

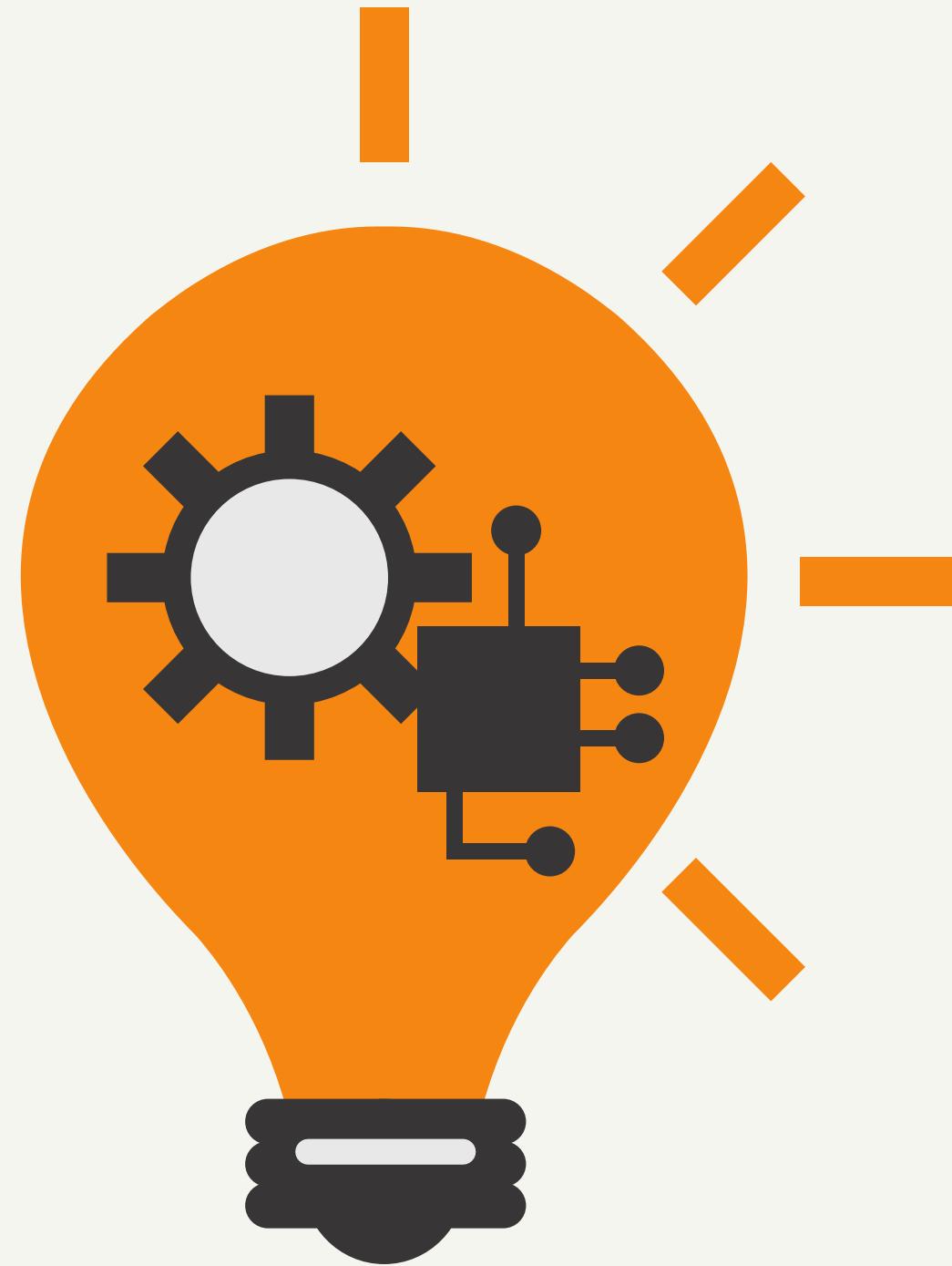
Small Weather Station

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Requirements

- Nodemcu ESP8266 board 1x
- Rain sensor 1x
- DHT11 1x
- Breadboard 2x
- Jumper 7x



