Conference ID #56927

PROCEEDING

#5th ISRITI 2022

Yogyakarta - Indonesia
8 December 2022

BUSINESS INTELLIGENCE IN DIGITAL ERA

isriti.utdi.ac.id

UNIVERSITAS TEKNOLOGI DIGITAL INDONESIA

IEEE INDONESIA SECTION

UTDI IEEE Student Branch

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10052962

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) took place 8-9 December 2022 virtually.

IEEE catalog number:	CFP22AAH-ART
ISBN:	978-1-6654-5512-1

Copyright and Reprint Permission: 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 reprint or republication permission, email to IEEE Copyrights Manager at pubs-permissions@ieee.org. All rights reserved. Copyright © 2022 by IEEE.

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10053067

Welcome Speech from the Chairman of Universitas Teknologi Digital Indonesia

The honorable
- Dr. Petrus Usmanij Lecturer of Management Information Systems, La Trobe University, Australia.
- Head of LLDIKTI Region V
- Chairman of Widya Bakti Foundation and his staff,
- Representatives from IEEE Indonesia Section,
- Researchers and conference attendees,
- Ladies and Gentlemen,

Assalamu'alaikum Wr. Wb.
May peace and health be upon us all.

First, let us express our utmost gratitude to God Almighty (SWT) for His blessings and grace so that we can all still participate in the 5th ISRITI international conference, even in this coronavirus pandemic atmosphere. On this occasion, let me express my sincere appreciation to the Keynote Speakers: Dr. Petrus Usmanij, Lecturer of Management Information Systems, La Trobe University, Australia; and Dr. Bambang Purnomosidi for their willingness to share their brilliant ideas and insights to be presented at this conference.

Dear ladies and gentlemen,
As the head of Universitas Teknologi Digital Indonesia (UTDI), I am saddened to state that the 2022 5th ISRITI conference had to be held online, considering that the coronavirus pandemic has not ended. Even though a pandemic currently hit us, the researchers' enthusiasm is apparent in the number of research articles submitted. We received up to 282 articles from 16 countries. Around 140 articles were accepted to be readily presented online in a conference forum with the theme: Artificial Intelligence for Social Interactions. As the organizers of iSriti, we are very proud and grateful for the researchers' participation who have been willing to submit their research results to be published in this conference forum. We would also like to thank IEEE and IEEE Indonesia, who have trusted and supported this conference from the very beginning. We still hope to build networks and information exchanges between academics, practitioners, researchers, and the government to identify and explore issues, opportunities, and solutions to face challenges in the current era of technological disruption.

Finally, on this occasion, I would like to express my utmost gratitude to the following:

1. The distinguished speakers who have been willing to share their valuable knowledge at this conference;
2. The third ISRITI researchers who have presented and will present their research results;
3. Reviewers who have carefully reviewed the articles of the researchers;
4. Moderators who are more than willing to lead the plenary session;
5. IEEE and IEEE Indonesia Section for trusting us to hold this international conference;
6. The committee that has been working hard to prepare this international conference according to plan; Last but not least, as the organizer, I would like to apologize for any shortcomings or inconveniences during this event sincerely.

Thank you very much for your kind attention, and Wassalamu'alaium Wr. Wb.
Yogyakarta, 8 December 2022

The Rector of Universitas Teknologi Digital Indonesia (UTDI)

Totok Suprawoto, M.M., M.T.

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10052896

Welcome Speech from General Chair

Dear colleagues and friends.

On behalf of the organizing committee, I am delighted to welcome all participants to the 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI 2022). This is the third international conference held by Universitas Teknologi Digital Indonesia (UTDI), Indonesia, virtual on December 8th, 2022.

In this conference, the committee chose the following theme: "Business Intelligence in Digital Era". This highlight was chosen because various advances in AI have recently raised concerns that AI will replace various things in the human domain. For us, AI can be used to understand social interactions better and build machines that work more collaboratively and effectively with humans. Therefore, by highlighting that theme in the 5th ISRITI 2022, we hope to raise awareness of AI for social interactions.

The conference aims to provide an interactive international forum for sharing and exchanging information on the latest research in information technology, computer sciences, informatics, and related fields. Nearly 142 academicians, researchers, practitioners, and presenters from 16 countries (Indonesia, Philippines, China, Thailand, India, United Arab Emirates, Iraq, Malaysia, Taiwan, Brunei Darussalam, Japan, USA, United Kingdom (Great Britain), Bangladesh, Kuwait, and Pakistan) gathered in this event. In total, there are 328 active papers submitted to this conference. Each paper has been reviewed with tight criteria from our invited reviewers. Based on the review result, 142 papers have been accepted, which leads to an acceptance rate of 43.29%. This conference will not be successful without extensive effort from many parties.

I thank all plenary speakers for allocating valuable time to share their knowledge. I would also like to express my sincere gratitude to all participants who participated in this conference. Special acknowledgment should go to the Technical Program Committee Chairs, Members, and Reviewers for their thorough and timely reviewing of the papers. We would also like to thank our sponsors: IEEE Indonesia Section and Research and Society Service Institution at Universitas Teknologi Digital Indonesia (UTDI).

Last but not least, recognition should also go to the Local Organizing Committee members who have put enormous effort and support into this conference. At last, we hope that you have an enjoyable and inspiring moment during our conference. Thank you for your participation in ISRITI 2022.

Yogyakarta, 8 December 2022
General Chair of the 5th ISRITI 2022

Dr. Widyastuti Andriyani, S.Kom., M.Kom.

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10052814

Preface

Understanding the changing business environment and describing how an organization can survive is a definite step that needs to be done. It must be separated from the support of appropriate decision-making from technological devices, mainly computerized devices or machines. Business intelligence is a term for categorizing applications and technologies in collecting, storing, analyzing, and providing access to data for decision-making in a case. The application of business intelligence includes all the technology and methodologies needed to obtain information to make decisions to improve the performance of a business. This concept always emphasizes quality improvement based on a data-based system. The description of the business intelligence methodology must understand the main problems in implementing business analytics. This set of plans includes techniques, methods, software, infrastructure, and the like, which is necessary to gain knowledge so that decisions can be made correctly and on target. Closing the strategic gap facilitates the difference between current and desired performance and is usually manifested in the mission, vision, goals, and strategies to be achieved. Making these decisions requires data from business intelligence systems that come from factual data, planning data, and predictive data. These data can produce basic information from an activity's past, present, and future trends. These processes can analyze consumer behavior, patterns, and activity trends. Considerations related to process optimization and operational performance are needed to increase business effectiveness.

This conference seeks to present discussions on improving and optimizing services to answer the needs required to overcome problems in various business domains. It is hoped that the solutions provided by these studies can be used to evaluate, analyze and report research results. Data that initially cannot help in decision making, with business intelligence, data can be integrated and easily understood in decision making. The entire computer system has a primary purpose for all users according to the needs of each user. The presentation of a variety of information can be adapted to the needs of different users. This conference's availability of relevant data and easy access to information is vital. In addition, capabilities in analyzing and fulfilling requests require knowledge and information that can be viewed from various perspectives. The contributions presented in these papers can help business people understand the context of the methodology that will be developed.

Editorial Boards

Rikie Kartadie
Ferry Wahyu Wibowo

Technical Program Committee

Mohd Helmy Abd Wahab	Universiti Tun Hussein Onn Malaysia	Malaysia
Rusli Abdullah	Universiti Putra Malaysia	Malaysia
Sukarya Ade	Indonesian Researcher and Scientist Institute	Indonesia
Naveen Aggarwal	Panjab University	India
Ibrahim Ahmad	Universiti Teknikal Malaysia Melaka	Malaysia
Mohd Khairul Ikhwan Ahmad	Universiti Tun Hussein Onn Malaysia	Malaysia
Syed Ahmed	NED University of Engineering and Technology	Pakistan
Michele Albano	Aalborg University	Denmark
Mustafa Ali	Mustansiriyah University, Baghdad	Iraq
Widyastuti Andriyani	Universitas Teknologi Digital Indonesia	Indonesia
Andria Arisal	Indonesian Institute of Sciences	Indonesia
Koichi Asatani	Nankai University	Japan
Azizul Azizan	Universiti Teknologi Malaysia (UTM)	Malaysia
Aslina Baharum	Universiti Teknologi MARA (UiTM)	Malaysia
Robby Cokro Buwono	Universitas Teknologi Digital Indonesia	Indonesia
Tai-Chen Chen	MAXEDA Technology	Taiwan
Akhmad Dahlan	Universitas Amikom Yogyakarta	Indonesia
Ni Ketut Dewi Ari Jayanti	Institute of Technology and Business STIKOM Bali	Indonesia
Alban Duverdier	CNES	France
Noriko Etani	Kyoto University	Japan
Edi Faizal	Universitas Teknologi Digital Indonesia	Indonesia
Ahmad Fajar	Bina Nusantara University	Indonesia
Ridi Ferdiana	Universitas Gadjah Mada	Indonesia

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10053037

Alireza Ghasempour	University of Applied Science and Technology	USA
Paulo Gil	Universidade Nova de Lisboa	Portugal
Javier Gozalvez	Universidad Miguel Hernandez de Elche	Spain
Gunawan Gunawan	Politeknik Negeri Medan	Indonesia
Ibnu Hadi Purwanto	Universitas AMIKOM Yogyakarta	Indonesia
Seng Hansun	Universitas Multimedia Nusantara	Indonesia
Taqwa Hariguna	Universitas Amikom Purwokerto	Indonesia
Lucia Nugraheni Harnaningrum	STMIK AKAKOM Yogyakarta	Indonesia
Cosmas Haryawan	Universitas Teknologi Digital Indonesia	Indonesia
Purwono Hendradi	Universitas Muhammadiyah Magelang	Indonesia
Leonel Hernandez	ITSA University	Colombia
Roberto Carlos Herrera Lara	National Polytechnic School	Ecuador
Muhamad Syamsu Iqbal	University of Mataram	Indonesia
Nurulisma Ismail	Universiti Malaysia Perlis	Malaysia
Anggun Isnawati	Institut Teknologi Telkom Purwokerto	Indonesia
Iswandi Iswandi	Gadjah Mada University	Indonesia
Ramkumar Jaganathan	Dr NGP Arts and Science College	India
Biao Jiang	The City University of New York	USA
Shaidah Jusoh	Xiamen University Malaysia	Malaysia
Nitika Kapoor	Chandigarh University	India
Rikie Kartadie	Universitas Teknologi Digital Indonesia	Indonesia
Sapna Katiyar	Impledge Technologies	India
Sandy Kosasi	STMIK Pontianak	Indonesia

Danny Kriestanto	STMIK AKAKOM Yogyakarta	Indonesia
Domy Kristomo	Universitas Teknologi Digital Indonesia	Indonesia
Sumit Kushwaha	Chandigarh University	India
Chuan-Ming Liu	National Taipei University of Technology	Taiwan
Pavel Loskot	ZJU-UIUC Institute	China
Sukrisno Mardiyanto	Institut Teknologi Bandung	Indonesia
Prita Dewi Mariyam	Universitas Indonesia	Indonesia
Yohakim Marwanta	Universitas Teknologi Digital Indonesia	Indonesia
Maria Mediatrix	STMIK AKAKOM	Indonesia
Ratheesh Kumar Meleppat	University of California Davis	USA
Miftahuddin Miftahuddin	Syiah Kuala University	Indonesia
Mohamed Moharam	Misr University For Science and Technolgy	Egypt
Muhammad Hafiz Mohd Khalid	Universiti Teknologi Mara	Malaysia
Philip Moore	Lanzhou University	China
Asyahri Nasyuha	STMIK Triguna Dharma	Indonesia
Hu Ng	Multimedia University	Malaysia
Ruzelita Ngadiran	Universiti Malaysia Perlis & Centre of Excellence Advanced Computing (ADVCOMP), UniMAP	Malaysia
Hea Choon Ngo	Universiti Teknikal Malaysia Melaka	Malaysia
Muhammad Agung Nugroho	Universitas Teknologi Digital Indonesia	Indonesia
Nitish Ojha	Sharda University, Greater Noida, UP	India
Ilker Ali Ozkan	Selcuk University	Turkey
Sutarman PhD	Magister of Information Technology University Technoloy of Yogyakarta	Indonesia

N. Prabaharan	SASTRA Deemed University	India
Luthfan Hadi Pramono	Universitas Teknologi Digital Indonesia	Indonesia
Andri Pranolo	Universitas Ahmad Dahlan	Indonesia
Agung Prasetyo	Universitas Teknologi Digital Indonesia	Indonesia
Adiyuda Prayitna	Universitas Teknologi Digital Indonesia	Indonesia
Edy Prayitno	Universitas Teknologi DIgital Indonesia	Indonesia
Tri Priyambodo	Universitas Gadjah Mada	Indonesia
Agfianto Putra	Universitas Gadjah Mada	Indonesia
Bambang Purnomosidi Dwi Putranto	Universitas Teknologi Digital Indonesia	Indonesia
Yuansong Qiao	Technological University of the Shannon	Ireland
Melky Radja	Universitas Flores	Indonesia
Ali Rafiei	University of Technology Sydney	Australia
Suwanto Raharjo	Institut Sains & Teknologi AKPRIND Yogyakarta	Indonesia
Sujan Rajbhandari	Bangor University	United Kingdom (Great Britain)
Manisha Rajput	Savitribai Phule Pune University	India
Rasim Rasim	Indonesia University of Education	Indonesia
Rianto Rianto	Universitas Teknologi Yogyakarta	Indonesia
Bagus Rintyarna	Universitas Muhammadiyah Jember	Indonesia
Leo Santoso	Petra Christian University	Indonesia
Vaibhav Saundarmal	Marathwada Institute of Technology, Aurangabad	India
Maria Sebatubun	University of Gadjah Mada	Indonesia
Anindita Septiarini	Universitas Mulawarman	Indonesia
Amel Serrat	USTO MB	Algeria

Bayu Setiaji	Universitas AMIKOM Yogyakarta	Indonesia
Iwan Setyawan	Satya Wacana Christian University	Indonesia
Aditi Sharma	Parul University, Vadodara	India
Abdul Samad Shibghatullah	UCSI University	Malaysia
Sanggyu Shin	Tokai University	Japan
Maria Siregar	UIN Sunan Kalijaga Yogyakarta, Facuty of Science and Technology	Indonesia
Karthik Sivarama Krishnan	Rochester Institute of Technology	USA
China Sonagiri	Institute of Aeronautical Engineering	India
Houbing Song	University of Maryland, Baltimore County	USA
Joey Suba	University of the Assumption	Philippines
Sritrusta Sukaridhoto	Politeknik Elektronika Negeri Surabaya	Indonesia
Sumiyatun Sumiyatun	Universitas Teknologi Digital Indonesia	Indonesia
Andi Sunyoto	Universitas Amikom Yogyakarta	Indonesia
Totok Suparwoto	Universitas Teknologi Digital Indonesia	Indonesia
Totok Suprawoto	STMIK AKAKOM Yogyakarta	Indonesia
Pulut Suryati	Universitas Teknologi Digital Indonesia	Indonesia
Govind Suryawanshi	University of Pune Pune	India
Emy Susanti	Universitas Teknologi Digital Indonesia	Indonesia
Edhy Sutanta	Institut Sains & Teknologi AKPRIND Yogyakarta	Indonesia
Chakib Taybi	Mohammed First University	Morocco
Ivanna Timotius	Satya Wacana Christian University	Indonesia
Evi Triandini	Institut Teknologi dan Bisnis STIKOM Bali	Indonesia
Mochammad Wahyudi	Universitas Gadjah Mada	Indonesia

Oyas Wahyunggoro	UGM	Indonesia
Ferry Wahyu Wibowo	Universitas Amikom Yogyakarta	Indonesia
Setyawan Widyarto	Universiti Selangor	Malaysia
Wihayati Wihayati	Satya Wacana Christian University	Indonesia
Warusia Yassin	Universiti Teknikal Malaysia Melaka	Malaysia
Thaweesak Yingthawornsuk	King Mongkut's University of Technology Thonburi	Thailand
Uky Yudatama	Universitas Muhammadiyah Magelang	Indonesia
Nur Zareen Zulkarnain	Universiti Teknikal Malaysia Melaka	Malaysia

