-10 MHZ AERONAUTICAL ALLOCATION BAND</b> .....	1
<i>Titon Duttono</i>	
<b>FORK AGV: ESTIMATION OF COMBINED MAGNETIC SENSOR WITH VISION GUIDE APPLIED ON AUTOMATIC MOBILE TRANSPORTER FOR NAVIGATION AND ACCURATE POSITIONING</b> .....	5
<i>Mohamad Nasyir Tamara; Anhar Risnumawan; Ni'Am Tamami; A. Basith Abdurrohman</i>	
<b>SIMULATION OF ROBOT SWARM COOPERATION USING V-REP SIMULATOR: CASE STUDY MOBILE TRASH BIN ROBOT</b> .....	12
<i>Bima Sena Bayu Dewantara; Giusti Arya Pradipta; Bayu Sandi Marta; Setiawardhana</i>	
<b>THE ANALYSIS OF BLADE VIBRATIONS AT A HIGH PRESSURE STEAM TURBINE DURING THERMAL POWER PLANT START-UP CONDITION</b> .....	18
<i>Zulkifli Al Rasyid Sampoerna; Nu Rhahida Arini; Achmad Bahrul Ulum</i>	
<b>DIGITAL IMPLEMENTATION OF SPACE VECTOR PWM FOR THREE PHASE INVERTER WITH SIMPLIFIED C-BLOCK PSIM UTILIZATION</b> .....	24
<i>Muhammad Rizani Rusli; Mochamad Ari Bagus Nugroho; Mentari Putri Jati; Angga Wahyu Aditya; Melinda Badriatul Fauziah; Handri Toar; Taufik Taufik</i>	
<b>IMPROVING THE ACCURACY OF PREDICTING DISEASE RISK SCORES USING SOM CLUSTERING BASED ON NOISY FEATURE</b> .....	30
<i>Endang Sri Rahayu; Eko Mulyanto Yuniarno; I. Ketut Edhy Purnama; Mauridhi Hery Purnomo</i>	
<b>MODIFIED CRITICAL TRAJECTORY ALGORITHM TO DETERMINE THE CRITICAL CLEARING TIME FOR UNBALANCED FAULT</b> .....	36
<i>Isa Hafidz; Ardyono Priyadi; Margo Pujiantara; Sjamsjul Anam; Naoto Yorino; Mauridhi Hery Purnomo</i>	
<b>IDENTIFYING PRECAUTIONARY MEASURES FOR HIGH-RISK DISEASE FROM DOCTOR'S ANSWER TEXT USING LDA</b> .....	41
<i>Safitri Juanita; Diana Purwitasari; I. Ketut Eddy Purnama; Mauridhi Hery Purnomo</i>	
<b>COMBINING STAND ALONE PV ROOFTOP, SMALL SCALE PHS, RAINFALL STORAGE SYSTEMS FOR INCREASING ELECTRIC POWER PRODUCTION BASED ON HYBRID PUMPING TECHNIQUE</b> .....	47
<i>Akhmad Musafa; Ardyono Priyadi; Vita Lystianingrum; Margo Pujiantara; Sjamsjul Anam; Mauridhi Hery Purnomo</i>	
<b>DEVELOPMENT OF SANDBOX ENGLISH CONVERSATION TRAINING APPLICATIONS WITH ATOMIC DESIGN</b> .....	55
<i>Reza Fauzi Augusdi; Andhik Ampuh Yunanto; Desy Intan Permatasari; Aliv Faizal Muhammad</i>	
<b>BALL POSITION TRANSFORMATION WITH ARTIFICIAL INTELLIGENCE BASED ON TENSORFLOW LIBRARIES</b> .....	62
<i>Setiawardhana; Rudy Dikairono; Bima Sena Bayu Dewantara; Afis Asryullah Pratama</i>	
<b>AN IMPLEMENTATION OF SECURE VEHICLE-TO-VEHICLE COMMUNICATION USING SHARED KEY GENERATION WITH KANO METHOD</b> .....	67
<i>Amang Sudarsono; Mike Yuliana</i>	
<b>IMPLEMENTATION OF SUMO SIMULATION FOR COMPARISON OF CVRP</b> .....	73
<i>Yohanes Yohanie Fridelin Panduman; Sritrusta Sukaridhoto; Muhammad Agus Zainuddin; Rizqi Putri Nurma Budiarti</i>	
<b>PERFORMANCE ANALYSIS OF DRIVER ABNORMAL BEHAVIOR CLASSIFICATION SYSTEM USING ENHANCED MULTI-LAYER PERCEPTRON</b> .....	81
<i>R. Rizki Rachmadi; Amang Sudarsono; Tri Budi Santoso</i>	
