Room : Conference Room 1

Time : 13.00 – 15.00 WIB

Track : Civil and Enviromental Engineering

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	13.00 - 13.10	020	ESTIMATION OF Estimation Of	Mohd Talha Anees,	VIT University,
			River Bathymetry And Spatial	Mohammad Nishat	Universitas
			Distribution Of Precipitation And	Akhtar, Agustinus	Tarumanagara
			Their Uncertainties	Purna Irawan, Ahmad	
				Kamal Ismail, Mazlan	
				Mohamed, Gajanand	
				Gupta, Ayub Ahmed	
				Janvekar	
2	13.10 -13.20	023	Development of risk estimation	Mahardi Sadono, Hari	Bandung Institute
			model for COVID-19 transmission	Muhammad, Bambang	of Technology
			on passenger handling process in	K. Hadi, Hisar M.	
			airport terminal	Pasaribu, Reyhan F.	
				Rohmana	
3	13.20 - 13.30	015	Optimization of Time and Cost for	Ridwan Usman, Surya	Universitas
			Gondola Installation with the	Perdana, and Elfitria	Indraprasta PGRI
			CPM and PERT Methods in	Wiratmani	
			Cikokol Tangerang		
4	13.30 - 13.40	055	Analysis of Landak Lama Bridge	Nadya Aisah Pratiwi,	Universitas
			Structure Capacity of Warren,	Ahmad Zaki	Muhammadiyah
			Howe, and Pratt Type with		Yogyakarta
			Uniform Type Steel Quality		
5	13.40 - 13.50	016	The Development of Indonesian	Leksmono Suryo	Universitas
			Pedestrian Behaviour	Putranto, and Farah	Tarumanagara
			Questionnaire	Rizkia Ananda	
6	13.50 - 14.00	009	Analysis of Importance Level of	Mega Waty, Hendrik	Universitas
			Change Order for Road	Sulistio	Tarumanagara
			Construction Projects (from the		
			owner's point of view)		
7	14.00 - 14.10	002	Condition evaluation of length	Ni Luh Putu Shinta Eka	Universitas
			Jenderal Sudirman Road Jakarta	Setyarini, Dewi	Tarumanagara
			Using IRAP Method to achieve	Linggasari, Aniek	
			star rating 4	Prihatiningsih, Rayfin	
				Arnando	
8	14.10 - 14.20	005	Concrete Damage Condition	Henny Wiyanto,	Universitas
			Rating Examination to Existing	Reagen Yocom, and	Tarumanagara
			Building	Grace Anasthasia	
				Purnama	
9	14.20 - 14.30	029	Analysis of Holes Effect in the	Sunarjo Leman and	Universitas
			Web towards the Compressive	Alexander Louis	Tarumanagara
			Strength of Cold-Formed with		
			Finite Element Method		

10	14.30 - 14.40	003	Analysis of hollow concrete	Sunarjo Leman,	Universitas
			column with CFRP rebar using	William Supardjo	Tarumanagara
			finite element method		
11	14.40 - 14.50	025	Design Strategies to Solve Flood	Winata Gabriela	Universitas
			Problems Case Study: Green	Geraldine Angel and	Tarumanagara
			Sukamanah Residence	Lianto Fermanto	
12	14.40 - 15.00	099	Study of Side Friction Factors as	Najid, Jamdani M.J	Universitas
			Evaluation Parameter of IHCM'S		Tarumanagara
			Capacity Calculation at Six Lanes		
			Two Directions (Case Study:		
			Gajah Mada Road)		

Room : Conference Room 2

Time : 13.00 – 14.50 WIB

Track : Informatic Engineering & Technologies

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	13.00 - 13.10	012	Information Media for Promotion	Henderi, Giandari Maulani, Didik Setivadi	University of Rabaria
			Video	Rita Wahyuni Arifin.	Ranarja
				Hadi Wibowo	
2	13.10 -13.20	O46	Designing and Building a Web- Based Electronic Service Manuscript Application by Making comparisons the AES and Blowfish Algorithms for Securing Data in The Database	Pandu Bagus Diancaraka, Hermawan Setiawan, Syafira Mardhiyah	Politeknik Siber dan Sandi Negara
3	13.20 - 13.30	073	Study on the Role of Artificial Intelligence System Waste Management into Biomass Briquettes Toward Smart City Governance	N. Tri S. Saptadi, Ansar Suyuti, Amil Ahmad Ilham, Ingrid Nurtanio	University of Atma Jaya Makassar
4	13.30 – 13.40	079	Android-Based Student Attendance Application by Implementing Fingerprint Authentication, Global Positioning System, and One Time Password	Ido Baskoro, and Raden Budiarto Hadiprakoso	Politeknik Siber dan Sandi Negara
5	13.40 – 13.50	076	Text Prepossing for Optimal Acuraccy in Indonesian Sentiment Analysis Using a Deep Learning Model with Wording Embedding	Raden Budiarto Hadiprakoso, Hermawan Setiawan, Ray Novita Yasa, Girinoto	Politeknik Siber dan Sandi Negara
6	13.50 - 14.00	001	Web Based Typing Education Game "Prison Popper" on Website to Improve Typing Skills	Darius Andana Haris, Jeanny Pragantha, Ariel Raysandi, Sacchio Orlando, Carlene Lim	Universitas Tarumanagara
7	14.00 - 14.10	035	Development of an Emotion Detection System of Human Faces from Videos Using Convolutional Neural Network	Lina, Arthur Adhitya Marunduh, and Wasino	Universitas Tarumanagara
8	14.10 - 14.20	043	Product Sales Forecasting Application Using Multiple Linear Regression Method	Vinclint Vanlion Sianata, and Dedi Trisnawarman, Ery Dewayani	Universitas Tarumanagara
9	14.20 – 14.30	038	UI/UX Design on Bridememories Application Using a User Centered Design (UCD)	Mario, Dedi Trisnawarman, Tri Sutrisno	Universitas Tarumanagara

