SMART AGRICULTURE

Common sensors

PROBLEM STATEMENT

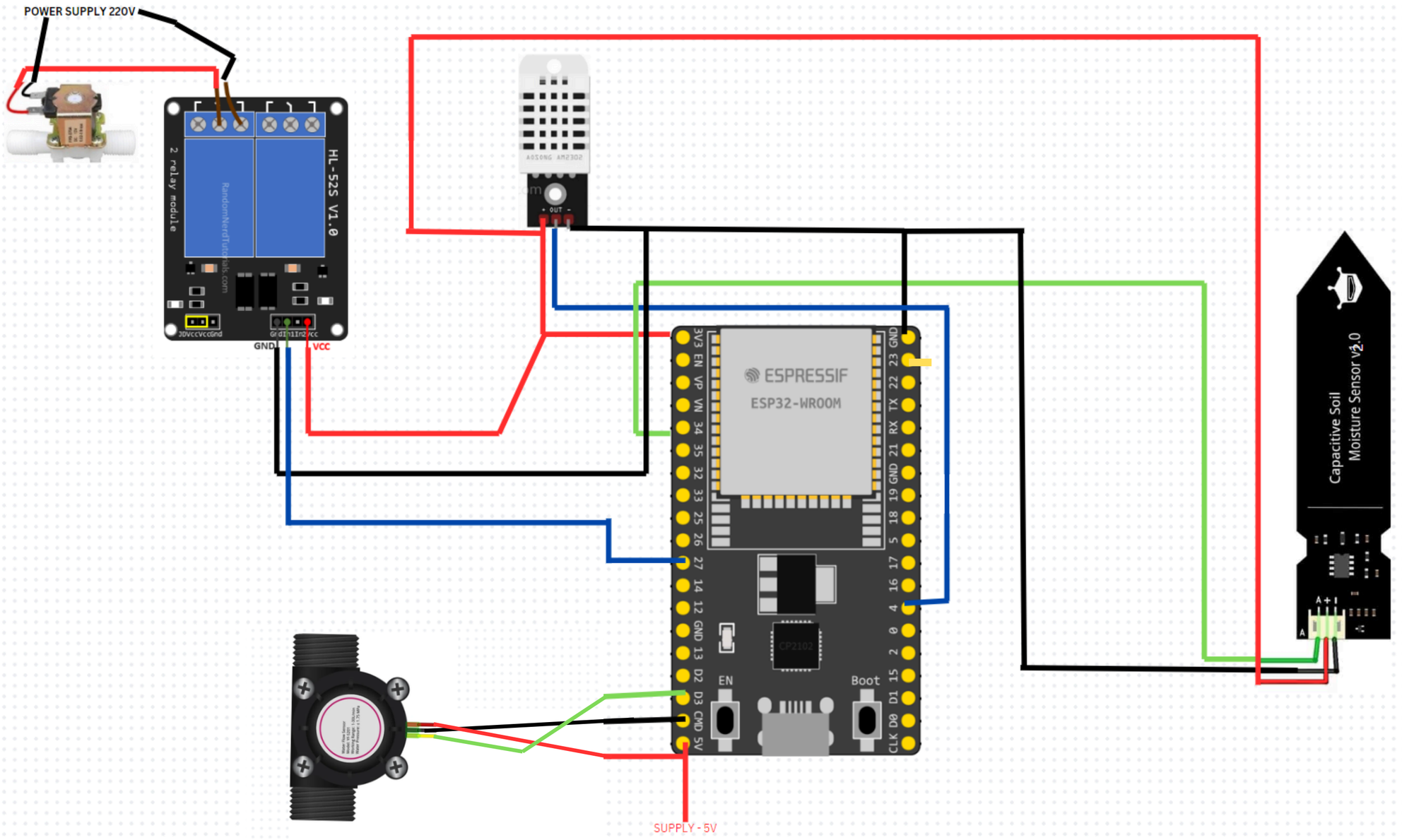
1. Real time Monitoring and Making a working(deployed device) and a dashboard to store data .
2. Smart agriculture can involve many things such as irrigation,plant monitoring etc .