<b>EVALUATION OF THE PTS PAPER REDUCTION TECHNIQUE WITH THE HAMMERSTEIN-WIENER PREDISTORTION MODEL IN AMPLIFY-AND-FORWARD (AF), DECODE-AND-FORWARD (DF) RELAYING SYSTEMS OVER ASYMMETRIC CHANNELS</b> .....	87
<i>Muhammad Naufal Sanjar; Nabila Primaswari Anggraini; Arifin; Yoedy Moegiharto</i>	
<b>PERFORMANCE OF JOINT PAPER REDUCTION ITERATIVE CLIPPING AND FILTERING (ICF) AND PREDISTORTION IN OFDM SYSTEMS USING SOFTWARE DEFINED RADIO</b> .....	92
<i>Abdurrahman Syarif; Arifin; Nihayatus Sa'adah; I. G. P. Astawa; Yoedy Moegiharto</i>	
<b>TEXT MINING IN HEALTHCARE FOR DISEASE CLASSIFICATION USING MACHINE LEARNING ALGORITHM</b> .....	97
<i>Ghulam Asrofi Buntoro; Adhi Dharma Wibawa; Mauridhi Hery Purnomo</i>	

<b>HIGH GAIN MICROSTRIP SQUARE PATCH ARRAY ANTENNA 4 X 4 ELEMENT 2.3 GHZ FOR 5G COMMUNICATION IN INDONESIA .....</b>	<b>102</b>
<i>Budi Aswoyo; Anggara Hadhy Putra</i>	
<b>APPLICATION OF THE COMBINATION SCHEME OF PAPR REDUCTION AND PREDISTORTION TECHNIQUES IN COOPERATIVE COMMUNICATION WITH AF PROTOCOL USING THE RELAY SELECTION STRATEGY .....</b>	<b>108</b>
<i>Annisa Anggun Puspitasari; Ummi Ainun Nadhiroh; Mareta Dwi Nor Habibah; Galuh Setya Palupi; Mohamad Ridwan; Yoedy Moegiharto</i>	
<b>MODELING AND SIMULATION OF PV SYSTEM WITH SELF ADAPTIVE DIFFERENTIAL EVOLUTION BASED MPPT UNDER PARTIAL SHADING CONDITION .....</b>	<b>114</b>
<i>Muhammad Dliaul Haq; Evi Nafiatu Sholikhah; Novie Ayub Windarko; Diah Septi Yanaratri</i>	
<b>PERFORMANCE OF A JOINT PAPR REDUCTION CLIPPING AND FILTERING (CF) SCHEME AND PREDISTORTION TECHNIQUES IN AMPLIFY AND FORWARD (AF) RELAYING SYSTEM WITH RELAY SELECTION STRATEGY .....</b>	<b>120</b>
<i>Mareta Dwi Nor Habibah; Galuh Setya Palupi; Annisa Anggun Puspitasari; Ummi Ainun Nadhiroh; Mohamad Ridwan; Yoedy Moegiharto</i>	
<b>EARLY DETECTION OF COW PREGNANCY BASED ON VOLUME CONTROL OF COW URINE USING FUZZY LOGIC METHOD .....</b>	<b>126</b>
<i>Novita Isnainin Darma Arshad; Kemalasari; Eru Puspita</i>	
<b>OPTIMAL GENERATION SCHEDULING CONSIDERING DISTRIBUTED GENERATOR FOR COST MINIMIZATION BASED ON ADAPTIVE MODIFIED FIREFLY ALGORITHM.....</b>	<b>131</b>
<i>Sujono; Ardyono Priyadi; Margo Pujiantara; Sjamsjul Anam; Naoto Yorino; Mauridhi Hery Purnomo</i>	
<b>COMPARISON OF OPTICAL FLOW METHODS: STUDY ABOUT LEFT VENTRICULAR TRACKING IN MULTI VIEW ECHOCARDIOGRAPHIC IMAGES .....</b>	<b>137</b>
<i>Mohamad Walid Asyhari; Riyanto Sigit; Bima Sena Bayu Dewantara; Anwar</i>	
<b>ANALYSIS OF KEY GENERATION WHICH EXTRACTED FROM RSS FOR HANDOVER SYSTEM IN V2I COMMUNICATION.....</b>	<b>144</b>
<i>Isna Yaumirrahma Saniyyah; Mike Yuliana; Amang Sudarsono</i>	
<b>PUBLIC PERCEPTION OF COVID-19 VACCINE BY TWEET SENTIMENT ANALYSIS .....</b>	<b>151</b>
<i>Xuanzhou Yang; Virach Somlertlamvanich</i>	
<b>BILSTM-CNN HYPERPARAMETER OPTIMIZATION FOR SPEECH EMOTION AND STRESS RECOGNITION.....</b>	<b>156</b>
