

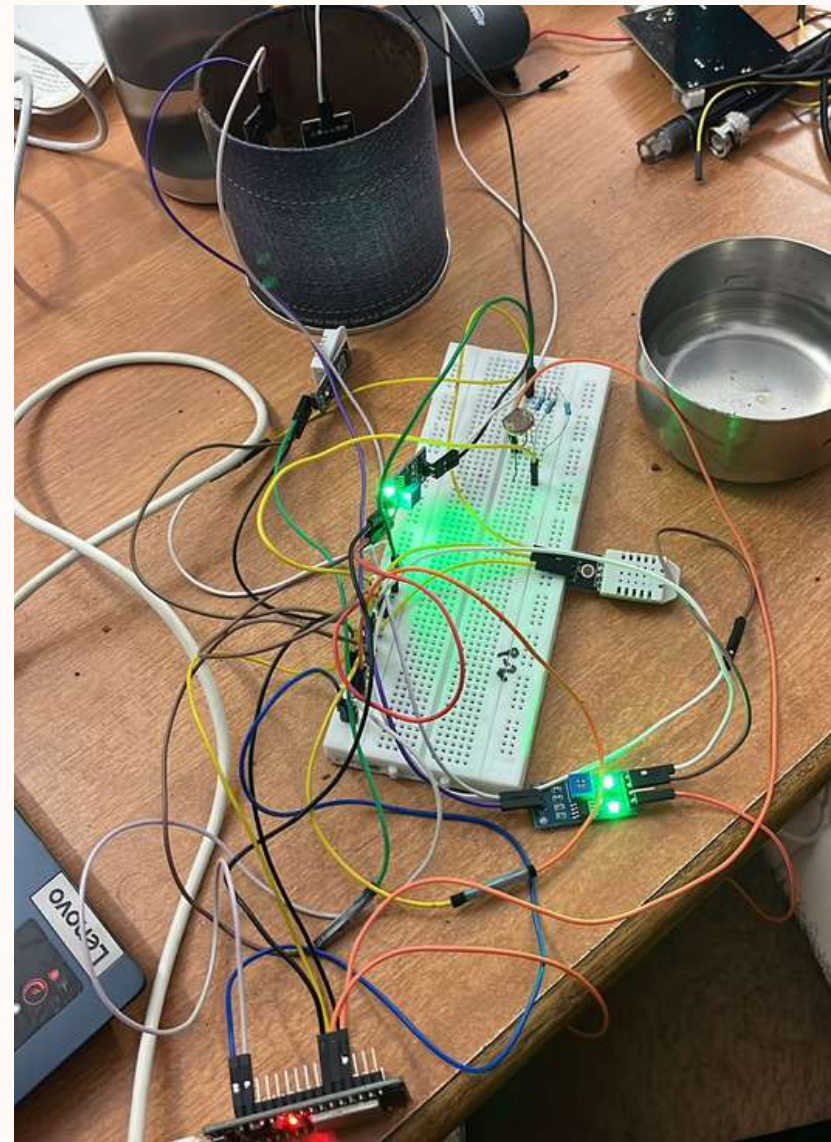


ESW Project: Smart Farming

-Team 10-

Aditya Mishra, Chirag Dhamija,
Namrata Baliga, Sanchit Jalan

Work done so far



**COMPLETE SETUP OF
SENSORS**

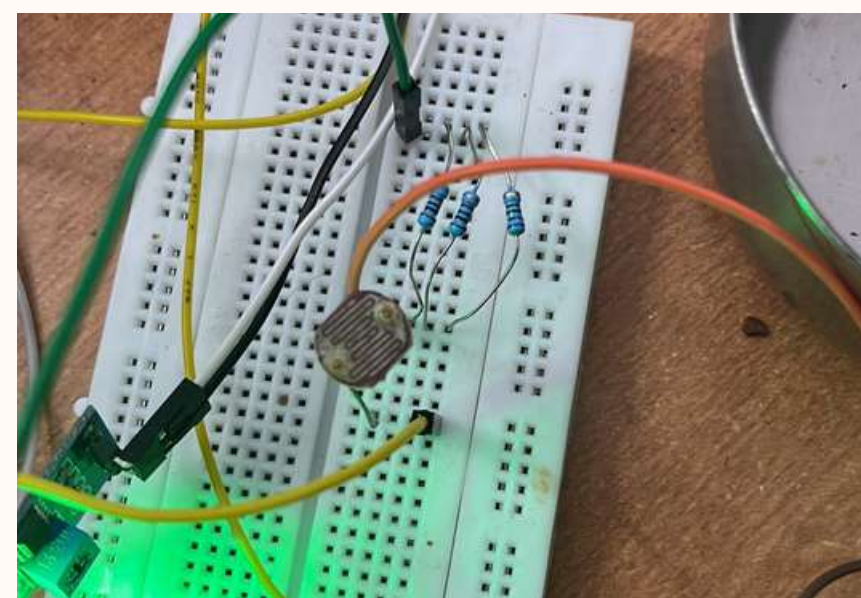
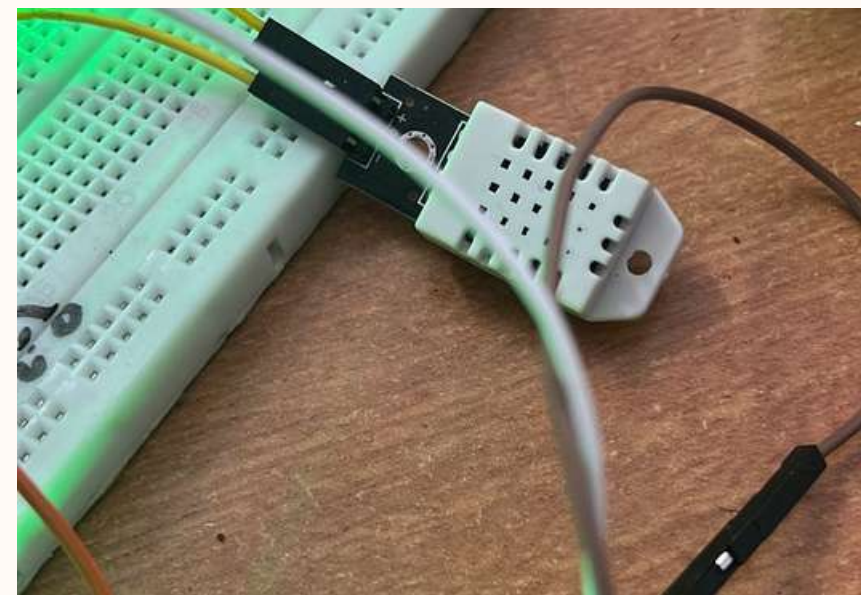
UI SETUP



Sensors