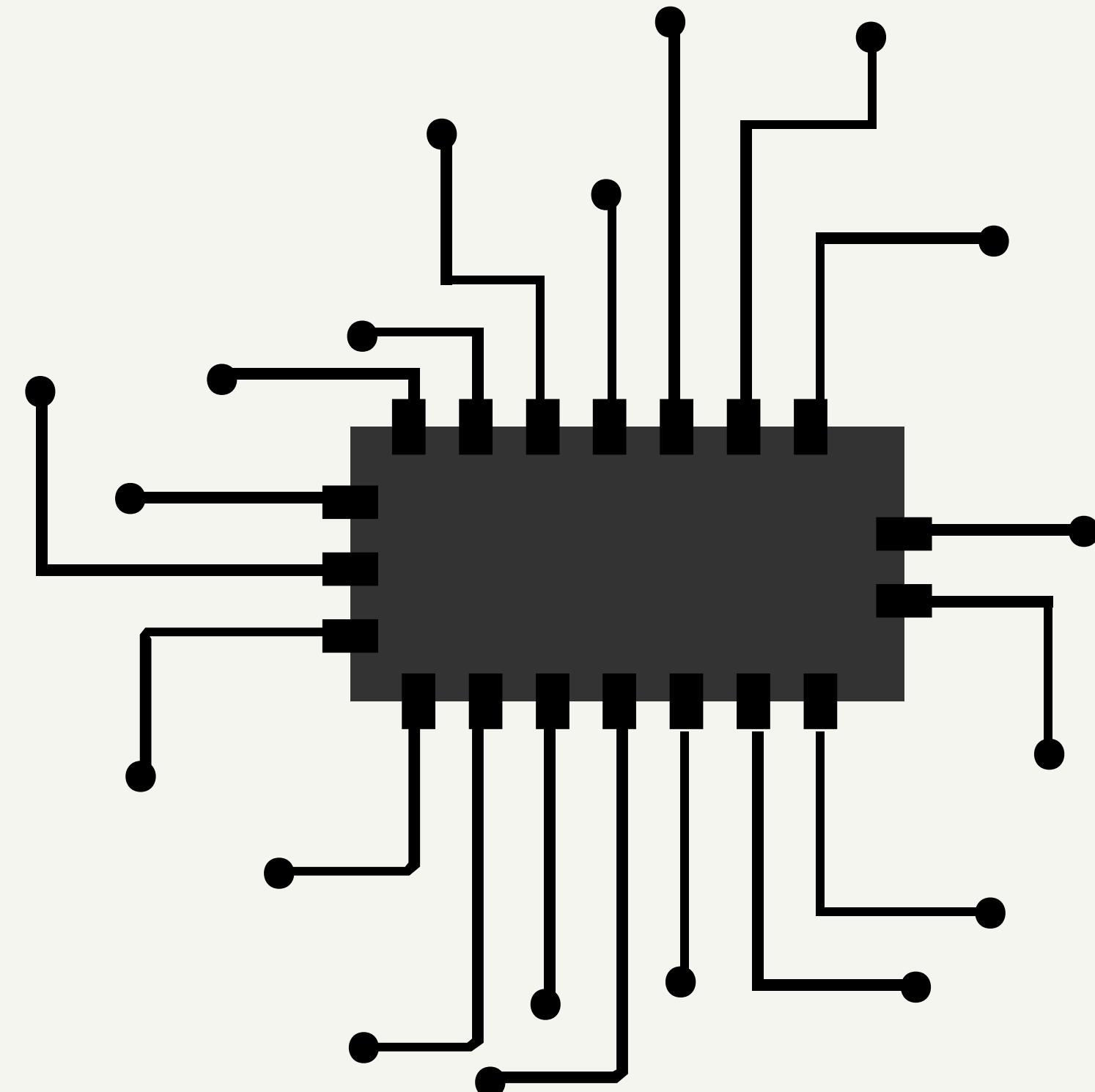
Background

Overview of the project

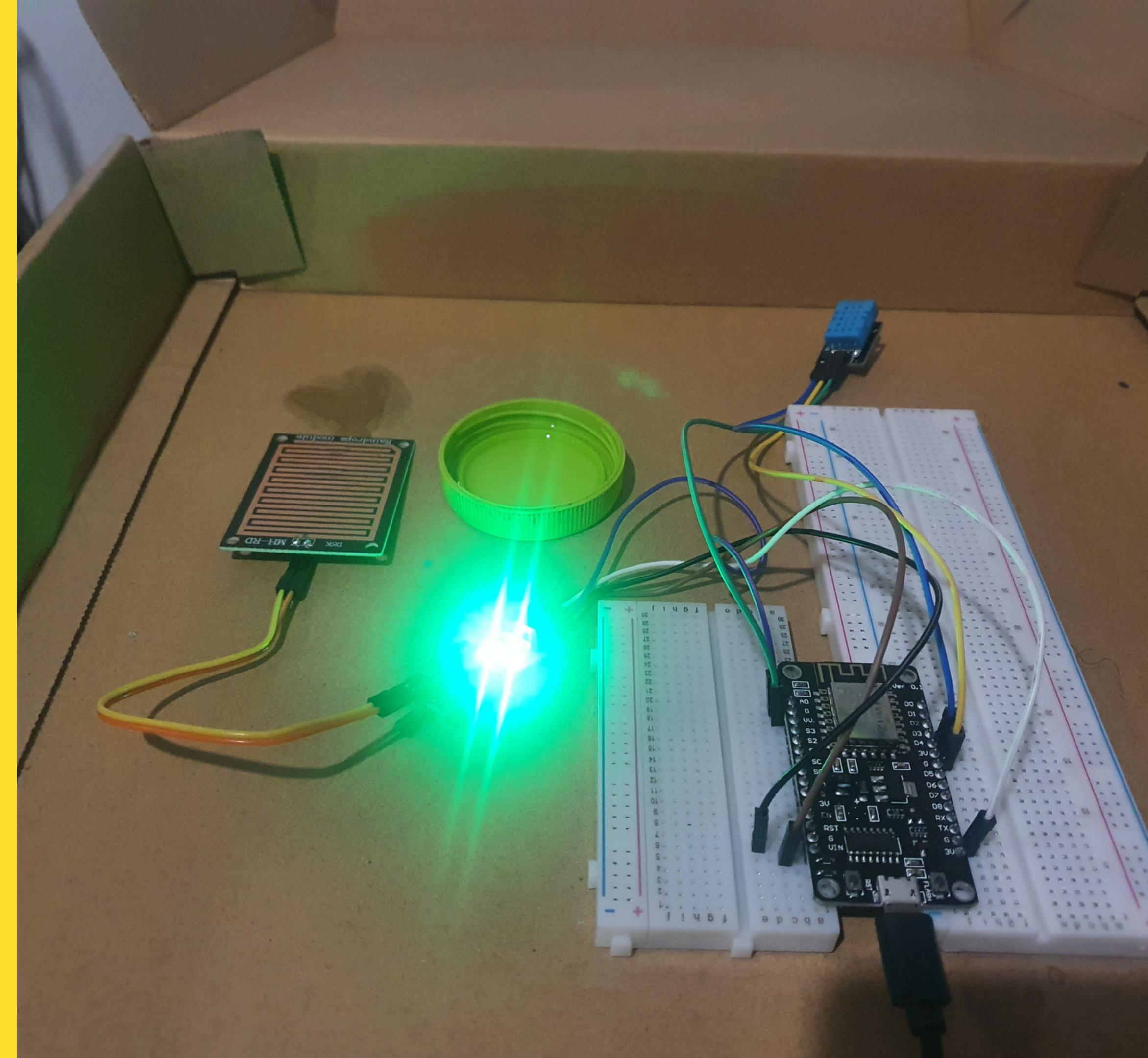
The aim of this project is to create a two sensor application which can connect to our blynk application displaying the temperature, humidity and rainfall. With notification of when temperature is too hot and too low