10	14.30 - 14.40	050	Application Design Of Nutrient	Sherlin Alex Sandra,	Universitas
			Film Technique Hydroponic	Dedi Trisnawarman, Tri	Tarumanagara
			Vegetable Planting	Sutrisno	
			Recommendation System Using		
			Simple Additive Weighting		
			Method		
11	14.40 - 14.50	036	Development of Sales Application	Nelson Antonio,	Universitas
			for Angel Plast Company	Wasino, Tri Sutrisno	Tarumanagara
12	14.50 - 15.00	115	Intelligence Assessment Model	Bagus Mulyawan,	Universitas
			For Student Performance in	Haryanto Prabowo,	Tarumanagara
			Higher Education	Harco Leslie Hendric	
				Spits Warnars, Iman H.	
				Kartowisastro	

Room : Conference Room 3

Time : 13.00 – 14.50 WIB

Track : Informatic Engineering & Technologies

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	13.00 - 13.10	056	Chatbot's Potential in Science, Technology, Engineering, and Mathematics (STEM) Education: A Systematic Review	Ann Margareth, Basuki Wibawa, and Pramis Wibawa	Universitas Negeri Jakarta
2	13.10 -13.20	057	A Decade of MOOC In Education: A Systematic Review	Marsofiyati, Basuki WIbawa, and Pramis Wibawa	University Negeri Jakarta
3	13.20 – 13.30	058	The Internet of Things: An Institutional Repository Organization. (A Case Study of The Library Service in Labschool Cibubur)	Ukim Komarudin, Basuki Wibawa, Pramis WIbawa	Universitas Negeri Jakarta
4	13.30 - 13.40	059	Theoritical Review Of The Implementation Of Experimental Learning Through Case-Based Learning In The Character Development Training Program For Civil Servants In The Ministry Of Transportation	Nurmansyah, Basuki Wibawa, and Pramis Wibawa	Universitas Negeri Jakarta
5	13.40 - 13.50	060	Big Data's Contribution to Education: A Systematic Review	Stephanus Turibus Rahmat, Basuki Wibawa, and Pramis Wibawa	Universitas Negeri Jakarta
6	13.50 – 14.00	062	Classification Analysis On Hoax News of Covid-19 Using K-Nearest Neighbor Method	Adzie Fatharoni, Dedi Trisnawarman, Tri Sutrisno	Universitas Tarumanagara
7	14.00 - 14.10	065	Digital Generation and How They Disclose Themselves In Social Media	Wulan Purnama Sari, Lydia Irena, Suzy Azeharie	Universitas Tarumanagara
8	14.10 - 14.20	039	House For Rental Application Design	Eliezer, Wasino, and Novario Jaya Perdana	Universitas Tarumanagara
9	14.20 - 14.30	077	Using Recurrent Neural Networks for Tweet Buzzer Detection	Dedi Trisnawarman, Muhammad Choirul Imam, Hugeng	Universitas Tarumanagara
10	14.30 - 14.40	047	Cryptocurrencies Portfolio: Finding The Best Diversification Among Popular Cryptocurrencies	Claudia Gita Hapsari, Margarhet Anggriani, Ignatius Roni Setyawan	Universitas Tarumanagara

11	14.40 - 14.50	111	The Impact of Cybersecurity	Chit Han Kok, Ai Ping	Universitas Taruma
			Management Practices on	Teoh	Universiti Sains
			Organizational Performance:		Malaysia nagara
			Organizational Agility as Mediator		
12	14.50 - 15.00	117	Application of Problem-Based	Hartini Laswandi,	Universitas
			Learning Model to Improve	Basuki Wibawa,	Tarumanagara
			Critical Thinking Skills in Interior	Robinson Situmorang	
			Design		

