PROGRAM BOOK
1st MIMSE 2022

The First Mandalika International Multi-conference on Science and Engineering 2022

SEPTEMBER 14th, 2022
LOMBOK RAYA HOTEL, INDONESIA

Message of Chairman

Assalammu'alaikum Warahmatullahi Wabarakatuh.
Bismillahirrahmanirrahim

On behalf of the Organizing Committee, it is our great pleasure to welcome you to the 1st Mandalika International Multi-Conference on Science and Engineering 2022. The conference is held hybrid at the Hotel Lombok Raya, Lombok, NTB, Indonesia. This conference is organized by the Faculty of Engineering, University of Mataram, West Nusa Tenggara in collaboration with the University of Esa Unggul Jakarta. The MIMSE 2022 has theme of 'smart and green technology for a better life". It is designed as an environment for researchers to discuss the current state of the science and technology in industry, university and companies.

After a rigorous peer-review process, 79 papers were accepted from almost 100 papers submitted to the 1st MIMSE 2022. The number of authors/co-authors who joined this conference is 286 persons come from 17 countries from 4 continents. All accepted articles will be published by Atlantis Conferences Proceeding indexed by Web of Science databases.

Furthermore, several excellent keynote speakers will present state-of-the art findings in the science and engineering. Our outstanding keynote speakers are Prof Yan Zhuge from Australia with specialty in civil engineering; Prof. Jun-seok Hwang from South Korea with specialty in informatics and computer science; Prof. Taufik from California with specialty in electrical engineering; Prof. Sanjay M. Rangappa from Thailand with specialty in material science; Prof. Muhammad Aziz from Japan with specialty in mechanical engineering; and Dr. Yulianto Purwono Priatmaji from Indoensia with specialty in Architecture.

This conference is the result of the hard work, support, and dedication of a number of parties. We wish to thank all the committee members who together make the conference possible. The committee has been working throughout the year to propose sessions, review a record number of submissions, answer queries, arrange the schedule, and response to last-minute requests. We also want to thank our partners: Dinas Pekerjaan Umum Propinsi NTB, Dinas Perumahan dan Pemukiman Propinsi NTB, Bappeda Propinsi NTB and Bappeda Pemda Lombok Tengah. Last but not least, we thank all the submitter and reviewer who are the backbone of this conference.

Thank you for being here with us. We value your presence at this conference. Enjoy the conference.

Nur Kaliwantoro,
MIMSE 2022 Chair

Message of Dean of Faculty of Engineering, University of Mataram

Welcome Speech from the Dean of Faculty of Engineering, Universitas Mataram

First of all, I would like to express my gratitude and praise to God the Almighty, the most Beneficent and Merciful, for His Blessing so that the 1st Mandalika International Multi-conference on Science and Engineering (MIMSE 2022) could be conducted without any serious obstacles.

Secondly, I also would like to thank and welcome all keynote speakers, distinguished lecturers, delegates, and participants for attending this scientific meeting held in the beautiful island of Lombok, one of the many beautiful scenery islands in the West Nusa Tengggara Province, Indonesia.

Lombok island is surrounded by many beautiful tourist destinations which make it the perfect place to meet together for people around the world. Besides, many international meetings and events have been organized in Lombok island such as the well-known the 2021 MotoGP hosted the Pertamina Mandalika International Street Circuit. Therefore, the Faculty of Engineering, Universitas Mataram initiates the 1st Mandalika International Multi-conference on Science and Engineering (MIMSE) 2022 to gather scientists and researchers around the world to share and discuss their new ideas and inventions. The name of Mandalika on MIMSE conference is taken from the name of a legendary princess from Lombok Island, so that we expect that this conference will attract many participants and be a sustainable and much greater event in the future. We also encourage other universities and governments to participate and make this event greater next year.

Finally, we hope that this conference could provide great benefit to all parties involved.

Muhamad Syamsu Iqbal, Ph.D.

Dean of Faculty of Engineering,
Universitas Mataram.

Message of Rektor University Esa Unggul

Good morning to the honorable our member colleagues, my respected lectures, and my beloved friends who present here today. Let us praise the Almighty for giving us His endless blessing so that we all can be here together in this special occasion in a perfect condition and health.

I'm rector of Esa Unggul University as a co-host in the 1st MIMSE 2022 (Mandalika International Multi Conference on Science and Engineer) with the theme of "Smart and Green Technology for a Better Life" welcome every one of you to the conference and might want to widen a note of much appreciated.

Dear colleagues, this seminar as a form as a means of disseminating research results, especially on themes from related fields. In the other hand, this seminar is a form of collaborator between University to University, and multidiscipline sciences. In this way, I feel proud to introduce you to this incredible researcher.

To every fresher who have joined this conference this year, I need to disclose to you that consistently our college contributes to international level conference as a co-host for every year, in the different multidiscipline sciences.

Obviously, it goes without saying that great efforts went in preparing for this day because the preparation could not happen overnight. I'm appreciate for every team member that prepare for this event today. In depth, I say Thank You for this preparing event. Welcome to this seminar, hopefully you can get the newest information from the scientific field scientifically

Thank you

Warm Regard,

Rector of Esa Unggul University

Message of Rector University of Mataram

Assalammu'alaikum Warahmatullahi Wabarakatuh.

Respectable Rector of Universitas Esa Unggul Jakarta, Head of Dinas Pekerjaan Umum Propinsi Nusa Tenggara Barat, Head of Dinas Perumahan dan Permukiman Propinsi Nusa Tenggara Barat, Head of Bappeda Pemda Lombok Tengah, Distinguished Keynote speakers, Honorable authors, and fellow participants of 1st MIMSE 2022.

Alhamdullilah, first of all, let us express our gratitude to Allah SWT because of His grace and blessings, we are able to attend this Mandalika International Multi-conference on Science and Engineering held in Lombok, 14 September 2022. This international conference is one of the multiple efforts held by University of Mataram to increase its contribution in national and international knowledge sharing and development. Recently, in relation in focusing its contribution toward updated researchs and technologies, Universitas Mataram has also been intensively explored the geomagnetics, also on going in developing its autonomous electric vehicles, developing COVID fast detection systems, exploration of smart and green material etc. in supporting the acceleration of such innovative researchs, the 1st Mandalika International Multi-conference on Science and Engineering is held as a forum for sharing, discussing and gathering among the international researchers. Since the recent researchs mainly focusing in smart and green system, therefore the theme of the conference is "Smart and green technology for a better future". This is an interesting and challenging topic for academic researchers as well as for the stakeholders and industry owners.

For rising its contribution in the development of science and technology as well as dissemination by the users, The First Mandalika Multi-conference on Science and Engineering gets some partnerships from the Universitas Esa Unggul Jakarta, Dinas Pekerjaan Umum Propinsi NTB, Dinas Perumahan dan Permukiman Propinsi NTB and Bappeda Propinsi NTB dan Bappeda Lombok Tengah. In the next conference it is expected that many universities and stakeholders will be join the MIMSE.

I would express my gratitude to all the authors who submitted their papers to the conference, and all the participants who helped in accomplishing the goals of the conference. We hope that you will find this program interesting and that this conference will provide you with a valuable opportunity to share ideas with others. I also would like to express sincere thanks to all committee members specially organizing committee for their tremendous teamwork effort in making the event a reality

Therefore, by starting with "Bismillahirrahmanirrahim" The 1st Mandalika International Multi-conference and Engineering is officially started

University of Matraram
Rector,

Prof. Ir. Bambang Hari Kusumo, M.Agr.st, PhD.

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Conference Agenda

Central Indonesia Time, WITA (GMT+8)	Program	Annotations
08:00 AM – 08:10 AM	**Opening Ceremony** National Anthem	**MC:** student
08:10 AM – 08:20 AM	**Speech-1** Dr. Nur Kaliwantoro	**General Chair MIMSE 222**
08:20 AM – 08:30 AM	**Speech-2** Dr. Ir. Arief Kusuma A.P., MBA, IPU	**Rector University of Esa Unggul**
08:30 AM – 08:45 AM	**Speech-3** Officially Open Conference Prof. Ir. Bambang Hari Kusumo, M.Agr.St., Ph.D	**Rector University of Mataram**
08:45 AM – 08:50 AM	**Pray**	**Suthami Ariessaputra, ST.,M..Eng**
08:50 AM – 09:00 AM	**Welcome Perfomance Dance** "Tarian Pembuka & Loja Ngengge"	**Tim Group Dance/Warung Seni**
09:00 AM – 09:10 AM	**Photo Session**	**Documentation**
09:10 AM – 09:30 AM	**Coffee Break**	**Ball room**
09:30 AM – 10:30 AM	**Panel Session-1** **Speech-4 Keynote Speaker:** Prof. Taufik **Speech-5 Keynote Speake:** Prof. Yan Zuge	**Speech-4:** Electrical Engineering California Polytechnic State University, California, USA. **Speech-5:** Structural Engineering, University of South Amerika. **Moderator:** I Nyoman Wahyu Satiawan, ST., M.Sc., Ph.D
10:30 AM – 11:30 AM	**Panel Session-2** **Speech-6 Keynote Speaker:** Dr. Ir. Ngakan Ketut Acwin Dwijendra, ST, SDs, MA, IPU, ASEAN Eng. **Speech-7 Keynote Speake:** Prof. Jun-seok Hwang	**Speech-6:** Architecture, University of Udayana, Indonesia. **Speech-7:** Information Science and Technology, Seoul National University, South Korea. **Moderator:** Tri Rachmanto, S.T., M.Sc., Ph.D
11:30 AM – 12:30 AM	**Panel Session-3** **Speech-8 Keynote Speaker:** Prof. Dr. Sanjay M Rangappa **Speech-9 Keynote Speake:** Dr. Yulianto P. Prihatmaji, IPM., IAI	**Speech-8:** Mechanical Engineering, King Mongkut's University of Technology North Bangkok, Thailand. **Speech-9:** Architecture, University of Islam Indonesia **Moderator:** Prof. Buan Anshari, S.T., M.Sc., Ph.D
12:45 AM – 01:45 PM	**Lunch Break/Praying**	**Restaurant Lombok Raya/Mushola**
01:45 PM – 03:45 PM	**Parallel Session-1**	**Parallel Session**
03:45 PM – 04:00 PM	**Coffee Break**	**Around Parallel Session**
04:00 PM – 06:00 PM	**Parallel Session-2**	**Parallel Session**

Parallel Session 13:40–17:30 Central Indonesia Time, WITA (GMT +8)

Topic	Civil & Architecture	Informatics		Mechanical & Electrical		Miscellaneous	
Room	Gili Air	Breakout Room Zoom 1	Gili Meno	Breakout Room Zoom 2	Gili Trawangan	Breakout Room Zoom 3	Sangkareang
Moderator	Ida Ayu Oka Suwati Sidemen, M.Sc	Hani Dewi Ariessanti, S.Kom, M.Kom	Dr. Eng. I Gede Putu Wirarama W.W.	Anik Hanifatul Azizah, S.Kom, M.IM	IB Fery Citarsa ,ST,MT	Noviandi S.Kom, M.Kom	Royana Afwani,ST,MT
13.45-14.00 (15')	PS 1-1	PSZ2-1	PS 2-1	PSZ3-1	PS 3-1	PSZ 4-1	PS 4-1
14.00-14.15 (15')	PS 1-2	PSZ2-2	PS 2-2	PSZ3-2	PS 3-2	PSZ 4-2	PS 4-2
14.15-14.30 (15')	PS 1-3	PSZ2-3	PS 2-3	PSZ3-3	PS 3-3	PSZ 4-3	PS 4-3
14.30-14.45 (15')	PS 1-4	PSZ2-4	PS 2-4	PSZ3-4	PS 3-4	PSZ 4-4	PS 4-4
14.45-15.00 (15')	PS 1-5	PSZ2-5	PS 2-5	PSZ3-5	PS 3-5	PSZ 4-5	PS 4-5
15.00-15.15 (15')	PS 1-6	PSZ2-6	PS 2-6	PSZ3-6	PS 3-6	PSZ 4-6	PS 4-6
15.15-15.30 (15')	PS 1-7	PSZ2-7	PS 2-7	PSZ3-7	PS 3-7	PSZ 4-7	PS 4-7
15.30-15.45 (15')	PS 1-8	PSZ2-8	PS 2-8	PSZ3-8	PS 3-8	PSZ 4-8	PS 4-8
Coffee Break (15.45-16.00)							
16.00-16.15 (15')	PS 1-9	PSZ2-9	PS 2-9	PSZ3-9	PS 3-9	PSZ 4-9	
16.15-16.30 (15')	PS 1-10	PSZ2-10	PS 2-10	PSZ3-10	PS 3-10	PSZ 4-10	
16.30-16.45 (15')	PS 1-11	PSZ2-11	PS 2-11	PSZ3-11	PS 3-11	PSZ 4-11	
16.45-17.00 (15')	PS 1-12	PSZ2-12	PS 2-12	PSZ3-12	PS 3-12	PSZ 4-12	
17.00-17.15 (15')	PS 1-13	PSZ2-13	PS 2-13	PSZ3-13		PSZ 4-13	
17.15-17.30 (15')	PS 1-14			PSZ3-14		PSZ 4-14	

Parallel Session 1 (Gili Air) – Civil & Architecture

No	Presenter ID	ID PAPER	Authors	Tittle
1	PS 1-1	258	Ngudiyono Ngudiyono and Tri Sulistyowati	Application of Adaptive Neuro-Fuzzy Inference System (ANFIS) to Predict Ultimate Bearing Capacity of Footing on Granular Soil
2	PS 1-2	2661	I Dewa Made Alit Karyawan, Didi Agustawijaya, Ria Marlaninstyas, Made Mahendra, Hasyim Hasyim and Fera Fitri Salsabila	Review on the Rigid Pavement Design for the Tanamori Road in the Labuan Bajo Resort Area of West Manggarai in East Nusa Tenggara Province - Indonesia
3	PS 1-3	4738	Fera Fitri Salsabila, Desi Widianty, Hasyim Hasyim and I Dewa Made Alit Karyawan	Traffic Management Simulation to Improve Tanah Aji Intersection Road Network Performance
4	PS 1-4	5102	Ni Nyoman Kencanawati, I Nyoman Merdana, Ngudiyono, Ricko Fachri Afriandi	Assessment Factor of Strength Development for Normal, High Strength, and Lightweight Concrete
5	PS 1-5	6241	Atas Pracoyo, Ery Setiawan, Muh. Bagus Budianto and Eko Pradjoko	Disaster Mitigation Plan Based Flood Event Occurred on January 30th, 2021 in Kuta-Mandalika, Lombok, Indonesia
6	PS 1-6	6677	Eko Pradjoko, Alan Maulana Karisma, Atas Pracoyo, Bambang Harianto, Agus Suroso and Yusron Saadi	The Application of Two Tsunami Inundation Model in The Kuta Mandalika Coast
7	PS 1-7	6924	Jauhar Fajrin and Yan Zhuge	Hybrid Composite Sandwich Panels for Lightweight Housing Components: Concept and Experimental Results
8	PS 1-8	8192	Yaya Fradana and Jauhar Fajrin	Analysis of Building Damage to The Housing Sector Based on Post-North Lombok Earthquake 2018 Investigations
9	PS 1-9	7052	Suteja I Wayan, Suthanaya I Putu Alit and Wedagama D.M. Priyantha	DIFFERENCES IN DRIVING BEHAVIOR BETWEEN STUDENTS AND COLLEGE STUDENTS AGAINST VIOLATIONS AND ACCIDENTS IN MATARAM CITY BASED ON GENDER
10	PS 1-10	7150	Akmaluddin Akmaluddin, Suryawan Murtiadi, Ngudiyono Ngudiyono, Pathurahman Pathurahman, Suparjo Suparjo and I Nyoman Merdana	The Behavior of Two-way Sandwich Concrete Slab with Aspect Ratios Variation Subjected to Central Point Load
11	PS 1-11	8610	Didi Agustawijaya, Tri Sulistyowati and Ausa Agustawijaya	Stability of the Meninting Diversion-Spillway Tunnel Constructed into Weak Volcanic Rock Masses Influenced by the Lombok Earthquake 2018
12	PS 1-12	4979	Hussein Kareem Sultan, Alaa S. Al-Husainy and Buan Anshari	Comparative Investigations on Reactive Powder Concrete with and without Coarse Aggregate
13	PS 1-13	7507	Deffi Ayu Puspito Sari and Citra Ridhani	Exploring People's Reasons of Living in Disaster- Prone Area and Promoting Disaster Risk Reduction in Urban Planning
14	PS 1-14	7768	Deffi Ayu Puspito Sari, Darmono Taniwiryono, Novita Indri Pratiwi, Prismita Nursetyowati, Aqil Azizi, Diki Surya Irawan, Insan Harapan Harahap and Maskur Maskur	The Influence of Waste Ratio on The Waste Consumption Level, Waste Reduction Index, and Growth of Black Soldier Fly Larvae

