Smart Waste Management System for Metropolitan Cities -ASSIGNMENT 4

Name	MEGANA.A
Date	26 October 2022
Team ID	PNT2022TMID38381
Project Name	**Smart Waste Management System for Metropolitan Cities**

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 "4xg1mt"
#define DEVICE_TYPE "raspberrypi"
#define DEVICE_ID "12354"
#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()); }
```

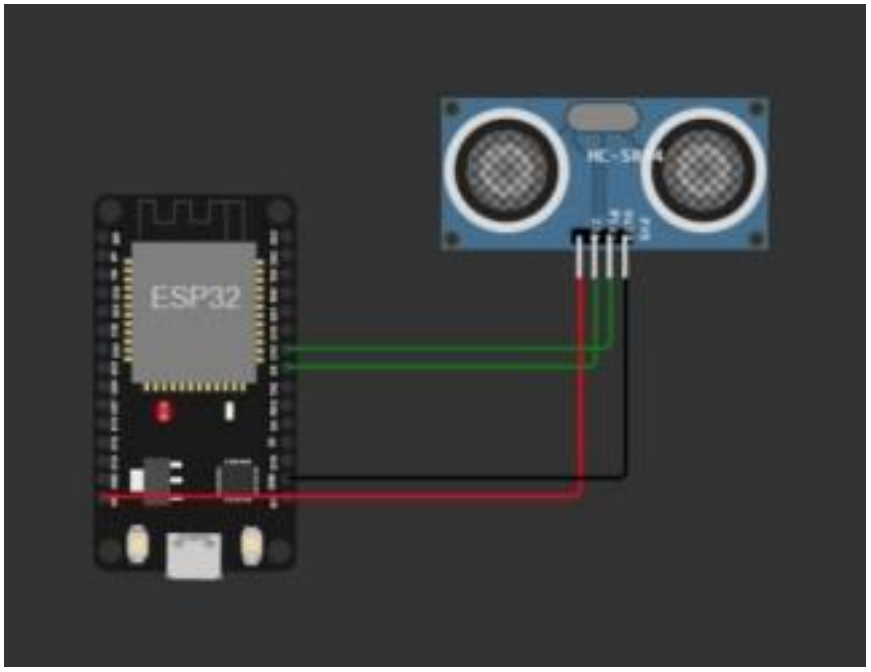
```
void mqttConnect() {
    if (!client.connected()) {
      Serial.print("Reconnecting MQTT client to ");
      Serial.println(server);
      while (!client.connect(clientId, authMethod, token)) {
        Serial.print(".");
        delay(500);
      }
      initManagedDevice();
      Serial.println();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