Additional Reviewers

Mohd Helmy Abd Wahab	Universiti Tun Hussein Onn Malaysia	Malaysia
Andria Arisal	Indonesian Institute of Sciences	Indonesia
Robby Cokro Buwono	Universitas Teknologi Digital Indonesia	Indonesia
Ni Ketut Dewi Ari Jayanti	Institute of Technology and Business STIKOM Bali	Indonesia
Alban Duverdier	CNES	France
Noriko Etani	Kyoto University	Japan
Edi Faizal	Universitas Teknologi Digital Indonesia	Indonesia
Ridi Ferdiana	Universitas Gadjah Mada	Indonesia
Alireza Ghasempour	University of Applied Science and Technology	USA
Gunawan Gunawan	Politeknik Negeri Medan	Indonesia
Ibnu Hadi Purwanto	Universitas AMIKOM Yogyakarta	Indonesia
Seng Hansun	Universitas Multimedia Nusantara	Indonesia
Lucia Nugraheni Harnaningrum	STMIK AKAKOM Yogyakarta	Indonesia
Purwono Hendradi	Universitas Muhammadiyah Magelang	Indonesia
Leonel Hernandez	ITSA University	Colombia
Roghib Muhammad Hujja	Universitas Gadjah Mada	Indonesia
Anggun Fitrian Isnawati	Institut Teknologi Telkom Purwokerto	Indonesia
Iswandi Iswandi	Gadjah Mada University	Indonesia
Ramkumar Jaganathan	Dr NGP Arts and Science College	India
Biao Jiang	The City University of New York	USA
Shaidah Jusoh	Xiamen University Malaysia	Malaysia
Nitika Kapoor	Chandigarh University	India
Rikie Kartadie	Universitas Teknologi Digital Indonesia	Indonesia
Sandy Kosasi	STMIK Pontianak	Indonesia
Domy Kristomo	Universitas Teknologi Digital Indonesia	Indonesia
Sukrisno Mardiyanto	Institut Teknologi Bandung	Indonesia
Prita Dewi Mariyam	Universitas Indonesia	Indonesia
Yohakim Marwanta	Universitas Teknologi Digital Indonesia	Indonesia
Maria Mediatrix	STMIK AKAKOM	Indonesia
Ratheesh Kumar Meleppat	University of California Davis	USA
Miftahuddin Miftahuddin	Syiah Kuala University	Indonesia
Mohamed Hussein Moharam	Misr University For Science and Technolgy	Egypt
Philip T Moore	Lanzhou University	China
Asyahri Hadi Nasyuha	STMIK Triguna Dharma	Indonesia
Hu Ng	Multimedia University	Malaysia
Ruzelita Ngadiran	Universiti Malaysia Perlis & Centre of Excellence Advanced Computing (ADVCOMP), UniMAP	Malaysia
Hea Choon Ngo	Universiti Teknikal Malaysia Melaka	Malaysia
Sutarman PhD	Magister of Information Technology University Technoloy of Yogyakarta	Indonesia

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10052980

Edy Prayitno	Universitas Teknologi DIgital Indonesia	Indonesia
Tri K Priyambodo	Universitas Gadjah Mada	Indonesia
Melky Radja	Universitas Flores	Indonesia
Suwanto Raharjo	Institut Sains & Teknologi AKPRIND Yogyakarta	Indonesia
Rianto Rianto	Universitas Teknologi Yogyakarta	Indonesia
Mardhani Riasetiawan	Universitas Gadjah Mada	Indonesia
Sirimonpak S	KMUTT	Thailand
Leo Santoso	Petra Christian University	Indonesia
Bayu Setiaji	Universitas AMIKOM Yogyakarta	Indonesia
Iwan Setyawan	Satya Wacana Christian University	Indonesia
Aditi Sharma	Parul University, Vadodara	India
Abdul Samad Bin Shibghatullah	UCSI University	Malaysia
Sanggyu Shin	Tokai University	Japan
Maria Ulfah Siregar	UIN Sunan Kalijaga Yogyakarta, Facuty of Science and Technology	Indonesia
Karthik Sivarama Krishnan	Rochester Institute of Technology	USA
Sritrusta Sukaridhoto	Politeknik Elektronika Negeri Surabaya	Indonesia
Raden Sumiharto	Universitas Gadjah Mada	Indonesia
Govind R Suryawanshi	University of Pune Pune	India
Emy Susanti	Universitas Teknologi Digital Indonesia	Indonesia
Tanapon Tarongkunanan	Kingmongkut's University of Technology Thonburi	Thailand
Ivanna Timotius	Satya Wacana Christian University	Indonesia
Evi Triandini	Institut Teknologi dan Bisnis STIKOM Bali	Indonesia
Oyas Wahyunggoro	UGM	Indonesia
Wihayati Wihayati	Satya Wacana Christian University	Indonesia
Uky Yudatama	Universitas Muhammadiyah Magelang	Indonesia

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10053061

STEERING COMMITTEE

Chuan-Ming Liu (National Taipei University of Technology, Taiwan)

Totok Suprawoto (STMIK AKAKOM Yogyakarta, Indonesia)

Setyawan Widyarto (Universiti Selangor, Malaysia)

ORGANIZING COMMITTEE

General Chair

Widyastuti Andriyani (Universitas Teknologi Digital Indonesia & UTDI, Indonesia)

General Co-Chair

Bambang Purnomosidi Dwi Putranto (Universitas Teknologi Digital Indonesia & PT Zenit Merdeka Raya, Indonesia)

Secretary

Maria Mediatrix (STMIK AKAKOM, Indonesia)

Treasurer

Sumiyatun Sumiyatun (Universitas Teknologi Digital Indonesia, Indonesia)

Registration Chair

Muhammad Agung Nugroho (Universitas Teknologi Digital Indonesia, Indonesia)

Publication Chair

Rikie Kartadie (Universitas Teknologi Digital Indonesia, Indonesia)

TECHNICAL COMMITTEE

Domy Kristomo (Universitas Teknologi Digital Indonesia, Indonesia)

Robby Cokro Buwono (Universitas Teknologi Digital Indonesia, Indonesia)

Danny Kriestanto (STMIK AKAKOM Yogyakarta, Indonesia)

Luthfan Hadi Pramono (Universitas Teknologi Digital Indonesia, Indonesia)

Cosmas Haryawan (Universitas Teknologi Digital Indonesia, Indonesia)

Plenary and Parallel Session Division

Plenary Session Moderator

Siska Lidya Revianti (STMIK AKAKOM Yogyakarta, Indonesia)

Parallel Session Chair

Al Agus Subagyo (STMIK AKAKOM, Indonesia)

Robby Cokro Buwono (Universitas Teknologi Digital Indonesia,

Indonesia)
Yagus Cahyadi (Universitas Teknologi Digital Indonesia, Indonesia)
Edi Faizal (Universitas Teknologi Digital Indonesia, Indonesia)
Cosmas Haryawan (Universitas Teknologi Digital Indonesia, Indonesia)
Domy Kristomo (Universitas Teknologi Digital Indonesia, Indonesia)
Mesti Woro Mahatmi (Universitas Teknologi Digital Indonesia, Indonesia)
Faizal Makhrus (Universitas Gadjah mada, Indonesia)
Yohakim Marwanta (Universitas Teknologi Digital Indonesia, Indonesia)
Maria Mediatrix (STMIK AKAKOM, Indonesia)
Asyahri Hadi Nasyuha (STMIK Triguna Dharma, Indonesia)
Fx. Henry Nugroho (Universitas Teknologi Digital Indonesia, Indonesia)
Muhammad Agung Nugroho (Universitas Teknologi Digital Indonesia, Indonesia)
Luthfan Hadi Pramono (Universitas Teknologi Digital Indonesia, Indonesia)
Agung Budi Prasetyo (STMIK AKAKOM Yogyakarta, Indonesia)
Adiyuda Prayitna (Universitas Teknologi Digital Indonesia, Indonesia)
Edy Prayitno (Universitas Teknologi DIgital Indonesia, Indonesia)
Bambang Purnomosidi Dwi Putranto (Universitas Teknologi Digital Indonesia & PT Zenit Merdeka Raya, Indonesia)
Pulut Suryati (Universitas Teknologi Digital Indonesia, Indonesia)
Emy Susanti (Universitas Teknologi Digital Indonesia, Indonesia)
Bagas Triaji (Universitas Teknologi Digital Indonesia, Indonesia)
Agnes Nora Eko Wahyu Utami (Universitas Teknologi Digital Indonesia, Indonesia)
Basuki Heri Winarno (Universitas Teknologi Digital Indonesia, Indonesia)

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10052836

Author	Session	Start page	Title
		A	
Abdullah, Muhammad	3-3.5	637	*Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System*
Aconk, Hujjatullah	3-8.1	787	*Smart Economy Implementation in Supporting SMEs Growth: Case Study in Indonesia & Malaysia Smart Cities*
Adhal, Hutrila	2-5.4	378	*Dry Cannabis Detection by Using Portable Electronic Nose*
Adinegoro, Firdaus	2-5.2	369	*Latency and RAM Usage Comparison of Advanced and Lightweight Service Mesh*
Adji, Teguh	3-2.1	576	*Combining Support Vector Machine - Fast Fourier Transform (SVM - FFT) For Improving Accuracy on Broken Bearing Diagnosis*
Adnan, Risman	2-7.4	469	*Towards Robust Diabetic Retinopathy Classifier Using Natural Gradient Langevin Dynamics*
Adrian, Ronald	1-3.1	47	*Determination of Attack Points on IoT Devices based on Particle Swarm Optimization to Support Intrusion Prevention System*
Adriyanto, Feri	2-8.7	531	*Design and Implementation of Hybrid Equalization Battery Management System for Lithium-Ion Batteries*
Adyatama, Sony	2-8.7	531	*Design and Implementation of Hybrid Equalization Battery Management System for Lithium-Ion Batteries*
Ahmadiar, Ahmadiar	3-4.5	672	*Performance evaluation and analysis of LBP utilization in face spoofing detection with deep learning*
Ahmadiyah, Adhatus Solichah	2-4.8	356	*Predicting Halal Critical Control Points of Microbial-based Ingredients: A Self-Assessment for MSMEs*
Aisuwarya, Ratna	3-1.3	554	*Design of Wearable Device for Monitoring the Position of A Person with Dementia*
Aji bawono, Marastika	1-7.1	141	*Classification of Sentiment Analysis Against Omnibus Law on Twitter Social Media and News Websites Using the Naïve Bayes Method*
Al Ka'bi, Amin	3-1.4	559	*Proposed Artificial Intelligence Algorithm for Developing Higher Education*
Alaryani, Alia	3-2.3	588	*Protecting Smart Homes: Attack Scenarios, Risks & Threat Modeling*
Alasiry, Ali	2-8.3	508	*Camera-based Object Detection and Identification using YOLO Method for Indonesian Search And Rescue Robot Competition*
Alblooshi, Meera	3-2.3	588	*Protecting Smart Homes: Attack Scenarios, Risks & Threat Modeling*
Alde, Regina Bianca	3-4.4	666	*Identification of Musaceae Species using YOLO Algorithm*
Aldini, Ittaka	3-2.6	607	*Classification of Tsunami Warning Level using Artificial Neural Network and its Comparison in Southern Java Region*
Alfian, Muhammad	2-5.5	383	*A Recommendation Model of REST API Testing Framework Based On Resource Utilization of ISO / IEC 25010*
Alhammadi, Iman	3-2.3	588	*Protecting Smart Homes: Attack Scenarios, Risks & Threat Modeling*
Alneamy, Jamal	2-4.6	346	*An Ensemble Model for Software Development Cost Estimation*
Alsuwaidi, Naema	3-2.3	588	*Protecting Smart Homes: Attack Scenarios, Risks & Threat Modeling*
Anam, Icha	1-2.2	29	*Implementation of IoT Sensored Data Integrity for Irrigation in Precision*

			Agriculture Using Blockchain Ethereum
Andaresta, Desty	1-4.1	71	*The Implementation of UTAUT-2 in Cashback Program on E-Commerce Platform*
Andono, Pulung Nurtantio	3-2.4	595	*Gaussian Mixture Model in Dynamic Background of Video Sequences for Human Detection*
Andriyani, Widyastuti	1-1.1	1	*The Analysis of Attacks against Port 80 Webserver with SIEM Wazuh Using Detection and OSCAR Methods*
	1-7.2	148	*Usage of LSTM Method On Hand Gesture Recognition For Easy Learning of Sign Language Based On Desktop Via Webcam*
	1-7.4	160	*Development of Learning Media for The Deaf Using a Webcam*
Anggraeni, Martianda	1-3.4	64	*Network Quality Prediction with QoS and QoE Data for Digital Television Using WebGIS*
	1-8.3	177	*The Quality Measurement of Digital Television during Television Migration Session in Sub-Urban Area*
Anggriawan, Dimas	1-5.3	106	*Energy Efficiency Management with Smart Outdoor Lighting System (SOLS)*
Anisah, Ida	1-3.4	64	*Network Quality Prediction with QoS and QoE Data for Digital Television Using WebGIS*
	1-8.3	177	*The Quality Measurement of Digital Television during Television Migration Session in Sub-Urban Area*
Anshar, Muh	2-1.1	191	*Trajectory Tracking of Autonomous Vehicle That Uses State Feedback Linearization with Ackerman Methode and Observer Feedback*
Antonio, Frensen	3-4.6	677	*The Factors Affect Customer Interest in using Mobile Banking in Indonesia*
Apriyanto, Nursama	3-5.6	711	*Edge Classification of Non-Invasive Blood Glucose Levels Based On Photoplethysmography Signals*
Araminta, Ardelia Shaula	3-1.5	565	*NLP Text Classification for COVID-19 Automatic Detection from Radiology Report in Indonesian Language*
Ardyanto, Angga Wisnu	2-7.5	475	*Conveyor Frame Simulation of Magnetic Separator Machine for Recycling Lithium-Ion Batteries Model 18650*
Areni, Intan Sari	1-8.2	172	*A Flexible Lungs Shape Radiator Structure Printed on a Textile Materials*
Ariananda, Dyonisius	2-2.5	248	*Two-Dimensional Direction-of-Arrival Estimation for More Sources Than Sensors*
Arifah, Ika	3-8.1	787	*Smart Economy Implementation in Supporting SMEs Growth: Case Study in Indonesia & Malaysia Smart Cities*
Arifitama, Budi	3-7.1	750	*Age Detection of Catfish Breeding Based on Size Using The YOLO V3*
Arifvianto, Budi	2-7.5	475	*Conveyor Frame Simulation of Magnetic Separator Machine for Recycling Lithium-Ion Batteries Model 18650*
Arisaputra, Panji	2-1.6	221	*Twitter-based Sentiment Analysis for Indonesian Drug Products using Supervised Feature Engineering*
Artahni, Lucinda	3-8.5	811	*Chronic Disease Prediction using Data Mining and Machine Learning's Algorithm*
Asenci, Aljohn	3-6.1	717	*Canned Food Surface Defect Classification Using YOLOv4*
Asri, Sri Dhuny Atas	3-1.5	565	*NLP Text Classification for COVID-19 Automatic Detection from Radiology Report in Indonesian Language*
Assaidah,	1-6.3	130	*NOMA Implementation in OFDM-MIMO-VLC Network Serving 9 User*

Assaidah			*Equipments*
Astuti, Endang	3-7.4	769	*Improving Parallel Pattern Discovery from Directly Follows Graph Model*
Astuti, Yuli	2-1.5	215	*The Data Leakage Sentiment Analysis Using Naive Bayes Algorithm Based on Machine Learning Approach*
Atmojo, Suryo	3-3.5	637	*Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System*
Ayuni, Ni Wayan	2-5.6	390	*Modeling Sales Person Performance Based On Sales Data Clustering*
		B	
Bahtiar, Arief	1-6.2	125	*Google Trends Data About Mental Health During COVID-19 Pandemic Using Time Series Regression*
Baihaqi, Mohammad Rifki	1-5.1	93	*IP Hash Algorithm Optimization Analysis On P4 Using The Round Robin Algorithm*
Balqis, Trisya	3-4.5	672	*Performance evaluation and analysis of LBP utilization in face spoofing detection with deep learning*
Barus, Rehnianty	3-8.6	817	*Predicting Computer Science Student's Performance using Logistic Regression*
Bejo, Agus	2-4.5	340	*Optimization of Feature Extraction in Indonesian Speech Recognition Using PCA and SVM Classification*
	3-3.3	625	*Variance-Based Geometric Feature Selection for Face Recognition System*
Beta, Samuel	1-3.3	58	*Power Consumption Optimization for Monitoring System using NB-IoT*
Brillianto Apribowo, Chico Hermanu	2-8.7	531	*Design and Implementation of Hybrid Equalization Battery Management System for Lithium-Ion Batteries*
Budi, Indra	2-4.1	318	*Opinion-based sentiment analysis related to 2024 Indonesian Presidential Election on YouTube*
Budiharto, Widodo	2-6.1	407	*Aspect-based Sentiment Analysis in Tourism Industry for Tourism Recommender System*
Bulawan, Joshua Emmanuel	3-6.1	717	*Canned Food Surface Defect Classification Using YOLOv4*
Bustamam, Alhadi	2-3.4	288	*Comparative Analysis of Bone Age Assessment Techniques using Hand X-Ray Images and Gender Feature*
	2-7.4	469	*Towards Robust Diabetic Retinopathy Classifier Using Natural Gradient Langevin Dynamics*
		C	
C. Putri, Nadilla	2-5.1	362	*Implementing Machine Learning in Students Qur'an Memorization Prediction*
Cahyadi, Adha Imam	3-6.3	727	*Evaluation of State of Charge Estimation of Lithium-ion Batteries using Deep Learning*
Cahyadi, Yagus	3-4.5	672	*Performance evaluation and analysis of LBP utilization in face spoofing detection with deep learning*
Cahyani, Denis	2-4.3	330	*Development of Website for COVID-19 Detection on Chest X-Ray Images*
	2-7.1	452	*Ability of Detuned Reactors and Harmonic Filters to Improve Power Quality in Hybrid AC/DC Power Systems*
Cassandra, Cadelina	1-1.4	19	*The Impact of Video Advertising's Information Quality Content and Risk on Customer Trust and Intention to Buy during the Covid*

