Project Design Phase-II
Technology Architecture

Date	29 October 2022
Team ID	PNT2022TMID38131
Project Name	**Project** - SmartFarmer - IoT Enabled Smart Farming Application
Maximum Marks	4 Marks

ARCHITECTURE:

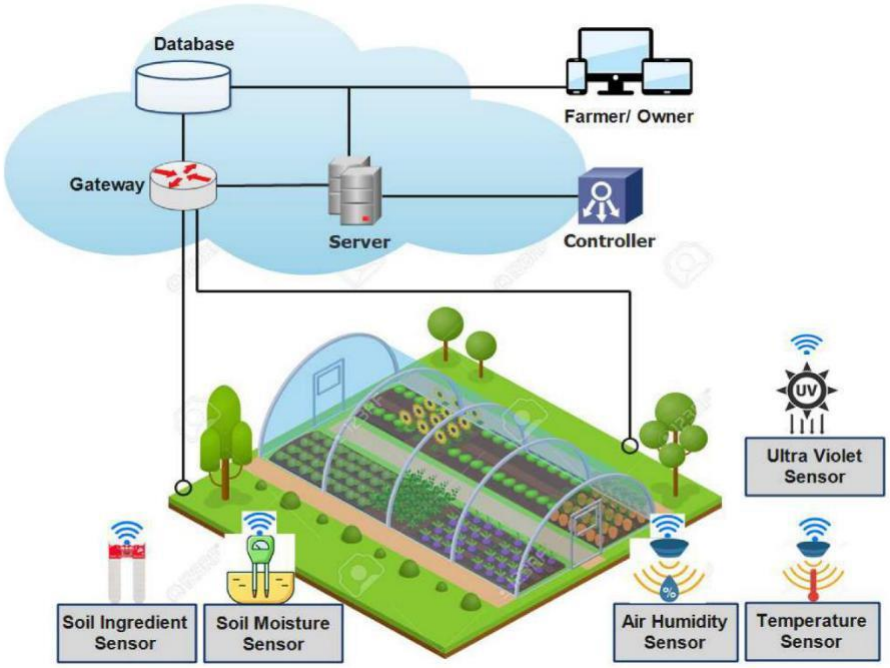

FIG :Architecture for IoT Enabled smart farming application

The different soil parameters are sensed using different sensors, and the obtained value is stored in the IBM cloud.

Arduino UNO is used as a processing that processes the data obtained from sensors and weather data from weather API.

Node red is used as a programming tool to wire the hardware, software, and APIs.

All the collected data are provided the user through a mobile application that was developed using the MIT app inventor

TABLE-1: COMPONENTS AND TECHNOLOGIES:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App	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 Cloudant
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Purpose of External API used in the application	IBM Weather API
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration : 	Local, Cloud Foundry, Kubernetes, etc.

TABLE-2: APPLICATION CHARACTERISTICS:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Instrumentation and custom sensors are used in multitudes ok products related to agriculture manufacturing	Technology of Opensource framework
2.	Security Implementations	Manuring,sowing, irrigation,weeding, harvesting,storage	Node-Red, open weather App API,MIT App Inventor
3.	Scalable Architecture	The process of collecting data, interpreting the data	IBM cloudant
4.	Availability	Scalability sometimes leads to a concern in IoT Platforms.Increasing control over production leads to better cost management and waste reduction	Technology used
5.	Performance	Nearly 16 percentage of India's gross domestic product and 13 percentage of total exports. The idea of implementing integrated sensors with sensing soil in farming will be more efficient for overall monitoring	Technology used