

## **Project Design Phase-II Technology Stack (Architecture & Stack)**

Date	15 October 2022
Team ID	PNT2022TMID49507
Project Name	Project – IOT BASED SAFETY GADGETS FOR CHILD SAFETY MONITORING AND NOTIFICATION
Marks	4 Marks

**Technical Architecture:**

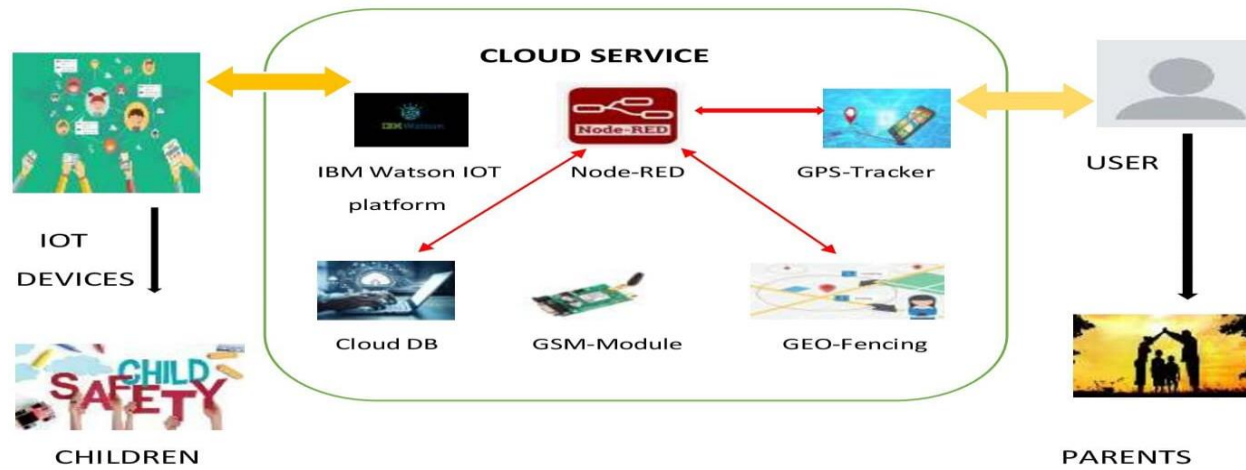


Figure: IOT Based safety gadgets for child safety monitoring and notification

**Table 1:Components & Technologies:**

S. No	Component	Description	Technology
1.	User Interface	User had to register and we can able to view the other device's location. e.g. using web UI, Mobile App etc...	HTML, CSS, JavaScript
2.	IOT Application Logic-1	Registration of child's and parent's device in each other device.	Python
3.	IOT Application Logic-2	Child's GPS should be in on condition, parent's device should always connected to Child's device	IBM Watson Assistant
4.	IOT Application Logic-3	If the child shouts out of danger it will be notified and sent to parent's device by tracking and converting using STT.	IBM Watson STT service
5.	Database	Data types can be any formal such as arbitrary binary data, text, User-define blob of data sent from Cloud IOT Core device etc.	SQLite, InFluxDB
6.	Cloud Database	Users install tracking software on a cloud infrastructure to implement the database.	IBM DB2, IBM Cloudant etc.
7.	File Storage	Files with be labelled with what they contain and how long they should be kept .	IBM Block Storage or Local Filesystem
8.	External API-1	Purpose of External API used in the device is to use the internet for communicating and conducting allotted operations efficiency.	Aadhar API, etc.
9.	External API-2	External API used in the device to expose data that enables those devices to transmit data to your device/mobile, acting as a interface.	City Geo-Fencing location lookup API etc.
10.	Machine Learning Model	IOT and machine learning delivers insights otherwise hidden in data for rapid automated response and improved decision making.	Object Recognition Model, Danger prediction Model etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System/Cloud Local Server Configuration: Wearable tech device cloud server configuration massive network that supports to IOT devices and application.	Local, Cloud Foundry, Kubernetes, infrastructure etc.

**Table-2: Application Characteristics:**

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Device that removes much of the manual work needed to write and configurate code. It provides rapid development ,is easy to setup and has a strong support base.	Mainflux, Thinger,lot Zetta for non stop streaming of child condition, Openremote.
2.	Security Implementations	Alert notification Enabled with GPS module received in parent mobile.	e.g. SHA-256, Encryptions of data regarding child condition, firewalls, Antivirus, data loss prevention etc.
3.	Scalable Architecture	If a problem arises parents can see all the features the location, temperature, heart beat of the child along with live view around the children without hindrance.	Multiple Data store Technologies , Reliable, Micro services Automated Bootstrapping.
4.	Availability	<ul style="list-style-type: none"><li>• Child monitor, location monitor, image monitor</li><li>• Through this Geo-fencing techniques embedded in smart watches has able to track the missing and cost is also moderate in prices.</li></ul>	Temperature, pulse sensor GPS,GSM, Pie camera, Raspberry pi, microprocessor.
5.	Performance	<ul style="list-style-type: none"><li>• The Alert notification is immediately send to the parents mobile when the child crosses the Geo-Fencing boundary.</li><li>• Immediate response of pie camera for capturing image.</li></ul>	GSM tracker, High durable device battery

