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

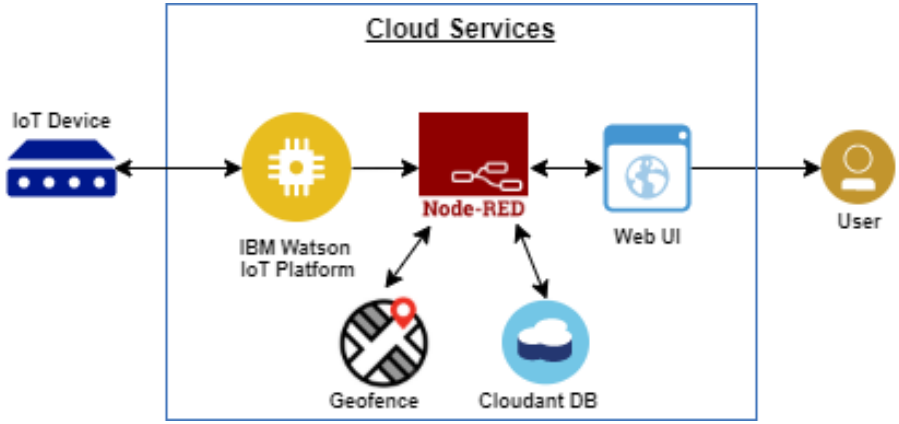
Date	03 October 2022
Team ID	PNT2022TMID18337
Project Name	Project - IoT Based Safety Gadget for Child Safety Monitoring and Notification
Maximum Marks	4 Marks

Technical Architecture:

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

Example: Order processing during pandemics for offline mode

Reference: https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/



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	Interaction of the user with the application using Web UI	Node Red
2.	Application Logic-1	Tracking of user's location and monitoring of the same	Python
3.	Application Logic-2	Sending notifications to the registered mobile number	IBM Watson STT service
4.	Application Logic-3	Send alert when user crosses the geo-fence mentioned	IBM Watson Assistant
5.	Database	Data provided by the user in the account and geo- fence range	MySQL, NoSQL, etc.
6.	Cloud Database	Handles software and hardware provisioning, management and scaling and support.	IBM DB2, IBM Cloudant etc.
7.	File Storage	High performance while dealing with large amount of unstructured data	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	API's offer the convenience and transparency needed to connect users to ideal experiences	IBM Weather API, etc.
9.	External API-2	Communication with both the user and the application is taken care of by API's	IBM API Connect
10.	External API-3	Easy user interface.	MIT App inventor
11.	Machine Learning Model	Used to differentiate user's features	Feature Differentiation Model
12.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	A software for which the original source code is made freely available and may be redistributed and modified according to the requirement of the user.	Watson IoT platform, Wokwi, Node red.
2.	Security Implementations	Secure monitoring of the user's location without open-source access	IBM encryption services
3.	Scalable Architecture	Presence of location sensors to quickly scale the user's current location.	GPS, IBM alert notification service
4.	Availability	Usage of data and location tracked in the account anytime with high availability.	Node RED
5.	Performance	Less amount of power consumption with high storage cache present.	Watson assistant

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d