Implementation of a Cost-Effective SCADA System for Micro Industries

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Abstract: *Industrial process automation, monitoring and control depend heavily on SCADA (Supervisory Control and Data Acquisition) systems. An effective and economical SCADA system can make a big difference in operations and production for micro-industries, which typically have limited Dat resources. The simple and inexpensive SCADA for micro industry is the focus of this project. It uses low-end hardware, like PLCs or microcontrollers, in conjunction with an interactive software interface to manage the control process, extract data, and observe in real time. Automation, fault-detection, and remote access are key characteristics that enable the system to save gathered data, improve business decisions, and reduce downtime. It is designed with the latest communication technologies, such as Modbus, and wireless, to ensure it works seamlessly. It is modular and flexible, which allows it to be easily modified to fit any industrial process. Testing shows that it works reliably for real-time operations and stays affordable. This work aims to help small industrial adopt modern technologies, improve efficiency, and stay competitive in today's fast-changing industrial environment.*

Keywords: SCADA System, Industrial automation, Process control, Real-time observation, Remote access, Data acquisition, Wireless communication