FEATURES

- Temperature and humidity monitoring (DHT22)
- Water Supply flow monitoring
- Soil moisture monitoring (capacitive soil moisture v1.2)
- Automatic/Manual irrigation
- Thingspeak for better data visualization.

COMPONENTS

- DHT Sensor
- Soil Moisture Sensor
- ESP32
- Relay Module
- Solenoid Valve
- Water Flow Sensor


POWER SUPPLY 220V
2 relay module
HL-52S V1.0
JDVCCGnd
GndIn1In2Vcc
GND
VCC
ESPRESSIF
ESP32-WROOM
3V3 EN VP VN 34 35 32 33 25 26 27 14 12 GND 13 D2 D3 CMD 5V
23 22 TX RX 21 GND 19 18 5 17 16 4 0 2 15 D1 D0 CLK
EN
Boot
CP2102
Capacitive Soil
Moisture Sensor v2.0
SUPPLY - 5V

AUTOMATIC IRRIGATION

Data Collection: Moisture percentage from sensor

Relay is switched ON/OFF

Solenoid Valve: Control the Water Flow

When soil moisture sensor reads

< 30% → dry condition
Solenoid turned ON

30% - 60% → Remains same as previous state

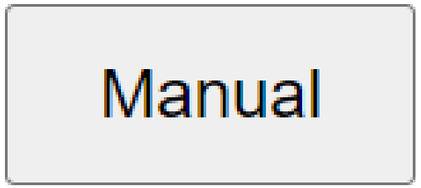
> 60% → wet condition
Solenoid turned OFF

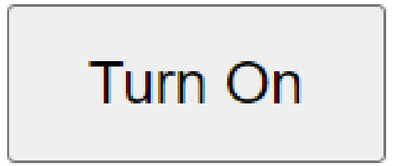
But what if moisture sensor is not working?
What if the farmer is aware in advance that rain is coming? (Save Water)

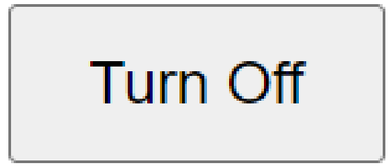
Farmer should have control over irrigation!!

MANUAL IRRIGATION

A simple html webpage integrated to shift between automatic and manual irrigation. (Can Handle from anywhere)

