Assignment -4 Wowki & IBM Cloud

Assignment Date	04 October 2022
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Maximum Marks	2 Marks

Question-1:

Write code and connections in wowki for the ultrasonic sensor. Whenever the distance is less than 100cms sent "alert" to IBM cloud and display in device recent events.

Code:

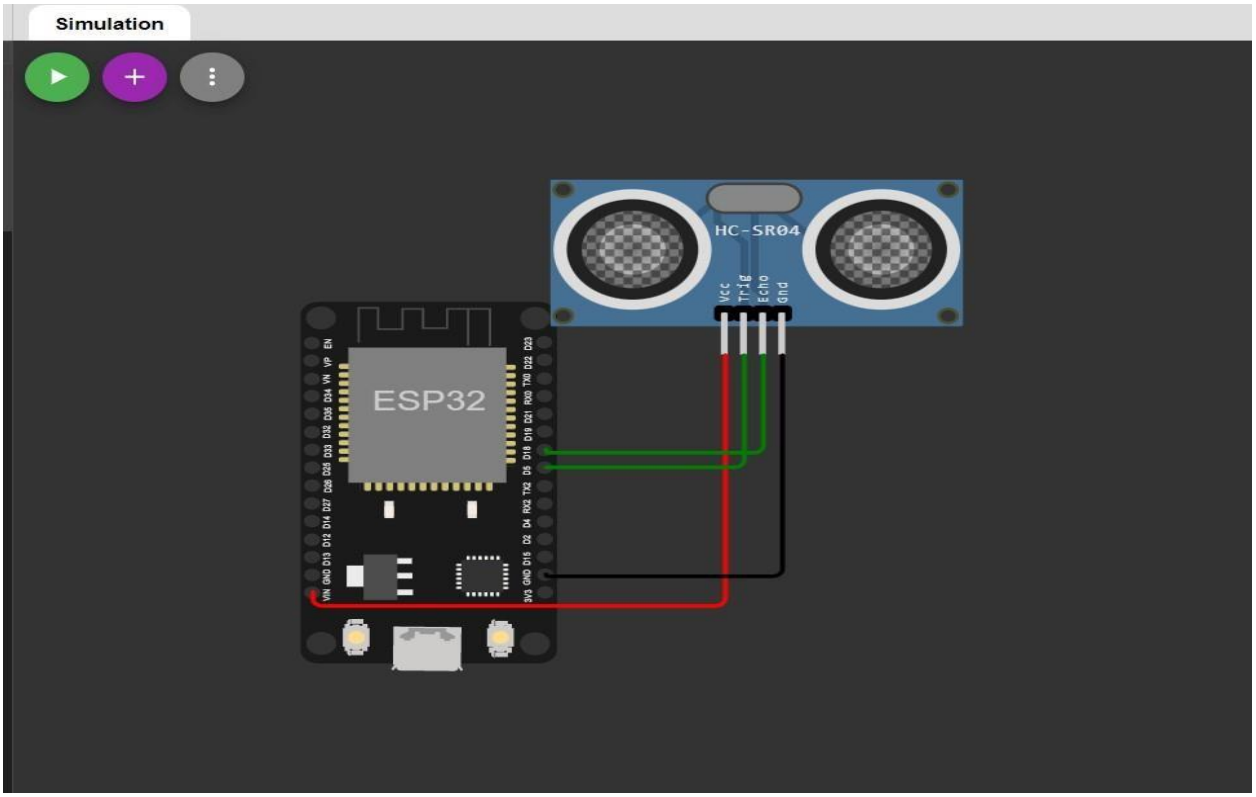
```
#include <WiFi.h>

#include <PubSubClient.h>

#include <ArduinoJson.h>

WiFiClient wifiClient; String

data3;

#define ORG "q26y5w"

#define DEVICE_TYPE "TestDeviceType"

#define DEVICE_ID "2022"

#define TOKEN "uu(rZQw9292EfSFGDX"

#define speed 0.034 #define led 14 char server[] = ORG

".messaging.internetofthings.ibmcloud.com"; char publishTopic[]

= "iot-2/evt/shreedharen/fmt/json";

char topic[] = "iot-2/cmd/led/fmt/String"; char authMethod[] =
```

```
"use-token-auth"; char token[] = TOKEN; char clientId[] = "d:"

ORG ":" DEVICE_TYPE ":" DEVICE_ID;

PubSubClient client(server, 1883, wifiClient);

const int trigpin=5; const int echopin=18;

String command; String data=""; long duration;

float dist; void setup()

{

Serial.begin(115200);

pinMode(led, OUTPUT);

pinMode(trigpin, OUTPUT);

pinMode(echopin, INPUT);

wifiConnect();

mqttConnect(); } void loop()

{ bool isNearby = dist < 100;

digitalWrite(led, isNearby);

publishData(); delay(500); if

(!client.loop())

{  mqttConnect();

}       }       void

wifiConnect() {

Serial.print("Connecting to "); Serial.print("Wifi");

WiFi.begin("Wokwi-GUEST", "", 6); while

(WiFi.status() != WL_CONNECTED) { delay(500);

Serial.print(".");

}

Serial.print("WiFi connected, IP address: ");
```

