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(57) Abstract :
The present invention discloses an AI-based platform for smart industrial robot control systems (101) that integrates a sensor fusion module (102), AI decision engine (103), robot control interface (104), cloud-edge hybrid architecture (105), predictive maintenance unit (106), and human-robot collaboration interface (107). The system enables adaptive task execution, predictive maintenance, and safe human-robot collaboration while ensuring scalability, resilience, and efficiency in industrial automation. The invention provides a transformative solution for Industry 4.0, reducing downtime and enhancing productivity through AI-driven intelligence.

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