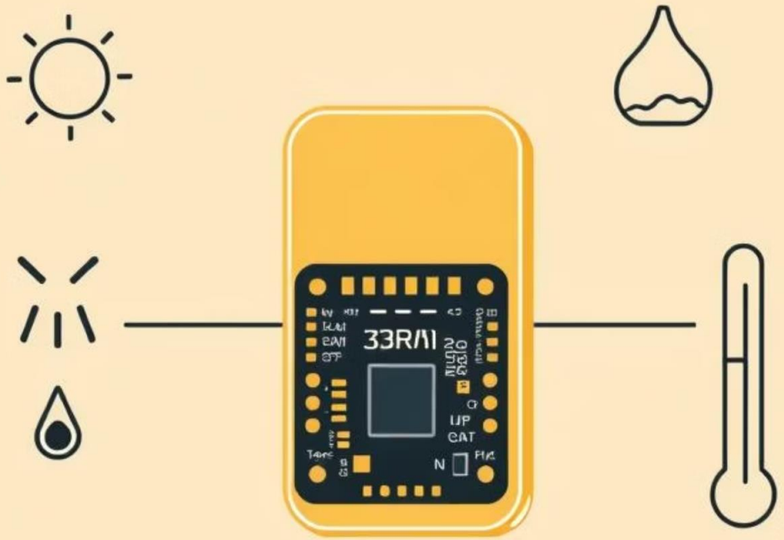
Smart Temperature & Humidity Adapter

A project to create an intelligent environmental adapter using DHT sensors and IoT integration.



Team Members :

Mazen

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Project Overview

1

Real-time Monitoring

Measure temperature and humidity with precision.

2

Automated Responses

Control motors and alarms based on environmental conditions.

3

Blynk Connected

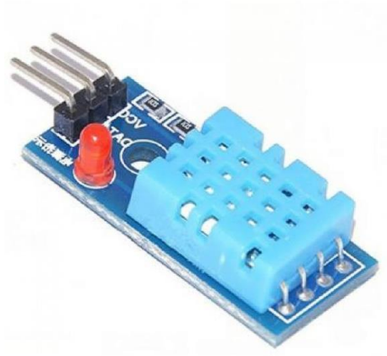
Seamless data transfer to blynk to simulate data.

4

Interactive Display

Visualize readings on an LCD.

