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IoT-Based Smart Healthcare Monitoring System

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Abstract: *This research dives into the integration of the Internet of Things (IoT) into our medical infrastructure, specifically focusing on smart healthcare monitoring systems. We set out to truly understand the benefits, challenges, and ethics of this transformative technology. Through a systematic review of sources from 2023 to 2025, a clear duality emerged: the technology's biggest benefits—like real-time patient tracking, remote diagnosis, and preventative care—are deeply tied to its biggest risks. We found that the main challenges are technical (specifically interoperability), economic (implementation costs), and security-based (data breaches and device hacking). The paper also confronts the core ethical problems: who owns the data, the digital divide in patient access, and the erosion of the patient-doctor relationship. Our conclusion is that technology alone isn't the answer. The future lies in a "Doctor-in-the-Loop" (DITL) model, where clinical judgment, empathy, and ethical oversight remain the most valuable parts of the process. This paper frames these findings to help navigate this new landscape responsibly..*

Keywords: Internet of Things (IoT), Smart Healthcare, Remote Patient Monitoring (RPM), Wearable Sensors, Data Privacy, Telemedicine, Systematic Literature Review

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