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

Date	21 October 2022
Team ID	PNT2022TMID35867
Project Name	Project – Gas leakage monitoring and alerting system for industries
Maximum Marks	4 Marks

Technical Architecture:

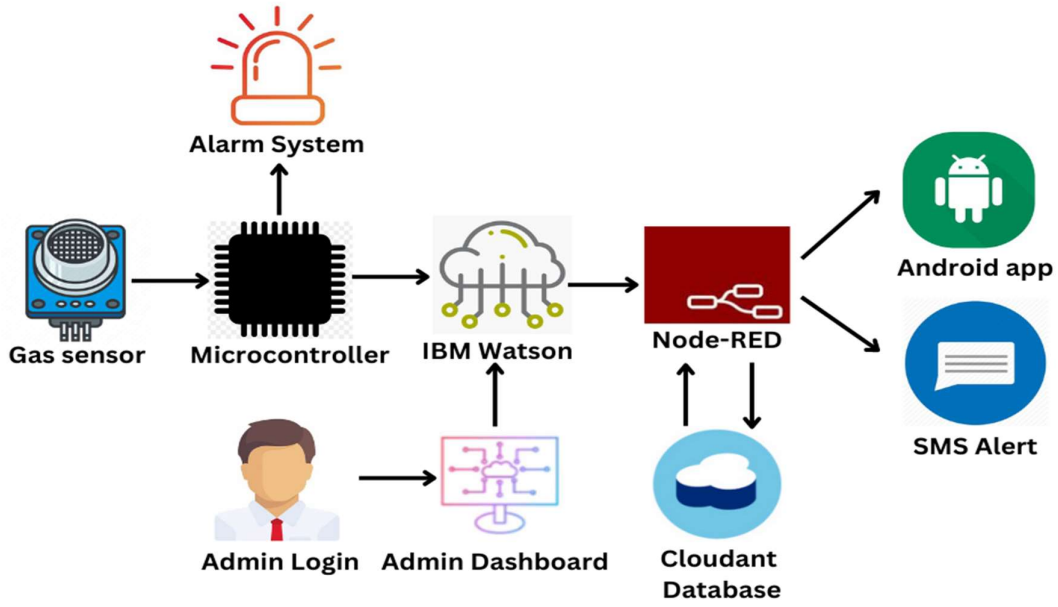

Table-1: Components & Technologies:

S. No	Component	Description	Technology
1.	Gas Sensor	Senses the atmosphere's presence or concentration of gases. The sensor creates a corresponding potential difference depending on the concentration of the gas by adjusting the resistance of the material within the sensor, which can be determined as the output voltage.	MQ136 Sensor - Hydrogen Sulphide gas. Note: Gas Sensor for Appropriate type of gases.
2.	Microcontroller	A microcontroller is an integrated circuit (IC) which is self-contained computer designed to handle a specific task in embedded systems.	PIC Microcontroller
3.	Administration	Website for administration work.	Python, IBM Cloud & API

S. No	Component	Description	Technology
4.	Cloudant Database	Cloudant's service provides integrated data management, search, and analytics engine designed for web applications.	IBM Cloudant
5.	Connections	Provides a browser-based editor that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.	Node-RED
6.	Storage	To store data by continuous monitoring needs a File storage requirement.	IBM Block Storage
7.	Alerting App	App Inventor uses a graphical interface, which allows users to place visual objects to create an application that can run on the Android or other systems	App-Inventor

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks used in IBM Watson & interface Microcontroller and Gas sensor.	Python & Arduino IDE
2.	Security Implementations	Data are encrypted generally by IBM Cloudant for its data transfer. User passwords are hashed and saved.	SHA-256 and IBM Cloudant specific securities
3.	Scalable Architecture	Nodes can be added easily and admin control can be scaled and it is completely dependent on the server capacity and can be utilised for any gas and any location.	Python
4.	Availability	It can be used for daily; it includes day and nights, because it provides real-time monitoring.	
5.	Performance	Can be able to provide accurate values of Gases & detects sensitive gases even to minor gas leaks. It performs Speedy operation and it send response faster.	Node-RED and App Inventor (Alerting App)