COMPLETE SETUP

- Sensor tested and working
- Data successfully being sent to thingspeak
- Values and data displayed on the website



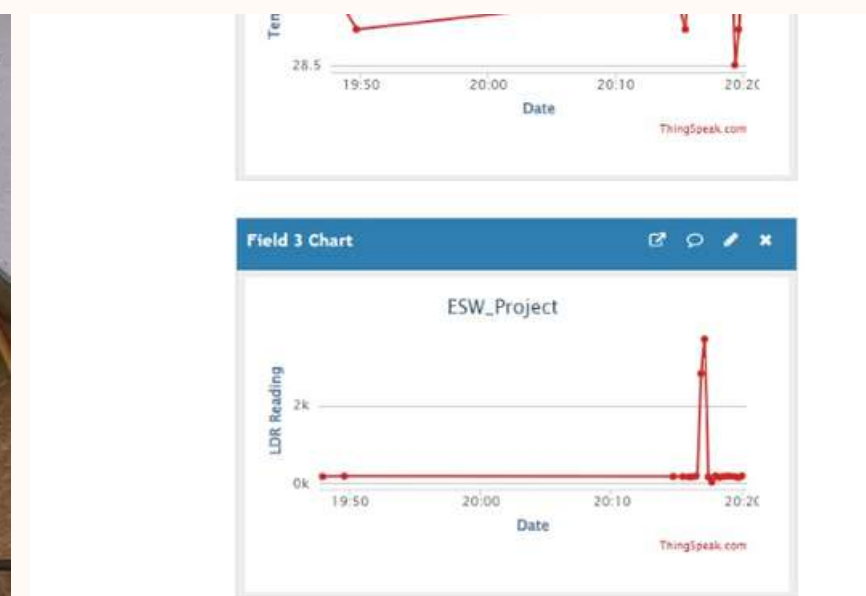
```
35 Serial.println("oF");
36
37
```

Output Serial Monitor x

Message (Enter to send message to 'ESP32 Dev Module' on 'COM7')

