#include <SoftwareSerial.h>

#define RX 2

#define TX 3

String AP = “Issacjoy”; // AP NAME

String PASS = “1234567890”; // AP PASSWORD

String API = “GJB5C51S1YV9UGGH”; // Write API KEY

String HOST = “api.thingspeak.com”;

String PORT = “80”;

Int countTrueCommand;

Int countTimeCommand;

Boolean found = false;

SoftwareSerial esp8266(RX, TX);

#include <dht.h>

#define DHT11\_PIN 7

Const int relay =8;

Dht DHT;

Void temp\_fan(void);

#define SensorPin A0

// the pH meter Analog output is connected with the Arduino’s Analog

Unsigned long int avgValue; //Store the average

Value of the sensor feedback

Float b,phValue;

Int buf[10],temp;

Int solPump = 12;

Int count1=0;

Int motor=10;

Void setup()

{

Serial.begin(9600);

pinMode(relay,OUTPUT);

pinMode(motor,OUTPUT);

pinMode(SensorPin,INPUT);

pinMode(solPump,OUTPUT);

esp8266.begin(115200);

sendCommand(“AT”,5,”OK”);

sendCommand(“AT+CWMODE=1”,5,”OK”);

sendCommand(“AT+CWJAP=\””+ AP +”\”,\””+ PASS +”\””,20,”OK”);

}

Void loop()

{

Count1++;

Serial.println(count1);

If(count1<5){

digitalWrite(motor,LOW);

}

If(count1<18 && count1>=5){

digitalWrite(motor,HIGH);

}

If(count1>=18){

Count1=0;

}

String getData = “GET /update?api\_key=”+ API +”&field1=

“+getTemperatureValue()+”&field2=”+getHumidityValue()+

“&field3=”+getphValue();

sendCommand(“AT+CIPMUX=1”,5,”OK”);

sendCommand(“AT+CIPSTART=0,\”TCP\”,\””+ HOST +”\”,”+ PORT,15,”OK”);

sendCommand(“AT+CIPSEND=0,” +String(getData.length()+4),4,”>”);

esp8266.println(getData);delay(1500);countTrueCommand++;

sendCommand(“AT+CIPCLOSE=0”,5,”OK”);

//pH value

For(int i=0;i<10;i++) //Get 10 sample value from

The sensor for smooth the value

{

Buf[i]=analogRead(SensorPin);

Delay(10);

}

For(int i=0;i<9;i++)//sort the analog from small to large

{

For(int j=i+1;j<10;j++)

{

If(buf[i]>buf[j])

{

Temp=buf[i];

Buf[i]=buf[j];

Buf[j]=temp;

}

}

}

avgValue=0;

for(int i=2;i<8;i++)

//take the average value of 6 center sample

avgValue+=buf[i];

float phValue=(float)avgValue\*5.0/1024/6;

//convert the analog into millivolt

phValue=3.5\*phValue+2.5;

//convert the millivolt into pH value

Serial.print(“ pH:”);

Serial.print(phValue,2);

Serial.print(“ “);

Serial.print(7-phValue);

Serial.println(“ “);

If(phValue > 7)

{

digitalWrite(solPump,LOW);

}

Else{

digitalWrite(solPump,HIGH);

}

Temp\_fan();

If (DHT.temperature < 30)

digitalWrite(relay,HIGH);

else

digitalWrite(relay,LOW);

}

String getTemperatureValue()

{

Int temp;

Temp=DHT.temperature;

Return String(temp);

}

String getHumidityValue()

{

Int humidity=DHT.humidity;

Return String(humidity);

}

String getphValue()

{

avgValue=0;

for(int i=2;i<8;i++)

//take the average value of 6 center sample

avgValue+=buf[i];

phValue=(float)avgValue\*5.0/1024/6;

//convert the analog into millivolt

phValue=3.5\*phValue+2.5;

return String(phValue);

}

Void temp\_fan()

{

Int chk = DHT.read11(DHT11\_PIN);

Serial.print(“Temperature = “);

Serial.println(DHT.temperature);

Serial.print(“Humidity = “);

Serial.println(DHT.humidity);

If (DHT.temperature < 25)

digitalWrite(relay,HIGH);

else

digitalWrite(relay,LOW);

}

Void sendCommand(String command, int maxTime, char readReplay[])

{

Serial.print(countTrueCommand);

Serial.print(“. At command => “);

Serial.print(command);

Serial.print(“ “);

While(countTimeCommand < (maxTime\*1))

{

Esp8266.println(command);//at+cipsend

If(esp8266.find(readReplay))//ok

{

Found = true;

Break;

}

countTimeCommand++;

}

If(found == true)

{

Serial.println(“OYI”);

countTrueCommand++;

countTimeCommand = 0;

}

If(found == false)

{

Serial.println(“Fail”);

countTrueCommand = 0;

countTimeCommand = 0;

}

Found = false;

}