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Smart IOT Based Transformer and Distribution Panel Health Monitoring

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Abstract: *The continuous and reliable operation of power systems is crucial for industrial, commercial, and residential applications. Transformers and distribution panels play a vital role in ensuring uninterrupted power delivery. However, failures in these components can lead to significant economic losses, safety hazards, and system downtime. This paper presents a comprehensive Smart Internet of Things (IoT)-based monitoring system designed to track the health and performance of transformers and distribution panels in real time. The system utilizes various sensors to monitor parameters such as temperature, oil level, voltage, current, humidity, and fault conditions. Data is transmitted to a cloud-based platform for storage, visualization, and predictive analysis. The system enables early fault detection, reduces maintenance costs, and enhances operational efficiency. The proposed model is scalable, cost-effective, and suitable for modern smart grid infrastructure*

Keywords: IoT, Transformer Monitoring, Distribution Panel, Smart Grid, Predictive Maintenance, Sensors, Cloud Computing, Fault Detection