Room : Conference Room 4

Time : 13.00 – 15.00 WIB

Track : Materials Sciences and Engineering

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	13.00 - 13.10	007	Product Quality Analysis: An Empirical Aluminium Window Product Customer Satisfaction Survey	Syaiful Anwar, Humiras Hardi Purba, Choesnul Jaqin	Mercu Buana University
2	13.10 -13.20	011	Preliminary Study of Developing New Material Based on Blood Clam Shells	Jonbi, Satria Resdiana N, Nuryani Tinumbia, W Meutia, Prima Ranna, Reza Aditya H. P, and Lodyrianto Oktapriyadi	University of Pancasila
3	13.20 – 13.30	017	A new approach of study towards environmental impact assessment for sustainable product design	Amit Talli, Agustinus Purna Irawan, Mazlan Mohamed, Manoj Kumar R, Tapan K Mahanta, Bhisham Kumar Dhurendher, Ayub Ahmed Janvekar	KLE Technological University, Universitas Tarumanagara, VIT University Malaysia Kelantan
4	13.30 – 13.40	021	Experimental Experimental investigation of sound absorption performance of sustainable porous material based on Date Palm Leaf Fibers	Tapan K. Mahanta, Manoj Kumar R, Bhisham Kumar Dhurandher, Ahmed A. Hussien, Pramodkumar S Kataraki, Harto Tanujaya, Ayub Ahmed Janvekar	VIT University
5	13.40 - 13.50	022	Smart Furniture Perspectives on Product Design Engineering and Industrial Engineering	Khristian Edi Nugroho Soebandrija and Christopher David Sasabone	Bina Nusantara University
6	13.50 – 14.00	030	Numerical Investigation of Heat Transfer Enhancement with Gold- base Hybrid Nanofluids in Jet Impingement	Ooi Jen Wai, Prem Gunnasegaran, Hasril Hasini	Universiti Tenaga Nasional
7	14.00 - 14.10	031	Numerical Investigation of Heat Transfer on Geometry Parameters in Swirl Flow Jet Impingment	Ooi Jen Wai, Prem Gunnasegaran, Hasril Hasini	Universiti Tenaga Nasional
8	14.10 - 14.20	041	A Review of Eucalyptus Growth Modeling for Forest Resource Management	Nurhayati Sembiring, Humala Lodewijk Napitupulu, Meilita Tryana Sembiring,	Universitas Sumatera Utara

				Aulia Ishak Sipahutar,	
				Lydia Yesica Sihombing	
9	14.20 - 14.30	045	Simulation non-toxic thin film	Ibn Tofail University	Assiya Haddout,
			solar cell with double buffer		Mounir Fahoume,
			layers		Abderrahim Raidou
					and Mohamed
					Lharch
10	14.30 - 14.40	097	Financial and Nonfinancial	Erwin Rezasyah,	Bina Nusantara
			Engineering vis-à-vis State Owned	Khristian Edi Nugroho	University
			Enterprise's Business	SOEBANDRIJA, Sabila	
			Perspectives: Emergency Plan on	Nur AMALINA	
			Household Blackout		
11	14.40 - 14.50	091	The Concept of Technology in	Amanda Ineza,	Universitas
			Revitalizing Santa's 'Traditional'	Fermanto Lianto	Tarumanagara
			Market at Jakarta during the		
			Covid-19 Pandemic		
12	14.50 - 15.00	090	Development of T8/5 Subroutine	Richard A.M	Universitas HKBP
			on C22 Material In Gmaw	Napitupulu, Charles SP	Nommensen,
			Welding Using Msc Marc	Manurung, Parulian	Universitas
				Siagian, Septiani	Tarumanagara
				Silitonga, S. Sahat, Joel	
				Panjaitan, Sofyan A.	
				Syahputra, I Wayan	
				Sukania	