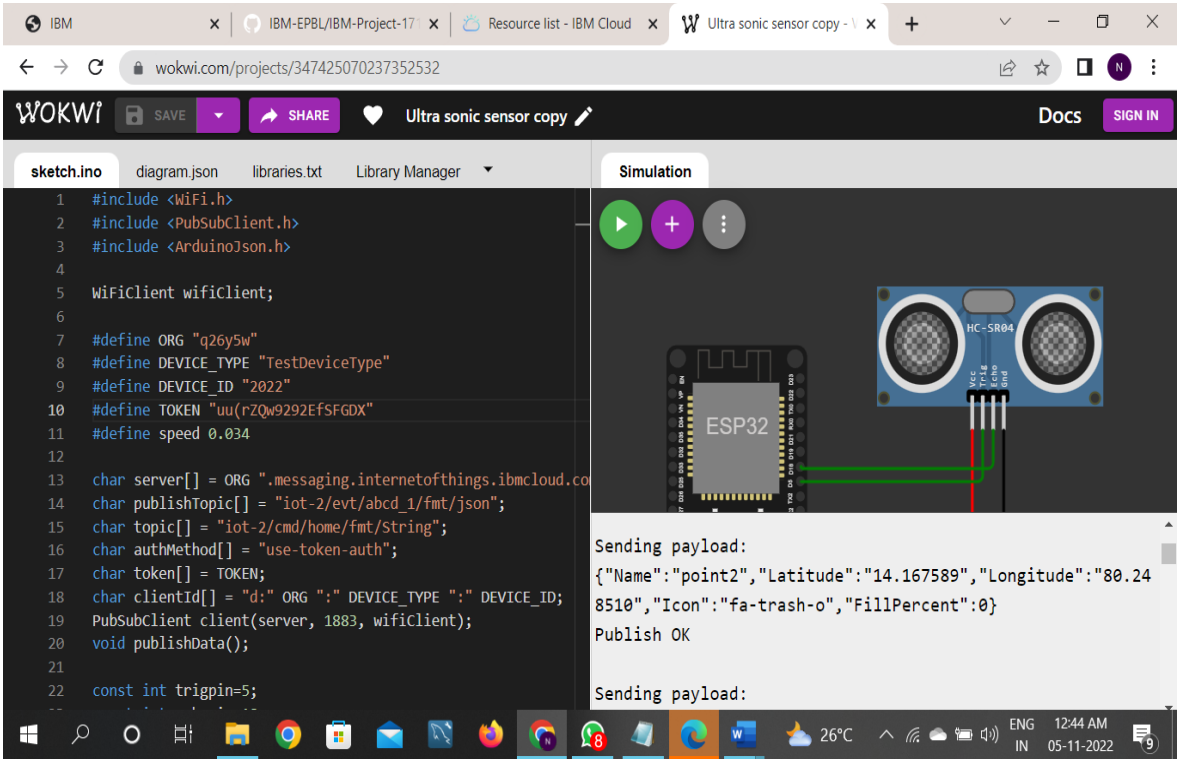
```
Serial.println(WiFi.localIP());
} void mqttConnect() { if
(!client.connected()) {
Serial.print("Reconnecting MQTT client to ");
Serial.println(server); while (!client.connect(clientId, authMethod,
token)) { Serial.print("."); delay(500); } initManagedDevice();
Serial.println(); } } void
initManagedDevice() { if
(client.subscribe(topic)) {
// Serial.println(client.subscribe(topic)); Serial.println("IBM subscribe to cmd OK");
} else {
Serial.println("subscribe to cmd FAILED");
} } void publishData() {
digitalWrite(trigpin,LOW);
digitalWrite(trigpin,HIGH);
delayMicroseconds(10);
digitalWrite(trigpin,LOW);
duration=pulseIn(echopin,HIGH);
dist=duration*speed/2; if(dist<100){
String payload = "{\"Alert Distance\":"; payload
+= dist; payload += "}"; Serial.print("\n");

Serial.print("Sending payload: ");
Serial.println(payload); if (client.publish(publishTopic,
(char*) payload.c_str())) {
Serial.println("Publish OK");
} } if(dist>100){
```

```
String payload = "{\"Distance\":";

payload += dist; payload += "}";

Serial.print("\n");

Serial.print("Sending payload: ");

Serial.println(payload); if(client.publish(publishTopic,

(char*) payload.c_str())) {

Serial.println("Publish OK");

}else

{

Serial.println("Publish FAILED");

}

}

}
```

