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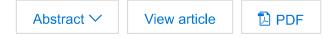
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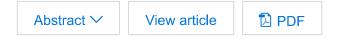
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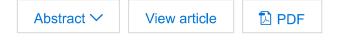
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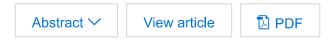
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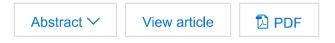
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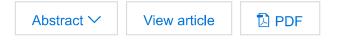
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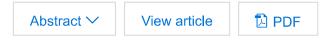
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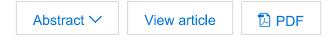
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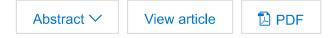
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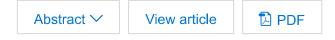
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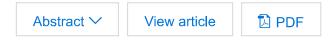
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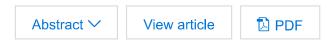
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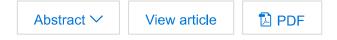
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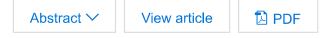
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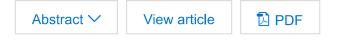
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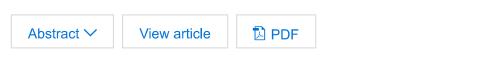
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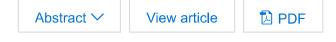
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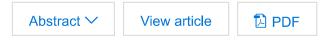
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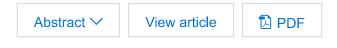
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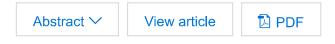
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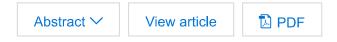
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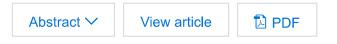
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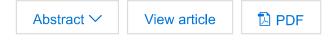
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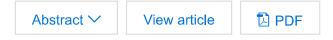
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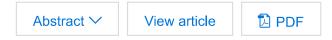
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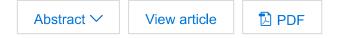
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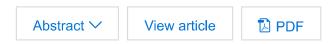
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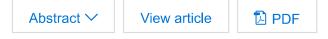
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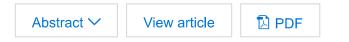
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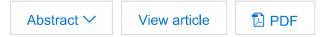
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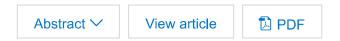
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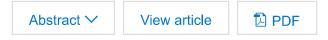
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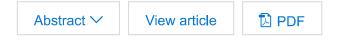
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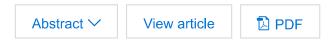
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Customer switching behaviour factors analysis in airline industry of low cost carrier and full service carrier

Aries Susanty; Nia Budi Puspitasari; Bariqi Rahadyan Putera

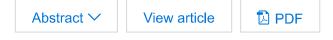
AIP Conference Proceedings 2217, 030047 (2020) doi: https://doi.org/10.1063/5.0000815



Modeling the best route and truck capacity for delivering ice cream product: Vehicle routing problem approach and estimating expected interruption cost approach

Heryanti Ika Puspitasari; Aries Susanty; Singgih Saptadi

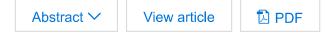
AIP Conference Proceedings 2217, 030048 (2020) doi: https://doi.org/10.1063/5.0000654



Evaluate the performance and design of a low frequency vibration calibrator system

Fajar Budi Utomo; Bondan Dwisetyo; Chery Chaen Putri; Maharani Ratna Palupi

AIP Conference Proceedings 2217, 030049 (2020) doi: https://doi.org/10.1063/5.0000673



A conceptual framework on the design of intelligent supply chain for natural fibre agroindustry

Nunung Nurhasanah; Machfud; Djumali Mangunwidjaja; Muhammad Romli AIP Conference Proceedings 2217, 030050 (2020) doi: https://doi.org/10.1063/5.0000742



The effect of pressure and temperature on biodiesel production using castor oil

Dandun Mahesa Prabowoputra; Agus Sartomo; Suyitno

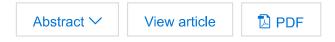
AIP Conference Proceedings 2217, 030051 (2020) doi: https://doi.org/10.1063/5.0000504



Factorial design of the effect of reaction temperature and reaction time on biodiesel production

Agus Sartomo; Dandun Mahesa Prabowoputra; Suyitno

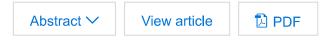
AIP Conference Proceedings 2217, 030052 (2020) doi: https://doi.org/10.1063/5.0000505



The preliminary study on functional food standardization to ensure the quality of green product: Innovation product case study

Ellia Kristiningrum; Danar Agus Susanto; Putty Anggraeni; Muhammad Haekal Habibie

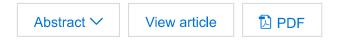
AIP Conference Proceedings 2217, 030053 (2020) doi: https://doi.org/10.1063/5.0000618



Preliminary study of activated carbon as support catalyst for low cost methanol production from biomass syngas

Fusia Mirda Yanti; Asmi Rima Juwita; Novio Valentino; S. D. Sumbogo Murti; Astri Pertiwi; Nurdiah Rahmawati; Tyas Puspita Rini; Atti Sholihah; Joni Prasetyo; Hens Saputra; Shiori Iguchi; Reiji Noda

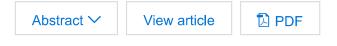
AIP Conference Proceedings 2217, 030054 (2020) doi: https://doi.org/10.1063/5.0000869



Ergonomic principles in traffic signs comprehension: A literature review

Farid Ishartomo; Bambang Suhardi; Jafri Mohd Rohani

AIP Conference Proceedings 2217, 030055 (2020) doi: https://doi.org/10.1063/5.0000701



Implementation of life cycle assessment (ISO 14040) on SME fish nugget producer in Bandung

Ajun Tri Setyoko; Ellia Kristiningrum

AIP Conference Proceedings 2217, 030056 (2020) doi: https://doi.org/10.1063/5.0000630



Designing to improvements of posture and the working environment of employees

Abel Kristanto Widodo; Singgih Saptadi

AIP Conference Proceedings 2217, 030057 (2020) doi: https://doi.org/10.1063/5.0000584



Consumer perception analysis of electric car vehicle in Indonesia

Martha Widhi Dela Utami; Adella Tasya Haryanto; Wahyudi Sutopo

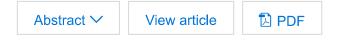
AIP Conference Proceedings 2217, 030058 (2020) doi: https://doi.org/10.1063/5.0000541



Technology assessment of liquid waste in rubber factory using analytical hierarchy process and promethee methods

Aulia Ishak; Vina Akmaliah

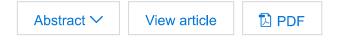
AIP Conference Proceedings 2217, 030059 (2020) doi: https://doi.org/10.1063/5.0000711



Optimal energy control of DC motor using fuzzy logic controller to supervise PID control

Hari Maghfiroh; Ryoki Martfuadi; Muhammad Hamka Ibrahim

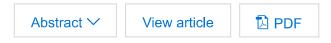
AIP Conference Proceedings 2217, 030060 (2020) doi: https://doi.org/10.1063/5.0000617



Life cycle energy and environmental impact assessment of CRIMSON sand casting on intake manifold production process

Salman Alfarisi; Wahyudi Sutopo

AIP Conference Proceedings 2217, 030061 (2020) doi: https://doi.org/10.1063/5.0000498



Markov chain analysis to identify the market share prediction of new technology: A case study of electric conversion motorcycle in Surakarta, Indonesia

Maria Nindy Alif Jodinesa; Wahyudi Sutopo; Roni Zakaria

AIP Conference Proceedings 2217, 030062 (2020) doi: https://doi.org/10.1063/5.0000817



Analysis of motor power characterization and power efficiency on operation of electric car prototype

