Signs with Smart connectivity For Better road Safety

ASSIGNMENT 4

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Project Name	**Signs with Smart connectivity For Better road Safety**

ASSIGNMENT 4:

Write code and connections in wokwi for ultrasonic sensors.

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>
WiFiClient wifiClient;

#define ORG "lbqbll"
#define DEVICE_TYPE "pavi123"
#define DEVICE_ID "12345678"
#define TOKEN "12345678"
#define speed 0.034

char server[] = ORG
".messaging.internetofthings.ibmcloud.com"; char
publishTopic[] = "iot-2/evt/raspberrypi_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="";

long duration;
float 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()); }
```

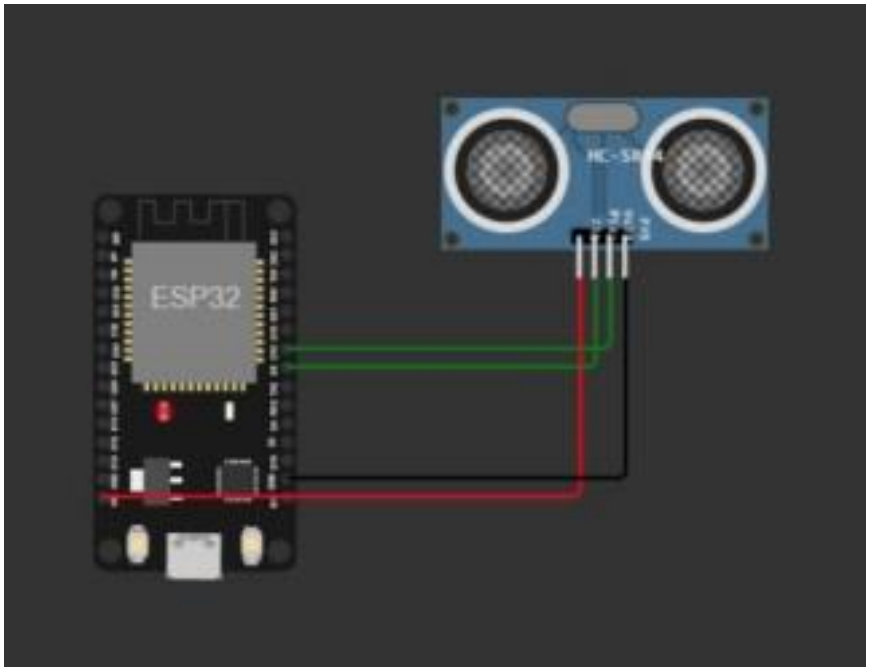
```
void mqttConnect() {
    if (!client.connected()) {
      Serial.print("Reconnecting MQTT client to ");
      Serial.println(server);
      while (!client.connect(clientId, authMethod, token)) {
        Serial.print(".");
        delay(500);
      }
      initManagedDevice();
      Serial.println();
    }
  }