Caya, Meo Vincent	3-4.4	666	*Identification of Musaceae Species using YOLO Algorithm*
Cheevanichapan, Kanokpon	3-1.1	543	*Irrigation Management: A Pilot Study for Automatic Water Level Measurement and Report System Development Using Machine Learning Associated with Modified Images*
Ciptayani, Putu	2-5.6	390	*Modeling Sales Person Performance Based On Sales Data Clustering*
D			
Daengsi, Therdpong	3-1.1	543	*Irrigation Management: A Pilot Study for Automatic Water Level Measurement and Report System Development Using Machine Learning Associated with Modified Images*
Dahlan, Akhmad	2-8.8	537	*Sentiment Analysis of Airline Ticket and Hotel Booking of Traveloka Using Support Vector Machine*
Dani Prasetyo Adi, Puput	1-3.2	51	*Development Education of Blind Adaptive Data Rate for LoRaWAN Network on Mobile Node*
	3-2.2	582	*Twitter Data Sentiment Analysis of COVID-19 Vaccination using Machine Learning*
Darmawan, Adytia	2-8.3	508	*Camera-based Object Detection and Identification using YOLO Method for Indonesian Search And Rescue Robot Competition*
De Castro, Kyle Deniel	3-4.4	666	*Identification of Musaceae Species using YOLO Algorithm*
Derius, Desi	1-6.4	135	*Critical Success Factor Using Career-Oriented Social Networking Site (CSNS) for Fresh Graduates*
Dewi, Kadek Cahya	2-5.6	390	*Modeling Sales Person Performance Based On Sales Data Clustering*
Dewi, Suzana	3-3.5	637	*Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System*
Djalal, Muhammad	3-5.3	695	*Optimal Coordination PID-PSS Control Based on Craziness Particle Swarm Optimization In Sulselrabar System*
Dwijayanti, Suci	3-6.6	744	*Position Control System On Autonomous Electric Vehicle Movement Using Fuzzy Logic Methods*
E			
Edbert, Ivan	2-3.7	306	*A Comparative Study of Supervised Machine Learning Algorithms for Fake Review Detection*
	2-5.7	397	*Deep Learning Approach based Classification of Alzheimer's Disease Using Brain MRI*
Ekhsan, Muhamad	1-2.3	34	*Wireless Ad hoc Networks on Motorcycle Ride-Hailing Services: A Comparative Analysis of 802.11n and 802.11p*
Ellaine, Christ	2-5.7	397	*Deep Learning Approach based Classification of Alzheimer's Disease Using Brain MRI*
F			
Fahreza, Mohamad	2-6.4	425	*Imbalanced Text Classification based on Corporate Culture by using Support Vector Machine, Case Study: PT XYZ, Indonesia*
Farid, Imam	2-5.8	403	*Extreme Learning Machine for Hourly Water Level Forecast in Madura Coastal Area*

Fathoni, Ali Nur	2-4.5	340	*Optimization of Feature Extraction in Indonesian Speech Recognition Using PCA and SVM Classification*
Fathurahman, Muhamad	3-5.2	689	*Text Classification for Edentulous and Comorbids Disease Systematic Literature Review based on Machine Learning Algorithm*
Fatichah, Chastine	2-5.5	383	*A Recommendation Model of REST API Testing Framework Based On Resource Utilization of ISO / IEC 25010*
	2-6.2	413	*Detection of Acute Lymphoblastic Leukemia Subtypes using YOLO and Mask R-CNN*
Fernanda, Nita	2-8.2	503	*Solving Agricultural Route Planning with Improved Particle Swarm Optimization*
Fernando, Yudi	1-4.2	77	*Impact of Power and Expertise on Perceived Celebrity Credibility on Digital Brand Awareness*
	1-4.3	82	*Impact Of Celebrity Attractiveness and Celebrity Credibility on Digital Brand Awareness on Perceived Celebrity Digital Branding*
Fikri, Budiman	3-2.4	595	*Gaussian Mixture Model in Dynamic Background of Video Sequences for Human Detection*
Firdaus, Muhammad Rizky	3-7.1	750	*Age Detection of Catfish Breeding Based on Size Using The YOLO V3*
Firmansyah, Eka	3-6.3	727	*Evaluation of State of Charge Estimation of Lithium-ion Batteries using Deep Learning*
Fuadi, Azam	1-7.3	154	*Mobile Robot-Ackerman Steering Navigation Using Localization based on Kalman Filter and PID Controller*
Fuston, Poberth	3-6.5	738	*Data Mining Using C4.5 Algorithm in Predicting Student Graduation*
G			
Goh, Kai Chen	3-8.1	787	*Smart Economy Implementation in Supporting SMEs Growth: Case Study in Indonesia & Malaysia Smart Cities*
Gui, Anderes	3-4.6	677	*The Factors Affect Customer Interest in using Mobile Banking in Indonesia*
Gumilar, Langlang	2-2.2	237	*Evaluation of Short Circuit Fault Current in Selayar Island Power System after Connecting to Photovoltaic*
	2-2.4	243	*Implementation of FCL in Hybrid AC/DC Distribution Network System*
	2-7.1	452	*Ability of Detuned Reactors and Harmonic Filters to Improve Power Quality in Hybrid AC/DC Power Systems*
Gunawan, Alexander	3-8.6	817	*Predicting Computer Science Student's Performance using Logistic Regression*
Gunawan, Arif	2-8.8	537	*Sentiment Analysis of Airline Ticket and Hotel Booking of Traveloka Using Support Vector Machine*
H			
Hadi, Mochammad	1-5.3	106	*Energy Efficiency Management with Smart Outdoor Lighting System (SOLS)*
Hakim, Gilang	2-7.7	485	*Design and Building a Stair-lift Prototype for Disabilities at Bandung Institute of Technology*
Hakim, Lutfi	2-7.3	462	*Combination Of Markov Random Field And K-Means Clustering In Water Bacteria Image Segmentation*
Hakimah,	2-4.2	324	*Determination of Relevant Feature Combinations For Detection Stunting*

Maftahatul			*Status of Toddlers*
Halim, Erwin	1-6.4	135	*Critical Success Factor Using Career-Oriented Social Networking Site (CSNS) for Fresh Graduates*
	3-8.4	805	*Virtual Reality as A Social Learning Tools For Individuals with Autism*
	3-8.5	811	*Chronic Disease Prediction using Data Mining and Machine Learning's Algorithm*
Halim, Pauline	3-8.4	805	*Virtual Reality as A Social Learning Tools For Individuals with Autism*
	3-8.5	811	*Chronic Disease Prediction using Data Mining and Machine Learning's Algorithm*
Hamdani, Aditya	2-6.8	446	*Consumer Intention to Use Online Food Delivery Ordering (OFDO) Services In Indonesia: The Impact Of Covid-19 Pandemic*
Hamdani, Hamdani	1-7.4	160	*Development of Learning Media for The Deaf Using a Webcam*
Hamdani, Hamdani	3-6.4	733	*Mitigating electrical energy cost for residential building based on wall composition*
Hamidah, Hamidah	3-6.5	738	*Data Mining Using C4.5 Algorithm in Predicting Student Graduation*
Handhayani, Teny	2-4.4	334	*A Comparison of LSTM and BiLSTM for Forecasting of Air Quality Index and Meteorological Conditions in Jakarta*
Handojo, Andreas	2-4.7	351	*Predicting Potential Blood Donors Who Can Attend Blood Donation Activities using a Support Vector Machine*
Handoko, Handoko	3-5.1	683	*Face Recognition and Face Spoofing Detector for Attendance System*
Hanif, Ibrahim	1-2.2	29	*Implementation of IoT Sensored Data Integrity for Irrigation in Precision Agriculture Using Blockchain Ethereum*
Hardiyansyah, Hardiyansyah	1-4.1	71	*The Implementation of UTAUT-2 in Cashback Program on E-Commerce Platform*
Hariadi, Anjar	2-4.3	330	*Development of Website for COVID-19 Detection on Chest X-Ray Images*
Harlianto, Pramudyana	3-2.1	576	*Combining Support Vector Machine - Fast Fourier Transform (SVM - FFT) For Improving Accuracy on Broken Bearing Diagnosis*
Hartanto, Rudy	3-7.2	756	*The EfficientNet Performance For Facial Expressions Recognition*
Hasan, Hasnawiya	2-1.1	191	*Trajectory Tracking of Autonomous Vehicle That Uses State Feedback Linearization with Ackerman Methode and Observer Feedback*
Hastuti, Khafiizh	2-3.1	272	*Gamelan Melodic Phrase Representation based on The Question-and-Answer Segmentation Rule*
Helen, Helen	1-4.1	71	*The Implementation of UTAUT-2 in Cashback Program on E-Commerce Platform*
Hendrick, Hendrick	2-5.3	373	*Multiple Climacteric Fruits Classification by Using Machine Learning Approach*
	2-5.4	378	*Dry Cannabis Detection by Using Portable Electronic Nose*
Hendryli, Janson	2-4.4	334	*A Comparison of LSTM and BiLSTM for Forecasting of Air Quality Index and Meteorological Conditions in Jakarta*
Hernanda, Tirta	1-7.3	154	*Mobile Robot-Ackerman Steering Navigation Using Localization based on Kalman Filter and PID Controller*
Hernowo, Rudi	1-3.3	58	*Power Consumption Optimization for Monitoring System using NB-IoT*

Hertiana, Sofia	2-5.2	369	*Latency and RAM Usage Comparison of Advanced and Lightweight Service Mesh*
Herwindiati, Dyah	2-4.4	334	*A Comparison of LSTM and BiLSTM for Forecasting of Air Quality Index and Meteorological Conditions in Jakarta*
Heryadi, Yaya	2-6.1	407	*Aspect-based Sentiment Analysis in Tourism Industry for Tourism Recommender System*
Hidayah, Indriana	1-6.1	118	*Transformer Model Fine-Tuning for Indonesian Automated Essay Scoring with Semantic Textual Similarity*
Hidayat, Rahmat	2-5.3	373	*Multiple Climacteric Fruits Classification by Using Machine Learning Approach*
Hidayat, Risanuri	2-2.5	248	*Two-Dimensional Direction-of-Arrival Estimation for More Sources Than Sensors*
	2-4.5	340	*Optimization of Feature Extraction in Indonesian Speech Recognition Using PCA and SVM Classification*
	3-2.6	607	*Classification of Tsunami Warning Level using Artificial Neural Network and its Comparison in Southern Java Region*
	3-3.3	625	*Variance-Based Geometric Feature Selection for Face Recognition System*
Hidayat, Sidiq	1-3.3	58	*Power Consumption Optimization for Monitoring System using NB-IoT*
Hija, Akhmad	2-7.6	480	*Optimal Trajectory Planning for Autonomous Vehicle using Frenet Reference Path*
Hindersah, Hilwadi	2-7.7	485	*Design and Building a Stair-lift Prototype for Disabilities at Bandung Institute of Technology*
Huda, Choirul	2-6.1	407	*Aspect-based Sentiment Analysis in Tourism Industry for Tourism Recommender System*
Humaira, Humaira	2-5.1	362	*Implementing Machine Learning in Students Qur'an Memorization Prediction*
	2-5.3	373	*Multiple Climacteric Fruits Classification by Using Machine Learning Approach*
	2-5.4	378	*Dry Cannabis Detection by Using Portable Electronic Nose*
Husin, Mansyur	2-3.5	294	*A New Deep Learning-Based Mobile Application for Komering Character Recognition*
			I
Ichsan, Muhammad	2-3.4	288	*Comparative Analysis of Bone Age Assessment Techniques using Hand X-Ray Images and Gender Feature*
Ikhsan, Nurul	2-6.4	425	*Imbalanced Text Classification based on Corporate Culture by using Support Vector Machine, Case Study: PT XYZ, Indonesia*
Ikhsan, Ridho	1-4.1	71	*The Implementation of UTAUT-2 in Cashback Program on E-Commerce Platform*
	1-4.2	77	*Impact of Power and Expertise on Perceived Celebrity Credibility on Digital Brand Awareness*
	1-4.3	82	*Impact Of Celebrity Attractiveness and Celebrity Credibility on Digital Brand Awareness on Perceived Celebrity Digital Branding*
Indriani, Karina	2-2.8	266	*Why Do People Want to Buy Green Cosmetics? Exploring The Role of Social Media and Motivation*
Indriawati, Katherin	2-7.6	480	*Optimal Trajectory Planning for Autonomous Vehicle using Frenet Reference Path*

Intaniawati, Lissa	2-6.5	430	*Underwater Wireless Optical Communication Using Li-Fi Technology In Data Transmission*
Inzaghi, Nickholas	2-6.6	434	*Factors Affecting Purchase Intention In Social Commerce*
Irhamsyah, Muhammad	3-5.4	700	*A Novel Subtraction Method for Signal Fluctuation*
Irmawati, Budi	2-2.6	254	*Facial expression in tourism destinations using a deep learning approach*
Istiqomah, Nurul	1-3.4	64	*Network Quality Prediction with QoS and QoE Data for Digital Television Using WebGIS*
Izdihar, Zahra Nabila	3-4.3	660	*Age Estimation from Face Image using Discrete Cosine Transform Feature and Artificial Neural Network*
		J	
Jabir, Nurhayati	3-6.4	733	*Mitigating electrical energy cost for residential building based on wall composition*
Jafar, Nurul	1-8.2	172	*A Flexible Lungs Shape Radiator Structure Printed on a Textile Materials*
Jamal, Jamal	3-6.4	733	*Mitigating electrical energy cost for residential building based on wall composition*
Jayadi Okke, Ahmad	1-3.1	47	*Determination of Attack Points on IoT Devices based on Particle Swarm Optimization to Support Intrusion Prevention System*
Jeremy, Nicholaus	2-1.6	221	*Twitter-based Sentiment Analysis for Indonesian Drug Products using Supervised Feature Engineering*
Jimmy, Jimmy	1-8.1	166	*Evaluation with NIST Statistical Test on Pseudorandom Number Generators based on DMP-80 and DMP-128*
Josan, Gregorino	2-3.4	288	*Comparative Analysis of Bone Age Assessment Techniques using Hand X-Ray Images and Gender Feature*
Julham, Julham	2-3.3	283	*The Effect of E-Commerce and Purchase Effectiveness on Student Learning*
	2-3.6	300	*Comparison of Model in Predicting Customer Churn Based on Users' habits on E-Commerce*
Jusman, Yessi	2-8.4	514	*Gabor Filter-Based Caries Image Feature Analysis Using Machine Learning*
Justitia, Army	2-2.1	230	*A Campaign Mining in Social Media using Improved K-Means: The Perspective of Candidate President's Mission*
		K	
Kabetta, Herman	1-1.2	7	*Secure User Management Gateway for Microservices Architecture APIs using Keycloak on XYZ*
Kadhim, Rasim	1-2.1	24	*Congestion Control in VANETs based on Message Rate Adaptation by the Exponential Function*
Kaiin, Laurensia	1-4.4	87	*Sustainability at Branchless Banking Service*
Kartawiguna, Daniel	3-8.4	805	*Virtual Reality as A Social Learning Tools For Individuals with Autism*
Kazakov, Dimitar	3-1.5	565	*NLP Text Classification for COVID-19 Automatic Detection from Radiology Report in Indonesian Language*
Kharisma, Fresha	3-8.1	787	*Smart Economy Implementation in Supporting SMEs Growth: Case Study in Indonesia & Malaysia Smart Cities*
Koo, Genoveva	1-1.4	19	*The Impact of Video Advertising's Information Quality Content and Risk on*

