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KEPUTUSAN DEKAN FAKULTAS TEKNOLOGI INFORMASI
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NOMOR : K/UBL/FTI/000/004/08/22

TENTANG:
PENUGASAN KEGIATAN TRI DHARMA & PENUNJANG BAGI DOSEN
FAKULTAS TEKNOLOGI INFORMASI UNIVERSITAS BUDI LUHUR
SEMESTER GENAP TAHUN AKADEMIK 2021/2022

DEKAN FAKULTAS TEKNOLOGI INFORMASI UNIVERSITAS BUDI LUHUR

Menimbang :

1) Bahwa Dosen adalah pendidik profesional dan ilmu dengan tugas utama mentrans-formasikan, mengembangkan, dan menyebarluaskan ilmu pengetahuan, teknologi, dan seni melalui pendidikan/pengajaran penelitian & karya ilmiah, dan Pengabdian pada masyarakat yang dikenal dengan istilah Tri Dharma Perguruan Tinggi;
2) Bahwa untuk meningkatkan profesionalitas dan kompetensi sebagai pendidik profesional maka dipandang perlu untuk memberikan tugas-tugas tambahan/penunjang dalam lingkup kegiatan penunjang Tri Dharma;

Mengingat :

1) Undang – undang Republik Indonesia Nomor 12 Tahun 2012 tentang Pendidikan Tinggi;
2) Peraturan Pemerintah Republik Indonesia Nomor 17 Tahun 2010 tentang Pengelolaan dan Penyelenggaraan Pendidikan;
3) Peraturan Menteri Riset, Teknologi, dan Pendidikan Tinggi Republik Indonesia Nomor 44 Tahun 2015 tentang Standar Nasional Pendidikan Tinggi;
4) Peraturan Menteri Riset, Teknologi dan Pendidikan Tinggi Republik Indonesia Nomor 15 Tahun 2017 tentang Penamaan Program Studi Pada Perguruan Tinggi;
5) Akta Yayasan Pendidikan Budi Luhur Tanggal 23 Desember 1991;
6) Peraturan Pengurus Yayasan Pendidikan Budi Luhur Cakti Nomor: K/YBLC/KEP/000/389/08/17 tanggal 24 Agustus 2017 tentang Statuta Universitas Budi Luhur;

M E M U T U S K A N

Menetapkan :

PERTAMA : Menugaskan dosen-dosen Fakultas Teknologi Informasi Universitas Budi Luhur untuk melaksanakan kegiatan **Tri Dharma Perguruan Tinggi dan penunjangnya** pada Semester Genap Tahun Akademik 2021/2022 yang meliputi:

a. **Kegiatan partisipasi aktif** dalam Pertemuan Ilmiah sebagai Ketua/Anggota/Peserta/Pembicara/Penulis/Narasumber pada kegiatan Seminar, Workshop, Konferensi, Pelatihan, Simposium, Lokakarya, Forum Diskusi, Sarasehan dan sejenisnya;
b. **Publikasi Ilmiah** pada Prosiding, Jurnal/majalah/surat kabar dan sejenisnya;
c. **Partisipasi dalam organisasi** profesi, organisasi keilmuan dan/atau organisasi lain yang menunjang kegiatan Tri Dharma Pendidikan Tinggi;

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KETIGA : Kegiatan Tri Dharma yang tidak termasuk dalam surat keputusan ini akan memiliki penugasan tersendiri;

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Ditetapkan di : Jakarta
Pada Tanggal : 1 Februari 2022
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Dekan Fakultas Teknologi Informasi

Dr. Ir. Deni Mahdiana, S.Kom., M.M., M.Kom

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TENTANG:
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FAKULTAS TEKNOLOGI INFORMASI UNIVERSITAS BUDI LUHUR
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2	0312127303	ANTON SATRIA PRABUWONO	Ilmu Komputer
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THE 23rd INTERNATIONAL SEMINAR ON INTELLIGENT TECHNOLOGY AND ITS APPLICATIONS (ISITIA 2022)

Advanced Innovations of Electrical Systems for Humanity

IEEE Conference Number #56226

IEEE Catalog Number CFP22TIA-ART

ISBN : 978-6654-6081-1

23rd ISITIA 2022

Virtual Conference
20-21 July 2022

2022 International Seminar on Intelligent Technology and Its Applications (ISITIA) | 978-1-6654-6081-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISITIA56226.2022.9855344

2022 International Seminar on Intelligent Technology and Its Applications (ISITIA) | 978-1-6654-6081-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISITIA56226.2022.9855257

2022 International Seminar on Intelligent Technology and Its Applications (ISITIA)

"Advanced Innovations of Electrical Systems for Humanity"

Proceeding

Surabaya, Indonesia

(Virtual Conference)

20 – 21 July 2022

IEEE Conference Number : 56226
IEEE Catalog Number : CFP21TIA-ART
ISBN : 978-1-6654-6081-1

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Message from the General Chair



Dear keynote speakers, Rector of Institut Teknologi Sepuluh Nopember, Dean of Faculty of Intelligent Electrical and Informatics Technology, Head of Electrical Engineering Department, lecturers, researchers, and all seminar's participants, good morning, good afternoon and good evening from Surabaya, Indonesia. It is my pleasure to welcome all of you to the 23rd International Seminar on Intelligent Technology and Its Applications 2022.

This seminar has been held annually for the last 20 (twenty) years. However, this year ISITIA 2022 is still held virtually because the COVID-19 pandemic issue restricts many aspects of our activity. We hope that this seminar become the last virtual seminar that we are organized and in the next seminar we can meet directly in person.

This year the theme of ISITIA is "Advanced Innovations of Electrical Systems for Humanity". We also witnessed how the advanced electrical systems play many important roles to fasten the economic growth recovery around the world especially from the pandemic situation. It is ranging from the renewable energy, artificial intelligent, digitalization, smart devices, smart hospitals, to modelling of economic recovery itself or the development of vaccines.

Through this seminar, we hope that you can have many experiences such as: knowledge sharing from the research results, building the collaboration and networking, and also contributing a research impact to improve the life being and humanity. This year we have received 146 submissions and selected 96 of them to be presented at this seminar, including papers from abroad, including Malaysia, India, Nigeria, Iraq, Egypt, Germany, Brazil, Ireland, France, Taiwan, USA, Japan, Sri Lanka Jordan, United Kingdom and Netherlands. Therefore, the acceptance rate of this seminar is 65.75%.

Finally, we would like to thank all keynote speakers for their interesting knowledge sharing, reviewers for their efforts to maintain the quality of accepted papers. We would also like to thank the co-sponsors of the IEEE Indonesia Section and the Industrial Electronics Society Indonesia Chapter, our support partners FORTEI (Indonesian Electrical Engineering Forum) and all committee members for organizing this seminar. We wish you a great experience and happiness at the ISITIA 2022 virtual seminar. Thank you.

