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

Date	03 October 2022
Team ID	PNT2022TMID30551
Project Name	IoT- BASED SMART CROP PROTECTION 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	Farm monitoring (drone)	➢ Sensors (data transfer) ➢ Monitoring intrusion of wild animals, rodents, macro insects ➢ Releasing RF waves to destroy them
FR-2	Weather forecast (drone)	➢ Current weather in the field as well as in the region ➢ Temperature and humidity ➢ Wind speed and direction to detect storm ➢ Rainfall detection before impact
FR-3	Field Livestream to tablets	➢ All images and live casts from the field ➢ Live Weather forecast readings updated ➢ Live forecast from sensors in the land portion ➢ Customized tablets for easy operation, andmultilingual facilities. ➢ Generates alarm messages when any of the parameters goes abnormal
FR-4	Farm monitoring (land part)	➢ Sensors (data transfer) ➢ Footprints of the animals detected ➢ The sounds of the animals detected
FR-5	Power consumption (drone & tablet)	➢ Solar panels used for conventional supply

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Understandable, multilingual, user-friendly applications in the tablet
NFR-2	**Security**	➢ Database collected are accessed using TCP-IP protocol system (esp. UDP), stored in the cloud. ➢ The communication interface is done using SP-D2GCS protocol ➢ Security was established using Transport layersecurity protocol and IoT security

NFR-3	**Reliability**	Consistency in tolerance, accuracy maintained, application uptime enhanced
NFR-4	**Performance**	Provides accurate data, efficient functioning despite unexpected variations in climatic conditions and geographical terrains
NFR-5	**Availability**	Drone's downtime: available 90% of the time in every month Tablet's downtime: available 99% of the time
NFR-6	**Scalability**	Can respond to demand access changes in near future