Ferdiansyah Ashil Farisi; Miftahul Anwar; M. Nizam; Jusuf Abimas Pratama; Sifa'us Wulaning Arsri; S. Kaleg; A. Hapid; Sukmaji. I. Cahyono; Kuncoro Diharjo

AIP Conference Proceedings 2217, 030063 (2020) doi: https://doi.org/10.1063/5.0000979



Literature review of city logistics: Classification of studies and dominant factors in developing countries

Ary Arvianto; Bertha Maya Sopha; Anna Maria Sri Asih; Muhammad Ali Imron

AIP Conference Proceedings 2217, 030064 (2020) doi: https://doi.org/10.1063/5.0000623



Framework for developing electric wheelchair standards for people with disabilities

Syifa Luthfiana Asnan; Fakhrina Fahma; Wahyudi Sutopo; Meilinda Ayundyahrini

AIP Conference Proceedings 2217, 030065 (2020) doi: https://doi.org/10.1063/5.0000986



Multi-response optimization of woven fabric tensile strength and breaking elongation using Taguchi method and grey relational analysis

Lintang Rainamaya Nursanti; Eko Pujiyanto; I. Wayan Suletra

AIP Conference Proceedings 2217, 030066 (2020) doi: https://doi.org/10.1063/5.0000765



Analysis of Indonesian tea competitiveness in the international market

Yessica Nugrahaningrum; Roni Zakaria; Fakhrina Fahma

AIP Conference Proceedings 2217, 030067 (2020) doi: https://doi.org/10.1063/5.0000810



Analytical study of temperature effect on current and voltage of battery at charging and discharging condition on electric vehicle

S. W. Arsri; M. Anwar; F. A. Farisi; J. A. Pratama; I. Iftadi; S. Kaleg; A. Hapid; S. I. Cahyono; K. Diharjo

AIP Conference Proceedings 2217, 030068 (2020) doi: https://doi.org/10.1063/5.0000779



Extraction and characterization of nanocrystalline cellulose (NCC) from ramie fiber by sulphuric acid hydrolysis

R. Faiz Listyanda; Kusmono; Muhammad Waziz Wildan; Mochammad Noer Ilman

AIP Conference Proceedings 2217, 030069 (2020) doi: https://doi.org/10.1063/5.0001068



Qualitative comparative analysis (QCA): Multi-variables and small samples research approach (case study: Indonesia's Megaprojects)

Retno Wulan Damayanti; Budi Hartono; Andi Rahadiyan Wijaya

AIP Conference Proceedings 2217, 030070 (2020) doi: https://doi.org/10.1063/5.0000768



Savonius turbine performance with slotted blades

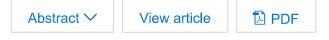
Catur Harsito; Dominicus Danardono Dwi Prija Tjahjana; Budi Kristiawan AIP Conference Proceedings 2217, 030071 (2020) doi: https://doi.org/10.1063/5.0000797



The impact of critical success factor of lean six sigma implementation towards the improvement of business performance on low-cost hotel industry: A literature review

Alima Shofia; Arfan Bakhtiar; Heru Prastawa

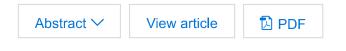
AIP Conference Proceedings 2217, 030072 (2020) doi: https://doi.org/10.1063/5.0000707



Design and simulation linear quadratic gaussian (LQG) for pan-tilt face tracking camera servos

Agus Ramelan; Joko Slamet Saputro; Chico Hermanu Brillianto Apribowo; Muhammad Hamka Ibrahim; Subuh Pramono

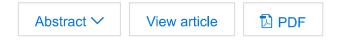
AIP Conference Proceedings 2217, 030073 (2020) doi: https://doi.org/10.1063/5.0000614



Design and development of real-time and portable water quality monitoring system for agriculture irrigation

Yuana Ayub Sunarya; Muhammad Hamka Ibrahim; Chico Hermanu Brillianto Apribowo; Subuh Pramono; Meiyanto Eko Sulistyo

AIP Conference Proceedings 2217, 030074 (2020) doi: https://doi.org/10.1063/5.0000802



A consignment policy for a supplier-retailer inventory system

Yuka Sato: Wakhid Ahmad Jauhari: Cucuk Nur Rosyidi

AIP Conference Proceedings 2217, 030075 (2020) doi: https://doi.org/10.1063/5.0000787



Role of rapid manufacturing technology in wearable customized assistive technology for modern industry

Ilham Priadythama; Lobes Herdiman; Susy Susmartini

AIP Conference Proceedings 2217, 030076 (2020) doi: https://doi.org/10.1063/5.0000747



Application of quality function deployment for diversification of souvenirs of ATBM woven fabrics for foreign tourist needs (case study: Sragen Regency)

Navy Salem; Eko Liquiddanu; I. Wayan Suletra; Murman Budijanto AIP Conference Proceedings 2217, 030077 (2020) doi: https://doi.org/10.1063/5.0000746



Sustainable economic production quantity model with rework and product return policy

Ilham Nur Fadlil; Ratna Novitasari; Wakhid Ahmad Jauhari

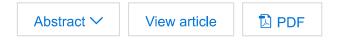
AIP Conference Proceedings 2217, 030078 (2020) doi: https://doi.org/10.1063/5.0000655



Improvement of work processes and methods to achieve production targets using VA/NVA analysis, ECRS and line balancing

Ilham Nur Fadlil; Cucuk Nur Rosyidi

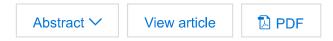
AIP Conference Proceedings 2217, 030079 (2020) doi: https://doi.org/10.1063/5.0000657



Enhancement quality of sand casting manufacturing product using Taguchi method

Salman Alfarisi; Wahyudi Sutopo

AIP Conference Proceedings 2217, 030080 (2020) doi: https://doi.org/10.1063/5.0000497



Integrated economic and environmental model for vendorbuyer inventory system with carbon cap and trade policy

Euis Nurlathifah; Meidiana Farras Isnafitri; Wakhid Ahmad Jauhari

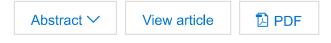
AIP Conference Proceedings 2217, 030081 (2020) doi: https://doi.org/10.1063/5.0000661



Implementation of the Halal assurance system for small and medium manufacturing industries at UNSQUA

Fakhrina Fahma; Roni Zakaria; Chaidir Akbar

AIP Conference Proceedings 2217, 030082 (2020) doi: https://doi.org/10.1063/5.0001064



Learning from plastic waste village in Boyolali Indonesia: SME-based plastic recycling industries

Farid Ishartomo; Sulistiono; Isna Nugraha; Aisyah Itsnaini Sholichah; Bambang Suhardi

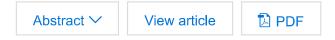
AIP Conference Proceedings 2217, 030083 (2020) doi: https://doi.org/10.1063/5.0000700



Dye sensitized solar cell (DSSC) with immersion time variation of working electrode on the dye of C₄ plant chlorophyll of corn leaves (*Zea mays* L.)