			Customer Trust and Intention to Buy during the Covid
Kretarta, Amerta	1-1.2	7	*Secure User Management Gateway for Microservices Architecture APIs using Keycloak on XYZ*
Krishnasari, Erneza	3-7.1	750	*Age Detection of Catfish Breeding Based on Size Using The YOLO V3*
Kristanto, Sepyan	2-7.3	462	*Combination Of Markov Random Field And K-Means Clustering In Water Bacteria Image Segmentation*
Kunang, Yesi	2-3.5	294	*A New Deep Learning-Based Mobile Application for Komering Character Recognition*
Kurnianto, Hardi	2-7.7	485	*Design and Building a Stair-lift Prototype for Disabilities at Bandung Institute of Technology*
	3-3.4	631	*Task Allocation and Path Planning Method For Multi-Autonomous Forklift Navigation*
Kurniawan, Isman	2-6.4	425	*Imbalanced Text Classification based on Corporate Culture by using Support Vector Machine, Case Study: PT XYZ, Indonesia*
Kurniawan, Yohannes	3-8.4	805	*Virtual Reality as A Social Learning Tools For Individuals with Autism*
	3-8.5	811	*Chronic Disease Prediction using Data Mining and Machine Learning's Algorithm*
Kusdiyanto, Aditya Yulis	3-4.1	648	*Machine Learning Models for Classifying Imbalanced Class Datasets Using Ensemble Learning*
Kusuma, Zulfirahma	2-7.6	480	*Optimal Trajectory Planning for Autonomous Vehicle using Frenet Reference Path*
Kusumawardani, Sri Suning	1-6.1	118	*Transformer Model Fine-Tuning for Indonesian Automated Essay Scoring with Semantic Textual Similarity*
		L	
Laksono, Firman	1-4.3	82	*Impact Of Celebrity Attractiveness and Celebrity Credibility on Digital Brand Awareness on Perceived Celebrity Digital Branding*
Lase, Yuyun	2-3.3	283	*The Effect of E-Commerce and Purchase Effectiveness on Student Learning*
	2-3.6	300	*Comparison of Model in Predicting Customer Churn Based on Users' habits on E-Commerce*
Latifah, Leny	1-6.2	125	*Google Trends Data About Mental Health During COVID-19 Pandemic Using Time Series Regression*
Laurentinus, Laurentinus	3-6.5	738	*Data Mining Using C4.5 Algorithm in Predicting Student Graduation*
Legaspi, Jericho	3-3.1	613	*Tomato Ripeness and Size Classification Using Image Processing*
	3-3.2	619	*InceptionV3, ResNet50, and VGG19 Performance Comparison on Tomato Ripeness Classification*
Lestari, Dian	3-2.2	582	*Twitter Data Sentiment Analysis of COVID-19 Vaccination using Machine Learning*
Lewenusa, Irvan	2-4.4	334	*A Comparison of LSTM and BiLSTM for Forecasting of Air Quality Index and Meteorological Conditions in Jakarta*
Lhaksmana, Kemas	2-6.4	425	*Imbalanced Text Classification based on Corporate Culture by using Support Vector Machine, Case Study: PT XYZ, Indonesia*
Linsangan, Noel	3-3.1	613	*Tomato Ripeness and Size Classification Using Image Processing*
	3-3.2	619	*InceptionV3, ResNet50, and VGG19 Performance Comparison on Tomato*

			Ripeness Classification
Livia, Livia	1-6.4	135	*Critical Success Factor Using Career-Oriented Social Networking Site (CSNS) for Fresh Graduates*
Lubis, Arif Ridho	2-3.3	283	*The Effect of E-Commerce and Purchase Effectiveness on Student Learning*
	2-3.6	300	*Comparison of Model in Predicting Customer Churn Based on Users' habits on E-Commerce*
Lubis, Muharman	2-3.3	283	*The Effect of E-Commerce and Purchase Effectiveness on Student Learning*
	2-3.6	300	*Comparison of Model in Predicting Customer Churn Based on Users' habits on E-Commerce*
Lucky, Eveline	2-5.7	397	*Deep Learning Approach based Classification of Alzheimer's Disease Using Brain MRI*
Lukas, Lukas	2-6.1	407	*Aspect-based Sentiment Analysis in Tourism Industry for Tourism Recommender System*
Lystianingrum, Vita	2-8.5	520	*Balancing Control Strategy of Lithium-Ion using Proportional Derivative-Fuzzy Logic Controller*
M			
Mahardika, Muslim	2-7.5	475	*Conveyor Frame Simulation of Magnetic Separator Machine for Recycling Lithium-Ion Batteries Model 18650*
Maher, Mohammed	2-4.6	346	*An Ensemble Model for Software Development Cost Estimation*
Mahmud, Mahmud	2-3.5	294	*A New Deep Learning-Based Mobile Application for Komering Character Recognition*
Maisat Eka Darmawan, Zakha	2-8.3	508	*Camera-based Object Detection and Identification using YOLO Method for Indonesian Search And Rescue Robot Competition*
Makhtidi, Karimul	3-4.2	654	*Training Deep Energy-Based Models Through Cyclic Stochastic Gradient Langevin Dynamics*
Manlises, Cyrel	2-6.3	419	*Identification of Macro-Nutrient Deficiency in Onion Leaves (Allium cepa L.) Using Convolutional Neural Network (CNN)*
Mardhiyah, Syafira	1-1.3	14	*Formal Analysis and Improvement of Zero-Knowledge Password Authentication Protocol*
Marutotamtama, Jane	3-5.1	683	*Face Recognition and Face Spoofing Detector for Attendance System*
Marwan, Marwan	3-6.4	733	*Mitigating electrical energy cost for residential building based on wall composition*
Masri, Ikhwanul	1-1.3	14	*Formal Analysis and Improvement of Zero-Knowledge Password Authentication Protocol*
Masrom, Md Asrul Nasid	3-8.1	787	*Smart Economy Implementation in Supporting SMEs Growth: Case Study in Indonesia & Malaysia Smart Cities*
Mateo, Kristin Clarisse	2-6.3	419	*Identification of Macro-Nutrient Deficiency in Onion Leaves (Allium cepa L.) Using Convolutional Neural Network (CNN)*
Maulana, Fairuz	1-3.2	51	*Development Education of Blind Adaptive Data Rate for LoRaWAN Network on Mobile Node*
	3-2.2	582	*Twitter Data Sentiment Analysis of COVID-19 Vaccination using Machine Learning*

Maulana Syarif, Arry	2-3.1	272	*Gamelan Melodic Phrase Representation based on The Question-and-Answer Segmentation Rule*
Maulani, Chaerita	3-5.2	689	*Text Classification for Edentulous and Comorbids Disease Systematic Literature Review based on Machine Learning Algorithm*
Maulina, Dina	2-1.5	215	*The Data Leakage Sentiment Analysis Using Naive Bayes Algorithm Based on Machine Learning Approach*
Meidelfi, Dwiny	2-5.1	362	*Implementing Machine Learning in Students Qur'an Memorization Prediction*
Meivitawanli, Bryna	2-6.8	446	*Consumer Intention to Use Online Food Delivery Ordering (OFDO) Services In Indonesia: The Impact Of Covid-19 Pandemic*
Melinda, Melinda	3-5.4	700	*A Novel Subtraction Method for Signal Fluctuation*
Meriko, Cito	3-8.6	817	*Predicting Computer Science Student's Performance using Logistic Regression*
Misesa, Fety	2-2.8	266	*Why Do People Want to Buy Green Cosmetics? Exploring The Role of Social Media and Motivation*
Mohammed, Noor	1-2.1	24	*Congestion Control in VANETs based on Message Rate Adaptation by the Exponential Function*
Monika, Dezetty	2-2.4	243	*Implementation of FCL in Hybrid AC/DC Distribution Network System*
	2-7.1	452	*Ability of Detuned Reactors and Harmonic Filters to Improve Power Quality in Hybrid AC/DC Power Systems*
Muchtar, Kahlil	3-4.5	672	*Performance evaluation and analysis of LBP utilization in face spoofing detection with deep learning*
Muflikhun, Muhammad	2-7.5	475	*Conveyor Frame Simulation of Magnetic Separator Machine for Recycling Lithium-Ion Batteries Model 18650*
Muhandhis, Isnaini	3-3.5	637	*Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System*
Mukhlisin, Muhammad	1-3.3	58	*Power Consumption Optimization for Monitoring System using NB-IoT*
Muliawan, Tiara	3-8.4	805	*Virtual Reality as A Social Learning Tools For Individuals with Autism*
Munandar, Haris	1-5.2	99	*Bitcoin Investment Instrument in Indonesia: The Impact of Perceived Risk and Benefit on Investor Behaviour*
Murdani, Muhammad	3-3.5	637	*Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System*
Mustaqim, Tanzilal	2-6.2	413	*Detection of Acute Lymphoblastic Leukemia Subtypes using YOLO and Mask R-CNN*
Mustika, I Wayan	1-2.4	40	*Cluster selection technique with fuzzy logic-based wireless sensor network to increase the lifetime of networks*
		N	
Nabiilah, Ghinaa Zain	3-4.3	660	*Age Estimation from Face Image using Discrete Cosine Transform Feature and Artificial Neural Network*
Naiborhu, Pebri	1-4.4	87	*Sustainability at Branchless Banking Service*
Natalia, Jessica	2-3.7	306	*A Comparative Study of Supervised Machine Learning Algorithms for Fake Review Detection*
Naufal, Zaky	3-5.4	700	*A Novel Subtraction Method for Signal Fluctuation*
Navarro, Laurence Kobe	2-6.3	419	*Identification of Macro-Nutrient Deficiency in Onion Leaves (Allium cepa L.) Using Convolutional Neural Network (CNN)*

Negara, Ridha	1-5.1	93	*IP Hash Algorithm Optimization Analysis On P4 Using The Round Robin Algorithm*
	2-5.2	369	*Latency and RAM Usage Comparison of Advanced and Lightweight Service Mesh*
Nizam, Muhammad	2-8.7	531	*Design and Implementation of Hybrid Equalization Battery Management System for Lithium-Ion Batteries*
Noersasongko, Edi	3-2.4	595	*Gaussian Mixture Model in Dynamic Background of Video Sequences for Human Detection*
Nugroho, Abdul	1-6.1	118	*Transformer Model Fine-Tuning for Indonesian Automated Essay Scoring with Semantic Textual Similarity*
Nugroho, Agung	1-2.3	34	*Wireless Ad hoc Networks on Motorcycle Ride-Hailing Services: A Comparative Analysis of 802.11n and 802.11p*
Nugroho, Bayu	3-6.2	723	*A Scrutinized Outliers Rate for One Class Classification of Green Landscape*
Nugroho, Okvi	2-3.3	283	*The Effect of E-Commerce and Purchase Effectiveness on Student Learning*
	2-3.6	300	*Comparison of Model in Predicting Customer Churn Based on Users' habits on E-Commerce*
Nuha, Hilal	1-7.1	141	*Classification of Sentiment Analysis Against Omnibus Law on Twitter Social Media and News Websites Using the Naïve Bayes Method*
Nuraini, Masayu Alya	2-8.4	514	*Gabor Filter-Based Caries Image Feature Analysis Using Machine Learning*
Nurhadi, Hendro	2-7.6	480	*Optimal Trajectory Planning for Autonomous Vehicle using Frenet Reference Path*
Nurhasanah, Nurhasanah	3-4.3	660	*Age Estimation from Face Image using Discrete Cosine Transform Feature and Artificial Neural Network*
Nurhayati, Iis	2-6.4	425	*Imbalanced Text Classification based on Corporate Culture by using Support Vector Machine, Case Study: PT XYZ, Indonesia*
Nurhidayatulloh, Nurhidayatulloh	2-6.5	430	*Underwater Wireless Optical Communication Using Li-Fi Technology In Data Transmission*
Nurizzaman, Muhammad	1-8.3	177	*The Quality Measurement of Digital Television during Television Migration Session in Sub-Urban Area*
Nurlaila, Ika	2-7.2	457	*Sequential Topic Modelling: A Case Study on One Health Conversation on Twitter*
O			
Oktavia, Tanty	2-1.7	226	*Analysis of Community Satisfaction with the Use of Peduli Lindung Applications During the Covid-19 Pandemic*
Oktavianto, Hary	2-8.3	508	*Camera-based Object Detection and Identification using YOLO Method for Indonesian Search And Rescue Robot Competition*
P			
Padilla, Dionis	3-6.1	717	*Canned Food Surface Defect Classification Using YOLOv4*
Palantei, Elyas	1-8.2	172	*A Flexible Lungs Shape Radiator Structure Printed on a Textile Materials*
Pangilinan, John Raphael	3-3.1	613	*Tomato Ripeness and Size Classification Using Image Processing*
	3-3.2	619	*InceptionV3, ResNet50, and VGG19 Performance Comparison on Tomato Ripeness Classification*
Pantjawati, Arjuni	2-6.5	430	*Underwater Wireless Optical Communication Using Li-Fi Technology In Data*

Budi			*Transmission*
Parmonangan, Ivan	2-8.1	497	*Prediction of Perceived Synthesized Speech Quality with Wav2Vec2 Features on Small Dataset*
Pavithran, Deepa	3-2.3	588	*Protecting Smart Homes: Attack Scenarios, Risks & Threat Modeling*
Permai, Syarifah Diana	3-8.6	817	*Predicting Computer Science Student's Performance using Logistic Regression*
Permana, Ian	2-2.2	237	*Evaluation of Short Circuit Fault Current in Selayar Island Power System after Connecting to Photovoltaic*
Permana, Silvester Dian	3-7.1	750	*Age Detection of Catfish Breeding Based on Size Using The YOLO V3*
Permanasari, Adhistya	3-2.6	607	*Classification of Tsunami Warning Level using Artificial Neural Network and its Comparison in Southern Java Region*
Permatasari, Angelina	3-4.6	677	*The Factors Affect Customer Interest in using Mobile Banking in Indonesia*
Philip, Samuel	2-1.6	221	*Twitter-based Sentiment Analysis for Indonesian Drug Products using Supervised Feature Engineering*
Phommasan, Sounthone	1-2.4	40	*Cluster selection technique with fuzzy logic-based wireless sensor network to increase the lifetime of networks*
Prabowo, Hartiwi	1-4.2	77	*Impact of Power and Expertise on Perceived Celebrity Credibility on Digital Brand Awareness*
	1-4.3	82	*Impact Of Celebrity Attractiveness and Celebrity Credibility on Digital Brand Awareness on Perceived Celebrity Digital Branding*
	2-2.8	266	*Why Do People Want to Buy Green Cosmetics? Exploring The Role of Social Media and Motivation*
Pradhani, Rininta Ayu	1-4.1	71	*The Implementation of UTAUT-2 in Cashback Program on E-Commerce Platform*
Pramudyantoro, Arvi	2-1.4	209	*Prediction analysis of Diabetes Mellitus Based on Machine Learning Algorithm*
Prasetya, Dwi Arman	1-3.2	51	*Development Education of Blind Adaptive Data Rate for LoRaWAN Network on Mobile Node*
Prasetyaningtyas, Sekar	1-5.2	99	*Bitcoin Investment Instrument in Indonesia: The Impact of Perceived Risk and Benefit on Investor Behaviour*
Prasetyo, Agung	3-5.4	700	*A Novel Subtraction Method for Signal Fluctuation*
Prasetyo, Hanung	3-7.4	769	*Improving Parallel Pattern Discovery from Directly Follows Graph Model*
Prasetyo, Novian	1-6.2	125	*Google Trends Data About Mental Health During COVID-19 Pandemic Using Time Series Regression*
Prasetyo, Simeon	3-4.3	660	*Age Estimation from Face Image using Discrete Cosine Transform Feature and Artificial Neural Network*
Prasetyono, Eka	1-5.3	106	*Energy Efficiency Management with Smart Outdoor Lighting System (SOLS)*
Pratama, Ishaq	3-3.5	637	*Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System*
Pratiwi, Puspa	3-7.5	775	*Machine Learning Model using Times Series Analytics for Prediction of ATM Transactions*
Prayudani, Santi	2-3.3	283	*The Effect of E-Commerce and Purchase Effectiveness on Student Learning*

	2-3.6	300	*Comparison of Model in Predicting Customer Churn Based on Users' habits on E-Commerce*
Prihandoko, Danang	3-7.3	763	*E-Service Quality, Trust and Perceived Value Impact on Customer Satisfaction*
Prihatin, Sukeipah	3-2.2	582	*Twitter Data Sentiment Analysis of COVID-19 Vaccination using Machine Learning*
Pristyanto, Yoga	3-4.1	648	*Machine Learning Models for Classifying Imbalanced Class Datasets Using Ensemble Learning*
Pujadi, Tri	3-8.4	805	*Virtual Reality as A Social Learning Tools For Individuals with Autism*
Pujiono, Pujiono	3-2.4	595	*Gaussian Mixture Model in Dynamic Background of Video Sequences for Human Detection*
Purnamasari, Prima	3-5.6	711	*Edge Classification of Non-Invasive Blood Glucose Levels Based On Photoplethysmography Signals*
Purnomo, Agung	3-2.2	582	*Twitter Data Sentiment Analysis of COVID-19 Vaccination using Machine Learning*
Purwandari, Kartika	2-1.6	221	*Twitter-based Sentiment Analysis for Indonesian Drug Products using Supervised Feature Engineering*
	2-7.2	457	*Sequential Topic Modelling: A Case Study on One Health Conversation on Twitter*
Purwanto, Purwanto	3-3.6	643	*Implementation Brute Force-KNN Method for Scholarship Program Selection*
Puspaningrum, Alifia	1-2.2	29	*Implementation of IoT Sensored Data Integrity for Irrigation in Precision Agriculture Using Blockchain Ethereum*
Puspita, Fitri Maya	3-8.2	793	*Mathematical Model of Traffic Management-Perfect Substitute-Selfish User Scheme*
	3-8.3	799	*Information Services Financing Scheme Model with Marginal Costs and Supervisory Costs for Modified Cobb-Douglas and Linear Utility Functions*
Puspita, Sartika	2-8.4	514	*Gabor Filter-Based Caries Image Feature Analysis Using Machine Learning*
Putra, Cendra	2-2.1	230	*A Campaign Mining in Social Media using Improved K-Means: The Perspective of Candidate President's Mission*
Putra, Prabu	2-4.1	318	*Opinion-based sentiment analysis related to 2024 Indonesian Presidential Election on YouTube*
Putra, Willy Permana	1-2.2	29	*Implementation of IoT Sensored Data Integrity for Irrigation in Precision Agriculture Using Blockchain Ethereum*
Putra, Yudanta	2-8.3	508	*Camera-based Object Detection and Identification using YOLO Method for Indonesian Search And Rescue Robot Competition*
Putranto, Bambang	1-1.1	1	*The Analysis of Attacks against Port 80 Webserver with SIEM Wazuh Using Detection and OSCAR Methods*
Purnomosidi Dwi	1-7.2	148	*Usage of LSTM Method On Hand Gesture Recognition For Easy Learning of Sign Language Based On Desktop Via Webcam*

