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

Date	15 October 2022
Team ID	PNT2022TMID34928
Project Name	IOT Based Smart Crop Protection
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
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Support	Support through Chat Support through Google form
FR-4	Monitoring Weather Condition	Analyzing through Temperature Sensor Analyzing through Humidity Sensor
FR-5	Tracking Moisture in Soil	Analyzing via Soil moisture Sensor
FR-6	Proper Crop Irrigation	Accomplished via Weather Analysis Accomplished via Remotely Controlled Water Pump Accomplished via Soil Moisture Sensor
FR-7	Detection of Animal intrusion	Accomplished via PIR Motion Sensor Accomplished via Distance Sensor Accomplished via Camera
FR-8	Classifying the animals causing threat	Achieved via Image Processing Python Package OpenCV
FR-9	Sending alert notification	Send through mobile application Send through email Alerting the forest officers through call
FR-10	Communication Gateway	By implementing Wifi Module
FR-11	Connecting devices and app	Achieved via Watson IOT platform
FR-12	Creating Application	Accomplished through Node-Red
FR-13	Cloud Storage	Integrating to IBM Cloud Platform
FR-14	Drive away animals	Through speakers in specific location By flashing LED at night time
FR-15	Power supply	Accomplished with the help of solar panel

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Easy to access
NFR-2	**Security**	It is secure as the communication is via API
NFR-3	**Reliability**	It can withstand extreme environmental conditions
NFR-4	**Performance**	Faster response time, throughput and accuracy and workload is reduced
NFR-5	**Availability**	Services are available 24/7 on an interactive chat platform.
NFR-6	**Scalability**	It is affordable and can be easily repaired/ replaced.