**Assignment-4**

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| AssignmentDate | 8 November 2022 |
| StudentName | DIVAKAR T |
| StudentRoll Number | 211719106016 |
| Maximum Marks | 2Marks |

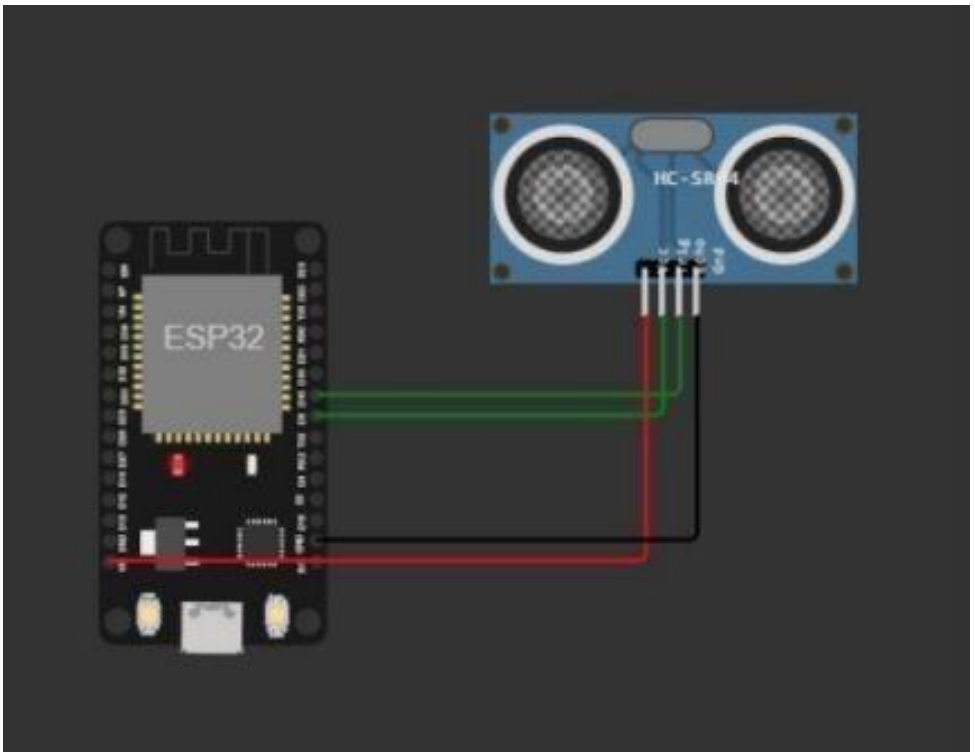
**Question-1:**

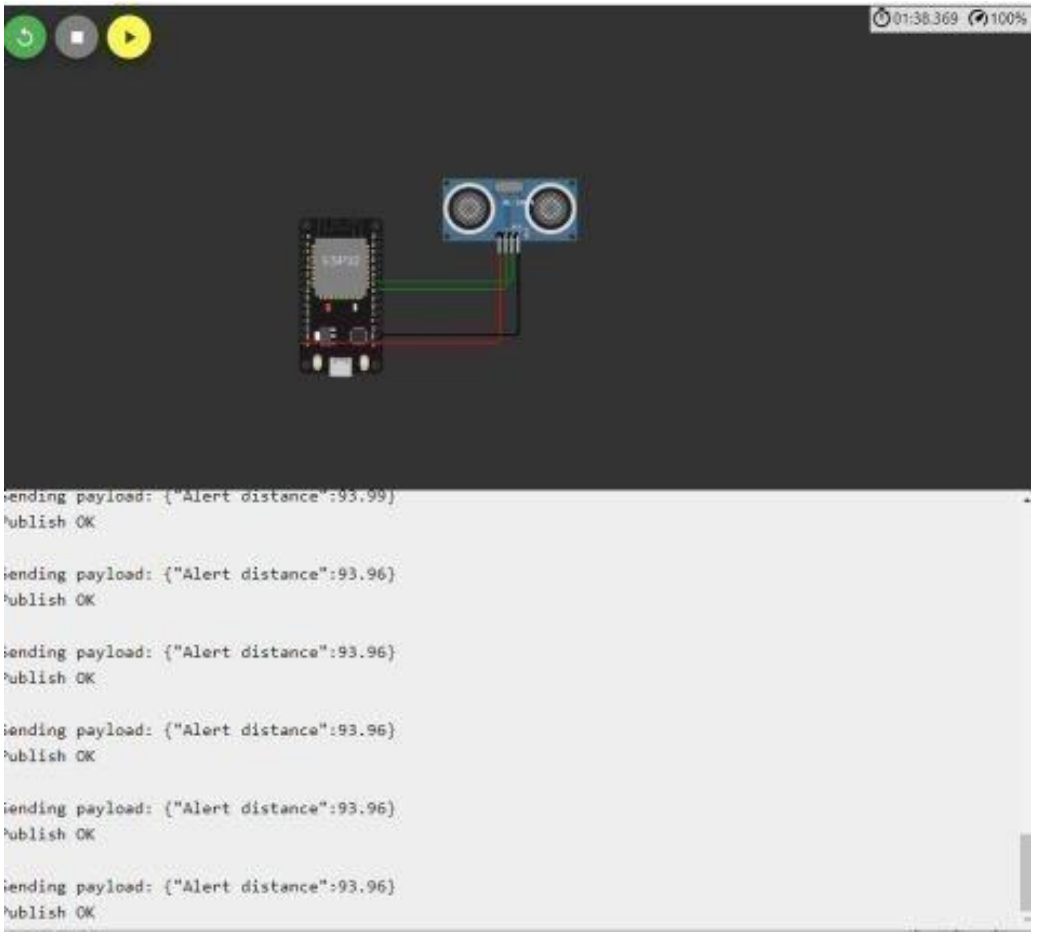
Writecodeandconnectionsinwokwifortheultrasonicsensor.
Wheneverthedistanceislessthan100cmssendan"alert"totheIBMcloudanddisplayinthedevicerecentevents.
Upload documentwithwokwisharelinkandimages ofIBMcloud

**Solution:**

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

WiFiClientwifiClient;

#defineORG"nhpwjc"
#defineDEVICE_TYPE"raspberypi"#
defineDEVICE_ID"12345"
#defineTOKEN"123456789"
#definespeed0.034

char server[] = ORG
".messaging.internetofthings.ibmcloud.com";charpublishTopic[]="
iot-2/evt/Data/fmt/json";
chartopic[]="iot-2/cmd/home/fmt/String";cha
r authMethod[]="use-token-auth";
chartoken[]=TOKEN;
char clientId[]="d:"ORG":"DEVICE_TYPE":"DEVICE_ID;
PubSubClientclient(server,1883,wifiClient);vo
idpublishData();

const int
