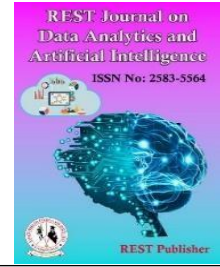




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# A Smart Neuro-Centric Approach to Predict Heart Attacks for Child Using IOT

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**Abstract:** Cardiovascular disease leads to heart attack disease even child children developing Asian countries. This Cardiovascular disease may affect the heart for various reasons for the child. The main objective of this research work is used to track and monitor the child from heart attack and also to protect the child from theft using GPS location with a wearable sensor. The Sensor embedded in the chain will monitor and track the child's neuron activities based on the heartbeat, temperature, and GPS location of the Child. This Research work is classified into two sections. The first Section is used to track the neuro-centric activities of the child in terms of temperature, and heartbeat. If the Heartbeat is low or high and similarly if the child accidentally or incidentally body temperature is high. The information will be passed to their respective parents. In the Second Section, the child can be protected from theft using GPS Location. Initially, the parents had to set their border location, if the child cross the border, the alert information will be passed to the parents. This research work will be effective and efficient with Sensors using IoT to protect children physically and location-based.

**Keywords:** Heart Attack, GPS, IoT, Temperature, Heart Beat Rate, Microcontroller

## 1. INTRODUCTION

During the Covid -19, there is the possibility of a Child Heart Attack during this pandemic situation. To predict the third wave of child heart attack may be in probabilities. These probabilities may lead to a heart attack in the child. In recent years, especially during the pandemic, several youngsters and the child also died due to the lack of oxygen supply to the heart. As Heart Rate is reduced, the number of people died in the pandemic. This Pandemic Situation analysis is about two aspects, heartbeat rate and the next one is body temperature. These Two categories are considered with the sensor and the child's location. This paper mainly focused on the child's heartbeat rate and temperature along with the location of the child. Heart Beat rate will increase if the oxygen demand, due to illness, and intensive physical activities is increased. Heart rate and temperature of the child from newborn baby to 5 years child as shown in the given table 1.1.

**TABLE 1.** Heart Rate and Temperature for Child

Age	Heart Rate	Temperature
0-5 Months	90-150	90F to 97F
6-12 Months	80-140	
3-5 Years	80-120	

## 2. LITERATURE REVIEW

N. Senthamilarasi (2019) described the environment which can be solved effectively and efficiently. This paper provides a feasible solution to monitor their children in the real-time scenario just as a background process without any intermediation through a manual process. B. Sekhar Babu (2019) proposed a solution to compute the heart rate or pulse rate from the observation. He proposed AI-Based calculation techniques to implement multiple regression. It also determines the level of heart attack determined information gathered by pulse and also ensures the safety and security measured using IoT Devices based on the location related to the edges. M Nandini Priyanka (2019) explained the current scenario of child theft or child harassment nowadays. There is a gradual increase in child theft and child harassment plays a critical role in the cyber world. Optimized techniques are implemented to protect the child from theft or harassment using an AI tracking technique. Saif Saad Fakhruddin (2019) proposed two algorithms used to measure and detect the heart rate of the patient. The First algorithm mainly focused on AHRD Concept to detect the abnormal heart rate and improve the accuracy of measurement and obtain the abnormal or normal function based on heart rate. The Second algorithm proposed a TB-AIC concept used to combine threshold values of acceleration and patient monitoring movement function to predict the patient falls Nanda R.Wagh (2020) proposed various methodologies to protect children with IoT devices from theft and child harassment. It also includes an algorithm to predict the movement of children and women with the help of IoT devices and also to track GPS-based locations. A Proposed architect to detect, monitor and predict the safety and security of women and children. Ushashi Chowdhury (2019) described an algorithm to predict the child's location, heart rate, body temperature, and also the heart rate of the child. Once the data miss matched, an SMS will be sent to their respective parents based on the details about temperature, heart rate, and location of the child. A Proposed device would consist of Alarm Buzzer which will provide an alarm to the parents with SOS light and notify to protect the child. Focus on SMS text-enabled communication. Parents can easily send SMS with some keywords and the device replies. The device can detect the children's approximate location; it can detect the body temperature and the surrounding temperature, humidity, and also the heartbeat of a child. For emergency circumstances, the device would have some measures like an alarm buzzer, and SOS light which will notify the eyewitnesses to help the child. Summary of the Review This Review provides a study to Protect the child and women using IoT devices. Each Author represents their own proposed methods, and algorithm to predict the movement of children or women to protect the child or women from harassment. Most of the research proposed an algorithm to predict and provide safety and security to the child and women harassment based on the GEO location and information passed to their respective parents and security center.

## 3. PROPOSED RESEARCH WORK

The proposed work used to protect the child from a heart attack during the covid-19 pandemic situation with wearable sensors as shown in Figure 3.1

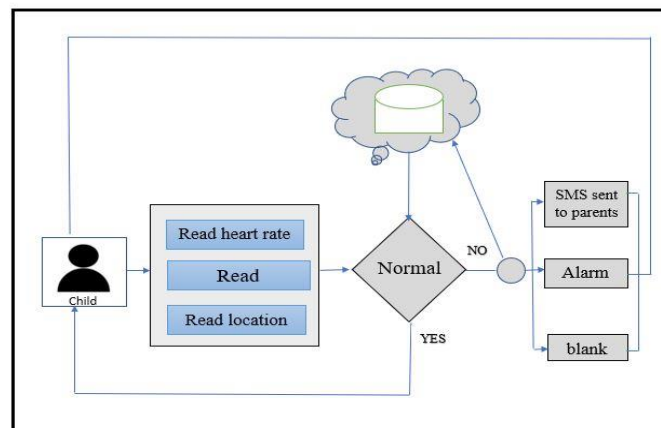


FIGURE 1. Proposed Research Work

This research work is used to track and monitor the child. From Figure 3.1, the Child used to wear three different types of sensors in the chain near the heart such as heart beat rate, temperature, and GPS location. Every Second monitored the neuro-centric activities in terms of heartbeat, temperature, and GPS Location. If the Sensor, overcomes the respective values based on the child's age, it will send an alert message to the parents, Device blinked with an alarm. Every process will be updated in the cloud database with non-functionalities such as 24X7. This Research work may support most of the parents who had children to protect them from the physical location and mental process of the child.

