

# IDEATION PHASE

## Literature Survey

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<b>Project Name</b>	Smart Farmer - IOT Enabled Smart Farming Application

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# SMART FARMER – IOT ENABLED SMART FARMING APPLICATION

## ABSTRACT:

In this project, we are going to build a **Smart Farming System using IOT**. Globally the IoT systems has contributed its application in many fields and proven to be successful. It is the time that Indian farmer need to introduce the Smart Agricultural systems for higher crop yield. The productivity with compilation of data from sensors, actuators and modern electronic gadgets the farmer can monitor agricultural fields. Smart Agriculture can forecast weather data, switching ON the pump motor acknowledging the dampness of soil terms of moisture levels with help of sensors which are interfaced to process module Arduino-UNO. The Smart agriculture system can be operated from anywhere with help of networking technology. On joining process in research and development in Smart Agriculture & Artificial Intelligence can be cutting edge technology in data compiling and resource optimization. The pest & insects controls that protects damaging the crop and also optimisation resources utilization can be breakthrough.

**Keywords:** SMART (S-Specific, M-Measurable, A- Attainable, R-Realistic T-Time Bound) Soil moisture sensor, raindrop sensor, Humidity sensor, Temperature sensor, Arduino, Networking, WIFI and IOT

## Design Methodology

Wireless Sensor network in the process of development in smart and precision agriculture can be used to monitor regularly the changes in environmental conditions such as climate, hydrology, plant physiology, humidity, temperature, rains dampness of soil and others. As a process input, it can also demonstrate as a controller in the providing the inputs for seeds, fertilizers, pesticides etc. The WSN application shall aid the data collection process to for information needed by the farmers for cultivation and also as Input feeder control system on agricultural machinery. The failures and breakdown issues such as malfunction of sensor and power supply related issues and also the information security may be an area of concern in the Wireless Sensor networking systems.

We maintain water level and flow it as required by relay switch on /off the Pump. Soil moisture sensors are fixed under the ground in field. Initially the water level reading is taken and decisions are made according to it. The temperature sensor (DTH11) is fixed at the centre of the field to get the overall reading of temperature of the soil. These sensors are connected to Arduino where we will get the readings. All sensors will send data to Arduino and data will be forwarded to WSN systems. The threshold value will be set according to the crop. The threshold value will be marked based on the requirement of the crop specified and predefined in the raspberry pi for every sensor. Whenever any sensor reaches a threshold value, message alert is sent to the user and action is taken according to it.

## **Implementation:**

### **Algorithm:**

The following steps involved in implementation:

- 1.Code for interfacing Wi-Fi module and GSM module to Arduino.
2. A message is sent to the GSM module to register the farmer.
3. Once the message is sent the program goes into infinite while loop.
4. Whenever PIR sensor detects any type of motion around the field, a buzzer sound is played.
5. A message is sent to the farmers mobile saying tat animals were trying to enter the fields.
6. Whenever the moisture of soil is less than threshold value then a message is sent to the farmers mobile.
7. The farmer on receiving the message will send message "on" to turn the motor on.
8. When sufficient water is supplied another message is sent to farmers mobile saying to stop motor.

9. Farmer will send a message “off” to turn off the motor.
10. The values of the sensor are uploaded in Thing Speak platform for every 10 minutes.
11. LCD is used to display the functioning of project at any given time.

## **Performance of Operability:**

The system has checked for the performance with the help of thing speak.com platform to check the Temperature, humidity rain and soil parameters. The depicted enables the performance the smart irrigation project being operational.

## **Conclusion:**

With the incorporation of the WSN&IOT, we can upgrade the agriculture farm. These systems enable to check the quality of the soil and the growth of the crop in soil and with these system farmers are able to solve irrigation problems, temperature problems, humidity problems, etc. The availability of sensors for the agricultural parameters and microcontrollers can be easily interfaced with each other and with the help of Internet of Things, wireless sensor networks communication the challenges encountered by the farmers can also be reduced and a better communication path for the transfer of useful data can be achieved between various nodes. So, farmers are able to control various equipment's related to agricultural and monitor their crop on Smartphone or on computers. These systems offer a high application area to the users to improve their skill and output of the crops in better way. Use these systems help to increase the Rice, wheat and maize and other agricultural production in India in the near future. IOT capable to control the condition of the yield and growth, it can also able to check soil, temperature, humidity, etc. with help of IoT.



