ASSIGNMENT -4

IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION

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QUESTION:

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events. Upload document with wokwi share link and images of ibm cloud.

CODE:

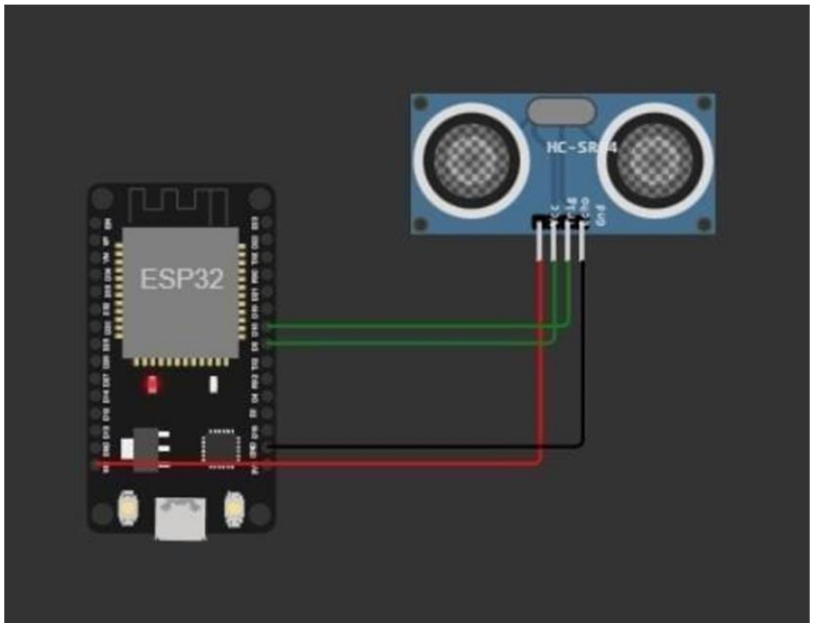
```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>

WiFiClient wifiClient;
#define ORG "9v4yiu"

#defineDEVICE_TYPE"Mydev
ice_Mahesh"
#define DEVICE_ID"47272"
#define TOKEN
"4MI0KofLVtcGBbSkqW"
 #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-token-
auth"; 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="";
longduration;
```

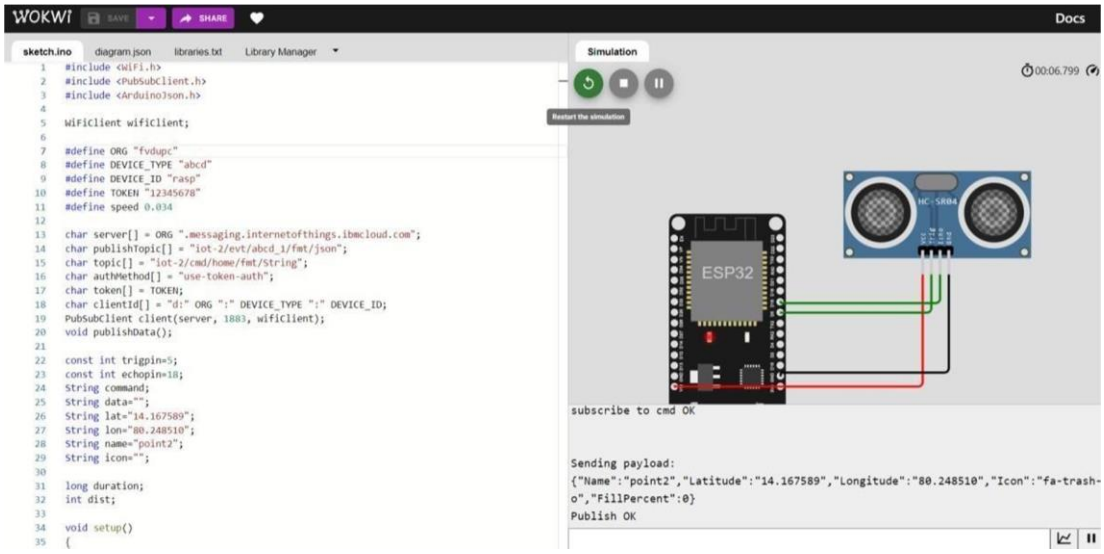
```
int dist;

 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="fa-
      trash";
    }else{ dist=0;
      icon="fa-trash-
      o";
    }
    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");
    }
  }
```

