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Project Design Phase-I
Solution Architecture

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Date	15 OCTOBER 2022
Team ID	PNT2022TMID33419
Project Name	IoT Based Safety Gadget for child safety Monitoring and Notification.
Maximum Marks	4 Marks

Solution Architecture:

The parent can send a message to the GSM module, according to the message information the GSM module reply back with particular details of the children. The location can be seen on the Google map. When a particular child is facing an emergency situation, device button should be pressed so that the device captures the image along with the user information to the enrolled mobile numbers.

The life of the child can be saved within no time. For the children point of view GPS, GPRS and GSM are used to monitor the speed and location tracking purpose. The system is fixed on the bus or car or in any vehicle so that the vehicle is going on routine route or not can be identified by the GPS tracker, the speed of the bus can also be extracted.

Now-a-days the digital technology plays a major role for connecting persons via internet. For tracking the children, the android based solution is provided to parents. Internet is the one that will connects different components through a single device and is connected to server. Parents track their children in real time of the location tracker by GSM and the microcontroller used is ARM-7 LPC2148. In day to day scenario, missing child cases are increasing gradually.

Child caring is a major issue. Different types of methods are introduced to find good solutions. There have been many Methods and systems implemented to solve it. In to solve child caring problem global position system (GPS) based solution with two nodes was proposed. In these two nodes, one node is child node which contains a Bluetooth module and a GPS receiver. The parent node consists of a mobile that supports Bluetooth. The location of the child can be tracked by the GPS technology and can be displayed on the designed.

Map in the mobile device, through the Bluetooth connection the distance between the child and parent can be calculated. Children below six years cannot explain in words directly to their parents about the problems, hence a wearable device is developed in. This device procures information such as heart rate, physical body movements and send it to the parents in real time. In a wearable sensor badge is constructed from (hard) electronic components, which can sense perambulatory activities for context awareness. A wearable sensor jacket is used with latest techniques to form (soft) fabric. Stretch sensors are placed to measure upper limb and body movement. Worn as clothing, the sensors give the required information.

Wearable IoT device for the security and shielding of women and girl children was designed. The body temperature and galvanic skin resistance of the body is changed in abnormal conditions. This was used as input information and the alert signal is produced while it crosses the threshold value. This work deals with body temperature and stress, skin resistance and relationship between them. By applying these parameters activity of the person was analysed.

The device [9] an analysis of skin resistance and body temperature was made. Body position is determined by a triple axis accelerometer. After acquiring raw data activity recognition is done and a specialized machine learning algorithm is employed in this process. Real-time data is achieved by sending sensor data to a Cloud Platform. Then the data is analysed using MATLAB.

The details of the baby can be sent to parents through Wi-Fi module. The audio play back module produces the recorded sound different sensors are accelerometer sensor, cry sensor, temperature sensor gas sensor, flame sensor and PIR sensor. The embedded system consists of microcontroller; accelerometer detects the angular position and movement of the baby.

Solution Architecture Diagram: