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# Wireless Health Monitoring System

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**ABSTRACT:** This study is to introduce developing a new system that monitors heartbeat rate and also body temperature at the same time via mobile phone. The heartbeat sensor was initially designed to measure internal temperature and heartbeat rate of human body which is highly related to heat stroke and heart attack access. The cognition behind this current study is to determine the impact for the implementation of this monitoring device towards the children body temperature state. Heat stroke condition can be caused by body overheating where usually as a result of prolonged exposure to or physical exertion in high temperature. This is the most serious form of heat injury, heatstroke and it can occur if body temperature rises to 104 F (40 C) or higher. The results obtained undeniably implicit that the body temperature increased significantly when children too expose to the environment and heart attack cases cause the persons heart to beat in the dangerous rate at the wrong moment. Thus, the importance of this device evaluated through lecturers, parents and students perspectives was 90% respectively.

**KEYWORDS:** Wireless sensors, remote monitoring, biometric data, health analytics, patient compliance.

## I. INTRODUCTION

Heatstroke is a condition caused by your body overheating, usually as a result of prolonged exposure to or physical exertion in high temperatures. This most serious form of heat injury, heatstroke, can occur if your body temperature rises to 104 F (40 C) or higher. The condition is most common in the summer months. Heatstroke requires emergency treatment. Untreated heatstroke can quickly damage your brain, heart, kidneys and muscles. The damage worsens the longer treatment is delayed, increasing your risk of serious complications or death. Heat stroke symptoms are high body temperature, altered mental state or behavior. Confusion, agitation, slurred speech, irritability, delirium, seizures and coma can all result from heatstroke. Alteration in sweating. In heatstroke brought on by hot weather, skin will feel hot and dry to the touch. However, in heatstroke brought on by strenuous exercise, skin may feel dry or slightly moist.

Nausea and vomiting also one of the symptoms. That person may feel sick to stomach. Heart rate and breathing rate also increases. Cases of heat stroke spike at the end of June into July each year and continue through August. Troy Sumbawa, M.D., Director of Pediatric Sports Medicine at the Children's Health Andrews Institute for Orthopedics and Sports medicine, says that heat stroke in children can be extremely serious. The Health Ministry recorded 14 heat-related illnesses from March 1 until today due to the recent heat wave phenomenon. Health Minister Datuk Seri Dr S. Subramanian said the cases comprised 11 heat exhaustion and 3 heat stroke cases. The medical records of three children who were entrapped inside vehicles are reviewed and their outcome following the incidents were assessed in this report. The children developed heat stroke following the incidents and survived after several days in coma but with severe cognitive functions impairment. Two of the children were left with hyperactivity and attention deficit, while the third had active epilepsy. Vehicular entrapment heat stroke is one of the preventable brain injuries in children. Several children get entrapped in cars or other vehicles yearly and survivors are left with significant brain damage.

## II. METHODOLOGY

1. Requirement Analysis: Understand the specific health parameters to be monitored, target users, and environmental factors.

2. Sensor Selection: Choose appropriate sensors for collecting relevant health data, such as heart rate, blood pressure, temperature, etc. Consider factors like accuracy, power consumption, and connectivity.



3. **Wearable Device Development:** Design and develop wearable devices equipped with selected sensors for continuous data collection. Ensure user comfort, durability, and compatibility with wireless communication protocols.
4. **Data Transmission:** Implement wireless communication protocols (e.g., Bluetooth, Wi-Fi, Zigbee) for transmitting real-time health data from wearable devices to a central monitoring system. Ensure data security and privacy during transmission.
5. **Central Monitoring System:** Develop a centralized platform for receiving, storing, and analyzing the transmitted health data. Implement features for real-time monitoring, data visualization, and alert generation for abnormal conditions.
6. **Cloud Integration:** Integrate the monitoring system with cloud-based storage and analytics services for scalable data storage, processing, and access from anywhere.
7. **Data Analytics:** Apply data analytics techniques to analyze the collected health data for identifying trends, patterns, and anomalies. Implement algorithms for early detection of health issues and personalized health recommendations.
8. **User Interface Design:** Develop user-friendly interfaces for both healthcare professionals and end-users to access and interpret health data easily. Ensure intuitive navigation, visualization, and interaction.
9. **Testing and Validation:** Conduct rigorous testing of the entire system to ensure reliability, accuracy, and usability under various conditions. Involve users in beta testing to gather feedback and make necessary improvements.
10. **Regulatory Compliance:** Ensure compliance with relevant regulations and standards for medical devices and data privacy (e.g., HIPAA in the United States, GDPR in the European Union).
11. **Deployment and Maintenance:** Deploy the wireless health monitoring system in healthcare facilities, homes, or other relevant settings. Provide ongoing maintenance and support to ensure optimal performance and user satisfaction.

### **III. CONCLUSION**

The planning, design, implementation/execution of this project has really been a tough one. The configuration of the various units into one unit to obtain a desired output of detecting the heartbeat rate through pulses from the blood vessels on the wrist/thumb, and monitoring of the body temperature took a lot of courage and the application of the technical (and theoretical) initiative of the Engineering practice to execute. Thus, this device (integrated with modern technology) have been initiated to help in regularizing the health condition of most individuals by keeping track of their heartbeat rate condition as well as a constant monitoring of their body temperature. Thus, alerting the family members on the patient's real time health situation using RF. as the mode of communication interfaced with LM35 technique.

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