

IoT-based patient monitoring system for Sri Lanka

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The Internet of Things (IoT) has profoundly transformed the healthcare industry, introducing continuous remote patient monitoring to improve patient care, treatment outcomes, and cost-effectiveness. This research project presents a comprehensive IoT-based patient monitoring system designed to enable doctors and healthcare professionals to remotely examine their patients anytime and anywhere, eliminating the need for physical presence for routine checkups and saving valuable time for both medical staff and patients. The system's core objectives include the development of a hardware driver to monitor patient health, the creation of a web application for real-time data collection, the establishment of communication channels for relaying patient information to doctors and caretakers, and the implementation of data analysis to provide regular updates on patient conditions. This IoT-driven approach facilitates the organization and accessibility of patient details and reports for all patient care stakeholders. Central to the system's implementation is the NodeMCU, which seamlessly integrates various sensors with the IoT infrastructure. Low-power sensors are utilized to gather patient data, which is then displayed through open-source software, specifically Thingspeak. The collected data is stored securely on personal computers and the cloud, while an Android app enables doctors and healthcare professionals to conveniently access and review patient data in real time. This research project significantly contributes to enhancing patient care and healthcare delivery by enabling informed decision-making based on real-time patient data. The IoT-based patient monitoring system presented here is a scalable and convenient solution for healthcare professionals to continuously monitor and care for bedridden patients, regardless of location. The seamless integration of IoT technologies and medical devices empowers doctors and nurses to utilize mobile devices, facilitating their participation in a global network of healthcare providers. This IoT-based patient monitoring system exemplifies the potential of IoT in revolutionizing healthcare delivery, increasing healthcare efficiency, and offering continuous care to bedridden patients. By providing remote monitoring and access to real-time patient data, the system paves the way for a new era of healthcare, characterized by enhanced patient outcomes and proactive medical interventions.

Keywords: Internet of Things; Health; Sensors; Realtime