<i>Agustinus Bimo Gumelar; Eko Mulyanto Yuniarno; Derry Pramono Adi; Adri Gabriel Sooi; Indar Sugiarto; Mauridhi Hery Purnomo</i>	
<b>OPTIMIZED WIDEBAND STEERABLE ANTENNA ARRAY USING AN 8X8 BUTLER MATRIX.....</b>	<b>162</b>
<i>Nadia Chater; Tomader Mazri; Mohamed Benbrahim; Anas Charkaoui</i>	
<b>ROS BASED MULTI-DATA SENSORS SYNCHRONIZATION FOR ROBOT SOCCER ERSOW.....</b>	<b>167</b>
<i>Khoirul Anwar; Iwan Kuniarto Wibowo; Bima Sena Bayu Dewantara; Mochamad Mobed Bachtiar; Muhammad Abdul Haq</i>	
<b>3D OBJECT DETECTION AND RECOGNITION BASED ON RGBD IMAGES FOR HEALTHCARE ROBOT.....</b>	<b>173</b>
<i>Ikmalil Birri; Bima Sena Bayu Dewantara; Dadet Pramadihanto</i>	
<b>HEALTHCARE AND HOSPITAL STROKE THERAPY COMPARISON USING EEG ANALYSIS.....</b>	<b>179</b>
<i>Mi'Rojful Mei Hartanti; Adhi Dharma Wibawa; Mauridhi Hery Purnomo</i>	
<b>A HETEROGENEOUS HYBRID CLOUD STORAGE SERVICE USING STORAGE GATEWAY WITH TRANSFER ACCELERATION .....</b>	<b>185</b>
<i>Jamal Abdul Nasyir; Idris Winarno; M. Udin Harun Al Rasyid</i>	
<b>DEVELOPMENT OF VULNERABLE WEB APPLICATION BASED ON OWASP API SECURITY RISKS .....</b>	<b>190</b>
<i>Muhammad Idris; Iwan Syarif; Idris Winarno</i>	
<b>DESIGN AND DEVELOPMENT OF HUMAN ANATOMY LEARNING PLATFORM FOR MEDICAL STUDENTS BASED ON AUGMENTED INTELLIGENCE TECHNOLOGY.....</b>	<b>195</b>
<i>Evianita Dewi Fajrianti; Sritrusta Sukaridhoto; Muhammad Udin Harun Al Rasyid; Rizqi Putri Nourma Budiarti; Ilham Achmad Al Hafidz; Naufal Adi Satrio; Ardiman Firmanda</i>	
<b>EMOTION RECOGNITION FROM SPEECH USING CONVOLUTIONAL NEURAL NETWORK AND COMBINATION OF FOUR SPEECH FEATURES .....</b>	<b>203</b>
<i>Yulistia Khoironul Aini; Tri Budi Santoso; Titon Dutono</i>	
<b>IMPLEMENTATION AND ANALYSIS OF IOT COMMUNICATION PROTOCOLS FOR CROWDSENSING AND CROWDSOURCING IN HEALTH APPLICATION.....</b>	<b>209</b>
<i>Ata Amrullah; M. Udin Harun Al Rasyid; Idris Winarno</i>	
<b>BLOOD CELLS CLASSIFICATION FOR IDENTIFICATION OF ACUTE LYMPHOBLASTIC LEUKEMIA ON MICROSCOPIC IMAGES USING IMAGE PROCESSING .....</b>	<b>215</b>
<i>Shelly Oktia Heriawati; Tri Harsono; Mochamad Mobed Bachtiar; Yetti Hernaningsih</i>	

<b>PERFORMANCE ENHANCEMENT OF MULTI-CAMERA HANDOFF SCHEME USING ANFIS METHOD</b> .....	221
<i>Atik Apprinda Paramita; Prima Kristalina; Bima Sena Bayu Dewantara</i>	
<b>VISION-BASED POSITIONING ESTIMATION ON THE ERSOW ROBOT SOCCER BY UTILIZING UNIQUE LANDMARKS IN THE FIELD WITH A COMPUTATIONAL PROCESS USING GPU</b> .....	227
<i>Rohmad Rifai; Mochamad Mobed Bachtiar; Iwan Kurnianto Wibowo</i>	
<b>DEVELOPMENT OF NITROGEN FERTILIZATION DOSE PREDICTION ON RICE FIELD BASED ON LEAF COLOR CHART</b> .....	233
<i>Alima Fahmi Rahmawati; Hendhi Hermawan; Rika Rokhana</i>	
<b>DEVELOPMENT OF TEXT CLASSIFICATION BASED ON DIFFICULTY LEVEL IN ADAPTIVE LEARNING SYSTEM USING CONVOLUTIONAL NEURAL NETWORK</b> .....	238
<i>Imamah; Umi Laili Yuhana; Arif Djunaidy; Mauridhi Hery Purnomo</i>	