Prof. Dr. Ir. Soedibyo, M.MT.
ISITIA 2022 General Chair

Message from the Dean of the Faculty of Intelligent Electrical and Informatics Technology (ELECTICS) - ITS Indonesia



Dear colleagues, researchers, honorable guests and keynote speakers, and all the attendees,

On behalf of the staff and student of the Faculty of Intelligent Electrical and Informatics Technology or ELECTICS ITS, I would like to welcome all of you in the 23rd International Seminar on Intelligent Technology and Its Application, iSITIA 2022.

I am honored to deliver the opening remarks in this third online ISITIA conference, after it has been held annually since 2000. We all know that the ongoing Covid-19 pandemic is a big challenge to almost every aspect of life, including organizing ISITIA conference. Therefore, I would like to express my appreciation to reviewers, speakers, and attendees of this conference, to take on this challenge. Our faculty, ELECTICS, has a tagline. It is “Bring Humanized Intelligent Technology for Society”. Not only we aim to become a reference for education and research excellence, but also to contribute to the humanity and society.

During pandemic period we have created Robot service called RAISA, a service robot that is very helpful to reduce the risk of Covid-19 transmission to health workers without reducing the quality of service to patients. We have also made a remote system to be able to control the ventilator in the ICU room remotely. To reduce the activity of medical personnel going in and out of the isolation room to check infusion fluids, we developed a smart infusion pump that can be controlled from a mobile device. To help medical personnel lift patients on the bed for example in the case of changing bed linen, we developed a patient lift robot. All of these products are the result of collaboration and perfect examples on how we can bring humanized intelligent technology for society.

The motto of our faculty is also resonates with the theme of 2022 ISITIA which is “Advanced Innovations of Electrical Systems for Humanity”. The theme of this seminar fits perfectly with what the researchers in our faculty have produced. Our faculty is also a center for the development of advanced electrical systems.

We have developed Load Shedding Automation System on Smart Meter based on Artificial Intelligence, developed an Intelligent Protection System to Improve the Quality and Reliability of the Electric Power System. We also develop Intelligent Electronic Device as Digital Protection Relay and Power Quality Monitoring which can also be applied to Microgrid Distribution System. We are also developing a Constant Output Wind Power Prototype based on Artificial Intelligence.

Besides electrical and power system, the 2022 ISITIA has a broad scope, ranging from control system engineering, electronics, telecommunication and signal processing, also biomedical engineering and information technology. Therefore, I hope more new ideas and collaborations

especially for the humanity, will be created and initiated through ISITIA. I wish you a great and productive experience in the 2022 ISITIA.

Ladies and Gentlemen, the pandemic period taught us how to collaborate to solve humanitarian problems. Many collaborative research products have been produced during the pandemic. Therefore, I hope that this seminar will become a virtual space to meet and discuss and then collaborate. I congratulate and succeed for holding this seminar. My thanks go to IEEE Indonesia Section and also to Industrial Electronic Society (IES) and Forum Pendidikan Tinggi Teknik Elektro Indonesia (FORTEI) Regional 7 who have supported this event. Lastly, I would like to express my great thanks to the committee who have tried hard to hold this seminar.

Thank you

Dr. I Ketut Eddy Purnama
Dean
Faculty of Intelligent Electrical and Informatics Technology (ELECTICS)
Institut Teknologi Sepuluh Nopember
Surabaya, Indonesia

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2022 International Seminar on Intelligent Technology and Its Applications (ISITIA) | 978-1-6654-6081-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISITIA56226.2022.9855347

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ISITIA 2022 General Program Schedule

General Schedule, Day 1
Wednesday, 20 July 2022

Time	Agenda	Venue
08:00 – 09:00	Registration	ON LINE
09:00 – 09.30	Opening Ceremony: • **Opening Remarks from General Chair** • **Official Opening by Dean of ELECTICS ITS**	ZOOM MEETING
09:30 – 11:30	Technical Session 1 : Oral Presentation	ZOOM MEETING
11:30 – 11:40	Group photo session	ZOOM MEETING
11:40 – 13:00	Lunch Break	ZOOM MEETING
13:00 – 13:15	Speech by Rector of ITS Indonesia Prof. Mochamad Ashari	ZOOM MEETING
13:15 – 14:05	Keynote speech 1: Prof. Ahmed Abu-Siada, PhD (*Curtin University, Australia*) Title: Frequency Response Analysis, An Enabling Technology to Assess Mechanical Integrity of Power Transformers	ZOOM MEETING
14:05 – 14:55	Keynote speech 2: Prof. Kohei Arai, PhD (*Saga University, Japan*) Title: Current Status of Artificial Intelligence Related Research	ZOOM MEETING
14:55 – 15:45	Keynote speech 3: Prof. Gamantyo Hendrantoro, PhD (*Institut Teknologi Sepuluh Nopember, Indonesia*) Title: Development in Wireless Communications and Radars for Relevant Applications in Indonesia	ZOOM MEETING
14:45 – 15:50	Closing remarks by Head of Department of Electrical Engineering ITS	ZOOM MEETING
15:50 – 16:00	Group photo session	ZOOM MEETING

General Schedule, Day 2
Thursday, 21 July 2022

Time	Agenda	Venue
07:30 – 08:00	Registration	ON LINE
08:00 – 10:00	Technical Session 2 : Oral Presentation	ZOOM MEETING
10:00 – 10:10	Group photo session	ZOOM MEETING
10:20 – 12:20	Technical Session 3 : Oral Presentation	ZOOM MEETING
12:20 – 12:30	Group photo session	ZOOM MEETING
12:30 – 13.00	Closing Ceremony	ZOOM MEETING

Technical Session Schedule

Technical Session 1 (20 July 2022, 09:30 – 11:30)

Time*	Rooms & Track				
	Sumatera	**Jawa**	**Bali**	**Kalimantan**	**Papua**
	BME	CE	CE	CSE	PES
09:30 – 09:50	S101	J101	B101	K101	P101
09:50 – 10:10	S102	J102	B102	K102	P102
10:10 – 10:30	S103	J103	B103	K103	P103
10:30 – 10:50	S104	J104	B104	K104	P104
10:50 – 11:10	S105	J105	B105	K105	P105
11:10 – 11:30	S106	J106	B106	K106	P106

Technical Session 2 (21 July 2022, 08:00 – 10:00)

Time*	Rooms & Track				
	Sumatera	**Jawa**	**Bali**	**Kalimantan**	**Papua**
	BME	CE	CE	PES	PES
08:00 – 08:20	S201	J201	B201	K201	P201
08:20 – 08:40	S202	J202	B202	K202	P202
08:40 – 09:00	S203	J203	B203	K203	P203
09:00 – 09:20	S204	J204	B204	K204	P204
09:20 – 09:40	S205	J205	B205	K205	P205
09:40 – 10:00	S206	J206	B206	K206	P206

