

Air Quality Monitoring System

CO326 - Industrial Automation Project

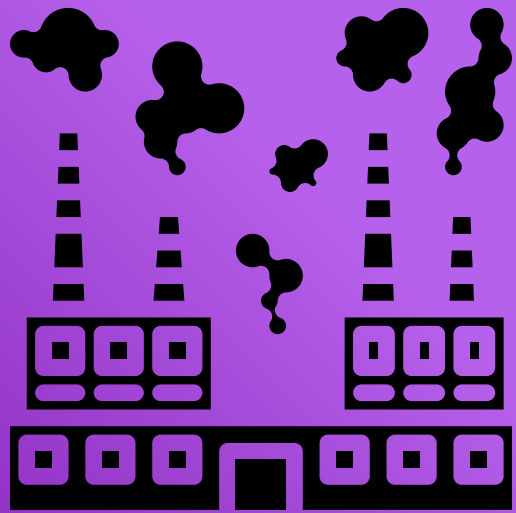
GROUP 19

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Problem



- Air pollution is a significant environmental issue
- Affects many regions and people's health
- Lack of real-time monitoring
- Limited accessibility



Solution



- Sensor integration
- MQTT integration
- Real-time data visualization
- Pollution threshold detection

Sensors & Actuators

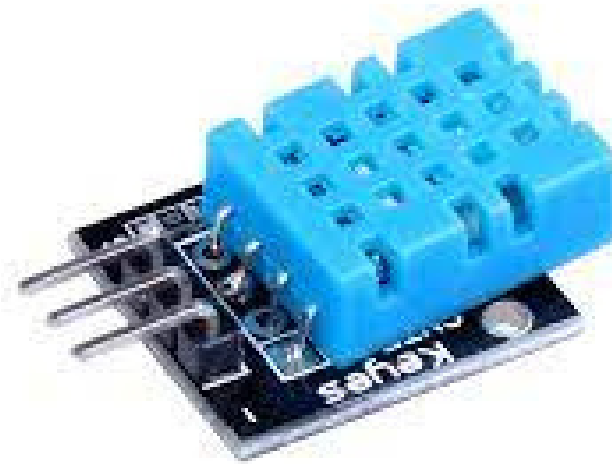


MQ135

Air Quality Sensor

Operating Voltage : 5 V

Operating Current : 150 mA



DHT11

Temperature & Humidity Sensor

Operating Voltage = 3.3 - 5.5 V DC

