

Editorial

In this issue, we present a collection of 09 accepted papers encompassing a diverse range of topics in the fields of technology, engineering, and education. These papers contribute to the advancement of knowledge and innovation within their respective domains. Each paper is a result of rigorous research, analysis, and experimentation, offering valuable insights and potential avenues for future exploration.

The first paper explores the integration of the Common Alerting Protocol (CAP) into the existing ISDB-T standard for digital terrestrial television systems. The researchers aim to enhance early warning capabilities for natural disasters by utilizing the ISDB-T standard alongside the Emergency Warning Broadcasting System (EWBS). The study involves the development of a CAP to EWBS translator and the design of transmitters compliant with both full-seg and one-seg ISDB-T standards [1].

Moving into the realm of robotics and education, the second paper discusses the implementation of augmented reality (AR) technology for training purposes in the context of the "Thailand 4.0" roadmap. The study introduces an AR-based visual programming interface for robot training, allowing users to understand the interconnected relationship between data and hardware functionality. The proposed AR-based training system proves effective in human resource development for the robotics and automation sector [2].

The third paper addresses the crucial issue of longitudinal stability in fixed-wing UAVs. Unmanned aerial vehicles (UAVs) are increasingly employed for various applications, and ensuring their stability is paramount. The research focuses on the design and modeling of a feedback controller, including PI, PID, and Fuzzy logic controllers. Results indicate the superiority of the fuzzy logic controller in managing the system's response [3].

Shifting towards sustainable energy solutions, the fourth paper investigates the impact of wind power integration on energy networks. The study highlights wind energy as a competitive and eco-friendly resource but acknowledges its unpredictable nature. The research uses simulation in MATLAB/SIMULINK to analyze the effects of wind power integration on the power quality of distribution networks. Additionally, the paper proposes the integration of Flexible Alternating Current Transmission Systems (FACTS) as a solution to maintain clean electrical quality [4].

The fifth paper provides a comprehensive review of the condition assessment of medium voltage assets in power distribution networks. Focusing on assets such as power transformers, photovoltaic systems, switchgear, lines and cables, and instrument transformers, the study identifies research gaps and emphasizes the need for deeper assessment in critical areas. The review covers traditional diagnostic methods and advanced AI-based approaches [5].

In the realm of education, the sixth paper introduces the Graded Multidisciplinary Model (GMM) as a means to facilitate STEM/STEAM education. The GMM is applied to the topic of logic gates, linking university content to high school content through practical activities in Minecraft. The study demonstrates the positive impact of the GMM on students' performance and skills in science, technology, engineering, art, and mathematics [6].

Shifting gears to social media networks, the seventh paper delves into the modeling of control agents using reinforcement learning. With a focus on opinion dynamics, the research proposes the use of intelligent reinforcement learning agents to shape opinions in social media networks. The paper presents a multi-agent system and Q-learning approach to control opinion dynamics effectively [7].

The eighth paper addresses the critical need for battery cell balancing in the context of renewable energy and electric vehicles. Introducing a novel near-field coupling method, the study focuses on a resonant coil design with an enhanced Q-factor for efficient balancing. Experimental validation demonstrates the proposed technique's superiority in speed and wireless energy transfer to cells, overcoming the limitations of traditional passive and active methods [8].

The ninth paper discusses the design and prototyping of a 3DOF worm-drive robot arm. The affordability and simplicity of the revolute arm make it suitable for executing pick-and-place tasks. The paper details the structural elements, kinematics, and operational metrics of the arm, highlighting its capabilities in endpoint position tracking and object manipulation [9].

In conclusion, this issue brings together a diverse array of research papers, showcasing advancements in early warning systems, robotics training, UAV stability, renewable energy integration, asset condition assessment, STEM/STEAM education, opinion dynamics, battery cell balancing, and robot arm design. The collective efforts of the researchers contribute significantly to the academic and practical understanding of these fields, paving the way for further exploration and innovation in the future.

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