Technical Session 3 (21 July 2022, 10:20 – 12:20)

Time*	Rooms & Track				
	Sumatera	**Jawa**	**Bali**	**Kalimantan**	**Papua**
	CSE, EL	CE	CE, TSP	PES	PES
10:20 – 10:40	S301	J301	B301	K301	P301
10:40 – 11:00	S302	J302	B302	K302	P302
11:00 – 11:20	S303	J303	B303	K303	P303
11:20 – 11:40	S304	J304	B304	K304	P304
11:40 – 12:00	S305	J305	B305	K305	P305
12:00 – 12:20	S306	J306	B306	K306	P306
12:20 – 12:40	S307		B307		

* Western Indonesian Time (Jakarta Time, UTC+7)

Code:

BME : Biomedical Engineering
CE : Computer Engineering & Information Technology
CSE : Control Systems Engineering
EL : Electronics
PES : Power and Energy Systems
TSP : Telecommunication & Signal Processing

Technical Session 1

Session 1 – Track: Biomedical Engineering, Sumatera Room

Code	#	Title	Authors
S101	1570803925	Lung Segmentation Using MultiResUNet CNN Based on Computed Tomography Image	Fx Ferdinandus; Esther Irawati Setiawan; Eko Mulyanto Yuniarno; Mauridhi Hery Purnomo
S102	1570804127	Detection of Mycobacterium Tuberculosis Using Residual Neural Network	Agung W. Setiawan; Muhammad Ilhamdi Rusydi
S103	1570805638	Real-Time Delayed Onset Muscle Soreness (DOMS) Detection in High Intensity Interval Training Using Artificial Neural Network	Rachmad Setiawan; Nada Fitrieyatul Hikmah; Florence Agustina
S104	1570805644	ST Segment Detection in Myocardial Infarction Using STM32	Rachmad Setiawan; Nada Fitrieyatul Hikmah; Fadhil Sudrajat
S105	1570805719	Real-Time Detection of Premature Ventricular Contraction Using Discrete Wavelet Transform	Nada Fitrieyatul Hikmah; Rachmad Setiawan; Tassya Adelia Putri
S106	1570806379	Sleep Apnea Identification Through Vertical Respiratory Movement Using Region of Interest and Recurrent Neural Networks	Erik Fadliansyah; Esmeralda Contessa Djamal; Daswara Djajasasmita; Fatan Kasyidi

Session 1 – Track: Computer Engineering & Information Technology, Jawa Room

Code	#	Title	Authors
J101	1570793407	Leveraging BERT With Extractive Summarization for Depression Detection on Social Media	David William; Said Achmad; Derwin Suhartono; Aryo Gema
J102	1570794238	Piano Multi-Pitch Estimator Using CNN-Stacked LSTM	Christhopher Hartono; Salim Hartono; Benyamin Budiharja; Ivan Sebastian Edbert; Derwin Suhartono
J103	1570799722	Crowd and Group Detection in Shopping Centre Using Mask R-CNN	Lukas Purba Wisesa; Eko Mulyanto Yuniarno; Reza Fuad Rachmadi
J104	1570803706	Dengue Fever Distribution Network Model Using Fuzzy Analytic Hierarchy Process (FAHP)	Khaerul Umam; Wiwik Anggraeni; Eko Mulyanto Yuniarno; Mauridhi Hery Purnomo
J105	1570805000	Oil Palm Leaf Disease Detection on Natural Background Using Convolutional Neural Networks	Anindita Septiarini; Hamdani Hamdani; Eko Junirianto
J106	1570805528	A Convolutional Neural Network Based on Transfer Learning for Medical Waste Classification During Pandemic Covid-19	Astika Wulansari

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Code	#	Title	Authors
B101	1570800332	Walk-In NPC Behavior Based on RVO Using Waypoints	Georgius Bagas Wicaksono; Mochamad Hariadi; Supeno Mardi Susiki Nugroho
B102	1570801568	Sentiment Analysis of the PeduliLindungi on Google Play Using the Random Forest Algorithm With SMOTE	Muhammad Rizky Pribadi; Danny Manongga; Hindriyanto D Purnomo; Iwan Setyawan; Hendry Hendry
B103	1570801933	Tobacco Aroma Classification Using EHTS, Gas Sensor Array, and LDA Algorithm	Lutfi Agung Swarga; Muhammad Rivai; Hendra Kusuma
B104	1570802667	Automatic Related Work Section in Scientific Article: Research Trends and Future Directions	Army Justitia; Hei-Chia Wang
B105	1570804935	Sentiment Analysis Optimization Using Vader Lexicon on Machine Learning Approach	Dhendra Marutho; Muljono Muljono; Supriadi Rustad; Purwanto Purwanto
B106	1570805654	Low Light Image Enhancement With Small Training Dataset Using EnlightenGAN	Rama Yusuf Mahendra; Wiwik Anggraeni; Mauridhi Hery Purnomo

Session 1 – Track: Control Systems Engineering, Kalimantan Room

Code	#	Title	Authors
K101	1570799331	Modified Genetic Algorithm and Blob Analysis for Solving Blank Spot Zone in Aerial Mapping	Muhammad Ichlasul Salik; Ronny Mardiyanto; Djoko Purwanto
K102	1570798919	Parallel Control System PD-SMCNN for Robust Autonomous Mini-Quadcopter	Kadek Dwi Wahyuadnyana; Purwadi Agus Darwito
K103	1570803216	Decentralized Observer-Based Controller Design for Linear Interconnected Systems	Helisyah Nur Fadhilah; Mardlijah Mardlijah; Didik Khusnul Arif; Guisheng Zhai; Dieky Adzkiya
K104	1570804607	Design of Two-Axis Velocity Tracking Earthquake Shaking Table Using Stepper Motor	Nadya Ayu Anugraheni; Purwadi Agus Darwito
K105	1570806199	LQGT Control Design Based on Firefly Algorithm Optimization for Trajectory Tracking on Quadcopter	Sovia Prabaningtyas; Mardlijah Mardlijah
K106	1570806614	Predictor Based on Complete Subgraphs for Consensus Problems With Communication Delay	Yasya Bahrul Ulum; Trihastuti Agustinah

