Assignment - 4
Wowki & IBM Cloud

Assignment Date	31 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.

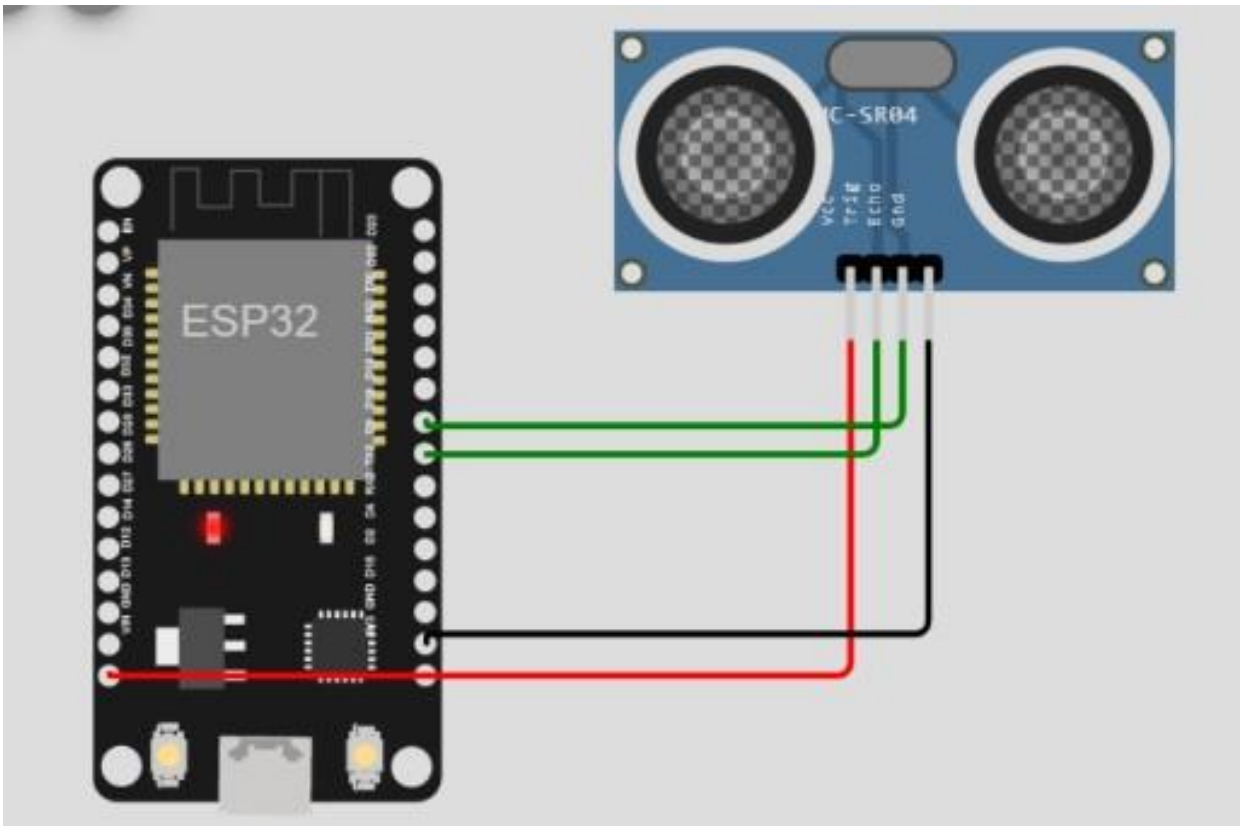
Code:

```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>

WiFiClient wifiClient;

#define ORG "oa3490"
#define DEVICE_TYPE "TestDeviceType"
#define DEVICE_ID "12345"
#define TOKEN "-A)0raS44f)fdjYBVS"
#define speed 0.034

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/abcd_1/fmt/json"; char topic[]
= "iot-2/cmd/home/fmt/String"; char authMethod[] = "use-
tokenauth"; char token[] = TOKEN;

char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient); void
publishData();

const int trigpin=5;
const int echopin=18; String
command;
String data="";
String lat="14.167589";
```