Room : Conference Room 5

Time : 13.00 – 15.00 WIB

Track : Mechanical Engineering and Technology

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	13.00 - 13.10	008	Flood Pump Performance	Salmon Tampubolon,	Mercu Buana
			DMAIC Method	Choesnul Jagin	University
				checsharsaqin	
2	13.10 -13.20	010	Analysis Of Quality Control And	Ojakma Sihar Panaili	Mercu Buana
			Improvement Using D-M-A-I-C	Tumanggor, Humiras	University
			Industry	lagin	
3	13.20 - 13.30	013	Lean Manufacturing Approach	Jakfat Haekal, and	Universiti Tun
_			And Promodel Simulation In Pipe	Ibrahim Masood	Hussein Onn
			Center Cross Production		Malaysia
			Processes (Case Study: Metal		
			Stamping And Welding		
			Manufacturer Company For		
4	13 30 - 13 40	014	Industrial Ergonomic Work	Heri Setiawan and	Liniversitas Katolik
-	15.50 15.40	014	Design to Improve The Employee	Micheline Rinamurti	Musi Charitas
			Quality of Life and Productivity at		
			PT Cita Rasa Palembang		
5	13.40 - 13.50	018	Simulation of 3-Wires and 4-	Rashmi P, Hema J,	VIT University
			Wires UPQC to improve the	Manoj Kumar, Ahmed	
			quality of power under balanced	A. Hussien,	
			and unbalanced nonlinear load	Pramodkumar S	
			conditions	Mulvawan Avuh	
				Ahmed Janvekar	
6	13.50 - 14.00	019	A Study on Modelling and	Amit Talli, Hugeng	VIT University
			Analysis of 6-DOF Industrial	Hugeng, Ahmed A.	
			Robot using ADAMS	Hussien, Pramodkumar	
				S Kataraki, Mazlan	
				Mohamed, Isam	
				Qasem, Ayub Anmed	
7	14 00 - 14 10	024	Ontimization of Equipment:	Mochamad Fikri Fauzi	Bina Nusantara
,	14.00 14.10	024	Empirical Study in Oil and Gas	Dendhy Indra Wijava.	University
			Industry Companies using Overall	Khristian Edi Nugroho	/
			Equipment Effectiveness (OEE)	Soebandrija, Sartika	
			Method	Rini	
8	14.10 - 14.20	033	Design and Analysis of Modified	Yuvita Dian Safitri, Ali	Remote Sensing
			Single Rectangular Peripheral Slit	Syahputra Nasution,	Technology and
			C-Band Microstrip Antenna for	Hiuayat Gunawan, Bayu Satya Adhitama	Data Center, LAPAN
6 7 8	13.50 - 14.00 14.00 - 14.10 14.10 - 14.20	019 024 033	conditions A Study on Modelling and Analysis of 6-DOF Industrial Robot using ADAMS Optimization of Equipment: Empirical Study in Oil and Gas Industry Companies using Overall Equipment Effectiveness (OEE) Method Design and Analysis of Modified Single Rectangular Peripheral Slit C-Band Microstrip Antenna for	Kataraki, Bagus Mulyawan, Ayub Ahmed Janvekar Amit Talli, Hugeng Hugeng, Ahmed A. Hussien, Pramodkumar S Kataraki, Mazlan Mohamed, Isam Qasem, Ayub Ahmed Janvekar Mochamad Fikri Fauzi, Dendhy Indra Wijaya, Khristian Edi Nugroho Soebandrija, Sartika Rini Yuvita Dian Safitri, Ali Syahputra Nasution, Hidayat Gunawan, Bayu Satya Adhitama,	VIT University Bina Nusantara University Remote Sensing Technology and Data Center, LAPAN

			Receiving Himawari-8 Remote	Karunika Diwyacitta,	
			Sensing Satellite Data	Sugiyanto, Arif Hidayat	
9	14.20 - 14.30	037	Simulation of Feature Based	A. Kasmin, I. Masood,	Universiti Tun
			Input Representation: A Case	A.M. Ahmad, M.I.A.	Hussein Onn
			Study on Short Production Run	Abdul Razak Ramesh,	Malaysia
			SPC Using Neural Network	and H. Hehsan	
10	14.30 - 14.40	107	Composite Wing Structure	Muhammad Kusni,	Bandung Institute
			Optimization With Static And	Martina Widiramdhani,	of Technology (ITB)
			Buckling Constraints Using MSC-	and Bambang K. Hadi	
			Nastran		
11	14.40 - 14.50	108	Decision Making using Simple	Bhanu Chander Balusa,	VIT University,
			Additive Weighting and Weighted	Venkatraman, Ayub	Universitas
			Product Method for Selection of	Ahmed Janvekar,	Tarumanagara
			Underground Mining Method	Manoj Kumar R, Tapan	
				K Mahanta, Steven	
				Darmawan	
12	14.50 - 15.00	072	Waste Water Pipe Flow Water	Sobron Lubis, Daniel	Universitas
			Turbine as a New Renewable	Joachim,	Tarumanagara
			Energy Power Plant	Fathurrahman, Marco	
				Sachio	

Room : Conference Room 1

Time : 15.20 – 17.10 WIB

Track : Civil and Enviromental Engineering

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	15.20 – 15.30	048	Development of Work Instruction for Dominant Risk Factors in Work Accidents in Construction Building Projects	Putri Arumsari, and Cynthia Devi Silfanus	Bina Nusantara University
2	15.30 - 15.40	004	Traffic Violations at the Contra- Flow Bus Lane Facility	Budi Yulianto, Setiono, and Sofa Marwoto	Universitas Sebelas Maret
3	15.40 - 15.50	083	Analysis On Sketches For Research In Humanities and Architectural Engineering	M. Nashir Setiawan, Hartini	Universitas Tarumanagara
4	15.50 – 16.00	100	The Design of A Wireless Tyre Pressure Monitoring System to Promote Ride Safety	Satria Adi Muhammad, Harianto, Yosefine	Dinamika University
5	16.00 - 16.10	110	Predicting Green Information Technology Implementation: Evidence from Malaysia	Ameetnash Ram, Ai Ping Teoh, Keni	Universiti Sains Malaysia, Universitas Tarumanagara
6	16.10 - 16.20	028	Rainwater Harvesting Potential Analysis on Cinta Kasih Buddha Tzu Chi 1 Cengkareng Flats	Vittorio Kurniawan, Widodo Kushartomo, Radot Chandra Gultom	Universitas Tarumanagara
7	16.20 - 16.30	032	The Main Causes of Waste Materials at Warehouse Construction Project	Valencia Livia and Mega Waty	Universitas Tarumanagara
8	16.30 - 16.40	049	Schedule Optimization of Construction Project by Calculating Float Loss Cost	Nicklaus Ardahsasta and Onnyxiforus Gondokusumo	Universitas Tarumanagara
9	16.40 – 16.50	051	Neo Vernacular in Betawi Community in the Digital Technology Era	Claresta Felicia, Rudy T	Universitas Tarumanagara
10	16.50 – 17.00	052	Structural System Planning in Buildings with the Concept of Metaphor Architecture	Natasha Kurnia Tishani, Rudy Trisno	Universitas Tarumanagara
11	17.00 - 17.10	026	Optimization of Natural Light Accessibility in Densely Populated Areas. Case Study: Settlements RW 06 and 07, Kelurahan Kartini	Kevin Sukhayanto, Fermanto Lianto	Universitas Tarumanagara