Session 1 – Track: Power and Energy Systems, Papua Room

Code	#	Title	Authors
P101	1570800614	Satellite Mapping Vegetation Management Tool	Paula Zenni Lodetti; Beatriz B Cardoso; Marcos Aurelio Izumida Martins; Edgar Gerevini Carvalho
P102	1570804167	Power System Stabilizer Tuning Improvement for Single-Machine Infinite Bus Using Equilibrium Optimizer Algorithm	Mohamad Almas Prakasa; Imam Robandi
P103	1570805730	Power Plant Boiler Reheater Metal Temperature Forecasting Using Autoencoder	Nur Afandi; Wiwik Anggraeni; Mauridhi Hery Purnomo
P104	1570806632	Distribution Network Reconfiguration with Binary Particle Swarm Optimization to Reduce Power Loss in Kuta	Aji Akbar Firdaus; Adi Soeprijanto; Dimas Fajar Uman Putra; Ni Aryani; Nasa Zata Dina
P105	1570805617	An Accurate Battery Charger Using Fuzzy Type 2	Farid Dwi Murdianto; Soedibyo Soedibyo; Mochamad Ashari
P106	1570802946	Analyzing the Impact of PV Power Penetration to 220 VAC Grid System With ANN	Feby Agung Pamuji; Divyah Laksmi; Nurvita Arumsari; Soedibyo Soedibyo; Dedet Riawan; Heri Suryoatmojo; Sjamsjul Anam; Mochamad Ashari; Mohamad Angga Faurahmansyah

Technical Session 2

Session 2 – Track: Biomedical Engineering, Sumatera Room

Code	#	Title	Authors
S201	1570804466	Ankle Prosthesis With Brain Computer Interface Commands Based on Electroencephalograph for Transtibial Amputees	Muhammad Yasin; Achmad Arifin; Muhammad Hilman Fatoni
S202	1570802846	Web-Based Decision Support System for Liver Fibrosis Prediction Using Combination of Principal Component Analysis and Artificial Neural Network	Muhammad Hilman Fatoni; Nashita Khusnul Muthmainnah; Tri Sardjono
S203	1570804463	Optimization of Emergency Department Bed Availabilty Using Patient Detection System	Aryo A Waskito; Achmad Arifin; Mohammad Nuh
S204	1570804468	Basic Immunization Management Using Mobile Based Application	Armania Naura Rahmawati; Achmad Arifin; Eko Suprayitno
S205	1570805632	Automatic Brain Tumor Segmentation Using U-Net 2D	M Sadewa Wicaksana Wibowo; Wiwik Anggraeni; Mauridhi Hery Purnomo
S206	1570804165	A Design of Wearable Functional Electrical Stimulation (FES) System for Elbow Joint Movements with Fuzzy-PID Controller	Sherelle C Hayadi; Achmad Arifin; Josaphat Pramudijanto; Takashi Watanabe

Session 2 – Track: Computer Engineering & Information Technology, Jawa Room

Code	#	Title	Authors
J201	1570799817	Student-Centered Factors on Online Learning: A Systematic Literature Review	I Putu Eka Juliantara; Paulus Insap Santosa; Sri Suning Kusumawardani
J202	1570803236	Moving Image YOLOv3 Process Comparison with Multiple Resolutions and Frames-Per-Second	Moh Noor Al-Azam; Mochammad Mizanul Achlaq; Cahyo Darujati
J203	1570803729	Textual Entailment Technique for the Bahasa Using BiLSTM	I Made Suwija Putra; Daniel Siahaan; Ahmad Saikhu
J204	1570804046	Improving the Accuracy of COCOMO II Using Extended Gamma GWO	Rahmi Rizkiana Putri; Daniel Siahaan; Chastine Fatichah
J205	1570806530	Survey on Task Scheduling Methods in Cloud RPS System	Henning Titi Ciptaningtyas; Ary Mazharuddin Shiddiqi; Diana Purwitasari
J206	1570806478	Comparison of Computerized and Manual Assessment of Dyslexia Children Test Using Text Processing	Arni Muarifah Amri; Adhi Dharma Wibawa

Session 2 – Track: Computer Engineering & Information Technology, Bali Room

Code	#	Title	Authors
B201	1570797279	Selection of Education Assistance Recipients Based on AHP and SAW	Gatot Tri Pranoto; Dwi Pebrianti; Muhammad Darwis; Yaddarabullah Yaddarabullah; Erneza Krishnasari
B202	1570805518	Challenges in ICT for Effective Education Dissemination Post Covid-19	Chandra Prakash Gupta; Ravi Kumar V v
B203	1570802538	Understanding Smart Regency Services Readiness in Indonesia with TRAM Model	Aang Kisnu Darmawan, Dr; Fathorrozi Ariyanto; Moh. Aminollah Hamzah; Busro Umam; Mohammad Bhanu Setyawan; Ahmad Asir
B204	1570803943	Webiplan as a Webinar Management Information System for Optimizing Online Seminars During the COVID-19 Pandemic	Wahyu Nur Hidayat; Achmad Hamdan; Andien K Iffat Paramarta; Cornaldo B Sucahyo; Faradini U Setyaputri; Hary Suswanto
B205	1570806658	The Impact of Customer Satisfaction and Customer Trust to Repurchase Intention in Purchasing Digital Product at the Marketplace	Erwin Halim; Clalita Laurent; Yohannes Kurniawan; Marylise Hebrard
B206	1570806801	Video-Based Advertisement Value Impact on Brand Awareness and Purchase Intention in Social Media	Erwin Halim; Erwin Putra Tanadjaja; Hendry Hartono; Marylise Hebrard

Session 2 – Track: Power and Energy Systems, Kalimantan Room

Code	#	Title	Authors
K201	1570800082	Effect Temperature on Dielectric Strength of Transformer Oil With Nanoparticle SiO2 and CCl4	Yulianta Siregar
K202	1570801622	The Dielectric Power of Mixed Gas Insulation of SF6-CO2 and SF6-N2	Yulianta Siregar
K203	1570803634	Correlation of Oil Dielectric Characteristics, Dissolved Gases, and Operating Life to Insulation Paper Degradation of 150 kV Power Transformers	Esosia Benjamin Sibuea; Suwarno Suwarno
K204	1570805650	The Effects of Sulfuric Acid and Salt on the Resistance Value of Bentonite Grounding in the Limestone Soil	I Gusti Ngurah Satriyadi; I Made Yulistya Negara; Dimas Anton Asfani; Arief Ksatria; Putu Juwika Pratama; Salman Fakhri Ramadhan
K205	1570805714	Effect of Grounding Rods Position and Fly Ash Material on Grounding Resistance in Limestone Soil	I Gusti Ngurah Satriyadi; I Made Yulistya Negara; Dimas Anton Asfani; Arief Ksatria; I Putu Cahya Suardana; Putri Jelita Mirnafandi
K206	1570799843	Dynamic Security Level Assessment of Special Protection System (SPS) Using Fuzzy Techniques	Indah Permata Sari; Kevin Marojahan Banjar-Nahor; Nanang Hariyanto

