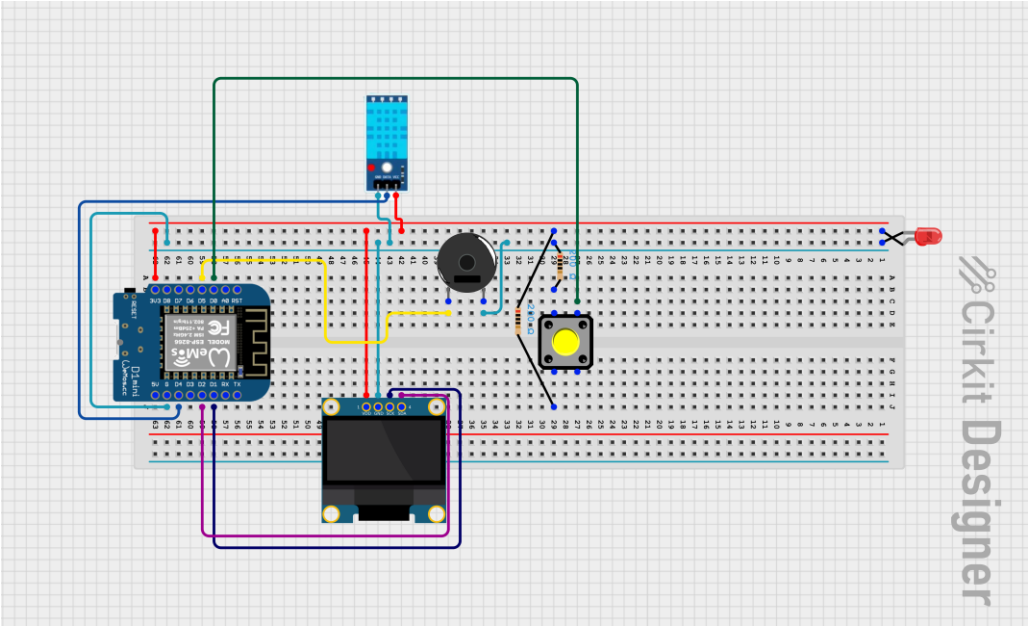
Smart Temperature and Humidity Monitoring System

Name : Mani Surya Teja

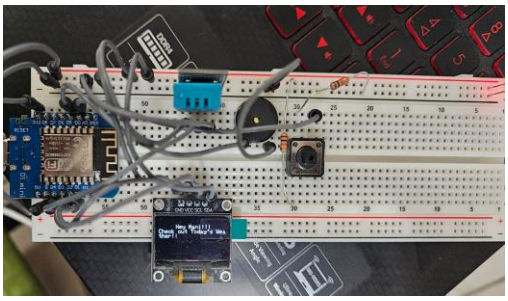
Mail-ID : manisuryatejak@gmail.com

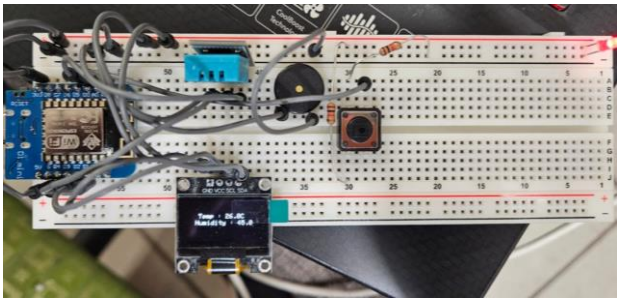
Objective: To make a smart home DHT monitoring system using the D1mini microcontroller, OLED display screen, DHT11 sensor, Push button, Buzzer, 2 resistors, breadboard.