Humidity: 67.70%	Temperature: 28.60°C	~ 83.48°F
Humidity: 68.00%	Temperature: 28.60°C	~ 83.48°F
Humidity: 68.10%	Temperature: 28.60°C	~ 83.48°F
Humidity: 68.30%	Temperature: 28.60°C	~ 83.48°F
Humidity: 68.00%	Temperature: 28.60°C	~ 83.48°F
Humidity: 68.20%	Temperature: 28.60°C	~ 83.48°F
Humidity: 68.50%	Temperature: 28.50°C	~ 83.30°F
Humidity: 69.00%	Temperature: 28.50°C	~ 83.30°F
Humidity: 68.60%	Temperature: 28.50°C	~ 83.30°F
Humidity: 68.80%	Temperature: 28.40°C	~ 83.12°F
Humidity: 68.60%	Temperature: 28.50°C	~ 83.30°F
Humidity: 68.70%	Temperature: 28.40°C	~ 83.12°F
Humidity: 69.10%	Temperature: 28.40°C	~ 83.12°F
Humidity: 69.50%	Temperature: 28.30°C	~ 82.94°F
Humidity: 69.30%	Temperature: 28.30°C	~ 82.94°F

```
Moisture value: 0.00
Moisture value: 0.00
Moisture value: 0.00
Moisture value: 0.00
Moisture value: 0.00
Moisture value: 14.55
Moisture value: 16.70
Moisture value: 18.80
Moisture value: 14.95
Moisture value: 20.15
Moisture value: 0.00
Moisture value: 19.78
Moisture value: 15.21
```



