**A PROJECT PRESENTATION
ON
"SMART AGRICULTURE USING IOT"**

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INTRODUCTION

➢ Farming is the backbone for the advancement of the nation. Since, India is called as an agricultural country for its remarkable agricultural lands and its other resources. In recent days, the temperature and soil moisture factors affect the growth of agriculture such as productivity, diseases and yield production. agriculture based issues has been the barrier for the development of the nation. There is a need for modernization of the current standard techniques for agriculture.

➢ Smart Farming is designed in this project which will use concept of IoT, WSN and cloud computing to help farmer plan an irrigation schedule for his farm. Proper scheduling of irrigation and fertilization is very important for proper development of crops.

LITERATURE SURVEY

▶ Anand Nayyar proposed a Smart IoT based gadget "Agriculture Tool" which assists farmers in getting Live Data (Temperature, Soil Moisture) for efficient environment monitoring. The author claimed the accuracy of 98% in the data feeds extracted from the sensors.

▶ Andreas Kamilaris developed Agri-IoT, a semantic framework for IoT based smart farming applications, which supports reasoning over various heterogeneous sensor data streams in real-time.For the experimentation of this project, they deployed 100-300 sensors in the field.

▶ Amandeep proposed the GPS based remote controlled vehicle which can operate on both automatic and manual modes, for various agriculture operations like spraying, cutting, weeding, etc. It can also monitor the temperature, humidity, soil condition and water supply.