  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){
      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");
      } else {
        Serial.println("Publish FAILED");
      }
    }
```

}

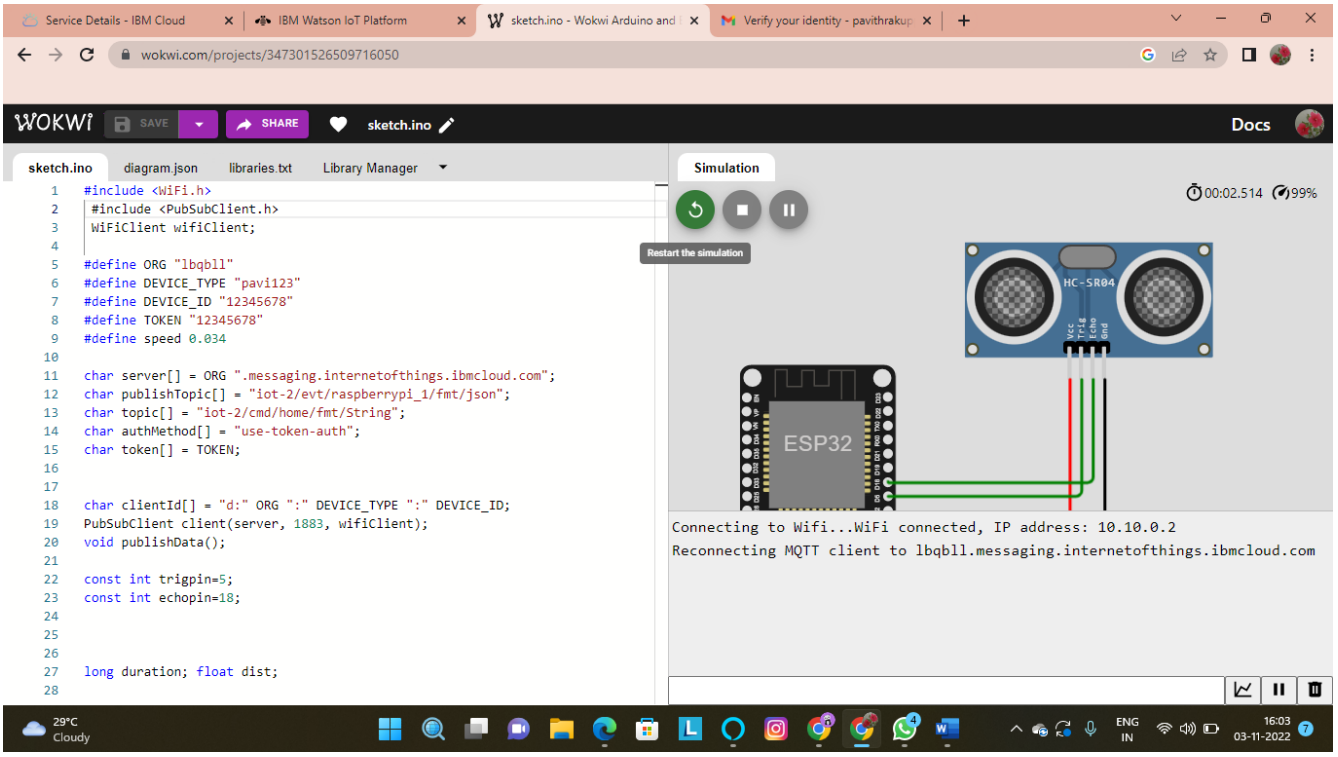
CONNECTIONS:

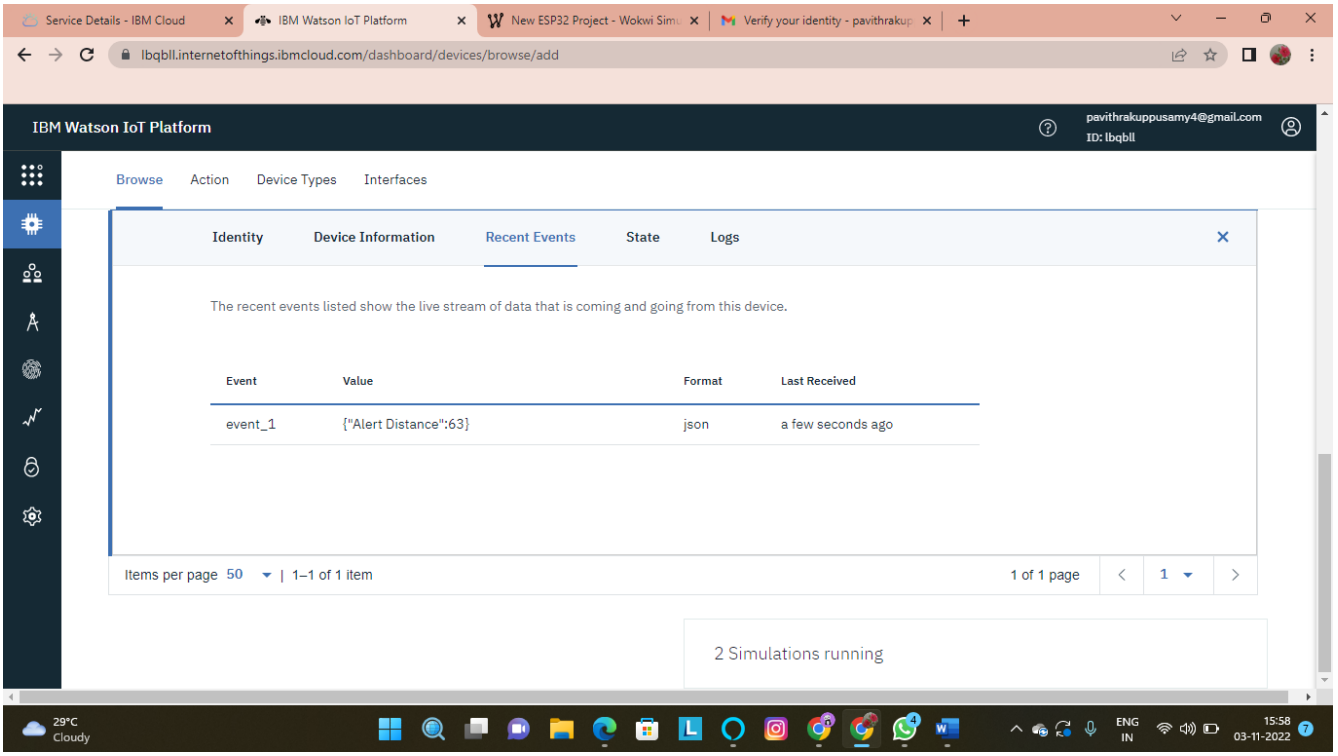


WOKWI LINK:

https://wokwi.com/projects/346568757872689747

OUTPUT:




Service Details - IBM Cloud
IBM Watson IoT Platform
New ESP32 Project - Wokwi Simu
Verify your identity - pavithraku
lbqbll.internetofthings.ibmcloud.com/dashboard/devices/browse/add
IBM Watson IoT Platform
pavithrakuppusamy4@gmail.com
ID: lbqbll
Browse
Action
Device Types
Interfaces
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
event_1
{"Alert Distance":63}
json
a few seconds ago
Items per page 50 | 1–1 of 1 item
1 of 1 page
1
2 Simulations running
29°C
Cloudy
ENG
IN
15:58
03-11-2022