Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	15 October 2022
Team ID	PNT2022TMID33322
Project Name	IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION

Technology Architecture :

In our system, we automatically monitor the child in real time using Internet of Things, with the help of GPS, GSM, and Raspberry Pi. This system requires network connectivity, satellite communication, and high-speed data connection when we use web camera and GPS to lively monitor. The block diagram of the proposed child safety device is shown in Figure. The LinkIt ONE board is an open source platform. 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 wearable's and IoT devices. The board consists of ARM7 EJ-S and the clock speed is 260MHz. A SIM and SD card slots are provided on the board itself. For the audio purpose a headset slot is also provided. The link it one is a robust development board for the hardware and also used for industrial applications. Different components such as Temperature sensor, Touch sensor, heartbeat sensor, GSM, GPS modules and serial camera are connected to the LinkIt ONE Board along with builtinGSM, GPS modules. Lithium ion battery is used as DC supply required to energize it. For measuring body temperature of the child LM35 temperature sensor is used. The touch sensor has three main components on the circuit board. The first component comprises of resistors, transistors, capacitors, inductors, and diodes whose area is measured physically and its analogue signal is sends to an amplifier.

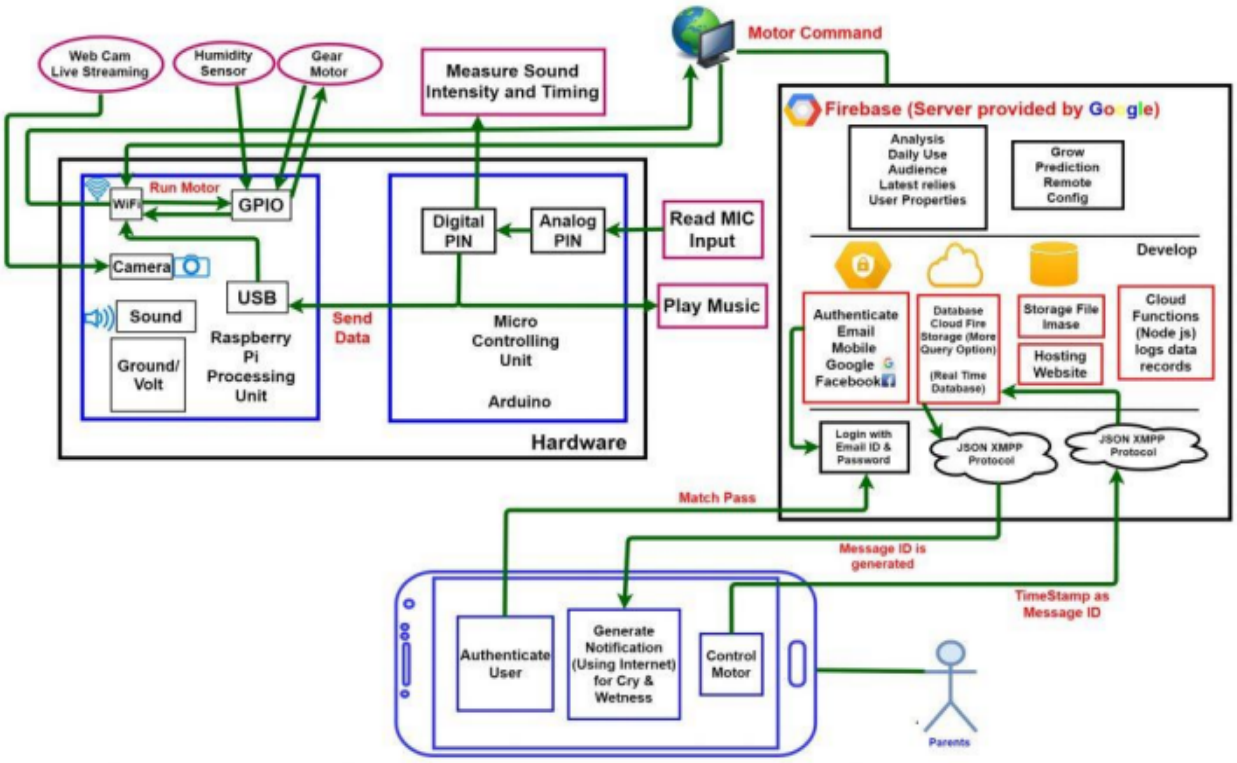

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	.Web UI, Mobile App.	HTML, CSS, JavaScript
2.	Application Logic-1	Code development phase	Python
3.	Application Logic-2	Interfacing purpose	IBM Watson Assistant
4.	Cloud Database	Database Service on Cloud	IBM Cloudant
5.	File Storage	Usage of IBM Cloud Storage	IBM Block Storage
6.	Browser based flow editor	Visual programming	Node Red
7.	Infrastructure (server/cloud)	Application deployment on Local Server	Cloud Platform

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	A template for software development that is designed by social network	IBM Watson Platform, Node Red
2.	Security Implementations	Each and every parent should take care of their own children, without letting them fall into the dark world of abuse, which entirely ruins them physically, mentally and emotionally destroying our future. Hence, considering the importance of our future, our project makes it easy for parents to track their children and to visually monitor them on regular basis, which makes them ensure the safety of their children and reduces	Notifications and alerts
3.	Scalable Architecture	the rate of incidents of child abuse. If any abnormal values are read by the sensor, then an SMS is sent to the parents mobile and an MMS indicating an image captured by the serial camera is also sent. The future scope of the work is to implement the IoT device which ensures the complete solution for child safety problems.	Implementation using Software
4	Availability	The solution represented takes advantage of Open- source Platform	NOE RED, IBM cloud, IBM Iot Platfo rm

5	Performance	GPS is useful for tracking children and GPS also provides the information where the child is currently located as well as it also informs the parents how long his child is far away from his parents. SMS services used when smart phones do not support internet connectivity in this case a child is able to send a text message or exact location to the parents. This system is going to help the parents to track the location of their children without informing them because their movement is displayed on the parent's phone	GPS