Real Time Heart Attack Detection and Warning System to Prevent Accidents

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Abstract: *Heart attacks are one of the leading causes of sudden death worldwide, often occurring without warning and in situations where immediate medical help is not available. This becomes particularly dangerous when such incidents take place while a person is driving, working alone. To address this critical health and safety issue, we propose the development of a wearable chest belt designed for real-time heart attack detection and accident prevention. The wearable device is equipped with ECG sensors that continuously monitor the user's heart activity from the chest area, providing more accurate readings compared to wrist based alternatives. The collected ECG data is analyzed to detect patterns and anomalies indicative of a heart attack, such as irregular heartbeats or abnormal ST-segment changes. Upon detecting these warning signs, the system can instantly alert the user, nearby individuals, emergency contacts, or medical professionals through a connected mobile application or GSM module. In addition to real-time monitoring and alerting, the system can be extended to integrate with automotive safety mechanisms, offering the ability to reduce the risk of road accidents if a heart attack is detected while the user is driving. The aim is to make intelligent heart monitoring more accessible, reliable, and impactful—ultimately contributing to reduced mortality rates and safer environments for individuals at risk of cardiac events.*

Keywords: Real-time monitoring, Heart attack detection, Wearable medical device, GSM alert system and Emergency response system