Session 2 – Track: Power and Energy Systems, Papua Room

Code	#	Title	Authors
P201	1570802828	SFCL Influence on Critical Clearing Time Improvement Using Critical Trajectory Method	Rafin Aqsa Izza Mahendra; Ardyono Priyadi; Isa Hafidz; Margo Pujiantara; Naoto Yorino
P202	1570804676	Design of Two-Stage Charge Equalizer with Modularized Cell Selection Switches for Series-Connected Lithium-Ion Battery	Heri Suryoatmojo; Fikri Ramadhan; Ahmad Firyal Adila; Feby Agung Pamuji; Dedet Riawan; Ronny Mardiyanto
P203	1570805619	Comparison of ANFIS and FLC for CC-CV Precise Charging	Farid Dwi Murdianto; Soedibyo Soedibyo; Mochamad Ashari
P204	1570805635	Optimal Power and Natural Gas Integrated System Considering Energy Storage Using Interior Point Optimization (IPOPT)	Ahmad Bariq Al Fahri; Rony Seto Wibowo; Ni Aryani
P205	1570805692	PID-Based Fuzzy Logic Theory Implementation on BLDC Motor Speed Control	Musa Khairul Umam; Rini Nur Hasanah; Tri Nurwati
P206	1570805711	Control Hybrid Filter to Improve Power Quality in Polluted Distribution System Using Interval Type-2 Fuzzy Logic	Novian Patria Uman Putra; Adi Soeprijanto; Ardyono Priyadi; Mat Syaiin; Dimas Fajar Uman Putra

Technical Session 3

Session 3 – Track: Control System Engineering, Electronics, Sumatera Room

Code	#	Title	Authors
S301	1570803864	Soccer Robot Localization Based on Sensor Fusion From Odometry and Omnivision	Muhammad Azhar Ismail; Djoko Purwanto; Achmad Arifin
S302	1570806544	A Micro Quadrotor Gas Source Localization Benchmark in a Low-Computational Controller	Muhamad Rausyan Fikri; Nurrizal Alqindi; Djati Wibowo Djamari; Amartya Natayu
S303	1570806635	Petri Net Modeling for Mobile Robot Motion in Sharp Turning Cases	Yudhi Gunardi; Dirman Hanafi
S304	1570805563	GNSS Positioning Performance Monitoring of ADS-B Stations for Autonomous Electric Vehicle (AEV) Environment Testing	Reza Septiawan
S305	1570806229	Robot Operating System (ROS) Framework for Swarm Drone Flight Controller	Ronny Mardiyanto; Heri Suryoatmojo; Muhamad Hisak; Totok Mujiono
S306	1570806594	Five-Stage Pipelined 32-Bit RISC-V Base Integer Instruction Set Architecture Soft Microprocessor Core in VHDL	Aaron Elson Phangestu; Totok Mujiono; Ahmad Zaini
S307	1570806013	Developing Accelerometer Based Vibration Detection System to Evaluate the Influence of Hand Motion on Movement of Rifle Muzzle	Jeki Saputra; Didik R. Santoso; Hari Arief Dharmawan; Rini Nur Hasanah

Session 3 – Track: Computer Engineering & Information Technology, Jawa Room

Code	#	Title	Authors
J301	1570805833	Feasibility Study on Machine Learning-Based Method for Determining Self- and Mutual Inductance	Javier Stillig; Nejila Parspour; Daniel Ewert; Thomas Jung
J302	1570806643	Counting Broiler From Poultry House Video Using Faster Region-Based Convolutional Neural Networks	Muhammad Reza Azzahrawan; Esmeralda Contessa Djamal
J303	1570806644	Visually Impaired Person Detection Using Deep Learning for Dangerous Area Warning System	Aisyah Widayani; Hendra Kusuma; Djoko Purwanto
J304	1570805610	Concrete Crack Detection Using Edge Detection	Andrew Prasetyo; Eko Mulyanto Yuniarno; Priyo Suprobo; Asdam Tambusay
J305	1570806611	A Multi-Criteria Recommender System for NFT Based IAP in RPG Game	Reza Putra Pradana; Mochamad Hariadi; Reza Fuad Rachmadi; Yunifa Miftachul Arif
J306	1570793554	E-Learning Gamification Model Using Video Game Elements That Influence Engagement or Addiction	Flourensia Rahayu; Lukito Edi Nugroho; Ridi Ferdiana

Session 3 – Track: Computer Engineering & Information Technology, Telecommunication & Signal Processing, Bali Room

Code	#	Title	Authors
B301	1570803727	Prediction of Subscriber VoLTE Using Machine Learning and Deep Learning	Patria Adhistian; Priyo Wibowo
B302	1570798003	Implementation IoT Technology for Feeding Catfish Water Quality Analysis Using Linear Regression and KNN	Egie Hermawan; Yaddarabullah Yaddarabullah; Silvester Dian Handy Permana; Ade Syahputra; Erneza Krishnasari
B303	1570804781	Analysis of Combined PAPR Reduction Technique With Predistorter for OFDM System in 5G	Aliva Meidya Kautsar Bebyrahma; Titiek Suryani; Suwadi Suwadi
B304	1570806226	Towards Emulation of Intelligent IoT Networks on EU-US Testbeds	Sachin Sharma; Saish Urumkar; Gianluca Fontanesi; Venkat Sai Suman Lamba Karanam; Boyang Hu; Byrav Ramamurthy; Avishek Nag
B305	1570804710	Accelerated Adaptive Learning Rate	Ahmed Nasraden Mellad; Gamantyo Hendrantoro; Iwan Wirawan
B306	1570806017	Preliminary Result of Ionospheric Channel Characteristic Observation Over Java Island, Indonesia	Varuliantor Dear; Adit Kurniawan
B307	1570803850	Implementation of Fuzzy Logic for Determining the Level Score Historical Character Recognition Puzzle Educational Game	Asri Rachmawati; Asri Asri Rachmawati

Session 3 – Track: Power and Energy Systems, Kalimantan Room

Code	#	Title	Authors
K301	1570805721	Phase Disposition PWM for Three Phase Nine-Level Diode Clamp Inverter	Muhammad Imbarothur Mowaviq; Dedet Riawan; Heri Suryoatmojo
K302	1570805738	Integration of PV Farm Control for Voltage Sag Mitigation of Large Induction Motor Starting	Indra Hermawan; Mochamad Ashari; Dedet Riawan
K303	1570805667	Optimization Control Strategy of Battery-Supercapacitor to Mitigate PV Power Fluctuation Using Dynamic Programming Algorithm	Ariq Kusuma Wardana; Soedibyo Soedibyo; Vita Lystianingrum
K304	1570805672	A New Multi Input DC-DC Converter Integrated MPPT System for Hybrid Renewable Energy and Battery Storage	Harmini Harmini; Mochamad Ashari; Feby Pamuji
K305	1570803102	Assessing the Trade-Off in the Evaluating Parameters of Various Buck DC-DC Converter Topologies	Michelle Makar; Sameh Osama
K306	1570804564	Design of Fuzzy Logic Control Based on SEPIC Converter for MPPT on Wind Turbine	Muhammad Khamim Asy'ari; Mohammad Toriki; Ali Musyafa'