Parallel Session 2 (Gili Meno) – Informatics

No	Presenter ID	ID PAPER	Authors	Title
1	PS 2-1	6595	Arik Aranta, I Gede Pasek Suta Wijaya, Fitri Bimatoro, Gibran Satya Nugraha, Rama Dwiyansaputra and Belmiro Razak Setiawan	Speech Signal Algorithm Conversion From Sasak Language into Sasak Script with CNN and Rule-based Method
2	PS 2-2	3020	Made Yadnya, Bulkis Kanata and Khaerul Anwar	Using Phase Coding Method For Audio Steganography With The Stream Cipher Encrypt Technique
3	PS 2-3	4055	Ida Ayu Dela Aurellia, Royana Afwani, Budi Irmawati, Moh. Ali Albar, Noor Alamsyah and Wirarama Wedashwara	Design and Build a Mobile-Based Pet Care Information System with Personal Extreme Programming Method
4	PS 2-4	4133	Muhammad Syulhan Al Ghofany, Ramaditia Dwiyansaputra, Fitri Bimantoro and Khairunnas Khairunnas	Indonesian SMS Spam Detection Using TF-RF Feature Weighting Method and Support Vector Machine Classifier
5	PS 2-5	4215	Wirarama Wedashwara, Heri Wijayanto, Andy Hidayat Jatmika and I Wayan Agus Arimbawa	Smart EV Navigation and Data Collection System for Tree Based Data Modeling using IoT
6	PS 2-6	4458	Ida Ayu Vigi Meidhyana Putri, Wirarama Wedashwara, Ariyan Zubaidi and I Wayan Agus Arimbawa	IoT based Water turbinity classification using Color sensor TCS3200
7	PS 2-7	4962	Muhammad Imam Syarwani, Gibran Satya Nugraha, Ramaditia Dwiyansaputra and Khairunnas Khairunnas	Classification of Nile Tilapia's Freshness Based on Eyes and Gills Using Support Vector Machine
8	PS 2-8	5348	Ahmad Zafrullah Mardiansyah, Ario Yudo Husodo, Cahyo Mustiko Okta Muvianto and Raphael Bianco Huwae	User Experience Analysis for The Use of Electronic Signature in the Academic Activities
9	PS 2-9	5859	Putu Ayu Desi Anggara Santi, Royana Afwani, Moh. Ali Albar, Sri Endang Anjarwani and Ahmad Zafrullah Mardiansyah	Black Box Testing with Equivalence Partitioning and Boundary Value Analysis Methods (Study Case: Academic Information System of Mataram University)
10	PS 2-10	8279	Ridho Ilahi, Fitri Bimantoro, Ramaditya Dwiyansaputra and Rani Farinda	The Classification of Pringgasela Typical Traditional Songket Weave Using Multi Texton Co-occurence Descriptor and K-Nearest Neighbor
11	PS 2-11	7070	Ni Nyoman Wahyuni Indraswari, I Gede Pasek Suta Wijaya, Arik Aranta and Rani Farinda	EARLY DETECTION OF COVID-19 INFECTION WITHOUT SYMPTOMS (ASYMPTOMATIC) USING SUPPORT VECTOR MACHINE (SVM) MODEL THROUGH VOICE RECORDING OF FORCED COUGH
12	PS 2-12	7197	Heri Wijayanto, I Gede Pasek Suta Wijaya, Siti Nurmutmainah, Ida Bagus Ketut Widiartha and Rama Dwiyansaputra	Bayesian Network Student Modelling on Intelligent Tutoring System
13	PS 2-13	8399	Giri Wahyu Wiriasto, Misbahuddin Misbahuddin, Muhamad Syamsu Iqbal, A. Sjamsjiar Rachman, Djul Fikry Budiman and L. Syamsul Irfan Akbar	Aksyaa : Web-based Accounting Information System with Sharia Financial Perspective

Parallel Session 3 (Gili Trawangan) Mechanical & Electrical

No	Presenter ID	ID PAPER	Authors	Tittle
1	PS 3-1	930	I Made Ari Nrartha, I Made Ginarsa, Agung Budi Muljono, Sultan Sultan and Ida Ayu Sri Adnyani	ANFIS based MPPT Design for Rooftop Solar Panels Connected to Single Phase Power Grid
2	PS 3-2	1981	Sujita Sujita, Anak Agung Alit Triadi, Made Wijana and Pandri Pandiatmi	Characteristics Mechanical Properties of Polyester Composite Reinforced Musa Acuminata Stem Fiber with Filler Carboxyl Terminated Butadiene Acrylonitryle
3	PS 3-3	3060	I Ketut Wiryajati, I Nyoman Wahyu Satiawan, I Made Budi Suksmadana, S Supriono and Ida Bagus Fery Citarsa	The Advanced Carrier Based Pulse Width Modulation Using Third Injection Harmonic Reference Signal on Neutral Point Clamped Inverter
4	PS 3-4	1285	Syahrul Syahrul, Rudy Sutanto, Arif Mulyanto, Hendry Sakke Tira, Made Wirawan and A. Ayatullah	The minimum fluidization velocity of drying corn in fluidized bed
5	PS 3-5	4636	I Kade Wiratama, I Made Suartika, I Wayan Joniarta, I Made Mara, I Made Nuarsa and Muammil Ansori	Analysis Aerodynamic Performance Airfoil WORTMANN FX63-137 in Different Reynolds Number
6	PS 3-6	4221	Mirmanto Mirmanto, Syahrul Syahrul, I. Wayan Joniarta, Nurpatria Nurpatria, Made Mara and Alvin Azari	Performance of a simple custom air-water harvester using several pipe diameters as the condensation unit
7	PS 3-7	5036	Salman Salman, I Gusti Ngurah Ketut Yudhyadi, I Gede Bawa Susana, Hendry Sakke Tira, I Made Adi Sayoga, Nurchayati Nurchayati and Yesung Allo Padang	UTILIZATION OF SiC TO IMPROVE THE IMPACT STRENGTH OF ALUMINUM SCRAP AND ITS MICROSTRUCTURE WITH SINTERING METHOD
8	PS 3-8	5096	Nur Kaliwantoro, Muhamad Afan, Muhammad Tauviqirrahman, Yesung Allopadang, Ida Bagus Alit, Nurchayati Nurchayati and Mochammad Ariyanto	Effect of Biofluid Viscosity on The Fluid Flow and Mass Transfer Through Permeable Membrane of Microchannel
9	PS 3-9	5440	Dwi Novianto, Risky Via Yuliantari and Warindi Warindi	A Practical Design of Common Emitter Amplifier with Swamping Resistance and Bypass Capacitor
10	PS 3-10	9738	Sugiman Sugiman, Lalu Hasfari Firmansyah, Paryanto Dwi Setyawan and Hafiz T. Ali	Water absorption and fracture toughness of Hybrid Calcium Carbonate/Rubber Particle/Epoxy Composites
11	PS 3-11	8852	Nasmi Herlina Sari, Syafri Edi, Suteja Suteja, Muhammad Usman Jayadi, Emmy Dyah Sulistyowati, Paryanto Dwi Setyawan, Sanjay Mavinkere Rangappa and Suchart Siengchin	Evaluation of Moisture Content, Chemical, and Functional Groups of Paederia Foetida Fibers.: Effects of Time Soaking in Chemical Solutions
12	PS 3-12	2228	Tri Rachmanto, M Miftahurrahman, Achmad Zainuri, I Made Suartika and Fikri Hadi	Bioethanol production from molasses by varying sugar and yeast concentration

Parallel Session 4 (Sangkareang)
Miscellaneous

No	Presenter ID	ID PAPER	Authors	Title
1	PS 4-1	5899	Achmad Fajar Narotama Sarjan and Ismail Hoesain Muchtaranda	Review of the 2018 Lombok Earthquake, Indonesia, and its Impact from Previous Studies
2	PS 4-2	8808	Humairo Saidah, Hartana, Riki Salim Nugroho, Salehuddin, Lilik Hanifah and Moh Sholichin	Spatio-temporal distribution of West Lombok Drought Characteristics Based on TRMM Satellite Rain Data
3	PS 4-3	9262	Rini Saptaningtyas, Giska Ayu Pradana Putri Kamase, Noor Oktova Fajriyah and Lee Yoke Lai	The Implementation of Community-Based Agrotourism Concept as Sustainable Design in Rebakong-Kayangan Village, North Lombok Regency
4	PS 4-4	9304	Hazrina Mansor, Mohammad Rosnizam Lop and Buan Anshari	Study on the Linear Buckling Behaviour of Two Local Bamboo Species Under Different Length and Boundary Conditions via Finite Element Analysis (FEA)
5	PS 4-5	9443	Heri Sulistiyono, Faisal Irshad Khan, Humairo Saidah, Ery Setiawan, I Wayan Yasa, I Wayan Suteja, Salehudin and I Dewa Gede Jaya Negara	The Development of the SARIMA Model for Flood Disaster Resilience
6	PS 4-6	7572	Ario Husodo, Nadiyasari Agitha, Fitri Bimantoro, Budi Irmawati, Ramaditia Dwiyansaputra and Indah Najah	UI/UX Analysis of Integrated E-Commerce System with Smart Village Concept to Promote MSMEs (UMKM) and West Nusa Tenggara Tourism with Design Thinking Method
7	PS 4-7	7988	Candra Ahmadi, Wirarama Wedashwara and Ni Nyoman Harini Puspita	IoT-based Smart Village Transaction System using RFID and Load Cell Modules
8	PS 4-8	9235	Rizaldi S. Fauzi, Budi Irmawati and Nadiyasari Agitha	KADARING SIBI (Indonesian Sign System Online Dictionary): Web-Based Indonesian Sign System Learning App

Parallel Session 5 (Breakout Room Zoom 1) Informatics

No	Presenter ID	ID PAPER	Authors	Tittle
1	PSZ 2-1	1362	Nizirwan Anwar, Muhammad Abdullah Hadi, Budi Tjahjono, Binastya Anggara Sekti and Yunita Fauzi Ahmad	GoFood Sentiment Analysis Using Twitter Data, Compared The Performance of The Random Forest Algorithm With That of The Linear Support Vector Classifier (SVC)
2	PSZ 2-2	2146	Tinuk Andriyanti Asianto and Gerry Firmansyah	The Design of Indonesia e-Government (SPBE) Governance in Tangerang City
3	PSZ 2-3	2252	Sandfreni Sandfreni, Anik Hanifatul Azizah, Fransiskus Adikara and Muhammad Bahrul Ulum	Requirement Engineering: Development of Manufacturing Information Systems Using a Role Based Goal Oriented Model
4	PSZ 2-4	2831	Adi Widiantono	Implementation of Knowledge Management in Customer Relationship Management System
5	PSZ 2-5	3314	Agung Mulyo Widodo, Andika Wisnujati, Mosiur Rahaman, Bambang Irawan, Kraugusteliana Tambunan and Hsing-Chung Chen	Internet of Things (IoT) based Multi-Server Room Temperature and Humidity Monitoring and Automatic-Controlling by Using Fuzzy Logic Controller
6	PSZ 2-6	3526	Rohit Raj, Vimal Kumar, Aminul Haque and Mosiur Rahaman	Assessing of risk factors in sustainable spice supply chain management in the India
7	PSZ 2-7	4092	Bayu Sulistiyanto Ipung Sutejo and Gerry Firmansyah	EVALUATION OF SPBE MANAGEMENT DOMAIN OF TANGERANG CITY GOVERNMENT BASED ON REGULATION OF THE MINISTER OF PAN-RB NUMBER 59 OF 2020
8	PSZ 2-8	5866	Nizirwan Anwar, Iwan Setiawan, Evi Martaseli, Tugiman Tugiman, Mirfan Mirfan and Panji Kuncoro Hadi	Credit Risk Management Prediction Using the Support Vector Machine (SVM) Algorithm
9	PSZ 2-9	6634	Sobar M. Johari, Wing-Keung Wong and Agung Mulyo Widodo	Determining Optimization of the Finance Distress Parameters of Islamic Bank by Using Grey Relational Analysis (GRA)
10	PSZ 2-10	6134	Nizirwan Anwar, Jerry Maratis and Dewanto Rosian Adhy	Mobile Application Design For Online Physiotherapy Services
11	PSZ 2-11	8404	Nizirwan Anwar, Budi Tjahjono, Euis Heriyati, Rudi Heri Marwan, Salman Maulana and Nixon Erzed	Mobile Application Based Parking System Control and Monitoring Model with Motor Vehicle Parking
12	PSZ 2-12	9518	Muhammad Abdullah Hadi and Nizirwan Anwar	Utilizing Random Forest Algorithm to Sentiment Prediction Based on Twitter Data
13	PSZ 2-13	5060	Paryati Yati, Salahddine Krit Sallahdine, Agung Mulyo Widodo Agung, Shankar Rao Munjam Shankar and Sagayam Martin Martin	Optimization of Data Mining for Grouping Courses Using the MDDS and MAR Methods

Parallel Session 6 (Breakout Room Zoom 2) Mechanical & Electrical

No.	Presenter ID	ID PAPER	Authors	Title
1	PSZ 3-1	1151	Rachmat Subagyo, Rudi Siswanto, Andy Nugraha and Syahrul Ramadhani	The Effect of Variation of Volume Fraction on Polyester-Team Wood Fiber Composite (Melaleuce Leucandendra) on Thermal Conductivity Value,
2	PSZ 3-2	2510	Andika Wisnujati, Agung Mulyo Widodo, Mudjijana Mudjijana, Rela Adi Himarosa and Mosiur Rahaman	Characterization of Anodizing Process on Aluminum Series 6 with Variable Voltage
3	PSZ 3-3	3126	Bambang Panji Asmara	Overview Of The Photovoltaic (PV) Potential Output Power Parameters Of The Effect Of Dust Contamination On The Surface, Tilt Angle And Use Of Reflectors
4	PSZ 3-4	4197	Purwadi Agus Darwito, Linggar Handy Swandana, Hermawan Nugroho and Totok Ruki Biyanto	State Feedback Controller Design by Utilizing Linear Quadratic Regulator and Backstepping CControl for UAV Quadrotor
5	PSZ 3-5	4860	Anup Kumar, Mohan Aware, B. S. Umre and Manoj Waghmare	Single-Phase to Six-Phase (AC-DC-AC) Converter for Traction
6	PSZ 3-6	6121	I Made Ginarsa, I Made Ari Nrartha, Agung Budi Muljono, Ni Made Seniari, Ida Ayu Sri Adnyani and Sultan Sultan	Interval Type-2 Fuzzy Power System Stabilizer Design Based on Gauss-2 Membership Function
7	PSZ 3-7	6390	Hilton Ahmad, Sugiman Sugiman, Mustafasanie Mohd Yusoff and Al Zaim Omar	MATERIAL AND INDEPENDENT PROPERTIES OF KENAF FRP COMPOSITES
8	PSZ 3-8	6782	Purwadi Agus Darwito, Muhammad Tabayyun Yudhistira, Hermawan Nugroho and Totok Ruki Biyanto	Design Quadcopter Automatic Control System For Obstacle Avoidance Using Linear Quadratic Regulator (LQR) With LiDAR Sensor
9	PSZ 3-9	7747	Abdul Ghofur, Faishal Arifin, Rachmat Subagyo, Aqli Mursadin, Ahmad Syarief and Apip Amrullah	ANALYSIS OF CONDENSER N- 16000-2 UNIT I PLTU I CENTRAL KALIMANTAN (2X60) MW
10	PSZ 3-10	4356	Suryanto Suryanto and Firman Firman	The Vacuum Technique for Cooling Photo Voltaic Cell
11	PSZ 3-11	8643	Purwadi Agus Darwito, Bima Dardaa Alfathrah, Hermawan Nugroho and Totok Ruki Biyanto	Autonomous Quadcopter Control System Design Using LQG Controller To Perform Obstacle Avoidance
12	PSZ 3-12	9909	Pravat Kumar Ray, Shobhit Nandkeolyar, Ganji Shashank and I Nyoman Wahyu Satiawan	Development of Dynamic Pricing Algorithm in a Smart Grid
13	PSZ 3-13	5700	Ghefra Gaffara and Nofierni Nofierni	Java Industrial Development Refers To SDGs
14	PSZ 3-14	3432	Somkiat Maithomklang, Niti Klinkaew, Ekarong Sukjit and Hendry Tira	Utilization of biodiesel produced from different feedstocks for use as diesel engine fuels

