

# Implementation of Combined Fuzzy Controller to Enhanced Oil and Gas Construction Project

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**Abstract:** Robots receive particular mechanical body elements for executing specific duties and they adjust their design to match the operational requirements. Robots accessing rugged terrains of oil refineries and gas plants achieve better mobility through the use of caterpillar tracks. The frame of a robotic system follows its operational requirements to perform work more effectively. A power source with electricity from a battery enables robots to function by transmitting the power through a circuit. Petrol-engine machinery needs electricity to operate and create an electrical spark for ignition functions. The automation system brings essential benefits for safety combined with operational efficiency in risk-filled industrial facilities. We suggest the development of Hanging Robot System technology to fulfill the requirement of continuous risk detection during real-time monitoring. The system requires building dedicated ropes for robotic machinery units to operate as they run continual checks on critical areas throughout the facility. This robot system has advanced sensors which identify dangers that come from gas leaks and temperature abnormalities as well as mechanical system breakdowns. The base station receives the real-time data for immediate analysis while taking steps to minimize emergency situations exposure to employees. The hanging robot operates either autonomously or comes under remote control to focus inspections on designated positions. The combination of artificial intelligence with IoT sensor systems permits timely detection of accurate hazards which leads to an enhancement of oil and gas industry risk management strategies.

**Keywords:** Robots, Automation, Safety, Risk Detection, Hanging Robot System