<b>CLASSIFICATION OF COLON POLYP ON ENDOSCOPIC IMAGE USING SUPPORT VECTOR MACHINE</b> .....	244
<i>Nova Angelia Eriyanti; Riyanto Sigit; Tri Harsono</i>	
<b>DETECTING HUMAN ATTENDANCE USING 1-DIMENSIONAL FOOT SIGNAL FROM LASER RANGE SENSOR</b> .....	251
<i>Muhammad Dafa Geraldine Putra Malik; Dadet Pramadihanto; Bima Sena Bayu Dewantara</i>	
<b>CLASSIFICATION OF BRAIN TUMOR ON MAGNETIC RESONANCE IMAGING USING SUPPORT VECTOR MACHINE</b> .....	257
<i>Uswatun Hasanah; Riyanto Sigit; Tri Harsono</i>	
<b>ANIMATION OF MATHEMATICS LEARNING FOR VOCATIONAL HIGH SCHOOL ABOUT GEOMETRY TRANSFORMATION USING PARTICIPATORY DESIGN</b> .....	263
<i>Elisa Willy Santoso; Widi Sarinastiti; Irma Wulandari</i>	
<b>PIECES FRAMEWORK METHOD TO MEASURE THE EFFECTIVENESS OF OBESITY EXPLAINER ANIMATION VIDEOS</b> .....	269
<i>Zakiyyatul Miskiyyah; Widi Sarinastiti; Sritrusta Sukaridhoto</i>	
<b>IMPLEMENTATION OF FUZZY TSUKAMOTO ALGORITHM ON SMART NODE SENSORS FOR AIR QUALITY MONITORING</b> .....	275
<i>Nurul Istiqomah; Mike Yuliana; Tri Budi Santoso</i>	
<b>A 5 WATTS MAGNETIC RESONANCE WIRELESS POWER TRANSFER WITH ENHANCED TRANSMISSION DISTANCE CAPABILITY</b> .....	281
<i>C. Bambang Dwi Kuncoro; Tunggul Arief Nugroho; Arvanida Feizal Permana</i>	
<b>COMPARISON OF NEURAL NETWORK AND RANDOM FOREST CLASSIFIER PERFORMANCE ON DRAGON FRUIT DISEASE</b> .....	287
<i>Anita Jaquiline Lado; Adri Gabriel Sooai; Natalia Magdalena Rafu Mamulak; Paskalis Andrianus Nani; Yulianti Paula Bria; Patrisius Batarius; Paulina Aliandu; Emerensiana Ngaga; Alfry Aristo Jansen Sinlae; Sisilia Daeng Bakka Mau; Frengky Tedy; Emiliana Met</i>	
<b>ELECTRONIC SPEED CONTROLLER WITH FUZZY LOGIC AND LOAD CELL FOR ELECTRIC SKATEBOARD</b> .....	292
<i>Zainul Abidin; Taufik Hidayat Soesilo; Rusmi Ambarwati</i>	
<b>EMPLOYING MACHINE LEARNING WITH OPTIMIZED SVM PARAMETER TO DETECT WATER PIPE LEAKAGE</b> .....	298
<i>Kurniawan Saputra; M. Udin Harun Al Rasyid; Muh. Zen Samsono Hadi</i>	
<b>DATA ANALYTICS FOR MEDICAL RECORD DATA OF COVID-19 PATIENT WITH DESCRIPTIVE &amp; PREDICTIVE MINING</b> .....	304
<i>Alvintha Maharani Hanafiah; Ali Ridho Barakbah; Tita Karlita; Tri Hadiah Muliawati</i>	
<b>COVID-19 SYMPTOM DETECTION SYSTEM IN PUBLIC AREA USING FUZZY LOGIC METHOD</b> .....	312
<i>Abdillah S. Nursam; Moch. Zen Samsono Hadi; Prima Kristalina</i>	
<b>TRAEX: TRADITIONAL ARTS &amp; CRAFTS EVENT RECOMMENDATION SYSTEM WITH LIFETIME EXPERIENCE FOR REGIONAL REVITALIZATION</b> .....	318
<i>Reo Urata; Shiori Sasaki</i>	
<b>SOURCE-ORIENTED POV VISUALIZATION FOR MULTIDIMENSIONAL ANALYSIS OF INTERNATIONAL CONFLICTS AND TERRORIST INCIDENTS WITH 5D WORLD MAP SYSTEM</b> .....	323
<i>Shiori Sasaki; Yuto Miyamoto</i>	
<b>IMPLEMENTATION OF LIQUID ANIMATION TECHNIQUES FOR DEVELOPING RENEWABLE ENERGY MOTION GRAPHICS</b> .....	331
<i>Anisa Rayinda Sari; Hestiasari Rante; Nu Rrahida Arini</i>	