PROBLEM STATEMENT

▸ The food production and its safety are a major problem in agricultural sector. A lot of crops easily gets damaged causing a huge amount of financial loss of nation and even for the farmers (small scale or at large scale).
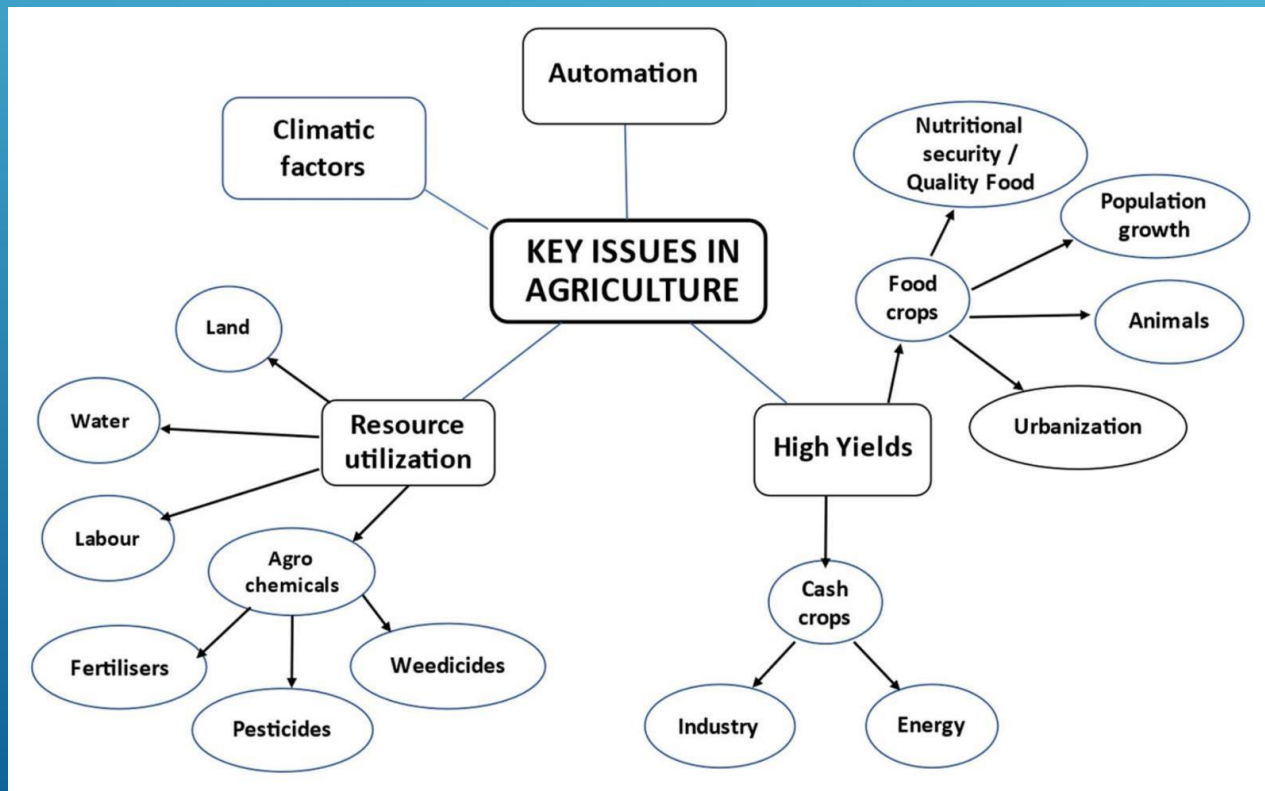
PROPOSED SYSTEM
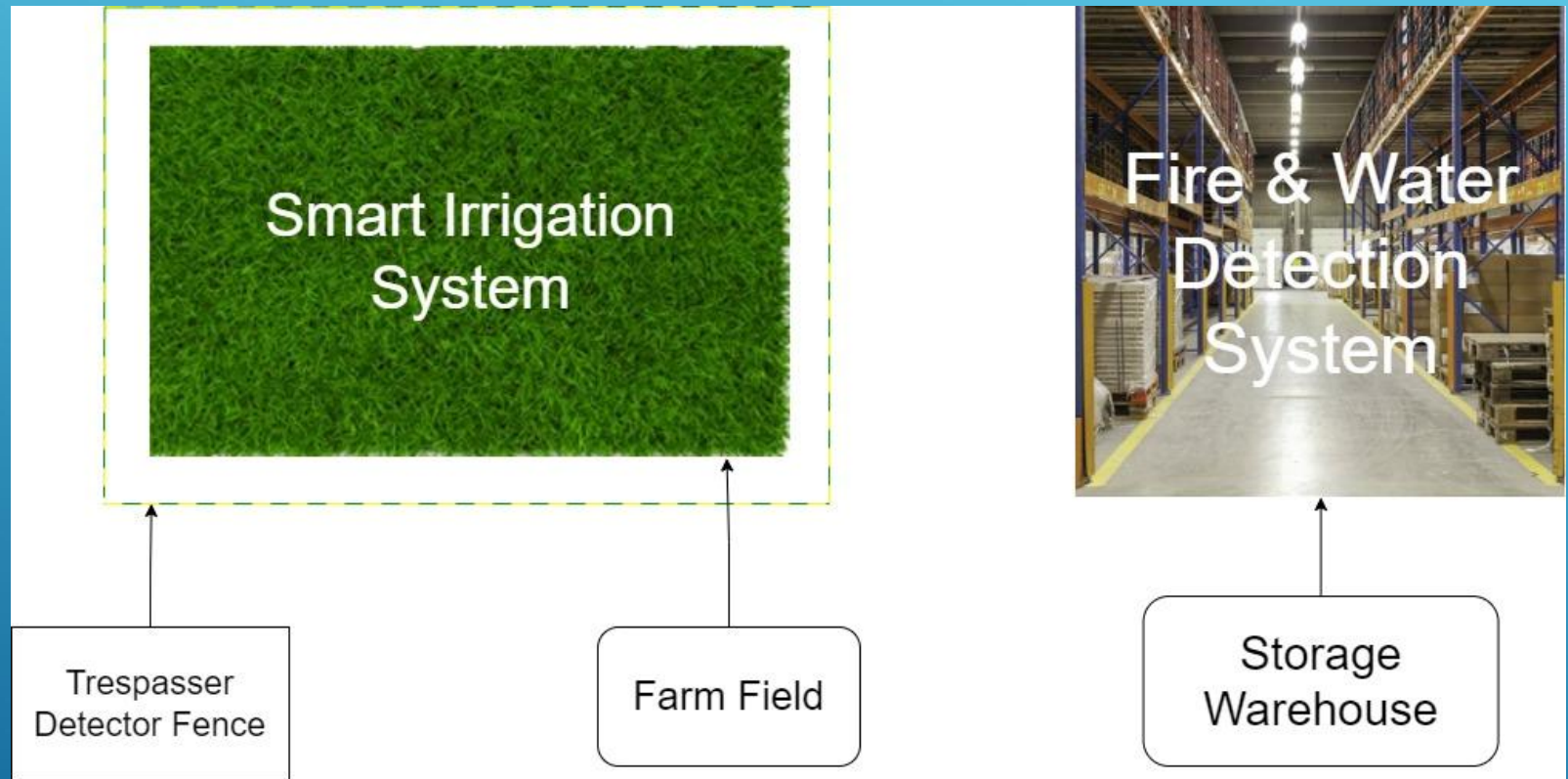
METHODOLOGY

▶ The implemented framework comprises of different sensors and devices and they are interconnected by means of remote correspondence modules. The sensor data is been sent and received from client end utilizing internet connectivity which was enabled in the Node MCU module-an open source IoT platform. This system is used to maintain the optimal conditions of the irrigation system effectively.

