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(57) Abstract :

The present invention discloses an intelligent IoT-enabled system for real-time energy consumption monitoring and optimization across residential, commercial, and industrial settings. The system comprises a network of smart sensors, wireless communication modules, a machine learning-based analytics engine, and an automated control unit. It continuously collects energy usage data, analyzes consumption patterns, detects anomalies, and optimizes device operation by executing intelligent control strategies. The system supports integration with renewable energy sources, offers user-friendly interfaces for monitoring and customization, and facilitates efficient energy utilization, cost savings, and sustainability through adaptive and predictive energy management.

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