Room : Conference Room 2

Time : 15.20 – 16.40 WIB

Track : Informatic Engineering & Technologies

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	15.20 - 15.30	081	Augmented Reality First Person	Dwiky Anderson,	Universitas
			Shooter Game "Apocalyptic	Jeanny	Tarumanagara
			Reality" for Android	Pragantha, Darius	
				Andana Haris	
2	15.30 - 15.40	082	2D Arcade Games"BagouF" On	Derrick Ivan, Jeanny	Universitas
			The Web Platform	Pragantha,	Tarumanagara
				Darius Andana Haris	
3	15.40 - 15.50	084	A Visual Novel Platformer Game	Christabel Larissa	Universitas
			"The Little Red Riding Hood" for	Tanbri,	Tarumanagara
			Android Devices	Jeanny Pragantha,	
				Darius	
				Andana Haris	
4	15.50 - 16.00	087	Sustainability Mining Tecnology	Ahmad Redi, Kosuke	Universitas
			In Indonesia Supported From	Mizuno, Tommy	Indonesia
			Regulatory Side	Hendra Purwaka	
5	16.00 - 16.10	101	Developing A Sales System for Ko	Ronny Sutanto,	Universitas
			Ginhan's Special Chicken Porridge	Wasino, Jap Tji Beng	Tarumanagara
			with Point of Sale System		
6	16.10 - 16.20	104	An Application Design for Drop-	Jessica Putri Djapar,	Universitas
			shipping's Supplier Selection by	Desi Arisandi, Jap Tji	Tarumanagara
			Utilizing Simple Additive	Beng	
			Weighting based Decision		
			Support System		
7	16.20 – 16.30	105	Automatic Door Machine	Jonathan Gabriel, Ery	Universitas
			Selection Decision Support	Dewayani, Jap Tji Beng	Tarumanagara
			System Using Web-Based Simple		
			Additive Weighting Method		
8	16.30 - 16.40	109	The Merger of Topsis and Saw	Wilbert Clarence, Desi	Universitas
			Methods as A Web-Based Hotel	Arisandi, Tri Sutrisno	Tarumanagara
			Selection Support System in		
			Jakarta		
9	16.40 - 16.50	114	Typographical Error Detection	Viny Christanti M,	Universitas
			and Correction With Recurrent	Hansen Widjanarko,	Tarumanagara
			Neural Network Method	Janson Hendryli	

Room : Conference Room 3

Time : 15.20 – 17.00 WIB

Track : Mechanical Engineering and Technology

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	15.20 – 15.30	075	IoT-Based Smart Garage Design With Solar Power	Hugeng Hugeng, Faris Luthfi Irawandi, Yohanes Calvinus	Universitas Tarumanagara
2	15.30 – 15.40	086	The Implementation of Cash Flows Optimization with Singularity Functions and Simulated Annealing for a Construction Project in Jakarta	Canfield Hubert and Onnyxiforus Gondokusumo	Universitas Tarumanagara
3	15.40 - 15.50	088	Redesign of Facility Layout with Systematic Layout Planning, Pairwise Exchange and Lean Manufacturing Method at PT. Adhi Chandra Jaya	Lina Gozali, I Wayan Sukania, Andrean	Universitas Tarumanagara
4	15.50 – 16.00	089	Proposed Improvement on Work Station Based on Ergonomic Analysis (Case Study of Eka Helmet Shop Tangerang)	Ribka Giovanni, Lamto Widodo, and I Wayan Sukania	Universitas Tarumanagara
5	16.00 - 16.10	092	Automated Pet Feeder for Cats	Kevin, Suraidi Suraidi, Wahidin Wahab	Universitas Tarumanagara
6	16.10 – 16.20	093	Design and Realization of a Microcontroller-Based Automatic Fire Extinguishing System Prototype in a 2-room House	Dani Mustofa, Suraidi, Hugeng	Universitas Tarumanagara
7	16.20 – 16.30	094	Design of Automatic Hand Washing System With Infrared Sensor Based on Arduino	Joepiter Djohan, Suraidi, Joni	Universitas Tarumanagara
8	16.30 – 16.40	095	Design of Temperature Checking and Mask Wear Detector Automated Verification System	Agung Cahyadi, Suraidi, Hadian Satria Utama	Universitas Tarumanagara
9	16.40 – 16.50	096	Design of 1000 VA Capacity Uninterruptable Power Supply (UPS) For Server Room at Film Sensor Institutions of The Republic of Indonesia	Bayu Kirana Erlangga, Joni Fat, Suraidi	Universitas Tarumanagara

