DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

IBM NALAIYA THIRAN PROJECT

Preparation Phase

Date	20 September 2022
Team ID	PNT2022TMID03479
Project Name	IoT Based Smart Crop Protection System for Agriculture
Maximum Marks	2 Marks

Assignment 2:

Display the image in the Node-RED web UI and display the temperature, humidity, and soil moisture levels. Integrate the buttons in the UI to control the Motors.

Solution :

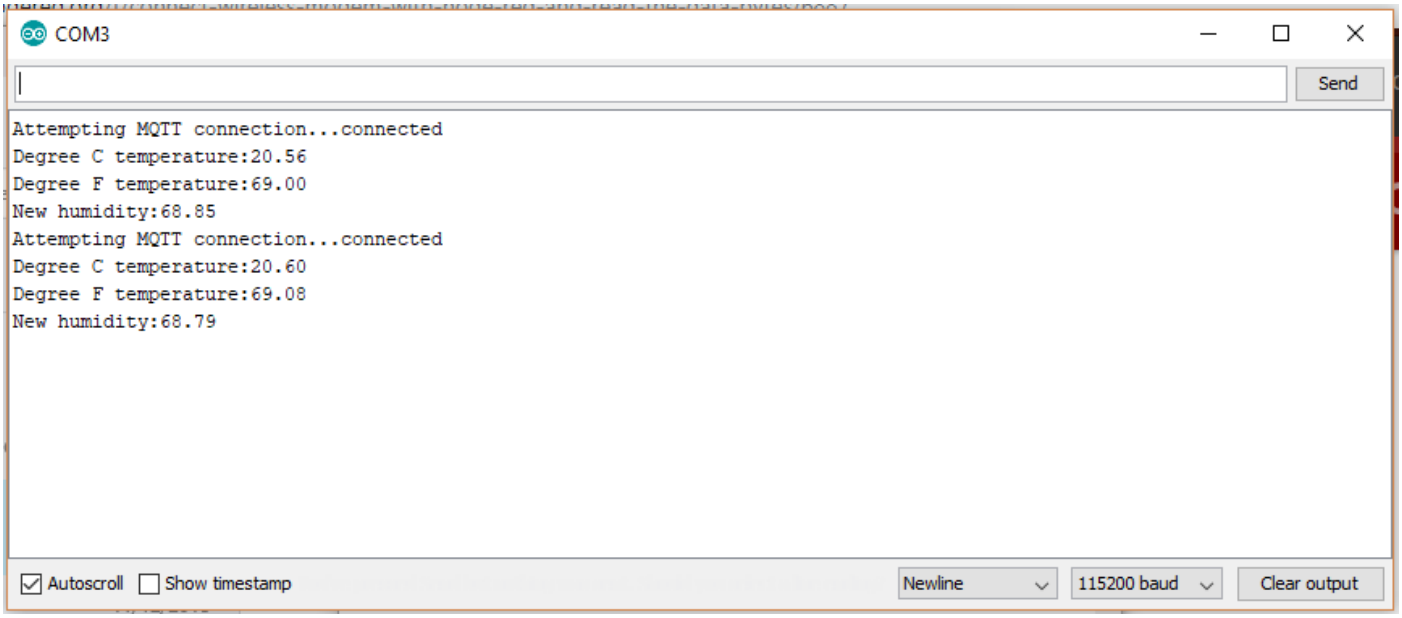
```
#include <ESP8266WiFi.h>
const char *wifissid = "SSID";
const char *wifipass = "Password";
void setup() {
// put your setup code here, to run once:
Serial.begin(115200);
}
void loop() {
// put your main code here, to run repeatedly:
delay(1000);
reconnectWiFi();
}
void reconnectWiFi(){
 WiFi.mode(WIFI_STA);
delay(200);
WiFi.begin(wifissid,wifipass);
        while(WiFi.status()!= WL_CONNECTED){
        Serial.print(".");
        delay(500);
}
Serial.println("Connected to: \t");
Serial.println(WiFi.localIP());
#include <Wire.h>
#define Addr 0x40
Wire.beginTransmission(Addr);
// Send humidity measurement command, NO HOLD master
Wire.write(0xF5);
// Stop I2C transmission
```

