SPRINT 3

Date	12 November 2022
Team ID	PNT2022TMID08726
Project Name	Smart Farmer – IoT Enabled Farming Application
Maximum Marks	8 Marks

SENDING SENSOR DATA FROM WOKWI TO IBM WATSON IOT PLATFORM:

PROGRAM FOR SENDING TEMPERATURE AND HUMIDITY VALUES USING MQTT PROTOCOL:

```
#include <WiFi.h>
#include <PubSubClient.h>
#include "DHT.h"
#include <ESP32Servo.h>
#define DHTPIN 15
#define DHTTYPE DHT22
#define LED 2
DHT dht (DHTPIN, DHTTYPE); void callback(char* subscribetopic, byte* payload,
unsigned int payloadLength);
#define ORG "dcehdm"//IBM ORGANITION ID
#define DEVICE_TYPE "Esp32"//Device type
#define DEVICE_ID "farm"//Device ID
#define TOKEN "23zPbW*+XTK!hv9qYz" //Token
Servo servo;
String data3; float h, t;
int pos= 0;
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json"; char
subscribetopic[] = "iot-2/cmd/command/fmt/String"; char
authMethod[] = "use-token-auth"; char token[] = TOKEN; char
clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
//-----------------------------------------
WiFiClient wifiClient;
PubSubClient client(server, 1883, callback ,wifiClient);
void setup()
{
 Serial.begin(115200);
dht.begin();
```

```
pinMode(LED,OUTPUT);
pinMode(2,OUTPUT);//red
pinMode(4,OUTPUT); //blue
pinMode(5,OUTPUT); //green
delay(10); Serial.println();
wificonnect();
mqttconnect();
const int servoPin = 18;
servo.attach(servoPin, 500, 2400);
}
void loop()
{
 h = dht.readHumidity();
t= dht.readTemperature();
 Serial.print("temp:");
 Serial.println(t);
 Serial.print("Humid:");
 Serial.println(h);
 if((t<=40)&&(t>=25))
   {
     pos=90;
     servo.write(pos);
     digitalWrite(4, HIGH);
     digitalWrite(2, LOW);digitalWrite(5, LOW);

   }
 if(t>40)
   {
     pos=180;
     servo.write(pos);
     digitalWrite(2, HIGH);
      digitalWrite(4, LOW);digitalWrite(5, LOW);
   }
 if(t<25)
   {
     pos=0;
     servo.write(pos);
```

