Front Cover

e-ISSN 2088-6985
p-ISSN 2087-3379

Journal of Mechatronics, Electrical Power, and Vehicular Technology

Volume 15, Issue 2, 2024

Aim and Scope

Journal of Mechatronics, Electrical Power, and Vehicular Technology (MEV) is an internationally peer-reviewed journal aims to provide authoritative global source of scientific information for researchers and engineers in academia, research institutions, government agencies, and industries. The Journal publishes original research papers, review articles and case studies focused on:

Mechatronics: including control system, robotic, CNC Machine, sensor, signal processing, electronics, actuator, and mechanical dynamics.

Electrical Power: including power generation, transmission system, new and renewable energy, turbine and generator design and analysis, grid system, and source assessment.

Vehicular Technology: including electric/hybrid vehicle design and analysis, vehicle on grid, fuel efficiency, and safety analysis.

MEV's vision is to become an international platform with high scientific contribution for the global community. MEV's mission is presenting important results of work, whether in the form of research, development, application, or design.

Imprint

MEV is published by National Research and Innovation Agency (BRIN) - *formerly* Indonesian Institutes of Sciences (LIPI).

ISSN print: 2087-3379
ISSN electronics: 2088-6985

Electronics edition is available at: https://mev.brin.go.id

All published article are embedded with DOI number affiliated with Crossref DOI prefix 10.14203

Peer Review Policy

MEV reviewing policies are:

Every submitted paper will be reviewed by at least two peer-reviewers.

Reviewers are unaware of the identity of the authors, and authors are also unaware of the identity of reviewers (double blind review method).

Reviewing process will consider novelty, objectivity, method, scientific impact, conclusion, and references.

Accreditation

MEV is Sinta 1 accredited by Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia via National Journal Accreditation (ARJUNA) accreditation platform.

https://sinta.kemdikbud.go.id/journals/profile/814

Publication Frequency

MEV is managed to be issued twice in every year. The first issue should be in the mid of the year (July) and the second issue is at the end of the year (December).

Postal Address

MEV Journal Secretariat:

Research Center for Smart Mechatronics,

National Research and Innovation Agency (BRIN)

KST Samaun Samadikun BRIN

Jl. Sangkuriang, Dago,

Kec. Coblong, Bandung,

West Java, 40135 INDONESIA

Business hour: Monday to Friday 08:00 to 16:00 GMT+7

e-mail: jmev@brin.go.id

e-ISSN 2088-6985
p-ISSN 2087-3379

Journal of Mechatronics, Electrical Power, and Vehicular Technology

Volume 15, Issue 2, 2024

Online Submissions

If you already have a Username/Password for Journal of Mechatronics, Electrical Power, and Vehicular Technology?
Go to login at:
https://mev.brin.go.id/mev/login

Need a Username/Password?
Go to registration at:
https://mev.brin.go.id/mev/user/register

Registration and login are required to submit items online and to check the status of current submissions.

Copy Editing and Proofreading

Every article accepted by MEV Journal shall be an object to **Grammarly**® writing-enhancement program conducted by MEV Journal Editorial Board.

Reference Management

Every article submitted to MEV Journal shall use reference management software e.g. **Endnote**® or **Mendeley**.

Open Access Policy

MEV Journal provides immediate open access to its content on the principle that making research freely available to the public to supports a greater global exchange of knowledge.

Processing Charges

Every article submitted to MEV Journal **will not have** any Article Processing Charges. This includes submission, peer-reviewing, editing, publishing, maintaining and archiving, and allows immediate access to the full text versions of the articles.

Plagiarism Check

iThenticate®

Plagiarism screening will be conducted by MEV Editorial Board using **Crossref Similarity Check™** powered by iThenticate®.

Crossmark

Check for updates

Every article will be published along with **Crossmark** button in the PDF and in the online abstract page. Crossmark gives readers quick and easy access to the current status of a piece of content.

Cited-by

Crossref Cited-by

Published article will be equipped with Crossref **Cited-by** service. Cited-by lets publishers show authors and readers what other Crossref content is citing their content.