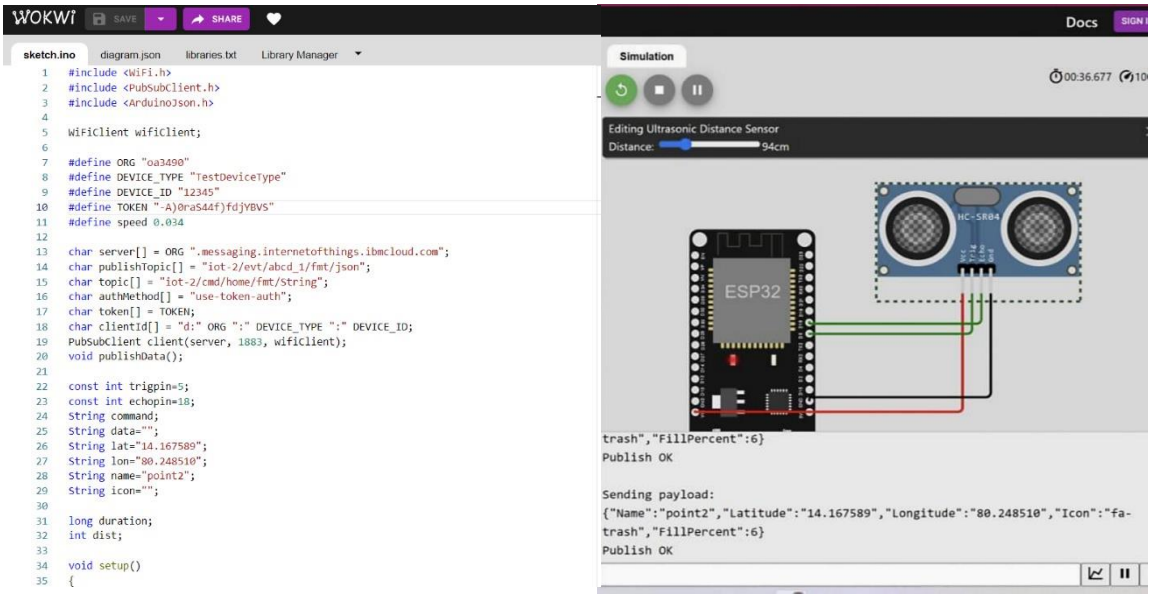
```
String lon="80.248510";
String name="point2"; String
icon="";


long duration; int
dist;


void setup()
{ Serial.begin(115200) ; pinMode(trigpin,
  OUTPUT)
  ; pinMode(echopin, INPUT) ;
  wifiConnect();
  mqttConnect();
}


void loop()   {


  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(1000)
    ;
    }
    initManagedDevice(); Serial.println()
    ;
  } }
```

```
void initManagedDevice() {
  if ( client.subscribe(topic))  {
     Serial.println( client.subscribe(topic));
    Serial.println("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){
    dist=100- dist; icon="fatrash";
  }else{ dist=0;
    icon="fa-trasho";
  }
  DynamicJsonDocument doc(1024) ;
  String payload; doc["Name"]=
  name; doc["Latitude"]= lat;
  doc["Longitude"]= lon;
  doc["Icon"]= icon;
  doc["FillPercent"]= dist;
  serializeJson(doc, payload);
  delay(3000) ; 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") ;
  }
}
```

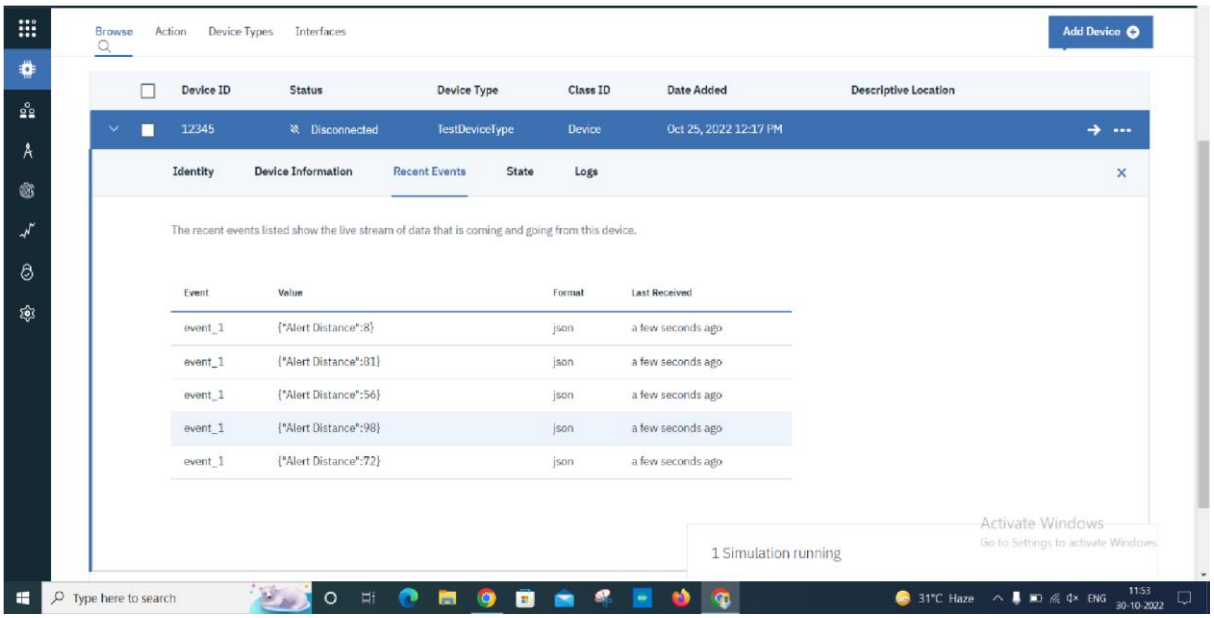
Connections:



Output:



Output :(IBM Cloud)



Link :https://wokwi.com/projects/346923806488527443