Designing an AI-Powered Safety System for Industrial Protection

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Abstract

This study investigates the application of artificial intelligence (AI) in improving industrial safety through computer vision for motion detection, integrated with a Programmable Logic Controller (PLC) system for real-time responses. The primary aim is to design a system that captures and analyzes live video using computer vision algorithms programmed in Python, which subsequently sends safety alerts to the PLC based on the analysis results.

By integrating AI-based image analysis with industrial communication protocols, such as Modbus or Ethernet, this system offers a secure and responsive safety solution tailored to industrial environments.

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