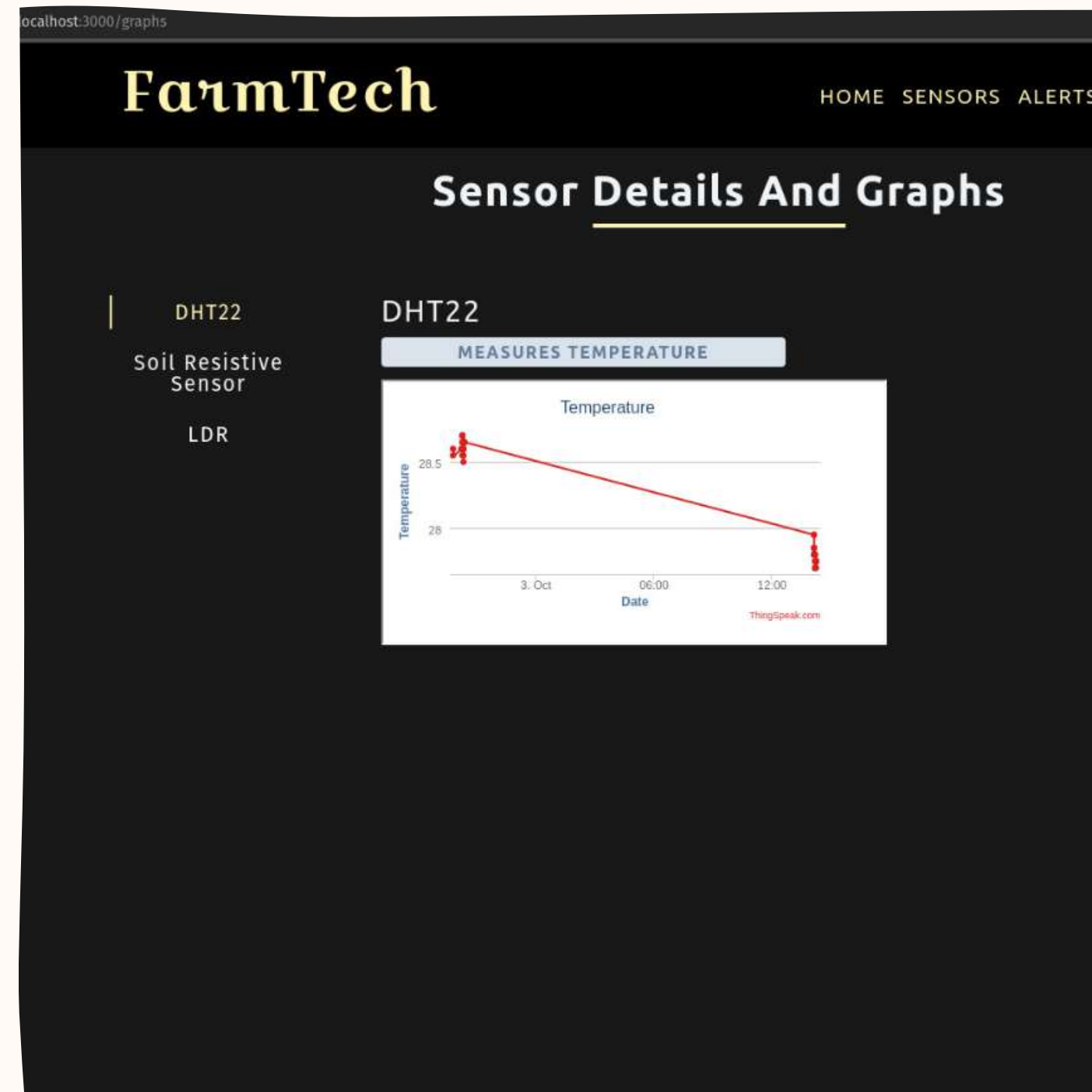
UI via Website

WEBSITE SETUP

Sensors done till that point were incorporated. Those were the following:

- DHT-22
- Resistive soil moisture
- LDR

Other pages such as home page and alarm page also done



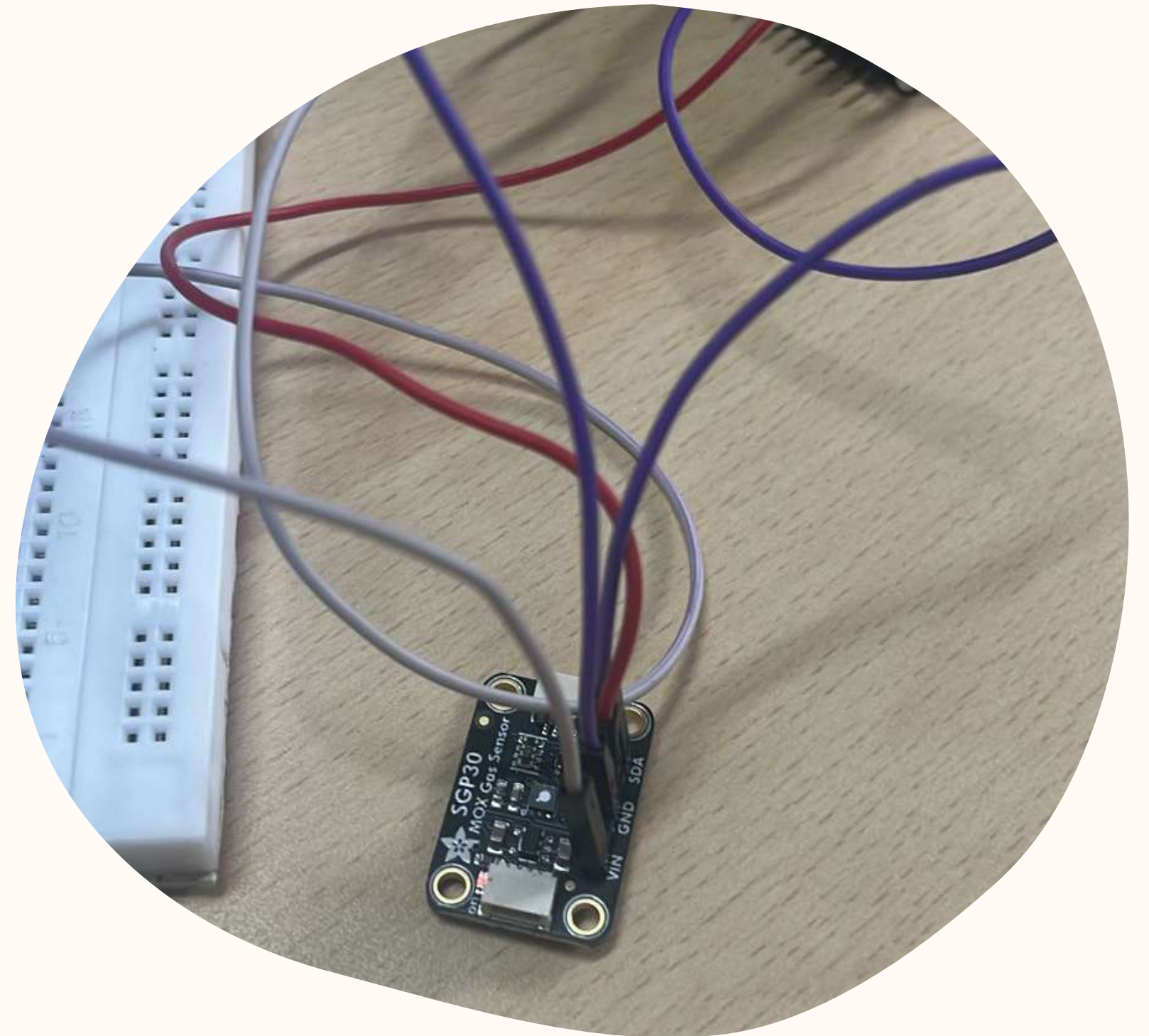
SGP 30

SENSOR INFO

- Used for measuring CO₂ and VOCs
- Through detecting changes in conductivity for metal oxide sensing element
- Measurement in ppm or ppt

LAST TIME

testing of sgp 30



SGP 30



PROGRESS MADE

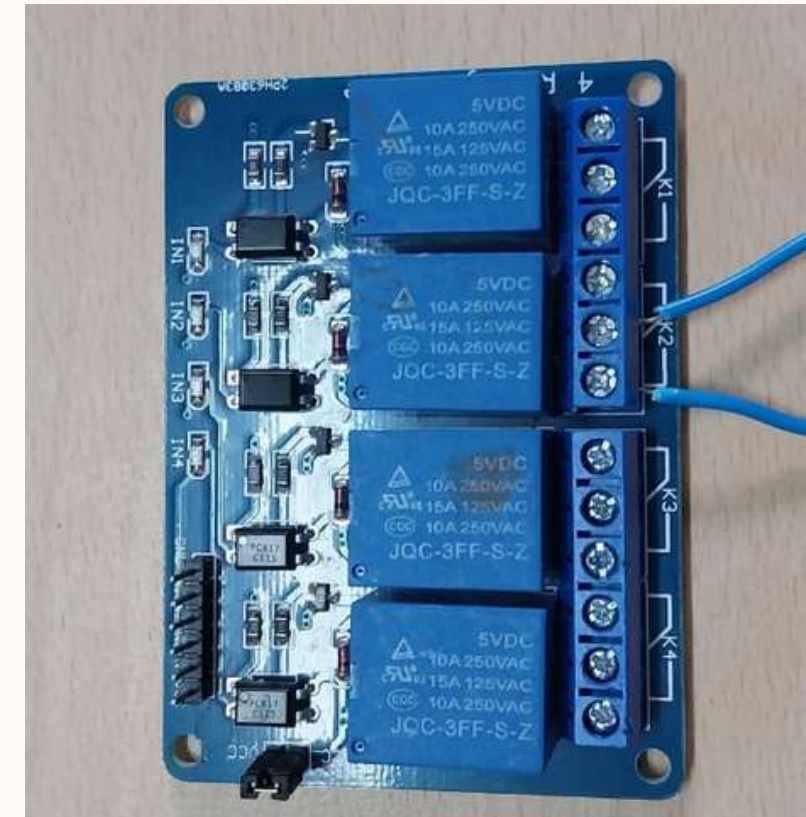
- Complete calibration of code by setting of base values
- Values displayed for:
 - eCO2 in ppm
 - TVOC in ppt

Actuation via Solenoid Valve

SETUP OF SOLENOID VALVE

Consists of 2 parts:

- Solenoid Valve consisting of
 - power terminals
 - water inlet and outlet
 - Power required: 12V
- Relay module