10	16.50 - 17.00	098	Quadcopter Model "H" using	Ikhsan Hidayatullah,	Universitas
			First-Person View Camera and 2,4	Meirista Wulandari,	Tarumanagara
			GHz Radio Controller	Hadian Satria Utama	

Room : Conference Room 4

Time : 15.20 – 17.20 WIB

Track : Materials Sciences and Engineering

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	15.20 – 15.30	085	Heat Transfer Properties of Hybrid Foam Panel Composite	Jofrishal Jofrishal, M Adlim, Elin Yusibani, H Akhyar	Universitas Syiah Kuala
2	15.30 – 15.40	063	Design and Analysis of Single Circular Microstrip Antena for Receiving Himawari-8 Remote Sensing Satellite Data	Karunika Diwyacitta, Ali Syahputra Nasution, Hidayat Gunawan, Bayu Satya Adhitama, Yuvita Dian Safitri, Sugiyanto, Arif Hidayat	Remote Sensing Technology and Data Center, LAPAN
3	15.40 - 15.50	071	A Comparative Study of Conventional Solder Bump and Copper Pillar Bump in Flip Chip Technology using Computational Fluid Dynamics	Lee Jing Rou, Mohd Sharizal Abdul Aziz, M.H.H. Ishak, E. Siahaan	Universiti Sains Malaysia dan Untar
4	15.50 – 16.00	102	Effect of Inventory and Facilities On Service Quality: A Case Study In A Shaira Hotel In Indonesia	Kirana Khansa Chikaputri, Qurtubi, Wahyudhi Sutrisno, Vembri Noor Helia, Roaida Yanti	Universitas Islam Indonesia
5	16.00 - 16.10	103	Research in Halal Certification: A Literature Review	Qurtubi, Elisa Kusrini, Vembri Noor Helia, Wahyudhi Sutrisno, Roaida Yanti	Universitas Islam Indonesia
6	16.10 – 16.20	112	Utilization of Artifical Bioretention as a Water Filtration for River Water Quality Control	Endah Lestari, Eko Sulistiyo, Yulisya Zuriatni	Institute of Technology, PLN
7	16.20 - 16.30	054	Ultraviolet C Light Controller System Based on Android Smartphone	Carel Andersent, Endah Setyaningsih, Yohanes Calvinus	Universitas Tarumanagara
8	16.30 - 16.40	064	Design of Internet-Based Home Lighting System	Denny Pinasthiko Prakoso, Meirista Wulandari, Suraidi	Universitas Tarumanagara
9	16.40 - 16.50	080	Temperature, Humidity, Voltage and Current Data Logger for LED	Joni Fat, Endah Setyaningsih, Yohanes Calvinus,	Universitas Tarumanagara

			Street Light Luminaire	Vinsen Reinard, Andrew Hendisutio	
10	16.50 - 17.00	078	Analysis of Rectangular Patch Microstrip Antenna at 2.4 GHz Frequency for Wireless LAN Applications	Joni Fat, Juan Kenny Nagata	Universitas Tarumanagara
11	17.00 - 17.10	106	Production Planning, Capasity, and Inventory Control Using The ARIMA Forecasting Method (Case Study: MSMEs Sintali Sport Community)	Jayanti Santa Hoky, I Wayan Sukania, Lamto Widodo	Universitas Tarumanagara
12	17.10 - 17.20	053	Design of Automatic Shoebox Sorter Based on Color	Inoki Chandra, Endah Setyaningsih, Wahidin Wahab	Universitas Tarumanagara