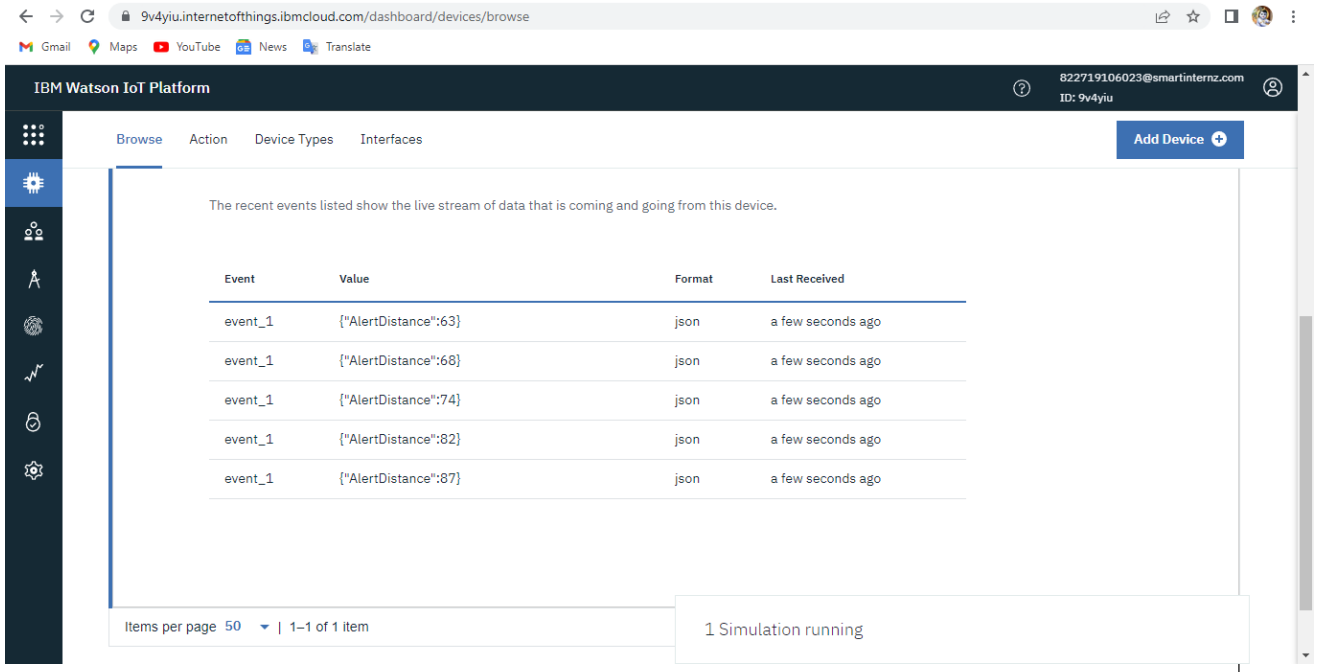
CONNECTIONS:



OUTPUT:




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

WiFiClient wifiClient;

#define ORG "fvdupc"
#define DEVICE_TYPE "abcd"
#define DEVICE_ID "rasp"
#define TOKEN "12345678"
#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-token-auth";
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()
{
```


9v4yiu.internetofthings.ibmcloud.com/dashboard/devices/browse
Gmail
Maps
YouTube
News
Translate
IBM Watson IoT Platform
822719106023@smartinternz.com
ID: 9v4yiu
Browse
Action
Device Types
Interfaces
Add Device
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
event_1
{"AlertDistance":63}
json
a few seconds ago
event_1
{"AlertDistance":68}
json
a few seconds ago
event_1
{"AlertDistance":74}
json
a few seconds ago
event_1
{"AlertDistance":82}
json
a few seconds ago
event_1
{"AlertDistance":87}
json
a few seconds ago
Items per page 50
1–1 of 1 item
1 Simulation running