▶ The data can be viewed on the Farmer's Guide app (or) web page. The farmer can go through each and every information regarding the levels, at what time it's been functioning, any fluctuation appearing or not, whether the operations are been performed in time or not.

SYSTEM DESIGN
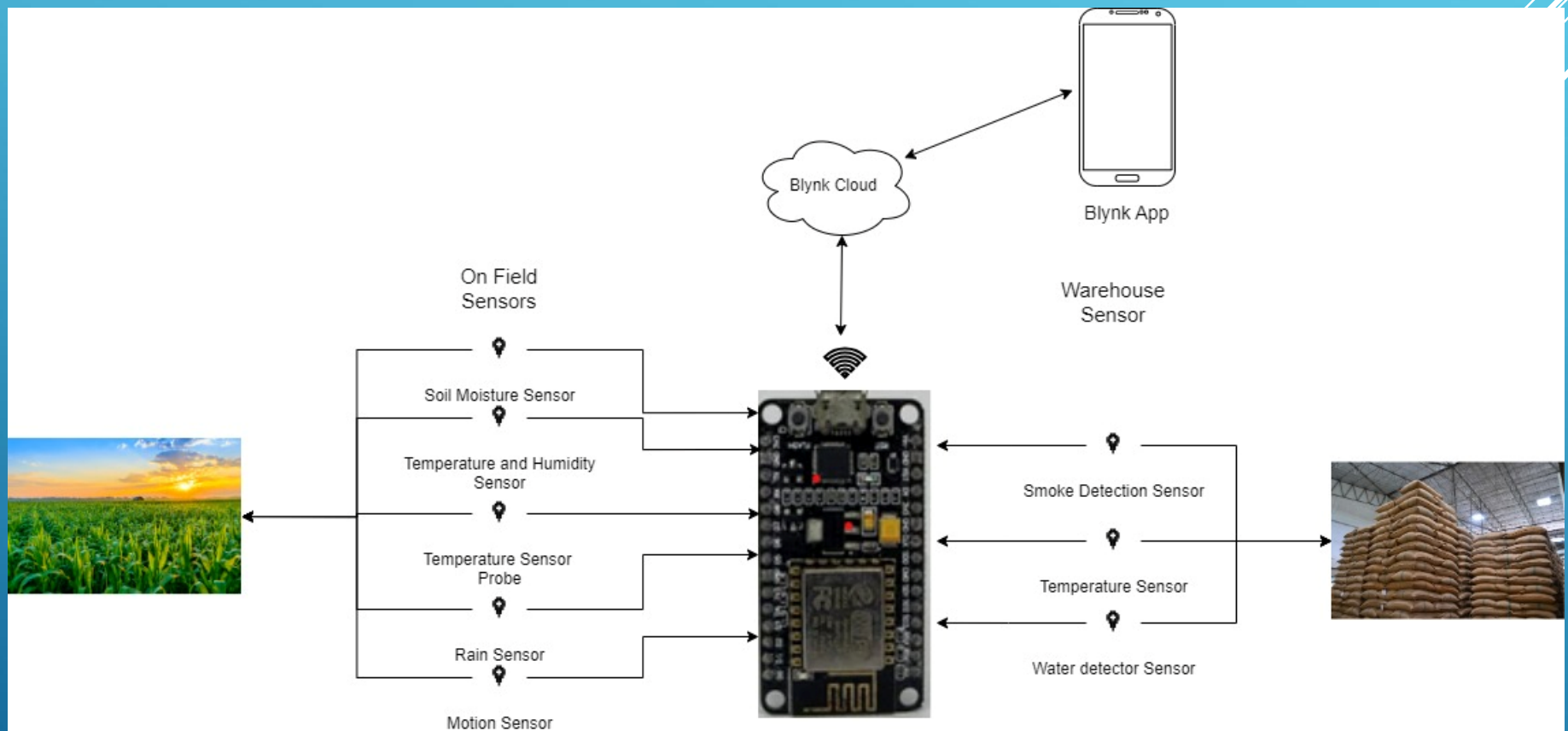
HARDWARE DETAILS

NodeMCU :-

- TheNodeMCU (*N*ode*M*icro*C*ontroller*U*nit)isanopen-source software and hardware development environment built around an inexpensive System-on-a-Chip (SoC) called the ESP8266. The ESP8266, designed and manufactured by Espressif Systems, contains the crucial elements of a computer: CPU, RAM, networking (WiFi), and even a modern operating system and SDK. That makes it an excellent choice for Internet of Things (IoT) projects of all kinds.

Soil Moisture Sensor:-

▪ The Soil Moisture sensor is used to sense moisture content in the soil. It checks the volume of water content or moisture present in the soil. The calculations are done in the soil moisture sensor through coefficients. It estimates the volume of water content in the soil. It