<b>STUDENTS TRAJECTORY PATTERN FINDING SCHEME BASED ON RSSI GEOLOCATION AS A PART OF SMART CAMPUS</b> .....	337
<i>Restry Ridha Hastari; Mike Yuliana; Prima Kristalina</i>	
<b>AUTOMATIC DETECTION OF RETINAL DISEASES IN OPTICAL COHERENCE TOMOGRAPHY IMAGES USING CONVOLUTIONAL NEURAL NETWORK</b> .....	343
<i>Arinal Haq; Arna Fariza; Nana Ramadijanti</i>	
<b>ANIMATED VIDEO USING DUK BASSER RIGGING TOOLSET ON TUBERCULOSIS EDUCATION</b> .....	349
<i>Gallan Romansyah Putra; Hestiasari Rante; Moh. Hasbi Assidiqi</i>	
<b>FORWARD KINEMATICS WITH FULL-ARM ANALYSIS ON “T-FLOW” 3.0 HUMANOID ROBOT</b> .....	356
<i>Wirayuda Dewandhana; Kevin Ilham Apriandy; Bima Sena Bayu Dewantara; Dadet Pramadihanto</i>	
<b>FORMALIN FISH DETECTION SYSTEM BASED ON DIGITAL IMAGE PROCESSING</b> .....	362
<i>Ika Roikhanah; Tri Harsono; Heny Yuniarti</i>	
<b>GLAUCOMA DETECTION BASED ON CUP-TO-DISC RATIO IN RETINAL FUNDUS IMAGE USING SUPPORT VECTOR MACHINE</b> .....	368
<i>Dinda Ayu Yunitasari; Riyanto Sigit; Tri Harsono</i>	
<b>DESIGN OF COVID-19 TRACING SYSTEM BASED ON BLUETOOTH LOW ENERGY</b> .....	374
<i>Mochammad Fahmi Ali; Moch. Zen Samsono Hadi; Rahardhita Widyatra Sudibyo; Hendy Briantoro</i>	
<b>NUMERICAL STUDY ANALYSIS OF THE EFFECT OF TRAILING EDGE THICKNESS OF LOW-PRESSURE STEAM TURBINE STATOR ON STEAM CONDENSATION</b> .....	380
<i>Gilang Muhammad; Lohdy Diana; Achmad Bahrul Ulum</i>	
<b>ANIMATED COMPANY PROFILE VIDEO USING PUPPET PIN RIGGING FOR CHARACTER MOVEMENT</b> .....	386
<i>Winalda Rachmawan; Hestiasari Rante; Muhammad Agus Zainuddin</i>	
<b>INTELLIGENT SYSTEM OF NATURAL DISASTER VICTIM DETECTION USING NAÏVE BAYES CLASSIFIER</b> .....	393
<i>Agiel Fahreza Aliek; Moch. Zen Samsono Hadi; Nur Rosyid Mubtadai; Ahmad Zainudin</i>	
<b>THERMAL CHARACTERISTICS OF TUBE ECONOMIZER WITH SERRATED FIN</b> .....	399
<i>Aldila Sukarno Putri; Rif'Ah Amalia; Teguh Hady Ariwibowo; Fifi Hesty Sholihah</i>	
<b>COLOR BASED OBJECT SEGMENTATION ON WHEELED GOALKEEPER ROBOT</b> .....	405
<i>Rifqi Amalya Fatekha; Bima Sena Bayu Dewantara; Hary Oktavianto</i>	
<b>DEVELOPMENT OF VISUAL DATA ACQUISITION SYSTEMS OF HOUSEHOLD OBJECTS</b> .....	411
<i>Muhammad Attamimi; Kelvin Liusiani; Astria Nur Irfansyah; Djoko Purwanto; Rudy Dikairono</i>	
<b>IMPROVEMENT OF SMOKER PREDICTION SYSTEM BASED ON HYPERSPECTRAL IMAGE WITH HYBRID DEEP LEARNING MODEL</b> .....	417
<i>Annisa Nuraini; Adhi Harmoko; Bramma Kiswanjaya</i>	
<b>MOBILE BASED OFFLINE HANDWRITTEN SIGNATURE FORGERY IDENTIFICATION USING CONVOLUTIONAL NEURAL NETWORK</b> .....	423
<i>L. Ayunin Fakhroh; Arna Fariza; Arif Basofi</i>	
<b>A COLOR AND COMPOSITION-BASED IMAGE RETRIEVAL SYSTEM BY IMAGE-QUERY DRAWING METHOD WITH COLOR-IMPRESSION DATABASE</b> .....	430
<i>Himawari Otsuka; Yasuhiro Hayashi; Yasushi Kiyoki</i>	
<b>GENDER CLASSIFICATION BASED SPEAKER’S VOICE USING YIN ALGORITHM AND MFCC</b> .....	438
<i>Mirza Ardiana; Titon Dutono; Tri Budi Santoso</i>	
