

## **Project 19:**

### **Temperature And Humidity Update in WhatsApp using WeMos**

#### **1. Introduction**

Send temperature, humidity and movement information as WhatsApp messages to your phone every half-minute through a webhook via Twilio API.

### **COMPONENTS: -**

1.WEMOS

2.DHT 11

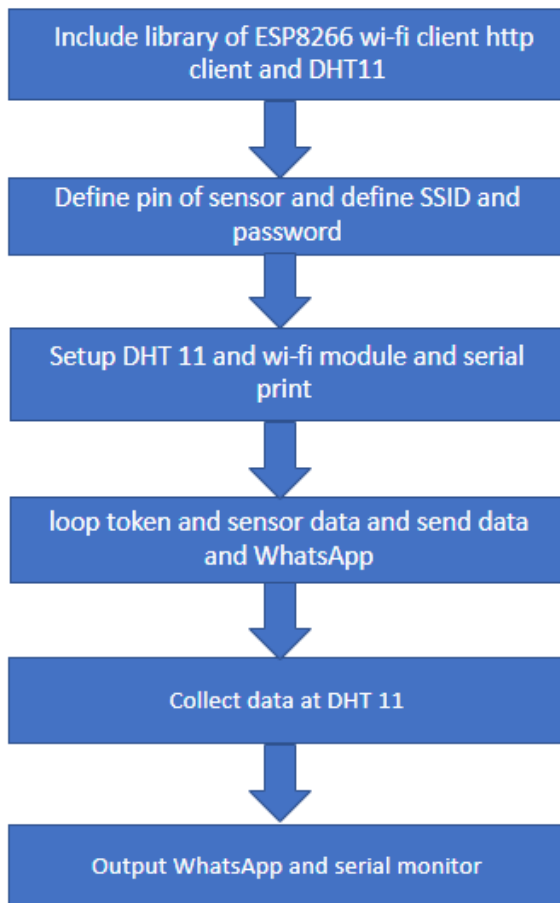
### **APPLICATIONS: -**

The capacitive relative humidity sensors are used for several applications for measuring humidity in printers, HVAC systems, fax machines, automobiles, weather stations, refrigerators, food processing, etc.

### **OBJECTIVES: -**

Temperature and humidity sensors are among the most commonly used environmental sensors. Humidity sensors are also sometimes referred to as hygrometers. These devices are used to provide the actual humidity condition within the air at any given point or in any given place.

## FLOW CHART: -



## PROGRAMMING: -

```
#include <ESP8266WiFi.h>
```

```
#include <WiFiClient.h>
```

```
#include <ESP8266WebServer.h>
```

```
#include <ESP8266HTTPClient.h>
```

```
// Include DHT master library to elicit information from DHT11  
Temperture and Humidity Sensor.
```

```
#include "DHT.h"
```

```
// Define DHT object.
```

```
DHT dht;
```

```
// Define your WIFI settings.
```

```
const char *ssid = "";
```

```
const char *password = "";
```

```
// Create data holders to send data packets.
```

```
String temperature, humidity;
```

```
String fingerprint, WebHook, HEDRON, id, token, message, from, to,  
trespass;
```

```
// Define HC-SR04 pins and measurements to detect any movement.
```

```
#define trig D4
```

```
#define echo D5
```

```
long duration, distance;
```

```
void setup() {
```

```
// Start DHT object at digital pin 2.  
dht.setup(D2);  
  
// Initiate HC-SR04 pins.  
pinMode(trig, OUTPUT);  
pinMode(echo, INPUT);  
  
// Wait until connected.  
delay(1000);  
Serial.begin(115200);  
  
// It is just for assuring connection is alive.  
WiFi.mode(WIFI_OFF);  
delay(1000);  
// This mode allows NodeMCU to connect any WiFi directly.  
WiFi.mode(WIFI_STA);  
// Connect NodeMCU to your WiFi.  
WiFi.begin(ssid, password);  
  
Serial.print("\n\n");  
Serial.print("Try to connect to WiFi. Please wait! ");  
Serial.print("\n\n");  
// Halt the code until connected to WiFi.  
while (WiFi.status() != WL_CONNECTED) {  
    delay(500);
```

```
Serial.print("");  
}
```

**// If connection is successful, turn control led(if used) on and write WiFi SSID to serial monitor along with assigned IPAddress.**

```
Serial.print("\n\n");  
Serial.print("-----");  
Serial.print("\n\n");  
Serial.print("Connection is successful!");  
Serial.print("\n\n");  
Serial.print("Connected WiFi SSID : ");  
Serial.print(ssid);  
Serial.print("\n\n");  
Serial.println("Connected IPAddress : ");  
Serial.println(WiFi.localIP());  
Serial.print("\n\n");  
}
```

```
void loop() {
```

