Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	15 October 2022
Team ID	PNT2022TMID35844
Project Name	Project - IoT Based Smart Crop Protection system for Agriculture
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	● Registration through Form ● Registration through Gmail ● Registration through LinkedIN
FR-2	User Confirmation	● Confirmation via Email ● Confirmation via OTP
FR-3	App features	● Simple to use ● Can be used in all operating systems ● Regular updates for the app ● Asking feedback from users to add in updates
FR-4	Speed	● The whole device and sensors need to be connected to the internet ● The device must be able to update values as soon as possible for better crop management.
FR-5	Data management and analysis	● **Data preprocessing** - This will help to improve accuracy and efficiency of the subsequent mining. ● **Data reduction** - is used to encode the data to a smaller reduced representation,so the integrity of original data was preserved. ● **Data modeling** - It extracts the knowledge from the prepared data. Data modeling applies intelligent methods to identify patterns in the data.
FR-6	Authentication	● Data and control of the field status can be accessed only by the concerned / authorized user. ● Authorized access involves access over Motor control and visualizing the temperature , soil moisture and humidity values.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	• The user must be able to understand ,learn new features and use them . • Language used is English which is the standard medium for communication. It depends on ;- • **Efficiency of user intuitiveness** • **Low perceived workload**
NFR-2	**Security**	• Prevents hackers from stealing personal data of customer for identity theft • Prevents interception of sensitive information travelling over the network
NFR-3	**Reliability**	• Periodically notified regarding the field status • Long distant field and crop management • System is trained to reduce the probability of errors in crop monitoring.
NFR-4	**Performance**	• The real time information from IoT devices was used to control on-off switching water sprinklers automatically. • Initially, we collected IoTs information for 5 months (170 days) and performed yield analysis with this data. • The obtained IoTs information consists of temperature, humidity, and soil moisture, and was collected every 20 min, but for analysis the daily averages were used
NFR-5	**Availability**	• Need internet connection for updating the values and low maintenance needed for the operation. • Can be accessed remotely from anywhere in the world .
NFR-6	**Scalability**	Extending functionality and features of the system on a regular basis based on customer feedback.