Q

Qodarsih, Nanik	3-1.6	570	*Information Security Evaluation Using the Information Security Index: A Case Study in Indonesia*
Qomariyah, Nunung	2-6.7	440	*Text to Image Latent Diffusion Model with Dreambooth Fine Tuning for Automobile Image*

Qomariyah, Nunung Nurul	3-1.5	565	*NLP Text Classification for COVID-19 Automatic Detection from Radiology Report in Indonesian Language*
R			
R, Avinash	2-1.2	198	*Computer Vision for Autonomous Vehicles - Semantic Segmentation using Jetson Nano*
Raharjo, Budi	3-7.4	769	*Improving Parallel Pattern Discovery from Directly Follows Graph Model*
Rahmania, Cyla	2-5.2	369	*Latency and RAM Usage Comparison of Advanced and Lightweight Service Mesh*
Rahmatullah, Defri	2-5.4	378	*Dry Cannabis Detection by Using Portable Electronic Nose*
Ramadhani, Ira	1-6.2	125	*Google Trends Data About Mental Health During COVID-19 Pandemic Using Time Series Regression*
Ramdhani, Andri	3-2.6	607	*Classification of Tsunami Warning Level using Artificial Neural Network and its Comparison in Southern Java Region*
Ramelan, Agus	2-8.7	531	*Design and Implementation of Hybrid Equalization Battery Management System for Lithium-Ion Batteries*
Ramli, Kalamullah	3-5.6	711	*Edge Classification of Non-Invasive Blood Glucose Levels Based On Photoplethysmography Signals*
Randi, Randi	2-5.3	373	*Multiple Climacteric Fruits Classification by Using Machine Learning Approach*
Rasyaad Somardani, M. Allaam	1-3.1	47	*Determination of Attack Points on IoT Devices based on Particle Swarm Optimization to Support Intrusion Prevention System*
Rasyidah, Rasyidah	2-5.1	362	*Implementing Machine Learning in Students Qur'an Memorization Prediction*
Razali, Safrizal	3-4.5	672	*Performance evaluation and analysis of LBP utilization in face spoofing detection with deep learning*
Revanda, Aldinata Rizky	2-6.2	413	*Detection of Acute Lymphoblastic Leukemia Subtypes using YOLO and Mask R-CNN*
Reynaldi, Raphael	3-1.5	565	*NLP Text Classification for COVID-19 Automatic Detection from Radiology Report in Indonesian Language*
Riksakomara, Edwin	2-8.2	503	*Solving Agricultural Route Planning with Improved Particle Swarm Optimization*
Ritonga, Alven	3-3.5	637	*Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System*
Rizal, Zulfahmi	1-8.2	172	*A Flexible Lungs Shape Radiator Structure Printed on a Textile Materials*
Rizan, Okkita	3-6.5	738	*Data Mining Using C4.5 Algorithm in Predicting Student Graduation*
Robbani, Hanif	2-7.4	469	*Towards Robust Diabetic Retinopathy Classifier Using Natural Gradient Langevin Dynamics*
Rochimah, Siti	2-5.5	383	*A Recommendation Model of REST API Testing Framework Based On Resource Utilization of ISO / IEC 25010*
Rosa, Muhammad	1-7.3	154	*Mobile Robot-Ackerman Steering Navigation Using Localization based on Kalman Filter and PID Controller*
Rozi, Nanang Fakhrur	2-4.2	324	*Determination of Relevant Feature Combinations For Detection Stunting Status of Toddlers*

Rumini, Rumini	2-1.4	209	*Prediction analysis of Diabetes Mellitus Based on Machine Learning Algorithm*
Rumokoy, Stieven	2-2.4	243	*Implementation of FCL in Hybrid AC/DC Distribution Network System*
	2-7.1	452	*Ability of Detuned Reactors and Harmonic Filters to Improve Power Quality in Hybrid AC/DC Power Systems*
Rumui, Monica	2-2.8	266	*Why Do People Want to Buy Green Cosmetics? Exploring The Role of Social Media and Motivation*
Ruslan, Ruslan	3-6.4	733	*Mitigating electrical energy cost for residential building based on wall composition*
Rusmin, Pranoto	3-3.4	631	*Task Allocation and Path Planning Method For Multi-Autonomous Forklift Navigation*
Rustopo, Rustopo	2-3.1	272	*Gamelan Melodic Phrase Representation based on The Question-and-Answer Segmentation Rule*
S			
S, Rajasekar	2-1.2	198	*Computer Vision for Autonomous Vehicles - Semantic Segmentation using Jetson Nano*
Sa'diah, Ima	1-5.3	106	*Energy Efficiency Management with Smart Outdoor Lighting System (SOLS)*
Sadjad, Rhiza	2-1.1	191	*Trajectory Tracking of Autonomous Vehicle That Uses State Feedback Linearization with Ackerman Methode and Observer Feedback*
Safitri, Anita	3-8.1	787	*Smart Economy Implementation in Supporting SMEs Growth: Case Study in Indonesia & Malaysia Smart Cities*
Safitri, Wiwit	2-8.5	520	*Balancing Control Strategy of Lithium-Ion using Proportional Derivative-Fuzzy Logic Controller*
Sagala, Noviyanti	3-8.6	817	*Predicting Computer Science Student's Performance using Logistic Regression*
Saifunas, Arsad	2-4.1	318	*Opinion-based sentiment analysis related to 2024 Indonesian Presidential Election on YouTube*
Saini, Makmur	3-5.3	695	*Optimal Coordination PID-PSS Control Based on Craziness Particle Swarm Optimization In Sulselrabar System*
Salam, Rahmat	1-5.4	112	*Detecting the Effect of Internet Skill and e-Leadership on Productivity of Working from Home*
Samman, Faizal	2-1.1	191	*Trajectory Tracking of Autonomous Vehicle That Uses State Feedback Linearization with Ackerman Methode and Observer Feedback*
Samsuri, Mukhlizar	2-8.6	525	*A Comparison of Distributed, PAM, and Trie Data Structure Dictionaries in Automatic Spelling Correction for Indonesian Formal Text*
Santoso, Aris	2-4.1	318	*Opinion-based sentiment analysis related to 2024 Indonesian Presidential Election on YouTube*
Santoso, Jennifer	2-8.1	497	*Prediction of Perceived Synthesized Speech Quality with Wav2Vec2 Features on Small Dataset*
Saputra, Efa	3-3.3	625	*Variance-Based Geometric Feature Selection for Face Recognition System*
Saputra, Nopriadi	1-5.4	112	*Detecting the Effect of Internet Skill and e-Leadership on Productivity of Working from Home*
	3-2.5	601	*Synergizing Digital Competence and Teamwork for Accelerating Workforce Agility*
Sari, Ratna	1-4.4	87	*Sustainability at Branchless Banking Service*

Saripudin, Aip	2-6.5	430	*Underwater Wireless Optical Communication Using Li-Fi Technology In Data Transmission*
Sarno, Riyanarto	3-7.4	769	*Improving Parallel Pattern Discovery from Directly Follows Graph Model*
Sarwinda, Devvi	2-3.4	288	*Comparative Analysis of Bone Age Assessment Techniques using Hand X-Ray Images and Gender Feature*
Sarwindah, Sarwindah	3-6.5	738	*Data Mining Using C4.5 Algorithm in Predicting Student Graduation*
Sasongko, Ananto	1-2.3	34	*Wireless Ad hoc Networks on Motorcycle Ride-Hailing Services: A Comparative Analysis of 802.11n and 802.11p*
Satispi, Evi	1-5.4	112	*Detecting the Effect of Internet Skill and e-Leadership on Productivity of Working from Home*
Satiti, Rini	1-3.4	64	*Network Quality Prediction with QoS and QoE Data for Digital Television Using WebGIS*
Satoto, Budi	2-2.6	254	*Facial expression in tourism destinations using a deep learning approach*
Satyananda, Darmawan	2-4.3	330	*Development of Website for COVID-19 Detection on Chest X-Ray Images*
Sedela, Mega Chris	1-4.2	77	*Impact of Power and Expertise on Perceived Celebrity Credibility on Digital Brand Awareness*
Sedrani, Sara	3-2.3	588	*Protecting Smart Homes: Attack Scenarios, Risks & Threat Modeling*
Senjaya, Monique	3-1.5	565	*NLP Text Classification for COVID-19 Automatic Detection from Radiology Report in Indonesian Language*
Setianingsih, Casi	2-3.2	277	*Sentiment Analysis Using Learning Vector Quantization Method*
	2-3.8	313	*Outdoor Social Distancing Violation System Detection using YOLO Algorithm*
Setiawan, Afdhal	1-7.1	141	*Classification of Sentiment Analysis Against Omnibus Law on Twitter Social Media and News Websites Using the Naïve Bayes Method*
Setiawan, Noor Akhmad	3-2.1	576	*Combining Support Vector Machine - Fast Fourier Transform (SVM - FFT) For Improving Accuracy on Broken Bearing Diagnosis*
Setievi, Frederic	2-3.7	306	*A Comparative Study of Supervised Machine Learning Algorithms for Fake Review Detection*
Setijadi, Eko	2-2.7	260	*Effect of Signal Shape Modulation on Received Power Efficiency in Wireless Power Transfer Systems Using Radio Frequency*
Setiowati, Yuliana	3-7.6	781	*Aspect based Extraction of Implicit Opinions using Opinion Co-occurrence Algorithm*
Setumin, Samsul	2-4.3	330	*Development of Website for COVID-19 Detection on Chest X-Ray Images*
Setyawan, Faisal	2-4.3	330	*Development of Website for COVID-19 Detection on Chest X-Ray Images*
Setyawan, Iwan	3-5.1	683	*Face Recognition and Face Spoofing Detector for Attendance System*
Setyoko, Bimo	3-2.4	595	*Gaussian Mixture Model in Dynamic Background of Video Sequences for Human Detection*
Shaharudin, Muhammad Shabir	3-4.6	677	*The Factors Affect Customer Interest in using Mobile Banking in Indonesia*
Shidik, Guruh Fajar	3-2.4	595	*Gaussian Mixture Model in Dynamic Background of Video Sequences for Human Detection*
Sidiq, Fajar	2-1.5	215	*The Data Leakage Sentiment Analysis Using Naive Bayes Algorithm Based on Machine Learning Approach*

Siswantyo, Sepha	1-1.3	14	*Formal Analysis and Improvement of Zero-Knowledge Password Authentication Protocol*
Siwabessy, Andhika	3-7.3	763	*E-Service Quality, Trust and Perceived Value Impact on Customer Satisfaction*
Soeleman, Moch Arief	3-2.4	595	*Gaussian Mixture Model in Dynamic Background of Video Sequences for Human Detection*
Soesanti, Indah	3-7.2	756	*The EfficientNet Performance For Facial Expressions Recognition*
Soteyome, Urin	3-1.1	543	*Irrigation Management: A Pilot Study for Automatic Water Level Measurement and Report System Development Using Machine Learning Associated with Modified Images*
Sriwidadi, Teguh	1-4.2	77	*Impact of Power and Expertise on Perceived Celebrity Credibility on Digital Brand Awareness*
	1-4.3	82	*Impact Of Celebrity Attractiveness and Celebrity Credibility on Digital Brand Awareness on Perceived Celebrity Digital Branding*
Suciati, Nanik	2-6.2	413	*Detection of Acute Lymphoblastic Leukemia Subtypes using YOLO and Mask R-CNN*
Sudaryatno, Bambang	2-1.4	209	*Prediction analysis of Diabetes Mellitus Based on Machine Learning Algorithm*
Sudirman, Erna	1-4.1	71	*The Implementation of UTAUT-2 in Cashback Program on E-Commerce Platform*
Suharjono, Amin	1-3.3	58	*Power Consumption Optimization for Monitoring System using NB-IoT*
Suhartono, Derwin	2-1.6	221	*Twitter-based Sentiment Analysis for Indonesian Drug Products using Supervised Feature Engineering*
	2-3.7	306	*A Comparative Study of Supervised Machine Learning Algorithms for Fake Review Detection*
	2-5.7	397	*Deep Learning Approach based Classification of Alzheimer's Disease Using Brain MRI*
Suheryadi, Adi	1-2.2	29	*Implementation of IoT Sensored Data Integrity for Irrigation in Precision Agriculture Using Blockchain Ethereum*
Sukmaningsih, Dyah	2-6.6	434	*Factors Affecting Purchase Intention In Social Commerce*
Sukotjo, Cortino	3-5.2	689	*Text Classification for Edentulous and Comorbids Disease Systematic Literature Review based on Machine Learning Algorithm*
Sulaiman, Rahmat	3-6.5	738	*Data Mining Using C4.5 Algorithm in Predicting Student Graduation*
Sumardiono, Arif	3-1.2	548	*Simulation and Experimentation of Fire Fighting with Early Detection Based on MobileNetV2*
Sumarudin, A	1-2.2	29	*Implementation of IoT Sensored Data Integrity for Irrigation in Precision Agriculture Using Blockchain Ethereum*
Sunata, Bryan Leonardo	3-4.6	677	*The Factors Affect Customer Interest in using Mobile Banking in Indonesia*
Suprapto, Bhakti	3-6.6	744	*Position Control System On Autonomous Electric Vehicle Movement Using Fuzzy Logic Methods*
Suprawoto, Totok	1-7.4	160	*Development of Learning Media for The Deaf Using a Webcam*
Supriadi, Ono	1-8.4	184	*Product Placement Across Digital Media: The Impact of Prominence,*

			Modality, and Plot Connection toward Brand Recall on Korean Drama 'Business Proposal'
Supriyo, Bambang	1-3.3	58	*Power Consumption Optimization for Monitoring System using NB-IoT*
Surjandy, Surjandy	1-1.4	19	*The Impact of Video Advertising's Information Quality Content and Risk on Customer Trust and Intention to Buy during the Covid*
Suryantoro, Tri	1-1.1	1	*The Analysis of Attacks against Port 80 Webserver with SIEM Wazuh Using Detection and OSCAR Methods*
Suryoatmojo, Heri	2-8.5	520	*Balancing Control Strategy of Lithium-Ion using Proportional Derivative-Fuzzy Logic Controller*
Susana, Ernia	3-5.6	711	*Edge Classification of Non-Invasive Blood Glucose Levels Based On Photoplethysmography Signals*
Susanti, Bety	1-8.1	166	*Evaluation with NIST Statistical Test on Pseudorandom Number Generators based on DMP-80 and DMP-128*
Susanti, Hera	3-1.2	548	*Simulation and Experimentation of Fire Fighting with Early Detection Based on MobileNetV2*
Sutedy, Muhammad	2-6.7	440	*Text to Image Latent Diffusion Model with Dreambooth Fine Tuning for Automobile Image*
Syahputra, Ade	3-7.1	750	*Age Detection of Catfish Breeding Based on Size Using The YOLO V3*
Syahrial, Syahrial	3-4.5	672	*Performance evaluation and analysis of LBP utilization in face spoofing detection with deep learning*
Syarief, Mohammad	2-2.6	254	*Facial expression in tourism destinations using a deep learning approach*
Syarif Sihabudin Sahid, Dadang	3-3.6	643	*Implementation Brute Force-KNN Method for Scholarship Program Selection*
T			
Tanuwijaya, Bagus Chaindra	3-4.6	677	*The Factors Affect Customer Interest in using Mobile Banking in Indonesia*
Thahir, Muhammad	3-6.4	733	*Mitigating electrical energy cost for residential building based on wall composition*
Thimthong, Tharis	3-1.1	543	*Irrigation Management: A Pilot Study for Automatic Water Level Measurement and Report System Development Using Machine Learning Associated with Modified Images*
Thooriqoh, Hazna	2-5.5	383	*A Recommendation Model of REST API Testing Framework Based On Resource Utilization of ISO / IEC 25010*
Tjahyadi, Rudy	3-8.5	811	*Chronic Disease Prediction using Data Mining and Machine Learning's Algorithm*
Tjhang, Theodore	2-3.7	306	*A Comparative Study of Supervised Machine Learning Algorithms for Fake Review Detection*
Tulloh, Rohmat	1-5.1	93	*IP Hash Algorithm Optimization Analysis On P4 Using The Round Robin Algorithm*
	2-5.2	369	*Latency and RAM Usage Comparison of Advanced and Lightweight Service Mesh*
U			
Utami, Pipit	3-7.2	756	*The EfficientNet Performance For Facial Expressions Recognition*