<b>FUZZY SOCIAL FORCE MODEL FOR HEALTHCARE ROBOT NAVIGATION AND OBSTACLE AVOIDANCE</b> .....	445
<i>Akhmad Thalibar Rifqi; Bima Sena Bayu Dewantara; Dadet Pramadihanto; Bayu Sandi Marta</i>	
<b>PORTABLE DEVICE-BASED MEDICAL SERVICE SYSTEM FOR DICOM TO PNG CONVERSION</b> .....	451
<i>Yudha Dewansyah Putra; Riyanto Sigit; Heny Yuniarti</i>	
<b>DESIGN OF STEAM POWER PLANT CONDENSER MACHINE MAINTENANCE USING RCM (RELIABILITY CENTERED MAINTENANCE) METHODS WITH RCPS IMPLEMENTATION</b> .....	458
<i>Alif Wahyu Syahnanda; Prima Dewi Permatasari; Hendrik Elvian Gayuh Prasetya</i>	
<b>IMPROVED DAMPED LEAST SQUARES INVERSE KINEMATICS WITH JOINT LIMITS FOR 7-DOF “T-FLOW” HUMANOID ROBOT MANIPULATOR</b> .....	464
<i>Muhammad Ramadhan Hadi Setyawan; Sanggar Dewanto; Bayu Sandi Marta; Dadet Pramadihanto</i>	
<b>ACTION RECOGNITION WITH SPATIOTEMPORAL ANALYSIS AND SUPPORT VECTOR MACHINE FOR ELDERLY MONITORING SYSTEM</b> .....	470
<i>Mahaputra Ilham Awal; Luqmanul Hakim Iksan; Rizky Zull Fhamy; Dwi Kurnia Basuki; Sritrusta Sukaridhoto; Kazuyoshi Wada</i>	

<b>ERISA ROBOT'S WALKING TRAJECTORY CONTROL USING PIXY CMUCAM5 TO LOCATE THE TARGET POSITION</b> .....	476
<i>Mawaddah Sekar Rahmawati; Arif Irwansyah; Eko Henfri Binugroho; Ali Husein Alasiry; Novian Fajar Satria; Dwi Kurnia Basuki</i>	
<b>IMPROVEMENT OF THE PROCESSING SPEED OF THE ROBOT'S VISION SYSTEM USING ROBOT OPERATING SYSTEM</b> .....	482
<i>Erna Alfi Nurrohmah; Iwan Kurnianto Wibowo; Mochamad Mobed Bachtiar; Muhammad Mukhtarul Lathief</i>	
<b>MEDIA INFORMATION OF GENERALIZED ANXIETY DISORDER IN ADOLESCENT THROUGH ANIMATION EXPLAINER</b> .....	488
<i>Sherina Kusuma Putri; Widi Sarinastiti; Citra Devi Murdaningtyas</i>	
<b>EXPERIMENTAL ANALYSIS OF ARTIFICIAL EQUILATERAL TRIANGLE SOLAR AIR HEATER USING ZIG-ZAG CHANNEL</b> .....	494
<i>Arrad Ghani Sajitra; Lohdy Diana; Fiji Hesty Sholihah; Cantika Putri Rahayu</i>	
<b>DESIGN OF COLLABORATIVE WEBXR FOR MEDICAL LEARNING PLATFORM</b> .....	499
<i>Ilham Achmad Al Hafidz; Sritrusta Sukaridhoto; Muhammad Udin Harun Al Rasyid; Rizqi Putri Nourma Budiarti; Rachma Rizqina Mardhotillah; Rizki Amalia; Evianita Dewi Fajrianti; Naufal Adi Satrio</i>	
<b>SMART PARKING SYSTEM BASED ON HAAR CASCADE CLASSIFIER AND SIFT METHOD</b> .....	505
<i>Rahmat Fauzi Yulianto; Arif Irwansyah; Ni'Am Tamami</i>	
<b>MONITORING VIOLATIONS OF SOCIAL DISTANCING COVID-19 ON STANDING QUEUES WITH EUCLIDEAN DISTANCE METHOD</b> .....	511
<i>Indira Ayu Puspita; Reesa Akbar; Arif Irwansyah</i>	
<b>A DEVELOPMENT OF MOBILE ROBOT BASED ON ROS2 FOR NAVIGATION APPLICATION</b> .....	517
<i>Phuwanat Phueakhong; Jittima Varagul</i>	
<b>VULNERABILITY MAPPING OF TODDLER PNEUMONIA IN EAST JAVA, INDONESIA, USING THE K-MEDOIDS CLUSTERING ALGORITHMS</b> .....	521
<i>Linda Lailatus Sa'Idah; Arna Fariza; Arif Basofi</i>	
<b>WALKING GAIT LEARNING FOR "T-FLOW" HUMANOID ROBOT USING RULE-BASED LEARNING</b> .....	527