**// Get temperature and humidity from DHT11. And, detect any trespasser.**

```
collectData();
```

**// Enter the fingerprint.**

```
fingerprint = "46 3c 5c 2c 67 11 cd 88 b7 e9 76 74 41 34 48 bd bc a5  
b9 cf";
```

**// Enter your hedron provided by TheAmplituhedron, Twilio Account Information, and phone numbers.**

**HEDRON = "TheAmplituhedron\_Hedron";**

**id= "Twilio\_SID";**

**token = "Twilio\_Token";**

**from = "14151234567"; // Enter numbers.**

**to = "14081234567";**

**// Create message,use %0A to start a new line.**

**message = "Status:+Data+Obtained++%0A%0ATemperature:+" +  
temperature + "C%0A%0AHumidity:+" + humidity +  
"%0A%0AMovement:+" + trespass + "%0A%0AWaiting...";**

**// Create the webhook path.**

**WebHook =**

**"<https://www.theamplituhedron.com/dashboard/WhatsApp-Web-Hook/>" + HEDRON + ".php?id=" + id + "&token=" + token + "&body=" + message + "&from=" + from + "&to=" + to;**

**// Create HTTP object to make a request.**

**HTTPClient http;**

**// Send a request.**

**http.begin(WebHook, fingerprint);**

**int httpCode = http.GET();**

```
String payload = http.getString();
```

```
if(httpCode == 200){ Serial.println("\n Message Sent  
Successfully..."); }else{ Serial.println("\n Not Working! Error Code: "  
+ httpCode); }
```

```
// End HTTP Get Request.
```

```
http.end();
```

```
// Send data packets every half minute to the webhook.
```

```
delay(30000);
```

```
}
```

```
void collectData(){
```

```
    // Wait until DHT11 Temperature and Humidity Sensor became  
    ready.
```

```
    delay(dht.getMinimumSamplingPeriod());
```

```
    // Get temperature and humidity.
```

```
    humidity = dht.getHumidity();
```

```
    temperature = dht.getTemperature();
```

```
    // Detect any movement by using the trigger pin.
```

```
    digitalWrite(trig, LOW);
```

```
    delay(2);
```

```
    digitalWrite(trig, HIGH);
```

```
delay(10);
digitalWrite(trig, HIGH);
duration = pulseIn(echo, HIGH);
distance = (duration / 2) / 29.1;
if(distance < 8){ trespass = "No+movement+detected!"; }else{
trespass = "Someone+is+trespassing!"; }

// Dump data packets.

String data = "\n Tempature: " + temperature + "\n Humidity: " +
humidity + "\n Movement: " + trespass + "\n";

Serial.print(data);

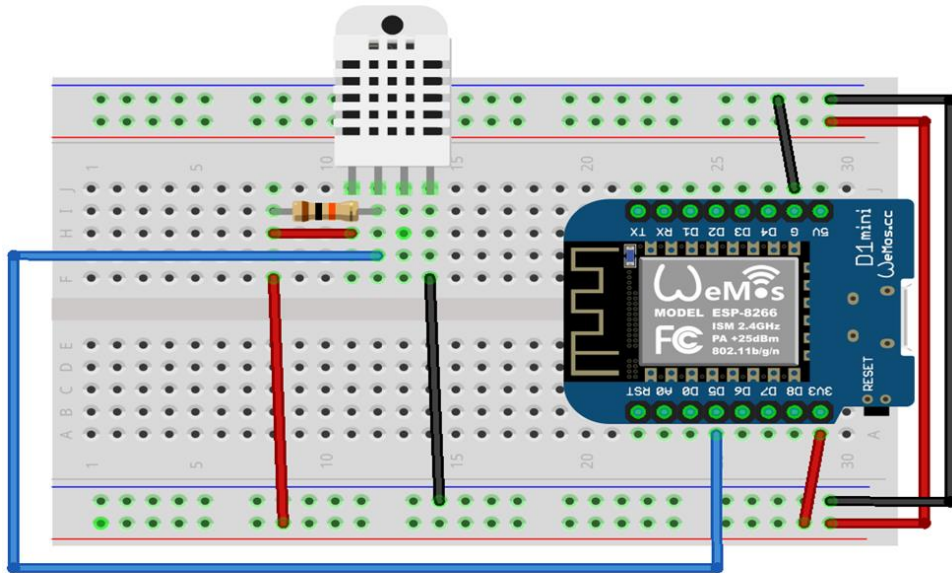
}
```

## **HARDWARE CONNECTION: -**

1. Connect DHT to WEMOS
2. Connect pin GND to GND
3. Connect pin 5V to 5v
4. Connect pin D0 to D5

## **CIRCUIT DIAGRAM: -**





fritzing