Utamima, Amalia	2-8.2	503	*Solving Agricultural Route Planning with Improved Particle Swarm Optimization*
Utomo, Chandra	3-5.2	689	*Text Classification for Edentulous and Comorbids Disease Systematic Literature Review based on Machine Learning Algorithm*
	3-7.5	775	*Machine Learning Model using Times Series Analytics for Prediction of ATM Transactions*
V			
V, Roshan	2-1.2	198	*Computer Vision for Autonomous Vehicles - Semantic Segmentation using Jetson Nano*
W			
W, Bambang	2-7.6	480	*Optimal Trajectory Planning for Autonomous Vehicle using Frenet Reference Path*
Wahyu Ardyani, Mareta	1-8.1	166	*Evaluation with NIST Statistical Test on Pseudorandom Number Generators based on DMP-80 and DMP-128*
Wahyuni, Sri	2-1.4	209	*Prediction analysis of Diabetes Mellitus Based on Machine Learning Algorithm*
	2-1.5	215	*The Data Leakage Sentiment Analysis Using Naive Bayes Algorithm Based on Machine Learning Approach*
Wahyuningrum, Tenia	1-6.2	125	*Google Trends Data About Mental Health During COVID-19 Pandemic Using Time Series Regression*
Wang, Hui	2-1.3	203	*A Novel Method for Predicting Smart Grid Stability Via DNN and Hybrid Ensemble Strategy*
Wardihani, Eni	1-3.3	58	*Power Consumption Optimization for Monitoring System using NB-IoT*
Waspada, Indra	3-7.4	769	*Improving Parallel Pattern Discovery from Directly Follows Graph Model*
Wibowo, Ferry Wahyu	2-7.8	491	*Classification And Clustering Performances on The Protocol of The Wireless Sensor Network - Chimpanzee Leader Election Optimization*
	2-8.8	537	*Sentiment Analysis of Airline Ticket and Hotel Booking of Traveloka Using Support Vector Machine*
Widhiyanta, Nurwahyudi	3-3.5	637	*Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System*
Widiasari, Tasya	1-3.1	47	*Determination of Attack Points on IoT Devices based on Particle Swarm Optimization to Support Intrusion Prevention System*
Widyasari, Yohana	3-3.6	643	*Implementation Brute Force-KNN Method for Scholarship Program Selection*
Widyawan, Widy	1-2.4	40	*Cluster selection technique with fuzzy logic-based wireless sensor network to increase the lifetime of networks*
Wihayati, Wihayati	2-7.8	491	*Classification And Clustering Performances on The Protocol of The Wireless Sensor Network - Chimpanzee Leader Election Optimization*
Wijaya, Lianna	1-4.4	87	*Sustainability at Branchless Banking Service*
Wijayanti, Ari	1-8.3	177	*The Quality Measurement of Digital Television during Television Migration Session in Sub-Urban Area*
Wisesa, Bradika	1-7.2	148	*Usage of LSTM Method On Hand Gesture Recognition For Easy Learning of Sign Language Based On Desktop Via Webcam*
	1-7.4	160	*Development of Learning Media for The Deaf Using a Webcam*

Wisnubroto, Agus	2-4.1	318	*Opinion-based sentiment analysis related to 2024 Indonesian Presidential Election on YouTube*
Wisudawan, Hasbi Nur Prasetyo	2-2.5	248	*Two-Dimensional Direction-of-Arrival Estimation for More Sources Than Sensors*
Y			
Yaddarabullah, Yaddarabullah	3-7.1	750	*Age Detection of Catfish Breeding Based on Size Using The YOLO V3*
Yadi, Ilman	2-3.5	294	*A New Deep Learning-Based Mobile Application for Komering Character Recognition*
Yani, Mohammad	1-2.2	29	*Implementation of IoT Sensored Data Integrity for Irrigation in Precision Agriculture Using Blockchain Ethereum*
Yaningtyas, Brigita	1-6.4	135	*Critical Success Factor Using Career-Oriented Social Networking Site (CSNS) for Fresh Graduates*
Yesitasari, Devi	3-6.3	727	*Evaluation of State of Charge Estimation of Lithium-ion Batteries using Deep Learning*
Yondri, Surfa	2-5.4	378	*Dry Cannabis Detection by Using Portable Electronic Nose*
Yudistira, Ida Bagus Putu	2-5.6	390	*Modeling Sales Person Performance Based On Sales Data Clustering*
Yulherniwati, Yulherniwati	2-5.1	362	*Implementing Machine Learning in Students Qur'an Memorization Prediction*
Yuliana, Mike	1-5.3	106	*Energy Efficiency Management with Smart Outdoor Lighting System (SOLS)*
Yunan, Cut	3-5.2	689	*Text Classification for Edentulous and Comorbids Disease Systematic Literature Review based on Machine Learning Algorithm*
Yunidar, Yunidar	3-5.4	700	*A Novel Subtraction Method for Signal Fluctuation*
Yunitawati, Diah	1-6.2	125	*Google Trends Data About Mental Health During COVID-19 Pandemic Using Time Series Regression*
Yunus, A. M. Shiddiq	3-5.3	695	*Optimal Coordination PID-PSS Control Based on Craziness Particle Swarm Optimization In Sulselrabar System*
Yusuf, Akhmad	3-5.5	706	*K-Means Clustering Based on Distance Measures: Stunting Prevalence Clustering in South Kalimantan*
Yusuf, Dianni	2-7.3	462	*Combination Of Markov Random Field And K-Means Clustering In Water Bacteria Image Segmentation*
Yusuf, Muhamad	3-1.2	548	*Simulation and Experimentation of Fire Fighting with Early Detection Based on MobileNetV2*
Yusuf, Muhammad	2-2.6	254	*Facial expression in tourism destinations using a deep learning approach*
Z			
Zaenurrohman, Zaenurrohman	3-1.2	548	*Simulation and Experimentation of Fire Fighting with Early Detection Based on MobileNetV2*
Zaini, Ikhwan	2-5.2	369	*Latency and RAM Usage Comparison of Advanced and Lightweight Service Mesh*
Zaman, Badrus	2-2.1	230	*A Campaign Mining in Social Media using Improved K-Means: The Perspective of Candidate President's Mission*
Zena, Jessica	2-5.7	397	*Deep Learning Approach based Classification of Alzheimer's Disease Using*

			Brain MRI
Zy, Ahmad Turmudi	1-2.3	34	*Wireless Ad hoc Networks on Motorcycle Ride-Hailing Services: A Comparative Analysis of 802.11n and 802.11p*

Host

Universitas Teknologi Digital Indonesia

Technical Support Sponsor

AKAKOM IEEE Student Branch

IEEE Indonesia Section

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10052979

A

A B C D E F G I K L M N O P S T U V W

A Campaign Mining in Social Media using Improved K-Means: The Perspective of Candidate President's Mission

A Comparative Study of Supervised Machine Learning Algorithms for Fake Review Detection

A Comparison of Distributed, PAM, and Trie Data Structure Dictionaries in Automatic Spelling Correction for Indonesian Formal Text

A Comparison of LSTM and BiLSTM for Forecasting of Air Quality Index and Meteorological Conditions in Jakarta

A Flexible Lungs Shape Radiator Structure Printed on a Textile Materials

A New Deep Learning-Based Mobile Application for Komering Character Recognition

A Novel Method for Predicting Smart Grid Stability Via DNN and Hybrid Ensemble Strategy

A Novel Subtraction Method for Signal Fluctuation

A Recommendation Model of REST API Testing Framework Based On Resource Utilization of ISO / IEC 25010

A Scrutinized Outliers Rate for One Class Classification of Green Landscape

Ability of Detuned Reactors and Harmonic Filters to Improve Power Quality in Hybrid AC/DC Power Systems

Age Detection of Catfish Breeding Based on Size Using The YOLO V3

Age Estimation from Face Image using Discrete Cosine Transform Feature and Artificial Neural Network

An Ensemble Model for Software Development Cost Estimation

Analysis of Community Satisfaction with the Use of Peduli Lindung Applications During the Covid-19 Pandemic

Aspect based Extraction of Implicit Opinions using Opinion Co-occurrence Algorithm

Aspect-based Sentiment Analysis in Tourism Industry for Tourism Recommender System

B

A B C D E F G I K L M N O P S T U V W

Balancing Control Strategy of Lithium-Ion using Proportional Derivative-Fuzzy Logic Controller

Bitcoin Investment Instrument in Indonesia: The Impact of Perceived Risk and Benefit on Investor Behaviour

C

A B C D E F G I K L M N O P S T U V W

Camera-based Object Detection and Identification using YOLO Method for Indonesian Search And Rescue Robot Competition

Canned Food Surface Defect Classification Using YOLOv4

Chronic Disease Prediction using Data Mining and Machine Learning's Algorithm

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10053019

Classification And Clustering Performances on The Protocol of The Wireless Sensor Network - Chimpanzee Leader Election Optimization

Classification of Sentiment Analysis Against Omnibus Law on Twitter Social Media and News Websites Using the Naïve Bayes Method

Classification of Tsunami Warning Level using Artificial Neural Network and its Comparison in Southern Java Region

Cluster selection technique with fuzzy logic-based wireless sensor network to increase the lifetime of networks

Combination Of Markov Random Field And K-Means Clustering In Water Bacteria Image Segmentation

Combining Support Vector Machine - Fast Fourier Transform (SVM - FFT) For Improving Accuracy on Broken Bearing Diagnosis

Comparative Analysis of Bone Age Assessment Techniques using Hand X-Ray Images and Gender Feature

Comparison of Model in Predicting Customer Churn Based on Users' habits on E-Commerce

Computer Vision for Autonomous Vehicles - Semantic Segmentation using Jetson Nano

Congestion Control in VANETs based on Message Rate Adaptation by the Exponential Function

Consumer Intention to Use Online Food Delivery Ordering (OFDO) Services In Indonesia: The Impact Of Covid-19 Pandemic

Conveyor Frame Simulation of Magnetic Separator Machine for Recycling Lithium-Ion Batteries Model 18650

Critical Success Factor Using Career-Oriented Social Networking Site (CSNS) for Fresh Graduates

D

A B C D E F G I K L M N O P S T U V W

Data Mining Using C4.5 Algorithm in Predicting Student Graduation

Deep Learning Approach based Classification of Alzheimer's Disease Using Brain MRI

Design and Building a Stair-lift Prototype for Disabilities at Bandung Institute of Technology

Design and Implementation of Hybrid Equalization Battery Management System for Lithium-Ion Batteries

Design of Wearable Device for Monitoring the Position of A Person with Dementia

Detecting the Effect of Internet Skill and e-Leadership on Productivity of Working from Home

Detection of Acute Lymphoblastic Leukemia Subtypes using YOLO and Mask R-CNN

Determination of Attack Points on IoT Devices based on Particle Swarm Optimization to Support Intrusion Prevention System

Determination of COVID-19 Transmission Status in East Java Using the Fuzzy Inference System

Determination of Relevant Feature Combinations For Detection Stunting Status of Toddlers

Development Education of Blind Adaptive Data Rate for LoRaWAN Network on Mobile Node

Development of Learning Media for The Deaf Using a Webcam

Development of Website for COVID-19 Detection on Chest X-Ray Images

Dry Cannabis Detection by Using Portable Electronic Nose

E

A B C D E F G I K L M N O P S T U V W

E-Service Quality, Trust and Perceived Value Impact on Customer Satisfaction

Edge Classification of Non-Invasive Blood Glucose Levels Based On Photoplethysmography Signals

Effect of Signal Shape Modulation on Received Power Efficiency in Wireless Power Transfer Systems Using Radio Frequency

Energy Efficiency Management with Smart Outdoor Lighting System (SOLS)

Evaluation of Short Circuit Fault Current in Selayar Island Power System after Connecting to Photovoltaic

Evaluation of State of Charge Estimation of Lithium-ion Batteries using Deep Learning

Evaluation with NIST Statistical Test on Pseudorandom Number Generators based on DMP-80 and DMP-128

Extreme Learning Machine for Hourly Water Level Forecast in Madura Coastal Area

F

A B C D E F G I K L M N O P S T U V W

Face Recognition and Face Spoofing Detector for Attendance System

Facial expression in tourism destinations using a deep learning approach

Factors Affecting Purchase Intention In Social Commerce

Formal Analysis and Improvement of Zero-Knowledge Password Authentication Protocol

G

A B C D E F G I K L M N O P S T U V W

Gabor Filter-Based Caries Image Feature Analysis Using Machine Learning

Gamelan Melodic Phrase Representation based on The Question-and-Answer Segmentation Rule

Gaussian Mixture Model in Dynamic Background of Video Sequences for Human Detection

Google Trends Data About Mental Health During COVID-19 Pandemic Using Time Series Regression

I

A B C D E F G I K L M N O P S T U V W

Identification of Macro-Nutrient Deficiency in Onion Leaves (Allium cepa L.) Using Convolutional Neural Network (CNN)

Identification of Musaceae Species using YOLO Algorithm

Imbalanced Text Classification based on Corporate Culture by using Support Vector Machine, Case Study: PT XYZ, Indonesia

Impact Of Celebrity Attractiveness and Celebrity Credibility on Digital Brand Awareness on Perceived Celebrity Digital Branding

Impact of Power and Expertise on Perceived Celebrity Credibility on Digital Brand Awareness

Implementation Brute Force-KNN Method for Scholarship Program Selection

Implementation of FCL in Hybrid AC/DC Distribution Network System

Implementation of IoT Sensored Data Integrity for Irrigation in Precision Agriculture Using Blockchain Ethereum

Implementing Machine Learning in Students Qur'an Memorization Prediction

Improving Parallel Pattern Discovery from Directly Follows Graph Model

InceptionV3, ResNet50, and VGG19 Performance Comparison on Tomato Ripeness Classification

Information Security Evaluation Using the Information Security Index: A Case Study in Indonesia

Information Services Financing Scheme Model with Marginal Costs and Supervisory Costs for Modified Cobb-Douglas and Linear Utility Functions

IP Hash Algorithm Optimization Analysis On P4 Using The Round Robin Algorithm

Irrigation Management: A Pilot Study for Automatic Water Level Measurement and Report System Development Using Machine Learning Associated with Modified Images

K

A B C D E F G I K L M N O P S T U V W

K-Means Clustering Based on Distance Measures: Stunting Prevalence Clustering in South Kalimantan

L

A B C D E F G I K L M N O P S T U V W

Latency and RAM Usage Comparison of Advanced and Lightweight Service Mesh

M

A B C D E F G I K L M N O P S T U V W

Machine Learning Model using Times Series Analytics for Prediction of ATM Transactions

Machine Learning Models for Classifying Imbalanced Class Datasets Using Ensemble Learning

Mathematical Model of Traffic Management-Perfect Substitute-Selfish User Scheme

Mitigating electrical energy cost for residential building based on wall composition

Mobile Robot-Ackerman Steering Navigation Using Localization based on Kalman Filter and PID Controller

Modeling Sales Person Performance Based On Sales Data Clustering

Multiple Climacteric Fruits Classification by Using Machine Learning Approach

N

A B C D E F G I K L M N O P S T U V W

Network Quality Prediction with QoS and QoE Data for Digital Television Using WebGIS

NLP Text Classification for COVID-19 Automatic Detection from Radiology Report in Indonesian Language

NOMA Implementation in OFDM-MIMO-VLC Network Serving 9 User Equipments

O

A B C D E F G I K L M N O P S T U V W

Opinion-based sentiment analysis related to 2024 Indonesian Presidential Election on YouTube

Optimal Coordination PID-PSS Control Based on Craziness Particle Swarm Optimization In Sulselrabar System

Optimal Trajectory Planning for Autonomous Vehicle using Frenet Reference Path

Optimization of Feature Extraction in Indonesian Speech Recognition Using PCA and SVM Classification

Outdoor Social Distancing Violation System Detection using YOLO Algorithm

P

A B C D E F G I K L M N O P S T U V W

Performance evaluation and analysis of LBP utilization in face spoofing detection with deep learning

Position Control System On Autonomous Electric Vehicle Movement Using Fuzzy Logic Methods

Power Consumption Optimization for Monitoring System using NB-IoT

Predicting Computer Science Student's Performance using Logistic Regression

Predicting Halal Critical Control Points of Microbial-based Ingredients: A Self-Assessment for MSMEs

