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Hybrid Power Generation System through Renewable Energy Sources Using Machine Learning Methods on an IoT-Based Platform

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KEYWORDS	ABSTRACT
Wind Energy, Wind Turbines, Fossil Fuels, Energy Utilization	This research explores the benefits of integrating intermittent energy sources with energy storage for the electrical system. A hybrid energy system, combining multiple sources, has been established at an Electrical Power System Lab in Karachi, Pakistan. The study introduces a monitoring and control mechanism using the ESP8266 microcontroller and Raspberry Pi, enabling both manual and remote system operation. Increasing the efficiency of the system by applying machine learning methods Central to this work is the application of the Internet of Things (IoT) for tracking and managing the hybrid system. The proposed solution is efficient, cost-effective, and user-friendly, emphasizing the seamless transition between primary energy sources like wind and solar power.
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