

Abstract

The increasing demand for electricity and the need for energy conservation has highlighted the importance of monitoring and optimizing energy usage. The **Electricity Consumption Alert System** is designed to help individuals and organizations effectively manage their electricity consumption by providing real-time tracking and alerts when predefined consumption thresholds are exceeded. This system utilizes **smart meters** and **Internet of Things (IoT)** technology to monitor electricity usage continuously. It integrates with a web or mobile application, which provides users with a user-friendly interface to track their energy consumption patterns, set alerts, and access energy-saving recommendations. When the consumption exceeds a set limit, the system sends instant notifications through SMS, email, or app alerts. Key features of the system include: **Real-Time Monitoring:** Users can view real-time energy usage statistics, including current consumption, daily or monthly trends, and comparison with historical data. **Threshold-Based Alerts:** Notifications are triggered when energy usage exceeds predefined consumption thresholds, encouraging timely intervention to prevent excessive energy waste. **Energy Usage Optimization:** The system analyzes usage patterns and suggests practical tips for reducing consumption, such as turning off unused devices, adjusting thermostats, or shifting usage to off-peak hours. **Data Analytics:** Provides detailed reports and visual graphs to help users understand their electricity consumption habits and identify potential areas for improvement. The Electricity Consumption Alert System helps promote **energy efficiency**, reduce electricity costs, and contribute to environmental sustainability by encouraging users to adopt responsible energy practices. Additionally, it can assist utilities in managing grid load and enhancing demand-side management strategies. In conclusion, this system is a powerful tool for individuals and businesses seeking to optimize their electricity usage, promote energy conservation, and reduce environmental impact.