Session 3 – Track: Power and Energy Systems, Papua Room

Code	#	Title	Authors
P301	1570793301	SWOT Analysis of Feed-In Tariff Policy in Indonesia	Mujammil Asdhiyoga Rahmanta; Fefria Tanbar; Agussalim Syamsuddin
P302	1570803080	Techno-Economic Feasibility Study on a PV System for Peach Crop Irrigation in Egypt	Golina Samir; Wagdy R. Anis; Peter Riad; Mina Samaan; Elsayad Sadaany; Sameh Osama
P303	1570805453	A Comprehensive PVsyst Design for a College Campus in Baghdad	Luqman Qadri Ibrahim; Ahmed J. Abid; Adel Obed
P304	1570805546	Optimalization Droop Control Based on Aquila Optimizer Algorithm for DC Microgrid	Widi Aribowo; Heri Suryoatmojo; Feby Pamuji
P305	1570805704	PEM Fuel Cell Power Control With Single Phase Inverter Connected to Distribution Grid Using Hysteresis Current Control Method	Pressa Perdana Surya Saputra; Feby Pamuji; Mochamad Ashari; Soedibyo Soedibyo
P306	1570806176	The Transition of Load Shedding Infrastructure From PLC Platform to IEC61850 Protocol in Nickel Processing Plant With Static Frequency Converter	Vincentius Raki Mahindara; Wahyudi Sauri; Anisa Kusumaningrum; Yayan Iscahyadi Sarira; Fahmi Ramli; Simion Sitepu; Nurkholis Nurkholis; Margo Pujiantara

Selection of Education Assistance Recipients Based on AHP and SAW

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2022 International Seminar on Intelligent Technology and Its Applications (ISITIA) | 978-1-6654-6081-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/ISITIA56226.2022.9855329

***Abstract*— The final decision of the educational assistance recipient in GNOTA Foundation, Jakarta is still processed manually. They usually only look at the father's occupation criteria without looking at other criteria such as the age of the child, the child's orphan status, the occupation of mother, the age of father, the age of mother and other scholarships received. GNOTA Foundation needs to implement a Decision Support System (DSS) for the selection process, so the results are fast and on target. This research applies the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods for the selection of education assistance recipients so the criteria can be weighted and the prospective recipient students can be ranked. This research determines the priority weight and importance of each criterion, namely the age of child age (0.18), the status of child (0.22), the occupation of father (0.08), the occupation of mother (0.06), the age of father (0.05), the age of mother (0.04) and other scholarship assistance (0.36). The results of the weighting of these criteria have been tested and declared consistent through the Consistency Ratio (CR) value of 0.070. This study also produces a list of the best ranking students who are prospective recipients of educational assistance. The ranking results have been tested based on compliance with the provisions of the GNOTA Foundation of 92.91%. The system in this study was developed using a prototyping system development model and utilizing the Unified Modeling Language (UML) tool. The prototype functionality in this study works well by using the Blackbox Testing (BBT) model based on Equivalence Partitioning. In addition, the level of user acceptance of the prototype in this study was 81.2% using the Technology Acceptance Method (TAM).**

Keywords*— *Decission Support System, Analytical Hierarchy Process , Simple Additive Weighting

I. INTRODUCTION

The National Movement for Foster Parents or GNOTA Foundation is an independent and transparent non-profit social organization founded in Indonesia on May 29, 1996. Based on data released through the official website of GNOTA Foundation [1], they have succeeded in distributing 2.3 million aid packages education for students or foster children (AA) in 187,253 schools spread throughout Indonesia. Sources of aid funds are donors, both individuals, groups and companies called Foster Parents (OTA). The GNOTA Foundation has a vision to assist the government in completing the 9-year compulsory education through various programs. To obtain educational assistance from the GNOTA Foundation, there are 2 schemes in the data collection of Prospective Foster Children (CAA) as recipients. In the process, the obstacle experienced by the GNOTA Foundation is selecting students who have been proposed by the school to receive assistance. The GNOTA Foundation must be selective in choosing schools and allocating educational assistance so that the targets are right, as expected. Based on the problem, a Decision Support System (DSS) is needed that can assist the GNOTA Foundation in selecting students who will be given assistance. Thus, existing processes become faster and scalable. This study developed a Decision Support System (DSS) with Analytical Hierarchy Process (AHP) for weighting criteria and Simple Additive Weighting (SAW) for final decisions. This is appropriate for the GNOTA Foundation which does not yet have standard criteria in selecting students who will receive educational assistance.

Several previous studies related to the application of the Decision Support System (DSS) for the selection of student beneficiaries were the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method [2], [3]. Meanwhile, the Decision Support System (DSS) was also developed by applying the WASPAS and MOORA methods [4]. In other research, a decision support system for recommendations for poor student aid recipients was also developed using the Simple Additive Weighting (SAW) and Analytical Hierarchy Process (AHP) method [5], [6]. In this study, the focus of the methods to be applied are Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW).

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II. METHODOLOGY

The methodology in this study includes several stages as shown in Figure 1.

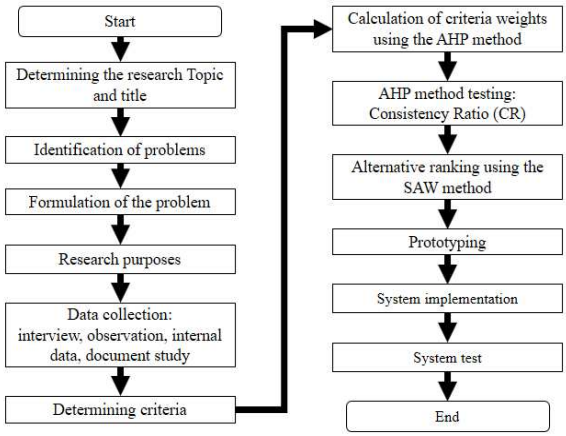

Fig. 1. Research Methodology.

A. Determining the Research Topic

Determining the research topic is the first step in this research by choosing the subject. The topic of this research is a decision support system [7], [8]. The entitled is Selection of Education Assistance Recipients with Decision Support System Analytical Hierarchy Process (AHP) And Simple Additive Weighting (SAW) Methods.

B. Formulation of the Problem

The question in this research is how is the Decision Support System model for the selection of educational aid recipients using the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods according to the needs of the GNOTA Foundation.

C. Research Purposes

The purpose of this study was to identify and develop a Decision Support System model for the selection of educational aid recipients using the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods according to the needs of the GNOTA Foundation.

