

**Project Design Phase-I**  
**Proposed Solution Template**

Date	24 September 2022
Team ID	PNT2022TMID02368
Project Name	Project - SmartFarmer - IoT Enabled Smart Farming Application

**Proposed Solution Template:**

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To build an effective decision support system employing a wireless sensor network that handles various agricultural operations and provides important farm information. Soil moisture, temperature and humidity, and irrigation system content are all included. The water level is rising as a result of the weather. Farmers face several diversions, which is detrimental to agriculture.
2.	Idea / Solution description	IoT smart connection employs an esp32 board that connects to the internet in order to monitor real-time characteristics such as humidity by utilising a sensor, which we utilise in a specific zone. We send all data to the cloud. After the data is in the cloud, we may utilise the sensor data to compute the field condition and indicate the framer of the field condition via the app and website. The framer then utilises the information from the app or website to determine whether or not to switch on the water pump. Weather stations should be set in the field to capture harvest data, such as temperature and precipitation, as well as leaf water potential and general crop health. You can effectively prevent diseases and pests that might impair your yield by tracking crop yield and any anomalies. For predicting the weather of a region, we may use climate data from the internet and data from the previous year to anticipate the weather pattern and update the app and website that have been established for the field situation.
3.	Novelty / Uniqueness	Numerous prominent researchers have been researching on smart farming by integrating IoT technologies into agriculture. However, a number of underlying problems are still waiting for an effective solution. This paper is an attempt to analyse past study and open obstacles in IoT-based agriculture.

4.	Social Impact / Customer Satisfaction	Smart farming has the potential to increase young participation in agriculture. When pursuing the fourth industrial revolution and 'agricultural 4.0,' the societal effect of new technology must be considered. Wages for agricultural labourers are being reduced. It saves a significant amount of time. IoT may assist strengthen customer connections by improving the whole customer experience. account.
5.	Business Model (Revenue Model)	Since APIs are used to actively monitor the customer's environment, this project employs a business strategy in which revenue will be generated on the basis of the length of time in which the customers actively interact with the product. This product is aimed to be free of cost to the public, but the revenue will be generated by selling this product to the government at a low cost, or by directly selling it to the farmer and collect revenue for the information of whether prediction, soil quality, water level, irrigation system and these functionalities will increase the value of the product in the global market.
6.	Scalability of the Solution	In the future, if any update is required either on the hardware or software side, it can be easily implemented. The hardware components can be directly interfaced with the microcontroller and small modifications can be made in the programming of the existing product. In case of the software, the website application has to be updated with the additional functionality by creating a new section for the updated hardware. So this will not affect the existing functionality of the product and new functionality can be easily integrated. In addition, a separate circuit will be kept along with the hardware to detect any problem which informs the web application. Also a notification will be sent to the product service department