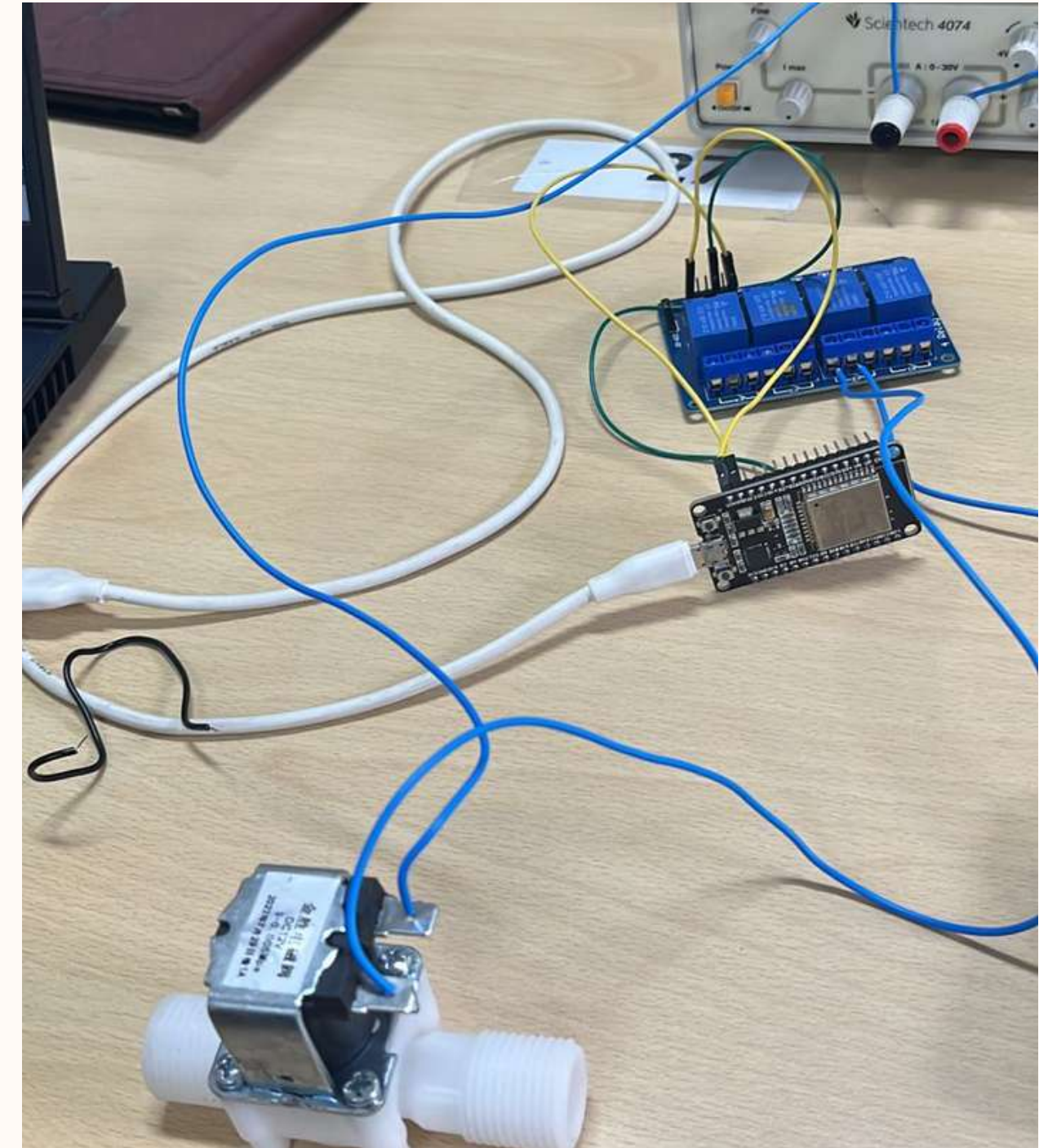
PURPOSE IN PROJECT

Works such that when soil moisture value decreases beyond a certain set point, the solenoid valve can open to allow water to flow



