

Real-Time Remote Plant Data Management System Using PLCs and IoT

Abstract

The project aims to develop a Real-Time Remote Plant Data Management System to monitor and manage industrial plant equipment data using Programmable Logic Controllers (PLCs) and IoT technologies. The objective is to enable real-time data acquisition, secure data transfer, and remote access for efficient plant management.

Scope of Work: The system will use PLCs to collect sensor data, implement open-source communication protocols for data transfer, and store data on an open-source cloud platform for real-time and historical analysis. A GUI/dashboard, built with open-source tools, will provide performance tracking, predictive maintenance insights, and zooming capabilities for time and amplitude analysis, with a shot-based tagging scheme for data organization. Open-source cybersecurity measures will ensure secure data transmission

Project Duration: 5 months

Expected Outcome: A functional data management system for a 5 TPD Plasma Pyrolysis Plant, capable of securely transferring data over the internet from the installation site to IPR/FCIPT. The system will enable real-time monitoring, data visualization, and predictive maintenance through a user-friendly interface, fostering skills in industrial automation and IoT.

Academic Project Requirements:

1) Required No. of student(s) for academic project: 3

2) Name of course with branch/discipline: B.E./B.Tech. Electronics and Instrumentation Engineering

3) Academic Project duration:

(a) Total academic project duration: 21 Weeks

(b) Student's presence at IPR for academic project work: 5 Full working Days per week

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