FUNCTIONAL REQUIREMENT FOR CHILD SAFETY AND MONITORING SYSTEM

The system shall allow the user or family's to register phone number.

•The system shall provide report for the ongoing day to day activity both for the schools

and families.

•The system should provide all the sensed data from each sensor send by text message

•The system shall notify the user while the input value exceed or become below

Though vehicle tracking is highly effective in cases where children use any kind of mode of transportation like car, van, bike, etc., basic child trackers are necessary to keep a watch within a smaller radius. These trackers would work on the GPS module too.

Trackers implanted in watches, phones, etc can be helpful for the parents to keep a track of their kid.

- A tracking device can be useful in case the parent feels that his/her child is in danger. Not only does the device provides the real-time location, but it also pinpoints those locations where the child may have been to.

- These devices help parents set a perimeter for their children when they leave the house. The moment they step beyond the defined area, the tracking software will alert the parent.The idea of these systems is not to restrict the child's freedom but to know how far the child has gone.

- **Tracking** can be beneficial when it comes to teenagers too. Again, it does not aim to restrict their independence. Sometimes, teenagers get involved in activities which may not be acceptable to parents. It becomes easier to let them discover with a GPS tracker as they can push emergency buttons to alert their parents in case of any mishap

- The paper [1] offers the design and construction of a wireless heart rate monitoring system based on the Arduino Lilypad, which includes the ability to send SOS messages or make phone calls using the GSM module. If abnormal conditions are detected during monitoring, a call or a message is sent to the designated contacts, depending on the severity of the problem. The data transmission is made wireless with the help of an RF module, which was programmed using the Arduino IDE.
- The concept of a smart wearable for tiny children is introduced in the study [2]. The main purpose of this article is to use a GSM module to enable SMS communication between the child's wearable and the parent. Parents can text particular phrases such as "LOCATION," "TEMPERATURE," "SOS," "BUZZ," "UV," and so on, and the wearable device will answer with a text outlining the child's current location, which when pressed will show the child's exact location on Google maps. It also shows the temperature and UV radiation index so that parents can keep an eye on their children's surroundings.
- The research [3] proposes the use of an IoT device to supply the server with the patient's precise GPS coordinates. The doctor and hospital personnel can determine the patient's exact location and serve him using a web interface on the server and Google maps. This device can also be useful for animals and transportation services where location is important. Sensors such as the GPS Neo 6m, Arduino, GSM Sim800L, and different programming libraries and APIs are used in this system.
- The paper [4] proposes the design and development of a prototype for a practical and easy-to-use pulse oximeter. This prototype will be able to continuously monitor heart rate and plethysmography wave for SPO2.

- The study [5] suggests a device that serves as a stand-in for the victim's protection and safety. This device has a microcontroller, GSM, and GPS module for sending notifications and tracking the victim's present location. This device also has a High Voltage Low Current Electric Shock feature that will shock the opponent for a few seconds.
- The paper [6] proposes a safety device that is developed for women in dangerous situations. This device is called “FEMME” it is basically a device that is used to protect the women 24/7. The main idea behind this device is to intimidate the current location and send an SMS to the police.
- The study [7] suggests the creation of an Internet of Things (IoT) gadget for women's security. This device uses a fingerprint-based technique of connectivity to alert individuals in the area that the victim is in danger. When an emergency scenario arises, it is detected for a minute through fingerprint, and if no signal is detected, it will automatically warn nearby individuals and the police.