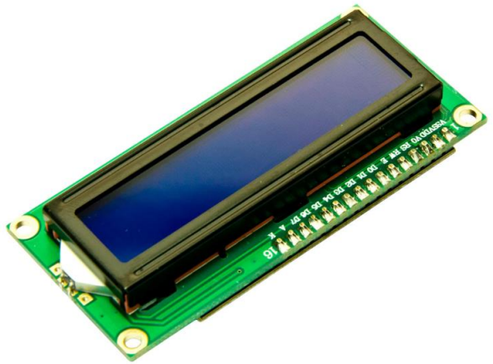
Core Components



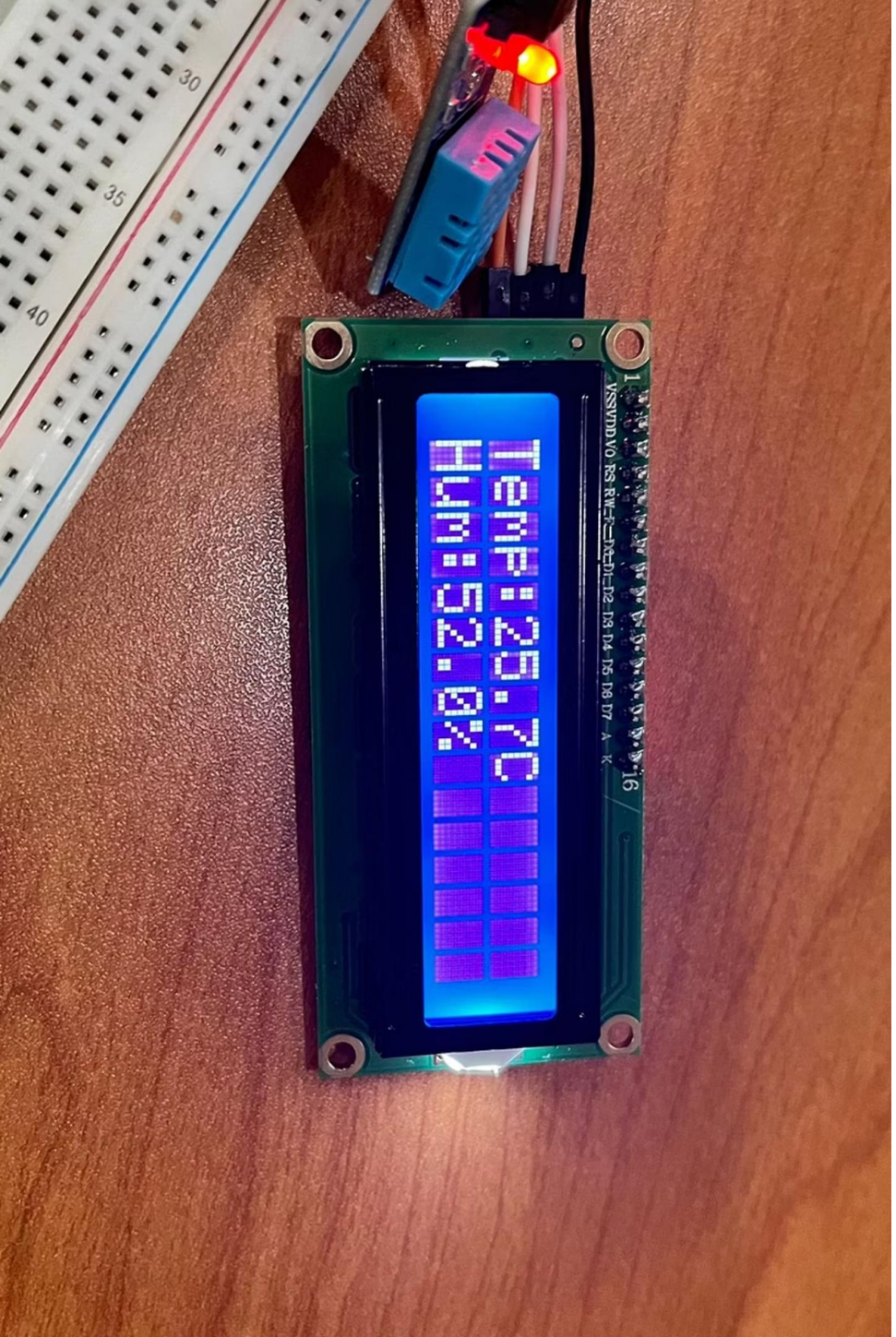
DHT Sensor

DC Motors

Buzzer Alarm



LCD Display



Temperature Control Logic

Normal Temp

Motor idle.