The project requirements from feedback is that it need to be accurate enough with only about 2 +/- variance in temperature and humidity.

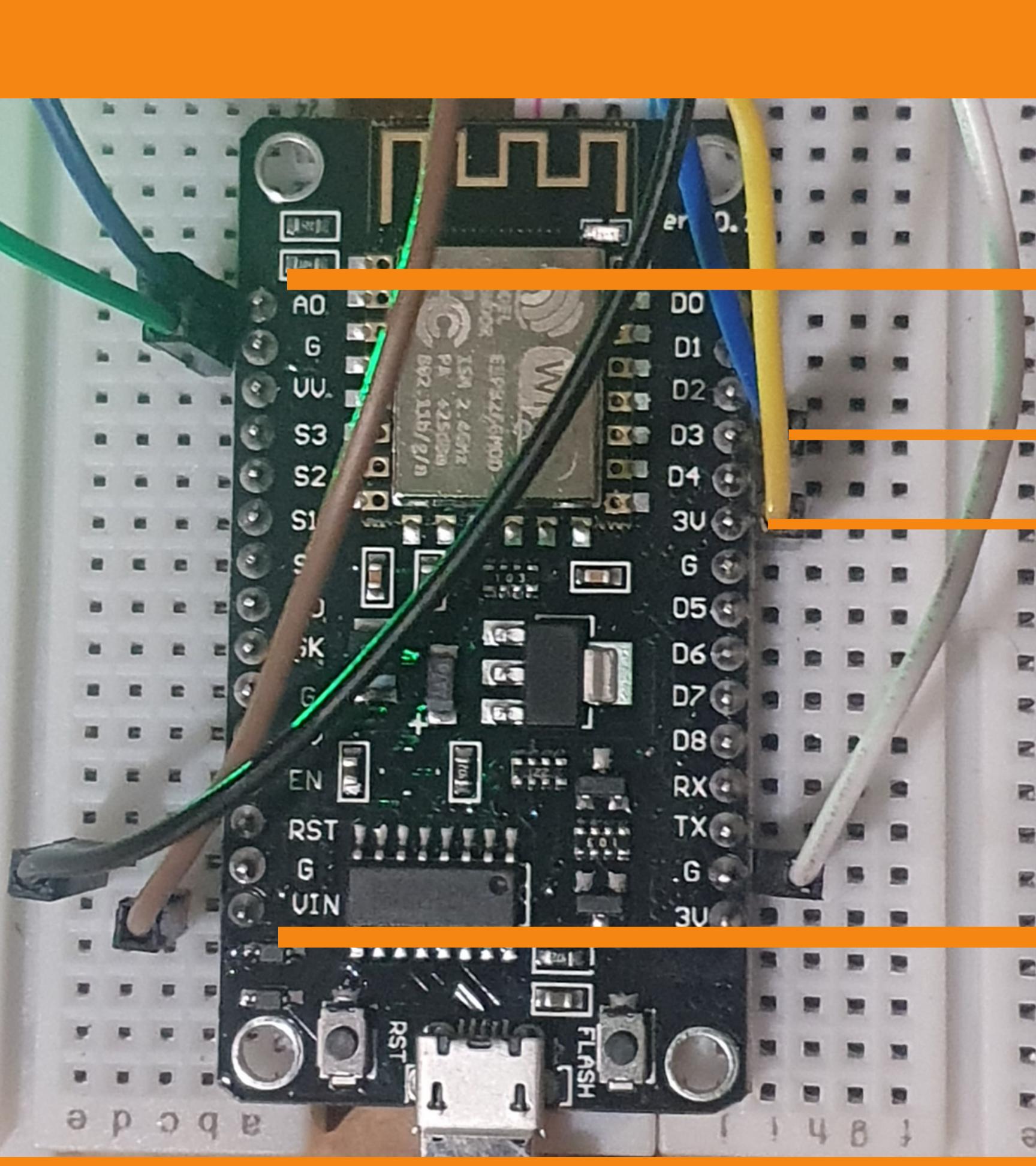
The nodemcu should be able to send information to the application through wifi and all the pins need to be utilized.



