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

Date	03 Nov 2022
Team ID	PNT2022TMID17277
Project Name	Project -GAS LEAKAGE MONITORING AND ALERTING SYSTEM
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2
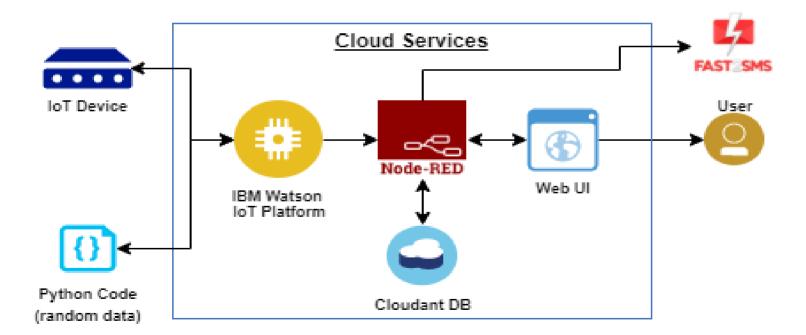
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts with the application using website.	HTML, CSS, JavaScript / Angular Js
2.	Industry Monitering	This project helps the industries in monitoring the emission of harmful gases.	Python
3.	Moniter the Gas Leakage	In several areas, the gas sensors will be integrated to monitor the gas leakage.	Python
4.	Avoid the Accidents	If in any area gas leakage is detected the admins will be notified along with the location.	Python
5.	Database	In the web application, admins can view the sensor parameters	MySQL, NoSQL
6.	Cloud Database	IBM Watson IoT Platform,Node-RED Service,Cloudant DB	IBM cloud
7.	File Storage	Stores the trained and tested data	Local Filesystem
8.	External API-1	The parameters like hazardous gas levels, fire, humidity, and temperature data are published to the Watson IoT platform	IBM Weather API
9.	External API-2	The device will subscribe to the commands from the application and take decisions accordingly to switch on the rainwater sprinkler in case of emergencies.Sensor data is visualized in the Web Application	Aadhar API
10.	Machine Learning Model	IBM Watson IoT platform acts as the mediator to connect the Mobile Application to IoT device, so create the IBM Watson IoT platform.	Object Recognition Model
11.	Infrastructure (Server / Cloud)	Cloud Local Server Configuration,Cloud Server Configuration	Local, Cloud Foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Google Collaboratary,Jupyter Notebook,Google drive,Python Flask	Python,HTML,CSS
2.	Security Implementations	Configure the connection security and create API keys that are used in the Node-RED service for accessing the IBM IoT Platform.	SHA-256, Encryptions, IAM Controls, OWASP
3.	Scalable Architecture	3 – tier architecture will be used,The client and server	Python
4.	Availability	If in any area gas leakage is detected the admins will be notified along with the location.In the web application, admins can view the sensor parameters.	IBM cloud
5.	Performance	The parameters like hazardous gas levels, fire, humidity, and temperature data are published to the Watson IoT platform	Convolutional Nural Network