

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

Date	18 October 2022
Team ID	PNT2022TMID14022
Project Name	Project - Iot Based Safety Gadget for Child Safety Monitoring and Notification
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud)
3. Indicate external interfaces (third party API's etc.)

4. Indicate Data Storage components / services
5. Indicate interface to machine learning models (if applicable)

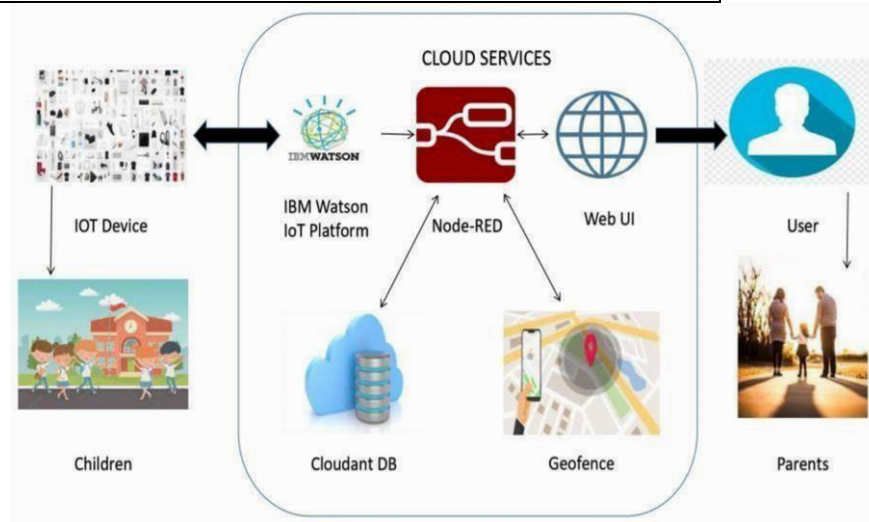


Table-1: Components & Technologies:

S.No	Component	Description	Technology
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1.	User Interface	User had to register and view the other device's location e.g. Web UI, Mobile App etc.	HTML, CSS, JavaScript
2.	IoT Application Logic-1	Registration of child's and parent's device in each other's 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 child shouts out of danger it will be notified to parent's device by tracking & converting using STT	IBM Watson STT Service
5.	Database	Data Type can be any format such as arbitrary binary data, text. User-defined blob of data sent from Cloud IoT Core to a device etc.	SQLite, InfluxDB
6.	Cloud Database	Users install tracking software on a cloud infrastructure to implement the database.	IBM DB2, IBM Clouding etc.
7.	File Storage	Files will be labelled with what they contain and how long they should be kept	IBM Block Storage or Local File system
8.	External API-1	Purpose of External API used in the device is to use the internet for communicating and conducting allotted operations efficiently	Author 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 data interface.	City Geo-Location Lookup API etc.

10.	Machine Learning Model	IoT and machine learning deliver insights otherwise hidden in data for rapid, automated responses 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 IoT devices and applications	Local, Cloud Foundry, Kubernetes,Underlying 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 configure code. It provides rapid development, is easy to set up and has a strong support base	Mainflux,Thinger.io,Zetta for non stop streaming of child condition,Openremote
2.	Security Implementations	To trigger the alarm and enable automatic video recording whenever the emergency button is pressed.	e.g. SHA-256, Encryption of data regarding child condition, Firewalls,Antivirus,Data Loss Prevention

3.	Scalable Architecture	If problem arises parents can see all the features like location, temperature, heart beat of the child along with live view around the children without hindrance	Multiple Data Storage Technologies , Reliable Micro services ,Automated Bootstrapping
4.	Availability	Child monitor, audio monitor, location monitor, video monitor	Temperature,Pulsesensor ,GPS,GSM,Web camera ,Raspberry pi microprocessor
5.	Performance	When a 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	GSM tracker,High Durable Device Battery