ASSIGNMENT-4

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BATCH NO : B1-1M3E

ASSIGNMENT 4:

Write code and connections in wokwi for ultrasonic sensors.

Whenever distance is less than 100cmssend"alert"to IBM cloud and display in device recent events.

Upload document with wokwi share link and images of IBM cloud

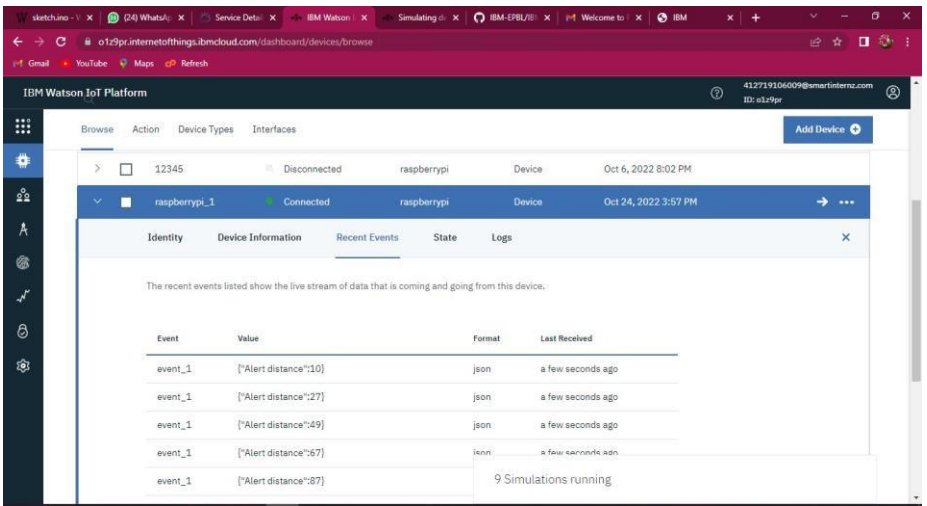
CODE:

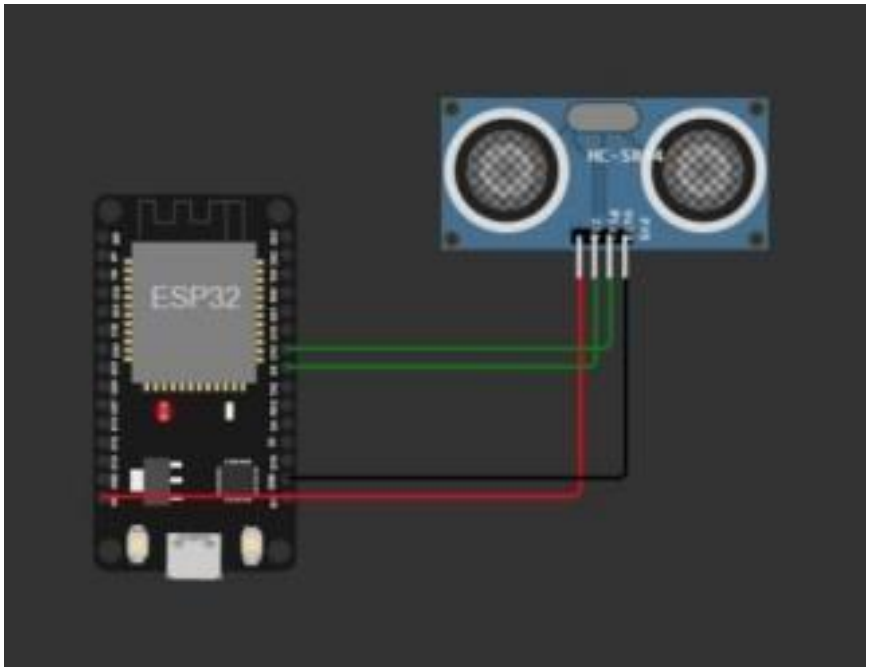
```
#include<WiFi.h>#include
<PubSubClient.h>WiFiClien
twifiClient;

#defineORG "o1z9pr"
#define DEVICE_TYPE
"raspberrypi"#define DEVICE_ID
"USE YOUR ID"#defineTOKEN"USE
YOURTOKEN"
#definespeed0.034

 char server[] =
ORG".messaging.internetofthings.ibmcloud.com";charpubli
shTopic[] = "iot-
2/evt/raspberrypi_1/fmt/json";chartopic[]="iot-
2/cmd/home/fmt/String"; char
authMethod[] = "use-
tokenauth";chartoken[] =
TOKEN;
charclientId[]="d:"ORG":"DEVIC
E_TYPE":"DEVICE_ID;
PubSubClient client(server,
1883,
wifiClient);voidpublishData();
```

```
const int
   trigpin=5;constintechop
   in=18;
   Stringcommand;
   Stringdata="";
long
   duration;float
dist;
 voidsetup()
   {
      Serial.begin(115200);pinMode(tr
      igpin, OUTPUT);pinMode(echopin,
      INPUT);wifiConnect();
      mqttConnect();
   }
 voidloop() {

      publishData();
      delay(500);
 if (!client.loop())
      {mqttConnect();
      }
   }
 voidwifiConnect(){
      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());}

 voidmqttConnect(){ 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();
      }
   }
 voidinitManagedDevice(){
      if(client.subscribe(topic)){
        //Serial.println(client.subscribe(topic));
        Serial.println("subscribetocmdOK");
```