R. Anggraini; F. Nurosyid; T. Kusumaningsih

AIP Conference Proceedings 2217, 030084 (2020) doi: https://doi.org/10.1063/5.0000600



Design of electric guitar 8 strings with combination of smartphone devices as a virtual guitar effect using reverse engineering method

Sulistiono; Bambang Suhardi; Susy Susmartini

AIP Conference Proceedings 2217, 030085 (2020) doi: https://doi.org/10.1063/5.0000703



Analysis and topology optimization structural design excavator bucket tooth using finite element method

Sumar Hadi Suryo; Wijdan Muhammad Fawwaz; Yogi Adi Wijaya; Eko Wahyu Saputro; Harto

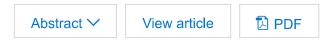
AIP Conference Proceedings 2217, 030086 (2020) doi: https://doi.org/10.1063/5.0000531



Measurement model of halal practice readiness among food manufacturing small medium enterprises

Ida Giyanti; Anita Indrasari; Wahyudi Sutopo; Eko Liquiddanu

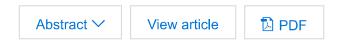
AIP Conference Proceedings 2217, 030087 (2020) doi: https://doi.org/10.1063/5.0000669



The effect of variation in the type of contact between cells electrodes and variation of dye on dye sensitized solar cell efficiency (DSSC)

R. Kusumawati; F. Nurosyid; A. Supriyanto

AIP Conference Proceedings 2217, 030088 (2020) doi: https://doi.org/10.1063/5.0000601



Application of quality function deployment (QFD) level 2 for the development of traditional textile motifs (case study: The design of the civil servant uniform in Sragen that produced in Sukoharjo)

Arga Seta Asmara Sakti; Eko Liquiddanu; I. Wayan Suletra

AIP Conference Proceedings 2217, 030089 (2020) doi: https://doi.org/10.1063/5.0000846



Green building potential of existing dormitory building based on energy efficiency and conservation

Rosi Marta Da Huba; Anis Rahmawati; Taufiq Lilo Adi Sucipto; Muhammad Kunta Biddinika; Arif Darmawan

AIP Conference Proceedings 2217, 030090 (2020) doi: https://doi.org/10.1063/5.0000715



Early warning of food security in East Java Indonesia using a system dynamics model

Vina Vahlevi Al Juned; Iwan Vanany; Diesta Iva Maftuhah; Granita Hajar AIP Conference Proceedings 2217, 030091 (2020) doi: https://doi.org/10.1063/5.0000860



Design of a telemedicine robot using behavior-based control architecture

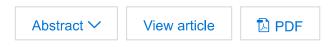
Nanda Ferdana; Andi Adriansyah; Setiyo Budiyanto; Julpri Andika AIP Conference Proceedings 2217, 030092 (2020) doi: https://doi.org/10.1063/5.0000595



Effect of water depth and water flow on the physics and mechanic properties of the underwater wet welded low carbon steel with post weld heat treatment

Syaukaty Yasinta; Triyono; Nurul Muhayat; Y. C. N. Saputro

AIP Conference Proceedings 2217, 030093 (2020) doi: https://doi.org/10.1063/5.0000658



Preliminary study of lithium nickel cobalt aluminum oxide synthesized by flame assisted spray pyrolysis

Tika Paramitha; Hendri Widiyandari; Agus Purwanto; Cornelius Satria Yudha; Adi Prasetya; Muhammad Al Dhiyaul Haqqi Azmi

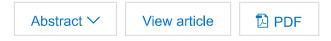
AIP Conference Proceedings 2217, 030094 (2020) doi: https://doi.org/10.1063/5.0000495



Effect of electrospinning distance to fabricate ZnO nanofiber as photoanode of dye-sensitized solar cells

Zainal Arifin; Syamsul Hadi; Hanung Nugroho Jati; Singgih Dwi Prasetyo; Suyitno

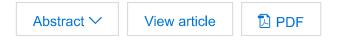
AIP Conference Proceedings 2217, 030095 (2020) doi: https://doi.org/10.1063/5.0000705



The influence of electrospinning flow rate parameter on ZnO nanofiber as photoanode of dye-sensitized solar cell

Muhammad Zuhdi Khusaini; Hanung Nugroho Jati; Suyitno; Syamsul Hadi; Zainal Arifin

AIP Conference Proceedings 2217, 030096 (2020) doi: https://doi.org/10.1063/5.0000702



Mechanical properties of pouch battery constituents

Putri Nur Halimah; Bentang Arief Budiman; Poetro Lebdo Sambegoro AIP Conference Proceedings 2217, 030097 (2020) doi: https://doi.org/10.1063/5.0000689



Assessment of tourism destination sustainability status using rap-tourism case of natural based tourism

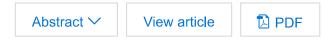
Ratna Purwaningsih; Herdiana Nur Annisa; Aries Susanty; Dian Dita Puspitaningrum

AIP Conference Proceedings 2217, 030098 (2020) doi: https://doi.org/10.1063/5.0000872



Design and development of PC-based photovoltaic test and measurement device for photovoltaic quality inspection

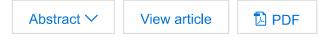
Kharis Akbar Baharizky; Muhammad Hamka Ibrahim; Muhammad Nizam AIP Conference Proceedings 2217, 030099 (2020) doi: https://doi.org/10.1063/5.0000801



Strategic planning in procurement of raw materials based on Kraljic's purchasing portofolio model

Selvina Kharisma Putri; Hery Suliantoro; Darminto Pujotomo

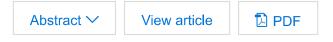
AIP Conference Proceedings 2217, 030100 (2020) doi: https://doi.org/10.1063/5.0000785



The economic benefits of the implementation of batik Indonesian National Standard (SNI) by ISO methodology - Economic benefit standard (EBS) approach

Phalitatyasetri; Fakhrina Fahma; Wahyudi Sutopo

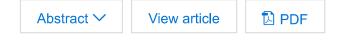
AIP Conference Proceedings 2217, 030101 (2020) doi: https://doi.org/10.1063/5.0000718



Slotted blade effect on Savonius wind rotor performance

Agung Dwi Nugroho; Dominicus Danardono Dwi Prija Tjahjana; Budi Kristiawan

AIP Conference Proceedings 2217, 030102 (2020) doi: https://doi.org/10.1063/5.0000891



Public street lighting control and monitoring system using the internet of things

Andi Adriansyah; Setiyo Budiyanto; Julpri Andika; Arif Romadlan; Nurdin Nurdin

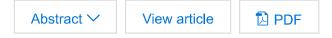
AIP Conference Proceedings 2217, 030103 (2020) doi: https://doi.org/10.1063/5.0000594



Halal assurance system implementation and performance of food manufacturing SMEs: A causal approach

Anita Indrasari; Ida Giyanti; Wahyudi Sutopo; Eko Liquiddanu

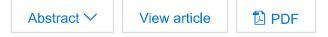
AIP Conference Proceedings 2217, 030104 (2020) doi: https://doi.org/10.1063/5.0000668



Inventory control of machine spare part using periodic review method: A case study in PT Sari Warna Asli Textile

Latifatul Luluah; Nurruddin Baidowi; Wakhid Ahmad Jauhari

AIP Conference Proceedings 2217, 030105 (2020) doi: https://doi.org/10.1063/5.0000687



An application of anticipatory FMEA for preventing failures in humanitarian response operation

Agung Sutrisno; Dwi Handayani; Wahyu Caesarendra; Indra Gunawan; Mufrida Meri; Widiawati Purba

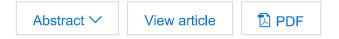
AIP Conference Proceedings 2217, 030106 (2020) doi: https://doi.org/10.1063/5.0000612



Soil moisture clustering using the k-means clustering method in the UNS's agricultural laboratory at Jumantono

Yusuf Budi Kurniawan; Winarno; Wiranto

AIP Conference Proceedings 2217, 030107 (2020) doi: https://doi.org/10.1063/5.0000861



Future and challenge of 3D printed bone external fixator: Statics stress simulations of polycarbonate Taylor spatial frame ring

Ilham Priadythama; Lobesh Herdiman; Taufiq Rochman

AIP Conference Proceedings 2217, 030108 (2020) doi: https://doi.org/10.1063/5.0000748



Creating motifs using silver electrolyte gel in electroplating technique

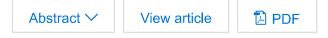
Taufiq Immawan; Kurnia; Paryana Puspaputra

AIP Conference Proceedings 2217, 030109 (2020) doi: https://doi.org/10.1063/5.0000764

