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

Date	18 October 2022
Team ID	PNT2022TMID32725
Project Name	Project – Hazardous area monitoring for industrial plant powered by IoT.
Maximum Marks	4 Marks

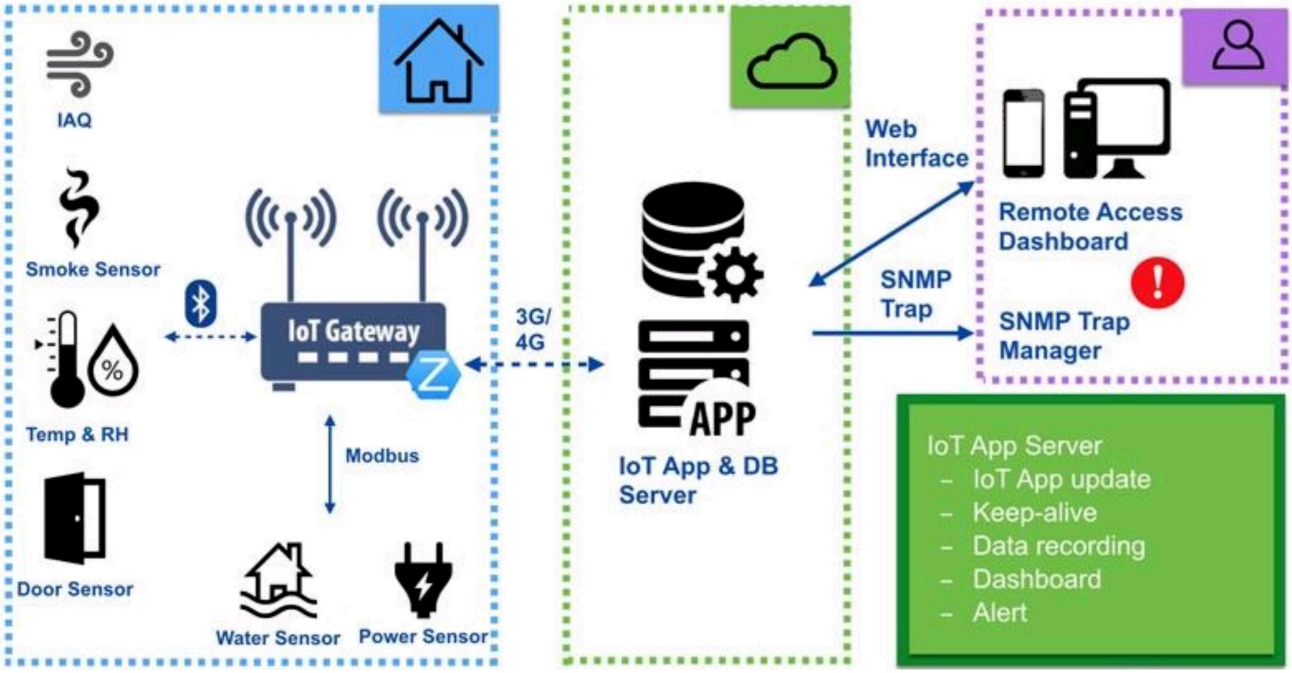
IAQ
Smoke Sensor
Temp & RH
Door Sensor
Water Sensor
Power Sensor
IoT Gateway
Modbus
3G/
4G
IoT App & DB
Server
Web
Interface
SNMP
Trap
Remote Access
Dashboard
SNMP Trap
Manager
IoT App Server
- IoT App update
- Keep-alive
- Data recording
- Dashboard
- Alert

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI, Mobile App, Chatbot , MIT inventor,sms alert etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Get the temperature using sensor and send it to the microcontroller for analysis and compare with standars values.	Java / Python
3.	Application Logic-2	Provide solution to monitor data and control the machine and units and provide API between user and devices.	IBM Watson Assistant

4.	Database	IoT data comes in different types, based on the device generating it and the use case. Status data: Status data is basic, raw data that communicates the status of a device or system.The data will be temperature value at regular interval of time and the combustible gas levels and smoke levels. Location data: Location data communicates the geographical location of the device or system. It's frequently used in logistics, warehousing, and manufacturing.	MySQL, NoSQL, etc.
6.	Cloud Database	Using wifi module the measured data is sent to the cloud service.	IBM Cloudant
7.	File Storage	App code and IOT credentials are stored. Block storage is a technology that is used to store data files on Storage Area Networks (SANs) or cloud-based storage environments.	IBM Block Storage or Other Storage Service or Local Filesystem,Drop box.

8.	External API-1	A cloud API enables end users to access a cloud provider's application or service, such as compute infrastructure, storage resources or monitoring tools. APIs define the possible features and functions of that app or service, along with the details needed to execute them	IBM cloudant
9.	External API-2	The Passwords API allows you to lookup whether a given password exists in our database of compromised passwords. When users attempt to establish a new password, you can check it against the Passwords API to determine if it is safe to use. If not, you can steer them clear from using it and require them to pick a different password.	Password API
10.	Infrastructure (Server / Cloud)	Application Deployment on LocalSystem / Cloud.	Cloud foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	It is an open-source IoT framework. The main purpose of the framework is data collection and device management. Further, it uses IoT protocols like HTTP, MQTT, and CoAP for device connectivity. It is also highly scalable as every type of device easily integrated.	Thingsboard.
2.	Security Implementations	**Security** Security is preventing all the data inside the system and preventing it from the unauthorized access.The IoT platform must ensure proper device management (via authenticationand authorization mechanisms), data privacy, integrity, and confidentiality via secure communication and encryption of data. Security is especially crucial foran IoT platform, as it will rely more on automated security.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	This is very reliable as it monitors continuously and real time analysis of the particular area.also it provides hands on solution to the problem.	Progressive web apps(PWA),Cloud storage and Micro
4.	Availability	Availability explains how likely the system is available to a user.It describes the accessibility of a user at a certain time.You may also define it as a percentage of time the system is accessible for operation during some time period.	Cloud storage
5.	Performance	Performance describes the efficiency of the product.Product performance is described as the response of a product to external actions in its working environment.Our solution explains how long a user must wait before the target operation happens(the page renders,errors etc.,)given the overall number of users at the moment.	Wearable device