Parallel Session 7 (Breakout Room Zoom 3) Miscellaneous

NO	Presenter ID	ID PAPER	Authors	Title
1	PSZ 4-1	6512	Agung Enriko, Fikri Nizar Gustiyana, Misbahuddin Misbahuddin and Gusti Astawa	Implementation of Temperature and Humidity Monitoring System Using LoRaWAN for Pharmaceutical Industry
2	PSZ 4-2	2255	Anik Hanifatul Azizah, Sandfreni Sandfreni, Riya Widayanti and Muhammad Bahrul Ulum	An Enhanced Information System Success Model for Enterprise Resource Planning Implementation on State-Own Enterprise
3	PSZ 4-3	6992	I Ketut Agung Enriko, Teuku Muda Mahuzza, Sevia Indah Purnama and Dadang Gunawan	Comparative Study of Lung Disease prediction System Using Top 10 Data Mining Algorithms with Real Clinical Medical Record
4	PSZ 4-4	7593	Nizirwan Anwar, Agung Mulyo Widodo and Muhammad Abdullah Hadi	Design Mobile Application-Based Variable Temperature and Humidity Water Flow Rate Automatic Control System
5	PSZ 4-5	9006	Asma Agaal and Mansour Essgaer	An Optimized Framework for Breast Cancer Prediction Using Classification and Regression Tree
6	PSZ 4-6	5128	Suryawan Murtiadi, Made Mahendra, I Dewa Made Alit Karyawan, Akmaluddin Akmaluddin and Eko Pradjoko	Constitutive Model of Concrete Frame Structure under Localized Fire Simulations
7	PSZ 4-7	9364	Sekar Mulyani, Iin Fatonah, M.Wildan Santosa, Imam Tahyudin, Andi Dwi Riyanto and Dhanar Intan Surya Saputra	Hierarchy Clustering Implementation on YouTube Top Data
8	PSZ 4-8	1549	Laily Fitriani, Nanda Diniarti and Bagus Setyono	IDENTIFICATION OF WATER CHARACTERISTICS FOR CULTIVATION LAND FOR GIANT CLAM (Family: Tridacnidae) USING GEOGRAPHIC INFORMATION SYSTEMS IN WEST LOMBOK WATERS
9	PSZ 4-9	8184	Sonny Irawan, Cahaya Sultan Iskandar, Naufal Septio, Achmad Nadhif Masruri and Totok R Biyanto	Optimization of CO_2 Enhanced oil Recovery Operating Condition: A Case Study, Prudhoe Bay, North Slope Alaska, USA
10	PSZ 4-10	8362	Sonny Irawan, Achmad Nadhif Masruri, Cahaya Sultan Iskandar, Naufal Septio and Totok R Biyanto	Optimization OF CO2 Enhanced Oil Recovery Operating Conditions: A Case Study Of El Morgan Oil Field Reservoir, Gulf of Suez, Egypt
11	PSZ 4-11	8415	Gunawan Nugroho, Irvin Bagus Fadilah Wijaya, Sudaryono Sudaryono, Muhammad Al Ahyudi, Totok Ruki Biyanto and Petrus Tri Bhaskoro	Optimization Of Biomass and Coal Mixtures On Co-Firing Systems at Power Plants Using Deterministic Algorithm
12	PSZ 4-12	3038	Sudipta Chakraborty and Dr. Ajaykumar Kambekar	Hydraulic Turbulence caused by Ship Movement and Slope Stability at The Juncture of Dredging and Reclamation
13	PSZ 4-13	6334	Muhammad Reduan Isahak, Fadhlina Ahmad and Muhammad Faizal Abdul Rani	Ethnomathematics in Structure of Malaysian Traditional Wau
14	PSZ 4-14	8050	Sonny Irawan, Naufal Septio, Achmad Nadhif Masruri, Cahaya Sultan Iskandar and Totok R. Biyanto	Optimization of CO2 Injection Operating Conditions for Enhanced Gas Recovery and Carbon Sequestration in a Carboniferous Sandstone Reservoir
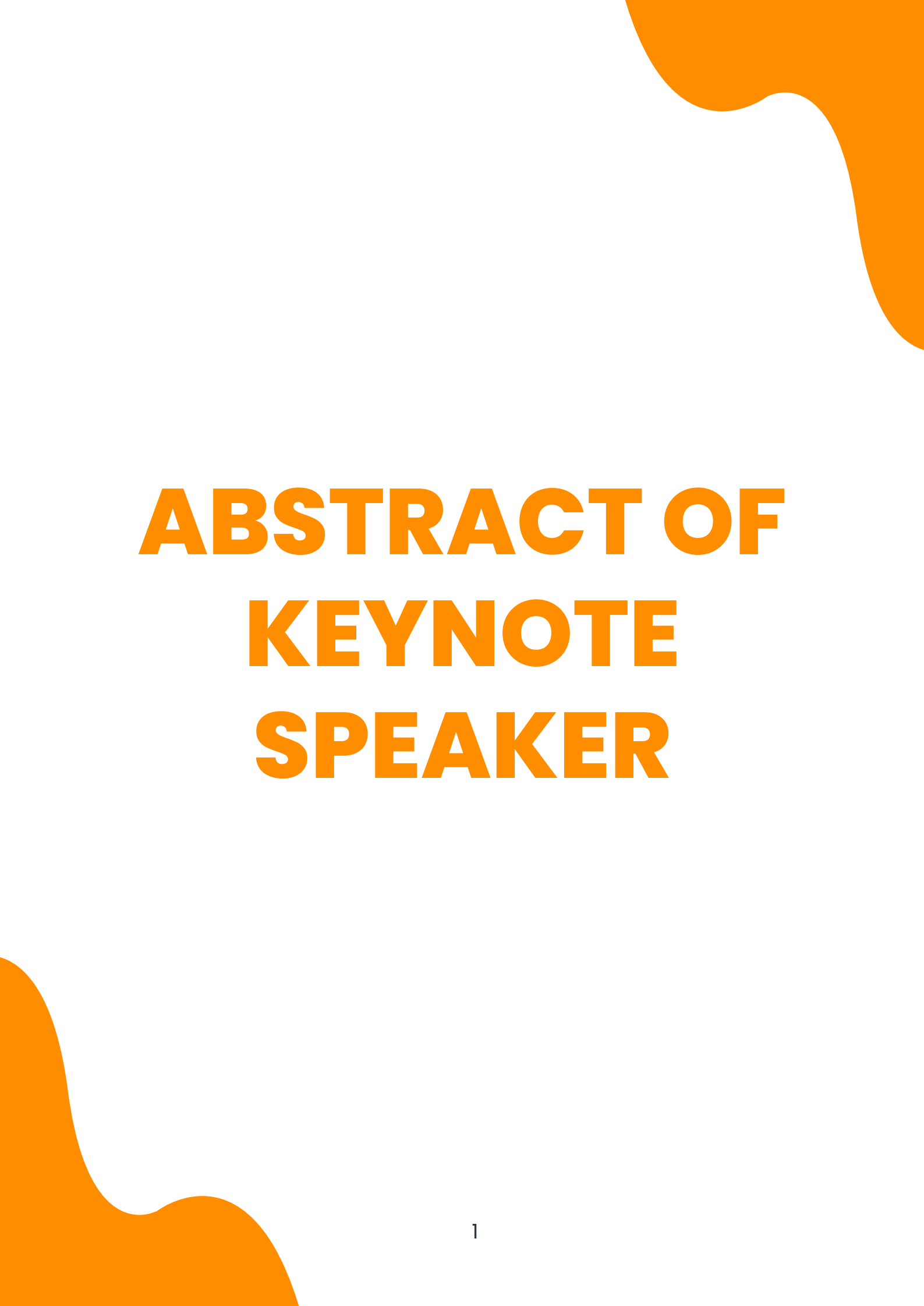
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2. The Participants who attend the plenary session on site or join to Zoom Meeting must dress modestly and behave politely during the event.
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ABSTRACT OF KEYNOTE SPEAKER

Recent research progress on FRP/Fibre textile-reinforced UHPC composites

Prof. Yan Zhuge

Structural Engineering, University of South Australia

FRP/Fibre textile-reinforced UHPC Composites, which possess excellent tensile properties and lightweight, have been widely used as reinforcement in normal concrete members. However, the performance of FRP-reinforced concrete may be limited by the serviceability limit states as the stiffness of FRP and normal strength concrete is relatively lower compared with conventional steel reinforcement. Therefore, the high tensile strength of the FRP material could not be utilised. On the other hand, ultra-high-performance concrete (UHPC) have recently become increasing popular. UHPC members generally have a high compressive strength of over 150 MPa, but it usually exhibits a strain-softening behaviour under tension. In order to tackle these obstacles, UHPC can be considered as a replacement to normal strength concrete in FRP-reinforced concrete members and thus create a new composite with both high tensile (FRP) and compressive (UHPC) capacities.

In particular, this article discusses a series of novel forms of FRP-UHPC tubular members which consist of UHPC body that is internally reinforced with a carbon FRP reinforcement. The reinforcing FRP can be in the form of FRP grids or FRP bars. In addition, a new connection system for prefabricated FRP-UHPC plates is also presented.

Eco-friendly natural fibers as reinforcement materials for composites

Prof. Dr. Sanjay Mavinkere Rangappa

Mechanical Engineering, King Mongkut's University of Technology North Bangkok, Thailand

Due to its significant advantages in substituting synthetic and hazardous materials, the current global context significantly impacts the creation of new environmental-friendly materials. In the discipline of engineering, the use of environmentally friendly renewable materials would promote sustainability by reducing waste, landfills, and harmful emissions, resulting in a greener and cleaner environment. The natural fiber is an environmentally friendly renewable material that has gained researchers' interest due to its unique qualities such as low density, low cost, easy availability, biodegradability, and ease of processing. Natural fibers have become more popular as reinforcement materials in composites for a variety of applications, including aerospace, automotive, and household products. Other popular uses of natural fiber composites include furniture, railway coach interior panels, horticultural supplies, packaging goods, structures, and sports instruments. At last, natural fibers are unique qualities and availability as renewable and sustainable resources, natural fibers have numerous benefits over synthetic fibers. Plant cultivation minimizes greenhouse gas emissions and protects the environment from global warming. After being disposed of, natural fiber-based products are easily biodegradable. They do not damage the environment by filling landmasses and water bodies, causing serious health risks.

Timber in Architectural Education and Professional Practice

Dr. Yulianto Purwono Prihatmaji

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Curriculum changes in architectural schools are currently very rare in courses on wood science and timber construction. This causes the knowledge, understanding, and experience of students and graduates to be very lacking. Thus, the quality and creativity of the architects in managing and working on wood-based projects is also reduced. Adequate and comprehensive learning content on wood is needed to answer this question. The challenges and triggers for learning and construction today are a paradigm shift from tradition to the future, redefinition of the challenges and strategies of MEA 4.0, potential aspects and prospective built environment, and towards future works rooted in tradition. This paper tries to answer by offering practical learning and methods in the form of initiating material thinking and tool thinking, strengthening engineering wood and enriching computational design, and elaborating reverse engineering. The learning content offers ship (machine) materiality and expertise in architecture, materials understanding and tool thinking, and simulated examples on modular wooden buildings considering wear and weathering in the tropics.

Keywords : timber architecture, architecture education, material thinking, tool thinking, reverse engineering

Fostering sustainable socio-technical transition for social contributions through UNRAM's SNU-Samick-Sustainability Center

I Wayan Agus Arimbawa[1, 2], Ida Bagus Ketut Widiartha[1, 2]

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[2]University of Mataram, Mataram, Indonesia

All countries in the world are competing to improve the welfare of their people. Development in all fields was carried out. However, this kind of development often runs sporadically, only looking for temporary solutions that often lead to new problems. Sustainable-oriented innovation is needed so that the new problems can be as minor as possible or, if possible, not cause new problems. At this center, we want to impact sustainable social development positively. This research focuses on tourism, disaster, transportation, agriculture, and marine sectors. Moreover, it is possible to conduct research development in other fields. In the field of tourism, we are oriented to increase public awareness to manage better tourism that is environmentally friendly. The utilization of high technology, such as drones, can impact new research in the field of technology and social implementation. The same thing can also be done in the field of disaster. Drone technology can also provide data for early warnings and mitigation problems that are often experienced. Besides increasing crop yields, IoT technology in agriculture also fosters new research in this field. The transportation problem, which has been a significant and unresolved problem, must be carried out by conducting comprehensive and collaborative research that is not only on the technical side but also on the social side to obtain new sustainable solutions, including using green technology.

Keywords : socio-technical transition, innovation system, social contribution, innovation center, sustainable development

Hybrid AC/DC House: Paving a Pathway for Future Sustainable Homes

Prof. Taufik

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DC electricity is not new. More than 100 years ago, Edison built the centralized DC electrical system but was soon overcast by Tesla's AC counterpart. Today, our electrical systems are predominantly AC; however, the past decade we have been witnessing the return of DC technologies offering the benefits of improved sustainability in generating power, system efficiency, as well as reliability. The Hybrid AC/DC House project aims to leverage these newly developed technologies and utilize them to provide the foundation for future residential electrical system both in rural and urban areas. In this presentation, the concept behind the Hybrid House project will be elaborated along with its benefits for residential electrification and potential for development of new technologies. Different components of the Hybrid House will be explained, and recent status and results from the development of the project will be shared. Issues, and future plans for the project will also be discussed.

Why Green Building is a Must? Reviewing Indonesia's Response

Dr. Ngakan Ketut Acwin Dwijendra

Faculty of Enginering, Udayana Universitiy

Climate change is a problem that must be addressed immediately because of its harmful effects on living things. WHO estimates that by 2030 to 2050 climate change could trigger approximately 250,000 deaths annually from malnutrition, malaria, diarrhoea, and heat stress. Climate change is caused by global warming that is due to the effect of changing natural conditions, one of the sectors that contribute is the building construction sector. This article discusses how climate change occurs due to the construction sector. Why is Green Building a must and how does Indonesia respond to this concept? The method used is by investigating data and facts that occur, conducting a review of Indonesian policies, and presenting descriptive analysis to draw a conclusion and recommendations. The results of the study show that construction projects significantly contribute to global warming and climate change. About 70 percent of energy use, buildings, and construction account for 39 percent of carbon dioxide emissions. In dealing with this problem, Indonesia made a policy by planning low-carbon development through the application of the green building concept. The study also shows that the implementation of green buildings in Indonesia is difficulty in implementing. There are many challenges and obstacles in its implementation, starting from the lack of public awareness of the importance of sustainability, to the absence of finance to implement this green building concept. This study recommends that green building is a must. Green building is one of the efforts in overcoming the issue of climate change. This concept is a translation of the concept of sustainable construction which refers to environmentally responsible structures and processes, from the pre-construction stage to the demolition stage. Although the application of the green building concept still has obstacles and challenges in Indonesia, this is a real step in dealing with climate change issues, especially in the building and construction sector.

ABSTRACT OF CIVIL & ARCITECTURE

Hydraulic Turbulence caused by Ship Movement and Slope Stability at The Juncture of Dredging and Reclamation

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For accommodating deep drafted vessels dredging at the vessel maneuvering area to the required depth as well as deepening the berth pocket of the upcoming jetty also became necessary. Improvement of strength of the reclaimed ground became essential to cater to the future loads of container stacks, gantry cranes and infrastructure for the upcoming terminal. Simultaneously For design of the dredged slopes the factor of safety became critical at the juncture of reclamation and dredging. In this paper the criticality of submarine slope stability subjected to hydraulic turbulence generated during ship's berthing particularly at the interface of dredging and reclamation are discussed.

Keywords : reclamation, dredging, interface, slope, stability

Review on the Rigid Pavement Design for the Tanamori Road in the Labuan Bajo Resort Area of West Manggarai in East Nusa Tenggara Province - Indonesia

Dewa Made Alit Karyawan[1], Didi S. Agustawijaya[2], Ria Restu Marlaninstyas[3], Made Mahendra[1], Hasyim[1], Fera Fitri Salsabila[1]

[1]Department of Civil Engineering, University of Mataram, Mataram, Indonesia
[2]Geo-Engineering Research Group Department of Civil Engineering, University of Mataram, Mataram, Indonesia
[3]Masters Program of Civil Engineering, University of Mataram, Mataram, Indonesia

The design of the Tanamori road pavement in the Labuan Bajo Resort area has been reviewed based on the transportation time which will take three hours from AMP to the location. Transport time can reduce the optimal temperature of the asphalt mixture. Another difficulty during construction is the availability of materials for a flexible design. Review the pavement design provided that rigid pavement is the better choice during construction. Rigid pavement structure with connection concrete pavement, with T-bar D16 for longitudinal joint reinforcement and dowels D33, 450 mm long for transverse joint reinforcement.

Keywords : Tanamori road, transportation time, optimum temperature, mixed asphalt, rigid pavement

Application of Adaptive Neuro-Fuzzy Inference System (ANFIS) to Predict Ultimate Bearing Capacity of Footing on Granular Soil

Ngudiyono, Tri Sulistyowati

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The ultimate bearing capacity is an important parameter in the footing foundation design. Several classical methods are often used to analyze the bearing capacity of footing foundation. However, the results of this analysis always give less accurate results than the experiment. In this manuscript, Adaptive Neuro Fuzzy Inference System (ANFIS) model was built for predicting ultimate bearing capacity of footing on granular soil. Learning process data consists of input and output. The five input parameters used for the model development in this study are width (B), depth (Df), shape factor (L/B) of footing, unit weight (γ) and fricton angle () of soil and the ouput is ultimate bearing capacity (qu). The results of the analysis shown that ANFIS model a good level of accuracy compared with experiment, where the correlation coefficient (R2) for testing data 0.98 and the Root Mean Square Error (RMSE) 32.11 kN/m2. This shows that the ANFIS model built is reliable to predict ultimate bearing capacity of footing on granular soil.

Keywords : footing, granular soil, ultimate bearing capacity, ANFIS

DIFFERENCES IN DRIVING BEHAVIOR BETWEEN STUDENTS AND COLLEGE STUDENTS AGAINST VIOLATIONS AND ACCIDENTS IN MATARAM CITY BASED ON GENDER

I Wayan Suteja[1], Putu Alit Suthanaya[2], D.M. Priyantha Wedagama[2]

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Traffic accidents that have occurred in Mataram city- Lombok NTB, in the last three years have mostly involved students and college students. On the other hand, increased vehicle ownership if not balanced with awareness of traffic safety will lead to an increase in the number of traffic accidents. This study was conducted to find differences in the effect of driving behavior between students and college students based on gender. A Structural Equation Modeling (SEM) was constructed using AMOS V.22.0, where the developed model consists of latent variables of behavior, violations and accidents, with a total of 782 respondents, consisting of 391 students and 391 college students. The results showed that driving behavior had a significant effect on traffic violations with a probability value (P) = 0.000 (<0.001), and a C.R test value > 1.64. The estimated value in the student group shows that the effect of driving behavior on violations in male students is 30.08% stronger han female students. Meanwhile, the influence of female college student driving behavior on violations is 0.8% stronger than that of male college students. Traffic violations in male students have an effect on accidents are 50.1% stronger than female students. On the other hand, the effect of male college student traffic violations on accidents is 2.44% stronger than female college students. Differences of Gender have a significant effect on driving behavior based on the probability value (P) = 0.000 (<0.001). The difference in driving behavior based on gender is the influence of uncontrolled negative emotions, and women have a more positive attitude to traffic discipline than men.

Keywords   : Gender, driving behavior, traffic violations, traffic accidents, SEM-AMOS.

