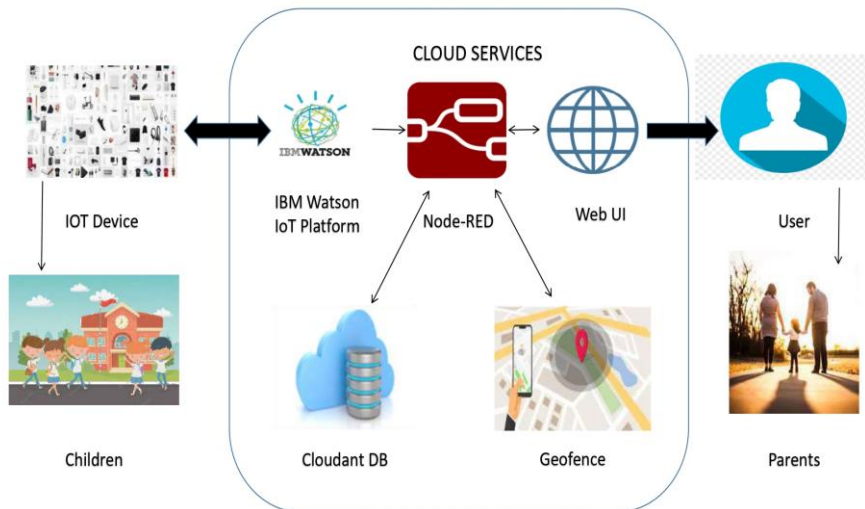


Project Design Phase-II Technology Stack (Architecture & Stack)

| | |
|---------------|--|
| Date | 14 October 2022 |
| Team ID | PNT2022TMID48061 |
| 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 |
|------|---------------------------------|---|---|
| 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 others 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 Cloudant etc. |
| 7. | File Storage | Files will be labeled 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 efficiently | 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 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 |