

//The following code is applied via Arduino IDE

```
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include "DHT.h"      // DHT11 temperature and humidity sensor Predefined library
#define DHTTYPE DHT11 // DHT 11
#define dht_dpin 0     //GPIO-0 D3 pin of nodemcu
int Raw    = A0;       //Analog channel A0 as used to measure temperature
int threshold = 16;    //Nodemcu digital pin water sensor read-GPIO16---D0 of NodeMCU
int Solenoid = 13;     // GPIO13---D7 of NodeMCU--Motor connection
```

```
char auth[]="kOjgC_-JEma-S9iOlyaB27mf7uPFJHTd";
```

```
const char* ssid = "hotspot";           //enter your preferred wi-fi ssid
const char* password = "kunal123456789"; //enter your wi-fi password
```

```
BlynkTimer timer;
DHT dht(dht_dpin, DHTTYPE);
WiFiServer server(80);
float h=0.0;
float t=0.0;
float reading=0.0;
float percentage=0.0;
float f=0.0;
```

```
void sendsensor() // Match the request
{
    int value = 0;
    h = dht.readHumidity(); //Read humidity level
    t = dht.readTemperature(true); //Read temperature in celcius
    reading = analogRead(Raw); //Analog pin reading output
                                voltage by water moisture rain sensor
    percentage = ( 100 - ( (reading/1023.00) * 100 ) );

    //Converting the raw value in percentage

    if (percentage>=40) // If less mositure in soil start the
                        motor otherwise stop
    {
        digitalWrite(Solenoid, LOW);
        value = 0;
    }

    else
    {
        digitalWrite(Solenoid, HIGH);
        value = 1;
    }
}
```

```

    }

    Blynk.virtualWrite(V1,h);
    Blynk.virtualWrite(V2,t);
    Blynk.virtualWrite(V3,percentage);
    Blynk.virtualWrite(V4,value);

}

void setup(void)
{
    Serial.begin(9600);
    dht.begin();
    Blynk.begin(auth,ssid,password);
    delay(10);

    pinMode(threshold,INPUT_PULLUP); //Pin#13 as output-Activate
                                     pullup at pin 13
    pinMode(Solenoid, OUTPUT); //D7 as output
    digitalWrite(Solenoid, LOW); //Deactivate Solenoid

    // Connect to WiFi network

    Serial.println();
    Serial.print("Connecting to ");
    Serial.println(ssid);
    WiFi.begin(ssid, password);

    //Begin WiFi

    while (WiFi.status() != WL_CONNECTED)
    {
        delay(5);
        Serial.print(".");
    }

    Serial.println("");
    Serial.println("WiFi connected");

    // Start the server

    server.begin();
    Serial.println("Server started");

    // Print the IP address on serial monitor

    Serial.print("Use this URL to connect: ");

```

```

        Serial.print("http://"); //URL IP to be typed in
                                   mobile/desktop browser
        Serial.print(WiFi.localIP());
        Serial.println("/");
        timer.setInterval (1000L, sendsensor);

    }

void loop() // Check if a client has connected

    {

        Blynk.run();
        timer.run();
        WiFiClient client = server.available();
        if (!client)
        {
            return;
        }

        // Wait until the client sends some data

        Serial.println("new client");
        while(!client.available())
        {
            delay(1);
        }

        // Read the first line of the request

        String request = client.readStringUntil('\r');
        Serial.println(request);
        client.flush();

        // Match the request

        int value = LOW;
        if (request.indexOf("/Up=ON") != -1)
        {
            h = dht.readHumidity(); //Read humidity level
            t = dht.readTemperature(true); //Read temperature
                                           in celcius
            f = (t * 1.8) + 32;      //Temperature converted to Fahrenheit

            //Analog pin reading output voltage by water moisture rain sensor
            reading = analogRead(Raw);

            //Converting the raw value in percentage
            percentage = ( 100 - ( (reading/1023.00) * 100 ) );

```

```

        if (percentage >= 40)
        {
            // If less moisture in soil start the motor otherwise
            stop

            digitalWrite(Solenoid, LOW);
            // value = HIGH;
        }

        else

        {
            digitalWrite(Solenoid, HIGH);
            // value = LOW;
        }
    }

    if (request.indexOf("/Solenoid=ON") != -1)
    {
        //Motor ON
        digitalWrite(Solenoid, HIGH);
        value = HIGH;
        delay(10000);
    }

    if (request.indexOf("/Solenoid=OFF") != -1)
    {
        //Motor OFF
        digitalWrite(Solenoid, LOW);
        value = LOW;
        delay(10000);
    }

    // Return the response
    client.println("HTTP/1.1 200 OK");
    client.println("Content-Type: text/html");
    client.println(""); // do not forget this one
    client.println("<!DOCTYPE HTML>");
    client.println("<html>");
    client.println("<h1 align=center>Smart irrigation system</h1><br><br>");
    client.print("Temperature in Celsius =");
    client.println(t);
    client.println("celcius");
    client.println("<br>");
    client.print("Humidity =");
    client.println(h);
    client.print(" %");

```

```

client.println("<br>");
client.println();
client.print("Moisture Level Percentage =");
client.print(percentage);
client.print("%");

if(digitalRead(threshold)==HIGH)
{
    //client.println("Threshold Reached = Rain detected / Moisture
    exceeded / Water detected");
}

client.println("<br><br>");
if(value == HIGH)
    // client.println("Motor/Pump Operational");
// else
    // client.print("Motor/Pump at Halt");

client.println("<br><br>");

client.println("<a href=\"/Up=ON\\\"><button>Update = Temperature
Humidity Moisture Values</button></a><br />");

client.println("<a href=\"/Solenoid=ON\\\"><button>Motor Pump On
</button></a>");

client.println("<a href=\"/Solenoid=OFF\\\"><button>Motor Pump Off
</button></a><br />");

client.println("</html>");

delay(1);

Serial.println("Client disconnected");

Serial.println("");
}

```