The Behavior of Two-way Sandwich Concrete Slab with Aspect Ratios Variation Subjected to Central Point Load

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Concrete slab self-weight in high-rise building construction significantly affects the risk of structural failure in earthquake-prone areas as the earthquake force is directly proportional to the mass of the building. In order to reduce the building mass then the sandwich concrete slab is introduced. This study focuses on variations of aspect ratio effect on the slab behavior under central point loading. The aspect ratios are set at 1.0, 1.26, 1.5, and 2.0. A normal concrete slab with an aspect ratio of 1 as the control specimen is prepared. Tension reinforcement of D10-150 is placed in both x- and y-direction. While the compression reinforcement of P8-200 for both directions is used. The slabs were tested under central point load and found that the greater the aspect ratio, the greater the stiffness of the slab as well as the resistance load capacity. On the other hand, the slab ductility value decreases with increasing aspect ratio value. Initial cracking load of all sandwich-slab ranges from 20 to 25 kN. The initial crack of a normal concrete slab is 31 kN. When a normalized crack load of the sandwich slab against the normal slab the value varies from 0.71 to 0.84. Likewise, the normalization of the yield load of the sandwich plate to the normal plate varies from 0.55 to 0.63. All slabs have ductile behavior which is indicated by both the strain measurement and the relationship of the load-deflection curves.

Keywords: Two-ways slab, sandwich, concrete, aspect ratio, deflection

Exploring People's Reasons of Living in Disaster Prone Area and Promoting Disaster Risk Reduction in Urban Planning

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Cities among other areas bear the brunt of the impact of climate-related disasters, especially cities that are located in the coastal zone. To build resilient cities, it is necessary to involve disaster risk reduction (DRR) in spatial planning (RTRW) because it has an essential role in both mitigation and adaptation. This research aims to review the implication of disaster mitigation-based RTRW on national security and explore why people stay in disaster-prone areas. Based on the results of research, it can be concluded as follows: disaster mitigation-based RTRW can reduce the risk of exposure to state strategic infrastructures within the national defense domain, and the implementation of disaster mitigation based-spatial planning in DKI Jakarta Province needs to be improved, proven by 17.04% of the built environment is located on the flood-prone with the estimation of 8.169 building units affected by the flood.

Keywords: RTRW, Spatial Plan, flood, disaster risk, mitigation, climate change.

Assessment Factor of Strength Development for Normal, High Strength , and Lightweight Concrete

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Development in the construction sector continues to increase. The most common building material nowadays is concrete. Although normal concrete is often is being used, at this time high strength concrete and lightweight concrete have also been widely used in construction. In the codes for concrete materials, either SNI 03-6805-2002 or PBI NI-2 1971, it is stated about the assessment factor of compressive strength development for normal concrete according to the age of the concrete. However, these codes have not accommodated the assessment factor for high-strength and lightweight concrete. An experimental approach was used to determine the assessment factor and is discussed in this paper. The specimens were cylinders of high strength concrete, normal concrete, and lightweight concrete and tested for compressive strength after curing times of 3, 7, 14, 21, 28 days, 56, and 90 days. According to the experimental result, it presents that the concrete compressive strength increases with the increasing of concrete age. The assessment factor for the development of compressive strength of high-strength concrete shows the highest value, while lightweight concrete provides the lowest factor. The assessment factors of compressive strength development for normal concrete lie in between the values given in PBI NI-2 1971 and SNI 03-6805-2002. Meanwhile, the assessment factors stated in SNI 03-6805-2002 retains the highest value.

Keywords : normal concrete, high strength concrete, lightweight concrete, assessment factor, compressive strength

Constitutive Model of Concrete Frame Structure under Localized Fire Simulations

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In recent decades, special considerations have been given to the use of fire safety analysis on modern concrete buildings. The considerations include the stability of building which providing sufficient time for the occupants to evacuate and for firefighting. This paper is mainly concerned with the performance of concrete frame structure exposed to localized fire. From the simplified model, load carrying mechanism of concrete frame is identified and several design implications are discussed. Frame model in present analyses constructed of normal-strength reinforced concrete beams and high-strength reinforced concrete columns represented typical commercial office building. All elements of the frame are modeled using 3D tetrahedral coupled-field solid element defined by ten nodes with four degree of freedom. Temperature response predicted from previous researchers and loadings represented total design load at the fire limit state are applied. Constitutive model in a full thermal strain-stress analysis is employed on simple empirical formula. Three-dimensional finite element computer model using ANSYS considering transient effects gave reasonable results. The results indicate that behavior of individual isolated member accommodated by the current codes is different from the behavior of complete structure. Therefore, developing fire engineering analysis from the behavior of complete structures is strongly recommended.

Keywords : concrete, fire, frame, stress, strain

Review of the 2018 Lombok Earthquake, Indonesia, and its Impact from Previous Studies

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A series of strong earthquakes struck Lombok Island on 29 July (M 6.4), 5 August (M 7.0), 9 August (M 5.9), and 19 August (M 6.3 and M. 6.9) 2018 which led to severe damage with more than 500 deaths, 1,833 injured and devastated 186,010 houses (National Disaster Mitigation Agency). Lombok Island is categories as a vulnerable to earthquake zone because located between the Indo-Australian and Eurasian subduction trenches and in the northern part of Lombok lies the Flores back-arc thrust. Lombok Island are also flanked by two strike slip fault system in the west and east side of the Island. Rinjani volcanic complex are also located in the northern side of Lombok. In this manuscript, the 2018 Lombok Earthquake from previous studies were reviewed. The seismic activity and vulnerability from previous study were discussed to make preventive effort and mitigation option in the future.

Keywords : 2018 Lombok Earthquakes, Seismic vulnerability, Hazard Mitigation

Disaster Mitigation Plan Based Flood Event Occurred on January 30th, 2021 in Kuta-Mandalika, Lombok, Indonesia

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There was flood event that occurred on January 30th, 2021 in Kuta Mandalika Lombok. There were many infrastructure damages but no injured people were reported. According to information, this January flood is the biggest flood that occurred in Kuta Lombok. The research method consists of is field survey that was carried out in order to figure out the actual condition of the flood, supporting data relating to the flood analysis was also collected from any competent sources. In order to analyze factors affecting the occurrence of the flood, data collection was conducted. According to all data collected, scientific analysis is performed to identify which factors contribute much to the occurrence of the flood. Analysis re-sults, soil condition was saturated due to two consecutive days of rainfall, when the 145.5 mm rain came, the runoff coefficient was already high. Inundation was mainly caused by the blocking of buildings, therefore the water could not enter the drainage system. In the coastline area, inundation was also caused by high tide. There were two disaster mitigation plans. Short-term to overcome which are physical action and urgent whereas long term mitigation plan to preventive and non-physical action.

Keywords : factors affecting, evident, rainfall intensity, term mitigation

Ethnomathematics in Structure of Malaysian Traditional Wau

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A kite is a game that is played by using wind energy for its flight. In Malaysia, this traditional kite is better known as wau. The uniqueness of this traditional kite is not only in the carving of the facade, but the kite has a special ability to fly at a height of 90° from the ground level. This game is not only intended as a leisure activity, but a heavier task that needs to be carried out is to bring culture and customs to the community. Wau does not come in a specific size, but the rules in its manufacture have certain proportions. Through this study, the kite measurement system will be determined according to ethnomathematical theory. This study will involve several levels of research such as scientific studies, field studies, and interviews with figures involved in the making and playing of kites. This study will be focusing on three types of national traditional wau only, namely Wau Bulan, Wau Kucing, and Wau Jala Budi as a study sample. The results of the study found that traditional Malaysian wau will use the middle bone bamboo structure as the main proportion. Therefore, it is not surprising that although there is no specific measurement, each kite will have the same proportions of the kite shape. In conclusion, ethnomathematical techniques practiced by previous societies have their uniqueness. The wisdom of the oldest people in producing a great work of art needs to be explored in the present so that it does not pass away. Modern measuring aids such as measuring tapes and lasers can produce better kites. This study is expected to be continued in the field of aeronautics and aviation because kites are seen to be able to fly at extreme angles without a pilot.

Keywords : Wau, Malaysian Traditional Kites, Kites Structure, Ethnomathematics.

The Application of Two Tsunami Inundation Model in The Kuta Mandalika Coast

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The analysis of tsunami inundation is the part of tsunami threat study. In the manual of the Disaster Prevention National Agency (DPNA), the tsunami inundation can be analyzed by the Berryman Method. The method calculates the tsunami wave height reduction when inundating the land based on the surface roughness and land slope. Another method for analyzing tsunami inundation is the wave simulation by using the COMCOT Model. The model simulates the generation, propagation, and inundation of waves based on bathymetry and topography. These two models were applied in the Kuta Mandalika. The land use map, the bathymetry and the topography of Kuta Mandalika were utilized. In the COMCOT Model result, the tsunami inundation reaches 1.2 km from the Kuta Beachline and 1.9 km from the Seger Beachline. The tsunami inundation area is 4.4 km2 or 19% of the Kuta Village area. In the Berryman Method result, the tsunami inundation reaches about 250 m from the Kuta Beachline and 180 m from the Seger Beachline. The tsunami inundation area is 0.36 km2 or 2% of the Kuta Village area. The Berryman Method result is underestimated compare with the COMCOT Model. The Berryman Method should be applied carefully in the tsunami inundation analysis.

Keywords : tsunami, inundation, COMCOT, Berryman, Mandalika

Hybrid Composite Sandwich Panels for Lightweight Housing Components: Concept and Experimental Results

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One of the essential elements in keeping housing costs reasonable is reducing the weight of structures. By using the right material, a structure's self-weight, which accounts for a sizable amount of the total load on a structure, may be reduced. Today, a lightweight composite sandwich panel that can be produced quickly, cheaply, and in huge quantities is an option for housing applications. This article describes the findings of experimental research into the creation of hybrid composite sandwich panels with an intermediate layer constructed of composite natural fibers. The report includes a brief discussion of two earlier experimental studies. The flexural behavior of the newly created hybrid composite sandwich panel in the form of a structural insulated panel (SIP) beam is the subject of the first piece of study. The second piece focuses on the small-scale wall panel's in-plane shear behavior. Overall, compared to traditional sandwich panels, the hybrid composite sandwich panel performs better. The use of an intermediate layer in flexural testing allows sandwich panels to withstand greater compression strain before reaching their maximal stresses, preventing buckling or indentation failure before it has even begun. The findings of a diagonal shear test demonstrated that the new created hybrid composite sandwich panels' in-plane shear behavior was greatly improved by the inclusion of an intermediate layer within a sandwich structure.

Keywords : Sandwich panel, natural fiber composite, housing, flexural, in-plane shear

The Implementation of Community-Based Agrotourism Concept as Sustainable Design in Rebakong-Kayangan Village, North Lombok Regency

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The tourism sector is one of the main pillars of a productive economy that has enormous potential to give a positive impact extensively. The Government of North Lombok Regency, West Nusa Tenggara Province utilized this sector to improve not only economic aspects but also the impact on social, cultural, and environmental aspects. North Lombok Regency has a wealth of tradition, culture, culinary, and characteristical villages that potential to be developed as a tourism destination. One of the characteristical villages named Rebakong, Kayangan Village in Kayangan District, grapes is one of the main commodities that could be developed as a new agrotourism destination. The development of grape commodities in Rebakong, Kayangan Village is dominated by household-scale production activities which tend to have low and slow productivity because they are not supported by adequate facilities and infrastructure. Therefore, it is necessary to develop tourism activities in Rebakong, Kayangan Village which can encourage and improve the village economy by increasing the added value of environmental, social, cultural, and economic assets of the village. To realize this, an integrated and comprehensive regional design is needed to increase the value and attractiveness of the area as an alternative tourism destination by carrying out the concept of community -based tourism. This project aims to identify the potential of Rebakong-Kayangan Village and to recommend the master plan and integrated design of the district with a community-based tourism concept by descriptive and qualitative analysis. Therefore, it is expected to be able to empower village communities, increase local tourism, and improve the people's economy. It will drive a sustainable regional economy. As a result, a strong and competitive community will be able to develop the village to beadvanced and independent. The development of the Rebakong, Kayangan Village is expected to be a pilot project for the arrangement of the Grape Village area in North Lombok Regency .

Keywords : tourism, agrotourism, sustainable design implementation, community-based tourism

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Study on the Linear Buckling Behaviour of Two Local Bamboo Species Under Different Length and Boundary Conditions via Finite Element Analysis (FEA)

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Bamboo is the world's fastest-growing grass species.Although bamboo is a resilient and sustainable engineering material, its use in the building sector has been limited. The limitation in the usage is most likely due to its nature, which might vary depending on the species and origin, creating a challenge in establishing standard design guidelines. As a result, further research into the fundamentals of bamboo as a structural material is required. The Finite Element (FE) method is used in this study to evaluate the elastic critical buckling loads and mode shape of two local bamboos under different lengths and boundary conditions. The proposed local bamboo was modelled in ABAQUS software version 6.14. The findings reveal that Dendrocalamus asper has greater buckling strength due to its physical dimensions than Bambusa vulgaris under the same length and boundary condition. In terms of length and boundary conditions, six-meter length bamboo with fixed-pinned ended conditions can resist higher elastic critical buckling load than six-meter bamboo with fixed-free ended conditions. Consequently, the difference in elastic critical buckling load between the finite element approach and Euler's theory calculation is less than 2%, indicating that the two methods are in good agreement.

Keywords : Dendracalanus asper, bambusa vulgaris, elastic critical buckling load, Finite Element Analysis, Linear buckling analysis.

The Influence of Waste Ratio on The Waste Consumption Level, Waste Reduction Index, and Growth of Black Soldier Fly Larvae

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About 80% of the total amount of waste produced is generally organic waste, which is only seen as residual and has no economic value. Currently, the problem of organic waste is a problem that must be addressed immediately, and Black Soldier Fly is one of the solutions. This study aims to determine the influence of the waste ratio on the waste consumption level, waste reduction index, and larval growth during the breeding process. The waste used in this study is wet organic waste (SOB), which is food waste. On the other hand, dry organic waste (SOK) in the form of dry foliage was chosen because of its large amount and ease of finding; besides that, these two types of waste are often not appropriately managed. This research was conducted using a batch system where only one meal was given at the beginning of the study, which was divided into four ratios (250 SOB: 750 SOK, 500 SOB: 500 SOK, 750 SOB: 250 SOK, and 1000 SOB: 0 SOK). The results significantly influence the provision of different waste ratios to waste consumption levels and waste reduction indices. The highest waste consumption rate is indicated at the ratio of 1000 SOB: 0 SOK reaches 99.36%, and the lowest level indicated in ratio A only reaches 32.66% 250 SOB:750 SOK. The highest waste reduction index is indicated at a ratio of 1000 SOB:0 SOK reached 2.84%, and the lowest was shown in the ratio of 250 SOB:750 SOK, which only reached 0.94%.

Keywords : Wet Organic Waste (SOB), Dry Organic Waste (SOK), Waste Ratio, Recycle, Zero Waste

Analysis of Building Damage to The Housing Sector Based on Post-Lombok Earthquake 2018 investigations

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A major earthquake with a magnitude of 7.0 on the Richter Scale occurred in the Province of West Nusa Tenggara in 2018. Public infrastructure facilities sustained significant damage in addition to the deaths caused by the earthquake. The devastation to the housing sector was one of several losses that the residents of West Nusa Tenggara, particularly those on the island of Lombok, had to endure. The main impact of the strong earthquake, which had a magnitude of 7.0 on the Richter Scale, was felt on the island of Lombok, namely in North Lombok Regency. The earthquake occurred in the province of West Nusa Tenggara. Based on the findings of an investigation of photographs of house-building paperwork, it was determined that the foundation structure and sloof were damaged since the structure had not been built before the Lombok earthquake destroyed the majority of the housing sector's infrastructure (foundations, sloof). In the meantime, the construction of the walls, columns, and beams does not follow engineering regulations, and the materials utilized are of very poor quality, making them unsuitable for withstanding natural forces, particularly seismic pressures. In addition, because there is no strengthening or reinforcement between roof structures and walls or beams, when an earthquake happens, the roof structure is torn apart, resulting in damage to the roof structure.

Keywords : Earthquake, housing sector, sloof, foundation, column, beam, roof

The Development of the SARIMA Model for Flood Disaster Resiliencies

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Abstract— Several agencies in the world have warned that recently flood disaster has been getting worse all over the world. Engineers have studied flooding and its impact with various simulation models. Yet, there is no model considered to be the best for all estimations of flood disasters in the future. In this paper, the authors propose a procedure to develop the Seasonal Autoregressive Integrated Moving Average (SARIMA) model. The model is for generating future rainfall. In this paper, the authors use the procedure to evaluate the drainage system in an effort of flood risk resilience. The rainfall data of the Monjok Station from 2008 to 2018 is used in the demonstration of the proposed procedure to generate 20 years of rainfall data from 2008 to 2028. Engineers need the rainfall to evaluate the flood resilience of the Wahidin drainage system. The Correlation Coefficient and Volume Error are used in the calibration process to get the best model. The results showed that the best SARIMA model was (0,1,1) with a Correlation Coefficient of 0.71 and a Volume Error of 13%. Based on the model, the 10- year return period of future rainfall is 137.60 mm. This rainfall will cause runoff in the Wahidin 01, 02, and 03 of 4.35 m3/sec, 1.22 m3/sec, and 9.496 m3/sec, respectively. However, because the capacity of the three canals is only 1.32 m3/s, only Wahidin 02 canal is safe until 2028. Wahidin 01 and 03 channels are unsafe until 2028. Engineers have to rehabilitate Wahidin 01 and 03 channels.

Keywords—*SARIMA model, Correlation Coefficient, Volume Error, Drainage evaluation, flood risk resilience*

Credit Risk Management Prediction Using the Support Vector Machine (SVM) Algorithm

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Social media have become a way to share information all over the world or universe. A lot of work hasbeen done to figure out how to group feelings. In this study, unstructured GoFood Reviews data was found on Twitter. It has already been processed so that polarity analysis, feature extraction with TF-IDF, and supervised learning with random forest can be used to figure out how people feel about the reviews. From June 1, 2022, to June 30, 2022, Twitter was used to get a total of 28763 tweets with the word GoFood in them. NLTK, Sastrawi for the Indonesian language, Textblob, TF-IDF, Random Forest Classification, and other algorithms are used with the Python programming language to process the data. Twitter is a great place to find almost any kind of text. It takes about five minutes to run this algorithm.

