Institute Innovation cell

Developing Online Repository of Ideas Developed and Wayforward plan

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Idea Title: WiFi Plant Monitoring system

Problem Statement:

Farmers face many difficulties while farming , one of the major issue is timely water supply to plants and also to detect weather conditions.

OVERVIEW

To reduce farmers workload, automating agriculture by ensuring water supply to plants and a perfect water management system which support the farmers to get quality production.

GOALS/Objectives

1. Ensuring farmers heavy task to comfortable exercise.
2. To give good quality production to farmers.

SPECIFICATIONS

A perfect water management system, 24/7 monitoring, timely water supply, soil monitoring sensor, temperature monitoring sensor, works on WiFi, can spread up to a wide area with WiFi.

MILESTONES

1. Ideation/Data collection

For some crops like vegetables required timely supply of water, in some cases a farmer may not be able to furnish water to his crops due to some health issues or maybe any other reasons ,this may effect the crop production.
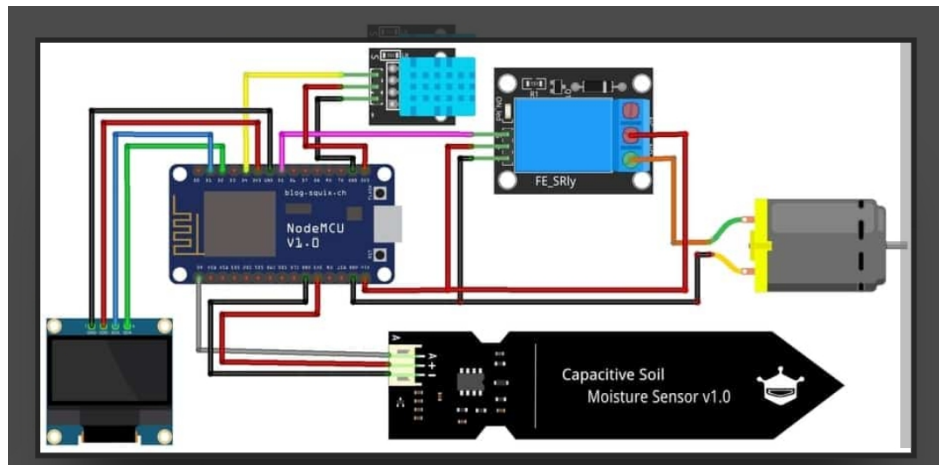

Fig 1: Problem scenario

2. Model Building

Node MCU is connected to D4 pin of DTH 11 and soil moisture is connected to A0 pin of node MCU of the relay module. DC motor pump is connected to DTH 11 sensor and node mcu.   .

Fig 2 Model or blueprint:

3. Components/Tools Understanding and usage

NodeMCU: is a low-cost open source IoT platform.It initially included firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which was based on the ESP-12 module. Later, support for the ESP32 32-bit MCU was added.
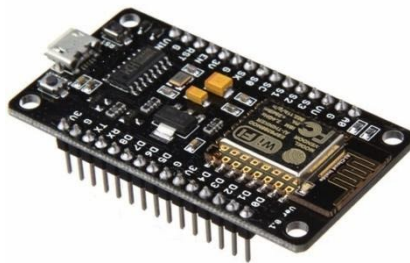

Fig 3.1: Component 1

Soil moisture sensor : Soil moisture sensors measure or estimate the amount of water in the soil. These sensors can be stationary or portables such as handheld probes.
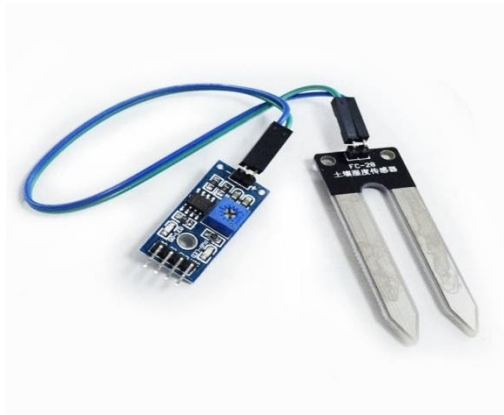
Fig 3.2 : Component 2

DTH-11 sensor : The DHT11 is a basic, ultra low-cost digital temperature and humidity sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air, and spits out a digital signal on the data pin
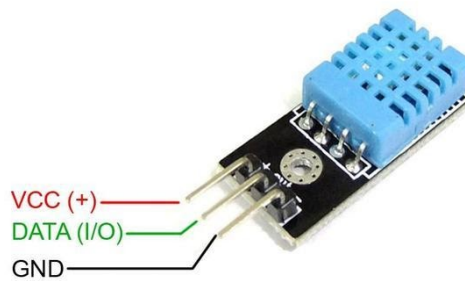

Fig 3.3: Component 3

Relay module: A power relay module is an electrical switch that is operated by an electromagnet. The electromagnet is activated by a separate low-power signal from a microcontroller. ... When switching off the current to the coil, the armature is returned, by force, to its relaxed position.

Fig 3.4: Component 4

DC Motor Pump : DC powered pumps use direct current from motor, battery, or solar power to move fluid in a variety of ways. Motorized pumps typically operate on 6, 12, 24, or 32 volts of DC power.

Fig 3.5: Component 5

4. Prototyping

Fig 4 Prototype: _____

5. Testing

Fig 5 Testing/Users feedback