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

Date	03 November 2022
Team ID	PNT2022TMID04737
Project Name	SmartFarmer –IoT Enabled Smart Farming Application.
Maximum Marks	4 Marks

Technical Architecture :

Technology architecture associates application components from application architecture with technology components representing software and hardware components. It provides a more concrete view of the way in which application components will be realized and deployed. It enables the migration problems that can arise between the different steps. It provides a more precise means of evaluating responses to constraints.

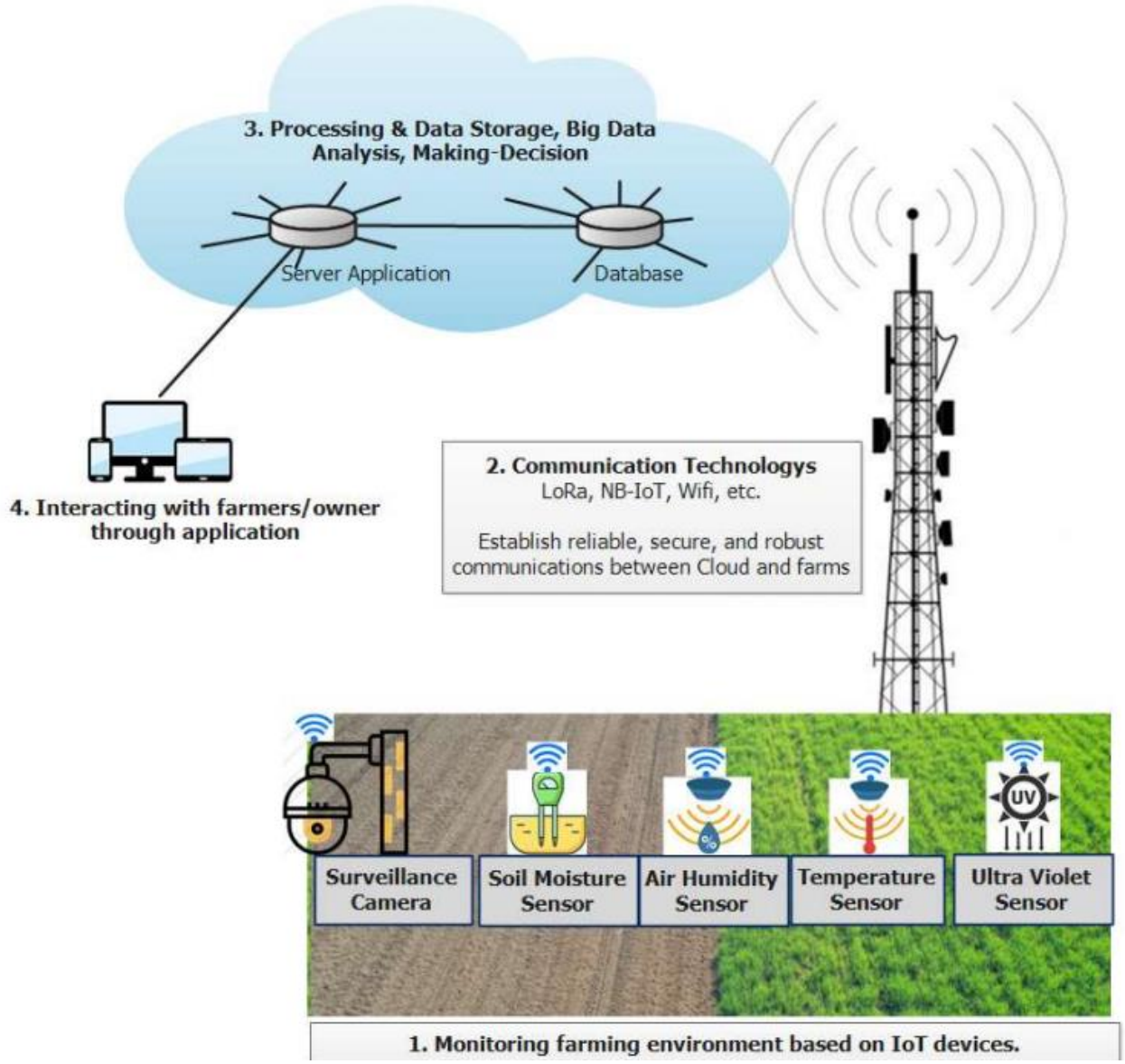

Table-1 : Components & Technologies :

S.No	Component	Description	Technology
1.	User Interface	The user interacts with the application using Web UI.	HTML, CSS, JavaScript.
2.	Computer-based application	Computer-based applications create precise farm plans, field & yield maps, and crop scouting.	Java / Python.
3.	GPS Soil Sampling	The data collected from sampling the soil is used to input the variable rate applications to optimize seeding and fertilizer input.	IBM AgroPad.
4.	Smart Irrigation	IoT Sensor data is used to forecast water needs and control irrigation in real time, adjusting water levels based on crop growth & local weather.	IBM Watson Assistant.
5.	Cloud Database	The clean database is stored in IBM Cloud.	IBM Cloudant.
6.	File Storage	Organize and store data on hardware or NAS device.	IBM Block Storage or Other Storage Service or Local Filesystem.
7.	Prediction	These algorithm techniques are used to predict the proper way to make the stock in-store.	IBM Weather API.

8.	Infrastructure(cloud/server)	Setting hardware and software details for elements of a cloud environment to ensure that they can interoperate and communicate.	Local, Cloud Foundry, Kubernetes.

Table 2: Application Characteristics :

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The open-source frameworks used are armOS, Tania, AgroSense, LiteFarm, ERPNext, and Granular Insights.	IBM Cognos Analytics, Python.
2.	Security Implementations	Request authentication using Encryption.	Encryptions & Decryptions.
3.	Scalable Architecture	Scalability consists of 3-tiers.	Web Server: HTML, CSS, JavaScript. Application Server: Python. Database Server: IBM Cloud.
4.	Availability	The application is available for cloud users.	IBM Cloud Hosting.
5.	Performance	The user can know how to maintain the inventory to increase profits.	ML algorithms.