People detection and tracking methods for intelligent surveillance system

Wahyu Kurniawan; Sutrisno Ibrahim; Meiyanto Sulistyo

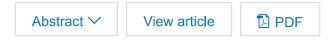
AIP Conference Proceedings 2217, 030110 (2020) doi: https://doi.org/10.1063/5.0001022



Fault tree and decision making trial and evaluation laboratory model for formulating risk mitigation strategies at water production process of PDAM Baubau

Widya Spalanzani; Udisubakti Ciptomulyono; Mokhamad Suef; Asmuddin; Salwiah

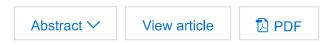
AIP Conference Proceedings 2217, 030111 (2020) doi: https://doi.org/10.1063/5.0000750



Application of demand responsive bus priority traffic signal control at one-way system with contra flow bus lane under mixed traffic

Budi Yulianto: Setiono

AIP Conference Proceedings 2217, 030112 (2020) doi: https://doi.org/10.1063/5.0000625



Analysis of risk factors nonproductive time on geothermal drilling in Indonesia

Mokh Kandari; Gatot Yulianto; Singgih Saptadi

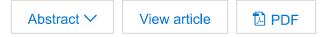
AIP Conference Proceedings 2217, 030113 (2020) doi: https://doi.org/10.1063/5.0000918



Policy determination of inventory control of batik fabric using Q and P *lost sale* probabilistic model through montecarlo simulation approach as the system testing analysis

M. Iqbal Sabit; Agus Mansur; Faizuddin Firdaus

AIP Conference Proceedings 2217, 030114 (2020) doi: https://doi.org/10.1063/5.0004281



Performance analysis of MMSE based interference suppression in MU MIMO system

Subuh Pramono; Budi Basuki Subagio; Eddy Triyono; Agus Ramelan; Chico Hermanu Brillianto Apribowo; Muhammad Hamka Ibrahim

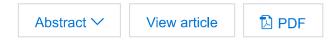
AIP Conference Proceedings 2217, 030115 (2020) doi: https://doi.org/10.1063/5.0000736



Parallel injection molding machine scheduling by considering parameter process conservation

R. B. Seno Wulung; Midarto Dwi Wibowo

AIP Conference Proceedings 2217, 030116 (2020) doi: https://doi.org/10.1063/5.0000557



Optimum pipe network of tofu and tempe wastewater distribution using multiple sources single sink network model

I. Wayan Suletra; Yusuf Priyandari; Eko Liquiddanu

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Workplace design selection framework to increase productivity by using virtual reality

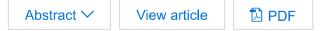
Benazir Imam Arif Muttaqin; Wahyu Andy Prastyabudi; Rizqa Amelia Zunaidi AIP Conference Proceedings 2217, 030118 (2020) doi: https://doi.org/10.1063/5.0000641

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The urea release rate of bead gel based on kappa carrageenan, pectin, and glucomannan

Sperisa Distantina, Scila Ardanari Santoso, Melia Citrawati

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Biodiesel production from waste cooking oil by using zirconia catalyst

Khoirun Nisa; Diah Ayu Almaas Salwa; Alfi Hasanah; Widayat

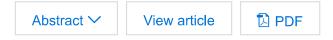
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Effect of inlet blade geometry on performance propeller turbine for pipe inline instalation

Hasan Bisri; D. D. D. Prija Tjahyana; Dwi Aries Himawanto

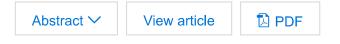
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Experimental study of the effect of blade angle on pico tubular bulb turbine performance in horizontal flow

Akhmad Nurdin; Dwi Aries Himawanto; Syamsul Hadi

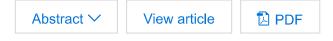
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Selecting the synthetic leather and outsole supplier for shoe production in small medium enterprise

Suhartini: Hastawati Chrisna Suroso

AIP Conference Proceedings 2217, 030123 (2020) doi: https://doi.org/10.1063/5.0000605



Modbus HMI bluetooth for outseal PLC

Djoko Untoro Suwarno

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Development of simultaneous substrate mixer and cold atmospheric plasma treatment for mushroom cultivation

N. Redzuan; M. R. Rabbi; L. Agun; N. Ahmad; K. Zakaria; R. M. Sirat; R. M. Saad; R. Yasak

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Performance comparison of VPPM visible light communication demodulator using analog to digital converter and analog comparator sampling

Muhammad Hamka Ibrahim; Miftahuddin Irfani; Annisa Hanifa; Subuh Pramono

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Application of titanium doped g-C3N4 for the degradation of toxic dyes in textiles wastewater

Anatta Wahyu Budiman; Bregas S. T. Sembodo; Ahmad Alviansyah; Irma B. S. Putri

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Wind powered centrifugal reaction pump for very low head water lifting

Y. B. Lukiyanto; Budi Setyahandana; Rines

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Placement multi flexible alternating current transmission system (FACTS): Static var compensator (SVC) and static synchronous compensator (STATCOM) for improving voltage stability of 500 KV Java-Bali electrical power system

Chico Hermanu Brillianto Apribowo; Meiyanto Eko Sulistyo; Muhammad Hamka Ibrahim; Agus Ramelan; Subuh Pramono; Joko Slamet Saputro; Oktavian Listiyanto

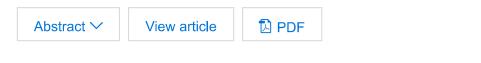
AIP Conference Proceedings 2217, 030129 (2020) doi: https://doi.org/10.1063/5.0000822



Defect analysis of shoes production processes using statistical process control and failure mode effect analysis method

Dimyati; Afni Khadijah; Ellia Kristiningrum

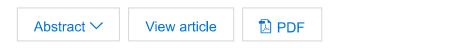
AIP Conference Proceedings 2217, 030130 (2020) doi: https://doi.org/10.1063/5.0000725



Design and development of PC-based smart programmable power supply for battery charging system

Muhammad Hamka Ibrahim; Rizal Abdulrozaq Rosadi; Agus Ramelan; Chico Hermanu Brillianto Apribowo

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The design of automatic syringe shaker as the media supporting method of dissolved gas analysis (DGA) transformer oil

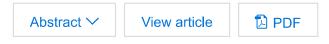
Ratih Rachmatika; Augustinus Sujono; Chico Hermanu Brillianto Apribowo AIP Conference Proceedings 2217, 030132 (2020) doi: https://doi.org/10.1063/5.0000812



Developing green manufacturing indicators for the decorative paint industry: A case study of Indonesia

Gun Nanda Tian Purnama; Sawarni Hasibuan; Zulfa Fitri Ikatrinasari

AIP Conference Proceedings 2217, 030133 (2020) doi: https://doi.org/10.1063/5.0000831



Parallel simulation of pattern formation in a reaction-diffusion system of FitzHugh-Nagumo using GPU CUDA

Alfredo Gormantara; Pranowo

AIP Conference Proceedings 2217, 030134 (2020) doi: https://doi.org/10.1063/5.0000667



Effect of environment on the defects of welded aluminum AA 1100

Rafael Simanjuntak; Nurul Muhayat; Aditya Rio Prabowo; Y. C. N. Saputro; Triyono

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Sentiment analysis of Indonesian presisential election 2019 on the twitter with lexicon-based and support vector machine (SVM)

