Project Design Phase 1
Proposed Solution

Date	25 September 2022
Team ID	**PNT2022TMID**46534
Project Name	IoT Based Smart Crop Protection System for Agriculture
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	An intelligent crop protection system helps the farmers in protecting the crop from the animals and birds which destroy the crop. This system also helps farmers to monitor the soil moisture levels in the field and also the temperature and humidity values near the field. The motors and sprinklers in the field can be controlled using the mobile application.
2.	Idea / Solution description	In our proposed solution, when the animal enters the farm area, the LDRs placed in the vertical positions help us to detect the size of the animal whereas PIR sensors are used to detect the position of the animal. Immediately, the APR board will be on, and the sound is played to divert the animal. During night time the flashlight will be on and the message will be sent to the farmer. The LCDs the presence of animals as readings. The GSM module is used for sending a message to warn the farmer about the intrusion. This device is using Embedded PIC Microcontroller. It comprises LCD (16×2) (JHD162A), PIC Microcontroller, PIEZO Buzzer, GSM-based SIM900A module, rheostat (10k), battery 9v, and LED. Whenever there is an attack by animals on crops in the agriculture field, this system detects the sound produced by the buzzer and generates an SMS alert within seconds to the field owner. This device is based on a motion-detecting sensor and is developed especially for crop monitoring in agriculture fields, farms, wetlands, forests, etc.GSM technology is used to send SMS alerts to users on mobile whenever there is a fire broke out in the field. It will also generate a buzzer sound to alarm nearby people to take proper action to diminish crops protected by smart farming.

3.	Novelty / Uniqueness	○ Proposing a system that sounds through solar animal repellent when animals try to enter the farm. ○ In night, the flashlight will focus on protecting the farm and a message will be sent to the farmer. ○ The system is capable of turning on/ off automatically and warding off the animals thus protecting the fields from any damage also we can set up a Timer as per the farmer's requirement
4.	Social Impact / Customer Satisfaction	This project carries great social relevance as it aims to address this problem. This project will help farmers in protecting their fields and save them from significant financial losses and will from the unproductive efforts that they endure for the protection of their fields. This will also help them in achieving better crop yields and thus, leading to their economic well-being.
5.	Business Model (Revenue Model)	To Implement this project as a real-time product that includes everything within a single small package. This shall create a revolution in the agriculture industry. The product shall act as an Agri Bot that minimizes the labour of farmers in addition to increasing the productivity of crops. The quality of the crop can be enhanced as it incorporates the levels of soil moisture, temperature, and humidity of the field.
6.	Scalability of the Solution	The product can be handled by every common person. This product can be made available at all the Agro Stores. As the product can be operated in any condition, this helps the farmer to protect the farm from animals and birds without getting harm to them.