Circuit:

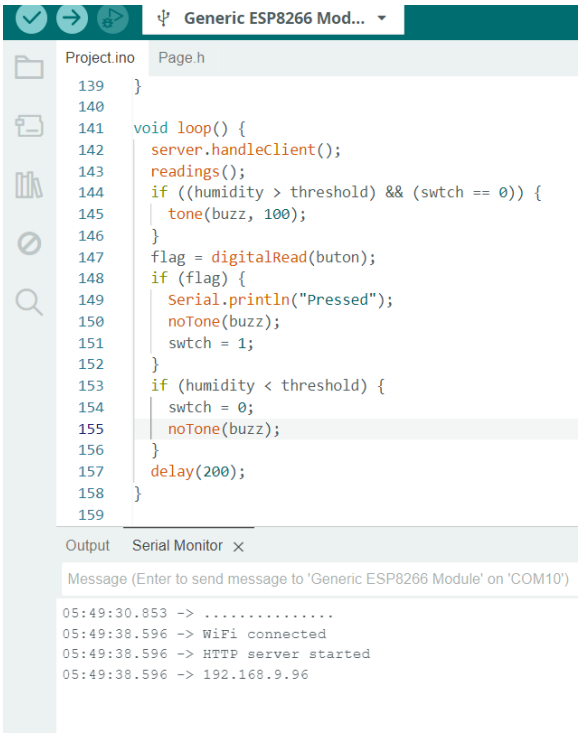


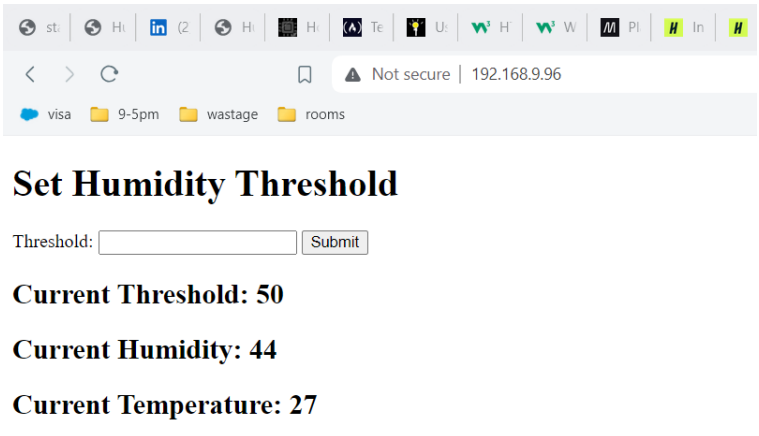
- Using the D1 mini microcontroller each D-pins are set to work for specific commands.
- OLED : Used to display the readings of the humidity and temperature. D2,D1 are the pins connected to SCL and SDA.





- DHT 11: It has been connected to D4 pin and the reading are being captured with delay of 300milliseconds and +,- are connected to the buses.
- Buzzer: Connected to D5 for the power source(OUTPUT) and will buzzer only if the Humidity is greater than threshold limit and will keep on buzz until either the humidity should go down lower than threshold limit or the input from push button.
- Push Button : The user should press the push button to notify the microcontroller that the sensor alert has been noticed.
- WIFI module: Helps to host a webpage, works only when both monitoring system and D1mini are under the same network.





Code Review : Entire project has been separated/coded in 6 sections. Built-in functions setup and loop, user-defined readings, handleRoot, handleSetThreshold, handleGetCurrentData.

1. Setup:
   To setup the pins and its I/O functions for every peripheral.
   Setup for OLED screen – TextSize, color, cursor position initial clear screen.
   WIFI setup – SSID,Passwd setup to connect to a network with mutiple attempts unitl it get connected with delay of 500 milliseconds for each try. Notification if the connection was built successfully.

2. Readings:
   To read the humidity, Temperature(both F and C) from the DHT sensor and to display them via OLED screen with delay of 300ms which runs in the loop().

3. HandleRoot:
   Home Webpage to host and send it to the client.

4. HandleSetThreshold:
   This Function handles the form tag code for webpage and takes the Threshold input from the client to set the limit in D1mini.

5. HandleGetCurrentData:
   This function fetches the live data from the arduino with the help of the script written in between the HTML tags. Data Fetches for every 2seconds.

6. Loop:
   It detects if the actual reading are exceeding the threshold and will the buzzer sound till it recieves a input from the user via push button and waits for the actual reading to cool down than the threshold.