detects the water content in the soil and gets and sends the analog signals which is shown digitally. It transmits the signals containing information or data or values of the condition of soil to Arduino to further process it and display.

Temperature and Humidity Sensor

It is used for measuring temperature and humidity. In this system, it shows the information at which level it was functioning. Suppose, it is beyond the threshold level, LED will starts blinking and instantly the values appear on the webpage and the farmer gets to know.

DHT11 pins	
1	VCC
2	DATA
3	NC
4	GND
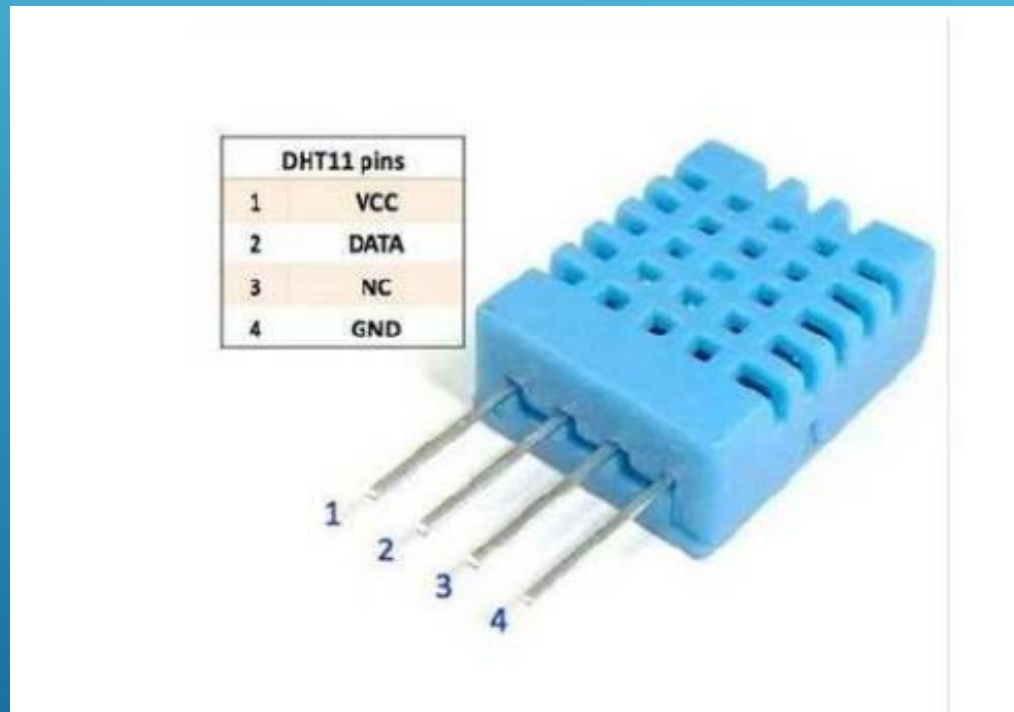
DS18B20 Water-Proof Temperature Sensor Probe:-

This is a sealed (waterproof) and pre-wired digital temperature probe, based on DS18B20, 1-wire digital temperature sensor from Maxim IC, providing data in degree Centigrade with 9 to12 bit precision over the range of operation (-55C to 125C). This probe lets you precisely measure temperatures in wet environments with a simple 1-Wire interface. Because they are digital, you don't get any signal degradation even over long distances!