Predicting Potential Blood Donors Who Can Attend Blood Donation Activities using a Support Vector Machine

Prediction analysis of Diabetes Mellitus Based on Machine Learning Algorithm

Prediction of Perceived Synthesized Speech Quality with Wav2Vec2 Features on Small Dataset

Product Placement Across Digital Media: The Impact of Prominence, Modality, and Plot Connection toward Brand Recall on Korean Drama ‘Business Proposal'

Proposed Artificial Intelligence Algorithm for Developing Higher Education

Protecting Smart Homes: Attack Scenarios, Risks & Threat Modeling

S

A B C D E F G I K L M N O P S T U V W

Secure User Management Gateway for Microservices Architecture APIs using Keycloak on XYZ

Sentiment Analysis of Airline Ticket and Hotel Booking of Traveloka Using Support Vector Machine

Sentiment Analysis Using Learning Vector Quantization Method

Sequential Topic Modelling: A Case Study on One Health Conversation on Twitter

Simulation and Experimentation of Fire Fighting with Early Detection Based on MobileNetV2

Smart Economy Implementation in Supporting SMEs Growth: Case Study in Indonesia & Malaysia Smart Cities

Solving Agricultural Route Planning with Improved Particle Swarm Optimization

Sustainability at Branchless Banking Service

Synergizing Digital Competence and Teamwork for Accelerating Workforce Agility

Task Allocation and Path Planning Method For Multi-Autonomous Forklift Navigation

Text Classification for Edentulous and Comorbids Disease Systematic Literature Review based on Machine Learning Algorithm

Text to Image Latent Diffusion Model with Dreambooth Fine Tuning for Automobile Image

The Analysis of Attacks against Port 80 Webserver with SIEM Wazuh Using Detection and OSCAR Methods

The Data Leakage Sentiment Analysis Using Naive Bayes Algorithm Based on Machine Learning Approach

The Effect of E-Commerce and Purchase Effectiveness on Student Learning

The EfficientNet Performance For Facial Expressions Recognition

The Factors Affect Customer Interest in using Mobile Banking in Indonesia

The Impact of Video Advertising's Information Quality Content and Risk on Customer Trust and Intention to Buy during the Covid

The Implementation of UTAUT-2 in Cashback Program on E-Commerce Platform

The Quality Measurement of Digital Television during Television Migration Session in Sub-Urban Area

Tomato Ripeness and Size Classification Using Image Processing

Towards Robust Diabetic Retinopathy Classifier Using Natural Gradient Langevin Dynamics

Training Deep Energy-Based Models Through Cyclic Stochastic Gradient Langevin Dynamics

Trajectory Tracking of Autonomous Vehicle That Uses State Feedback Linearization with Ackerman Methode and Observer Feedback

Transformer Model Fine-Tuning for Indonesian Automated Essay Scoring with Semantic Textual Similarity

Twitter Data Sentiment Analysis of COVID-19 Vaccination using Machine Learning

Twitter-based Sentiment Analysis for Indonesian Drug Products using Supervised Feature Engineering

Two-Dimensional Direction-of-Arrival Estimation for More Sources Than Sensors

U

A B C D E F G I K L M N O P S T U V W

Underwater Wireless Optical Communication Using Li-Fi Technology In Data Transmission

Usage of LSTM Method On Hand Gesture Recognition For Easy Learning of Sign Language Based On Desktop Via Webcam

V

A B C D E F G I K L M N O P S T U V W

Variance-Based Geometric Feature Selection for Face Recognition System

Virtual Reality as A Social Learning Tools For Individuals with Autism

W

A B C D E F G I K L M N O P S T U V W

Why Do People Want to Buy Green Cosmetics? Exploring The Role of Social Media and Motivation

Wireless Ad hoc Networks on Motorcycle Ride-Hailing Services: A Comparative Analysis of 802.11n and 802.11p

Position Control System On Autonomous Vehicle Movement Using Fuzzy Logic Methods

Bhakti Yudho Suprapto, Diah Rahmah Dini, Muhammad Naufal Ghiffari Iskandar, Patrick Kusuma Wijaya, Rendyansyah, Suci Dwijayanti
dept. of electrical engineering
Faculty of engineering
Palembang, Indonesia
bhakti@ft.unsri.ac.id, diahrahmahdini13@gmail.com, nagihifari@gmail., patrick_cluvert@yahoo.com, rendyansyah.ilkom@gmail.com, sucidwijayanti@ft.unsri.ac.id

***Abstract*— An autonomous vehicle is designed to be driven automatically without a crew controlling it. The autonomous vehicle can ease the people in driving. Thus, a control system is important to ensure the autonomous electric vehicle run properly. Various control systems can be implemented on the autonomous vehicle. However, the previous studies have shown that the inaccuracy and inconsistency may still occur. Thus, this study presents the combination of compass and fuzzy logic to control the position of the autonomous vehicle. The Sugeno fuzzy logic method is used to control the position of the movement of autonomous vehicle by considering several inputs, such as the direction to the destination, the position of the destination, and the distance to the intended target. Meanwhile, the rotational speed of the motor becomes the output. In this study, the autonomous vehicle was run in Universitas Sriwijaya located in two locations, namely at Palembang Campus, and Indralaya Campus. The results show that the autonomous vehicle was able to reach the destination position with the motor speed output on the autonomous electric vehicle which was read according to the fuzzy. This study shows that fuzzy rule for 5 memberships function has the lowest heading error of 6.8 degrees compared to 3 memberships function. Nevertheless, 3 memberships function has the shortest time to reach the destination. The results of this study indicate that the control system using the fuzzy logic method works well.**

Keywords—MPU6050, ublox neo M8N, position control, autonomous electric vehicle, fuzzy logic

I. INTRODUCTION

Technology has developed very rapidly, including autonomous vehicles. Such a vehicle is helpful because the accident rate is getting higher due to the driver's negligence or conditions that make him impossible to drive, such as drowsiness and unfocused driving. Those reasons become the trigger in the development of autonomous vehicles in Indonesia.

Autonomous electric vehicle is an unmanned vehicle designed in such a way to ease the drivers to travel to various areas safely and comfortably. In addition, autonomous electric vehicles are also widely used by elderly and people with disabilities whose circumstances do not allow them to drive a vehicle [1]. This autonomous electric vehicle runs automatically without any intervention from the driver and can minimize traffic accidents because this autonomous vehicle has various sensors that can detect and avoid objects around the vehicle. In addition, the autonomous vehicles are equipped with a system to find the coordinates and direction of the vehicle.

The autonomous electric vehicle is self-driving that can run automatically and move along a predetermined route or path so the passengers can get security and comfortability to reduce the rate of traffic accidents. The autonomous electric vehicles require a position control system to move according to a predetermined route or path to perform self-driving.

Some previous studies have discussed the position control for autonomous vehicles using various sensors, such as Light Detection and Ranging (LiDAR)[2], Global Positioning System (GPS)[3], ultrasonic sensors[4], [5], and compass sensors[3], [5], [6]. The results obtained by the LiDAR sensor have the best results compared to GPS, ultrasonic sensors, and compass sensors. However, LiDAR is the most expensive compared to GPS, ultrasonic sensor, and compass. In terms of use, GPS is easier to use to determine coordinates, but GPS has several weaknesses, one of which is the inaccurate information provided by the Google Maps API [7]. Ultrasonic sensor is also easy to use. However, it is less effective because the maximum distance to be able to be read is only 4 meters.

Apart from sensors, another factor to consider in position control is the method used. Several studies of autonomous control use the Proportional Integral Derivative (PID) method[4], artificial neural network (ANN)[8], and fuzzy logic[9]. PID control is a fine conventional control with a mathematical form that change the error to zero. However, PID is less stable if the input data is too much, and the overshoot depends on the proportional, integral, and differential parameters[10]. On the other hand, the ANN can get a low value of error output. However, ANN requires quite a lot of training data so that the results obtained are optimal.

Based on the shortcomings in previous studies that have described the sensors and methods used for autonomous position control, there are still inaccuracies and inconsistencies. So, this study uses a compass as a position control system for the movement of autonomous vehicles using a fuzzy logic control system as the algorithm. The fuzzy logic method can help reduce errors that occur in the reading of routes and directions by the sensors. In addition, the advantage of the fuzzy logic control system is that the system design concept in this method is complex and easier to be implemented. Thus, a fuzzy logic control system is implemented as a position control system for the movement of the autonomous vehicle using a compass sensor to obtain accurate and stable results. The alignment of movement on the autonomous vehicle can be achieved when there is a change in position from the initial location to the destination location automatically and accurately.

978-1-6654-5512-1/22/$31.00 ©2022 IEEE

The paper is organized as follows: Section 2 gives an overview of the Fuzzy Logic. Section 3 shows the method performed in this study. The results and discussions are presented in Section 4. Finally, the paper is concluded in Section 5.

II. METHOD

Hardware Design

In this study, several devices are used to support the implementation of an autonomous vehicle, such as: Ublox Neo M8N, MPU6050, Arduino Mega 2560, DC Motor, and ESP8266 Module.

The position of the components used in this study is designed as can be seen in Fig.1.

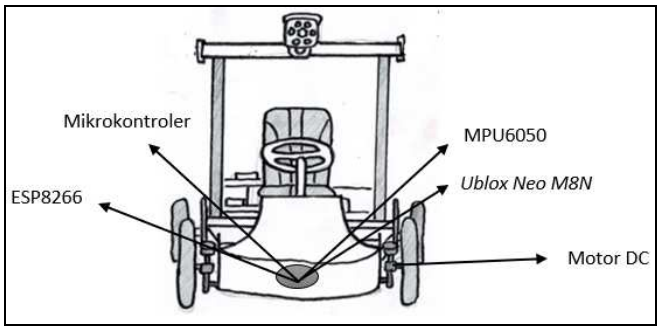


Fig. 1. Design of component placement on autonomous electric vehicles

Position Control System Design

The design of the position control system for the movement of autonomous electric vehicle can be seen in Fig. 2. The process of fuzzy logic can be seen in Fig. 3.

In this study, the inputs are in the form of the direction of the vehicle and the route to reach the destination coordinate point. Table I is the membership function of the direction towards the autonomous electric vehicle, Table II is the membership function of the target distance, and Table III is the membership function of the motor speed output.

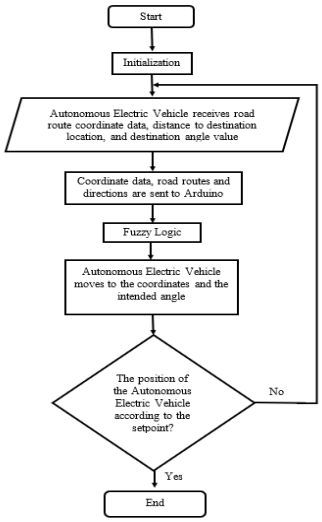


Fig. 2. System Flowchart

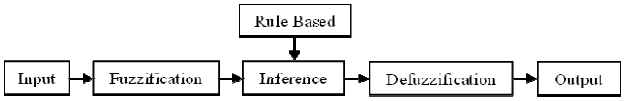


Fig. 3. Block diagram of Fuzzy Logic [10]

TABLE I. MEMBERSHIP FUNCTIONS FOR VEHICLE DIRECTIONS

Direction (°)			Variable	Variable Description
3 Members	*5 Members*	*7 Members*		
(-125) – (-10)	(-125) – (-55)	(-125) – (-83)	Left Broken	LB
–	–	(-85) – (-43)	Left	L
–	(-75) – (-5)	(-45) – (-3)	Slanted Left	SL
(-15) – 15	(-10) – 10	(-5) – 5	Straight	S
–	5 – 75	3 – 45	Slanted Right	SR
–	–	43 – 85	Right	R
10 – 125	55 – 125	83 – 125	Right Broken	RB

TABLE II. MEMBERSHIP FUNCTION DISTANCE DESTINATION

Distance (meters)			Variable	Variable Description
3 Members	*5 Members*	*7 Members*		
–	–	6 – 47	Very Close	VC
–	6 – 76	37 – 83	Quite Close	QC
6 – 100	56 – 126	73 – 119	Close	C
90 – 174	106 – 158	109 – 155	Medium	M
164 – 200	138 – 208	145 – 191	Far	F
–	188 – 258	181 – 227	Quite Far	QF
–	–	217 - 258	Very Far	VF

TABLE III. MOTOR MOVEMENT OUTPUT MEMBERSHIP FUNCTION

PWM				Variable	Variable Description
Motor1	*Motor2*	*Motor3*	*Motor4*		
-65	135	-85	135	Left Broken	-2
-20	120	-40	120	Slanted Left	-1
75	75	95	75	Straight	0
120	-20	140	-20	Slanted Right	1
135	-65	155	-65	Right Broken	2

System Evaluation

After designing the hardware and software, the next step is data collection and evaluation. Data retrieval and evaluation are carried out on the designed system to determine the ability of the system to achieve the desired goals. Data collection and evaluation are carried out at Universitas Sriwijaya which has two campuses, Palembang campus as first test location and Indralaya campus as second test location. The map for both locations can be seen in Fig. 3 and 4, respectively. The purpose of evaluation is to determine the performance and the error rate on the designed system.

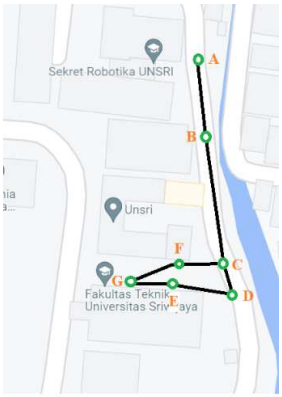


Fig. 4. First test location map

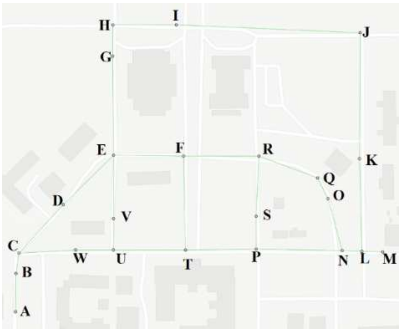


Fig. 5. Second test location map

III. Result and Discussion

This section discusses the results of position control of autonomous vehicle using the fuzzy method to produce alignment and accuracy of the movement of the autonomous vehicle in moving positions.

A. Results of Autonomous Electric Vehicle Design

The resulting design of this tool is carried out before testing the system, namely by providing various components needed by the prototype autonomous electric vehicle, such as sensors and microcontrollers. The design of this autonomous vehicle prototype consists of mechanical design and wiring design for the components used. The components used in this prototype are Ublox Neo M8N, MPU6050 and four 12 V DC motors which are controlled using the Arduino Mega microcontroller. The results of the design of this tool can be seen in Fig. 6.

Fig. 6. Prototype of an autonomous electric vehicle

B. Data Coordinates and Routes

The road routes are evaluated in two locations, namely at Universitas Sriwijaya, Palembang campus for the first test route and Indralaya campus for the second test route. This test route was taken from latitude and longitude readings on the Ublox Neo M8N GPS for the first route and from Google Maps readings for the second route. The first test route consists of 7 coordinates, which are represented by letters starting from A to G which can be seen in Table IV. There are five routes taken within the Faculty of Engineering, Palembang campus for the first test to be carried out which can be seen in Table V.

The second test route consists of 23 coordinate points, which are represented by the letters A to W. The coordinates of the second test route can be seen in Table VI and the test route in Table VII.

The coordinate points that have been created is then used as targets to be traversed by the autonomous electric vehicle. The coordinate point data is inputted into a website that can be accessed to select the desired travel route. The website address for selecting the route is siapbot1.com/pathfind/. Then, the route selected sent to the microcontroller using the ESP8266 module with an intermediary program on the Arduino.