Setup and Code

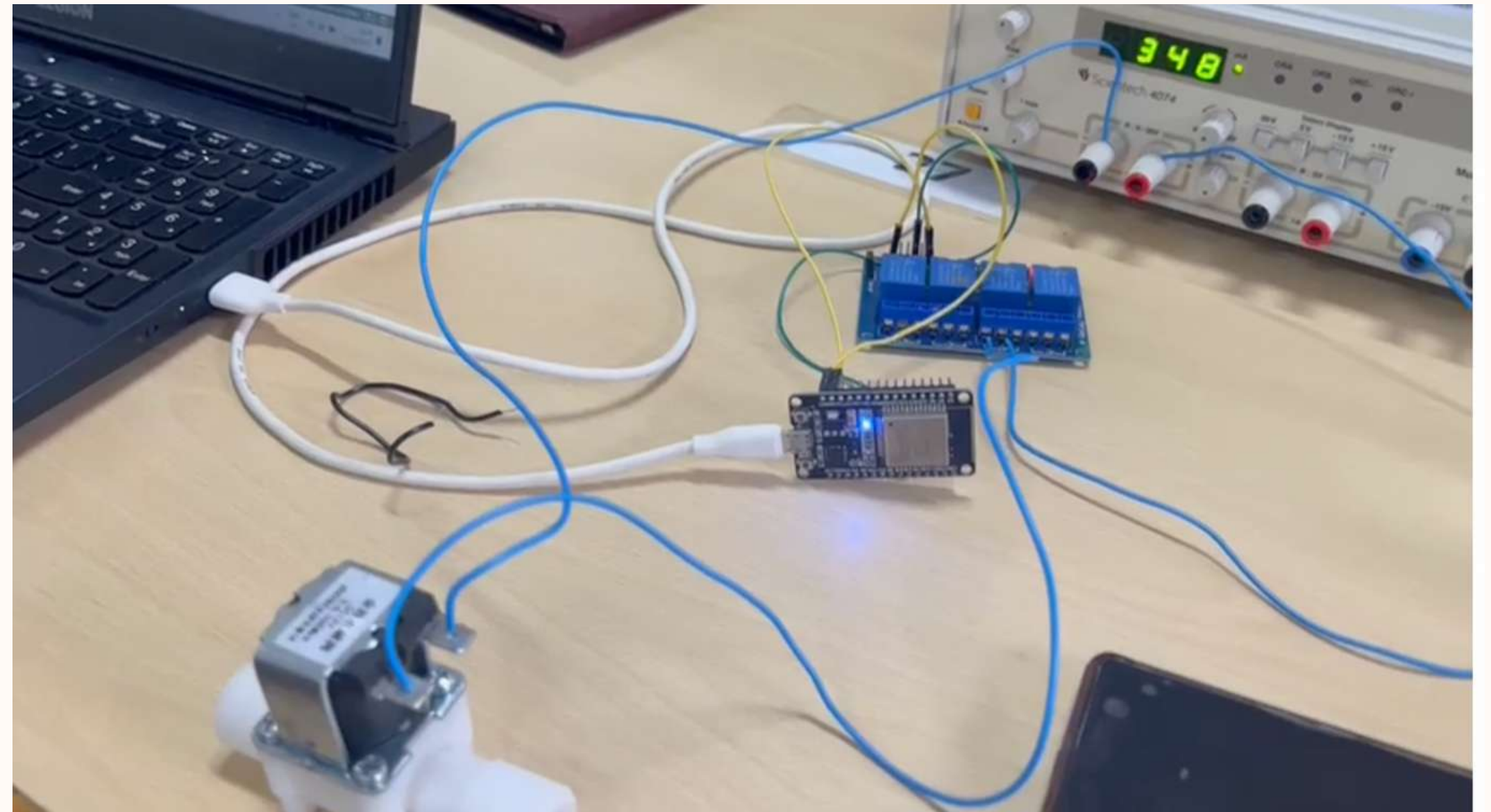
```
7  */
8
9  #define RELAY_PIN 18 // ESP32 pin GPIO18, which connects to the wa
10
11 // the setup function runs once when you press reset or power the
12 void setup() {
13     // initialize digital pin A5 as an output.
14     Serial.begin(9600);
15     pinMode(RELAY_PIN, OUTPUT);
16 }
17
18 // the loop function runs over and over again forever
19 void loop() {
20     digitalWrite(RELAY_PIN, HIGH); // open valve 15 seconds
21     Serial.println("High Sent");
22     delay(10000);
23     digitalWrite(RELAY_PIN, LOW); // close valve 15 seconds
24     Serial.println(" LOW Sent");
25     delay(10000);
26 }
27
```



Valve open

WHEN...