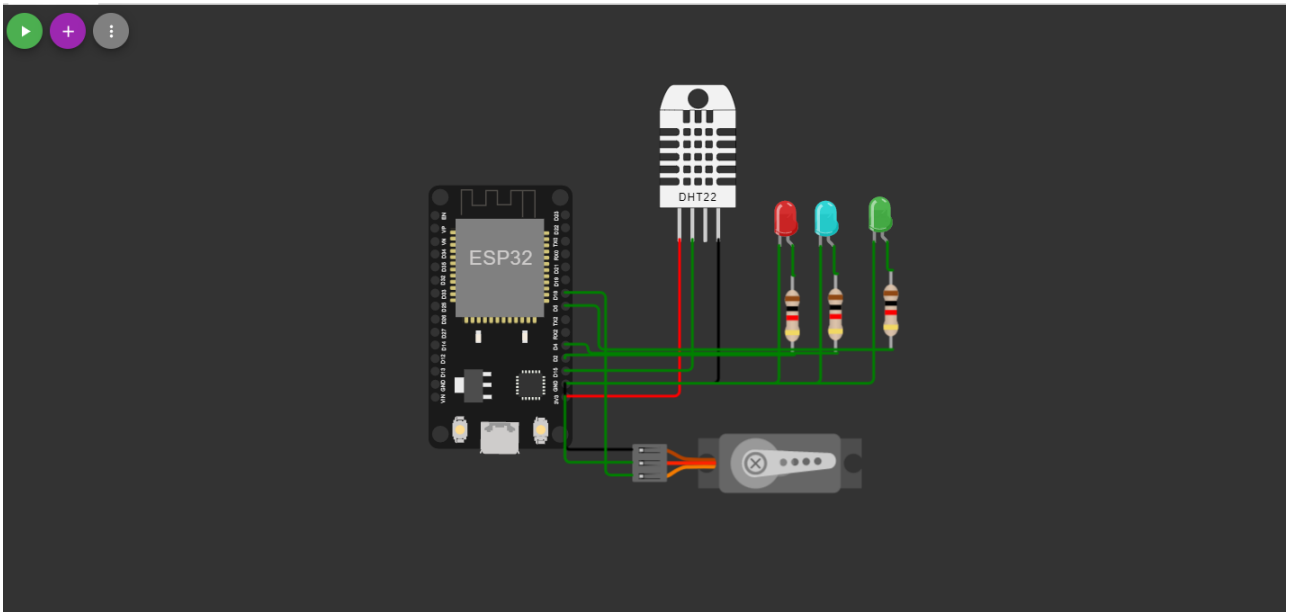
```
      digitalWrite(5, HIGH); digitalWrite(2, LOW); digitalWrite(4, LOW);
    }
 PublishData(t, h);
delay(1000);
 if(!client.loop()) {
mqttconnect();
 }
}
void PublishData(float temp, float humid) {
mqttconnect();
String payload = "{\"temp\":"; payload += temp;
payload += "," "\"Humid\":"; payload += humid;
payload += "}";

 Serial.print("Sending payload: ");
 Serial.println(payload);

 if (client.publish(publishTopic, (char*) payload.c_str())) {
 Serial.println("Publish ok");
 } else {
 Serial.println("Publish failed");
 }
}
void mqttconnect() {
   if(!client.connected()) {
 Serial.print("Reconnecting client to ");
Serial.println(server);
 while (!!!client.connect(clientId, authMethod, token)) {
Serial.print("."); delay(500);
 }
 initManagedDevice();
 Serial.println();
 }
}
void wificonnect()
{
 Serial.println();
```

```
 Serial.print("Connecting to ");
 WiFi.begin("Wokwi-GUEST", "", 6);
 while(WiFi.status() != WL_CONNECTED) {
delay(500);
 Serial.print(".");
 }
 Serial.println("");
 Serial.println("WiFi connected");
 Serial.println("IP address: ");
 Serial.println(WiFi.localIP());
}
void initManagedDevice() {
if(client.subscribe(subscribetopic)) {
Serial.println((subscribetopic));
 Serial.println("subscribe to cmd OK");
 } else {
 Serial.println("subscribe to cmd FAILED");
 }
}
void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
{
 Serial.print("callback invoked for topic: ");
Serial.println(subscribetopic);
 for (int i = 0; i < payloadLength; i++) {
//Serial.print((char)payload[i]); data3 +=
(char)payload[i];
 }
 Serial.println("data: "+ data3);
if(data3=="lighton")
 {
Serial.println(data3);
digitalWrite(LED,HIGH);
 }
 else
 {
Serial.println(data3); digitalWrite(LED,LOW);
 }
```

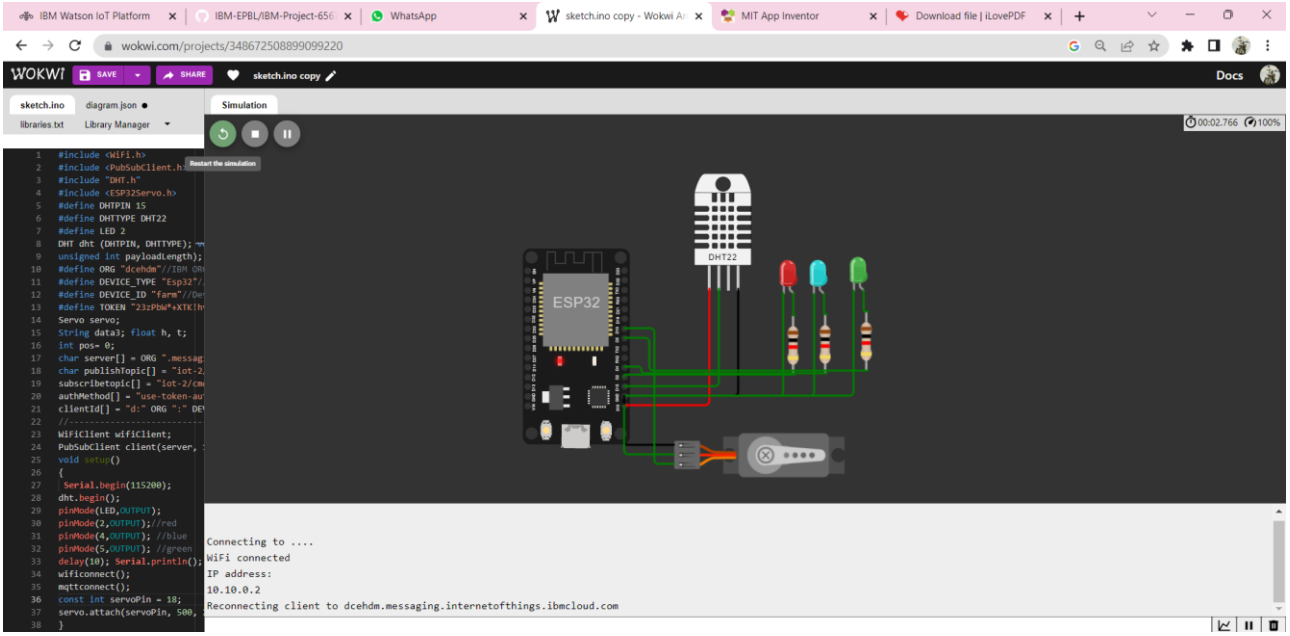
data3="";

