Bangabandhu Sheikh Mujibur Rahman Digital University, Bangladesh

Department of ICT

Faculty of Engineering

Program IOT

Course Title: Wireless Communication for IoT Lab

Course Code: IoT 4312

Lab Report-01

Submitted to-

Teacher name: Habibur Rahman, Farjana Akther

Designation: Lecturer

Department: ICT

Submitted by-

Name-Md. Shahriar Hossain Apu

Id-1901036

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Name of the Experiment: Interfacing DHT21 Sensor with ESP8266

Components Required:

1. ESP8266 nodemcu board
2. DHT-11 sensor
3. Jumper wires and a breadboard
4. USB cable for uploading the code

Circuit Diagram:

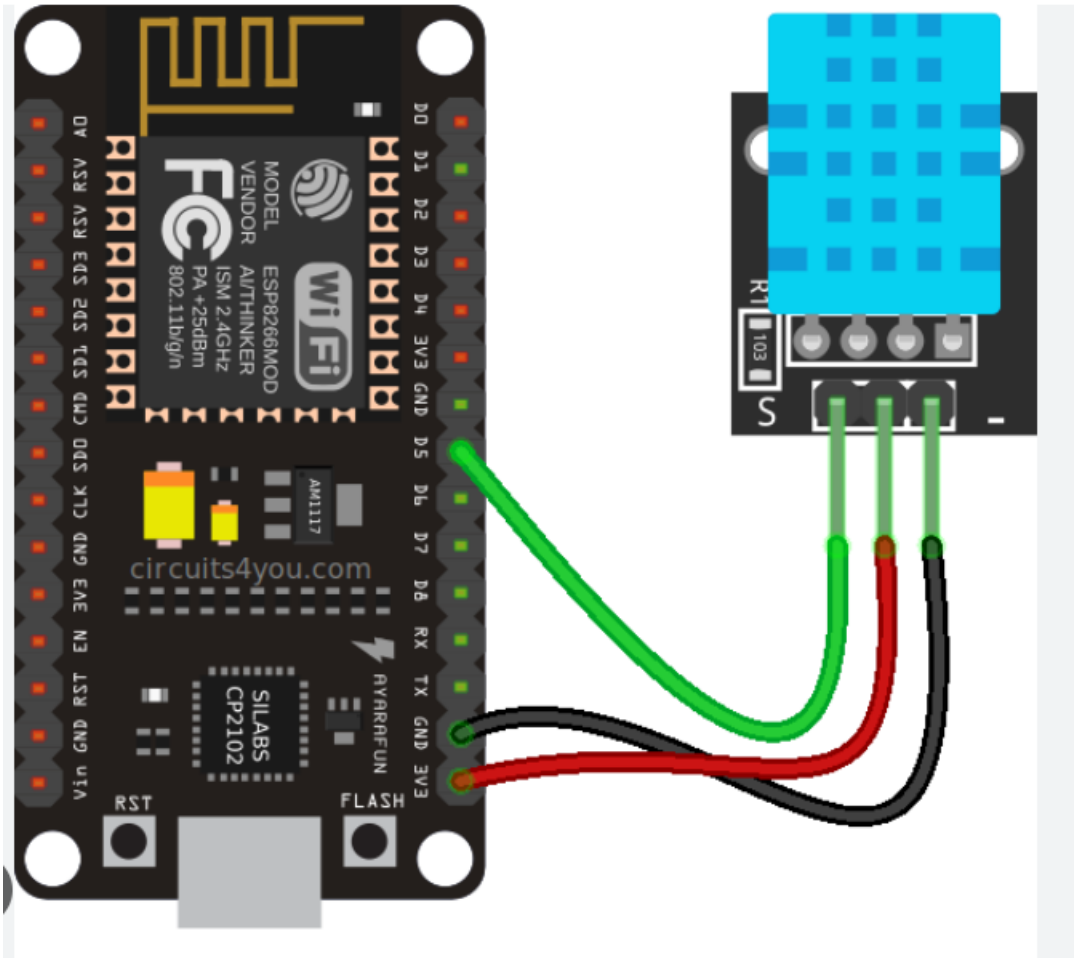

Figure: circuit diagram

Connection Table:

Nodemcu esp8266	**Dht21 Sensor**
VV, Vin (+5V)	(V) VCC (Positive +)
G, GND (Ground)	(G) GND (Ground –)
D4 Pin	(S) OUT Pin

1. There are three pins in the DHT-11 sensor out of which two are for power and one is for the output data transmission.
2. You have to connect all three pins to the nodemcu.
3. Connect the VCC pin of the sensor with the VIN pin of the nodemcu.
4. Join the GND pin of the sensor to the GND pin of the nodemcu.
5. At last, connect the remaining pin that is OUT pinned with the digital-4 pin of the nodemcu.