Room : Conference Room 5

Time : 15.20 – 17.00 WIB

Track : Mechanical Engineering and Technology

NO	SCHEDULE	ID	PAPER TITLE	AUTHOR	INSTITUTION
1	15.20 – 15.30	040	The GPT Tool for An In-Depth Analysis on Hawkeye Trojan Incident	Setyo Adi Nugroho and Arif Rahman Hakim	Politeknik Siber dan Sandi Negara
2	15.30 – 15.40	042	Study of Hydrological Model for Water Reliability at Industrial and Residential Area in The Upper Citarum River Basin, Indonesia	Christian Cahyono, Juliastuti, Yureana Wijayanti, Any Juliani	Bina Nusantara University
3	15.40 - 15.50	061	3D Printing & Augmented Reality in Sciences Education	Ego Widoro, Imam Mahir, Basuki Wibawa, and Pramis Wibawa	Universitas Negeri Jakarta
4	15.50 – 16.00	070	Microstructure Analysis of S 45 C Welding Nugget in The Spot- Welding Process	M. Sobron, Sofyan Djamil, Rosehan, Alifya Putri Askolani, S. Erlely, Silvi Ariyanti	Universitas Tarumanagara
5	16.00 - 16.10	066	Design of Automatic Trolley based on Microcontroller	Hugeng, Ivan Darrius, Meirista Wulandari	Universitas Tarumanagara
6	16.10 - 16.20	067	Factorial Design Application to Improve Physical Characteristics of 3d Printer Products	Lithrone Laricha Salomon, Carla Olivia Doaly, Wilson Kosasih	Universitas Tarumanagara
7	16.20 - 16.30	068	Study of The Effect of Variation Of Zirconium Content and Ageing Through Precipitation Hardening Process on Mechanical Properties of Aluminium Alloys (Al-Zr)	Arron Christopher, Agustinus Purna Irawan, Erwin Siahaan, M. Z. Abdullah	Universitas Tarumanagara
8	16.30 – 16.40	069	Development of Wind Turbine Blade Using Bamboo Fiber Composite Material	Yohanes Masaru Wibawa, Agustinus Purna Irawan, Sofyan Djamil3, M. Z. Abdullah	Universitas Tarumanagara
9	16.40 – 16.50	044	Design and Development of Pokayoke Sensor Mechanism Using Multi DOF Motion for Checking Circlip Installation onto Output Shaft: Automatic Assembly Line for 4W Manual Transmission at PT. Matahari Megah	Agus Halim, and Kevin Raynaldo	Universitas Tarumanagara
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11	17.00 - 17.10	116	Tensile Properties of Hybrid	Januar Parlaungan	Universiti Malaysia
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				Irawan, Mohammad	Politeknik Negeri
				Hazim Mohamad	Lhokseumawe,
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				Rihayat, Agung Efriyo	Semarang
				Hadi, Deni Fajar	
				Fitriyana	







Analysis of Rectangular Patch Microstrip Antenna at 2.4 GHz Frequency for Wireless LAN Applications

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Abstract. Wireless communication systems require an antenna that can be used to transmit data to and from the air, so that electromagnetic waves can be sent and received effectively. In this analysis, the antenna used is a microstrip antenna. A microstrip antenna is an antenna which consists of a very thin radiation element (conductor) whose position is placed on the ground plane, where between the patch and the ground plane is separated by a substrate. Microstrip antennas have many beneficial aspects, such as low cost, ease of modeling and fabrication. It also could provide a better performance. This microstrip antenna is very suitable for data communication devices via Wireless LAN which continues to grow along with the use of Internet access. The wireless LAN technologies recommended by IEEE 802.11 are: IEEE 802.11 standard (2.4 GHz at 2 Mbps), IEEE 802.11a (5 GHz at 5.4 Mbps) standard, IEEE 802.11b standard (2.4 - 2.5) , and the IEEE 802.11g Standard (2.4 GHz at 54 Mbps). In addition, microstrip antennas can also be designed and analyzed with a number of software tools. In this study, the antenna to be designed is a rectangular microstrip patch antenna. The type of substrate used is FR4. The antenna is designed to work at a frequency of 2.4 GHz, with a patch dimension of 38 mm x 29 mm. The patch microstrip antenna designed and analyzed is a rectangular patch with parameters such as Return Loss, Voltage Standing Wave Ratio (VSWR), and Input Impedance. The software used in this analysis is AWR Microwave Office software. From the simulation results, it has a gain value of 5.53 dB, while the VSWR value is 1.2, and the return loss value is -20.80 dB. With this results, it is conluded that the patch antenna could be used to receive the intended frequency.

INTRODUCTION

In this day and age, the advancement of technology is happening very rapidly. Wireless communication systems (wireless) require an antenna that can be used to transmit data to and from the air, so that electromagnetic waves can be sent and received effectively. Micro strip antennas (MSA) were first introduced in the 1950s. However, Printed Circuit Board (PCB) technology was then introduced in the 1970s. Therefore, since then MSA has become a very common antenna which has a wide range of applications due to its advantages of light weight, low profile, low cost, planar configuration and much more. MSA is widely used in Radio-Frequency Identification (RFID), Radio broadcasts, cellular systems, Global Positioning Systems (GPS), satellite communications, television systems, multiple input multiple outputs (MIMO) [1], vehicle collision avoidance systems, surveillance systems, direction determination, radar systems, remote sensing, missile guidance, and so on.

