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

Date	03 October 2022
Team ID	PNT2022TMID17614
Project Name	Project - Smart Farmer - IoT Enabled Smart Farming Application
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

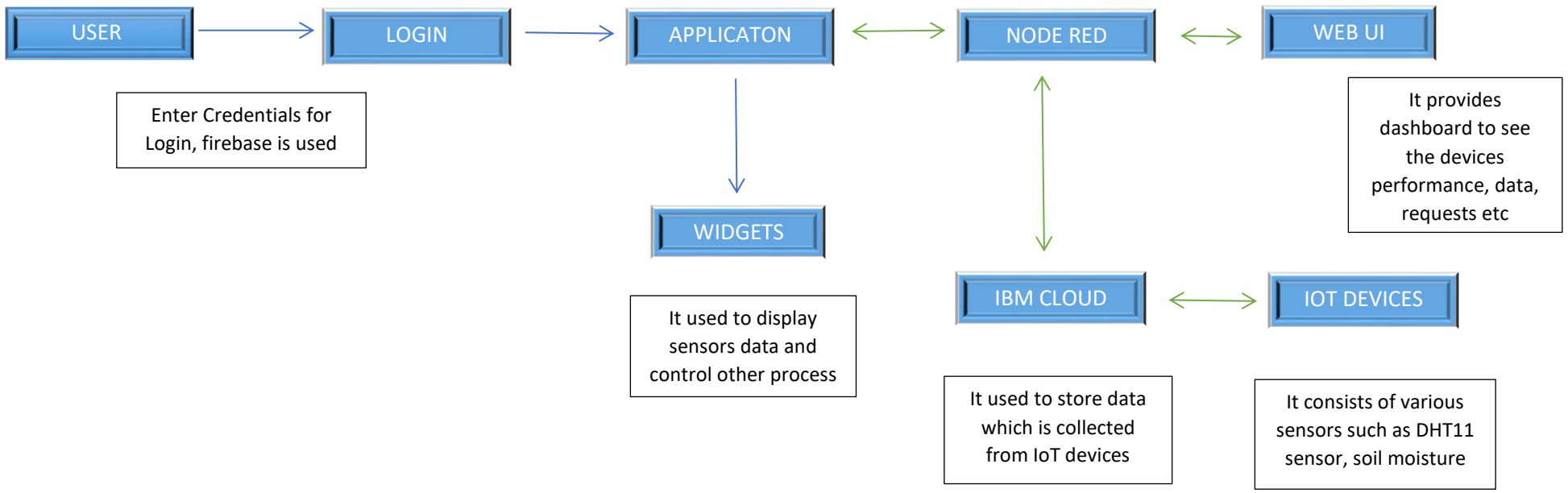

Table-1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	Mobile app. In our application we are data are displayed using widgets like structure. Users interacts with widgets to additional info	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 STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Database Type, Configurations etc.	Firebase is NoSQL database
6.	Cloud Database	Database Service on Cloud	Firebase, IBM Watson IoT Cloud Platform
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	Open weather API
9.	External API-2	Purpose of External API used in the application	Firebase API
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration:	Local, IBM Cloud, Firebase
11.	DHT11 sensor, Soil Moisture sensor	It used to monitor the soil, temperature, humidity.	PST's Advanced Ceramic Metal - Oxide Moisture Sensor technology allows for measurements of dew-point, moisture content and trace moisture in both gases and liquids.

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Node Red, MIT App Inventor, Arduino IDE Node Red for connecting with application, MIT App Inventor for building app, Arduino is open source electronics platform to build hardware and software.	It is a software, which helps in connecting and building application. Node Red, MIT App Inventor, Arduino IDE.
2.	Security Implementations	HTTPS Connections, X-Force Red IoT Testing.	Encryptions, Secured Connection
3.	Scalable Architecture	Architecture is scalable from 10 devices to 300 devices easily and account is also scalable up to thousand connections. For very high scalability we need to upgrade our cloud plan.	Firebase, IBM Cloud
4.	Availability	Availability of our application is 24/7 because which use a cloud technology. Firebase will use commercially reasonable efforts to make Firebase available with a Monthly Uptime Percentage of at least 99.95% and distributed servers.	Firebase, IBM Cloud
5.	Performance	Number of requests is 2 requests per 20 seconds or 4 requests per 30 second and sometimes user request will be added with respective to the requests.	Technology used