Full view



Wiring



AO pin from rain sensor
to AO of Nodemcu

Signal Pin of the DHT11 connects to
D3 on Nodemcu/data

VCC + on DHT11 connect to 3v of Noden

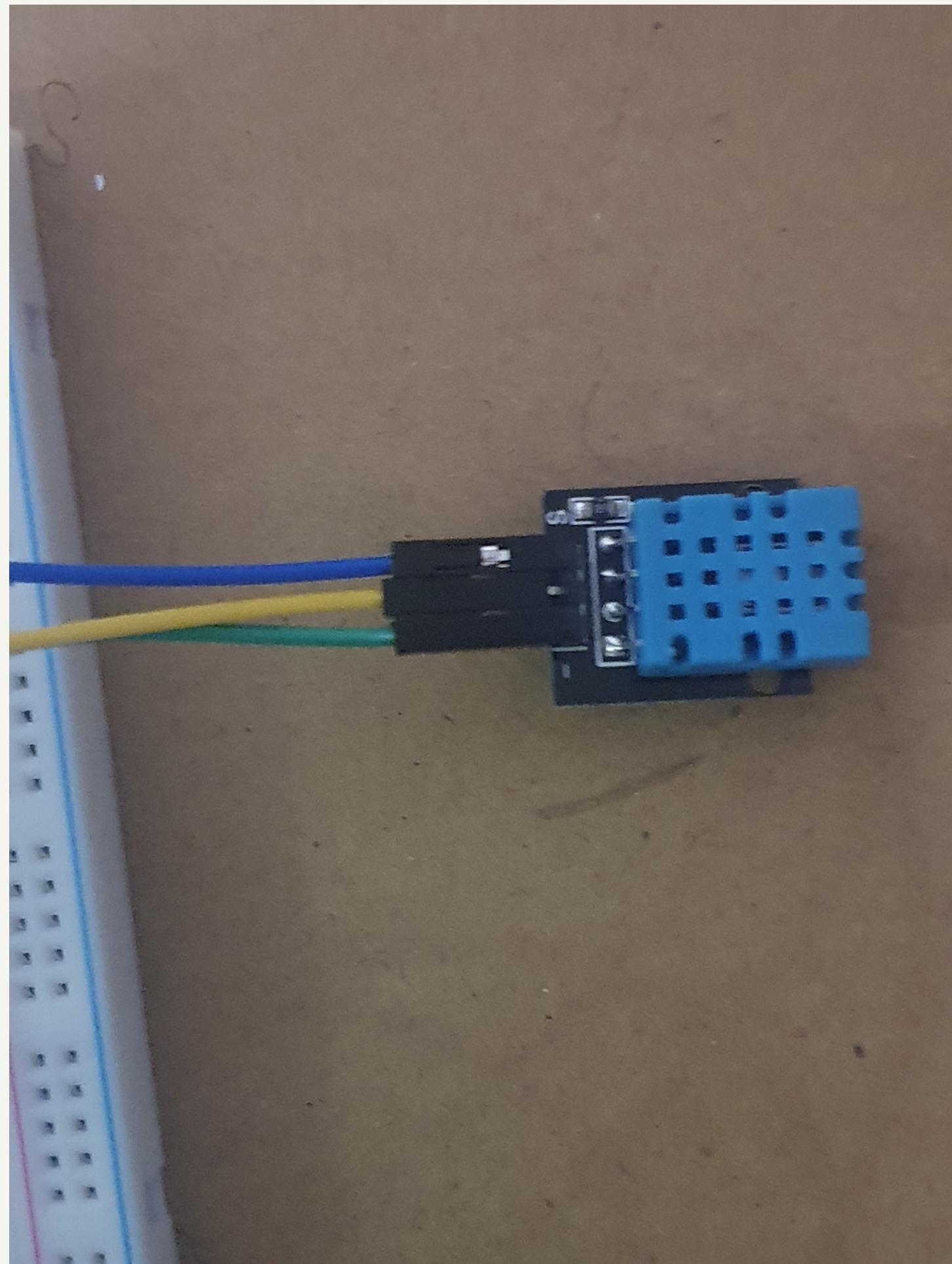
VCC on rain sensor to VIN of the
Nodemcu





