PROJECT DESIGN PHASE - I
PROPOSED SOLUTION

Date	26-09-2022
Team ID	PNT2022TMID22317
Project name	SmartFarmer - IoT
Maximum marks	2 Marks

7 IoT Smart Solutions in Agriculture :

1. Crop Yield Prediction
2. Crop Health Monitoring
3. Irrigation Management
4. Pesticides Management
5. Fertilizer Management
6. Soil Nutrient Measurement
7. Automatic Watering System

1. Crop Yield Monitoring

To estimate the fruit numbers and their weight for the whole plant, **the sample was used for extrapolation and multiplied by the weight ratio of the whole plant and the selected sample**. Based on all harvested plants, the number of tomatoes ranged from 1 to 3,349 per plant, averaging 532 fruits/plant.

2. Crop Health Monitoring

Crop monitoring involves the use of sensors, drones, and satellites to monitor crop health and identify locations requiring attention. Crop monitoring systems also include all data such as crop health, humidity, rainfall, temperature, and more.

3. Irrigation Management

Irrigation management uses sensors to detect when and how much water is needed by individual plants. This saves water and also reduces weeds and runoff.

4. Pesticides Management
Sensors detect the presence of pests and then dispense pesticides as required to protect crops. This helps reduce pesticide usage and can be used with smart irrigation management for targeted spraying only where it is needed.

5. Fertilizer Management
When fertilizer gets too low, sensors notify farmers so they can use a crop-yield map to determine which areas need more fertilizer. They can also track how much fertilizer has been used by each plot or farm throughout the season. This reduces costs and keeps runoff to a minimum, reducing environmental damage.

6. Soil Nutrient Measurement
Tomatoes need **potassium, nitrogen and phosphorus** to grow. Other essential nutrients include zinc, copper, iron and sulfur, but your plant won't grow without the "big three."The system will be able to control and monitor the condition of soil moisture and nutrients always, so that the young tomato plant production is being stimulated.

7.Automatic Watering System
Whenever the sensor detects a low quantity of moisture in the soil, the motor turns on automatically. Hence, will automatically irrigate the field. Once the soil becomes wet, the motor turns off. You can monitor all this happening remotely via Thing speak Server