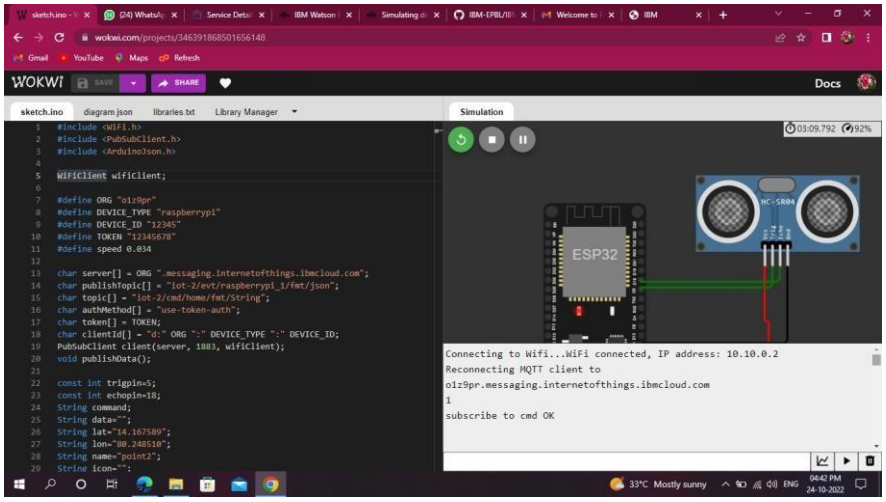
```
    }
    else
    {
      Serial.println("subscribetocmdFAILED");
    }
} voidpublishData()
{ digitalWrite(trigpin,LOW);
  digitalWrite(trigpin,HIGH);dela
  yMicroseconds(10);digitalWrite(
  trigpin,LOW);
  duration=pulseIn(echopin,HIGH);dis
  t=duration*speed/2;if(dist<100){
  Stringpayload="{\"Alertdistance\":";
  payload += dist;payload+=
    "}";

    Serial.print("\n");Serial.print("Sen
    ding payload:
    ");Serial.println(payload);
    if(client.publish(publishTopic,(char*)payload.c_str()))
    {Serial.println("PublishOK");
     } else {
       Serial.println("PublishFAILED");
    }
  }
}
```

CONNECTIONS:




ESP32

OUTPUT :


WOKWI
SHARE
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
Simulation
ESP32
HC-SR04
Connecting to Wifi...WiFi connected, IP address: 10.10.0.2
Reconnecting MQTT client to
o1z9pr.messaging.internetofthings.ibmcloud.com
1
subscribe to cmd OK