#### 4. ARCHITECTURE DIAGRAM

The architecture diagram of the research work is shown in Figure 4.1

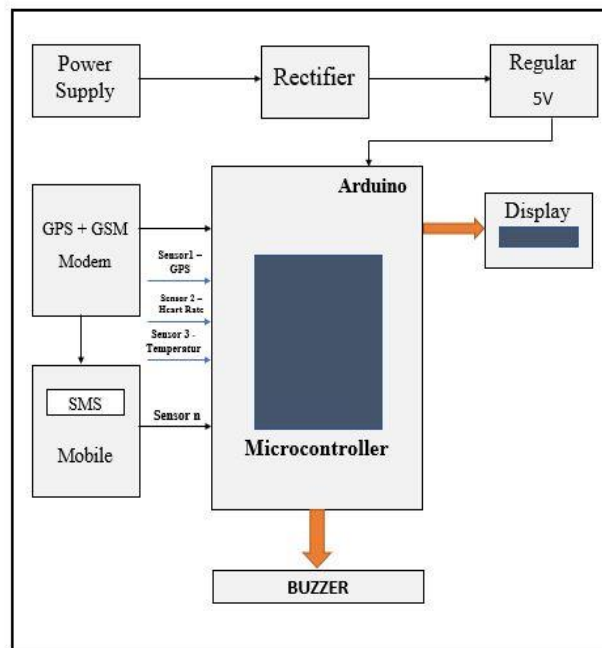


FIGURE 2. Architecture Diagram of the Research Work

The Proposed Research mainly focused on IoT with embedded systems. Three Sensors such as Heart Beat Rate Sensor, Temperature Sensor, and GPS Sensor are embedded in the Child Chain. These Sensors are used to track and monitor the neuro-centric activities of the child as shown in Figure 4.1. This Chain is used to supply the power with 5v which may not affect the child's skin with a rectifier. Arduino board which act as an interface to read and write the information from various sensor to determine the neuro-centric activities of the child. GSM Module used to connect the data with the cloud using SIM inserted. With the help of SIM, all the detailed information on child-centric activities will be monitored and stored in the cloud database. Microcontroller is used to connect all the sensors with GPS-GSM which will send alert information to the parent via SMS using the GSM module. This proposed architecture will lead a vital role in the pandemic situation for the child.

#### 5. FLOW DIAGRAM

The proposed flow diagram of the research work for the neuron-centric activities of the child behavior is shown in Figure 5.1. The Neuro Centric activities of the Child during this pandemic situation lead to the critical process during the third way. Initially, child wearable devices which embed with three types of sensors such as GPS, Heart Rate Sensor, and Temperature. Each Sensor will be monitored and if the limit exceeds, the information will be passed to the parents in terms of SMS and Voice Call. The Devices will also be blinked if the child accidentally or intentionally moves out of the particular border. Even during the pandemic situation, the child may get a fever at midnight, one the child got a high fever, the device will be blinked and a beep sound will be produced by the

device with the help of a microcontroller. This research work will be more helpful to parents in the pandemic situation.

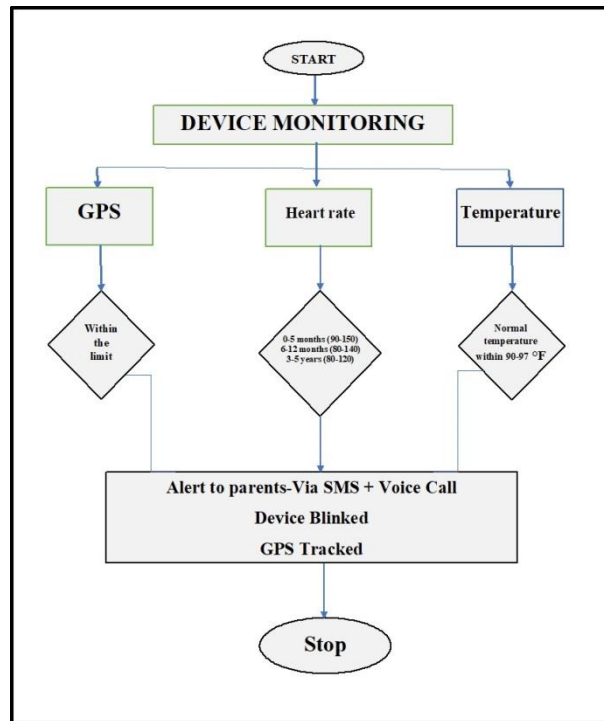


FIGURE 3. Flow diagram of the research work

## 6. CONCLUSION

The Covid-19 Pandemic Situation may be critical for parents to protect their children from the virus generated. The first wave affected the old person, and the second wave affected the youngster too. The third wave may affect the child which is the root cause of the research work. This research work is mainly used to protect the child from pandemic situations with the help of wearable sensors. This sensor is used to track and protected the child from the pandemic situation and also the theft. This wearable sensor will provide the necessary alert information to their parents, to protect the child from the pandemic situation. The research work will provide an optimized solution for neuro activities of child heart attack and also from theft using GPS Sensors.

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