

Substation Monitoring Over GSM with Flood and Earthquake Detection

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Abstract: *Substations are critical nodes in the electrical grid, responsible for transforming and distributing electricity. Ensuring their operational integrity is paramount to maintain a reliable power supply. This project, "Substation Monitoring Over GSM with Flood and Earthquake Detection," presents a comprehensive solution to address this concern. It amalgamates cutting-edge technology to monitor and protect substations from both internal and external threats. Real-time monitoring of critical parameters, such as transformer temperature, voltage, and current, allows for the early detection of deviations from optimal operating conditions. An advanced fault detection system takes immediate corrective actions upon identifying irregularities, thereby preventing potential equipment failures and grid disruptions. The project goes beyond internal equipment monitoring, extending its protective mantle to encompass external threats, including earthquakes and flooding. Vibration sensors are employed to detect seismic activity, while float sensors monitor water levels. The integration of these sensors into the system ensures the ability to identify and respond to potential disasters swiftly. An innovative feature of this project is its reliance on GSM-based communication, which promptly alerts relevant authorities via text messages when any anomalies or threats are detected. This real-time communication guarantees swift responses and proactive measures, safeguarding the substation infrastructure and preserving the continuity of electrical power supply.*

Keywords: Substation monitoring, GSM communication, fault detection, earthquake detection, flood detection

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