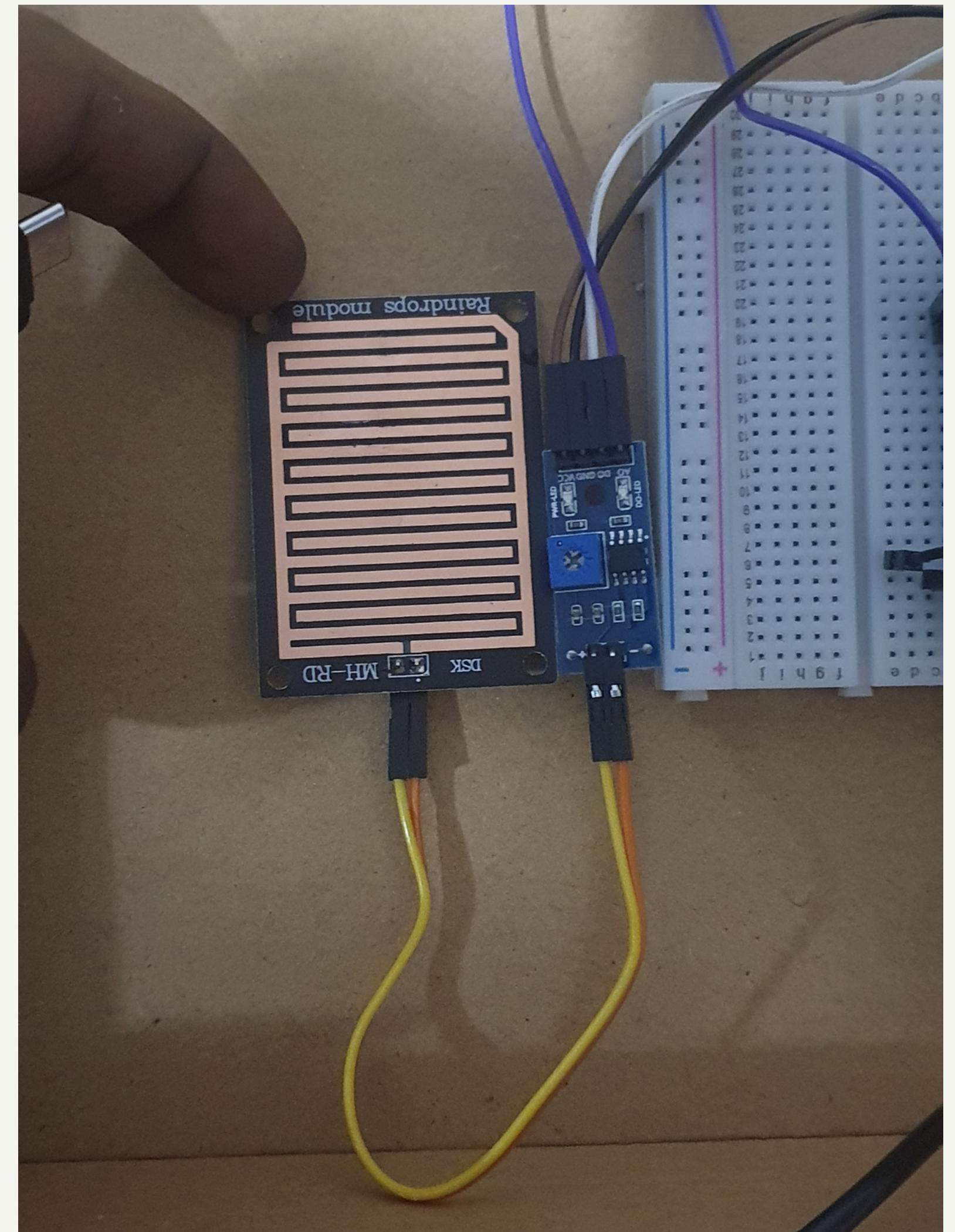
DHT11

This will sense for
temperature and humidity
in its given environment



Raindrop Sensor

This sensor will detect when
water falls onto it



Code

```
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include <DHT.h>

DHT dht(D3, DHT11); // (sensor)
BlynkTimer timer;

char auth[] = "dluWgZV7GJPK32WNr3tQRYGiCMuV3Rr5"; //Blynk code
char ssid[] = "MAN_LIKE_2.4G"; //Wifi
