

Abstract:

In the evolving landscape of wearable technology, the integration of the Internet of Things (IoT) with everyday clothing has opened up new avenues for health monitoring, fitness tracking, and personal well-being. This paper introduces a **Smart Shirt** embedded with IoT sensors, which enables real-time data collection and monitoring of vital health parameters such as heart rate, body temperature, and respiration rate. The shirt is equipped with fabric-integrated sensors that wirelessly transmit data to an Android-based mobile application, providing users with continuous insights into their physical condition. The system leverages a combination of **flexible sensors** and **microcontrollers** to gather data, which is processed and transmitted via **Bluetooth** to a mobile device. The Android-based app serves as the central interface for the user, allowing them to view, analyze, and track health trends over time. The application also includes notifications to alert users about irregularities or abnormalities in their vitals, offering real-time feedback. The proposed Smart Shirt is intended for applications in healthcare, fitness, and sports, where continuous, non-invasive monitoring is crucial. Additionally, the integration of IoT and Android technology enhances user convenience, accessibility, and the potential for future integration with other IoT-enabled devices or cloud platforms for more advanced data analysis and predictive health insights. In conclusion, the Smart Shirt using IoT and Android-based monitoring represents a significant step forward in personal health management, offering a convenient, efficient, and non-invasive way to monitor vital signs in real-time, promoting a proactive approach to health care.