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

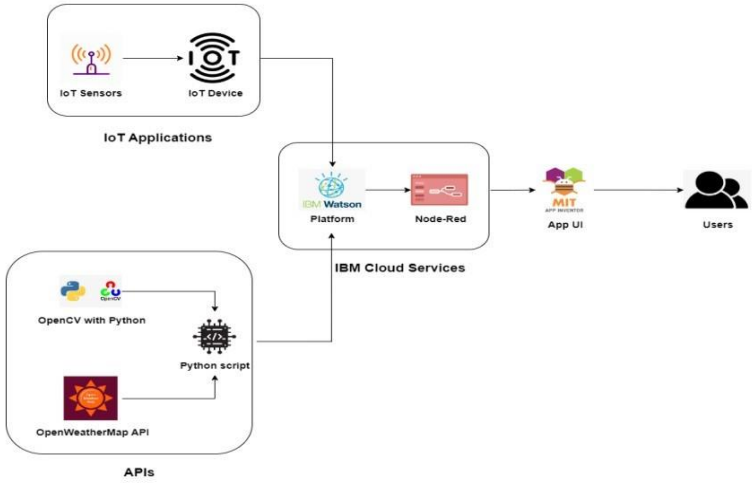
Date	06 November 2022
Team ID	PNT2022TMID23936
Project Name	Project - Signs with Smart Connectivity for Better Road Safety
Maximum Marks	4 Marks

Technical Architecture:

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

Example: Signs with Smart Connectivity for Better Road Safety

Reference: https://www.ibm.com/cloud/blog/pubnub-smart-traffic-management-system-for-emergency-services



Guidelines:

1. Based on input sending notification to the users
2. Getting traffic information and alerting the users
3. Getting weather information from OpenWeatherMap website
4. Using IBM cloudant database to store data
5. Creating an admin app in MIT app inventor

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User can interact with the app using MIT app	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Detecting traffic and displaying information	Java / Python
3.	Application Logic-2	Sending notification to nearby users	IBM Watson STT service
4.	Application Logic-3	Communicating with physical device	IBM Watson Assistant

5.	Database	Storing on local phone storage	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	Storing on local phone storage	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	To get current weather information of the location	IBM Weather API, etc.
9.	External API-2	To verify the driving license of the user	License API, etc.
10.	Machine Learning Model	To detect the traffic with cars present in the camera	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: User's phone storage Cloud Server Configuration : IBM cloudant DB	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	OpenWeatherMap, Node-Red, IBM Watson and MIT App Inventor	IOT, Cloud communication
2.	Security Implementations	Private cloud, Limited database access, Security layer implementation, Private key to access physical device	e.g. SHA-256, Encryptions, IAM Controls, Private key etc.
3.	Scalable Architecture	Server provisioning, Server availability, Local phone storage	IBM Cloudant database

4.	Availability	24/7 service, Continuous update, Data maintenance, Private staff	IBM Cloud
5.	Performance	Distributed servers, Cloud communication, Notification system, Effective information sharing	IBM Cloud, Python