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

Date	18 October 2022
Team ID	PNT2022TMID40471
Project Name	Project – 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	Sub Requirement
1	User understanding	To gather information about the current state of farming land using the sensor data values.
2	User Visibility	An SMS is sent to the farmer via cloud service when the sensor detects the animals approaching the crop field and alerts with an sound to make the animals dread.
3	User Reception	The sensor data values consists of temperature, humidity and soil moisture and these values are send as messages through SMS.
4	User Action	Actions that user must take include agricultural residue destruction , deep ploughing , crop rotation, fertilisers, strip cropping, scheduled planting activities and proper care of the crops.
5	User Registration	Install the application from google play store. Register using mail id. Create a profile.(Read carefully and understand the guidelines clearly)
6	User confirmation	An OTP will send to the registered mail id for confirmation.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
1	**Usability**	This project contributes to the farm protection using the smart modern technology “IOT” to increase its quality and quantity. With the use of mobile application we can easily know the status of the field. Alarms us at the time of need.
2	**Security**	The goal of this work is to provide a repelling and monitoring system for crop protection against animal attacks.We use sensors to detect the animals this will not harm any animals and crops. The data shared will be secured.
3	**Reliability**	It has a capacity to recognize the wild animals near the field and doesn't give a false caution signal. This enhances increase in the production of the crops and reduces the damage of resources.

4	**Performance**	Animal friendly ultrasounds generates, which does not produce physical or biological harm to the animals nor sounds audible to humans so the performance not degraded. Must provide acceptable response times to users regardless of the volume of data that is stored and the analytics that occurs in background.
5	**Availability**	Agriculture fences are quite an effective in protecting wild animals. IoT devices fulfills the need of 24x7 availability. Alarm system are available when farmer can't able to come to the field at a time. This project have a backup plan also. So availability of this project is high.
6	**Scalability**	System must handle expanding load and data retention needs that are based on the upscaling of the solution scope. It can be enhanced by sending message directly to the fire department in case there is a mass wild animals attacks the fields. It will be safe for human beings also. The controlling and monitoring of the soil moisture level can be automated by taking care of the crops in case of low moisture level, without notifying the farmers.