Maximum current in Measuring = 1.5 mA



Buzzer

Operating Voltage = 3 - 30 V

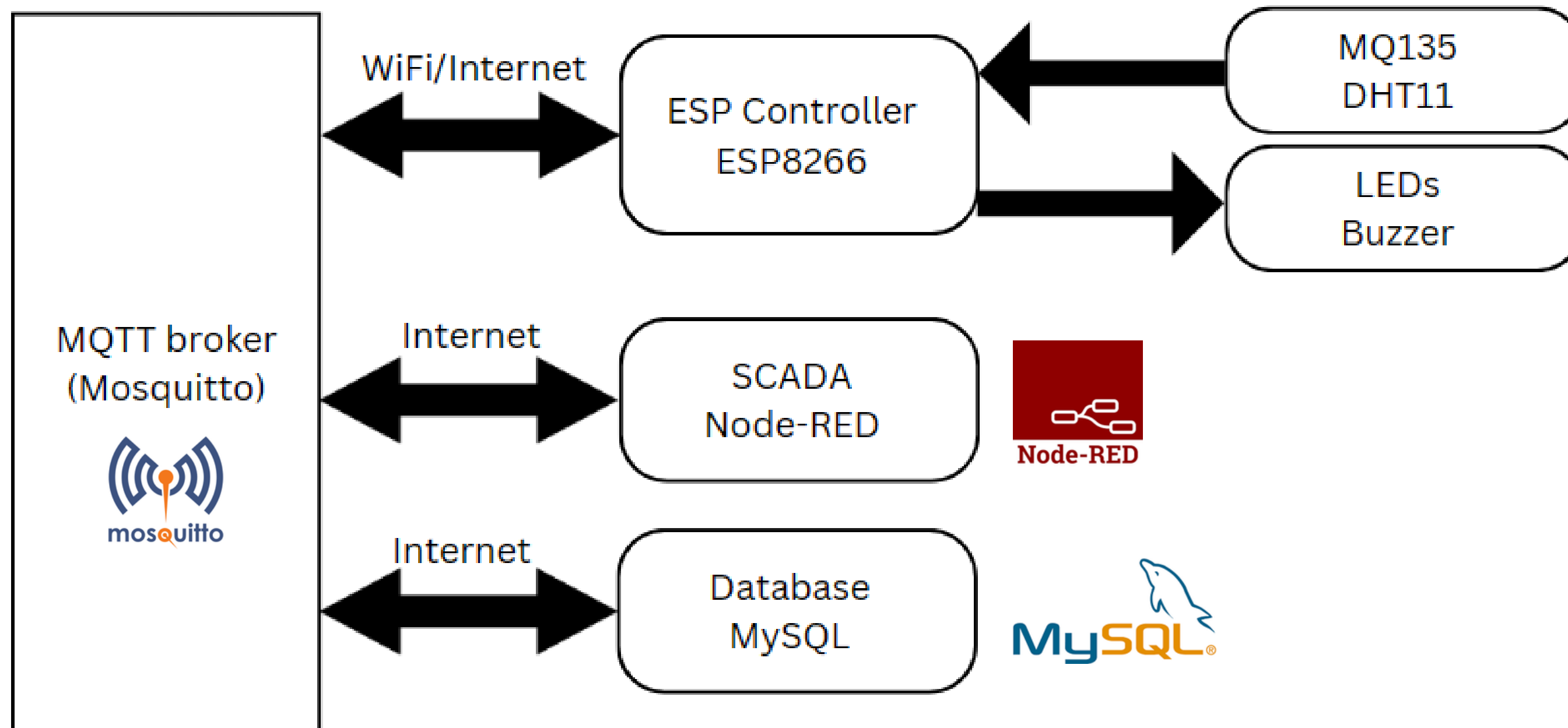


LEDs

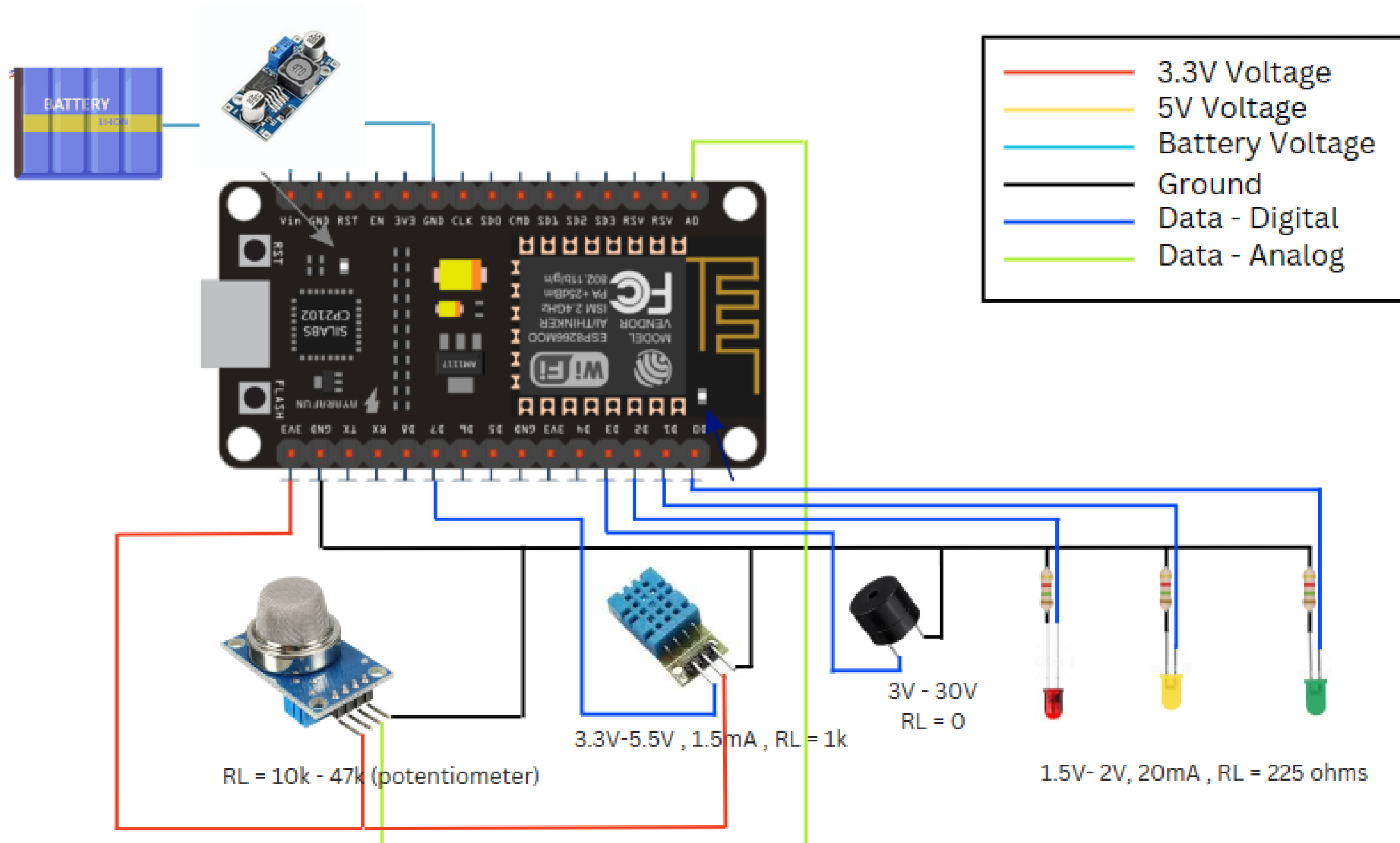
Operating Voltage ~ 2 V

Forward current = 20mA

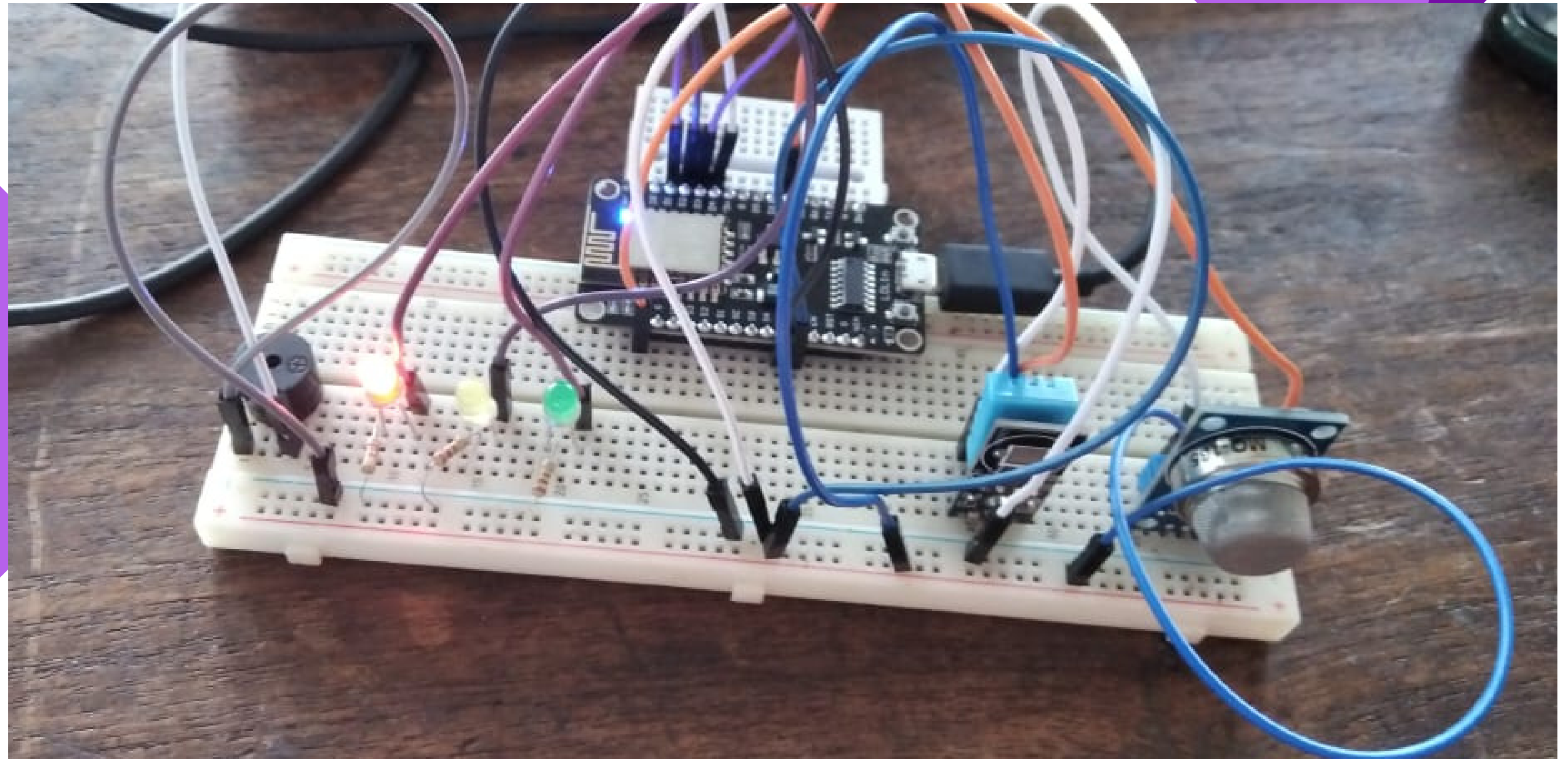
System Design and Control



Circuit Diagram



Circuit



Database

