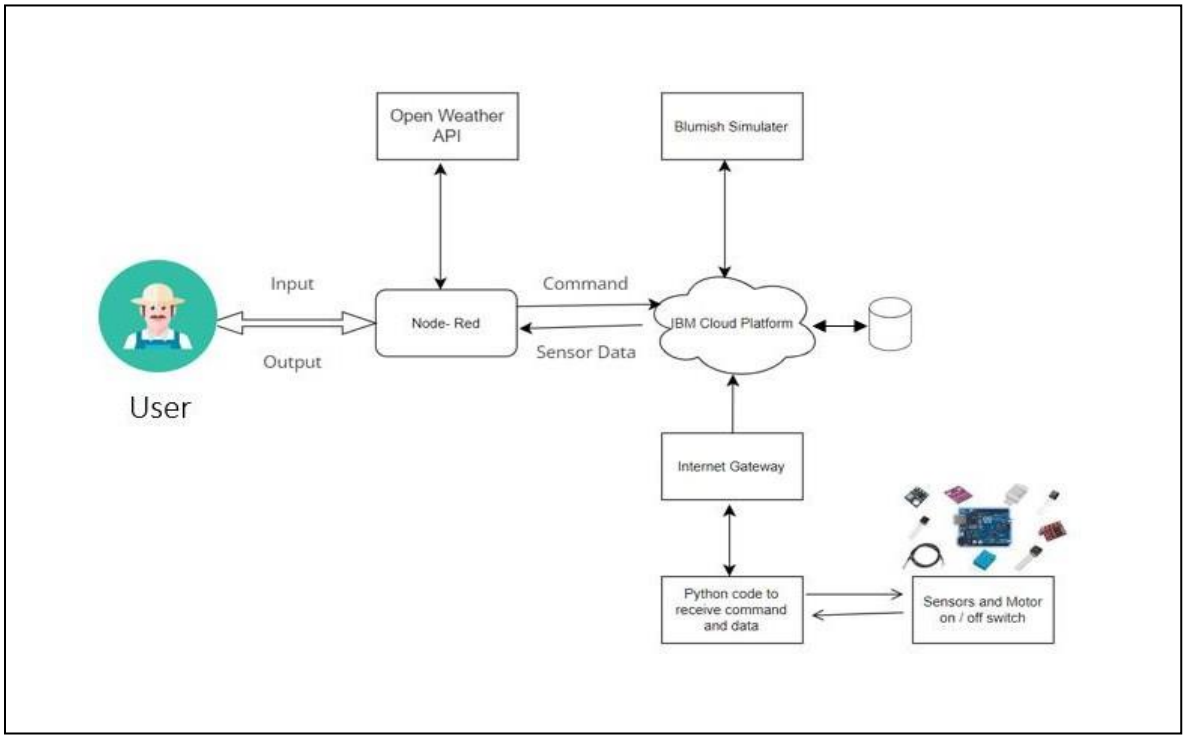
Project Design Phase – II
Technology Stack (Architecture & Stack)

Date	**15 October 2022**
Team ID	**PNT2022TMID15940**
Project Name	**Project – Smart Farmer- IoT Enabled smartfarming Application**
Maximum Marks	**4 Marks**



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 thatwas developed using the MIT app inventor.**

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
8. External API-1	Purpose of External API used in the application	Open Weather API
9. Infrastructure(Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration:	Local, Cloud Foundry.

Table 2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	MQTT protocol	python
2.	Security Implementations	Sensitive and private data must be protected from their production until the decision-making and storage stages.	Node-Red, Open weatherApp 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 that automatic real time decision-making is feasible in an environment composed of dozens of thousand.	Node-Red service
4.	Availability	Available feasible	Open weather App
5.	Performance	Design consideration for the performanceof the application (number of requests per sec, use of Cache, use of CDN's) etc.	MIT app inventor