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

Date	16 October 2022
Team ID	PNT2022TMID34905
Project Name	Project - IoT Based Smart Crop Protection System for Agriculture
Maximum Marks	4 Marks

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	Arduino	Arduino is an open source electronic device based on easy to use hardware and software	Python
2.	Servo motor	It is an electronic device and rotary or linear actuators that rotate and push part of a machine with precision	Python
3.	Moisture sensor	Moisture sensor senses measure the volumetric water content in the soil.	Python
4.	IR Sensor	It is a radiation sensitive electronic component and it is widely used in motion detectors.	Python
5.	Flow sensor	It is a device used for measuring the flow rate.	Python
6.	RFID Tag	RFID tags are a type of tracking system that uses smart barcodes in order to identify items. RFID tags utilize radio frequency technology	C++/ Python
7.	Ultrasound sensor	Ultrasonic sensors work by sending out a sound wave at a frequency above the range of human hearing.	Python
8.	User Interface	Mobile phone and Email	HTML
9.	Data storage	Easy to store and view the data.	IBM Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	physical objects with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet	IoT, Arduino, IBM cloud, Python
2.	Security Implementations	Highly secure because the data would be shared only to the users mobile phone. No other person except the owner can get access to the data	Authentication, authorization, accessibility
3.	Scalable Architecture	This solution is scalable enough to fit the IOT Based Smart crop protection system for agriculture by using the sensors. The cost and use of this project is affordable hence it is very useful for farmers	Internet of Things
4.	Availability	If the device is properly maintained then the availability can be extended. The minimum lifetime of the device is 2 years.	Based on the hardware device
5.	Performance	It works 24*7. Updating of change in data is very fast. The data that is sent to the user cannot be manipulated. The sensor devices are precise and accurate. Overall performance of the device is good.	Python