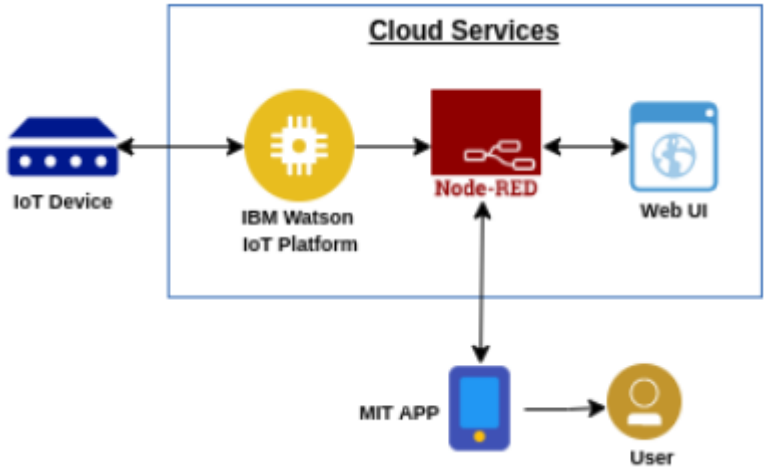
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID14786
Project Name	Project - Smart Farmer - IOT Based Smart Farming Applications
Maximum Marks	4 Marks

PROJECT FLOW:



- **The parameters like temperature, humidity, and soil moisture are updated to the Watson IoT platform**
- **The device will subscribe to the commands from the mobile application and control the motors accordingly**

- **APIs are developed using Node-RED service for communicating with Mobile Application**
- **A mobile application is developed using the MIT App inventor to monitor the sensor parameters and control the motors.**
- **To accomplish this, we have to complete all the activities and tasks listed below:**
- **Create and configure IBM Cloud Services**
- **Create IBM Watson IoT Platform**
- **Create a device & configure the IBM IoT Platform**
- **Create Node-RED service**
- **Create a database in Cloudant DB to store all the sensor parameters**
- **Develop a python script to publish and subscribe to the IBM IoT platform**
- **Configure the Node-RED and create APIs for communicating with mobile application**
- **Develop a mobile application to display the sensor parameters and control the motors**

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI, He can select the button to read the value of the selected button.	MIT APP
2.	Application Logic-1	The parameters like temperature, humidity, and soil moisture are updated to the Watson IoT platform	Watson IoT platform (Python Script)
3.	Application Logic-2	Configure the Node-RED and create APIs for communicating with mobile application	Node-RED
4.	Application Logic-3	Create IBM Watson IoT Platform	IBM Watson Assistant

5.	Cloud Database	Create and configure IBM Cloud Services	IBM Cloudant etc.
6.	File Storage	Create a database in Cloudant DB to store all the sensor parameters	IBM Block Storage or Other Storage Service or Local Filesystem

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python Script , Arduino IDE Code	Python IDE, Arduino IDE
2.	Security Implementations	Since it involves cloud storage of gathered sensor data, which could be misused, Data handling must be highly secure.	SHA-512, RIPEMD-180.
3.	Scalable Architecture	It should be made used in remote areas where technological advancements have not even been raised and should deliver a more productive and sustainable form of agriculture.	Highly Stable Network Connectivity
4.	Availability	It should monitor water level, fuel level, electric fence-theft monitoring, temperature, humidity, tractor guidance, GPS tags, soil moisture, and toxic gases.	Sensors
5.	Performance	● Highly effective monitoring, tracking, and recovery of farm assets, tracking range should be greater than at least 5km. ● Continuous readings on temperature,gas,humidity,pH,smoke detection ,water and fuel levels are necessary	Sensors