Keywords : Social Media, Twitter Data, Random Forest Algorithm, Classification of Feelings, Polarity Analysis

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Keywords : Social Media, Twitter Data, Random Forest Algorithm, Classification of Feelings, Polarity Analysis

Interval Type-2 Fuzzy Power System Stabilizer Design Based on Gauss-2 Membership Function

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Interval type-2 fuzzy (IT2F) model is used in many field researches such as power system stability. In this research applied power system stabilizer based on interval type2 fuzzy logic (IT2FL-PSS) is concern on single and 3-machine 9-bus power systems. The IT2FL-PSS is built by two inputs and an output. Three membership functions (MF) Gauss-2 type are used for respective inputs. Five MFs constant type are used for output. The fuzzy parameters are tuned by trial and error method based on the knowledge/experience the designer. Simulation results show that the proposed PSS is able to enhance the response of power system. The performance of the proposed PSS is assessed on the peak overshoot and settling time. It is shown that the proposed PSS is well working. The proposed PSS is tested on single machine and 3-machine 9-bus.

Keywords : Gauss-2, interval type-2 fuzzy, stability improvement, rotor oscillation, reducing of settling time

Mobile Application Design For Online Physiotherapy Services

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Type disease and disorder health the more many and varied. Dynamics Public as well as technology and change method life influence condition health society. Appearance The covid pandemic is also one development of disease and health. Need anticipation to condition that. Consider the need to lower disease risk and raise society's health standards Anticipation can be on the side engagement or preventive but also on the side management or management treatment. Physiotherapy as one form of treatment uses methods, training, and equipment specifically for patients could restore, maintain and improve ability his physique. Activity this could be used for treatment or preventive to disease certain. Pandemic time has pushed human activity and minimized contact. Condition this need anticipated for activity treatment physiotherapist. Using technology could answer needs that. A study built a system consultation physiotherapists and information related to health physique with the use of technology information. The technology used is to build a mobile application. Development results already tested try and survey gives results satisfaction user.

Keywords : Physiotherapy, MobileApps, Online Services

Stability of the Meninting Diversion-Spillway Tunner Constructed into Weak Volcanic Rock Masses Influenced by the Lombok Earthquake 2018

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The Meninting diversion-spillway tunnel is a part of the Meninting dam project located in West Lombok District. The construction commenced in 2017; then, a series of severe Lombok earthquakes halted the construction for a while in 2018, where some landslides occurred around the site. This possibly caused rock masses around the tunnel to be sheared off during the earthquake events. The last earthquake events increased seismic parameters, increasing stresses around the tunnel. Thus, the stability of the tunnel decreased in terms of factors of safety. Although, the overall stability of the tunnel was still fine with a factor of safety of around 2.5; the tunnel certainly requires more stability improvements for future similar earthquake events.

Keywords : Lombok Earthquake, Meninting Tunnel, Stress around Tunnel, Factor of Safety, Stability Improvement

ABSTRACT OF MECHANICAL & ELECTRICAL

State Feedback Controller Design by Utilizing Linear Quadratic Regulator and Backstepping Control for UAV Quadrotor

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One of the popular UAV applications in the logistics sector is the use of UAVs as couriers to deliver goods to customers' homes. In this application, the UAV must be able to follow the given trajectory while avoiding the existing obstacles to get to the customer's house. To fulfill this, UAVs require an autonomous trajectory tracking and obstacle avoidance system. One of the control systems commonly used in UAVs is to use a linear-quadratic regulator (LQR) and backstepping control (BSC) and utilize LiDAR as an obstacle detector. With the help of MATLAB, simulations of open loop, close loop, trajectory tracking and obstacle avoidance were carried out. The close loop test shows a steady state error of 0.000024 m and 0 m for orientation control and position control. The performance of the LQR-BSC control system in the trajectory tracking simulation shows the MAE performance values of 0.1429, 0.0015 and 0.1267 for position control. While the simulation of obstacle avoidance using the LQR-BSC control system and the LiDAR sensor as detection shows that the quadcopter can avoid the obstacles given.

Keywords : backstepping control, LiDAR, linear-quadratic regulator, obstacle avoidance, quadcopter

Optimization Of Biomass and Coal Mixtures On Co-Firing Systems at Power Plants Using Deterministic Algorithm

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Co-firing is a combustion system that involves two or more types of fuel in one combustion chamber. The abundant availability of biomass and the depletion of availability are the background for this co-firing. This study aims to determine the optimum composition of coal and biomass and to optimize the mixture. Optimization begins by modeling the objective and constraint functions. The variables used are HHV which represents the calorific value of the fuel, S as a parameter of exhaust emissions, RB as a parameter for preventing incidents, and HBB as a parameter of fuel prices. Then proceed with optimization using Matlab software and using SQP and Interior Point algorithms. The objective function value obtained from the optimization using the SQP method has met all the specified constraints, while in the optimization using the Interior Point method there is one variable that does not meet the constraints.

Keywords : Co-firing, Optimization, Deterministic, SQP, Interior Point

Autonomous Quadcopter Control System Design Using LQG *Controller* To Perform *Obstacle Avoidance*

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This research presents the implementation of the   Linear Quadratic Gaussian (LQG) Controller and LiDAR sensors on the quadcopter used to avoid obstacles. The LQG controller is a combination of a Linear Quadratic Regulator (LQR) with a Kalman Filter as a State Estimator. The results of the estimate by Kalman Filter are compared against the actual value of the measurement by reviewing the Mean Square Error value. Linear position and angular position are variables that are controlled in the LQG control system to perform obstacle avoidance. The variations used in this study are the Q and R matrix values in the LQG controller design. Some of the tests that have been carried out include the open loop test, the closed loop test, the quadcopter test without an obstacle and the quadcopter test with an obstacle. The test results show that the quadcopter is able to follow the flight reference path and that the obstacle avoidance algorithm designed produces a quadcopter that is able to avoid obstacles. The test results show that the Q and R matrices on the Gain Regulator and Kalman filters can affect the quadcopter in carrying out avoidance.

Keywords   : Quadcopter, Autonomous, LQG, Obstacle Avoidance.

Material and Independent Properties of Kenaf FRP Composites

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The incorporations of synthetic fibers have raised worrying concerns to propose an alternative material with inexpensive and ecological resources. Kenaf fiber has high tensile modulus and elongation at break and potentially used to replace synthetic fibers as reinforcing fibers in FRP composites. The purpose of this study is to investigate the elastic and material properties of woven fabric kenaf fiber-reinforced polymer (KFRP) testing coupons, usually employed within numerical modelling. A quasi-static tensile test was performed to investigate the variations of KFRP coupons, such as woven architecture types and KFRP thickness with cross-ply arrangements. Sikadur-31 (epoxy resin) was used as a matrix binder in KFRP coupons. As kenaf volume fractions and KFRP coupon thickness increased, KFRP coupons were substantially improve its respective material and elastic KFRP properties.

Keywords : natural fiber, woven fabric composite, tensile testing, material properties, independent properties

Design Quadcopter Automatic Control System For Obstacle Avoidance Using Linear Quadratic Regulator (LQR) With LiDAR Sensor

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Unmanned Aerial Vehicle (UAV) Quadcopter has many functions and uses as logistics transportation with the advantages of transportability efficiency as a means of air transportation. Barriers to UAVs in carrying out their functions as air transportation are obstacles. UAV requires an automatic control system that can fly following the trajectory, detect and avoid obstacles. The obstacle avoidance control system in this study uses the Linear Quadratic Regulator (LQR) method with a LiDAR sensor. The point cloud method in LiDAR acts as a determinant of obstacle avoidance decisions. The 6 DOF UAV control system using LQR control method with LiDAR sensor has been well designed. The quadcopter UAV can fly following the trajectory and detect and avoid obstacles autonomously by means of simulations in Matlab software. The results of the simulation state that the quadcopter control system can fly following the trajectory, also detect and avoid obstacles with the LiDAR sensor as an obstacle detecting sensor, where the avoidance path is formed due to the new coordinates obtained from the avoidance algorithm.

Keywords : quadcopter, linear quadratic regulator, obstacle avoidance.

Overview Of The Photovoltaic (PV) Potential Output Power Parameters Of The Effect Of Dust Contamination On The Surface, Tilt Angle And Use Of Reflectors

Bambang Panji Asmara

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The use of energy has helped the community a lot to meet their needs in various ways, one of which is the need for electrical energy for lighting, the use of electric tools to help work in the community, both in the government sector, the business world and industry. abundant supply to be able to meet the electricity supply, with this research utilizing the energy source of sunlight with the use of a Photovoltaic system (solar panels) as an alternative energy source that is environmentally friendly (go green) by conducting a review test of the effect of dust on the surface of the panel, the angle of inclination and the use of reflector to determine the effectiveness of the output parameters of Photovoltaic, from this experiment can be a form of information that is a comparison to photovoltaic systems in solar panels.

Keywords : Dirt dust, tilt angle, reflector, Photovoltaic (PV).

Utilization of biodiesel produced from difference feedstocks for use as diesel engine fuel

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The effect of fuel variability in Thailand is that diesel fuel is one of the fuels affected by fuel variability. The use of alternative energy is an alternative to diesel engines. Therefore, this research is interested in studying the physicochemical properties of test fuels, engine efficiency, combustion characteristics, and engine-out emissions of the engine in order to evaluate the production of biodiesel from different feedstocks as an alternative fuel in a single-cylinder diesel engine. Biodiesels produced from castor oil and pork lard oil by transesterification process with methanol using potassium hydroxide (KOH) catalyst. The fatty acids of biodiesel produced from castor oil (COME) and pork lard oil (PLOME) were characterized by Gas Chromatography–Mass Spectrometer (GC–MS) techniques. It can be seen that the main fatty acids in COME and PLOME are ricinoleic acid (C18:1 OH) and oleic acid (C18:1), respectively. The test fuel properties were examined according to the international fuel standards. The results indicated that the fuel properties of COME and PLOME are well-accepted biodiesel standards and testing methods except in the case of the kinematic viscosity of COME. The engine was operated at a fixed speed of 1,500 rpm with variation in load conditions. The experimental results of the engine performance showed that the use of COME and PLOME had higher brake specific fuel consumption (BSFC) and lower brake thermal efficiency (BTE) compared to diesel fuel. The combustion of COME and PLOME increased CO, HC and smoke emissions while decreasing NO_X emissions in comparison with diesel fuel. Consequently, biodiesel derived from castor oil and pork lard oil is not recommended for use as a pure component in the diesel engine, while the use of such biodiesels as a blend component with diesel fuel can be a feasible way to alleviate the current fuel price crisis, which is intensely dependent on oil imports.

Keywords : diesel engine, combustion characteristics, engine performance, castor oil, pork lard oil

Utilization of SiC to Improve The Impact Strength of Aluminium Scrap and Its Microstructure with Sintering Method

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This study aims to determine the effect of adding the Silicon Carbide (SiC) to aluminum scrap on impact strength and microstructure using powder metallurgy (sintering) method. The materials used in this research are aluminum scrap and silicon carbide (SiC). There are three variations of the mixture, namely the mold mixture of 0, 10 and 20% SiC, respectively. Heating was carried out for 3 hours and a temperature of 500 Co. The tests carried out were impact testing and microstructure observations.The results showed that the variation of the addition of SiC affects the value of the impact strength of the material. The addition of 20% SiC in this study resulted in the highest impact strength of 13.078 x 10-4 J/mm². Meanwhile, aluminum scrap without the addition of SiC is 11.98 x 10-4 J/mm².

Keywords : SiC, Al-scrap, Sintering, Impact Strength

Performance of a simple custom air-water harvester using several pipe diameters as the condensation unit

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During the dry season, several areas in Indonesia experience drought. Communities in some areas have difficulty getting clean water. One solution to overcome this problem is to use a machine that produces water from the air. This machine works by utilizing the evaporator as a component to condense water vapour from the air. Nevertheless, this machine could produce less water so far. Therefore, this machine was investigated by varying the diameter of the evaporator pipe. The purpose of this study was to determine the effect of the diameter of the evaporator pipe on the mass of water production. This research was conducted experimentally. This machine worked using refrigerant R134a with a vapour compression cycle. The variation in this study was the diameter of the evaporator pipe, namely 10 mm, 8 mm and 6.35 mm. The results showed that there was no trend in the water production respecting the pipe diameter. The machine worked well, and the highest COP of 11.82 was found in the diameter of 8 mm. The highest total heat absorbed by the evaporator from the air 74.84 W was attained using a machine having a pipe diameter of 8 mm. The mass of water production obtained was 0.44 kg at the pipe diameter of 8 mm.

Evaluation of Moisture Content, Chemical, and Functional Groups of Paederia Foetida Fibers.: Effects of Time Soaking in Chemical Solutions

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Due to their abundance and environmental friendliness, Paederia foetida stem fiber (PFs) are an interesting material to develop as a substitute for glass fiber. The goal of this research is to provide a thorough understanding of the physical, chemical, and functional properties of PFs. The PFs were treated for 1 h, 2 h, and 4 h with 95 % ethanol and 25 % NaClO2, respectively, before being rinsed and dried in a 105oC oven. The density, moisture content, functional group (FTIR), and chemical composition of PFs were all tested to determine their properties. The results showed that PFs with moisture content and density of 12 0.78% and 1.02 ±0.012 g/cm3, respectively, had the lowest moisture content and density. The functional groups of the PFs changed as the fiber's hemicellulose content decreased. After soaking for 4 h, PFs had the highest cellulose content of 67 percent. The water content, density, and cellulose content of PFs fiber suggest that it could be used instead of glass fiber.

Keywords : Paederia foetida L fibers (PFs), NaClO2, physical properties, FTIR, and Chemical properties.

Optimization of CO2 Enhanced oil Recovery Operating Condition: A Case Study, Prudhoe Bay, North Slope Alaska, USA

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Fossil fuel consumption continues to increase every year and the possibility to find new reserves will be increasingly difficult. It can be estimated that if the current rate of consumption and production continues, oil reserves will be depleted in 50 years. The increasing difficulty in finding new oil fields causes oil companies to try to increase the Recovery Factor value to maintain the economic level of oil. To increase the RF value, an EOR operation is carried out which can produce about more than 50% to 80% OOIP. To get the optimal recovery value, it is necessary to optimize the CO2 EOR operating condition variables, including mass flow rate of CO2 injection, CO2 injection temperature, and CO2 injection pressure.The modeling of the CO2 EOR operating pressure gradient in production and injection wells uses the Begg's-Brill method, while the Darcy equation for reservoirs uses the Darcy equation. For modeling the temperature gradient on the production well, injection well, and reservoir using the heat transfer equation. Based on the optimization results using Genetic Algorithm, the net profit increased from 1,458.02 USD/day to 9,510.33 USD/day. While the optimization results using the KillerWhale Algorithm get an increase in net profit from 1,458.02 USD/day to 9,509.71 USD/day.

Keywords : CO2 EOR, Optimization, Genetic Algorithm, Killer Whale Algorithm

Bioethanol Production From Molasses By Varying Sugar and Yeast Concentration

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The manufacture of 70% alcohol can use alternative materials from sugar industry waste, namely molasses. This study aimed to determine the effect of Brix and yeast concentration variations on the level and volume of alcohol made from molasses and how much Brix and yeast concentration can obtain optimal bioethanol yield. The research method used is the experimental method. The variations of Brix used were 12%, 15%, and 18%, while the yeast concentrations used were 0.5%, 1%, and 1.5% of the total sample weight. Bioethanol production is carried out by fermentation process for 48 hours against 30 kg of molasses solution, but firstly, the propagation process is carried out for 2 hours. Then it is distilled to get bioethanol from the fermentation of molasses. The results of this study indicate that the two factors affect the volume and level of bioethanol produced. Still, the variation factor Brix is the dominant factor in determining the volume and alcohol content. The optimal treatment to deliver the highest volume and content of bioethanol is Brix 15% and yeast concentration of 1%, with an average volume of bioethanol produced as much as 1882 ml and the resulting alcohol content of 84%.

Keywords : Bioethanol, Molasses, Brix, Yeast Concentration, Alcohol Volume, Alcohol Content

Java Industrial Development Refers To SDGs

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Indonesia aims to catapult its trade and industry development and become one of the economic powerhouses in the future. The strategies initially developed in 2011 were expected to increase economic activities and growth. However, due to the steady growth of economic development, an evaluation of the previous RPJMN master plan is proposed. The purpose of this study was to assess Indonesia's economic corridor by considering 6 provinces in Java Island as the case study. Primary data was obtained from government officials while public records and benchmarking from other countries provided secondary data. From the results, there is need for development on each corridor, especially in hardware computing, software computing, automotive and technology. This research recommends development of industries and provision of resources to stimulate economic development.

Keywords : Development, Economic activies, Growth, Industrial, Sustainable

ANALYSIS OF CONDENSER N- 16000-2 UNIT I PLTU I CENTRAL KALIMANTAN (2X60) MW

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This paper compares the performance of a condensor during the period between August and December 2018 to that during the commisioning period. It belongs to the Steam Power Plant (PLTU) I in Central Kalimantan. The comparisons are carried out in terms of the load, LMTD, temperature efficiency, capacity ratio, and effective heat transfer coefficient. The overall results suggest that time evidently takes its toll on the performance as the Ueff decreased from 1980 W/m2K during the commisioning to 1319,4 W/m2K in December 2018. Fouling is the main reason for this.

