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

Date	16 November 2022
Team ID	PNT2022TMID05968
Project Name	Smart Farmer- IoT Enabled smart farming Application

TECHNOLOGY ARCHITECTURE:

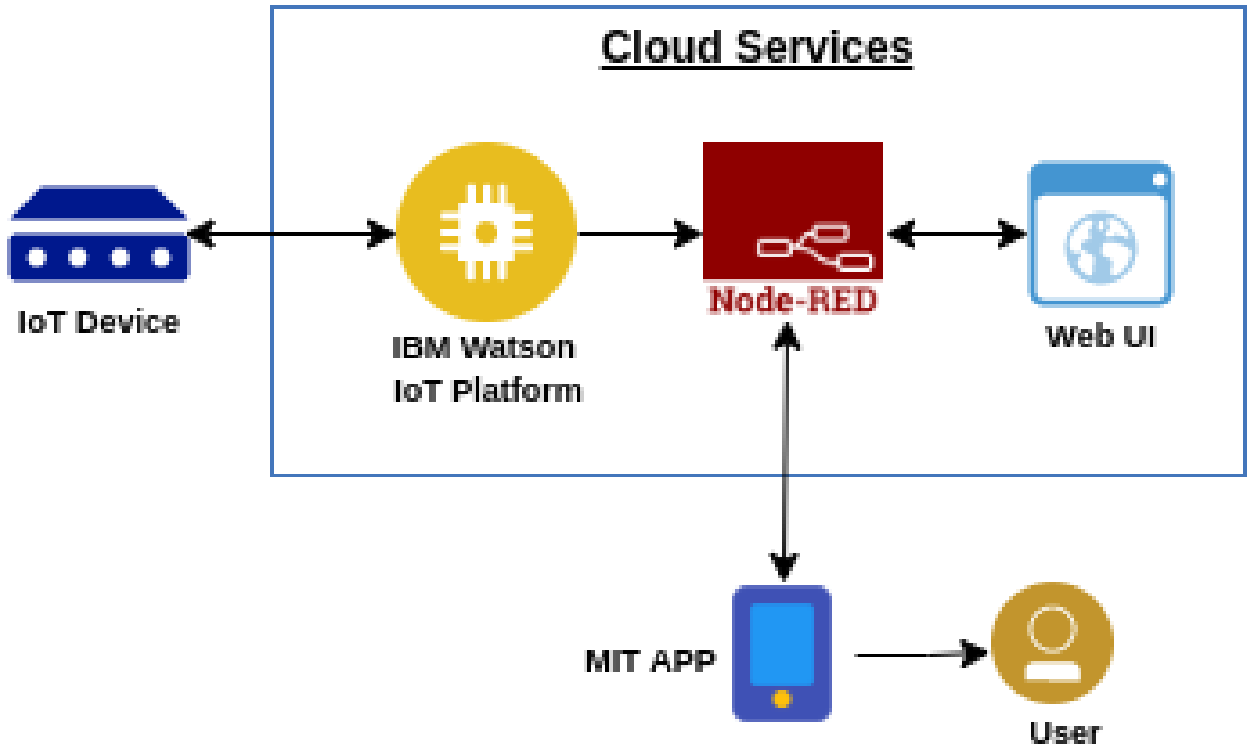

Table 1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	MIT App Inventor
2.	Arduino UNO	It is used as a processing Unit	Python
3.	MQTT protocol	The data to be collected and sent to the farmer via MQTT protocol providing the data to easily monitor the crops	IBM Watson IOT service, IBM Watson Assistant
4.	Database	Data Type, Configurations	MySQL
5.	Cloud Database	Database Service on Cloud	IBM Cloud
6.	File Storage	Different soil parameters obtained values	IBM Block Storage
7.	External API	For weather monitoring	Open Weather API
8.	Infrastructure (Server / Cloud)	Application Deployment on Cloud Local Server Configuration: Cloud Server Configuration:	Kubernetes

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 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 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 performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	MIT app inventor