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# **ARRHYTHMIA PATIENT MONITORING SYSTEM & AUTOMATIC PARKING SYSTEM**

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## **ABSTRACT :**

Cardiac patients are increasing in India, and cardiovascular illness is the major cause of death. Many people in India's rural areas would not receive sufficient cardiovascular disease therapy. An electrocardiogram (ECG) is a voltage-time graph of the heart's electrical activity, and any deviation in this pattern is referred to as arrhythmia. Sudden change in the health status of vehicle drivers causes too many accidents. An autonomous parking system using sensors that dependent on the health status of the driver, which is determined through the heart rate sensor, Alcohol sensor and smoke sensor. The system is capable of self-parking the vehicle & the location of the person through GSM.

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## **INTRODUCTION:**

Remote monitoring and control of heart function are of primary importance for patient evaluation and management, especially in the modern era of precision medicine and personalized approach. It is reported by The World Health Organization that cardiovascular diseases are the primary cause of the world's highest mortality, and arrhythmias are the most common. Arrhythmias are caused by abnormalities in the conduction system of the heart. They can be slowly, rapidly, or irregular heartbeats and can be life-threatening or nonlife-threatening. Nonlife-threatening arrhythmias need to be tested for a long period of time to ensure that the pathologic causes of the arrhythmia can be detected early. Based on the above, early detection of cardiac arrhythmias is of paramount importance, in order to improve patient management. Sometimes these people might be very normal and all of a sudden there might be irregular heartrate and attacks, in order to overcome all these issues we provide a system that helps to be aware of their condition.

In addition to the critical need for early detection of cardiac arrhythmias, there is also a growing concern regarding the safety of drivers on the road, especially considering the potential risks associated with sudden health changes while driving. The integration of an automatic parking system into vehicles not only addresses the need for continuous monitoring of heart function but also enhances road safety by providing assistance in emergency situations.

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## **EXISTING SYSTEM:**

- Application based on telemedicine for online monitoring of arrhythmia is implemented in this work.
- It consists of a real time monitoring of ECG for rural people so that there is no need for them to go to the specialty hospital in urban areas.
- The advantage is that the doctors in urban area can monitor the cardiac patients and give proper advice to physicians in the Primary Health Centers (PHC) in rural area.
- A Real -Time Arrhythmia detection Algorithm has been implemented at specialty hospital for diagnostic purpose.

## **DISADVANTAGES**

- This system monitors only the ECG value of the patient
- It is implemented only for the purpose of hospitals and physicians.
- It only monitors the hospitalized patient but not the others.

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## **PROPOSED SYSTEM:**

- The proposed system consists of Power supply unit which supplies power to the whole system.
- Embedded C codes are used to program and control the sensor and other devices. The heartbeat is detected by the heart pulse sensor. The analogue to digital converter (ADC), which converts the sensor's detected data into a digital signal, receives it.

- The microcontroller receives the digital signal after conversion.
- Alcohol sensor is implemented to detect if the person has consumed any drinks and driving.
- If the Pulse value varies, then the speed is controlled and stops, shares the location of the person with the help of GPS through GSM.
- LED strip is used to indicate the emergency stop to the vehicles back side.
- These parameter values are displayed over LCD.

#### **ADVANTAGES**

- The implemented system is user friendly and cost effective
- It is not only used for Arrhythmia patients but can be implemented for all drivers during which they get sudden attacks.
- We provide advancements which overcomes the drawbacks of the existing system.

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#### **CONCLUSION:**

The purpose of this prototype is to continuously monitor people's health and automatically park the vehicle. The person's pulse levels are obtained, and they are continuously observed. In the event that a he/she experiences any discomfort, or any drop in pulse values then it alerts the family members. The entire suggested system is modifiable. It can be more efficiently optimized for both power and size. As biosensor capabilities continue to evolve, so too does the scope to manage cardiovascular pathology remotely in a safe, high-quality and cost-effective manner, allowing earlier investigation in patients presenting with their own data and, ultimately, decreasing the time to diagnosis and use of healthcare. As the first clinical trials begin to report cardiovascular outcome data rigorously, we can cautiously expect that consumer-provided monitoring technology could become a valid tool in arrhythmia management. Moreover, as advancements in technology continue to revolutionize healthcare, the integration of artificial intelligence and machine learning algorithms holds promise in further enhancing the capabilities of such monitoring systems. By analyzing vast amounts of data collected from individuals, these algorithms can not only detect irregularities in real-time but also predict potential health issues before they manifest clinically. Additionally, the scalability of such systems opens avenues for population-wide health monitoring, providing valuable insights into epidemiological trends and facilitating proactive interventions at both individual and community levels. As we stride towards a future where preventive healthcare takes center stage, the synergy between innovative technologies and medical expertise holds immense potential in reshaping the landscape of cardiovascular care.

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