D. Data Collection

Data collection is the stage to find out the information needed to achieve research objectives. Collecting data through various methods including interviews, observation and document studies. After collecting data, a hypothesis can be made which is a temporary answer to the problem formulation.

E. Determining Criteria

The criteria in this research are based on the school's application form (form A1), which contains detailed data on prospective foster children or recipients of GNOTA Foundation assistance. These criteria are Child's Age, Status of Orphans, Father's Occupation, Mother's Occupation, Father's Age, Mother's Age and Other Scholarship Assistance.

F. Calculation of Criteria Weights Using AHP Method

The calculation of the weights of the AHP method is based on pairwise comparisons between the choice criteria. This method is appropriate if the weight of each of the existing criteria cannot be determined by the decision maker. This method is the most convenient to use, especially if the determination of alternatives and criteria relies on human perception [9], [10], [11]. The calculation uses the equation:

$$K = \frac{n(n^{r-1}-1)}{2}.(n^{r-2}d+1) \quad (1)$$

Where:
r = Number of Levels
n = Number of Criteria
d = Number of Alternatives
K = Number of Pairwise Comparison.

G. AHP Method Testing: Consistency Ration (CR)

The AHP method is tested by calculating the Consistency Ratio (CR) value. If the value is more than 10%, then the data assessment must be corrected. However, if the consistency ratio (CI/IR) is less or equal to 0.1, the calculation result is declared correct. The equation is:

$$CR = \frac{CI}{IR} \quad (2)$$

Where CI is the Consistency Index and IR is the Random Consistency Index..

H. Alternative Ranking Using SAW Method

The basic concept of the SAW method is to find the weighted sum of the performance ratings for each alternative on all attributes [12], [13]. The SAW method can help decision makers in making decisions about a case. The calculation uses the equation:

$$w_j = \sum_{j=1}^{n} b_i x r_{ij} \quad (3)$$

Where:
w_j = final weighting value of each jth destination.
b_i = Initial weight of each i-th source.
r_{ij} = j-th normalized performance rating on the i-th source variable with i = 1, 2, ..., m; j = 1, 2,...,n..

I. Prototyping

This stage uses a prototyping system development model. In addition, Unified Modeling Language (UML) is used to facilitate prototype development [14], [15].

J. System and Test Implementation

Implementation of the system is carried out after the prototype is completed. System testing using the Black Box Testing method and the Technology Acceptance Model (TAM) method. Black Box Testing method to determine the functionality and

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usability of the system [16]. Meanwhile, the TAM method is used to determine the level of user acceptance of the prototype [17] [18].

III. RESULT AND DISCUSSION

A. System Analysis

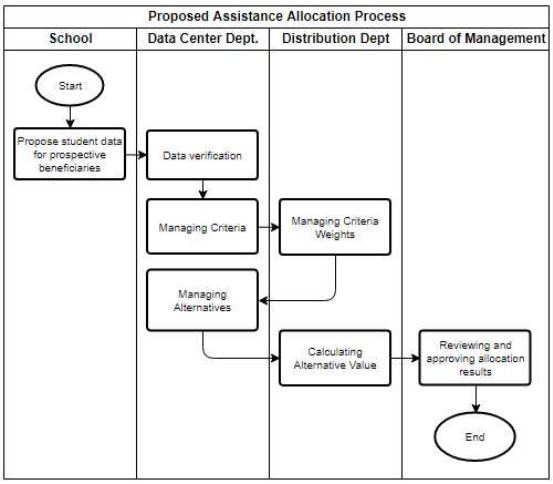

Fig. 2. Current and proposed process.

From this research, it is known that the current system and process that runs at the GNOTA Foundation in selecting prospective beneficiaries. From this ongoing process, the author then proposes a system that implements a Decision Support System (DSS) with the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods.

B. Criteria and Alternative

In this section, the authors analyze the criteria and alternatives in this study. These criteria and alternatives were also obtained from the results of interviews, observations and document studies. These criteria and alternatives will be applied in the decision support system research using the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods for the selection of recipients of educational assistance from the GNOTA Foundation. There are 7 criteria, as shown in Table 1:

TABLE 1. CRITERIA

No	Criteria	Name of Criteria
1	*C1*	Child's Age
2	*C2*	Status of Orphans
3	*C3*	Father's Occupation
4	*C4*	Mother's Occupation
5	*C5*	Father's Age
6	*C6*	Mother's Age
7	*C7*	Other Scholarship Assistance

The alternative data used in this research is SDN Inpres 41 Sorong, West Papua. The number of alternative data is 80 rows and only 50 students will be selected to receive assistance according to the policy of the GNOTA Foundation. The sample of the alternative data are as shown in Table 2.

C. Analytical Hierarchy Process (AHP) Method

After knowing the criteria and alternatives, the researcher calculated the AHP method to determine the weight of each criterion. The first step is to calculate the value of the pairwise comparison matrix as shown in Table 3.

TABLE 2. SAMPLE OF ALTERNATIVE DATA

No	Name of Students	Child's Age	Status of Orphans	Father's Occupation	Mother's Occupation	Father's Age	Mother's Age	Other Scholarship Assistance
1	Adi Firman Pratama	9	Normal	Farmer	Housewife	36	32	No
2	Almando Kamani	12	Normal	Farmer	Housewife	40	40	No
3	Edwin Farel Klawen	10	Normal	Farmer	Housewife	50	48	No
4	Fandri Galiano Klagilit	8	Normal	Private sector employee	Housewife	40	44	No
5	Heder Klalbin	9	Normal	Entrepreneur	Housewife	35	32	No

TABLE 3. PAIRWISE COMPARISON MATRIX VALUES BY WEIGHT

	Child's Age	Status of Orphans	Father's Occupation	Mother's Occupation	Father's Age	Mother's Age	Other Scholarship Assistance	Weight
Child's Age	1.00	0.33	3.00	4.00	5.00	6.00	0.25	0.18
Status of Orphans	3.00	1.00	4.00	4.00	4.00	4.00	0.33	0.22
Father's Occupation	0.33	0.25	1.00	2.00	1.00	3.00	0.20	0.08
Mother's Occupation	0.25	0.25	0.50	1.00	2.00	2.00	0.20	0.06
Father's Age	0.20	0.25	1.00	0.50	1.00	1.00	0.20	0.05
Mother's Age	0.17	0.25	0.33	0.50	1.00	1.00	0.20	0.04
Other Scholarship Assistance	4.00	3.00	5.00	5.00	5.00	5.00	1.00	0.36

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Based on Table 3, it is known that the weight of each criterion is 0.18 for Child's Age, 0.22 for Status of Orphans, 0.08 for Father's Occupation, 0.06 for Mother's Occupation, 0.05 for Father's Age, 0.04 for Mother's Age and 0.36 for Other Scholarship Assistance. For the test results by calculating the consistency ratio value, it is found that the value is 0.07. This value indicates that the calculation of the weight value is consistent and can be applied in a decision support system.