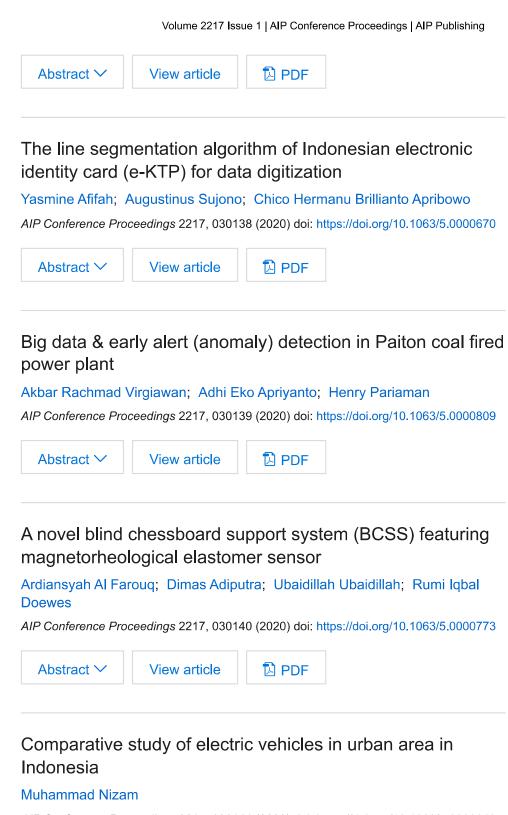
Fredericus Dwi Nugraha Putra; Pranowo; Budiyanto Setyohadi

AIP Conference Proceedings 2217, 030136 (2020) doi: https://doi.org/10.1063/5.0000631



Design close-loop control of BLDC motor speed using PID method in solar power with matlab/simulink

Chico Hermanu Brillianto Apribowo; Hari Maghfiroh; Arifian Tri Laksita AIP Conference Proceedings 2217, 030137 (2020) doi: https://doi.org/10.1063/5.0000824



AIP Conference Proceedings 2217, 030141 (2020) doi: https://doi.org/10.1063/5.0000643



Two and four blades windmill characteristics of traditional salt farmers from Demak Region

S. Dio Zevalukito; Y. B. Lukiyanto; Dimas P. Utomo

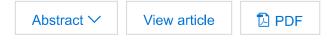
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Routing and scheduling employee transportation using tabu search

Ari Pranata Purba, Nurhadi Siswanto, Ahmad Rusdiansyah

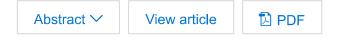
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Studies of geothermal silica as rubbers compounds reinforcing filler

Muh. Wahyu Sya'bani; Yuli Suwarno; Mertza Fitra Agustian; Indra Perdana; Rochmadi

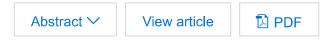
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Optimal energy control of DC-drive conveyor using LQR method

Hari Maghfiroh; Muhammad Gunawan; Miftahul Anwar

AIP Conference Proceedings 2217, 030145 (2020) doi: https://doi.org/10.1063/5.0000619



Active power and reactive power control using fuzzy-PID compensator for grid-connected inverter

Bagus Fatkhurrozi; Hery Teguh Setiawan

AIP Conference Proceedings 2217, 030146 (2020) doi: https://doi.org/10.1063/5.0000596



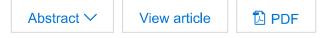
Quality improvement of woods product using the quality function deployment (QFD) method at PT. X

Rosnani Ginting; Eka Periana Pane; Alfin Fauzi Malik

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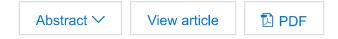
AIP Conference Proceedings 2217, 030148 (2020) doi: https://doi.org/10.1063/5.0000713



Plug-in hybrid electric vehicle mode selection strategy for full battery consumption and known road slope condition

Muhammad Hamka Ibrahim; Hari Maghfiroh; Muhammad Nizam; Chico Hermanu Brilianto Apribowo

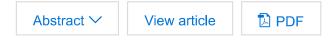
AIP Conference Proceedings 2217, 030149 (2020) doi: https://doi.org/10.1063/5.0000616



The influence of magnesium oxide and montmorillonite on the flame retardant and flexural strength of fiber glassunsaturated polyester composites

Sahid Bayu Setiajit; Kuncoro Diharjo; Wijang Wisnu Raharjo

AIP Conference Proceedings 2217, 030150 (2020) doi: https://doi.org/10.1063/5.0000723



Investigation on multi-channel types of primary reformer catalyst using computational fluid dynamic (CFD)

Ari Diana Susanti: Yazid Bindar

AIP Conference Proceedings 2217, 030151 (2020) doi: https://doi.org/10.1063/5.0000756



The need for national standard of x-band radar technology to detect rainfall and disaster mitigation

Ajun Tri Setyoko; Endi Hari Purwanto; Reza Lukiawan; Meilinda Ayundyahrini

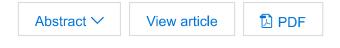
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Rollover performance analysis of electric bus superstructure frame with alternative material using finite element method

Djoeli Satrijo; Ojo Kurdi; Ismoyo Haryanto; Mohd Shukri Yob; Novi Riyantiarno; Iqbal Taufiqurrahman

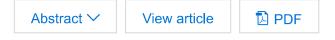
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An agent based simulation model for retail price promotion strategies

Niniet Indah Arvitrida; Adji Candra Kurniawan

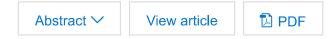
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Macro ergonomics approach to analyze the quality of public bike-sharing transportation services

Adithya Sudiarno; Shofa Aulia Aldhama

AIP Conference Proceedings 2217, 030155 (2020) doi: https://doi.org/10.1063/5.0000848



Feasibility of METSI UGM office as a workplace in natural lighting availability and its occupants' adaptive behavior

Arif Kusumawanto; Silfia Mona Aryani; Mega Setyowati

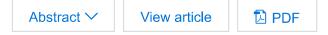
AIP Conference Proceedings 2217, 030156 (2020) doi: https://doi.org/10.1063/5.0000666



Battery management system design (BMS) for lithium ion batteries

Muhammad Nizam; Hari Maghfiroh; Rizal Abdulrozaq Rosadi; Kirana D. U. Kusumaputri

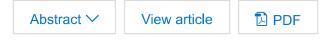
AIP Conference Proceedings 2217, 030157 (2020) doi: https://doi.org/10.1063/5.0000649



Integration of quality function deployment (QFD) and value engineering in improving the quality of product: A literature review

Aulia Ishak; Rosnani Ginting; Alfin Fauzi Malik

AIP Conference Proceedings 2217, 030158 (2020) doi: https://doi.org/10.1063/5.0000735



Product development and design with a combination of design for manufacturing or assembly and quality function deployment: A literature review

Rosnani Ginting; Aulia Ishak; Alfin Fauzi Malik

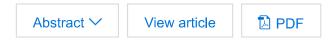
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Construction design of multistage axial field BLDC motor

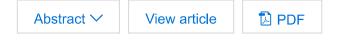
Fahrul; Rusdhianto Effendi Abdul Kadir; Mochammad Rameli

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Camera distance effect for smart detection littering

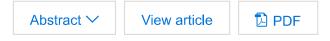
Dedy Ariyanto; Yusuf Ari Bahtiar; Muhammad Taufik; Trie Handayani AIP Conference Proceedings 2217, 030161 (2020) doi: https://doi.org/10.1063/5.0001680



Assessment of manufacturing readiness level in PT.ABC (case study: Technology on hospital bed products)

Fadli Syamsuddin; Yusuf Priyandari; Susanto Sudiro

AIP Conference Proceedings 2217, 030162 (2020) doi: https://doi.org/10.1063/5.0000799



The prototypes of automated guided vehicle based on bluebotics autonomous navigation technology

Hoedi Prasetyo; Laras Prasetyo Adhi

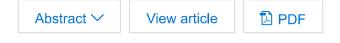
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Characterization and bioactivity test of secondary metabolite isolated from ethyl acetic fraction of *Petrosia alfiani* sponge from Barrang Lompo Island

Rahmayanti; Ahyar Ahmad

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Experimental investigation of blades number of savonius water turbine on performance characteristic