trigpin=5;constintec
hopin=18;Stringcomma
nd;Stringdata="";

long
duration;int
dist;

voidsetup()
{
  Serial.begin(115200);pin
  Mode(trigpin,OUTPUT);pin
  Mode(echopin,
  INPUT);wifiConnect();mqt
  tConnect();
}

voidloop(){

publishData();delay(500);
```

```
  if(!client.loop()){m
    qttConnect();
  }
}

voidwifiConnect(){
  Serial.print("Connectingto");Serial.print("Wifi");Wi
  Fi.begin("Wokwi-GUEST","",6);
  while(WiFi.status()!=WL_CONNECTED){del
    ay(500);
    Serial.print(".");
  }
  Serial.print("WiFiconnected,IPaddress:");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(1000);
    }
    initManagedDevice();
    Serial.println();
  }
}

voidinitManagedDevice(){
  if (client.subscribe(topic))
    {Serial.println(client.subscribe(topic));Serial.println("su
    bscribeto cmdOK");
  }else{
    Serial.println("subscribetocmdFAILED");
  }
}
voidpublishData()
{
  digitalWrite(trigpin,LOW);digitalWrite(tr
  igpin,HIGH);delayMicroseconds(10);digital
  Write(trigpin,LOW);duration=pulseIn(echop
  in,HIGH);dist=duration*speed/2;