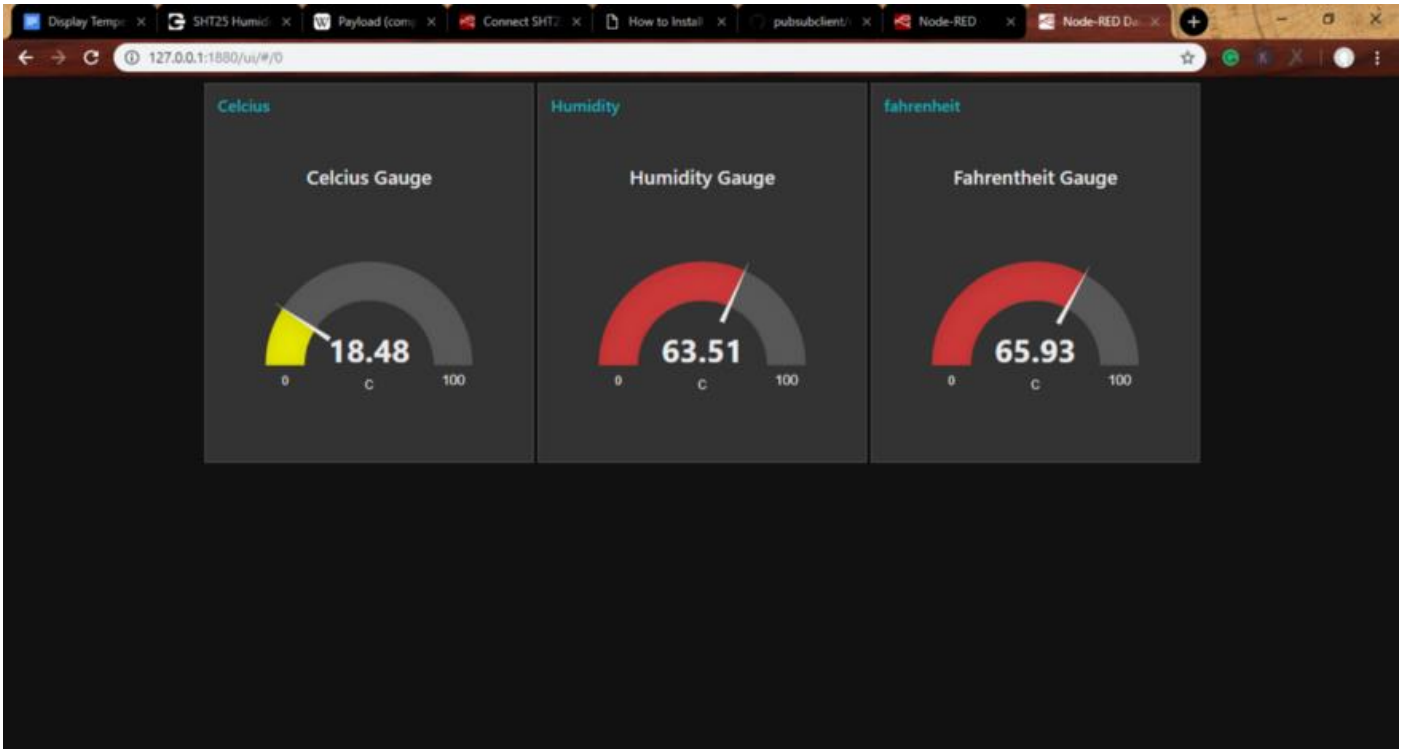
```
Wire.endTransmission();
delay(500);
// Request 2 bytes of data
Wire.requestFrom(Addr, 2);
// Read 2 bytes of data
// humidity msb, humidity lsb
if(Wire.available() == 2)
{
  data[0] = Wire.read();
  data[1] = Wire.read();
}
float humidity = (((data[0] * 256.0 + data[1]) * 125.0) / 65536.0) - 6;
float cTemp = (((data[0] * 256.0 + data[1]) * 175.72) / 65536.0) - 46.85;
float fTemp = (cTemp * 1.8) + 32;
void reconnect()
{
// Loop until we're reconnected
while (!client.connected()) {
Serial.print("Attempting MQTT connection...");
if (client.connect("ESP8266Client")) {
Serial.println("connected");
}
else {
Serial.print("failed, rc=");
Serial.print(client.state());
Serial.println(" try again in 5 seconds");
// Wait 5 seconds before retrying
delay(5000);
    }
  }
}
void loop()
{

if (!client.connected()) {
reconnect();
}

client.publish(Topic to publish, Payload(message to publish), Return value (true or false));
client.loop();
}
```

Output:


COM3
Send
Attempting MQTT connection...connected
Degree C temperature:20.56
Degree F temperature:69.00
New humidity:68.85
Attempting MQTT connection...connected
Degree C temperature:20.60
Degree F temperature:69.08
New humidity:68.79
Autoscroll
Show timestamp
Newline
115200 baud
Clear output


127.0.0.1:1880/ui/#/0
Celcius
Celcius Gauge
18.48
0
C
100
Humidity
Humidity Gauge
63.51
0
C
100
fahrenheit
Fahrentheit Gauge
65.93
0
C
100