Dwiseno Wihadi; Stefan Mardikus

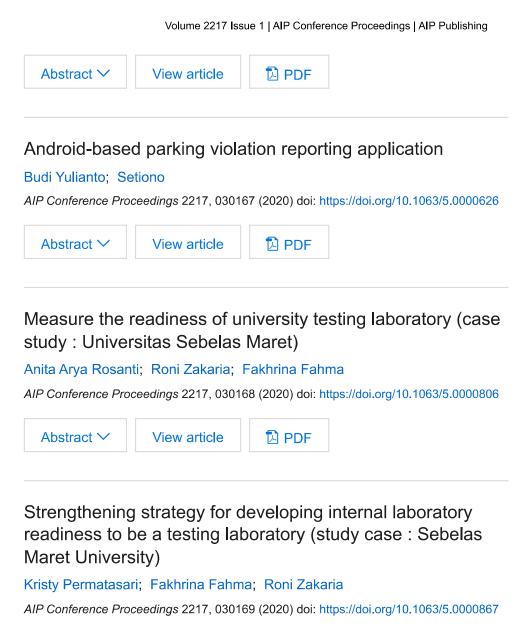
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Design and aerodynamics analysis of rear wing formula student car using 3 dimension CFD (computational fluid dynamics)

M. A. Dharmawan; D. D. P. Tjahjana; B. Kristiawan; S. I. Pertiwi

AIP Conference Proceedings 2217, 030166 (2020) doi: https://doi.org/10.1063/5.0001049





Predictive maintenance model for centrifugal pumps under improper maintenance conditions

Nazmee Hashim; Adnan Hassan; Mohd Foad Abdul Hamid

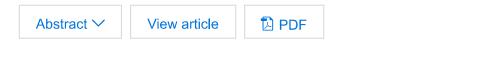
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Numerical solution of Darcy-Brinkman-Forchheimer equation for forced-convective fluid flow through porous medium using DMLPG method

Pranowo; Agung Tri Wijayanta

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The dynamic of the incineration waste-to-energy power plant policy in Indonesia

Agusniar Rizkia Luthfia; Albertus Sentot Sudarwanto; Eka Nada Shofa Alkhajar

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Current research on city logistics and possible adoption in developing countries

Kuncoro Harto Widodo; Yandra Rahadian Perdana; Russell G. Thompson; Hengki Purwoto; Dwi Ardianta Kurniawan; Joewono Soemardjito

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Synthesis of biodiesel from kapok (*Ceiba pentandra L.*) seed oil through ultrasound-enhanced transesterification reaction

Ratna Dewi Kusumaningtyas; Muhammad Yasir Adhi Utomo; Pipit Risky Nurjanah; Dwi Widjanarko

AIP Conference Proceedings 2217, 030174 (2020) doi: https://doi.org/10.1063/5.0000609



A scheme to increase Indonesian national standard certification in the batik SMEs (case study at XYZ SME)

Kurnia Tri Atmojo; Fakhrina Fahma; Wahyudi Sutopo

AIP Conference Proceedings 2217, 030175 (2020) doi: https://doi.org/10.1063/5.0000749



Characteristics of successive droplets impacting hot aluminum surface around nucleate boiling regime

Arif Widyatama; Akmal Irfan Majid; Teguh Wibowo; Deendarlianto; Samsul Kamal

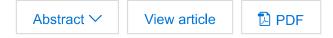
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Analysis of the effect of magnesium addition on Al-Si alloy using stirr casting method on physical and mechanical properties

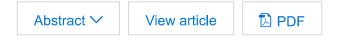
Teguh Triyono; Eko Surojo; Vicky Tri Utomo

AIP Conference Proceedings 2217, 030177 (2020) doi: https://doi.org/10.1063/5.0003037



Synthesis of green diesel through hydrodeoxygenation reaction of used cooking oil over NiMo/Al2O3 catalyst

S. D. Sumbogo Murti; Fusia Mirda Yanti; Atti Sholihah; Asmi Rima Juwita; Joni Prasetyo; Meyly Ekawati Thebora; Edwin Pramana; Hens Saputra *AIP Conference Proceedings* 2217, 030178 (2020) doi: https://doi.org/10.1063/5.0000604



A proposed policy of medication inventory system in pharmacy installation (case study in Semen Padang Hospital)

Asmuliardi Muluk; Jonrinaldi; Fadhita Maisa Asri

AIP Conference Proceedings 2217, 030179 (2020) doi: https://doi.org/10.1063/5.0000714



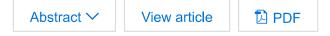
Reducing defect in furniture industry using a lean six sigma approach

Ermayana Megawati; Purnawan Adi Wicaksono; Denny Nurkertamanda AIP Conference Proceedings 2217, 030180 (2020) doi: https://doi.org/10.1063/5.0004282

Municipal solid waste logistics management: A study on reverse logistics

Annie Purwani; Muhammad Hisjam; Wahyudi Sutopo

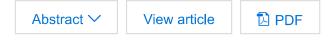
AIP Conference Proceedings 2217, 030181 (2020) doi: https://doi.org/10.1063/5.0000676



Improvement of efficiency of dye-sensitized solar cells (DSSC) transparent by optimizing of anthocyanin dyes hybrid dyenamo yellow (DN-F01)

Nadiyah E.-H. Diyanahesa; A. Supriyanto; A. H. Ramelan

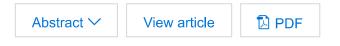
AIP Conference Proceedings 2217, 030182 (2020) doi: https://doi.org/10.1063/5.0000868



The influence of discharge current to temperature distribution of lithium ion cells

Sunarto Kaleg; Abdul Hapid; Miftahul Anwar; Feri Adriyanto; Hillga R. Radhita; Sukmaji I. Cahyono; Kuncoro Diharjo

AIP Conference Proceedings 2217, 030183 (2020) doi: https://doi.org/10.1063/5.0000988



The effect of adding armrest and seat assist on chair for elderly prayer performance (sitting to standing)

Nani Cahya Ningrum; Nurhayatu Nufut Alimin; Prima Adhi Kusuma; Lu'lu' Purwaningrum

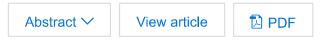
AIP Conference Proceedings 2217, 030184 (2020) doi: https://doi.org/10.1063/5.0003455



Current-voltage monitoring of plasma arc discharge submerged in water for nanoparticles fabrication

Lia Anjarwati; Miftahul Anwar; Yan Mahardhika; Ramanda Fadhillah; Chico Hermanu Brillianto Apribowo; Teguh Endah Saraswati; Yuana Ayub

AIP Conference Proceedings 2217, 030185 (2020) doi: https://doi.org/10.1063/5.0000978



Mobile, fast response, and interactive measurement tool of psychological disorders under android based smartphone

W. A. Syafei; A. Ediati; D. V. S. Kaloeti; J. Ariati; M. A. Virzawan; A. B. Prasetijo; S. Pramono

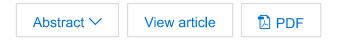
AIP Conference Proceedings 2217, 030186 (2020) doi: https://doi.org/10.1063/5.0001089



Analysis of chemical composition and microstructure in hexagonal bolt in aircraft Cessna Caravan 208B

Indreswari Suroso; Muhammad Nur Rizqi

AIP Conference Proceedings 2217, 030187 (2020) doi: https://doi.org/10.1063/5.0000514



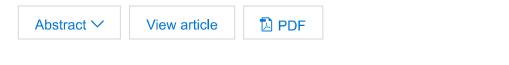
A novel low PAPR preamble for very high throughput WLAN IEEE 802.11ac 80MHz system

Wahyul A. Syafei; Achmad Hidayatno; Ajub A. Zahra; S. Pramono AIP Conference Proceedings 2217, 030188 (2020) doi: https://doi.org/10.1063/5.0000721