  if(dist<100){DynamicJsonDocume
    ntdoc(1024);Stringpayload;do
    c["AlertDistance:"]=dist;ser
    ializeJson(doc,
    payload);delay(3000);Serial.
    print("\n");
    Serial.print("Sendingpayload:");
    Serial.println(payload);
    if(client.publish(publishTopic,(char*)payload.c_str())){
      Serial.println("PublishOK");
    }else{
      Serial.println("PublishFAILED");
    }
  }
}
```


HC-SR04
ESP32


01:38.369
100%
ending payload: {"Alert distance":93.99}
ublish OK
ending payload: {"Alert distance":93.96}
ublish OK
ending payload: {"Alert distance":93.96}
ublish OK
ending payload: {"Alert distance":93.96}
ublish OK
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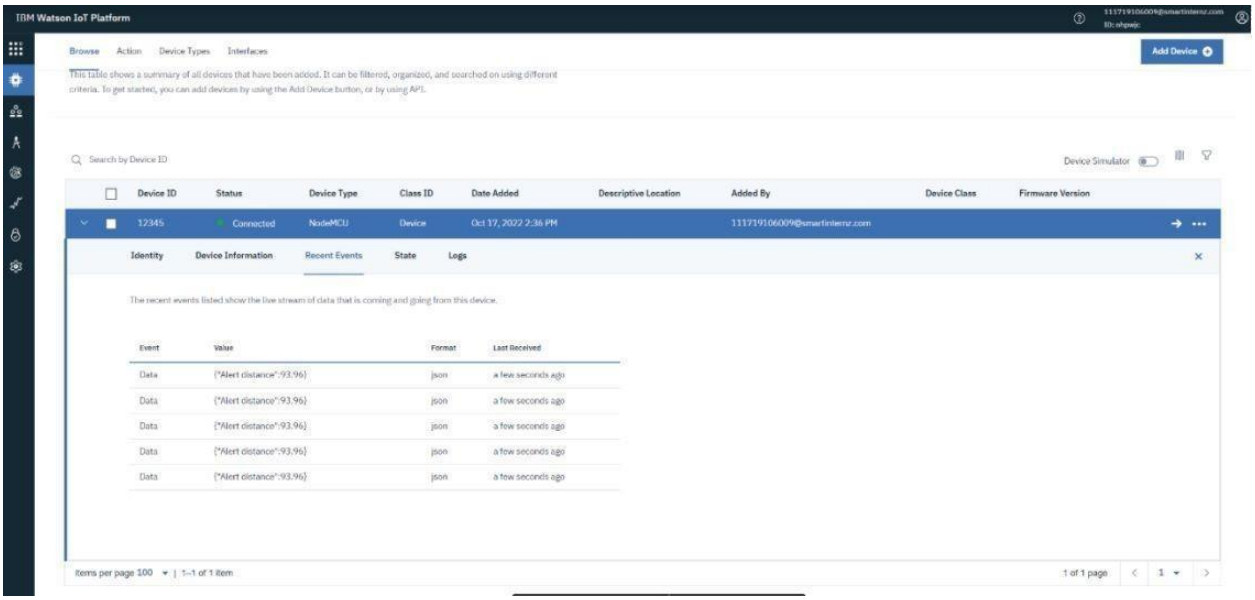
ublish OK


IBM Watson IoT Platform
Browse
Action
Device Types
Interfaces
Add Device
This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.
Search by Device ID
Device Simulator
Device ID
Status
Device Type
Class ID
Date Added
Descriptive Location
Added By
Device Class
Firmware Version
12345
Connected
NodeMCU
Device
Oct 17, 2022 2:36 PM
11171910600@smartinternz.com
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
Data
{"Alert distance":93.96}
json
a few seconds ago
Items per page 100
1–1 of 1 item
1 of 1 page