IoT-Based Contactless Temperature Monitoring System with Facial Identification for Automated Healthcare Screening

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Abstract

In modern healthcare environments, preliminary screening procedures such as body temperature measurement are essential but often inefficient when performed manually. Conventional contact-based temperature monitoring requires significant human involvement, consumes time, and makes large-scale data recording and management difficult, particularly in high-traffic medical and public settings. To address these limitations, this paper proposes a contactless temperature monitoring and recording system integrated with face recognition and server-based data management. This work aim offers automatically measures body temperature without physical contact, identifies individuals using facial recognition technology, and securely records the corresponding data on a centralized server through a communication module. This system approaches significantly reduces manual effort, minimizes human error, and enables efficient storage and retrieval of large volumes of visitor and patient data in real time. This proposed model suited for hospitals, clinics, and public access points where rapid and reliable health screening is critical. The proposed model increases operational efficiency, scalability, and traceability in healthcare screening applications. As future work, the system can be extended with an emergency alert mechanism, such as an automated buzzer or notification system, to immediately flag abnormal temperature readings for prompt medical attention.