TABLE IV. Coordinates Of First Test Route

No.	Location	Latitude	Longitude
1	Waypoint A	-2.984024	104.734252
2	Waypoint B	-2.984283	104.734275
3	Waypoint C	-2.984644	104.734352
4	Waypoint D	-2.984724	104.734359
5	Waypoint E	-2.984707	104.734268
6	Waypoint F	-2.984658	104.734252
7	Waypoint G	-2.984705	104.734169

TABLE V. First Test Route

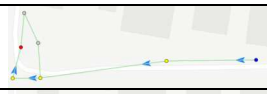
No.	Test Route	Representation on the map	Distance (meters)
1	A>B>C>D>E		89.2
2	B>C>F>G		62.94
3	G>F		10.6
4	D>C>F		20.14
5	E>G		11

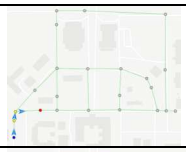
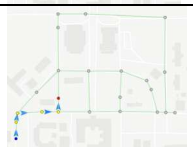
TABLE VI. Coordinates of Second Test Route

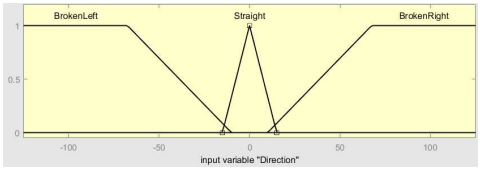
No.	Location	Latitude	Longitude
1	Waypoint A	-3.217456	104.646508
2	Waipoint B	-3.216977	104.646513
3	Waypoint C	-3.216721	104.646551
4	Waypoint D	-3.216112	104.647109
5	Waypoint E	-3.215489	104.647742
6	Waypoint F	-3.215500	104.648622
7	Waypoint G	-3.214244	104.647729
8	Waypoint H	-3.213909	104.647735
9	Waypoint I	-3.213851	104.648532
10	Waypoint J	-3.213951	104.650844
11	Waypoint K	-3.215532	104.650835
12	Waypoint L	-3.216698	104.650866
13	Waypoint M	-3.216704	104.651128
14	Waypoint N	-3.216689	104.650618
15	Waypoint O	-3.216036	104.650439
16	Waypoint P	-3.216669	104.649535
17	Waypoint Q	-3.215775	104.650308
18	Waypoint R	-3.215501	104.649569
19	Waypoint S	-3.216258	104.649535
20	Waypoint T	-3.216682	104.648646
21	Waypoint U	-3.216681	104.647740
22	Waypoint V	-3.216287	104.647742
23	Waypoint W	-3.216681	104.647264

C. System Testing Using Fuzzy

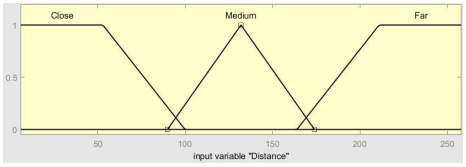
In this study, the testing uses 2 input variables, namely, the direction of the vehicle and the distance to the target coordinates. The test inputs for the direction facing the vehicle are, broken left, tilted left, straight, tilted right and broken right. Meanwhile, the target distance input is also in the form of very far, far, medium, close, and very close. The fuzzy curves for the input facing direction and the target distance input can be seen in Figs. 7, 8, and 9. The rules can be seen in Tables VIII, IX, and X.

TABLE VII. SECOND TEST ROUTE

No.	Test Route	Representation on the map	Distance (meters)
1	A>B>C>W		161.5
2	A>B>C>W>U>V		258.2
3	A>B>C>D>E>G>H>I		537.5
4	A>B>C>D>E>F>R		476.1
5	A>B>C>W>U>T>P>S		459.8



(a)



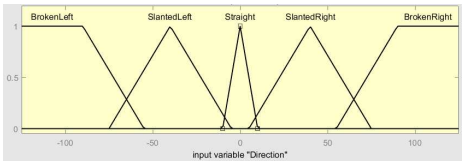
(b)

Fig. 7. Fuzzy curve input 3 Members (a). Forward Direction. (b). Target Distance.

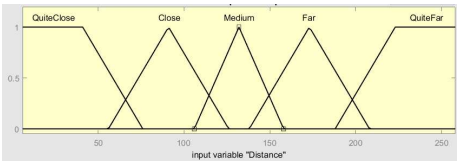
The last step in the fuzzy system is defuzzification, which aims to convert the results of the inference engine and is displayed in the form of fuzzy sets to real numbers. The defuzzification process in this study uses Sugeno's fuzzy rules for Order Zero with the weight average method, where the value taken is the average value using the membership function. The equation of the weight average method can be seen in the following equation:

$$WA = \frac{\alpha 1 z 1 + \alpha 2 z 2 + \alpha 3 z 3 + \cdots + \alpha n z n}{\alpha 1 + \alpha 2 + \alpha 3 + \cdots + \alpha n} \quad (1)$$

Testing location in Palembang campus (first location) uses 3 test routes and Indralaya campus (second location) uses 2 test routes to collect data. Tables XI, XII, and XIII are a sample of the tests carried out at the first location:

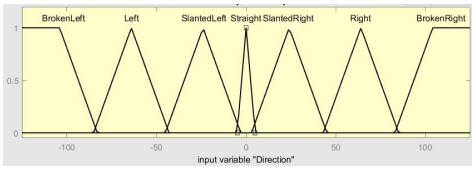


(a)

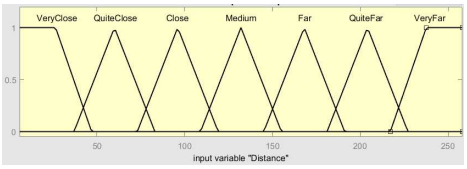


(b)

Fig. 8. Fuzzy curve input 5 Members (a). Forward Direction. (b). Target Distance.



(a)



(b)

Fig. 9. Fuzzy curve input 7 Members (a). Forward Direction. (b). Target Distance.

TABLE VIII. FUZZY RULES 3 MEMBERS

Rules Number	Input		Output
	Direction	*Distance*	*Motor Movement*
0	LB	F	-2
1	LB	M	-2
2	LB	C	-1
3	S	F	0
4	S	M	0
5	S	C	0
6	RB	F	2
7	RB	M	2
8	RB	C	1

After testing the system using fuzzy, the latitude and longitude data obtained are plotted into a graph to see if the route traversed by the autonomous electric vehicle is following the test route. Then, the current heading of each system test route is compared with the target heading against time to see the magnitude of the heading error.

1) System Testing on D→C→F 3 Members

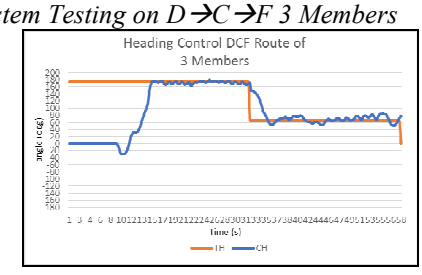


Fig. 10. Graph of Heading Control Results on D→C→F 3 Members Routes

TABLE IX. FUZZY RULES 5 MEMBERS

Rules Number	Input		Output
	Direction	*Distance*	*Motor Movement*
0	LB	QF	-2
1	LB	F	-2
2	LB	M	-2
3	LB	C	-1
4	LB	QC	-1
5	SL	QF	-1
6	SL	F	-1
7	SL	M	-1
8	SL	C	-1
9	SL	QC	-1
10	S	QF	0
11	S	F	0
12	S	M	0
13	S	C	0
14	S	QC	0
15	SR	QF	1
16	SR	F	1
17	SR	M	1
18	SR	C	1
19	SR	QC	1
20	RB	QF	2
21	RB	F	2
22	RB	M	2
23	RB	C	1
24	RB	QC	1

TABLE X. FUZZY RULES 7 MEMBERS

Rules Number	*Input*		*Output*
	Direction	*Distance*	*Motor Movement*
0	LB	VF	-2
1	LB	QF	-2
2	LB	F	-2
3	LB	M	-2
4	LB	C	-2
5	LB	QC	-1
6	LB	VC	-1
7	L	VF	-2
8	L	QF	-2
9	L	F	-2
10	L	M	-2
11	L	C	-1
12	L	QC	-1
13	L	VC	-1
14	SL	VF	-2
15	SL	QF	-2
16	SL	F	-1
17	SL	M	-1
18	SL	C	-1
19	SL	QC	-1
20	SL	VC	-1
21	S	VF	0
22	S	QF	0
23	S	F	0
24	S	M	0
25	S	C	0
26	S	QC	0
27	S	VC	0
28	SR	VF	2
29	SR	QF	2
30	SR	F	1
31	SR	M	1
32	SR	C	1
33	SR	QC	1
34	SR	VC	1
35	R	VF	2
36	R	QF	2
37	R	F	2
38	R	M	2
39	R	C	1
40	R	QC	1
41	R	VC	1
42	RB	VF	2
43	RB	QF	2
44	RB	F	2
45	RB	M	2
46	RB	C	2
47	RB	QC	1
48	RB	VC	1

TABLE XI. SYSTEM TESTING ON D→C→F 3 MEMBERS ROUTE

Start → Target	DT (meters)	CT (degree)	TH (degree)	HE (degree)	MMO
D → C	11	0	174	174	SR
D → C	11	0	174	174	SR
D → C	11	0	174	174	SR
D → C	11	0	174	174	SR
D → C	11	0	174	174	SR
D → C	11	0	174	174	SR
D → C	11	0	174	174	SR
D → C	11	0	174	174	SR
D → C	11	0	174	174	SR
D → C	11	-1	174	175	SR
C → F	9	65	76	-11	S
C → F	9	65	68	-3	S
C → F	9	65	57	8	S
C → F	9	65	52	13	S
C → F	9	65	50	15	S
C → F	9	65	51	14	S
C → F	9	65	57	8	S
C → F	9	65	63	2	S
C → F	9	65	73	-8	S
C → F	2	65	77	-12	S

Note: DT: distance target; CH: current heading; TH: target heading, and HE: heading error; MMO: motor movement output

TABLE XII. SYSTEM TESTING ON D→C→F 5 MEMBERS ROUTE

Start → Target	DT (meters)	CT (degree)	TH (degree)	HE (degree)	MMO
D → C	10	4	174	170	SR
D → C	10	5	174	169	SR
D → C	10	7	174	167	SR
D → C	10	8	174	166	SR
D → C	10	9	174	165	SR
D → C	10	9	174	165	SR
D → C	10	7	174	167	SR
D → C	10	5	174	169	SR
D → C	10	4	174	170	SR
D → C	10	11	174	163	SR
C → F	4	65	37	28	SR
C → F	4	65	46	19	SR
C → F	4	65	58	7	S
C → F	4	65	67	-2	S
C → F	4	65	70	-5	S
C → F	4	65	71	-6	S
C → F	4	65	75	-10	S
C → F	4	65	75	-10	S
C → F	4	65	74	-9	S
C → F	2	65	63	2	S

2) System Testing on D→C→F 5 Members

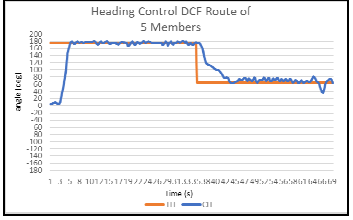


Fig. 11. Graph of Heading Control Results on D→C→F 5 Members Routes.

TABLE XIII. SYSTEM TESTING ON D→C→F 7 MEMBERS ROUTE

Start → Target	DT (meters)	CT (degree)	TH (degree)	HE (degree)	MMO
D → C	11	166	174	8	SR
D → C	11	170	174	4	S
D → C	11	175	174	-1	S
D → C	11	176	174	-2	S
D → C	11	176	174	-2	S
D → C	11	177	174	-3	S
D → C	11	177	174	-3	S
D → C	11	178	174	-4	S
D → C	11	179	174	-5	SL
D → C	11	176	174	-2	S
C → F	3	65	65	0	S
C → F	3	66	65	-1	S
C → F	3	67	65	-2	S
C → F	3	67	65	-2	S
C → F	3	68	65	-3	S
C → F	3	68	65	-3	S
C → F	3	69	65	-4	S
C → F	3	69	65	-4	S
C → F	3	70	65	-5	SL
C → F	2	67	65	-67	SL

3) System Testing on D→C→F 7 Members

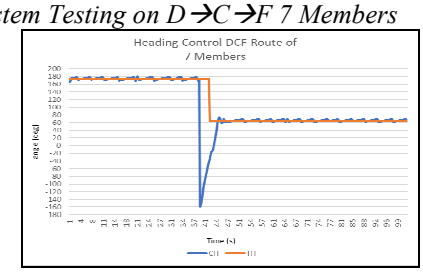


Fig. 12. Graph of Heading Control Results on D→C→F 7 Members Routes

Fig. 10 shows a graph of controlling headings on the D→C→F 3 members route against time, Fig. 11 shows the results of controlling headings on the D→C→F 5 members route against time, and Fig. 12 shows the results of controlling headings on the D→C→F 7 members route against time. CH is the current heading represented in blue, and TH is the target heading represented in orange. The target heading from point D to point C is 174 degrees, and from the point D to point F is65 degrees. The time needed to reach the destination point with 3 members is 58 seconds, namely from point D to point F with a distance of 20.14 meters, and an average heading error of 47 degrees. Furthermore, the time needed to reach the destination point from point D to point F with 5 members is 69 seconds, with an average heading error of 18.5 degrees. Then, the time needed to reach the destination point, namely from point D to point F with 7 members is 99 seconds, with an average heading error of 11.4 degrees. In addition to the sample data and test chart for the D→C→F route that has been attached above; other routes have been tested. Overall, test routes have been carried out in 5 test routes for the first test location, and 2 test routes for the second test location.

Based on the system testing that has been done, the travel time required to reach the destination coordinates using fuzzy of 3 members is faster than fuzzy of 5 members and 7 members. This is caused by the number of fuzzy members, where the fewer the number of fuzzy members, the less time it will take to get to the destination coordinates. Meanwhile, the results of heading control using fuzzy 7 Member are more stable than using fuzzy 3 Member and fuzzy 5 Member. This is also caused by the number of fuzzy members, where the greater the number of fuzzy members, the smaller the heading error value when moving positions on an autonomous electric vehicle. This test using fuzzy 7 members is carried out to prove the assumption that the fewer the number of fuzzy members, the less time it will take to get to the destination coordinates, and the fuzzier members, the smaller the heading error value when moving positions on the autonomous vehicle is correct.

IV. CONCLUSION

This study has shown that the fuzzy logic control system can be used as a position control system for the movement of autonomous electric vehicles, where the prototype of the autonomous vehicle provides an appropriate response, is quite stable, and is accurate based on the given rules. 2. The ability of the autonomous vehicle to move positions using a fuzzy with 5 members is more stable than using a fuzzy of 3 members, it can be seen from the average heading error of system testing of 6.8 degrees for a fuzzy of 5 members, and 12.2 degrees for a fuzzy of 3 members. However, the time required to reach the destination point using a fuzzy of 5 members is longer than using a fuzzy of 3 members, which is evidenced by the average time needed to reach the coordinates of the destination test for the first location and the second location with a fuzzy of 5 members, namely during 440.5 seconds, and with 3 members fuzzy for 319.2 seconds.

REFERENCES

[1] J. Hecht, "Lidar for Self-Driving Cars," *Opt. Photonics News January 2018*, pp. 28–33, 2018.

[2] M. Aldibaja, N. Suganuma, and K. Yoneda, "LIDAR-Data Accumulation Strategy To Generate High Definition Maps For Autonomous Vehicles," *2017 IEEE Int. Conf. Multisens. Fusion Integr. Intell. Syst. (MFI 2017)*, pp. 422–428, 2017.

[3] A. A. Othman and M. M. H. Mahjoub, "Self Navigated Robot using GPS and Compass," University of Science and Technology, 2017.

[4] S. Surendharan and J. Jennifer Ranjani, "Environment conscious automated vehicle navigation system using PID controller," *Indian J. Sci. Technol.*, vol. 9, no. 48, 2016, doi: 10.17485/ijst/2016/v9i48/108017.

[5] A. M. Fathan, A. N. Jati, and R. E. Saputra, "Mapping algorithm using ultrasonic and compass sensor on autonomous mobile robot," *ICCEREC 2016 - Int. Conf. Control. Electron. Renew. Energy, Commun. 2016, Conf. Proc.*, pp. 86–90, 2017, doi: 10.1109/ICCEREC.2016.7814986.

[6] T. Van-Tang PHAM, Dinh-Chinh NGUYEN, Quang-Huy TRAN, Duc-Trinh CHU and Duc-Tan, "Thermal Stability of Magnetic Compass Sensor for High Accuracy Positioning Applications," *Sensors & Transducers*, vol. 195, no. 12, pp. 1–8, 2015.

[7] N. Xia, L. Cheng, S. Chen, X. Wei, W. Zong, and M. Li, "Accessibility based on Gravity-Radiation model and Google Maps API: A case study in Australia," *J. Transp. Geogr.*, vol. 72, no. April, pp. 178–190, 2018, doi: 10.1016/j.jtrangeo.2018.09.009.

[8] E. N. Budisusila, B. Arifin, S. A. D. Prasetyowati, B. Y. Suprapto, and Z. Nawawi, "Artificial neural network algorithm for autonomous vehicle ultrasonic multi-sensor system," *EECCIS 2020 - 2020 10th Electr. Power, Electron. Commun. Control. Informatics Semin.*, pp. 128–131, 2020, doi: 10.1109/EECCIS49483.2020.9263459.

[9] H. Omrane, M. S. Masmoudi, and M. Masmoudi, "Fuzzy Logic Based Control for Autonomous Mobile Robot Navigation," *Comput. Intell. Neurosci.*, vol. 2016, 2016, doi: 10.1155/2016/9548482.

[10] Gaurav and A. Kaur, "Comparison between Conventional PID and Fuzzy Logic Controller for Liquid Flow Control : Performance Evaluation of Fuzzy Logic and PID Controller by Using MATLAB/Simulink," *Ijitee*, vol. 1, no. 1, pp. 84–88, 2012.

2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) | 978-1-6654-5512-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISRITI56927.2022.10052874

orginized by:

utdi.ac.id