Design variables reactive power compensator using magnetic energy recovery switch (MERS) for induction motor

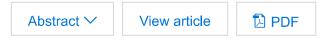
Chico Hermanu Brillianto Apribowo; Luthfy Mahkmudy; Oktavian Listiyanto AIP Conference Proceedings 2217, 030189 (2020) doi: https://doi.org/10.1063/5.0000825



Experimental method for improving efficiency on photovoltaic cell with using floating installation method

Chico Hermanu Brillianto Apribowo; Abyan Habibie; Zainal Arifin; Feri Adriyanto

AIP Conference Proceedings 2217, 030190 (2020) doi: https://doi.org/10.1063/5.0000827



Design and economic analysis of floating PV-wind turbine plant for renewable energy supply in Indonesia

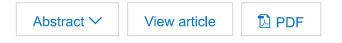
Chico Hermanu Brillianto Apribowo; Muhammad Hamka Ibrahim; Muhammad Ramadhan Bagas Purnomo

AIP Conference Proceedings 2217, 030191 (2020) doi: https://doi.org/10.1063/5.0000829



Design and implementation of closed-loop controls for smart charging lithium ion battery UNS using switching technique boost converter

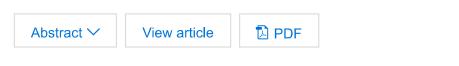
Chico Hermanu Brillianto Apribowo; Muhammad Akmal; Miftahul Anwar AIP Conference Proceedings 2217, 030192 (2020) doi: https://doi.org/10.1063/5.0000830



Optimization of 4G LTE (long term evolution) network coverage area in sub urban

Subuh Pramono; Lia Alvionita; Mustofa Danang Ariyanto; Meiyanto Eko Sulistyo

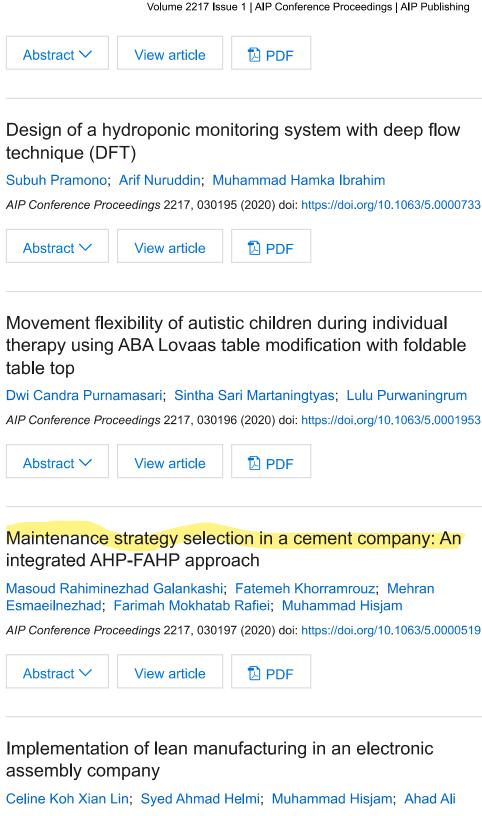
AIP Conference Proceedings 2217, 030193 (2020) doi: https://doi.org/10.1063/5.0000732



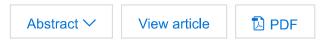
Analysis and optimization of 4G long term evolution (LTE) network in urban area with carrier aggregation technique on 1800 MHz and 2100 MHz frequencies

Subuh Pramono; Mustofa Danang Ariyanto; Lia Alvionita; Meiyanto Eko Sulistyo

AIP Conference Proceedings 2217, 030194 (2020) doi: https://doi.org/10.1063/5.0000731



AIP Conference Proceedings 2217, 030198 (2020) doi: https://doi.org/10.1063/5.0000971



Ergonomic improvement in a manufacturing company

Tuan Ahmad Farhan Hakimi; Syed Ahmad Helmi; Muhammad Hisjam; Ahad Αli

AIP Conference Proceedings 2217, 030199 (2020) doi: https://doi.org/10.1063/5.0000729



Photodegradation of batik waste with graphitic carbon nitride using UV-BLB

Bagas Cahyadi; Leony Inatsan Pertiwi; Queenta Perdania Putri; Anatta Wahyu Budiman

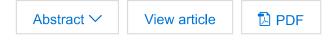
AIP Conference Proceedings 2217, 030200 (2020) doi: https://doi.org/10.1063/5.0000665



An application of support vector machine to detect anomalies in time series data

Yoga S. Satriawan; Joko Slamet Saputro

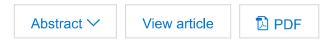
AIP Conference Proceedings 2217, 030201 (2020) doi: https://doi.org/10.1063/5.0000659



Internet reactor laboratory application design on android client devices

Adi Abimanyu; Damasus Riko Prijono; Agus Arif; Muhtadan

AIP Conference Proceedings 2217, 030202 (2020) doi: https://doi.org/10.1063/5.0000608



Design and implementation of autonomous solar powered iot farm monitoring system using MQTT over cellular network

Muhammad Hamka Ibrahim; Chico Hermanu Brilianto Apribowo; Fahmi Ismail; Bima Damar Jati; Sony Adyatama; Attar Al Mufashal Rasyid; Bima Tri Prasetya

AIP Conference Proceedings 2217, 030203 (2020) doi: https://doi.org/10.1063/5.0000800



Design and implementation biogas production by anaerobic digestion for sustainable energy development: A case study residential in Indonesia

Chico Hermanu Brillianto Apribowo; Muhammad Hamka Ibrahim; Adhitya Pitara Sanjaya

AIP Conference Proceedings 2217, 030204 (2020) doi: https://doi.org/10.1063/5.0000833

Abstract ✓	View article	₽DF

A Data Envelopment Analysis Approach for Assessing the Efficiency of Sub-sectors of Creative Industry: A Case Study of Batik Enterprises from Semarang, Indonesia

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Abstract. The creative industry (CI) is considered to promote human development while promoting the economic growth. It maintains and protects historical and cultural heritage, improve cultural capital, and foster communities as well as individual creativity. Although there is widespread classification of the CI, the Ministry of Tourism of Indonesia has classified CI into 16 sub-sectors, i.e., (1) advertising, (2) architecture, (3) interior design, (4) product design, (5) craft, (6) visual communication design, (7) fashion, (8) film, animation, and video (9) photography, (10) application and game developers, (11) music, (12) performing arts, (13) publishing, (14) fine arts (15) TV and radio (broadcasting), and (16) gastronomy/culinary. The creative industry is an industry that originates from the use of creativity, skills and individual talents to create prosperity and employment by generating and exploiting the individual's creative and creative power. Batik industry is one of Creative Industry in Indonesia which plays an important role in the economic development. However, the Batik are facing difficulties in many areas, especially in spending their scarce resources efficiently. A case study to assess the efficiency of the Batik enterprises has been conducted by applying the data envelopment analysis in Semarang, Indonesia. The results show that from ten assigned Batik enterprises, there are nine enterprises' that are considered efficient, while the rest are regarded as inefficient. This research is expected to give some advantages to the Batik enterprises' regarding how to use their limited resources in an efficient way.

INTRODUCTION

Small and medium enterprises (SMEs) are broadly acknowledged to have a vital role in the economic development. Both developed and developing countries believe that they could bring huge economic benefits by contributing to the entrepreneurship, employment creation, as well as income generation [1-3]. Particularly in the developing countries, the SMEs are considered as important not only since they create the employment but also because they employ unskilled workers who are abundant in such countries [4]. The SMEs gave big contributions to the employment growth and gave steady decline in poverty rate. Beyond the dark year, the SMEs even contributed more to economic growth compared to big enterprises due to their dependency towards formal markets and credits [5]. In fact, the SMEs represent more than 99% of the total number of enterprises in Indonesia and employ more than 97% of the entire workforce [6-7]. In addition, the SME sector exported as of 16% of total non-oil exports, and accounted for 57.94% of total gross domestic product (GDP) at current prices [7].

