

# Ideation for IoT Based Safety Gadget for Child Safety Monitoring & Notification

## Ideas:

Figure shows the block diagram of the proposed child safety device. It consists of inbuilt Wi-Fi, GSM, GPS and Bluetooth modules. The link it one board is similar to the Arduino board and it is termed as all-in-one prototyping board for safety and IoT devices. The link it one is a robust development board for the hardware and also used for industrial applications. Different components such as temperature sensor, heartbeat sensor, panic button, contact switch are connected to the link it ONE board along with built in GSM, GPS modules. Safety gadget consists of BEACON and BLE packet is transmitted through it, this packet is received by binding gadget which has BLE receiver module, the packet usually contains information such as identification number, signal strength etc. Temperature is one of the most commonly measured variables. For measuring body temperature of the child DS18B20 temperature sensor is used. The heartbeat sensor is used in the proposed system for measuring the pulse rate. There is a heartbeat/pulse sensor which is combined to simple optical heart rate sensor with amplification and nullification circuitry making it is fast and easy to get reliable pulse reading. The GSM/GPRS block is activated with a SIM card on the board.

They mainly differ based on bandwidth and RF carrier frequency. GSM network consists of mobile station, base station subsystem network and operation subsystem. The GPS module is provided for identifying the location of the child. GPS module receives the signals from satellites. The latitude and longitude of the location can be identified by the GPS module. The device sends the monitored parameters data such as temperature and pulse rate to cloud. If any abnormalities occurs in temperature or pulse rate readings, a SMS and call triggers to the parent/caretaker mobile phone immediately and also updated to the mobile app only for the registries mobile no. We can use mobile application, cloud and database as the back end of storing and retrieving information and also a device for monitoring.

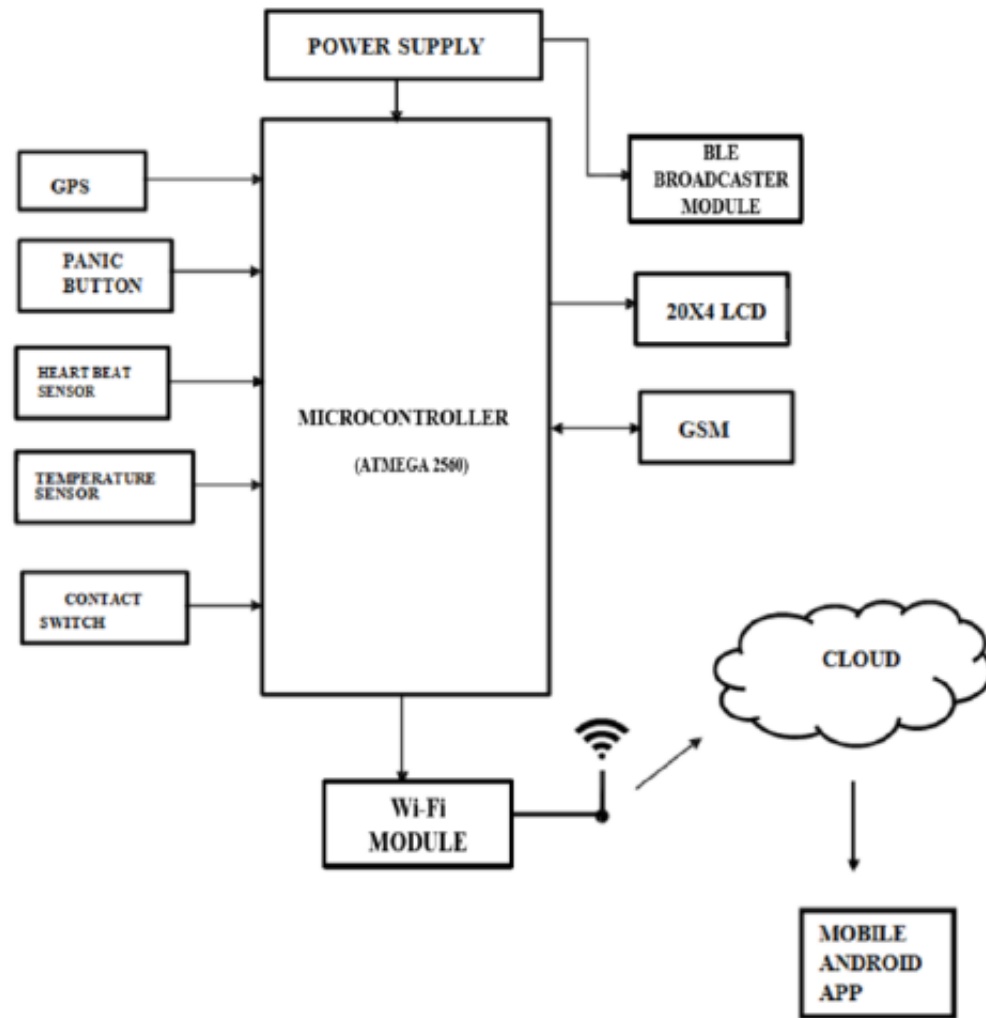


Fig. 1. Block diagram of smart gadget

### Limitations:

The system is dependent on communication signal/network signal for the smart gadget to trigger automatic phone call/SMS during panic situation. It can be difficult to detect when network signal is not reachable/weak/when the smart gadget moves outside the boundary range. Hence, it can be improved by increasing the range.