Keyword : Condensor , Ueff , Fouling

Characterization of Anodizing Process on Aluminum Series 6 with Variable Voltage

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Anodizing is one way of coating oxidation on aluminum, which is carried out by anodic oxidation at room temperature with the help of an electric current so that a chemical reaction occurs so that a layer is produced that can protect the metal from the effects of corrosion. The purpose of this study was to determine the characterization of variations in electric voltage on surface hardness in the anodizing aluminum series 6. Specimens were made with dimensions of 50 mm×25 mm with a thickness of 10 mm, then the cleaning process was carried out with a solution of sodium carbonate (Na_2CO_3) with a concentration of 50 gr/100 ml of reverse osmosis (RO) water. The etching, desmut, and anodizing processes were continued with a solution concentration of 400 ml of sulfuric acid (H_2SO_4) and 600 ml of RO water. The electric voltage variables used were 20, 24, and 28-volt with a current of 2 amperes and an immersion time of 10 minutes. The results of the highest hardness test on a variable voltage of 20-volt with a Vickers hardness value of 59.117 VHN. This proves that anodizing treatment on the surface of aluminum material with a variable voltage of 20 volts will produce a high Vickers hardness value. These results indicate that the toughness of the material on the anodized specimen is also affected by the magnitude of the electric voltage.

Keywords : Anodizing, Aluminum 6 series, Variable voltage, Vickers hardness

Optimization Of CO2 Enhanced Oil Recovery Operating Conditions: A Case Study Of El Morgan Oil Field Reservoir, Gulf of Suez, Egypt

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Oil and gas are energy sources that experience the fastest growth among other energy sources. The oil recovery process can be divided into three recovery stages, namely primary oil recovery, secondary recovery and tertiary recovery or commonly called Enhanced oil recovery (EOR). Enhanced oil recovery (EOR) is an oil recovery used to recover residual oil that cannot be recovered by using waterflooding. According to the US Department of Energy, the tertiary recovery method has a successful recovery factor of up to 75%. EOR also helps reduce CO_2 emissions. However, to get optimal results for CO_2 EOR, several parameters must be optimized, such as mass flow rate, injection pressure and temperature. To create a pressure drop model for CO_2 EOR, several equations are used, including the Begg's-brill equation for the injection well dan production well model, the Darcy equation for the reservoir model. Based on the optimization results using Genetic algorithm and Particle swarm optimization, it was found that the profit increased by 97.4782% and 97.478%, respectively, with an increase from 994.2268 USD/hari to 39425.92 USD/day for Genetic algorithm and 994.2268 USD/hari to 39422.95 USD/day for Particle Swarm Optimization (PSO)

Keywords : Optimization, Enhanced Oil Recovery, Genetic Algorithm, Particle Swarm Optimization.

Water absorption and fracture toughness of Hybrid Calcium Carbonate/Rubber Particle/Epoxy Composites

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Abstract - The study investigated the effects of ageing on the fracture toughness of the nano Calcium Carbonate/ground rubber particle hybrid composites. The rubber particles content was 0, 5, 10 and 15 wt%, while the calcium carbonate contents was fixed 2 wt% of the epoxy resin. Aging was carried out in distilled water at a temperature of 50°C. Water absorption and fracture toughness properties of an epoxy-containing a hybrid of rubber particles and Calcium Carbonate were carried out. It was observed that the water absorption increased after adding ground rubber particle and calcium carbonate. The fracture toughness increased after adding rubber particles and the optimum fracture toughness was obtained at the rubber particle content of 10%. Adding calcium carbonate in the epoxy containing rubber particles reduced the fracture toughness but improved the fracture toughness of the aged specimens.

Keywords - *Epoxy, Calcium carbonate, Ground rubber particle, Fracture toughness, Water absorption.*

Development of Dynamic Pricing Algorithm in a Smart Grid

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Abstract—Conventional grid has limited power generation resources. Therefore, we need an architecture which fulfil the power demand of the users and can restricts the excess use of power beyond the limit. Since the past few years, smart grid has become a better architecture as it can manage the crucial part of the IoT (Internet of Things). Due to its compatible results along with great performance and the new outlook in the computer intelligence for managing the grid to self monitoring power consumption, the smart grids have started to

replace the conventional grids. Even if we are using the smart grid it may lead to the operator incurring a loss; while satisfying the user's power demand. Hence, we are designing a system which will trade-off the users' satisfaction and profit earned by the Smart Grid Operator (SGO). Second goal of the system is to achieve a dynamic pricing scheme for the power consumption, along with maximum power generation. The simulation is carried out by using practical power usage data from ISO (Independent System Operator) New England in Python 3 environment to prove the effectiveness of the proposed algorithm in increasing the operator profit while satisfying user demands.

Keywords—*smart grid, optimal dynamic pricing, demand response management, user utility, neural network*

Characteristics Mechanical Properties of Polyester Composite Reinforced Musa Acuminata Stem Fiber with Filler Carboxyl Terminated Butadiene Acrylonitryle

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This study investigates the impact toughness, tensile strength and morphology of the polyester matrix composite material reinforced with Musa acuminata stem fiber (MASF) and carboxyl terminated butadiene acrylonitryle (CTBN) filler. The fiber used was taken from the outer layer of the pseudo-stem banana species Musa acuminata, which came from Tanjung, North Lombok Regency, West Nusa Tenggara Province, Indonesia. The results showed that the addition of CTBN caused the MASF-reinforced polyester matrix to decrease its tensile strength, but increase its impact toughness. The reason is that CTBN is elastic so that it can increase the ductility, the impact toughness of the specimen increases. Based on the results of the SEM test, the bond morphology between polyester, CTBN, MASF is good.

Keywords : *musa acuminata stem, carboxyl terminatedbutadiene acrylonitrile, tensile strength, impact thoughness*

Single-Phase to Six-Phase (AC-DC-AC) Converter for Traction

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Power quality issues and drive performance under dynamic conditions are the major concern in traction. This paper proposes an active front-end converter (AFEC) fed 6-φ voltage source inverter (VSI) driven induction motor (IM) drive for traction. An independent control technique is proposed to control the AFEC at the grid side and 6-φ VSI at the induction motor side. The proposed converter overcomes the power quality issues associated with the 1-φ diode bridge rectifier fed VSI-driven induction motor drive and enhances the drive performance by reducing the torque ripple. The control technique adopted over a 1-φ AFEC maintains UPF operation at the grid side and DC-bus voltage is maintained constant under different loading conditions of the induction motor drive. Moreover, the control technique implemented over the AFEC mitigates 2f oscillation of the DC-bus voltage. The simulation and experimental results are presented to evaluate the proposed converter's performance and control technique.

Keywords : Active front-end converter, UPF, DC-bus voltage control, 2f oscillation, and THD.

The Vacuum Technique for Cooling PV Cell

Suryanto Suryanto, Firman

The temperature of Photo-Voltaic (PV) cells which increases when getting high radiation levels during the mid-day can reduce the efficiency of PV cells. This is a detrimental characteristic of producing electrical energy in a solar power generation system. The study objective is to improve cooling techniques in PV cell installations, particularly to maintain the temperature condition of the system working at optimal performance. The research was carried out using an experimental method by conditioning the PV module under vacuum pressure (pressure < 1 bar). A casing is designed in such a way as to allow a PV cell to be in a negative condition with sunlight still being able to penetrate it on the top side by using a material that is translucent and can withstand negative pressure. Nitrogen gas is filled into the casing before being vacuumed at negative pressure. The test is carried out outdoors with the actual conditions of solar radiation and ambient air temperature. Parameters for measuring pressure, temperature, radiation level, voltage, and current as well as electric power use an instrument equipped with a data logger that measures in real-time with a high degree of accuracy. The type of PV module employed in the test consists of two mono-crystal PV modules. One PV was treated with vacuum pressure while the other was left under normal conditions. The test results show that the temperature of the PV cell in a vacuum has a slow increase, where the maximum temperature is 30 ^{0}C even though it gets a high level of radiation during the day. There is also a difference in efficiency between those treated with negative pressure compared to PV cells that was not treated.

Effect of Biofluid Viscosity on The Fluid Flow and Mass Transfer Through Permeable Membrane of Microchannel Author keywords biofluid viscosity

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Hemodialysis is an artificial kidney replacement therapy that aims to control blood pressure and balance important minerals, such as potassium, sodium, and calcium, in the blood. The osmotic and ultrafiltration processes in the hemodialyzer were affected by the blood viscosity flowed through the permeable membrane of microchannels. In this simulation study the dialyzer was modelled as a microchannel formed by two parallel permeable membrane with pore size of 3 μm and 10 μm of membrane thickness. The distance of the two parallel membrane was 20 μm. The biofluid with viscosity of $4{,}0 \times 10^{-3}$ pa.s; $4{,}5 \times 10^{-3}$ pa.s; and $5{,}0 \times 10^{-3}$ pa.s was then flowed through the microchannel at the flow rate of 10 ml/s. Below the membrane there was counter flow dialisate at flow rate of 20 mm/s. The result showed that the higher the viscosity, the lower the biofluid velocity flowed through the membrane pore. For the above variations, the fluid flow in the pore were found of 0.00013748 m/s; 0.00010341 m/s and 0.00009766 m/s, each. The corresponding pressure on the membrane surface were 4995.964 Pa; 4994.142 Pa; and 4995.890 Pa, each. While the pressure in the pore were a bit higher of 5098.484 Pa; 5084.181 Pa; and 5057.133 Pa, each.

Keywords : biofluid, viscosity.

Analysis Aerodynamic Performance Airfoil WORTMANN FX63-137 in Different Reynolds Number

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The investigation of flow behavior on the upper and lower surface airfoil was performed to know aerodynamic behaviors of airfoil in different Reynold Number. The more flexible simulation by using Computer Fluid Dynamic (CFD) has been used to analyze the behavior of flow which was addressed to application wind turbine blade in low Reynold Number. The aim of study was conducted to know the effecting of the stall behavior airfoil and parametric aerodynamic such as Lift Force (L), Drag Force (D), Lift Coefficient (CL), Drag Coefficient (CD), Lift Force over Drag Force (L/D) on various Reynold Number from 2,5 x 105, 5 x 105, 7,5 x 105 to 106. From the result simulation, it was found that the stall behavior for each Reynolds Number was at the same angle of attack, which was 240. While the lift and drag forces are influenced by the Reynolds Number as the Reynolds Number getting bigger, the lift and drag forces increased. However, Reynolds Number did not affect the increase in the lift coefficient, drag coefficient, and L/D.

Keywords : Reynold Number, Angle of Attach, Stall, Airfoil.

ANFIS based MPPT Design for Rooftop Solar Panels Connected to Single Phase Power Grid

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The Indonesian government targets Indonesia to have zero emission energy by 2050. Solar energy is one solution to this target. The issuance of the Minister of Energy and Mineral Resources Regulation Number 26 of 2021 concerning Rooftop Solar Power Plants opens up opportunities for increasing the capacity of the energy mix from solar energy. However, solar power plants have weaknesses such as low efficiency of solar modules and non-linear output power of the module. This study proposes the ANFIS MPPT design as a reference to obtain the maximum power that can be given to a rooftop solar panel system connected to a single phase grid. The network voltage level is 220 V rms. This study uses a dataset of 800 pairs of data for input and output. The inputs of the ANFIS MPPT are radiation and temperature, and the outputs are reference voltages. The results of the study using Simulink simulation show that changes in irradiation can be followed by changes in the output power of rooftop solar panels. For a load of 5+ j2 kVA, at high irradiation the rooftop solar panels provide a greater current to load than at low irradiation. The current from the grid flows to the load based on the difference between the load current and the current from the rooftop solar panels.

Keywords : Rooftop solar panels, ANFIS, MPPT, GRID, single phase

The Effect of Variation of Volume Fraction onPolyester-Team Wood Fiber Composite (Melaleuce Leucandendra) on Thermal Conductivity Value

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The current use of the gelam tree is only found in wood processing. On the other hand gelam bark is not optimally utilized so as to produce unused bark waste even though the natural fiber of gelam bark is of high economic value. The purpose of this study was to determine the effect of volume variations on the value of thermal conductivity in gelam fiber wood composite materials with a filler ratio of each volume variation ratio of 10%, 30%, 50% and 70% using polyester resin and alkalinizing skin fiber using 5% NaOH in 2 hours of immersion time and knowing the effect of microstructure on gelam bark fiber composites. Based on the results of the research, the value of thermal conductivity is strongly influenced by variations in the fraction of different volumes in each sample given 5% alkaline treatment which increased from a low fiber composition of 10% to 70% fiber composition from 0,059 W/moC to 0,107 W/moC . Composite composition (10% sera - 90% resin, 30% fiber - 70% resin, 50% fiber - 50% resin and 70% fiber - 90% resin) with alkalization 5% shows that there is density and density between the matrix and fiber so that this sample does not have a cavity that inhibits the distribution of heat flow and faster conduction..

The Advanced Carrier Based Pulse Width Modulation Using Third Injection Harmonic Reference Signal on Neutral Point Clamped Inverter

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This paper proposes development of a Pulse Width Modulation (PWM) scheme that overcomes the weakness of conventional Carrier-Based PWM (CBPWM) performance on Neural Point Clamp Inverter (NPC). This scheme uses the conventional CBPWM technique to developed Advanced CBPWM. This technique uses triangular carriers in different amplitudes that are arranged in composition, then injects the modulated signal that has been decomposed with the third harmonic. The proposed PWM schema was verified using MATLAB/Simulink software. By applying this scheme, the quality of power, voltage and current are improved, and finally Total Harmonic Distortion (THD) can be reduced.

Keywords : Neutral Point Clamp Inverter, CBPWM, NPC, inverter, THD, Advance CBPWM

A Practical Design of Common Emitter Amplifier with Swamping Resistance and Bypass Capacitor

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Amplifier is commonly used on signal processing.Class-A Amplifier is an amplification system which can amplify whole wave. Although it can amplify whole wave, it requires proper bias and collateral AC/DC load line. To set collateral AC/DC load line, Higher current through collector (IC) make better collateral. Better collateral between AC/DC load line can minimize clipping output wave but it is power consuming.

Keywords : common, emitter, amplifier, AC, load line

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Optimization of CO2 Injection Operating Conditions for Enhanced Gas Recovery and Carbon Sequestration in a Carboniferous Sandstone Reservoir

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CO2 emissions are a global issue that many countries face. In handling this issue, one of them is by utilizing energy resources to cover CO2 emissions. However, among the many methods used to absorb CO2, one of the most effective is a process by injecting CO2 into the earth layer that also known as carbon sequestration, which is one of the most effective ways to reduce CO2 emissions. CO2 injection into gas reservoirs not only benefits CO2 gas storage but can also increase gas production in carboniferous sandstone reservoirs, a process known as Enhanced Gas Recovery (EGR). Operating the CO2 EGR variable, namely the mass flow rate of CO2 injection, CO2 injection temperature, and CO2 injection pressure, can condition the optimal recovery value. The Beggs-Brill method is used for modeling the CO2 EGR injection pressure drop in production and injection wells, while the Darcy equation is used in the reservoir. Heat transfer equations are used to model temperature gradients in production wells, injection wells, and reservoirs. When the injection well and production well model is compared to the PIPESIM software simulation, the pressure and temperature gradient for injection wll model have average errors of 0.364% and 0.754%, respectively. The validation results in production wells have a mean error of 0.871% for the pressure gradient model and 0.334% for the temperature gradient model. Meanwhile, when the reservoir compared to the COMSOL Multiphysics software simulation, the mean error for pressure and temperature gradient models is 0.0897% and 0.0106%, respectively. According to the modeling, the amount of CO2 stored in the reservoir is 21.134 tons per day and can be absorbed by 80.36%. GA produced the best optimization results on the three variables, increasing profits from 5998.534 USD/day to 17123.327 USD.

Keywords : Carbon Sequestration, CO2 Injection, Enhanced gas recovery, Optimization

ABSTRACT OF COMPUTER INFORMATICS

Implementation of Knowledge Management in Customer Relationship Management System

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Currently the value of a customer (customer's value) is very important in a business competition. For this reason, they continuously improve customer relationships by using Customer Relationship Management System (CRM). The implementation of Knowledge Management (KM) can improve the quality of information generated through CRM system. This paper is studied how far the implementation of KM in CRM system has occurred and its impact. What is Customer Knowledge Management (CKM) as a result? Using the Literature Review method and several comparisons to produce an understanding of the application of KM in CRM system, and then use as reference for case study implementing KM on CRM.

Keywords : Knowledge Management, Customer Relationship Management, Customer Knowledge Management, KM, CRM, CKM

Using Phase Coding Method For Audio Steganography With The Stream Cipher Encrypt Technique

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One of the most popular audio file formats suitable for hiding information is Windows Audio-Visual (WAV). The two main areas of modification in a WAV file for data embedding are the storage environment and digital representation of the signal that will be used. In order to conceal secret messages successfully, a variety of methods for embedding information The proposed system consists of four steps of steganography techniques; encoding, embedding, extraction and decoding. The trend of the test results from the 10 audio tested, showing a decrease in the PSNR value along with the increase in the size of the embedded message. This is in accordance with the theory that the greater the embedded information, the smaller the PSNR generated The steganography system using the phase coding method with the addition of stream cipher encryption has been successfully implemented. The system works well, as indicated by the success of the embedding and extraction tests, as well as the test results from BER. The PSNR test itself gets good results when the size of the embedded message is not more than 45% of the cover size.

Keywords : steganography, encoding, embedding, extraction, and decoding

Black Box Testing with Equivalence Partitioning and Boundary Value Analysis Methods (Study Case: Academic Information System of MataramUniversity)

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Mataram University Academic Information System (SIA UNRAM) is software built and managed by UPT PUSTIK to make it easier for users to manage various academic data and academic information at Mataram University. Although the system has been developed, the users still discover the system's lack of features and functions. So, this study aimed to test the SIA system. Software testing is a significant thing to do so that the result of the device is appropriate to the user's needs. Moreover, it can detect and reduce the errors contained in the software. Black box testing is one of the software testings that focuses on functionality. Equivalence partitioning and boundary value analysis are used as the research methods. The final result of this study found various feature errors in 4 SIA actors at Mataram University, including students, lecturers, study program operators, and faculty operators. This test found that the total test cases were 322 scenarios, with 242 test cases passing and 80 defects, so the average test case pass percentage was 75.16%. UPT PUSTIK uses these results to evaluate and improve the SIA software at Mataram University.