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

1 ▾

> >>

Number of rows: 250 ▾

Filter rows:

Sort by key: None ▾

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				id	temperature	humidity	air_quality	recorded_timestamp
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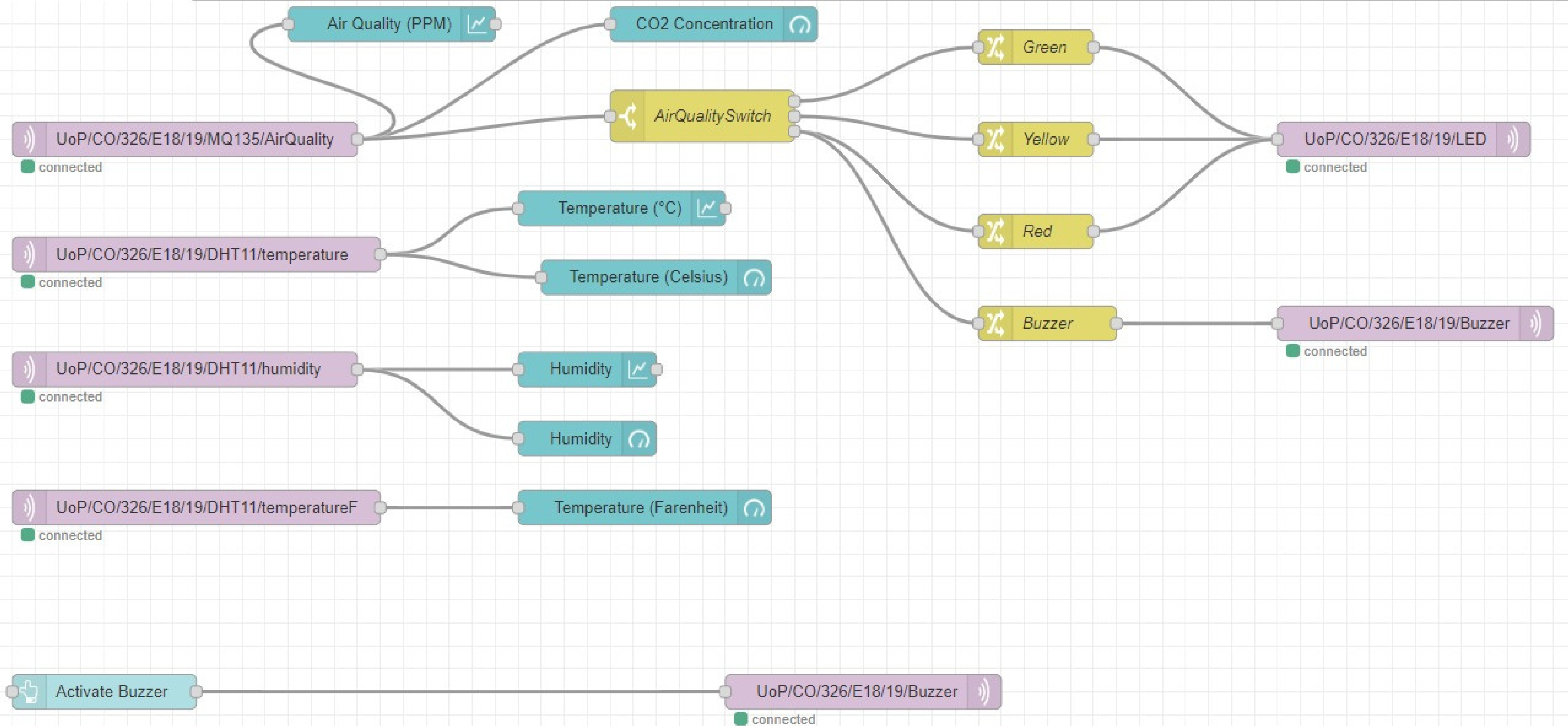
Console