The creative industries refer to a variety of economic activities related to knowledge and data generation or exploitation. It may also be referred to differently as the cultural sectors [8] or the creative economy [9]. Howkins' creative economy comprises advertising, architecture, art, crafts, design, fashion, film, music, performing arts, publishing, R&D, software, toys and games, TV and radio, and video games [9]. The definition of CI refers to industry which has its origin in individual creativity, skill and talent, and which has a potential for wealth and job creation through the generation and exploitation of intellectual property [10].

Development of Neck Surface Electromyography Gaming Control Interface for Application in Tetraplegic patients' Entertainment

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Abstract. In the recent past, surface Electromyography (sEMG) signals has been effectively applied in control interfaces for robots, prosthetic hands, legs and other areas. Few works has focused on neck EMG control in spite of the neck being central to human movements and engagements. We propose a neck EMG model that estimates head movements and apply the signals to control a game developed in Unity 3D engine. The game involves randomly falling and accelerating objects. The user slides the games' player character (paddle) using neck EMG to intercept as many objects. EMG signal is rectified and FIR filtered and used to control the position of a sliding probe of the game in real-time. The paper utilizes an equation model and a Machine Learning model to translate the filtered signal to corresponding neck rotation. From the results, all the subjects reported accuracy of over 70% which confirm the applicability of the interface and ease of use in that there is little or no calibration needed. The control model using equation showed intuitive direction and speed control while the Machine Learning scheme offered more stable direction control but limited speed control of the sliding paddle. The control interface can be applied in multiple areas that involve neck activity e.g. in rehabilitation as well as gaming interface to enable entertainment for the disabled.

INTRODUCTION

The activity of muscles is observed as bio-electric potentials in human beings which constitutes electromyogram (EMG) signal. Surface EMG (sEMG) is the signal acquired from the surface/belly of the muscle group under consideration, usually recorded using surface electrodes. EMG studies in literature can be broadly categorized in to two categories; classification and regression [1]. The former is concerned with accurate prediction of patterns and grouped activity in to a sensible single or multiple action. There is a wide application of this for example in hand or finger prosthetics where voluntary control of certain muscle should correspond to a fine motor action like pinching, pointing and others. The other category of EMG control is concerned with regression and or finding a relationship between continuous muscle activity in a task.

EMG integration into daily activities takes different forms and shapes ranging from gesture and posture recognitions [2], robotic control [3], [4], [5], wheelchair control [6], muscle rehabilitations [7] to list but a few. An application field which is similar to the proposed research is the use of EMG signals in gaming environment [8], [9], [10]. A paper [11], sought to investigate how myo-gaming, a term used to describe application of myoelectric signals to gaming, improves EMG control and whether there are any performance improvements over time. The authors

Maintenance Strategy Selection in a Cement Company: An Integrated AHP-FAHP Approach

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Abstract. This study develops an integrated AHP-FAHP approach to select the best maintenance strategy for different equipment of a cement manufacturer located in Iran. Although the topic has been investigated in previous literature, it is less examined in cement manufacturers of developing countries. To fill this gap, this research has been conducted in three phases as follows. Firstly, the most important measures of maintenance strategy selection are developed and ranked using a questionnaire. Next, these measures are applied to choose the best maintenance strategy for different equipment of a case study using an Analytic Hierarchy Process (AHP). Finally, a Fuzzy AHP is developed to investigate the obtained results in an uncertain environment. The considered strategies include Corrective maintenance (CM), Reliability Centered Maintenance (RCM), Total Productive Maintenance (TPM), Preventive Maintenance (PM) and Predictive Maintenance (PDM). According to the obtained results, safety, cost, reliability and availability are the most important criteria of maintenance strategy selection. In addition, according to AHP, the PDM strategy is suggested for furnace, PM is suggested for electro filter machine and CM is suggested for crusher. These results are comparatively investigated by FAHP and some managerial insights are suggested.

INTRODUCTION

Availability is an important factor which should be considered in today's competitive markets. In this regard, companies have acknowledged the importance of maintenance planning and its role to improve the equipment availability. With the advent of mass production, the usage time of manufacturing equipment has been significantly increased. However, any manufacturing machine needs a comprehensive maintenance planning approach. Although the concept of maintenance strategy selection and the similar topics have been vastly investigated in previous literature, few studies have been conducted in cement manufacturing companies especially in developing countries. Therefore, it is essential to determine the most important measures of maintenance strategy selection, identify the proper Multiple-Criteria Decision Making (MCDM) approach to rank the alternatives and finally consider the uncertainty of decision makers' judgments. In other words, while maintenance strategy selection is an important topic which should be more investigated, it is less examined with regard to the required measures, appropriate MCDM approaches and uncertain nature of the problem. This ignorance is somewhat due to the intrinsic complexities linked with identification of proper criteria, variability of the available MCDM techniques and finally the fuzzy nature of decision makers' judgments. However, this research propose an integrated AHP-FAHP

Risk Estimation of Construction Activities of Buildings

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Abstract. Building construction work is one of the most dangerous activities among all industries. These works are often associated with different types of risks, which if not eliminated or minimized during design stages would cause fatal accidents and severe injuries during the construction stages. Risk elimination or reduction cannot be achieved without recognizing hazards and assessing risk through evaluation techniques. Risk may not be directly quantifiable, and the presence of confounding variables, ongoing interventions and uncertainty makes generalization of findings to the overall population a suspect. It is difficult to measure risk because it often assumes ordinal scales and data related to it is scarce. This paper presents a risk estimation technique that evaluates risk and produce data that can be used in response decisions to aid risk elimination or reduction in building construction processes. The technique to be presented in this paper will be based on experts' opinion and will depend on experts' knowledge and working experience in the construction industry. The study will conduct a risk assessment survey where experts will be asked to assign risk values to 25 construction activities of five structural elements (footing and foundation, column, wall, beam and roof). The objective is to estimate unit safety risk for each activity and determine the overall risk of the project. A questionnaire with all five components and their corresponding construction activities was used to evaluate risk severity levels and time of exposure for each activity. Data collected was analysed with SPSS descriptive statistics and one-way ANOVA. The findings show that construction field personnel perceive roof, beam and foundation as the most risky design elements to construct. Also excavation, shuttering and anchoring/welding are the most risky activities in the construction process. No significant differences were found between the perceptions of the three groups of construction field personnel (engineers, superintendents and HSEs) regarding risk perception.

INTRODUCTION

Construction works are inherently risky and have potential hazards to people, assets, environment and reputation to companies. Based on incident and fatality rate, the sector is classified as one of the most dangerous industries for industrial workers. A large number of incidents of fatalities and permanent injuries to workers and damages to the industry occur every year. According to the global statistics of the International Labor Organization (ILO, 2018) [1], the accident rate in the construction industry was three times higher than that of other industries and the fatality rate of construction workers was five times that of all industries. Construction fatality rate in Malaysia rose from 7.26 deaths per 100,000 workers in 2014 to 14.57 in 2017, and recorded 118 fatalities in 2018 (DOSH, 2018) [2]. Occupational incidents are predictable and preventable with the process of hazard identification as well as risk assessment and control [3]. Therefore, in order to prevent or minimize occupational accidents, the top-most priority for the construction industry is evaluating and identifying hazards, assessing risks associated with such hazards and attempting to control them during design phases of projects. Risk assessment and quantification is an appropriate method of identifying risks associated with constructing structural elements and activities [4]. This can be achieved by the ability of field personnel to perceive risk and implement effective risk assessment and management practices [5], through their knowledge of construction design processes and safety. Formal identification of hazards and