Light Dependent Resistor (LDR) **:-**

LDR (Light Dependent Resistor) as the name states is a special type of resistor that works on the photoconductivity principle means that resistance changes according to the intensity of light. Its resistance decreases with an increase in the intensity of light

Rain Sensor:-

A rain gauge sensor is a device used to measure the amount of rainfall. They are widely used in meteorology, hydrology, agriculture, urban planning, and other fields to provide accurate rainfall data.
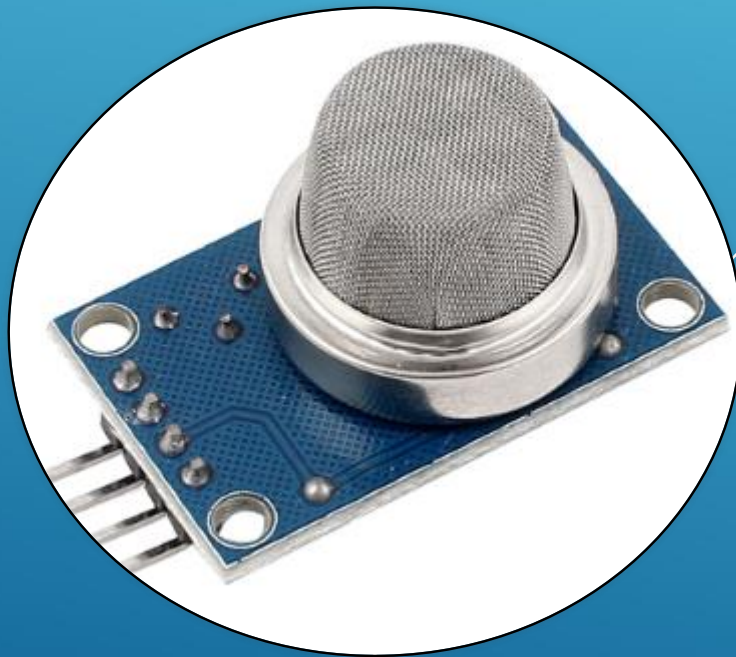
Motion Sensor:

A motion sensor uses one or multiple technologies to detect movement in an area. When a sensor detects motion, it sends a signal to your security system's control panel, which connects to your monitoring center. This alerts you and the monitoring center to a potential threat in your home.

Smoke Detector Sensor:

A smoke detector is a sensor that detects smoke as a primary indication of fire. It provides a signal to a fire alarm system in a large building, or produces an audible and visual signal locally in a room or a home.
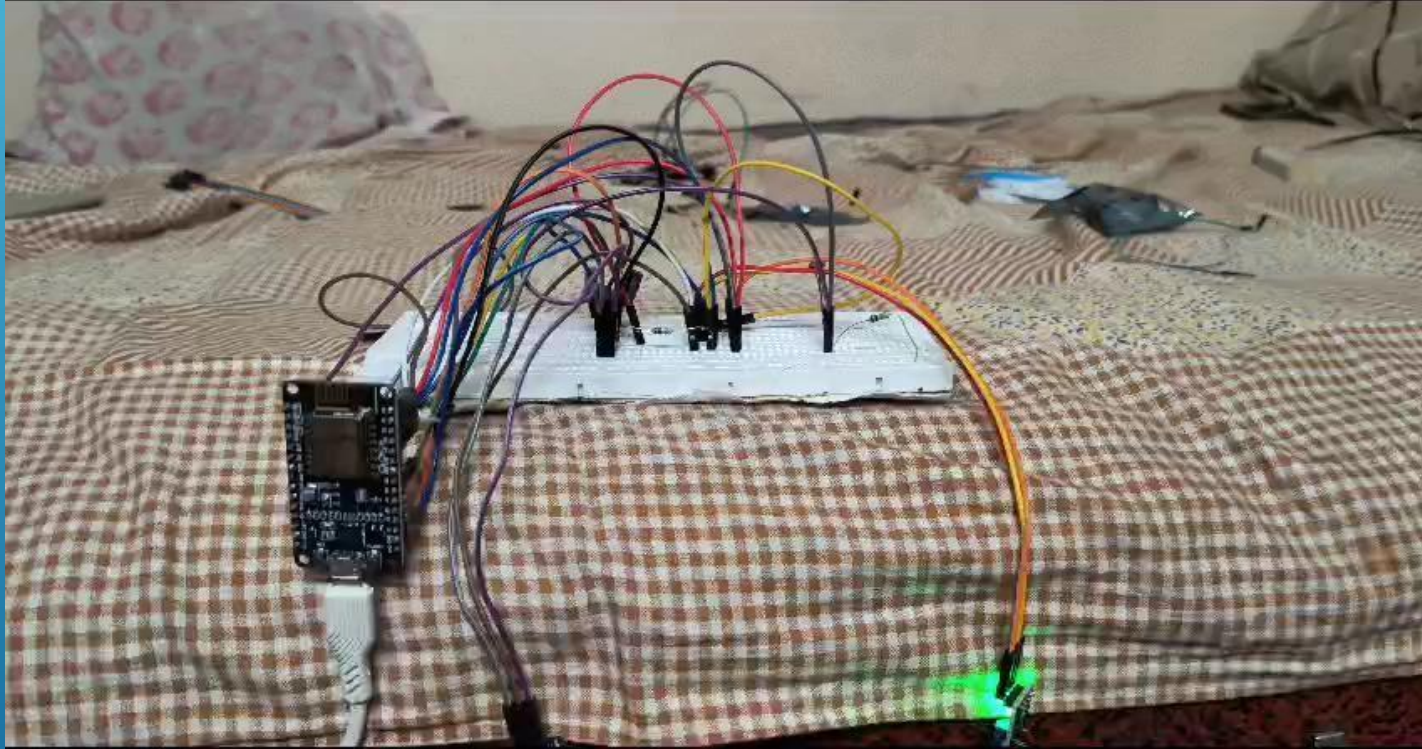
Water Detection Sensor:
A water sensor is a device used in the detection of the water level for a diverse range of applications. Water sensors can come in many variations that include ultrasonic sensors, pressure transducers, bubblers, and float sensors.
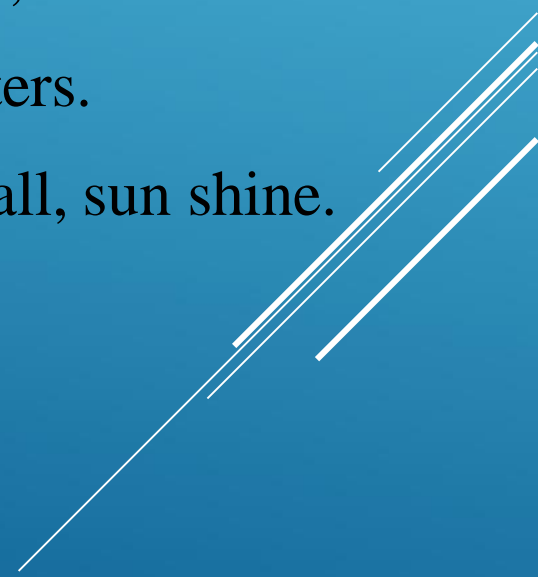
IMPLEMENTATION

EXPECTED OUTCOMES

The expected results of this project are:

1) Autonomoussearching,detectionandalarmingagainst pest attacks.

2) Measurethevariousparameterssuchastemperature, humidity, soil moisture, smoke detection, pH, etc. of soil.

3) To provide live data of all the above parameters.

4) To provide live data about wind speed, rainfall, sun shine.

SUMMARY

- The Farm Monitoring System can be used for destiny factors of agriculture. This would be a relief for farmers since it decreases the load of manual efforts A gadget to screen moisture levels within the soil changed into constructed and the assignment furnished a possibility to take a look at the prevailing structures, at the side of their features and downsides.

- The stated gadget may be used to turn on/off the water sprinkler in keeping with soil moisture levels thereby automating the technique of irrigation that is one of the most time ingesting activities in farming. Agriculture is one of the most effort-consuming hobby.

- The device makes use of statistics fromsoil moisture sensors to irrigate soil. The proposed assignment may be further greater with the aid of including pump to the machine to facilitate computerized irrigation.

- The automated irrigation device may be triggered when the moisture content of the soil is going under the brink stage. The threshold degree can be decided in the code written for Arduino. So, whenever the fee for moisture goes under the brink degree, the pump gets mechanically on and irrigation is performed to an ok degree.

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