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Next-Gen Hospital-Patient System with Security and Predictive Intelligence

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ABSTRACT

Healthcare efficiency and patient safety are critical concerns in today's society, particularly in rural and urban hospitals where demand often exceeds resources. The advancement of Artificial Intelligence (AI), Internet of Things (IoT), and Machine Learning (ML) offers transformative solutions to these challenges. This project proposes a real-time hospital management system leveraging AI-powered disease prediction, virtual consultations, and specialist matching to ensure accurate and timely treatment.The system integrates IoT-enabled sensors for real-time monitoring of hospital resources such as beds, ICUs, and ventilators. Medicine stocks are tracked using RFID/barcode automation, while GPS-based hospital and pharmacy suggestions improve patient accessibility. The solution emphasizes lightweight deployment, enabling seamless integration into existing hospital infrastructures for Industry 5.0-ready smart healthcare systemsExperimental evaluations demonstrate promising results in real-time hospital resource tracking, efficient medicine management, and AI-assisted decision-making for doctors. This AI-driven approach not only contributes to healthcare automation and robotics but also supports sustainable adoption by reducing dependency on manual monitoring.The proposed system exemplifies how Machine Learning and Artificial Intelligence in automation can enhance healthcare services. In the mechanical field, an AI-powered hospital management system can be integrated with IoT sensors, automated pharmacy systems, and diagnostic equipment to optimize patient care, reduce errors, and improve hospital efficiency in Industry 5.0-enabled smart healthcare environments

Keywords:Smart Hospital, Real-time Monitoring, AI-powered Diagnosis, Mechanical Automation, Electronic Health Records.

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