Keywords :   Academic Information System, Software Testing, Black Box, Equivalence Partitioning, Boundary Value Analysis

User Experience Analysis for The Use of Electronic Signature in the Academic Activities

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During the Covid-19 pandemic that has spread all around the world, the government has announced policies for conducting physical distancing among people and doing work from home (WFH), including in the academic field. Although in WFH there are still tasks that can be done, some activities are still challenging in WFH. One of which is signing a document. In WFH, signing a document tends to be facilitated by using an electronic signature. By using an electronic signature, the people who sign a document do not have to meet directly in one location. They can sign a document through a dedicated system. This kind of process will make the business process becomes easier. Although many papers have discussed the technical aspects behind any electronic signature, there is rarely a comprehensive analysis related to the user experience analysis of the electronic signature from the user perspective. This paper comprehensively analyzes the user experience of electronic signature usage in academic activities. Here, we use the University of Mataram as our research location. According to our research, we conclude that the scores for pragmatic and hedonic qualities are 1,66 (good) and 1,74 (excellent) respectively, so that the final conclusion of the test is 1,7(excellent).

Keywords : academic activities, electronic signature, user experience analysis, University of Mataram

Optimization of Data Mining for Grouping Courses Using the MDDS and MAR Methods

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To find meaningful clusters from a data set, attribute clustering is carried out, so that the attributes in the created cluster will have a high or very good correlation, as well as interdependence with each other. While the attributes in the other clusters are less correlated or more independent. The experimental results show how to determine the list of dominant attribute ratings using soft set theory. A series of experiments were conducted to evaluate the clustering performance, clustering efficiency and scalability of the MAR and MDDS algorithms. The experimental results show that, MDDS achieves better clustering accuracy and stability than the MAR algorithm, at the same time increasing efficiency. MDDS has clear advantages over MAR on large data sets in terms of clustering efficiency as well as clustering accuracy. In addition, the MDDS technique has better scalability. It can be applied to small category data sets as well as large category data sets. The clustering of data under soft set theory can be considered as a technique for data mining. Maximum Degree of Domination in soft set theory is applied to select grouping attributes. In the assessment of student lectures to determine the optimal clustering attributes, and get the best value is very urgent in data clustering.

So in the assessment of lecturers' lectures on the subjects being taught, in order to get optimal results, clustering of lecture assessments is needed. Actually, there are five types of methods and techniques, based on coarse and soft sets, to select the attributes for grouping course assessments, namely TR, MMR, MDA, NSS, and MAR. However, the MAR method has better numerical computational time, compared to the other four approaches. In the MAR method, there is a drawback, namely the execution time is still slow, because in the iteration process it determines the relative attributes. So to overcome these problems, use an alternative technique based on soft sets to select clustering attributes, namely the Maximum Degree of Domination in Soft set theory (MDDS) method. In this method, the steps in defining the multi soft set are explained first. Then determine the dominance of the soft set and its degree. Then the maximum degree of dominance will be used to determine the best grouping attributes in the assessment of student lectures. The results of the experimental data obtained show that the MDDS technique is very good, and can significantly reduce the numerical computation time. The MDDS method is better than MAR with a working percentage of 43.99%. The MDDS method also has better scalability, which is indicated by the execution time increasing linearly, with increasing data size. While the accuracy of the experimental data set has a class attribute, and has increased by 3.23%. So the MDDS technique can be a solution to the problem solving above, so that in the assessment of lecturers' lectures on the subjects being taught, they can get optimal results.

Keywords :   Optimization, Data Mining, MDDS, MAR

Design and Build a Mobile-Based Pet Care Information System with Personal Extreme Programming Method

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Pets are animals that are tamed and cared for by their owners and have an emotional bond between the two that will form a relationship. The high interest in raising animals has led many communities and animal lovers because animal owners have the same interest in caring for and caring for animals. The author has interviewed several animal lovers in the city of Mataram. Five out of seven animal lovers who have left their pets at a pet shop experience the same problem: it is difficult to find a reliable place of care when they want to travel far. It is not possible to bring their pets to that time. Three out of five people are more confident in entrusting their pets to the animal lover community because the care and maintenance carried out by pet shops are often not optimal; The high cost of the pet shop is also an obstacle. Based on these problems, the authors created a "Mobile-Based Animal Care Application", which is a forum that connects fellow animal lovers who need each other's help to deposit and care for their pets according to the desired facilities and budget. Work on this system is carried out by the author individually. This author must handle changes in the system's functionality that will be developed according to what the client wants quickly and precisely. Therefore, this application is made using the PXP method, which makes it easy to handle changes in the system's functionality to be developed because PXP has a high level of flexibility in planning and implementing an application/software. This application system will use the Java programming language and firebase for data storage in its design. From the test after developing and making the system, the results obtained from black-box testing with the Linkert Scale that all scenarios made are appropriate and can help the needs of the community and clients, the score for strongly agree is 50% from the client- side and 57.1% from the community side.

Keywords : Information System, PXP Method, Android Apps, West Nusa Tenggara, Animal Care

EVALUATION OF SPBE MANAGEMENT DOMAIN OF TANGERANG CITY GOVERNMENT BASED ON REGULATION OF THE MINISTER OF PAN-RB NUMBER 59 OF 2020

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To maintain the quality of electronic services to be fast, efficient, and convenient, the government has issued Ministerial Regulation PAN-RB Number 59 of 2020 concerning Guidelines for Evaluation of the Implementation of the Electronic-Based Government System (SPBE). There is one new domain in the SPBE implementation evaluation guideline, namely the SPBE Management Domain when compared to the previous SPBE management guidelines, namely the PANRB Ministerial Regulation Number 5 of 2018. If the SPBE Management Domain index is not known, it means that the level of SPBE Management Domain implementation cannot be measured, resulting in difficulties. in planning the implementation of SPBE in the future. The effect is that the implementation of the SPBE does not go according to plan or there is even a failure in the implementation of the SPBE. This study aims to determine the maturity level of the SPBE Management Domain in Tangerang City Government through the assessment of SPBE Management Implementation Aspects and ICT Audit Aspects. Assessment of indicators is done through interviews, questions, answers, and supporting evidence. Based on the index value of these aspects, it can be determined the index value of the SPBE Management Domain is then linked to the SPBE assessment predicate table to determine the implementation predicate of the SPBE Management Domain. The results showed that the SPBE Management Domain index was 3.40. The Tangerang City Government still has several aspects with standard maturity, especially in the aspects of SPBE Operator, SPBE Management Implementation and Administrative Services Electronic-Based Government. One very clear indicator is in Team Maturity Level SPBE Coordination Agency SPBE organizer. The role of the coordination team formed has not made a real contribution to the implementation of the SPBE, so the work program of the SPBE Coordination Team of the Tangerang City Government has not appeared to be communicated/coordinated to all relevant work units/regional apparatus in the Tangerang City Government. In addition, the tasks/work programs of the Tangerang City Government SPBE Coordination Team have not been reviewed and evaluated

Keywords : SPBE, Evaluation, electronic public services, E-Government, maturity level.

Indonesian SMS Spam Detection Using TF-RF Feature Weighting Method and Support Vector Machine Classifier

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Abstract— SMS Spam is an unsolicited or unwanted text message by a user that is sent to a mobile device. At this time, increasingly criminal acts can annoy recipients by spreading unsolicited or unwanted spam SMS, including promotions, fraud, pornographic messages, and others. Therefore, the classification of SMS needs to be developed to assist in categorizing SMS. In existing research, to try to overcome these problems, the term frequency-inverse document frequency (TF-IDF) feature is applied. However, this method has a disadvantage, namely eliminating category information on each document, so in this study, a comparison will be made with the Supervised Term Weighting feature method, which is one of the terms frequency relevance frequency (TF-RF) using the Support Vector Machine, K-nearest Neighbor, and Multinomial Naïve Bayes. The total data used is 500 SMS with a comparison of 325 non-spam SMS and 175 spam SMS. After the experiment is conducted, SVM Kernel Sigmoid has the highest average accuracy value where the difference in average accuracy with Kernel RBF is 2.26%, Linear Kernel is 0.09%, k-Nearest Neighbor is 27.56%, and Multinomial Naïve Bayes is 4.37%.

Keywords   :SMS Spam, Text Classification, Supervised Term Weighting, TF-RF, Support Vector Machine

Speech Signal Algorithm Conversion From Sasak Language into Sasak Script with CNN and Rule-based Method

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Sasak speech-language is can not operated in application such as google speech, Alexa assistance, and so on. It makes society need a new development technology who can solve the problem for sasak language. West Nusa Tenggara Province has more than thousand ancient manuscript writen in lontar leaves and papers, that the manuscript spread in Lombok island and Sumbawa Island. Speech recognition technique for local language is important topic in computer science research, that it can save the culture from the island. This research should be explain how speech processing method working for conversion analog speech signal in sasak language into Latin text. This study uses the Mel-Frequency Cepstral Coefficient (MFCC) method as a feature extraction method and Convolutional Neural Network (CNN) as a voice classification method into text, and the Rule Base method with UTF-16 which is used to provide rules on Latin letters that will be converted into text. sasak characters. The algorithm developed is expected to be able to change 50 sound classes into Sasak letters with good accuracy results or above 88%, in changing the voice of the Sasak language into Sasak script by 90.00%.

Keywords : Speech Processing, CNN, MFCC, Sasak Script.

Implementation of Temperature and Humidity Monitoring System Using LoRaWAN for Pharmaceutical Industry

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The drug production process certainly requires a room with certain conditions where the temperature and humidity must be following the provisions of the Good Manufacturing Practices standard. In the current condition, there are still many production processes that use manual methods to check the room temperature and humidity. If temperature and humidity change beyond the standard, the drug manufacturing process should be stopped. This makes the manufacturing process less effective and efficient. Meanwhile, internet of things (IoT) technology enables automated monitoring using low power wide area network (LPWAN) connectivity that can overcome these problems. Its feature is that the energy used is relatively small so the monitoring system can be efficient. LoRaWAN is one of the LPWAN technologies which also provides a wide range of coverage, low power, and low cost in the implementation. This research offers a monitoring solution for temperature and humidity in the pharmaceutical factory so that the drug manufacturing room can be monitored in real-time. The results are very good in terms of sensor accuracy and signal strength to make a reliable solution.

Keywords : LoRa, LoRaWAN, pharmaceutical industry, monitoring internet of things, IoT, temperature and humidity sensor

EARLY DETECTION OF COVID-19 INFECTION WITHOUT SMPTOMS (ASYMPTOMATIC) WITH A SUPPORT VECTOR MACHINE (SVM) MODEL THROUGH VOICE RECORDING OF FORCED COUGH

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COVID-19 is an infectious disease severe acute respiratory syndrome SARS CoV-2 which spreads from direct human contact through droplets of mucus in the respiratory tract of an infected person. The American Centers for Disease Control and Prevention (CDC) says that asymptomatic COVID-19 patients may account for more than 50% of the transmission rate. This research uses the SVM (Support Vector Machine) model as a feature extraction processor from voice data in the training and testing process, so that it can detect asymptomatic COVID-19 from the extraction of cough voice recordings. Of the 171 subjects studied, 120 subjects (70%) for training data and 51 (30%) for test data. The data is divided into the SMOTE data and without the SMOTE data process. The results of the two data have an average performance matrix of above 80%, with accuracy for without the SMOTE data of 98.3% and for SMOTE data of 100%.

Keywords: Accuracy, Asymptomatic, Forced cough, Covid-19, SVM Model

Bayesian Network Student Modelling on Intelligent Tutoring System

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Intelligent Tutoring System (ITS) is an electronic tutorial that has intelligence for adapting learning materials. It adjusts the contents of learning materials depending on the users' requirements. This research developed an ITS for Object Oriented Programming course that is based on Bayesian Network as its inference engine. It has run well which is shown by the variation of the study tracks of each student based on the Bayesian Network Student Model. This tutorial is also divided into two part, there are basic parts that contains basic programming technique and the advanced part that provides the concepts of Object Oriented Programming. Based on those two parts, this study wants to examine their differences of them. By the Levenshtein distance, the highest distance between students' ways of learning is 11 and its average is 5.385 for the basic part of Programming and 4.8 for the advanced part of the advanced part. The advanced part also has a positive value of skewness of the frequency distribution, it is 0,81 (left skew), which means that this distance is majority short. Whereas the basic of programming has a negative value that is - 0.68 (right skew), in the other words, it shows that the elementary part has a longer distance of learning way. Data of the distances of advanced material parts concentrated on the second quartile by median is 4, whereas the basic part, by median is 6, data is concentrated in the third quartile. Mean Opinion Score shows that students are more interested to use the ITS than the classical Tutoring System, it is because the ITS has an average value is 8 (very agree) and the classical tutorial is 7 (agree). Besides that, the other criteria such as user-friendly, speed, report response, and appearance have 8 scores or very agree, and only a criterion has 7 (agree) in the stability.

Keywords: Intelligent Tutoring System, Bayesian Network, Object Oriented Programming

UI/UX Analysis of Integrated E-Commerce System with Smart Village Concept to Promote MSMEs (UMKM) and West Nusa Tenggara Tourism with Design Thinking Method

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West Nusa Tenggara (NTB) has the potential to increase the economy so rapidly amid the momentum of the international MotoGP event. Unfortunately, currently available systems and information technology have not optimally supported this potency to stimulate economic improvement. The wealth of natural resources, processed products, and tourism in NTB are currently ineffectively marketed. In this study, we develop an integrated E-Commerce information system with the smart village concept to promote Micro, Small, and Medium Enterprises (MSMEs) and tourism in NTB. We use a design thinking method as our baseline analysis. Based on the testing results of testing using the System Usability Scale (SUS) method on the application prototype that has been built, we reached a SUS score of 70. This result indicates the usability of the application prototype that has been built is high.

Keywords: Design Thinking Method, E-commerce, MSMEs (UMKM), System Usability Scale, West Nusa Tenggara Tourism.

Internet of Things (IoT) based Multi-Server Room Temperature and Humidity Monitoring and Automatic-Controlling by Using Fuzzy Logic Controller

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The data center is a significant space that serves as a place to store equipment related to the server. Important data must also be safeguarded inside the server room itself, thus security standards are required to safeguard the space, starting with air temperature, humidity, fire disaster prevention, etc. In this paper, the authors propose an Internet of Things (IoT)-based system that uses MPX5100dp sensor for measuring room pressure, the DHT11 sensor, to detect humidity and temperature, with Node-MCU ESP8266 as the transmitter and microcontroller, and the Blynk application as the MQTT bridge to display the measurements and actuator reactions on mobile phones with Android as the platform. The mechanism on this device can track the temperature of the data center's room in real time and could run as expected. This has been proven by testing.

Keywords : DHT11 sensor, MPX5100dp sensor, Node-MCU ESP8266 sensor, Internet of Things.

Determining Optimization of the Finance Distress Parameters of Islamic Bank by Using Grey Relational Analysis (GRA)

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This study aims to identify potential causes of financial distress by combining Grey Relation Analysis (GRA) with internal and external variables of Islamic banking companies in Indonesia. The data utilized is panel data for the period 2015-2019, with an Indonesian sample of five established Islamic banking institutions. The findings of this study indicate that, in general, the factors that allow financial distress to occur in Islamic Commercial Banks are distinct. However, banks must keep an eye out for a few unique factors that may be the primary cause of financial distress in banking institutions. This research also contributes to cautioning Islamic banking institutions regarding the internal management of Islamic banking's sustainability and the anticipation of future financial distress.

Keywords : *Financial Distress, Islamic Commercial Bank, Grey Relation Analysis (GRA), Panel Data*

Comparative Study of Lung Disease Prediction System Using Top 10 Data Mining Algorithms with Real Clinical Medical Record

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These years, the use of machine learning for disease prediction is blooming. Meanwhile, lung disease is one of the deadliest diseases in the world. Many researchers have been doing research on lung disease predictions using various techniques. In this study, ten machine learning algorithms are used for comparative study in lung disease prediction. The dataset is collected from a hospital in Banda Aceh, Indonesia, consisting of 300 data. The parameters included in the dataset are: symptoms, body temperature, respiration rate, oxygen saturation, blood pressure, heart rate, sex, and age. This dataset needs to be pre-processed and then analyzed using those top 10 machine learning algorithms. The prediction will be whether a patient gets a lung disease or not (binary prediction). The result shows that Naïve Bayes and k-Nearest Neighbor are the best choices among those algorithms in terms of accuracy and speed.

Keywords : machine learning, lung disease prediction, binary prediction, Naïve Bayes, k-Nearest Neighbor

Assessing of risk factors in sustainable spice supply chain management in the India

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The management of the spice supply chain results in resource waste and limited management options. Nevertheless, practitioners and academicians alike must investigate spice supply chain management in terms of long-term sustainability. Understanding and maintaining sustainable spice supply chain management techniques come with associated risk factors and obstacles. As a result, this study draws on the available literature to compile a collection of characteristics, which includes ten aspects and 40 criteria. Due to a lack of resources, the risk factors are the root of poor sustainable spice supply chain management performance. As a result, the goal of this research is to identify the primary risk variables using qualitative data; nevertheless, the attributes must be converted into a scale that is comparable. The fuzzy Delphi method (FDM) was used to obtain valid and reliable attributes from qualitative data, while the fuzzy decision-making trial and evaluation laboratory (FDEMATEL) was used to address uncertainty and interrelationships simultaneously. The FDM results suggest that there are 18 critical risk variables and seven aspects to managing a sustainable spice supply chain. The FDEMATEL results reveal that qualitative data is translated into crisp, comparable values in order to investigate causal linkages between variables and confirm the compatibility of the theoretical structure with industry realities. The findings show that fluctuation in the Price (C8), diseases and pests (C20), human contamination (C23), spice adulteration (C24), and loss of food quality, quantity (C36) are all important factors in these causative interrelationships. The primary aspects involved in enhancing SSSCM in India include Financial Risk (A5), Ergonomic Risk (A8), and Operation and Management Risk (A10).

