

# IoT-Enabled Vital Monitoring System Using Real-Time Notification

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**Abstract:** In recent years, the Internet of Things (IoT) has revolutionized healthcare by enabling real-time monitoring and alert systems. This paper presents an IoT-enabled pulse and temperature monitoring system that provides instant notifications for effective remote patient monitoring. The system utilizes pulse and temperature sensors to measure vital health parameters, with data processed by an RP2040 microcontroller and transmitted via a Host 2.4GHz 4G module to a cloud-based dashboard. The system triggers alerts via Telegram notifications when abnormal readings are detected, ensuring timely intervention and enhanced patient care. Experimental results demonstrate the efficiency of the proposed system, with high accuracy in data collection, low latency in transmission, and real-time alerting capabilities. The system is designed to be scalable, cost-effective, and energy-efficient, making it suitable for remote healthcare applications.

**Keywords:** IoT, Pulse Monitoring, Temperature Monitoring, RP2040 Microcontroller, Real-Time Notification, Healthcare, Telegram Alerts