- Relay on
- Current value on power supply as shown in image
- liquid will flow through

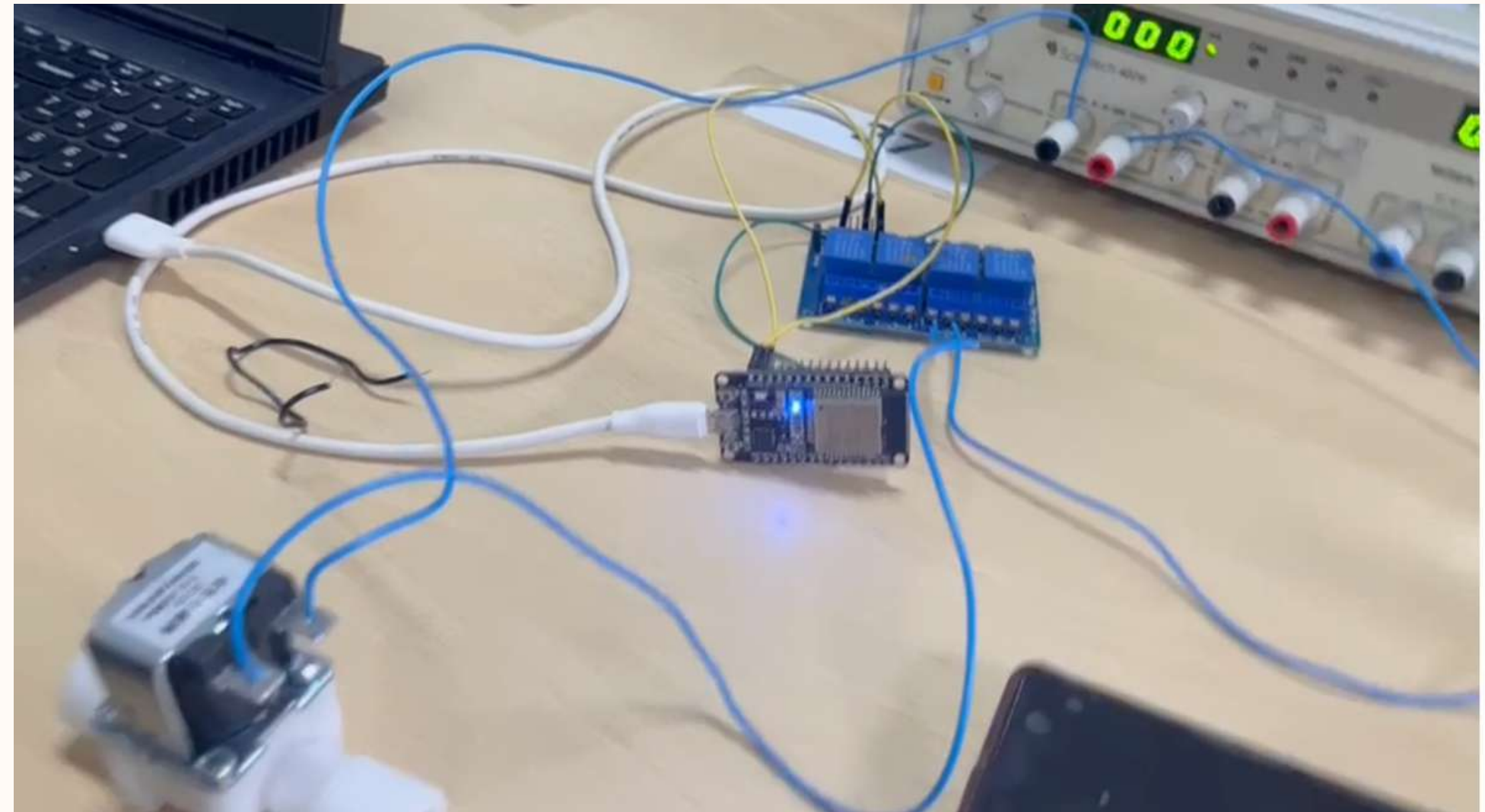


Valve closed



WHEN...

- Relay off
- No current (value of power supply as zero) as shown in image
- liquid will flow through





Contributions

CHIRAG DHAMIJA

- SGP 30 calibration and code
- Solenoid Valve connections

NAMRATA BALIGA

- SGP 30 hardware connections
- Solenoid Valve code

SANCHIT JALAN

- SGP 30 calibration and code
- Solenoid Valve connections

ADITYA MISHRA

- SGP 30 hardware connections
 - Solenoid Valve code
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Upcoming

- Integration of all sensors
- pH sensor (if working)
- Upload data to OM2M