Keywords : *supply chain management, risk management, sustainable spice supply chain.*

Smart EV Navigation and Data Collection System for Tree Based Data Modeling using IoT

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Machine learning for autonomous can be done by recording the displacement and condition of the vehicle through manual control by humans and modeling the data. The research proposes designing a data collection system for tree-based data modeling on Internet of Things (IoT) based autonomous electrical vehicles (EV). The system consists of four ESP32 cameras with servos mounted on the left, right side of the car mirror, front (dashcam), and rear. The system is also equipped with an Arduino Nano connected to GPS, a gyroscope, and four proximity sensors. Arduino nano is connected via serial software to the Wemos D1 mini, which is connected to a relay module to control lights and wipers and is equipped with an LDR sensor. Data collected via the internet (wifi) will be formed in tree-based data modeling for future genetic programming machine learning algorithms. System evaluation includes Quality of Service (QoS) data communication, statistical data collected, and electrical IoT devices built. Based on testing using an intelligent car chassis in an environment still affordable by wifi, it produces an average delay of 0.02s and a PDR of 99.87%. The highest correlation matrix archived as 0.872 for longitude, latitude, and gyro data in detecting vehicle turns. The electricity evaluation result consists of average power consumption of 0.344watt for the ESP32 camera, 0.663watt for the Arduino nano, and 0.291watt for the Wemos d1 mini. In the future, testing will be carried out using an actual EV on a real track and in data communication outside of wifi.

Keywords : Internet of Things, Smart Electrical Vehicle, Genetic Programming

IoT based Water turbinity classification using Color sensor TCS3200

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Water is one of the essential sources of life. As the population increases, the use of water by the community for various daily needs such as drinking, cooking, washing clothes, bathing, washing toilets (MCK), and so on is also increasing. The use of water in households must pay attention to the cleanliness factor of the condition of the water itself. Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 416/Menkes/PER/IX/1990, water quality requirements include physical, chemical, biological, and radiological qualities so that if consumed or used, it will not cause side effects. Decreasing water quality in households can occur due to earthquakes, environmental factors, or leaking pipes, resulting in water contamination. These factors cause the water to be used can contain mud, moss, soil, and lime. Therefore, this study created a water turbidity classification system based on the TCS3200 IoT color sensor using the MQTT data communication protocol. This research was conducted by testing three times, namely, black box testing, then hardware testing, namely testing the TCS3200 color sensor, and testing with different containers. So it can be concluded that this study's classification system belongs to the excellent system category and is feasible to use.

Keywords : Internet of Things, Smart Electrical Vehicle, Genetic Programming

An Optimized Framework for Breast Cancer Prediction Using Classification and Regression Tree

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Several machine learning algorithms have been proposed in recent years to design accurate classification systems for a wide range of diseases such as cancers, hepatitis, and coronavirus. In this study, the Classification and Regression Tree (CART) is proposed to predict breast cancer in the early stage, later applied to real data collected from the Sebha oncology center. The study focuses on improving the CART accuracy through several methods: 1) cross-validation, 2) dimensionality reduction and 3) hyper-parameter tuning. However, two cross-validation strategies have been investigated namely: the K fold and stratified fold, followed by dimensionality reduction to determine the most effective features using two methods, namely: recursive feature elimination with cross-validation and principal component analysis, and lastly, investigating the most optimal CART parameters using two optimization algorithms, namely: grid search, and random search. The experimental results have shown that the best CART model which achieved 97% accuracy uses a stratified fold as a cross-validation strategy, recursive feature elimination with cross-validation as dimensionality reduction, and grid search as parameters tunning algorithm. Moreover, when compared to the original CART, the accuracy of the proposed CART has improved from 63% to 97%.

Keywords : Breast Cancer, CART, Sebha Oncology Center, Dimensionality reduction with cross-validation, Grid search, Hyper-parameter tuning

KADARING SIBI (Indonesian Sign System Online Dictionary): Web-Based Indonesian Sign System Learning App

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Deaf people (Teman Tuli) in Indonesia currently use the Indonesian Sign Languages (Bisindo). Nevertheless, it has numerous versions geographically. To smooth communication between them, the Indonesian government has standardized the Indonesian Sign System (SIBI) for the learning process at special schools (SLB/B) as a printed dictionary. The dictionary contains pictures to represent every sign. As it is in printed 2D format, Teman Tuli and normal people (Teman Dengar) cannot understand the exact hand movements. Teman Dengar also do not get enough access to the SIBI learning information. Moreover, it is difficult to understand the rules to build sentences in Bahasa Indonesia. Technology is growing, and the number of electronic dictionary users is increasing. We developed a web-based application Indonesian Sign System Online Dictionary (KADARING SIBI). The dictionary implements a stemming algorithm to find each root word of the text. Then, each Sign is rendered with a GIF animation. Users easier load and understand a picture or an animation revealing a word. Fifty respondents with different backgrounds participated in several methods tested on the application. The Black Box Testing method produces an average success value of 95%. The acceptance testing with the Mean Opinion Score method has a MOS value of 8.72, which is a good category.

Keywords : Deaf, Indonesian Sign System, Online Dictionary, Stemming Algorithm.

An Enhanced Information System Success Model for Enterprise Resource Planning Implementation on State-Own Enterprise

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Enterprise Resource Planning (ERP) is a concept of planning and managing company resources involve funds, people, time, parts, materials and capacity. ERP has been widely applied in several companies in Indonesia. ERP adoption in Indonesia is based on an efficiency system that can support company performance and capacity. However, ERP implementation is not that easy, failed implementation was a common occur in ERP implementation. Therefore, a dedicated model framework is needed as a reference or guideline in measuring and evaluating the success of ERP implementation. This model framework will be a guidance intended to companies that willing to adopt ERP. This research proposes an ERP success model. Authors redefining and integrating previous IS Success model by previous researchers. The model examines whether any factors build in the model are have significant impact to ERP implementation success. The result of the study shows, from 10 hypothesis 6 of them are accepted. The factors proven to be influenced to the user satisfaction, intention to use and ERP benefit. This model framework believed can be a useful guidance to the company or organization who willing to implement ERP system, to discover certain determinants that should be considered first before implementing the system. With the result of the study, authors trust that the model can help increasing number of successful ERP implementation.

Keywords : Enterprise Resource Planning, ERP Success Model, ERP Benefit

Design Mobile Application Variable Temperature and Humidity Water Flow Rate Automatic Control System

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The primary measurements used to calculate the amount of water required are soil temperature and plant humidity. As a result of this system's sophisticated functional equations and non-linear input design, it needs a system that can decide when to sprinkle water. One of the ideas that can be applied to produce a judgment that is similar to the ones made by people is fuzzy logic. Used was a microcontroller-based fuzzy logic control system. The goal of this is to create a method for managing the amount of water and fertilizer that plants receive. Temperature and soil surface moisture measurements are measured by this system using the DHT11 sensor. Additionally, this system controls with fuzzy logic using a pH sensor as an input. In addition to real-time information and reports, this system may be watched over utilizing a mobile application. The Blynk Node MCU ESP8266 microcontroller's built-in Wi-Fi module is a great option. The average connection speed between the first and second pumps is 1235.90 ms, with a linear correlation of 0.6754 and a Pearson correlation of 0.7158. During physical activity, core body temperature rises as relative humidity rises, and falls as humidity falls.

Keywords : mobile application, temperature, humidity, flow rate, control system

IoT-based Smart Village Transaction System using RFID and Load Cell Modules

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MSMEs (Micro, Small and Medium Enterprises) in the village play an essential role in improving the welfare of business owners and consumers. MSMEs in the village meet the living needs of the villagers. Research is developing an IoT- based smart village transaction system using RFID and load cell modules. The research aims to simplify transactions in the village environment, which is unique to its agricultural and livestock businesses. The system was developed using a raspberry pi, the web server. RFID is used to record transactions made by villagers by scanning their resident cards. Load Cell records the number of transactions for products measured by weight, such as agricultural and livestock products. The system prioritizes user interaction by scanning the RFID card of the transaction actor, product representation, and product weight. The system is tested using black-box testing, producing valid results for hardware and software. System performance evaluation was carried out by comparing the performance of the raspberry pi 3 with 76,789% CPU, 47.67MB RAM, 54.69C heat, and raspberry pi zero with 82.679% CPU, 102.78MB RAM, and 49.78 heat. The system is also calibrated and compared to regular scales and produces a slight difference with the tested load, an average of 1,440 grams. The electrical system was also tested and resulted in low average electricity consumption, namely a voltage reduction of 0.044v for the raspberry pi three and 0.022v for the raspberry pi zero, so that it is suitable to be applied portable and in rural areas with limited electricity.

Keywords : Internet of Things, Smart Village, RFID

Requirement Engineering: Development of Manufacturing Information Systems Using a Role Based Goal Oriented Model

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Information system development is required by business development. Prior to a system development, the system requirements are defined, including the roles and involvement of users or actors and the dependencies between actors in running a business. The manufacture information system is a system used in a factory to determine the manufacturing process to produce a product. The requirement engineering approach through an intentional perspective is a method that has emerged in the field of requirement engineering. This approach can explain the characteristics of an actor's behavior. The requirement engineering process is the first step conducted in the development of information systems to obtain a reliable information system. The Role Based Goal Oriented model is the instance of requirement engineering model that observed in this research.

Keywords : Requirement Engineering, Information System, Role Based Goal Model.

Classification of Pringgasela Typical Songket Using Multi Texton Co-Occurrence Descriptor and K-Nearest Neighbor

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Songket is one of Indonesia's cultural heritage in traditional fabrics that are still preserved today. Pringgasela, a village located on Lombok island has been producing Songket with distinct characteristics and various patterns. Generally, people are aware of the typical Pringgasela Songket pattern but the difference between one pattern and another is often unrecognized. Furthermore, information regarding the types of Pringgasela Songket has not been well documented. This study aims to build a model that can classify the Pringgalsela Songket patterns using Multi Texton Co-Occurrence Descriptor (MTCD) and K-Nearest Neighbor (KNN) methods. The data used in this study were 4700 images of Pringgasela's Songket, which were divided into training and test data. The highest accuracy obtained was 99.99%, 100% precision, and 100% recall with k=3, using manhattan distance calculation.

Keywords : Image Classification, Pringgasela Songket, Texton, MTCD, KNN

Aksyaa : Web-based Accounting Information System with Sharia Financial Perspective

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For small and medium enterprises (SMEs), tools for recording and managing company finances are critically needed. Many of these SMEs have not been successful in improving their business performance, partly because of their inability to manage their business resources. So if there is a freeware licensed financial management tool, this will be helpful. Aksyaa is an acronym for a web-based Accounting Information System developed by our research group. It can be said that Aksyaa is a start-up product. The system has been installed on a cloud server on the domain url : www.aksyaa.com. Aksyaa was developed using the Flask python web framework and the MariaDB database. UML diagram is also used as a design model. Aksyaa was developed based on an accounting reference book that follows international financial reporting standards. The development of Aksyaa has included the recording of general journals, sales reports, purchase reports and general ledgers. Its output includes sales reports, purchase reports, cash flows, balance sheets and income statements. Currently Aksyaa is in the beta testing phase. In further development, it will adapt the sharia perspective so that it is planned to become an accounting information system that applies sharia principles.

Keywords: Sharia Accounting Information System, Flask web-based financial reporting standard.

Hierarchy Clustering Implementation on YouTube's Top Data

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Abstract— Clustering is a method or process of grouping datasets into various clusters to produce variations in smaller clusters. Clustering has broad application fields such as data concept construction, pattern recognition, web search, simplification, security, and several other areas. Clustering methods are classified into two types, hierarchies and partitions.
The hierarchical clustering method defines the cluster hierarchy by separating and combining them, whereas the partitioning method involves defining and evaluating sections based on criteria. Thus, the selected clustering algorithm must be efficient. This article focuses on clustering algorithms for obtaining and processing YouTube Channel Top Data.

Keywords— *Algorithm, Clustering, Hierarchy Clustering, YouTube.*

Classification of Nile Tilapia's Freshness Based on Eyes and Gills Using Support Vector Machine

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Fish is one of the foodstuffs that contain high protein and essential amino acids the body needs. Nile Tilapia is a fish that the people of Indonesia widely consume. The high nutritional content of tilapia and affordable prices make this fish popular with the public. The difference between fresh and unfresh tilapia can be assessed from organoleptic tests, including gill color, texture, and smell. Consumers can check by looking at the condition of tilapia based on its distinguishing physical characteristics such as eyes, gills, flesh texture, skin, and fish mucus. However, not everyone knows and understands these typical characteristics. Therefore, we need a system that can classify the freshness level of tilapia. In this study, the freshness level of tilapia will be classified based on the color and texture features of the eyes and gills using the Support Vector Machine. The GLCM approach is used to extract texture features, whereas the HSV method is utilized to extract color features. The total number of photos used in this investigation was 840, which were separated into training and testing data. With an image size of 256x256 pixels, the combined feature of HSV+GLCM achieves the highest accuracy of 94.28 percent.

Keywords : Nile Tilapia, classification, feature, image processing, fish

Utilizing Random Forest Algorithm to Sentiment Prediction Based on Twitter Data

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Abstract—Information sharing throughout the globe or universe has become a characteristic of social media. There has been a lot of research into the classification of sentiments. In this study, Twitter has been mined for unstructured GoFood Reviews data. It has been preprocessed to analyze the reviews' sentiment with polarity analysis, feature extraction with TF-IDF, and supervised learning with random forest. From June 1, 2022, to June 30, 2022, a total of 28763 tweets with the keyword GoFood were retrieved from Twitter. The data is processed by the Python programming language utilizing NLTK, Sastrawi for the Indonesian language, Textblob, TF-IDF, Random Forest Classification, and other algorithms. Twitter is a nearly limitless source for classifying text. This algorithm takes roughly five minutes to compute.

Keywords—Classification and analysis of sentiment, Random Forest algorithm, polarity analysis, social media, Twitter.

The Design of Indonesia e-Government (SPBE) Governance in Tangerang City

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SPBE Governance is a framework that ensures the implementation of regulation, direction, and control in the integrated implementation of SPBE. This SPBE Governance aims to ensure that the SPBE elements consist of the National SPBE Master Plan, SPBE Architecture, SPBE Roadmap, SPBE Program Plan and Budget, Business Process, Data and Information, SPBE Infrastructure, SPBE Application, SPBE Security, and SPBE Services in order to achieve the objectives of the SPBE. In the implementation of all the elements of the SPBE, it is necessary to integrate and harmonize the National SPBE and the Regional SPBE, so that in this thesis research will be carried out the Governance of SPBE in Tangerang City. Based on the Decree of the Minister of State Apparatus Empowerment and Bureaucratic Reform of the Republic of Indonesia number 1503 of 2021 concerning "Electronic-Based Government System Evaluation Results at Ministries, Institutions, and Local Governments", the Tangerang City Evaluation Result Report received a Good predicate, by accepting an SPBE Index at 3.40 maturity level. To maintain this condition, even to improve it, some tips are needed, especially in the SPBE Governance domain, namely the SPBE Strategic Planning aspect, the application of Information and Communication Technology aspects, and the SPBE Organizer aspect. From the results of the evaluation, there are several assessments that are categorized as weaknesses, so it is necessary to take holistic steps so that they can be strengthened. Nevertheless, assessments that have been categorized as strengths must still be considered by taking strategic steps so that the implementation of Good Corporate Governance can be realized quickly, accurately, measurably, and sustainably.

GoFood Sentiment Analysis Using Twitter Data, Compared The Performance of The Random Forest Algorithm With That of The Linear Support Vector Classifier (SVC)

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As a generalization, many modern consumers now favor using one of the many available e-commerce websites to do their shopping. Customers can save time and energy by shopping online instead of going out to physical stores because they can do so whenever they like, from wherever they like. Eighty percent of the dataset is used for training, while twenty percent is used for validation. With these default settings for the training data, the random forest algorithm is applied to the classification with 40 n estimators and linear SVC. Accuracy, precision, recall, and the F-measure are just a few of the quantitative metrics we employ to assess the quality of the model. Random forest has a 98.6% successrate, while linear SVC only achieves a success rate of 98%. Training data for a random forest can take up to 5 minutes, but training data for a linear SVC only takes 1 minute. Sentiment analysis performed with machine learning's random forest algorithm and linear SVC on GoFood reviews in Indonesian found that positive sentiment was still higher than negative sentiment as of June 2022.

Keywords : *Association Rules, A Priori Algorithm, and Data Mining*

Mobile Application Based Parking System Control and Monitoring Model with Motor Vehicle Parking

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Land transportation is an important component of the national transportation mode system, which encompasses provinces, cities, and districts, and has a significant impact on the economy and national development. Parking accumulation is necessary for determining the number of automobiles in a parking lot at a given time. Each parking space has a length of 3 meters, a width of 12.5 meters, and an area of 37.5 square meters. Each space can seat 15 motorcycles, an increase of 70 vehicles, or 87.5% above the previous capacity. The parking area can only accommodate 80 motorcycles with an effective area of 120 square meters and 60 square meters for vehicle circulation. By rotating parking spaces, an automatic parking system can increase parking capacity by 87.5% to 150 motorbikes without extending the parking area. Utilizes more optimal power and can park more motorcycles. It is suggested that the automatic parking system application can be enhanced with a variety of new functions.

Keywords : *Parking System, Motorcycle Vehicle, Prototyping, PIECES Analysis*