Functions

- For measuring temperature by DHT11
- For measuring Air Quality by MQ135
- For connecting to WiFi
- For connecting to MQTT
- To light Up LEDs
- To ring the buzzer

SCADA flow

Flow 1



SCADA Dashboard

≡ Air Quality Dashboard

Air Quality

CO2 Concentration



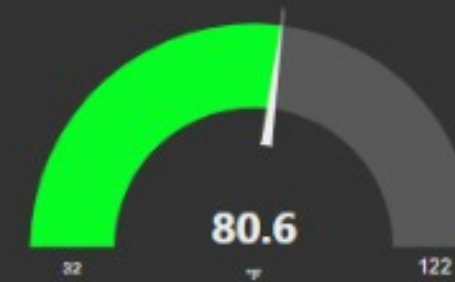
Air Quality (PPM)



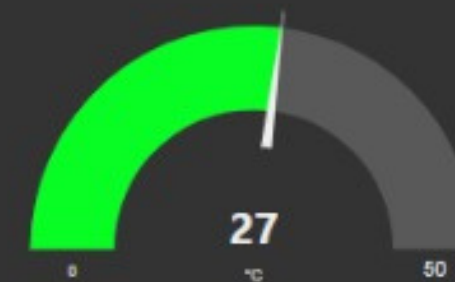
ACTIVATE BUZZER

Temperature

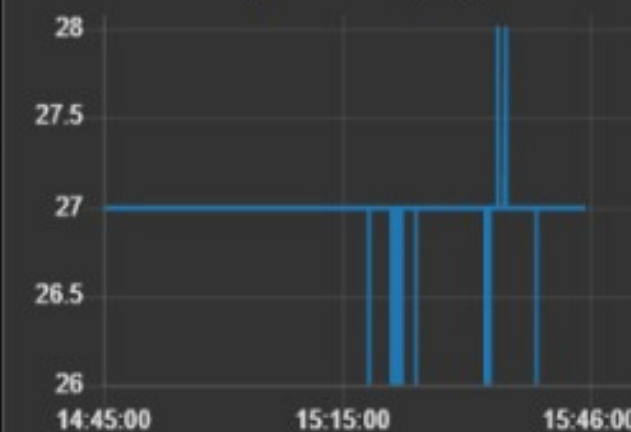
Temperature (Fahrenheit)



Temperature (Celsius)



Temperature (°C)