With the rapid development of technology. Wireless communication systems require antenna that can be used to process data transmission to and from the air, so that electromagnetic waves can be sent and received effectively [2]. This is where the antenna is used is a microstrip antenna. Microstrip antenna is an antenna that consists of radiation

elements very thin (conductor) placed in the ground plane, which is between the patch and ground plane separated by the substrate [3]. Microstrip antennas have many beneficial properties such as low cost, ease of modeling and fabrication as well as being able to provide high performance better [4]. It is suitable for data communication devices via wireless LAN that continuously increases with the use of internet access. Wireless LAN technology that recommended by IEEE 802.11 are: IEEE 802.11 standard (2.4 GHz at 2 Mbps), IEEE 802.11a (5 GHz with 5.4 Mbps) standard, IEEE 802.11b standard (2.4 - 2.5), and IEEE 802.11g Standard (2.4 GHz at 54 Mbps). In addition, microstrip antennas can be designed and analyzed with a number of software tools [5]. Microstrip antenna is an antenna consisting of very thin radiation elements (conductors) placed on the ground plane, patch and ground planes separated by the substrate. Microstrip antennas have many advantages such as low cost low cost, ease of modeling and fabrication, and able to provide more performance good [6]. It is very suitable for data communication devices via wireless LAN that continuously increase. IEEE 802.11 recommended wireless LAN technology.

METHODOLOGY

This study is conducted using AWR Microwave Office Software. This is a software which is commonly used in antenna simulation, especially for MSA. The purpose of this study is to find a suitable dimension for MSA patch for the intended frequency, i.e. 2.4 GHz. The dimension of the patch is calculated using fomulas. Then by using error and trial method, the patch is simulated.

Material

The material which is used in this study is FR-4 with a dielectric constant (ε r) = 4.3; height (h) = 1.6 mm; tan = 0.0265 [4].

Equation

The patch shape of the designed antenna is rectangular. Thus it is necessary to do calculation of Width (W) and Length (L). To calculate can use the formula below.

$$W = \frac{c}{2f_r} \sqrt{\frac{2}{\varepsilon_r + 1}} \tag{1}$$

Equation (1) is used to calculate the width of the rectangular MSA. Symbol c is equal to the speed of light which is $3 \times 10^8 km/h$.

$$\varepsilon_{reff} = \frac{\varepsilon_r + 1}{2} + \frac{\varepsilon_r - 1}{2} \left[1 + 12 \frac{h}{w} \right]^{-\frac{1}{2}}$$
(2)

$$\Delta L = 0.412h \frac{\left(\varepsilon_{reff} + 0.3\right)\left(\frac{w}{h} + 0.264\right)}{\left(\varepsilon_{reff} - 0.258\right)\left(\frac{w}{h} + 0.8\right)}$$
(3)

$$L = \frac{c}{2f_r \sqrt{\varepsilon_{reff}}} - 2\Delta L \tag{4}$$

Equation (2), (3) and (4) are used to calculate MSA lenght (L). The results of the calculation of length and width can be seen in Table 1 below. In Table 1 there are two width and length values, these values are the values from the optimization results so that the results of Return Loss, Voltage Standing Wave Ratio (VSWR), and Input Impedance are more optimal. Figure 1 shows the MSA patch that used in this simulation. This MSA is designed for the ISM band frequency. Hence, the simulation frequency is between 2 and 2.8 GHz with 50MHz step.

TABLE 1. MSA Patch Dimension

Comment	Width, W (mm)	Length, L (mm)
Before Optimation	38.37	29.76
After Optimation	38.3	28.7
Coupler	3.1	19.1



FIGURE 1. MSA Patch

RESULTS AND DISCUSSION

Return Loss (RL)

Return Loss is the ratio value of the reflected wave amplitude to the transmitted amplitude. The value of a good Return Loss is below -10 dB. From the simulation results, the most optimum return loss value at a frequency of 2.4 GHz is -27.44 dB. The Return Loss value of the FR-4 material is acceptable because the value is less than -10dB, which can be seen in Figure 2.

VSWR

VSWR is a comparison value between the maximum value and the minimum value of the standing wave amplitude in the transmission line. The VSWR value indicates the presence or absence of reflection in the transmission line. The ideal value of VSWR is 1, which means the impedance in the transmission line is perfect or there is no reflection in the transmission line. The VSWR value for FR-4 material is acceptable because the value is < 2. In the simulation, the VSWR value is 1.089. This value indicates that the antenna performance is quite good, which can be seen in Figure 3.



FIGURE 2. Return Loss



FIGURE 3. VSWR

Input Impedance (Zin)

The value of Input Impedance (Zin) functions so that the impedance at the end of the load in the transmission line can work perfectly or no reflection occurs. The characteristic impedance (Zo) used in this article is 50Ω . Therefore, the value of the input impedance should be equal to the value of the characteristic impedance (Zo). The ideal value of the input impedance is equal to 1. The input impedance value that is close to 1 can still be tolerated. The results of the input impedance measurement for each material are presented in the Smith Chart and can be seen in Figure 4. The value of the input impedance is written in the form of a complex value, material FR-4 produces an input impedance of 0.950522-j0.0664293.



FIGURE 4. Input Impedance

CONCLUSION

From the results and discussions that have been carried out, it is concluded that the rectangular patch microstrip antenna using FR-4 material has a return loss value of -27.44 dB. The VSWR value of the microstrip antenna is 1.089, and the input impedance is 0.950522-j0.0664293. These values indicate that the MSA could be used to received ISM band frequency.

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