<i>Faiz Ulurrsyadi; Raden Sanggar Dewanto; Aliridho Barakbah; Dadet Pramadihanto</i>	
<b>SMART ODONTOGRAM: DENTAL DIAGNOSIS OF PATIENTS USING DEEP LEARNING</b> .....	532
<i>Excel Daris Fadhillah; Pravasta Caraka Bramastagiri; Riyanto Sigit; Sritrusta Sukaridhoto; Arya Brahmanta; Bima Sena Bayu Dewantara</i>	
<b>INTERSECTION CYLINDRICAL FEATURE RECOGNITION ALGORITHM FOR COUNTERBORE AND COUNTERSINK GEOMETRY APPLICATION</b> .....	538
<i>Yogi Muldani Hendrawan; Rian Muttaqin; Andri Pratama; Herman Budi Harja; Muhammad Udin Harun Al Rasyid; Idris Winarno</i>	
<b>RECOGNITION OF FOOD MATERIAL AND MEASUREMENT OF QUALITY USING YOLO AND WLD-SVM</b> .....	545
<i>Bima Sena Bayu Dewantara; Azifah Zusrina Devy; Mochamad Mobed Bachtiar; Setiawardhana</i>	
<b>QUADRUPED ROBOT BALANCE CONTROL FOR STAIR CLIMBING BASED ON FUZZY LOGIC</b> .....	552
<i>Alvin Teguh Budi Antok; Adytia Darmawan; Ali Husein Alasiry; Hendhi Hermawan; Eko Henfri Binugroho; Bayu Sandi Marta; Ibnu Kresno Wibowo; Aldifa Julian; Andre Faqih Ilham Suparman</i>	
<b>AN IMPROVED INDOOR RSSI BASED POSITIONING SYSTEM USING KALMAN FILTER AND MULTIQAD ALGORITHM</b> .....	558
<i>Rafina Destianti Ainul; Susilo Wibowo; Djuwari; Martin Siswanto</i>	
<b>DETERMINING GLOBAL POSITION FROM LOCAL POSITION IN MILITARY FORCE POSITION TRACKING APPLICATION</b> .....	565
<i>Muhammad Refa Utama Putra; Ali Husein Alasiry; Hary Oktavianto</i>	
<b>IMPLEMENTATION OF IMU-BASED BALANCED MOTION USING ROS FOR EROS HUMANOID SOCCER ROBOT</b> .....	570
<i>Muhammad Yahya Indranuddin; Anhar Risnumawan; Eru Puspita; Ali Husein Alasiry; Choirul Anwar Maulana; Rizky Alfadin</i>	
<b>ENERGY EFFICIENCY WITH SLEEP SCHEDULE FOR SAR TEAM COMMUNICATION</b> .....	576
<i>Mohammad Alfi Rizzi; Moch. Zen Samsono Hadi; Prima Kristalina</i>	
<b>MAPPING DETECTION OF DC SERIES ARC FAULT BASED ON FAST FOURIER TRANSFORM</b> .....	582
<i>Mochammad Zulfikar T. Nashrulloh; Eka Prasetyono; Dimas Okky Anggriawan</i>	
<b>WIRELESS SENSOR NETWORK FOR BATTERY MONITORING USES HEAD CLUSTERING METHOD AND SLEEP SCHEDULING</b> .....	588
<i>M. Adamu Islam Mashuri; Moch. Zen Samsono Hadi; Rahardhita Widayarta Sudibyo</i>	

<b>FLOW-VISION: OBJECT RECOGNITION AND POSE ESTIMATION SYSTEM BASED ON THREE-DIMENSIONAL (3D) COMPUTER VISION</b> .....	593
<i>Vardyansyah Cahya Pratama Harsetya Putra; Kevin Ilham Apriandy; Dadet Pramadihanto; Ali Ridho Barakbah</i>	
<b>ANALYSIS THE EFFECT OF INLET DUCT AND TRANSITION ZONE ANGLE VARIATIONS ON FLOW CHARACTERISTICS AND HEAT TRANSFER ON VERTICAL TYPE HEAT RECOVERY STEAM GENERATOR</b> .....	600
<i>Ikhsan Mahardhika Utama; Fifi Hesty; Rif'Ah Amalia; Setyo Nugroho</i>	
<b>WALKING TRAJECTORY CONTROL FOR HUMANOID DANCING ROBOT ERISA BASED ON FIELD GUARDRAIL</b> .....	606
<i>Prishandy Hamami Amrulloh; Ali Husein Alasiry; Eko Henfri Binugroho; Ardik Wijayanto; Novian Fajar Satria; Dwi Kurnia Basuki</i>	
