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Development of Real Time Health Monitoring of Condition of Distribution Transformer using Arduino Technology

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Abstract: *The development of a real-time health monitoring system for distribution transformers using Arduino technology aims to enhance the reliability and efficiency of the electrical power distribution network. This project involves the centralization of transformer control, enabling operators to remotely switch transformers on and off from a control room. Temperature sensors are integrated to monitor and prevent insulation winding failures, while current and potential transformers measure and relay real-time voltage and current data to the control room. The system employs dual relays or magnetic switches to disconnect transformers from the main grid during hazardous conditions, thereby safeguarding the infrastructure. By leveraging IoT platforms, this monitoring system provides continuous insights into transformer health, allowing for proactive maintenance and reducing the risk of unexpected failures. The use of Arduino technology not only ensures accurate and timely data collection but also extends the operational lifespan of transformers, optimizing the overall performance and reliability of the power distribution grid.*

Keywords: Real-time monitoring, Arduino technology, IoT platforms, proactive maintenance

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