High Temp

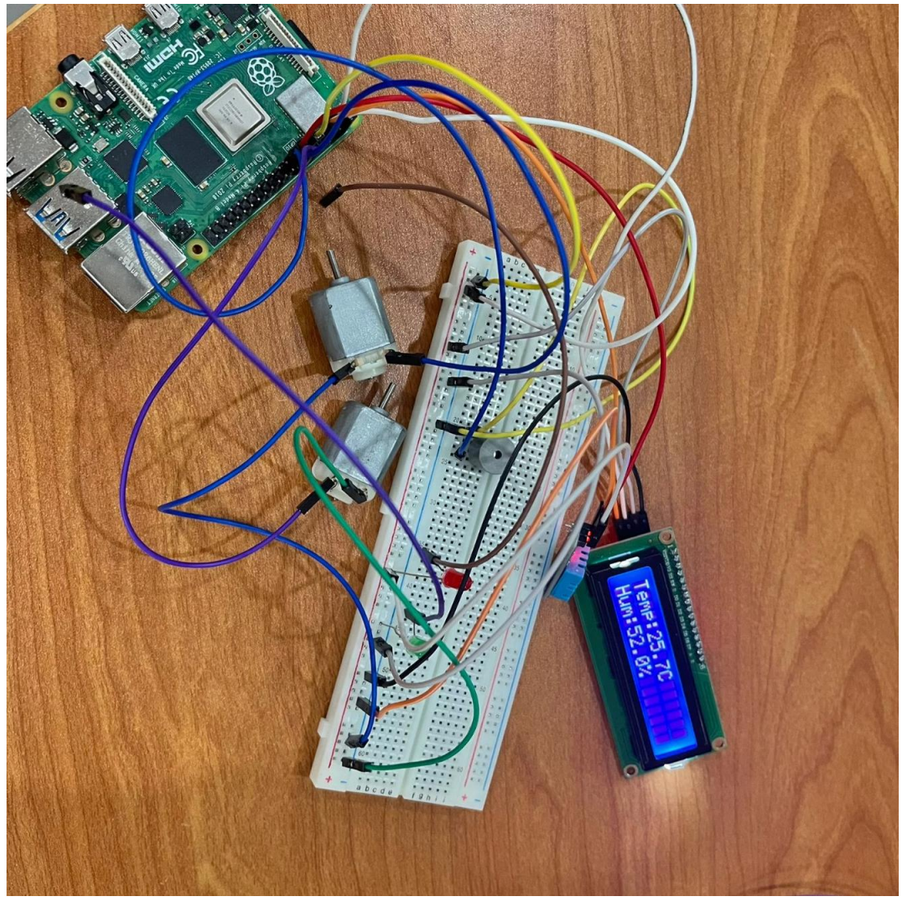
Motor at half speed.

Very High Temp

Motor at full speed + buzzer.

Visualizing Data Locally

An integrated LCD display provides immediate feedback on environmental conditions.



- **Real-time Readings**

  Instant display of temperature and humidity values.

- **Clarity**

  Easy-to-read interface for quick checks.

- **Local Access**

  No internet needed for basic monitoring.

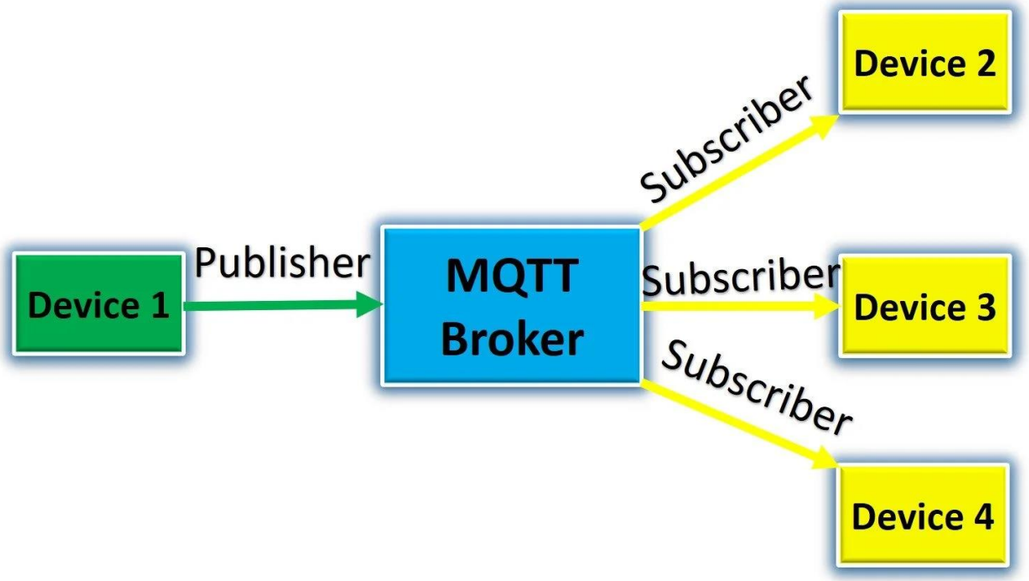
System Outputs and Actions

Temperature	Normal Temperature	Primary motor idle
Temperature	High Temperature	Primary motor at half speed
Temperature	Very High Temperature	Primary motor at full speed, Buzzer activates
Humidity Control	High Humidity	Secondary motor activates
Remote Monitoring	Data on Blynk platform	Real-time simulation/visualization

