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Automated Elevator Protection and Environmental Hazard Detection System in Mining with PLC And SCADA

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Abstract: *This project focuses on enhancing the safety and monitoring of elevators used in mining environments through an advanced automation system utilizing PLC (Programmable Logic Controller) and SCADA (Supervisory Control and Data Acquisition) technologies. The system is designed to protect elevators from potential hazards, specifically rope cuts, by integrating various sensors to monitor lift movements and*
detect abnormalities. In the event of a rope failure or excessive lift descent, the PLC triggers immediate activation of mechanical stoppers to halt the lift safely. Additionally, the SCADA system provides real-time control and monitoring, ensuring effective management of elevator operations. The project also incorporates environmental safety measures, gas detection through sensors, and water leakage monitoring. When hazardous conditions such as gas leaks or water intrusion are detected, the system activates alarms.

Keywords: SCADA

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