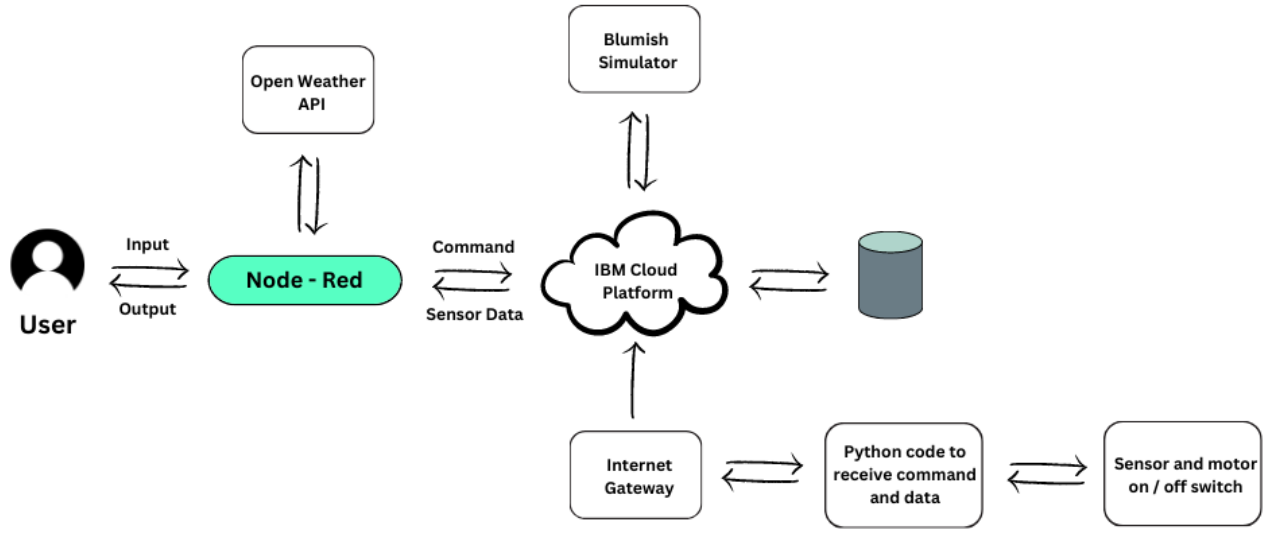
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	25 October 2022
Team ID	PNT2022TMID31713
Project Name	Project – Smart Farmer- IoT Enabled smart farming Application
Maximum Marks	4 Marks



1. Using various sensors, the various soil parameters temperature, soil moisture, and then humidity are measured, and the results are recorded in the IBM B2 cloud.
2. NodeMCU is employed as a processing unit to process the information gleaned from the sensors and weather API data.
3. The hardware, software, and APIs are written using the programming language NODE-RED. The communication adheres to the MQTT protocol.
4. A mobile application that was created utilising the MIT app inventor gives the user access to all the collected data. Depending on the sensor results, the user might decide via an app whether to water the field or not. They are able to remotely control the motor switch by utilising the app.

Table-1 : Components & Technologies:

Component	Description	Technology
1. User Interface	User interaction with applications, such as the Web	MIT App Inventor
2. Application Logic-1	a process's reasoning in the application	Python
3. Application Logic-2	a process's reasoning in the application	IBM Watson IOT service
4. Application Logic-3	a process's reasoning in the application	IBM Watson Assistant
5. Database	Types of data, configurations, etc.	MySQL, NoSQL, etc.
6. Cloud Database	Cloud database service	IBM Cloud
7. File Storage	Storage needs for files	IBM Block Storage or Other Storage
8. External API-1	Usage of an external API and its intended use	Open Weather API
9. Infrastructure (Server / Cloud)	Deployment of Applications on Local or Cloud Systems Configuration of a local server Configuring a cloud server	Local, Cloud Foundry.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Describe the utilised open-source frameworks.	Opensource framework technology
2.	Security Implementations	Private and sensitive information must be kept secure from the time it is created until it is used for decision-making. phases of storage.	Open weather app API, MIT App Inventor, and Node-Red
3.	Scalable Architecture	For IoT platforms, scalability is a big challenge. It has been demonstrated that different IoT platform architecture decisions impact system scalability and that autonomous real-time decision-making is possible in a setting with thousands of users.	Technology used

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture/