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(57) Abstract :  
The Design and Implementation of an Innovative Energy Meter with Overvoltage project presents a cutting-edge solution to the challenges associated with traditional energy metering and the risks posed by overvoltage events in electrical systems. This innovative energy meter not only accurately measures energy consumption but also incorporates advanced features to detect and mitigate overvoltage instances in real-time. The design integrates smart technologies, such as sensors and communication interfaces, enabling remote monitoring and control. The user-friendly interface provides consumers with insightful data on energy consumption patterns, while the overvoltage protection feature ensures the safety of connected devices. The industrial applicability of this innovation spans manufacturing, utilities, commercial buildings, renewable energy, smart cities, data centers, residential settings, electric vehicle infrastructure, telecommunication, and remote/off-grid applications. Through its versatility and advanced functionalities, the proposed energy meter contributes to enhanced energy management, efficiency, and system safety across diverse industrial sectors.

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