IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, May 2025
Impact Factor: 7.67

Intelligent Electrocardiogram Monitoring System with Abnormality Detection and Alert using IOT Technology

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Abstract: *The rapid advancement in Internet of Things (IoT) technology has revolutionized healthcare monitoring systems, enabling real-time data acquisition and analysis. This paper presents an Intelligent Electrocardiogram (ECG) Monitoring System with abnormality detection and alert mechanisms using IoT technology. The proposed system continuously captures ECG signals through wearable sensors, processes the data using machine learning algorithms, and detects cardiac abnormalities such as arrhythmias, myocardial ischemia, and other critical conditions. Upon identifying an anomaly, the system triggers an instant alert to healthcare providers and emergency contacts via a cloudbased IoT platform, ensuring timely medical intervention. The integration of edge computing reduces latency, while a secure cloud infrastructure ensures data privacy and accessibility. Experimental results demonstrate high accuracy in abnormality detection, with low false-alarm rates, making the system reliable for remote patient monitoring. This research contributes to IoT-based healthcare solutions, enhancing early diagnosis and improving patient outcomes through real time ECG surveillance.*

Keywords: ECG Monitoring, IoT in Healthcare, Abnormality Detection, Real-time Alerts, Wearable Sensors, Machine Monitoring