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(57) Abstract :
SCALABLE IOT SYSTEM FOR INDUSTRIAL AUTOMATION The present invention relates to the development of a scalable Internet of Things (IoT) system for industrial automation provides a revolutionary foundation for enhancing operational effectiveness, streamlining manufacturing processes, and facilitating real-time decision-making. The solution facilitates smooth data collection, transfer, and analysis in expansive industrial settings by combining cloud-edge computing, smart sensors, and heterogeneous IoT devices. Scalability guarantees flexibility in response to expanding networks of devices and changing industrial needs without sacrificing system performance. Predictive maintenance, defect detection, and process monitoring are improved by sophisticated machine learning algorithms and predictive analytics, which lower operating expenses and downtime. The architecture makes use of edge intelligence, secure data management, and lightweight communication protocols to guarantee dependability and cyber-resilience in industrial environments. Additionally, by facilitating interchange with legacy equipment, the system encourages economic modernization. In the end, our scalable IoT-based automation framework stimulates innovation and competitiveness in international industrial operations by promoting flexibility, sustainability, and productivity in Industry 4.0 applications. FIG.1

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