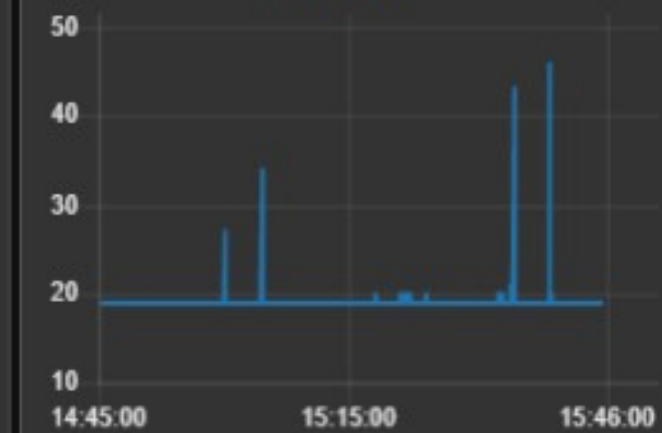


Humidity

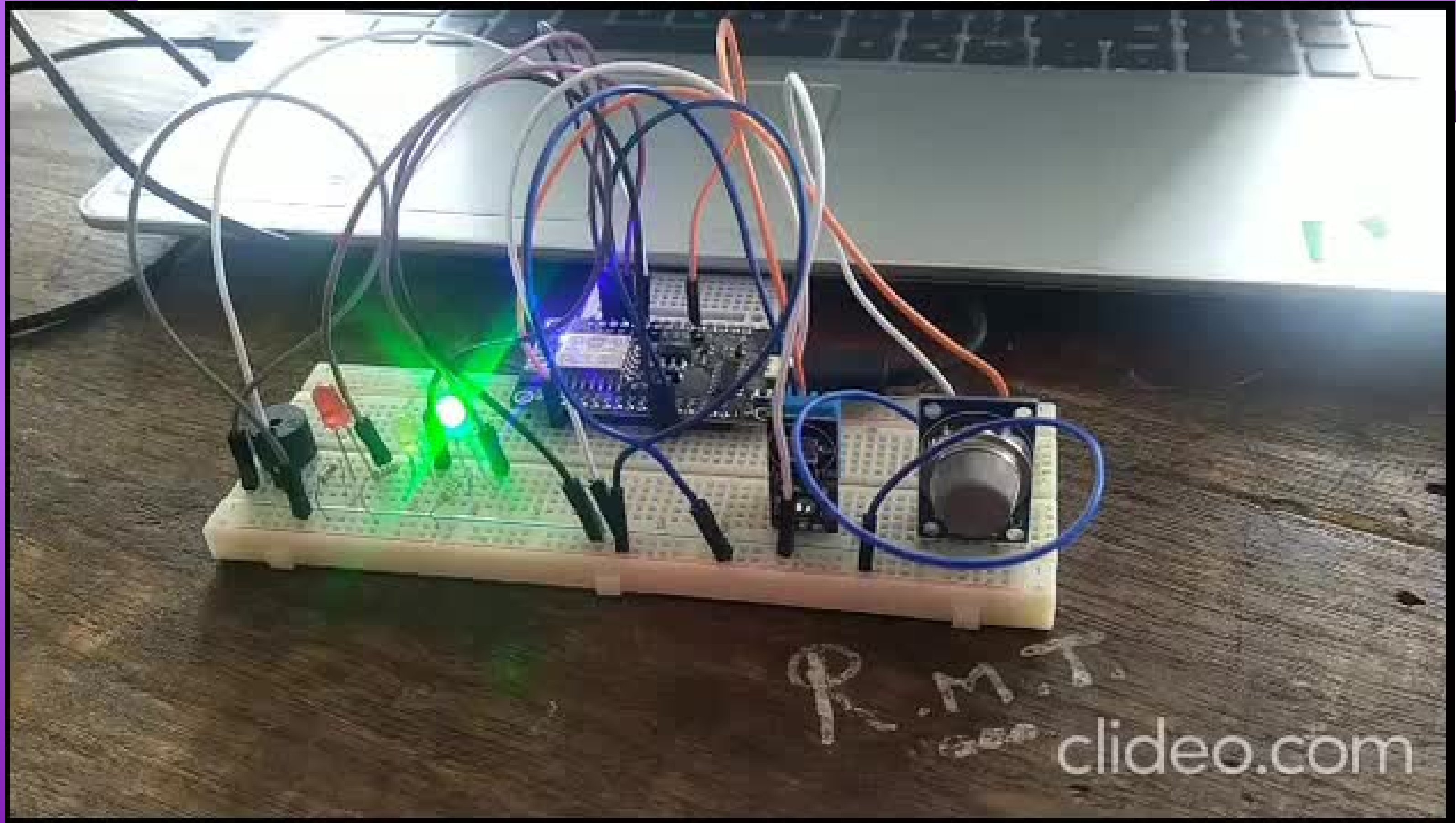
Humidity



Humidity



Demonstration



The background features a series of overlapping purple circles and triangles in two shades of purple, creating a dynamic, abstract geometric pattern on the left side of the image.

Thank You

Links



Github repository.