Indexing & Abstracting

MEV has been covered by these following indexing services:

EBSCOhost, Google Scholar, Directory of Open Access Journal (DOAJ), Science and Technology Index (SINTA), Crossref, Indonesian Scientific Journal Database (ISJD), Indonesian Publication Index (IPI), CiteULike, Academic Journal Database, ResearchBib, Bielefeld Academic Search Engine (BASE), WorldCat, Sherpa Romeo, Index Copernicus, and Open Academic Journal Index (OAJI).

MEV has been indexed in Scopus and the profile page can be visited at https://www.scopus.com/sourceid/21101101245

CC License

e-ISSN 2088-6985
p-ISSN 2087-3379

Journal of
Mechatronics, Electrical Power, and Vehicular Technology

Volume 15, Issue 2, 2024

Journal of

Mechatronics, Electrical Power, and Vehicular Technology

Volume 15, Issue 2, 2024

Journal of

Mechatronics, Electrical Power, and Vehicular Technology

Volume 15, Issue 2, 2024

FOREWORD FROM EDITOR-IN-CHIEF

Most valued Readers,

It is with great enthusiasm that I present the latest issue in 2024 of the Journal of Mechatronics, Electrical Power, and Vehicular Technology. This edition delves into groundbreaking innovations and critical evaluations that bridge the realms of renewable energy, sustainable technologies, and advanced vehicular systems. We are pleased in this issue to present a diverse range of twelve articles and papers written by authors from different countries, such as Bangladesh, Ethiopia, Indonesia, Japan, Malaysia, Taiwan, the Netherlands and the United States of America.

Our first highlighted study investigates an IoT-based monitoring system for on-grid photovoltaic power plants. By achieving an exceptional accuracy of 96.37%, this work exemplifies how modern technologies can elevate the performance and reliability of renewable energy solutions, aligning with global sustainability goals. In another compelling contribution, researchers explore the barriers to electric vehicle (EV) adoption in Bangladesh. Through rigorous surveys and statistical analyses, the study identifies financial, infrastructural, and behavioral challenges, offering actionable insights for policymakers to foster a more inclusive transition to green mobility.

The examination of biogas-fueled generator sets, utilizing cow dung as a sustainable energy source, provides a testament to the potential of bioenergy. With efficiency rates peaking at 14.51%, this research underscores the feasibility of alternative fuels in addressing global energy challenges while reducing environmental impacts. Next, the techno-economic assessment of the Bilacenge PV grid system in Southwest Sumba offers insights into the economic feasibility of solar energy projects in remote areas. Despite the challenges, such studies are essential for understanding the long-term benefits and potential of renewable energy investments.

In the realm of transportation, the assessment of hybrid and battery electric motorcycles provides a comparative analysis of energy consumption, greenhouse gas emissions, and cost efficiency. The study's findings emphasize the benefits of battery electric motorcycles in terms of energy savings and reduced emissions. Then, innovations in sensor technology and autonomous vehicle control are also featured, with research on a three-axis flexible tube sensor for EV charging port alignment and non-linear model predictive control for autonomous personal mobility vehicles. These advancements are paving the way for more efficient and reliable automated systems.

Further, the integration of calcium looping processes in cement plants and the analysis of battery energy storage systems (BESS) for grid stability highlight the ongoing efforts to mitigate environmental impacts and enhance energy efficiency. These studies provide practical solutions for reducing greenhouse gas emissions and improving the reliability of renewable energy sources.

Lastly, the ergonomic analysis of gaming mice using electromyography and subjective assessment addresses the health and comfort of users, reflecting the importance of human-centered design in technology development.

As we navigate an era of unprecedented technological advancements and environmental urgency, these studies not only contribute to academic discourse but also provide practical frameworks for real-world application. I extend my deepest gratitude to the authors, reviewers, and editorial team whose dedication ensures the quality and impact of our publication.

Let this issue inspire further exploration and collaboration in the pursuit of a sustainable future.

Bandung, December 2024

Editor-in-Chief

Journal of

Mechatronics, Electrical Power, and Vehicular Technology

Volume 15, Issue 2, 2024

LIST OF CONTENTS

Complete articles can be found at https://mev.brin.go.id/