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

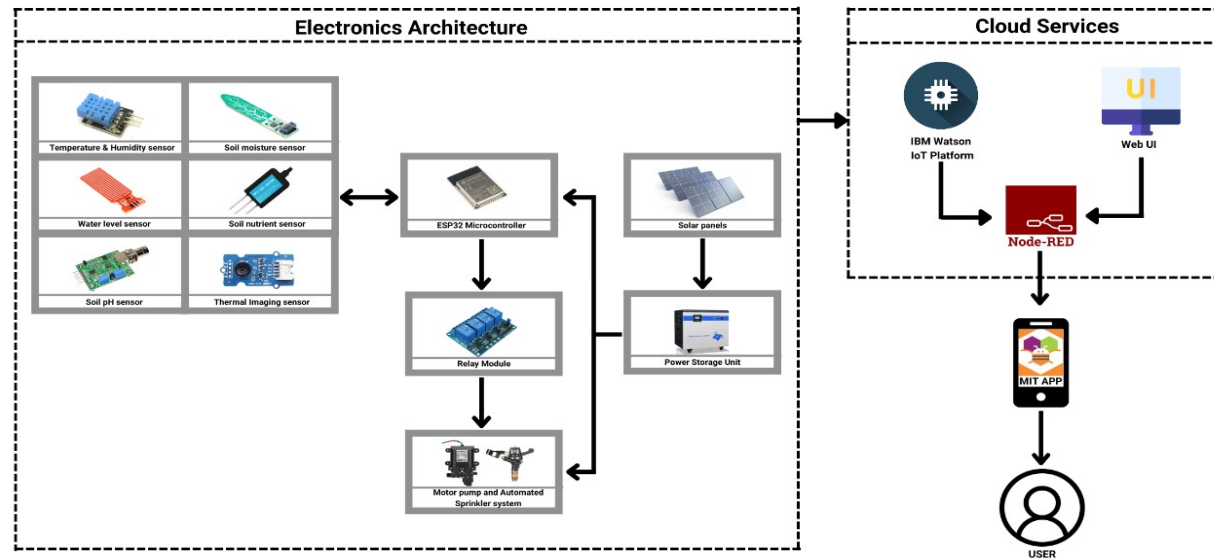| Date	03 October 2022
Team ID	PNT2022TMID23571
Project Name	SmartFarmer - IoT enabled Smart Farming Application
Maximum Marks	4 Marks

Technical Architecture:

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript
2.	Application Logic-1	Data collected from sensors are integrated to track the parameters	C++ / Python, IBM Watson IoT Platform
3.	Application Logic-2	Several sensors are interconnected to show results	Node-RED
4.	Application Logic-3	Provides suggestions for the farmers regarding the soil and crop health depending upon the condition of the farmland.	IBM Watson Assistant
5.	Database	Dynamic Configuration	MySQL
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	External API-1	Displays temperature, humidity, motor controls, and soil and crop health.	IBM Watson IoT Platform
8.	External API-2	Forecasts weather to the user and provides suggestions based on the prediction	IBM Weather API
9.	Machine Learning Model	To drive object recognition model	Object Recognition Model, etc.
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Server Configuration	IoT Cloudant

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	MIT App Inventor, IBM Cloud, Arduino Uno	C++/ Python
2.	Security Implementations	The system data is kept secure, stores data, and responds to attacks with the help of the Transport Layer Security Protocol.	TLS

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	The system can respond to changes in demand.	IBM Cloud Services
4.	Availability	Minimal downtime of the application (The app is available 99.98% of the time every month)	MIT App
5.	Performance	The smart farming system using IoT is an efficient method for monitoring and is well suited for maximising profits and yields.	IBM Watson IoT Platform