

Front Cover

Journal of Mechatronics, Electrical Power, and Vehicular Technology

Volume 16, Issue 2, 2025

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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.

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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>

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

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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).

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Volume 16, Issue 2, 2025

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Volume 16, Issue 2, 2025

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FOREWORD FROM EDITOR-IN-CHIEF

Most valued Readers,

It is my great pleasure to present Volume 2 in this year (2025) of the Journal of Mechatronics, Electrical Power and Vehicular Technology (JMEV). This volume reflects the journal's continued commitment to disseminating high-quality, peer-reviewed research that advances theory, design, and practical implementation across the interconnected domains of mechatronics, electrical power systems, vehicular technology, and intelligent engineering applications.

The articles in this volume collectively demonstrate how contemporary engineering challenges are being addressed through interdisciplinary approaches that integrate sensing, control, power electronics, optimization, and data-driven intelligence. Several contributions focus on autonomous and intelligent mobility, including stereo vision-based distance estimation for autonomous parking, low-cost sensor fusion using Extended Kalman Filters for personal mobility vehicle localization, adaptive suspension systems for mobile robots, and hybrid electric motorcycle control architectures. These studies underline the growing importance of affordable, robust, and real-time solutions for autonomous and assisted transportation systems.

Another prominent theme in this volume is energy systems and power electronics, particularly in the context of sustainability and renewable energy integration. Contributions addressing maximum power point tracking (MPPT) under partial shading conditions, DC-DC converter design with advanced compensation techniques, quasi-Z-source inverter topologies for common-mode voltage reduction, and photovoltaic-driven green hydrogen production via PEM electrolysis demonstrate significant progress toward efficient, reliable, and application-oriented power conversion systems. Complementing these works, the integration of biomass gasification with solar power highlights the potential of hybrid renewable energy systems for decentralized and rural applications.

The volume also presents notable advances in communication networks, optimization, and smart infrastructure, including enhanced LEACH-based protocols for energy-efficient wireless sensor networks and bio-inspired optimization techniques for optimal distributed generation placement in power distribution systems. These studies emphasize the role of intelligent algorithms in extending system lifetime, improving power quality, and reducing losses in increasingly complex electrical networks.

In addition, emerging applications of intelligent control and computer vision for agriculture and environmental systems are represented through works on fuzzy logic-based hydroponic nutrient dosing and IoT-enabled, edge-based visual detection for precision agriculture. These contributions demonstrate how mechatronic and electrical engineering solutions can directly support food security, sustainability, and resource efficiency.

Taken together, the papers in this volume showcase not only technical rigor but also strong experimental validation and real-world relevance. They reflect the journal's mission to bridge fundamental research and practical engineering implementation, while promoting innovation that responds to societal and industrial needs.

On behalf of the editorial board, I would like to express my sincere appreciation to the authors for their valuable contributions, to the reviewers for their careful and constructive evaluations, and to all readers for their continued support of the Journal of Mechatronics, Electrical Power and Vehicular Technology. We hope that this volume will serve as a meaningful reference and inspiration for researchers, practitioners, and policymakers working in these dynamic and rapidly evolving fields.

Bandung, December 2025

Editor-in-Chief

Journal of Mechatronics, Electrical Power, and Vehicular Technology

Volume 16, Issue 2, 2025

LIST OF CONTENTS

An evaluation of stereo vision for distance estimation using the SGBM algorithm in the CARLA simulator <i>Rizky Hamdani Sakti, Liptia Venica, Dewi Indriati Hadi Putri, Shinta Rohmatika Kosmaga, Estiko Rijanto</i>	158-168
Sector-based midpoint LEACH enhancement for improved energy efficiency and network lifetime <i>Nirwana Haidar Hari, M. Udin Harun Al Rasyid</i>	169-184
Enhanced outdoor localization of low-cost personal mobility vehicles using Extended Kalman Filter sensor fusion <i>Vita Susanti, Mohd Saiful Azimi Mahmud, Roni Permana Saputra</i>	185-203
MPPT algorithm based on modified remora optimization algorithm for photovoltaic systems under partial shading conditions <i>Moh. Zaenal Efendi, Akhmad Adnaurosyid, Muhammad Nizar Habibi, Rachma Prilian Eviningsih, Novie Ayub Windarko, Mentari Putri Jati</i>	204-219
Design and implementation of a synchronous buck DC-DC converter with incremental conductance MPPT for green hydrogen production via PEM electrolysis <i>Novan Akhiriyanto, Rizky Muhammad Afandi</i>	220-232
Novel design of a simple control system for hybrid electric motorcycle <i>Didi Widya Utama, Hadian Satria Utama, Reno Wardy</i>	233-243
Performance study of corncob-fueled updraft gasification with integrated solar power plant as a supporting energy source for the reactor <i>Rifaldo Pido, Steven Humena, Fadhil Abdullah</i>	244-255
Design and implementation of a DC-DC buck converter with Type III compensator control <i>Fahmizal, Muhammad Rizal Sahiddin, Priyo Herlambang, Gibran Nabil Sentana, Hari Maghfiroh</i>	256-265
Integration of a bidirectional cell in a quasi-Z-source inverter for CMV reduction and pure sinusoidal wave form <i>Mohammad Imron Dwi Prasetyo, Muhammad Syahril Mubarok, Sofyan Muhammad Ilman, Misbahul Munir, Nur Vidia Laksmi B</i>	266-277

Design and performance of nutrient dosing control system for hydroponic chilli plant using fuzzy logic controller <i>Haryo Prastono, Mohamad Solahudin, Supriyanto</i>	278-290
Low-cost 3D-printed adaptive suspension system for mobile robots using DMP-based real-time stabilization <i>Sumit Babu Rijal, Prasiddha Chaulagain, Suman Kandel, Tul Bahadur Saru, Srijana Pariyar, Yubraj Bajgain, Kiran Giri</i>	291-304
Real-time FFB ripeness detection using IoT-enabled YOLOv8n on Raspberry Pi 4 edge devices for precision agriculture <i>Nurul Hazlina Noordin, Rosdiyana Samad, Abdul Haikal Abdul Malek</i>	305-317
Optimization of distributed generation placement in distribution network based on queen honey bee migration algorithm <i>Alif Dhurrotul Fachriyyah, Arripriharta, Sujito, Muchamad Wahyu Prasetyo, Muhammad Cahyo Bagaskoro, Norzanah binti Rosmin, Saodah Omar, Gwo Jiun Horng</i>	318-329

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