char pass[] = "0816036269"; //Wifi password

void weather() {
    float h = dht.readHumidity(); //this reads the humidity
    float t = dht.readTemperature(); //this reads the temperature
    int r = analogRead(A0); // this will read the raindrop sensor

    r = map(r, 0, 1023, 100, 0);
    if (isnan(h) || isnan(t)) {
        Serial.println("Failed to read from DHT sensor!");
        return;
    }

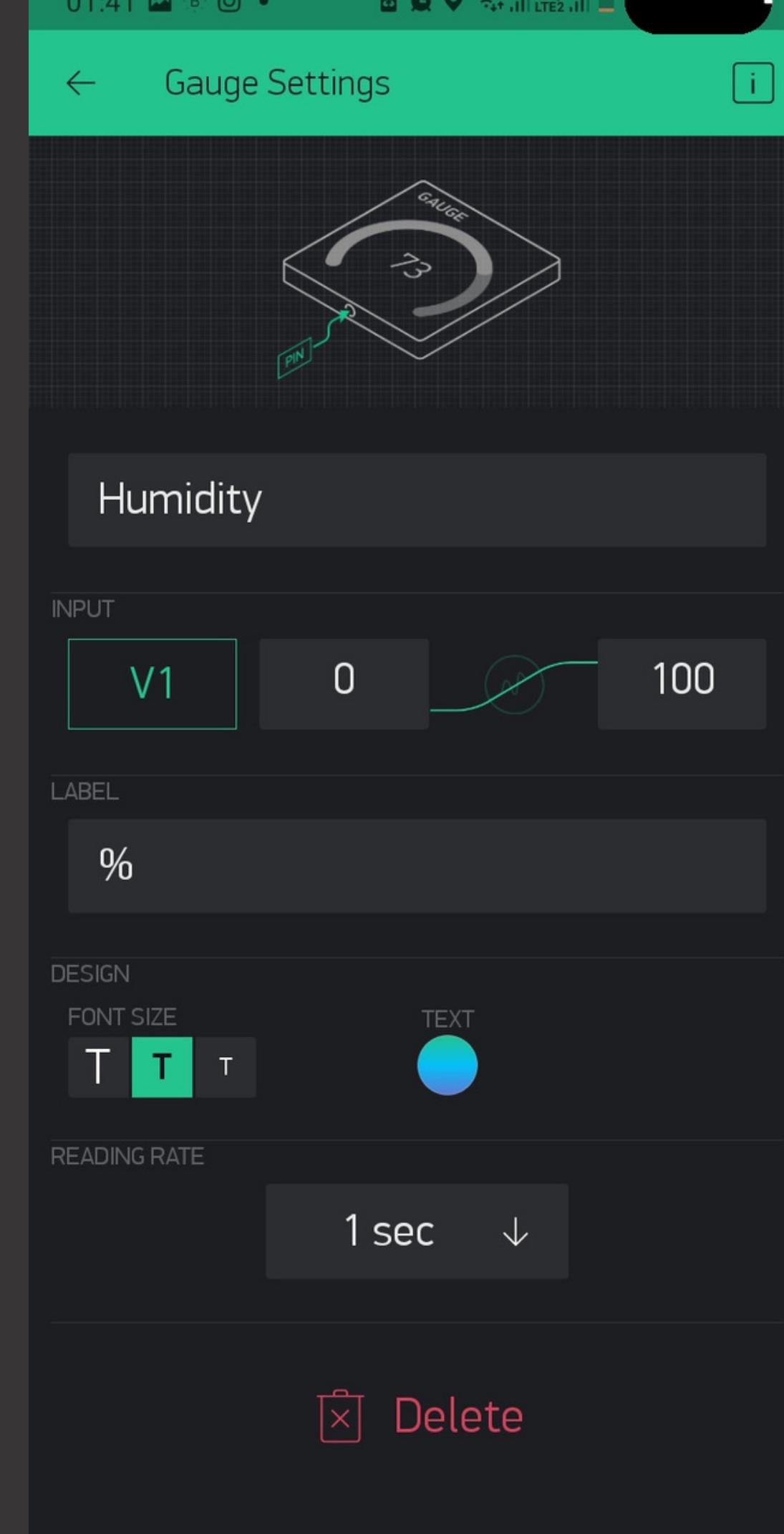
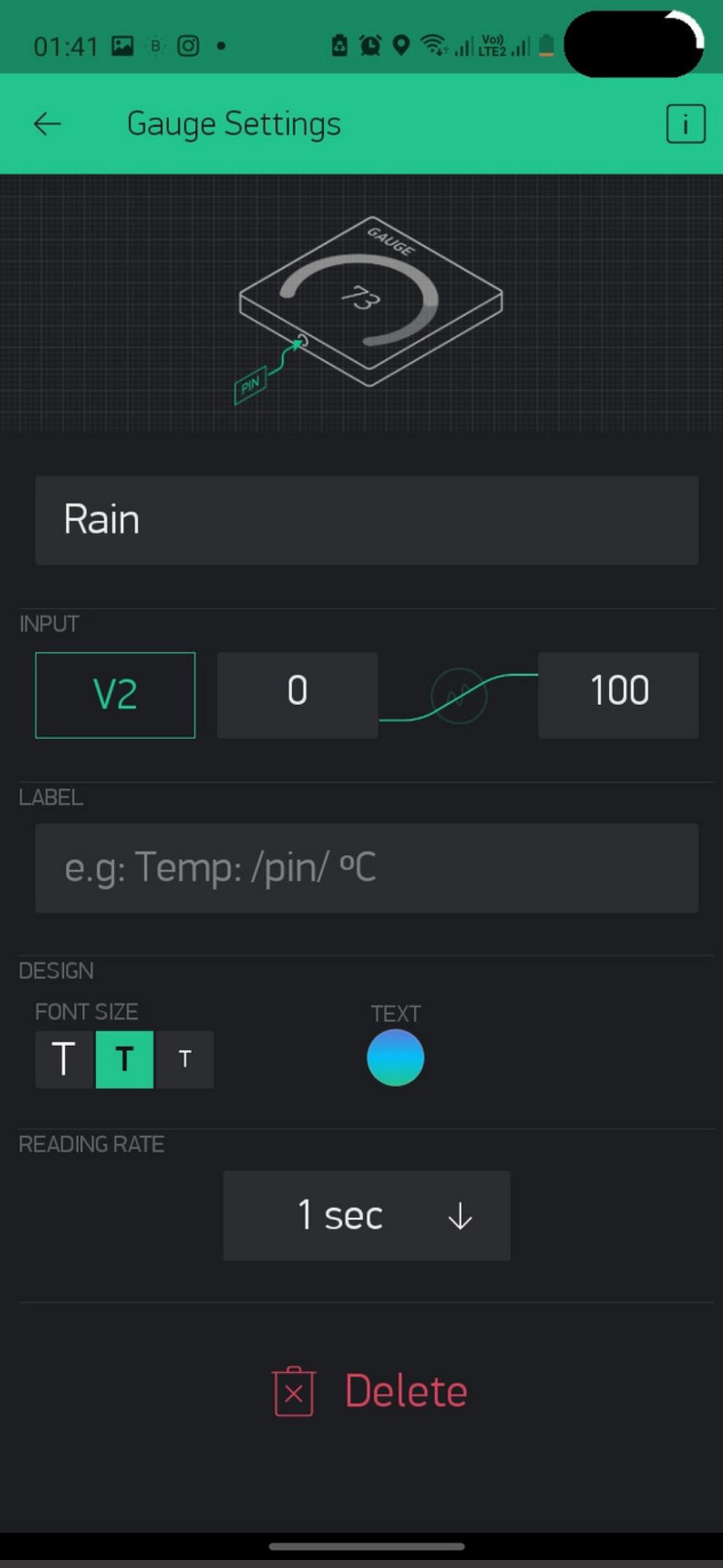
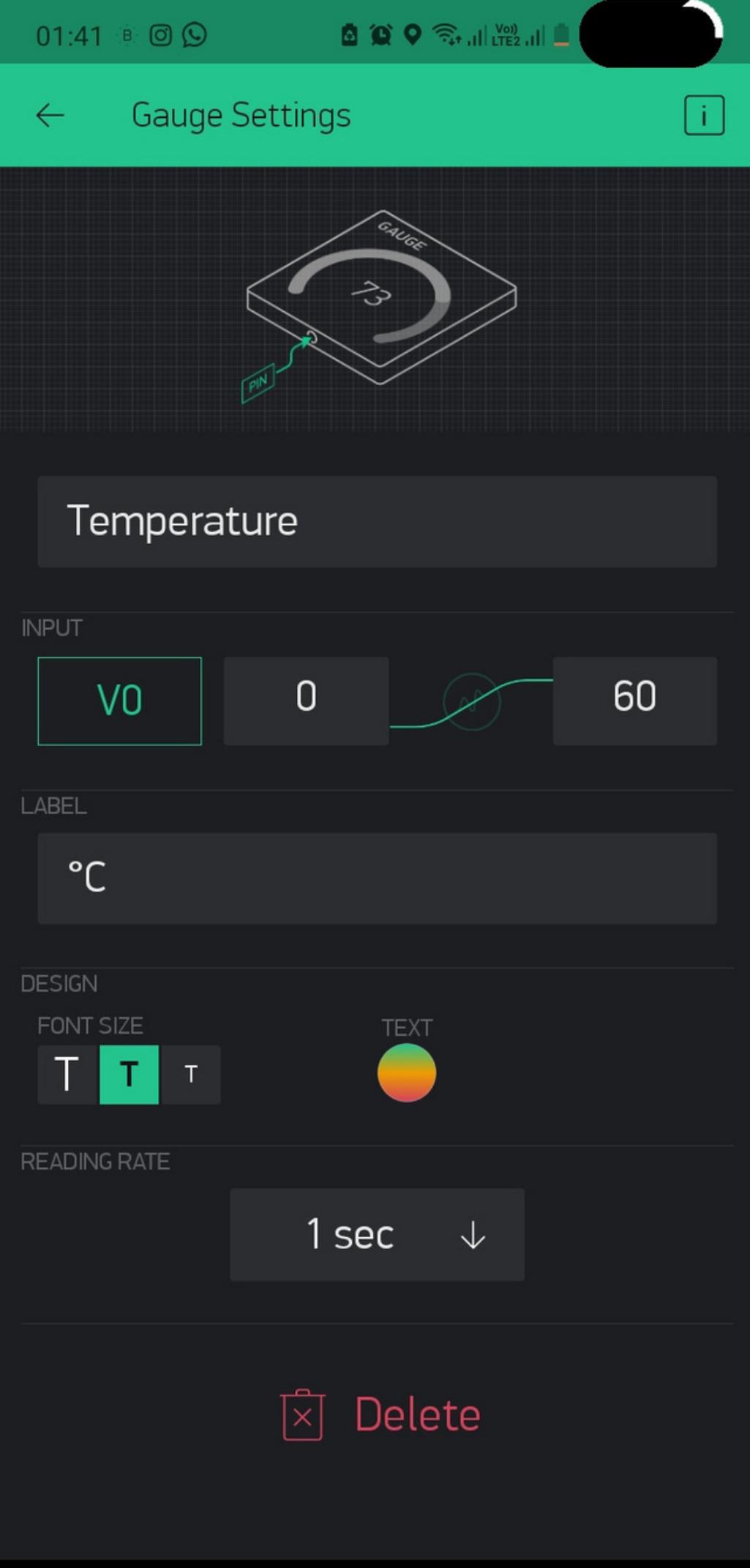
    Blynk.virtualWrite(V0, t); //V0 temp on blynk dont forget
    Blynk.virtualWrite(V1, h); //V1 for humidity
    Blynk.virtualWrite(V2, r); //V2 rainfall

}

void setup() {
    Serial.begin(9600); // See the connection status in Serial Monitor

    Blynk.begin(auth, ssid, pass);
    dht.begin();

}
```