D. Simple Additive Weighting (SAW) Method

After getting the weighted criteria using the Analytical Hierarchy Process (AHP) method, the authors ranked the alternatives using the Simple Additive Weighting (SAW) method. The calculation using the SAW method recognizes two attributes, namely Cost and Benefit. The data in this study are entirely of benefit. Based on alternative data, calculations using the SAW method are as shown in Table 4.

Based on the results or the final value of alternative data, the next step is ranking the data. The alternative with the highest score means first place and so on. The details of the alternative ranking results in this study are as shown in Table 5.

TABLE 4. SAMPLE OF CALCULATION OF ALTERNATIVE DATA BY SAW METHOD

No	Name of Students	Child's Age (0.18)	Status of Orphans (0.22)	Father's Occupation (0.08)	Mother's Occupation (0.06)	Father's Age (0.05)	Mother's Age (0.04)
1	Adi Firman Pratama	0.53	0.33	1.00	1.00	0.33	0.33
2	Almando Kamani	0.71	0.33	1.00	1.00	0.67	0.67
3	Edwin Farel Klawen	0.59	0.33	1.00	1.00	1.00	0.67
4	Fandri Galiano Klagilit	0.47	0.33	0.50	1.00	0.67	0.67
5	Heder Klalbin	0.53	0.33	0.75	1.00	0.33	0.33

TABLE 5. CRITERIA

Rank	Name of Students	Final Value
1	Mulyadi	0.9171
2	Fahrul	0.8667
3	Bani Grasela Klagaf	0.8186
…	…	…
80	Ridwan Boratan	0.6577

E. Prototyping and System Implementation

At this stage, the researcher uses the Unified Modeling Language (UML) tool to describe the general system design. The use case diagram for the Decision Support System (DSS) prototype Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) model for the selection of recipients of educational assistance is shown in Figure 3.

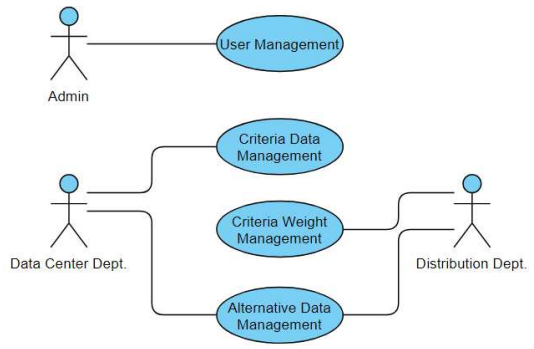

Fig. 3. Usecase Diagram.

After designing this Decision Support System (DSS) use case, the researcher then implemented the system interface. The prototype design was made using PHP Hypertext Preprocessor (PHP) and MySQL database. The interface display is as shown in Figure 4.



Fig. 4. Interface DSS display.

F. System Testing

The next stage is system testing using the blackbox method and the technology acceptance method (TAM). In the Equivalence Partitioning-based Blackbox test, it shows that there are no errors found in system functions. Testing the blackbox method by directly checking the functionality of the system as shown in Table 6. Based on Table 6, it is concluded that the entire functional system can work well so that it can be used. Meanwhile, the results of the User Acceptance Test (UAT) of the Technology Acceptance Method (TAM) method emphasize 3 aspects of the test: Usability, Ease of use and User Acceptance. To get these results, the researcher made questions based on each perception. The questions were changed in the form of a questionnaire and given to the respondents to be filled in according to their experience in using this Decision Support System. The details of the test results are as in Table 7.

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TABLE 6. BLACKBOX TEST RESULTS BASED ON EQUIVALENCE PARTITIONING

ID	Testing Description	Expected Results	Test Result	Conclusion
A001	Fill in the username with the correct data "Pusat Data" and the password with the correct data "Pusatdata" then click the Enter button.	The system will accept and redirect to the homepage	The system accepts and is redirected to the homepage	Success
A002	Fill in the username with the correct data "Pusat Data" and the password with the wrong data "Pusatd" then click the Enter button.	The system will reject and display the message "Sorry, wrong password"	The system refuses and displays an error message "Sorry, wrong password""	Success
B001	Fill in the criteria name and select the attribute then click the Add button.	The system will receive and store the criteria data in the database	The system receives and stores criteria data in the database	Success
C001	Click the Browse button and select alternative data then click the Upload button. Login as a Pusat Data then click the Upload Alternative Data	The system will receive and store alternative data in the database	The system receives and stores alternative data in the database	Success
D001	Fill in the username, password and display name then click the Add button.	The system will receive and store user data in the database	The system receives and stores user data in the database	Success

TABLE 7. TEST RESULT WITH TAM METHOD

No	Test Aspect	Actual Score	Ideal Score	% Ideal Score	Description
1	Usability	124	150	82,6%	Strongly Agree
2	Ease of Use	100	125	80%	Strongly Agree
3	User Acceptance	81	100	81%	Strongly Agree
Total		305	375	81,2%	Strongly Agree

From the test results obtained the value of Usability of 82.6%, Ease of 80% and User Acceptance of 81%. In general, the percentage of the UAT score in this study was 81.2% and based on the score interval it can be concluded that the user Strongly Agrees with this Decision Support System (DSS). Thus, the system generated in this study shows that DSS can assist the GNOTA Foundation in allocating its educational assistance.

IV. CONCLUSIONS

The DSS model for selection of of educational aid recipients had appropriate with GNOTA Foundation rules. This study resulted in the weight and level of importance of each criterion using the Analytical Hierarchy Process (AHP) method. The weight and importance of these criteria are other scholarship assistance (0.36), child status (0.22), child age (0.18), father's occupation (0.08), mother's occupation (0.06), father's age (0.05) and mother's age (0.04). The results of the weighting of these criteria have been tested and declared consistent through the calculation of the Consistency Ratio (CR) value of 0.070. This study resulted in a ranking of prospective recipients of educational assistance from the GNOTA Foundation using the Simple Additive Weighting (SAW) method and displays the highest score for prospective beneficiaries, namely Mulyadi (0.9171) and the lowest, namely Ridwan Boratan (0.6577). Decision Support System Model for the selection of educational aid recipients using the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods according to the needs and results of the User Acceptance Test (UAT) Technology Acceptance Method (TAM) method with a value of 81.2 %. There are a few possible directions for future work. First, this research can be further developed by using other Decision Support System methods such as TOPSIS and

Profile Matching, so that the results of the selection of prospective beneficiaries are getting better and more accurate. Second, the criteria in this DSS research can be adjusted to the conditions, even this system can manage decisions with dozens of criteria data.

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