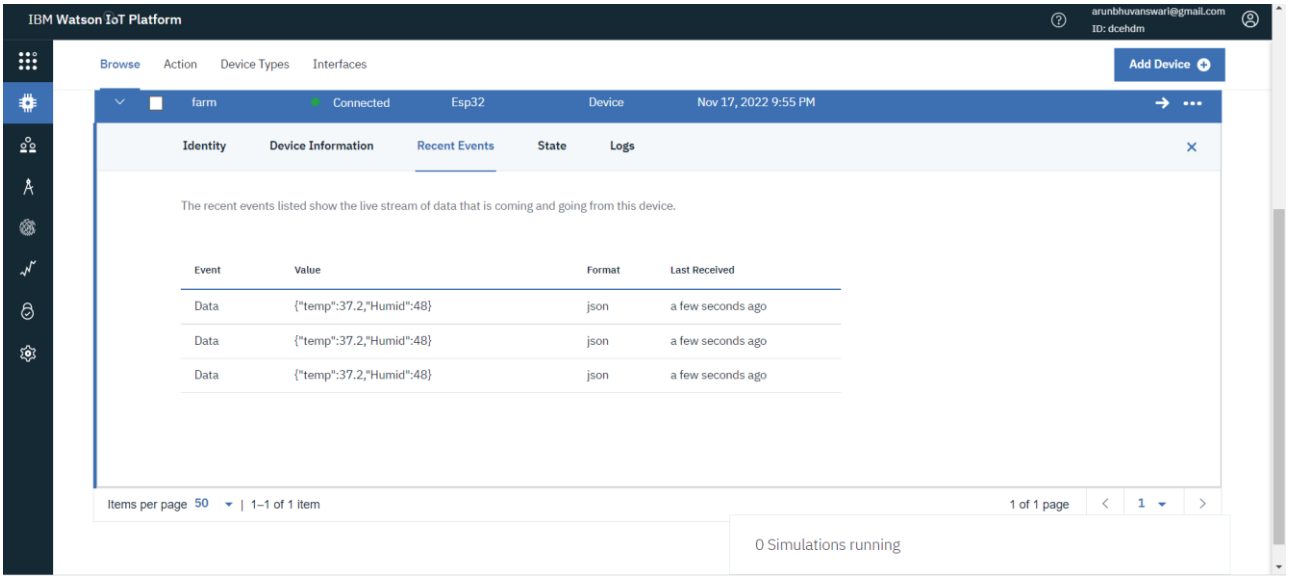
}

CIRCUIT:



IBM Watson IoT platform:




IBM Watson IoT Platform
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ID: dcehdm
Browse
Action
Device Types
Interfaces
Add Device
farm
Connected
Esp32
Device
Nov 17, 2022 9:55 PM
Identity
Device Information
Recent Events
State
Logs
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
Data
{"temp":37.2,"Humid":48}
json
a few seconds ago
Data
{"temp":37.2,"Humid":48}
json
a few seconds ago
Data
{"temp":37.2,"Humid":48}
json
a few seconds ago
Items per page 50
1–1 of 1 item
1 of 1 page
1
0 Simulations running