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

Date	29 October 2022
Team ID	PNT2022TMID34531
Project Name	IoT based smart crop protection system for agriculture
Maximum Marks	4 Marks

Technical Architecture:

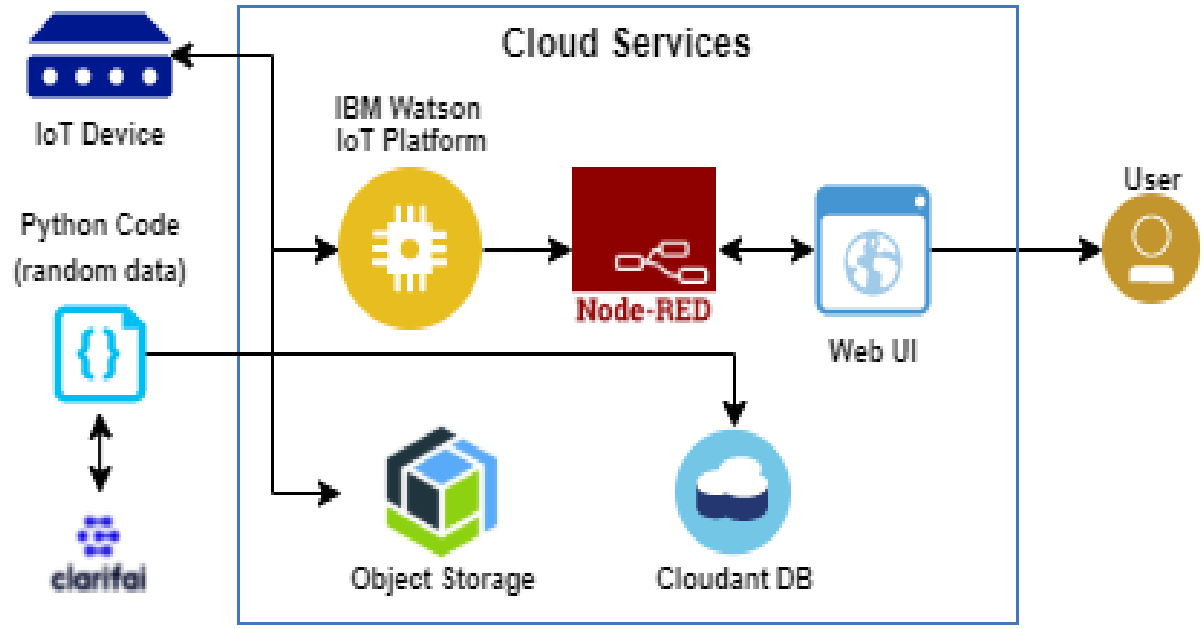

Table-1 : Components & Technologies:

Sl.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
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	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	From IoT Watson Platform data are safely to the cloud using the open lightweight MQTT	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem

8.	External API-1	APIs are used so that your apps can access and use your live and historical data	IBM Weather API, etc.
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	List the open-source frameworks used: Tinker cad, wokwi, MIT app inventor	Arduino, Python, Node-red
2.	Security Implementations	To prevent botnet, ransomware and other IoT attacks, keep device software up to date, change default passwords and monitor network traffic. Segment which data and networks IoT devices can access, and use firewall to stop intrusions.	Node-red, Open weather App API, Firewall
3.	Scalable Architecture	Scalability will be key to handling the explosive growth in the IoT. This means that IoT applications must have the ability to support an increasing number of connected devices, users, application features, and analytics capabilities, without any degradation in the quality of service.	Using Automated bootstrapping, Controlling IoT data pipeline, adopting multiple data storage technology, developing microservices architecture.
4.	Availability	Automatic adjustment of farming equipment is made possible by linking information like crops/weather and equipment to auto-adjust temperature, humidity, etc.	IBM Watson services
5.	Performance	The idea of implementing integrated sensors with sensing soil and environmental or ambient parameters in farming will be more efficient foe overall monitoring.	IBM Watson services