<b>SPATIAL MAPPING OF TUBERCULOSIS VULNERABILITY IN TUBAN DISTRICT, INDONESIA, USING HIERARCHICAL CLUSTERING</b> .....	612
<i>Amalia Kusumaningtyas; Arif Basofi; Arna Fariza</i>	
<b>DESIGN AND IMPLEMENTATION OF SMARTPHONE-CONTROLLED PROGRAMMABLE AUDIO EQUALIZER</b> .....	619
<i>Andi Mei Prasetyo Isworo; Ardik Wijayanto; Hary Oktavianto</i>	
<b>IMPLEMENTATION OF RSSI GENERATED CHANNEL PROBING FOR AIR QUALITY MONITORING SYSTEM BASED ON LORAWAN</b> .....	624
<i>Farel Juliansyah; Moch. Zen Samsono Hadi; Mike Yuliana</i>	
<b>NUMERICAL ANALYSIS OF A SHELL AND TUBE HEAT EXCHANGER USING COMPUTATIONAL FLUID DYNAMICS SOFTWARE</b> .....	630
<i>Rudi Gustian Simangunsong; Rif'ah Amalia; Dendy Satrio</i>	
<b>MULTI-CLASS IMAGE CLASSIFICATION BASED ON MOBILENETV2 FOR DETECTING THE PROPER USE OF FACE MASK</b> .....	636
<i>Rika Rokhana; Wiwiet Herulambang; Rarasmaya Indraswari</i>	
<b>KEY AGREEMENT ALGORITHM FOR V2I COMMUNICATION BASED ON DIFFERENTIAL TECHNIQUE</b> .....	642
<i>Rachmadani Yusuf Pratama; Mike Yuliana; Aries Pratiarso</i>	
<b>PARTICLE SWARM OPTIMIZATION BASED UHF BAND RECTANGULAR LOOP ANTENNA FOR UNMANNED AERIAL VEHICLE APPLICATION</b> .....	648
<i>Mohamad Ridwan; Farida Gamar; Maretha Ruswiansari; Hanif Abdilllah; Dea Fitriani Ilma; Kevin M. C. Muhammad</i>	
<b>NETWORK PERFORMANCE EVALUATION OF CONTAINER SERVER-BASED LORAWAN IOT FOR FIELD WORKER MONITORING SYSTEM</b> .....	653
<i>Gerda Iswari; Rahardhita Widyatra Sudibyo; Haryadi Amran Darwito; Md. Manowarul Islam</i>	
<b>DESIGN OF WEIGHT AND HEIGHT MEASUREMENT SYSTEM BASED WIRELESS COMMUNICATION</b> .....	658
<i>Sifaul Warohmatulilla; Haniah Mahmudah; Moch. Zen Samsono Hadi</i>	
<b>A SMART WATER RESERVOIR CONTROL SYSTEM FOR IOT SMART ENVIRONMENT</b> .....	664
<i>Farah Maulidina; Haryadi Amran Darwito; Rahardhita Widyatra Sudibyo; Mohamad Ridwan</i>	
<b>POSITION AND ORIENTATION CONTROL OF THREE WHEELS SWERVE DRIVE MOBILE ROBOT PLATFORM</b> .....	669
<i>Eko Henfri Binugroho; Andri Setiawan; Yudha Sadewa; Prishandy Hamami Amrulloh; Kafin Paramasastra; Rahardita Widyatra Sudibyo</i>	
<b>DESIGN AND IMPLEMENTATION OF REAL-TIME POTHOLE DETECTION USING CONVOLUTIONAL NEURAL NETWORK FOR IOT SMART ENVIRONMENT</b> .....	675
<i>Ilham Dwi Pratama; Hani'Ah Mahmudah; Rahardhita Widyatra Sudibyo</i>	
<b>DISTRIBUTED ONLINE COMPUTER-BASED TEST SYSTEM FOR ENGLISH EXAM</b> .....	680
<i>Muhajirin Ida Ilyas; Wiratmoko Yuwono; Idris Winarno; Akhmad Alimudin</i>	
<b>WALL FOLLOWING AND OBSTACLE AVOIDANCE CONTROL IN ROISC-V1.0 (ROBOTIC DISINFECTANT) USING BEHAVIOR BASED CONTROL</b> .....	684
<i>Yudha Sadewa; Eko Henfri Binugroho; Nofria Hanafi; Ir. Dadet Pramadihanto; Achmad Fauzi; Agung Purwanto</i>	
<b>USER EXPERIENCE DESIGN FOR VIRTUAL EXHIBITION PLATFORM USING LEAN STARTUP METHOD</b> .....	690
<i>Verent Flourenca Irene; Umi Sa'adah; Desy Intan Permatasari; Maulidan Bagus Afridian Rasyid</i>	
<b>Author Index</b>	