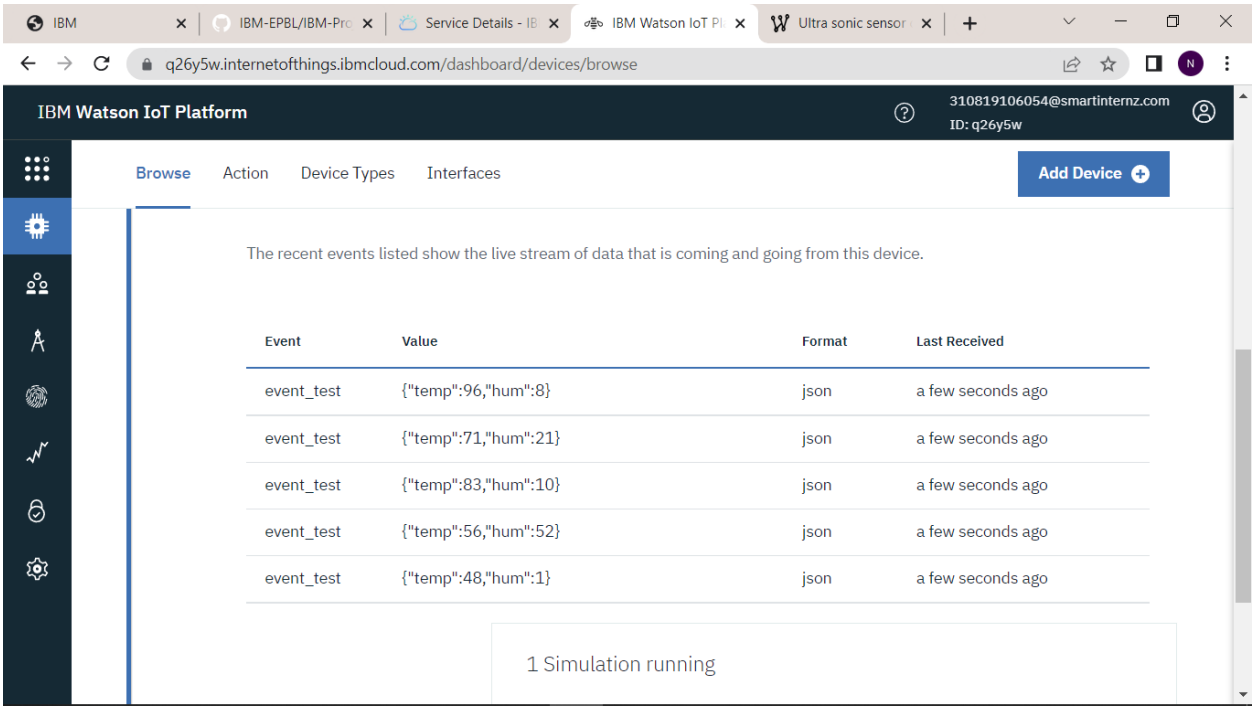
Connections:


Simulation
HC-SR04
Vcc
Trig
Echo
Gnd
ESP32

Output:


IBM
IBM-EPBL/IBM-Project-17
Resource list - IBM Cloud
Ultra sonic sensor copy -
wokwi.com/projects/347425070237352532
WOKWI
SAVE
SHARE
Ultra sonic sensor copy
Docs
SIGN IN
sketch.ino
diagram.json
libraries.txt
Library Manager
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "q26y5w"
#define DEVICE_TYPE "TestDeviceType"
#define DEVICE_ID "2022"
#define TOKEN "uu(rZQw9292EfSFGDX"
#define speed 0.034
char server[] = ORG ".messaging.internetofthings.ibmcloud.co
char publishTopic[] = "iot-2/evt/abcd_1/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
void publishData();
const int trigpin=5;
Simulation
HC-SR04
ESP32
Sending payload:
{"Name":"point2","Latitude":"14.167589","Longitude":"80.24
8510","Icon":"fa-trash-o","FillPercent":0}
Publish OK
Sending payload:
26°C
ENG
IN
12:44 AM
05-11-2022

Output:(IBM Cloud)



Link : https://wokwi.com/projects/347425070237352532