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AI Enabled Substantial Electronics

Janhavi More, Ashwini Patil, Namrata Prajapati, Swara Ahire
Students, Department of Humanities and Science
Guru Gobind Singh Polytechnic, Nashik, Maharashtra

Abstract: *In recent years, the rapid proliferation of electronic devices has led to increased energy consumption and e-waste, posing significant environmental challenges. The integration of Artificial Intelligence (AI) in the design and optimization of sustainable electronics offers a promising solution to these issues. This paper presents an AI-driven framework for developing energy-efficient electronic systems and promoting sustainable practices across the electronics lifecycle, from design to disposal.*

The proposed framework leverages AI algorithms to optimize power consumption in Internet of Things (IoT) devices through real-time monitoring and intelligent decision-making. By analyzing data from sensors embedded in IoT devices, AI models predict usage patterns and dynamically adjust energy utilization, reducing power wastage by up to 30%. Additionally, AI aids in the identification and classification of recyclable components from electronic waste, enabling effective recycling and resource recovery.

This research further explores the application of AI in developing biodegradable electronic components, minimizing the environmental footprint. The results of simulations demonstrate the potential for significant energy savings and a reduction in e-waste generation. The proposed system aligns with global sustainability goals and contributes to the advancement of eco-friendly electronics.

In conclusion, this study highlights the transformative role of AI in creating a sustainable electronics ecosystem. It emphasizes the need for interdisciplinary collaboration to address the growing demand for greener and more energy-efficient technologies. Future work will focus on scaling the framework for industrial applications and integrating renewable energy sources into the system..

Keywords: Artificial Intelligence