01:41

Eventor Settings



EVENT 1

When Temperature V0 is higher than 25 send notification:
"Temperature increasing".

Active

EVENT 2

When Temperature V0 is lower than or equal to 10 send notification:
"switch AC OFF".

Active

+ Add New Event

DESIGN

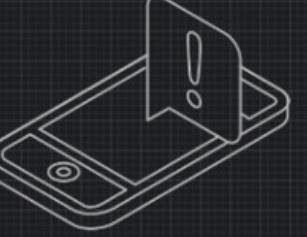
COLOR



Txt Delete

01:42

Notification Settings



NOTIFY WHEN HARDWARE GOES OFFLINE

OFF ON

OFFLINE IGNORE PERIOD

15 sec ↓

— 14

PRIORITY

NORMAL HIGH

DESIGN

COLOR



Customize Behavior

Delete

Outcome



video:

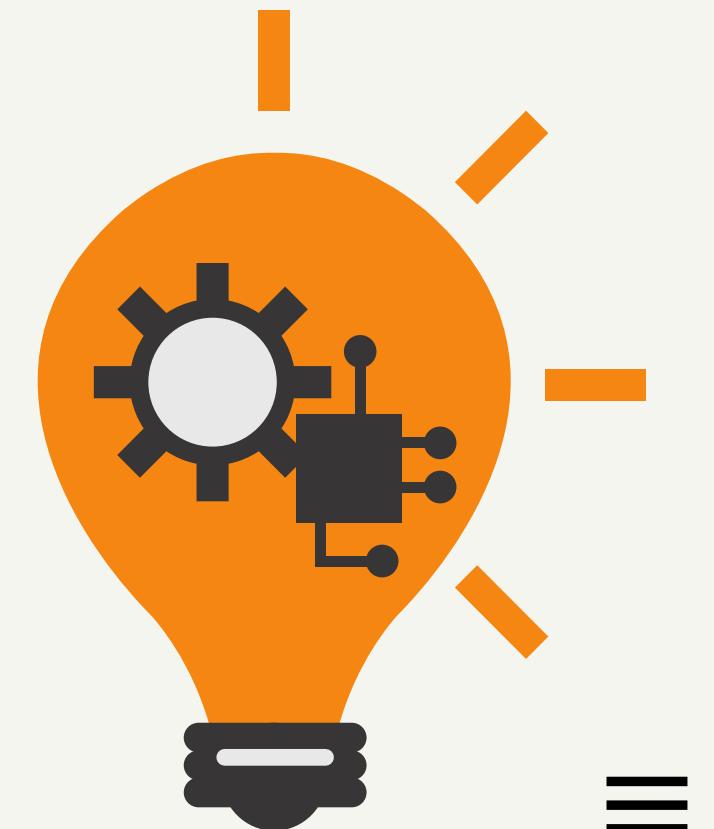
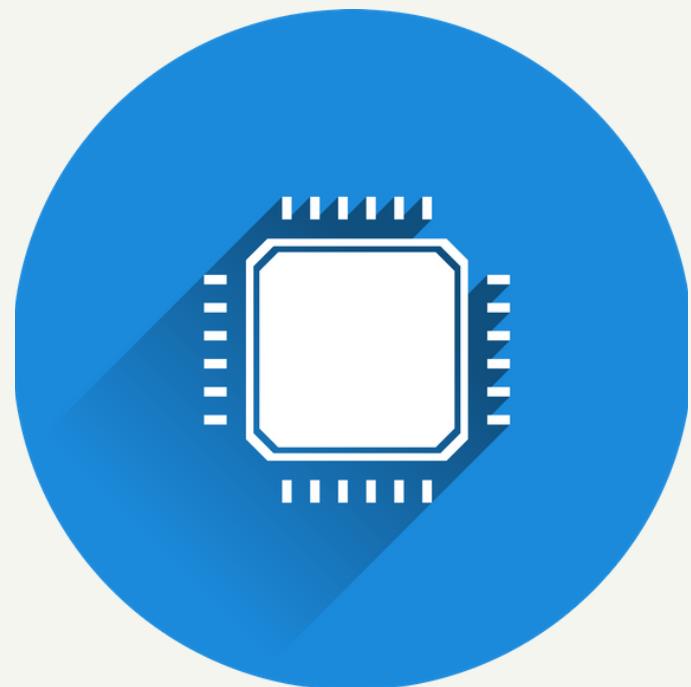
<https://drive.google.com/file/d/1zGke1MtL3LddFks8zRRJny7dI7JXypv1/view?usp=sharing>





Conclusion

This project taught me how to work with the nodemcu esp8266 along with the adruino IDE. There where many challenges with this from trying to code the nodemcu and getting constant errors about missing libraries. the most important part I learned was how to code a node mcu and connect it to a blynk application along with notifications of when the temperature to high and when the temperature is too low



References

Libraries:

<https://www.arduino.cc/reference/en/libraries/dht-sensor-library/>

<https://github.com/espressif/esptool>

<https://github.com/blynkkk/blynk-library>

Other:

<https://arduino-esp8266.readthedocs.io/en/latest/esp8266wifi/readme.html>

<https://components101.com/sensors/dht11-temperature-sensor>

<https://lastminuteengineers.com/rain-sensor-arduino-tutorial/>

<https://diyi0t.com/rain-sensor-tutorial-for-arduino-and-esp8266/>

<https://docs.blynk.cc/>

<https://randomnerdtutorials.com/esp8266-dht11dht22-temperature-and-humidity-web-server-with-arduino-ide/>

<https://create.arduino.cc/projecthub/MisterBotBreak/how-to-use-a-rain-sensor-bcecd9>