Project Design phase - 2

Date	9th November 2022
Team ID	PNT2022TMID03078
Project Name	Gas Leakage Monitoring & Alerting System For Industries
Maximum Marks	4 Marks

TECHNICAL ARCHITECTURE:

The architectural diagram shown below and the data from tables 1 and 2 must be included in the Deliverable.

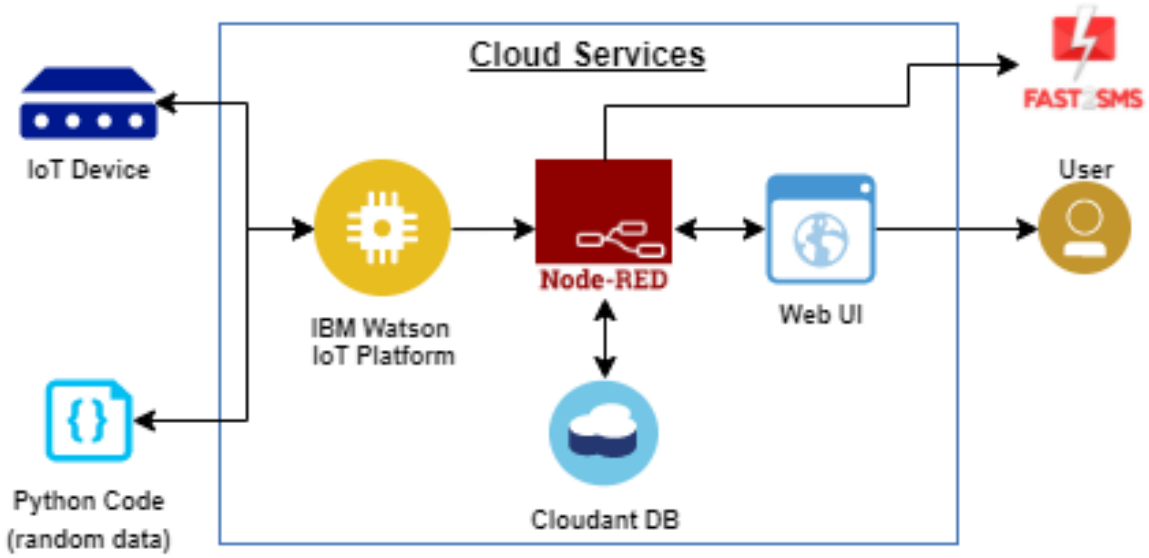

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	Arduino MEGA	Based on the ATmega2560, the Arduino Mega 2560 is a microcontroller board (datasheet).It has 16 analog inputs, four UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, a reset button, and 54 digital input/output pins, 14 of which can be used as PWM outputs.	It has two memories, program memory and data memory, for example. Where the code is stored in the flash program memory and the data is stored in the data memory.
2.	Gas Sensors	The Grove - Gas Sensor (MQ5) module can be used to monitor air quality and detect gas leaks.	A device that detects the presence or concentration of gases in the atmosphere is known as a gas sensor. By altering the material's resistance within the sensor, the sensor generates a potential difference that is proportional to the gas concentration and can be measured as output voltage.
3.	Web App	An application that is used to view the system's total overview, GPS location, and gas level.	A piece of software that lets you carry out particular tasks is called app. Desktop applications are sometimes referred to as applications for desktop or laptop computers, whereas mobile apps are referred to as applications for mobile devices. An application runs within the operating system until it is closed when you close it.

4.	IBM cloud	An integrated user experience is made possible by the IBM Cloud platform's integration of infrastructure as a service (IaaS) and platform as a service (PaaS).Both small development teams and organizations and large enterprise businesses are supported and scaled by the platform.	Platform as a Service (PaaS) is a cloud computing option that gives programmers a simple platform for making their own software, web applications, or other programming projects.
5.	Mobile Phone	A specific phone number will receive an SMS whenever the excess gas is detected. Building smoke and fire detection is greatly aided by smoke and gas leakage detectors, as are critical safety parameters to avert disasters.	The user receives notifications from the system, and with the assistance of connected devices like a mobile smartphone, they respond accordingly.
6.	GSM and Fast SMS	Digital mobile network known as GSM (Global System for Mobile Communication) is widely used by mobile phone owners in Europe and other parts of the world. Fast2SMS offers a secure API for sending bulk SMS, making it an extremely dependable method of transmitting data.	The message is sent from the sending device to the closest cell tower when you send an SMS. An SMS center (SMSC) receives the message from that cell tower. The SMS message is then forwarded by the SMSC to a nearby cell tower.
7.	Buzzer	A buzzer is a mechanical, electromechanical, or piezoelectric audio signalling or loud noise-making device.	Buzzers are typically used for alarm systems, timers, trains, and to confirm user input like a mouse click or keystroke.

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Wi-Fi, the MQ5 gas sensor, and Arduino processor chips.	Internet of Things.
2.	Security Implementations	MQ5 gas sensor and buzzer-based alerting device	Internet of Things.
3.	Scalable Architecture	detecting the temperature of the room; if the temperature rises above the set point, it will notify employees.	Python.
4.	Availability	Utilization of the IP address of the Wi-Fi network.	Internet of Things.
5.	Performance	Performance is productive.	Internet of Things.