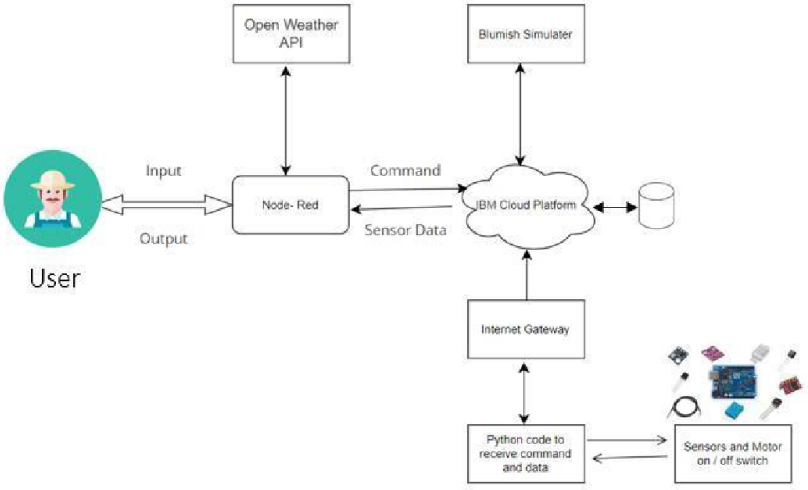
Project Design Phase – II

Technology Stack

Team id	PNT2022TMID41344
Project name	Smart farmer – iot enabled smart farming application



1. The different soil parameters temperature, soil moistures and then humidity are sensed using different sensors and obtained value is stored in the IBM B2 cloud.

2. Arduino UNO is used as a processing Unit that process the data obtained from the sensors and whether data from the weather API.

3. NODE-RED is used as a programming tool to write the hardware, software and APIs. The MQTT protocol is followed for the communication.

4. All the collected data are provided to the user through a mobile application that was developed using the MIT app inventor. The user could make a decision through an app, weather to water the field or not depending upon the sensor values. By using the app they can remotely operate the motor switch.

Table-1 : Components & Technologies:

Component	**Description**	**Technology**
1. User Interface	How user interacts with application e.g. Web	MIT App Inventor
2. Application Logic-1	Logic for a process in the application	Python
3. Application Logic-2	Logic for a process in the application	IBM Watson IOT service
4. Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5. Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.

6. Cloud Database	Database Service on Cloud	IBM Cloud
7. File Storage	File storage requirements	IBM Block Storage or Other Storage

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Technology of Opensource framework
2.	Security Implementations	Sensitive and private data must be protected from their production until the decision-making and storage stages	Node-Red, Open weather App API, MIT App Inventor
3.	Scalable Architecture	scalability is a major concern for IoT platforms. It has been shown that different architectural choices of IoT platforms affect system scalability and	Technology used

		that automatic real time decision-making is feasible in an environment composed of dozens of thousand.	