  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");
      }
    }
```

}

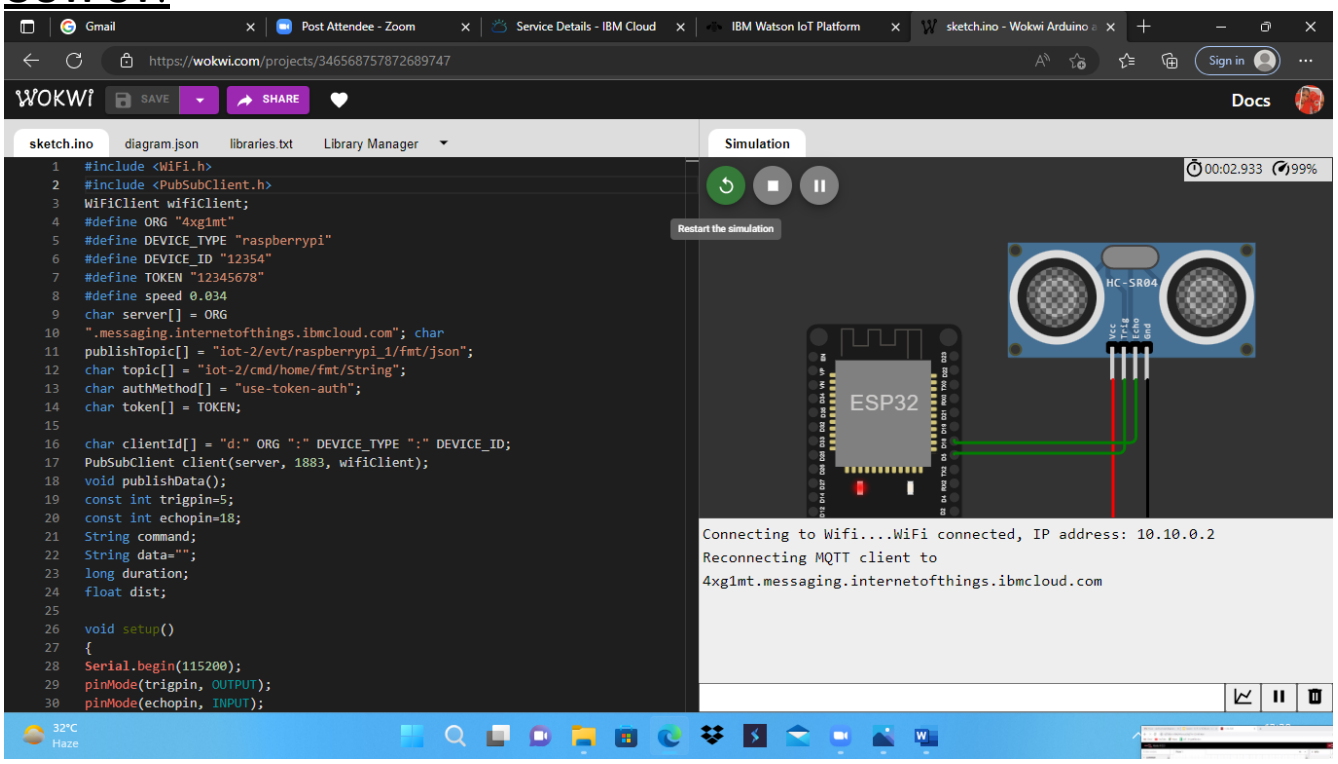
CONNECTIONS:



WOKWI LINK:

https://wokwi.com/projects/346568757872689747

OUTPUT:

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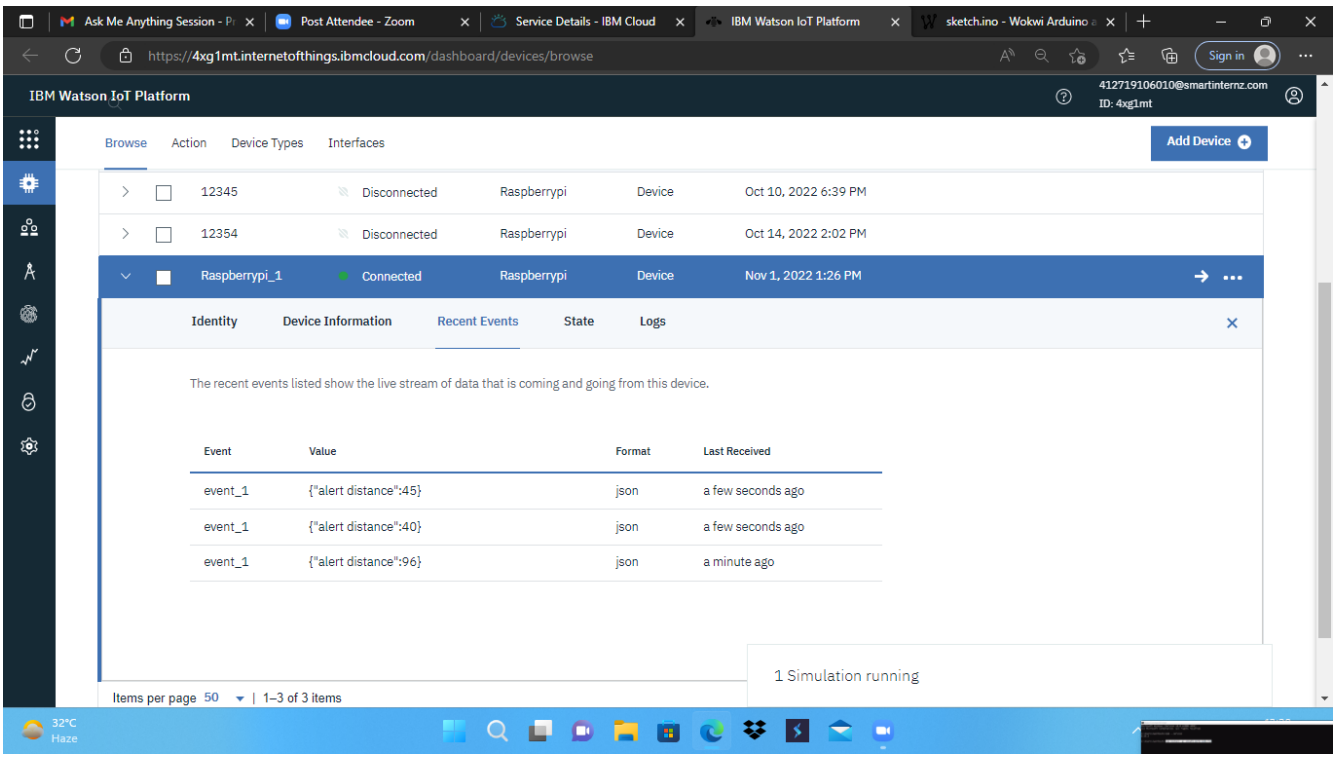
Ask Me Anything Session - P
Post Attendee - Zoom
Service Details - IBM Cloud
IBM Watson IoT Platform
sketch.ino - Wokwi Arduino
https://4xg1mt.internetofthings.ibmcloud.com/dashboard/devices/browse
Sign in
IBM Watson IoT Platform
412719106010@smartinternz.com
ID: 4xg1mt
Browse
Action
Device Types
Interfaces
Add Device
12345 Disconnected Raspberrypi Device Oct 10, 2022 6:39 PM
12354 Disconnected Raspberrypi Device Oct 14, 2022 2:02 PM
Raspberrypi_1 Connected Raspberrypi Device Nov 1, 2022 1:26 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
event_1 {"alert distance":45} json a few seconds ago
event_1 {"alert distance":40} json a few seconds ago
event_1 {"alert distance":96} json a minute ago
1 Simulation running
Items per page 50 | 1–3 of 3 items
32°C
Haze