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

Date	18 October 2022
Team ID	PNT2022TMID00340
Project Name	Hazardous Area Monitoring in Industrial Plant powered by IoT
Maximum Marks	4 Marks

Technical Architecture:

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

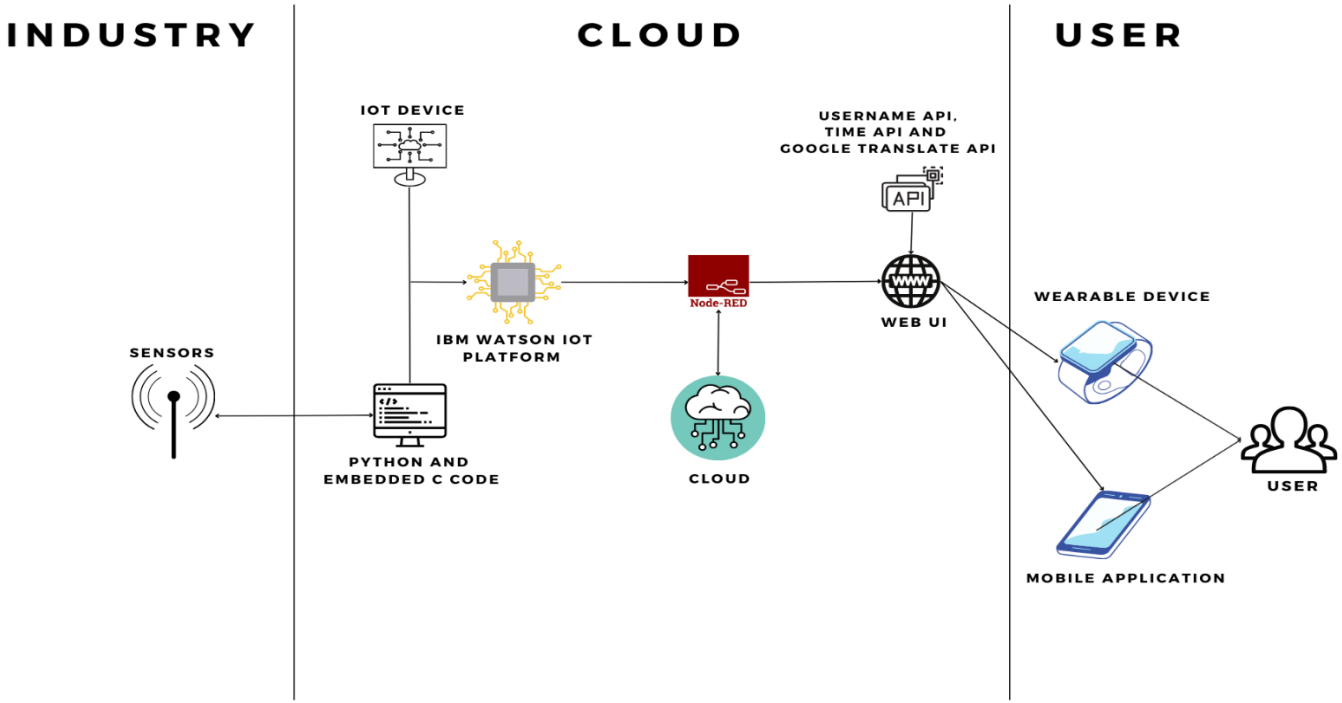

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI, Mobile App, SMS service and Wearable devices	Node-RED, Fast SMS and MIT App inventor
2.	Application Logic-1	To get data from the sensors by interfacing with Arduino and for its communication with the Internet gateway	Embedded C and Python
3.	Application Logic-2	Processing data in cloud	IBM Watson IOT platform, Cloudant DB and Node-RED
4.	Application Logic-3	Display data to the user	Web UI, Fast SMS and Mobile application
5.	Database	For managing the database and retrieving data	MySQL
6.	Cloud Database	Database Service on Cloud	IBM Cloudant
7.	File Storage	App code is stored along with the API keys	IBM Block Storage or Other Storage Service or Local File system
8.	External API-1	To create username credentials for login	Username API
9.	External API-2	To access time	World time API
10.	External API-3	Language for the website is written to be dynamic	Google translate API
11.	Machine Learning Model	Alert rising system	Object Recognition Model, etc.
12.	Infrastructure (Server / Cloud)	Application Deployment on Cloud and To manage data to and from the server	IBM Cloud, Node-Red

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The Node-RED and MIT App Inventor open-source frameworks are used to build the web application and mobile application	Node-Red, MIT App Inventor
2.	Security Implementations	SHA 256, OWASP and other network protocols with security protocols will be used	SHA-256, Encryptions, OWASP.
3.	Scalable Architecture	The IBM cloud would provide a robust framework which can be used to scale the framework to a large inter-connected network as per future needs	IBM Cloud
4.	Availability	The load balancers could be implemented to make certain that the framework sustains the traffic generated without compromising the performance	IBM Load Balancer
5.	Performance	To increase the performance of hosted application and to improve the performance of the website with caching and security	IBM Instance and IBM Cloud Internet Services