MQTT Protocol

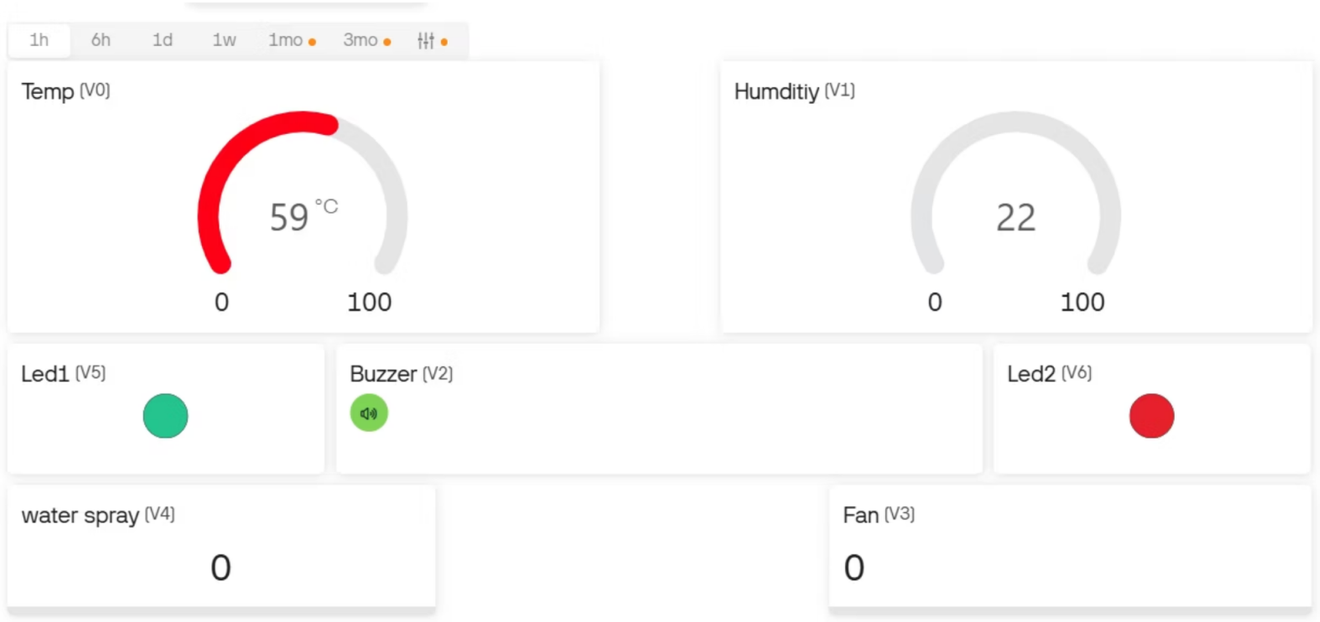
- In MQTT protocol we use the **SUB/PUB** model and a broker acting as a middle-man between both
- where a publisher can publish certain info and only its subscribers can see this info.
- In our project, we used **blynk.cloud** as our broker. Our raspberry pi as publisher and the blynk virtual pin as subscribers.
- **We had 5 topics:**

ds/”temp”
ds/”Humidity”
ds/”Buzzer”
ds/”Led1”
ds/”Led2”



Blynk IoT Integration

Blynk provides a user-friendly platform to visualize sensor data and control actuators remotely.



Custom Dashboards

Create intuitive interfaces for your project.

Remote Monitoring

Access data from anywhere via smartphone.

Notifications

Set alerts for critical events.

Future Enhancements

Presence Detection

Integrate a camera for person detection to maximize functionality.