Sketch:

```
#include <Wire.h>
#include "DHT.h"

// Uncomment one of the lines below for whatever DHT sensor type you're using!
//#define DHTTYPE DHT11 // DHT 11
#define DHTTYPE DHT21 // DHT 21 (AM2301)
//#define DHTTYPE DHT22 // DHT 22 (AM2302), AM2321
//DHT Sensor;
uint8_t DHTPin = 12;
```

```
DHT dht(DHTPin, DHTTYPE);
float Temperature;
float Humidity;
float Temp_Fahrenheit;

void setup() {
  Serial.begin(115200);
  pinMode(DHTPin, INPUT);
  dht.begin();

}
void loop() {

  Humidity = dht.readHumidity();
  // Read temperature as Celsius (the default)
  Temperature = dht.readTemperature();
  // Read temperature as Fahrenheit (isFahrenheit = true)
  Temp_Fahrenheit= dht.readTemperature(true);

  // Check if any reads failed and exit early (to try again).
  if (isnan(Humidity) || isnan(Temperature) || isnan(Temp_Fahrenheit)) {
    Serial.println(F("Failed to read from DHT sensor!"));
    return;
  }

  Serial.print(F("Humidity: "));
  Serial.print(Humidity);
  Serial.print(F("%  Temperature: "));
```

```
  Serial.print(Temperature);
  Serial.print(F("°C "));
  Serial.print(Temp_Fahrenheit);
  Serial.println(F("°F "));
  delay(1000);

}
```

Experimental Picture:

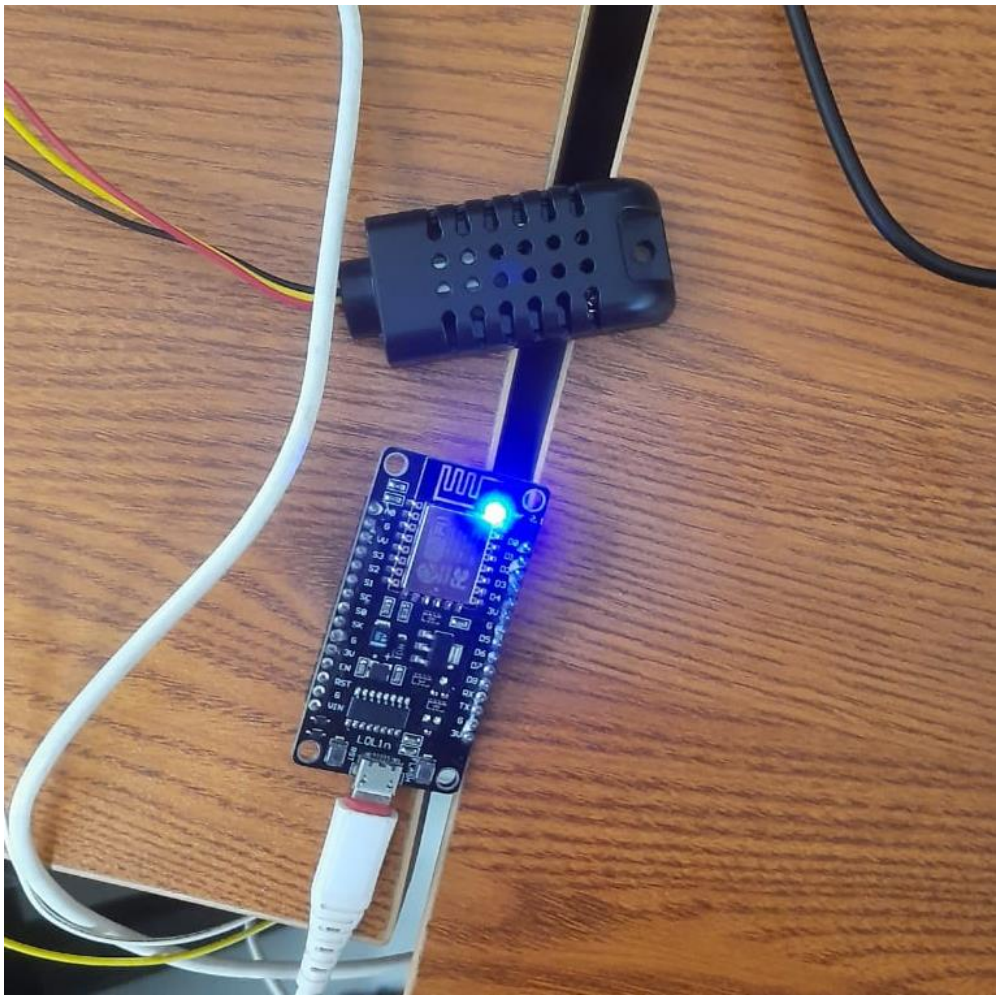

Figure: Blink Built-in led When temperature is high.

Result: We successfully Interfaced the dht21 with the ESP8266.