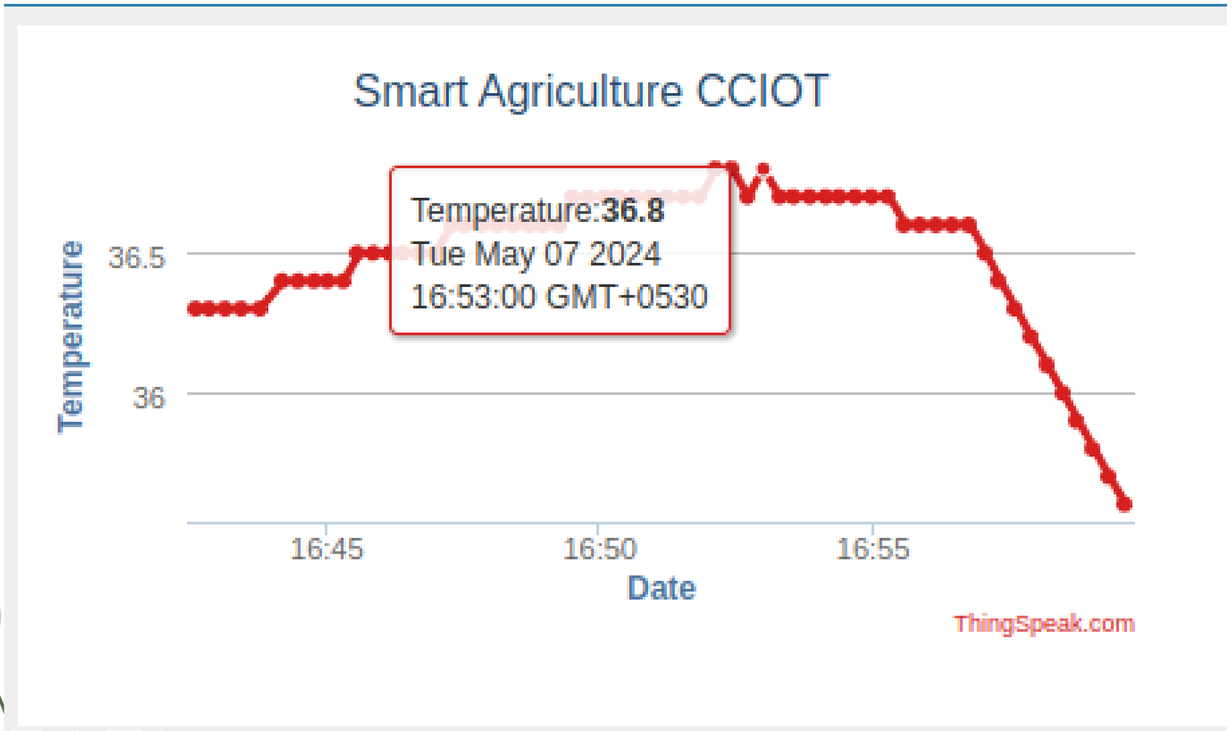


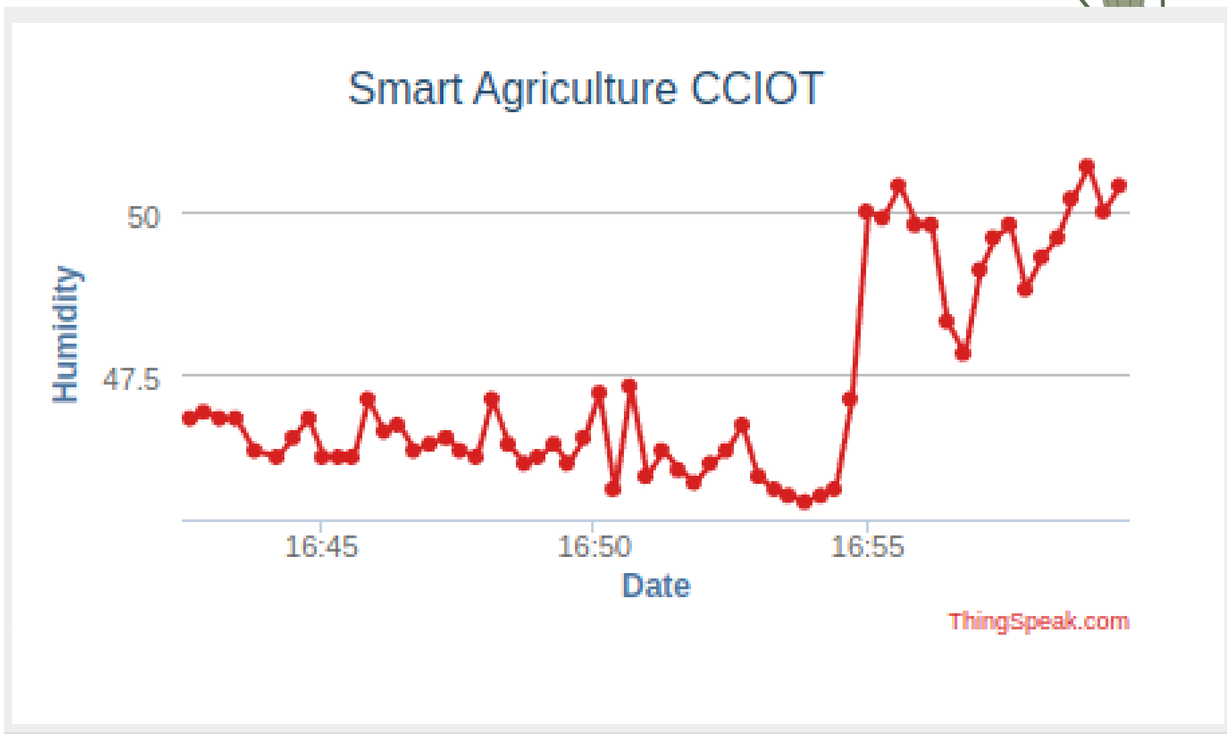




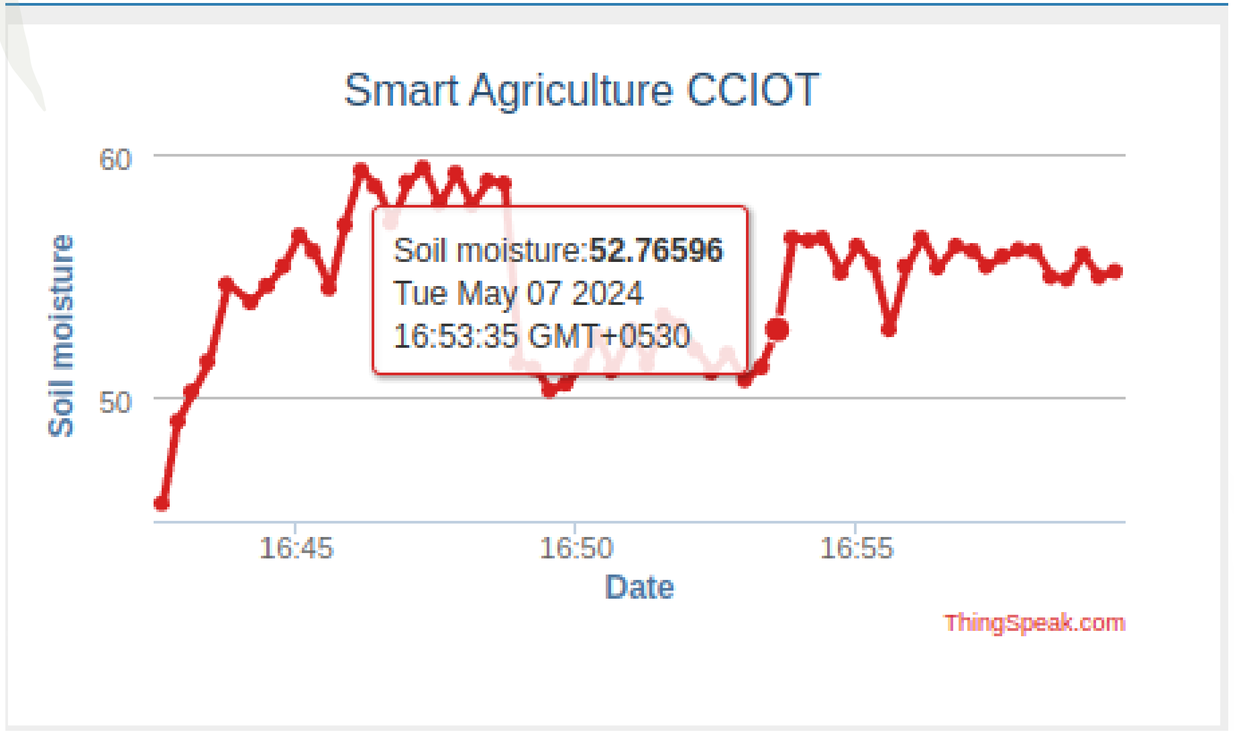
Live working of the project

THINGSPEAK


Smart Agriculture CCIOT
Temperature:36.8
Tue May 07 2024
16:53:00 GMT+0530
Temperature
36.5
36
16:45
16:50
16:55
Date
ThingSpeak.com


Smart Agriculture CCIOT
Humidity
50
47.5
16:45
16:50
16:55
Date
ThingSpeak.com

THINGSPEAK


Smart Agriculture CCIOT
60
50
Soil moisture
Soil moisture:52.76596
Tue May 07 2024
16:53:35 GMT+0530
16:45
16:50
16:55
Date
ThingSpeak.com

PROBLEMS WE FACED :(

- Proper working sensors and components were not given.
- Project was removed by the gardener after a day of deployment.

Add-On Ideas

- Fertigation (Fertilization + Irrigation)
- Motion Detection/ Image Sensors (for Animals)
- Weather Forecast
- Using Image sensors and CNN

Thank You