**Assignment-4**

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|---|---|
| AssignmentDate | 29October2022 |
| StudentName | Harish R |
| StudentRoll Number | 211719106023 |
| Maximum Marks | 2Marks |

**Question-1:**

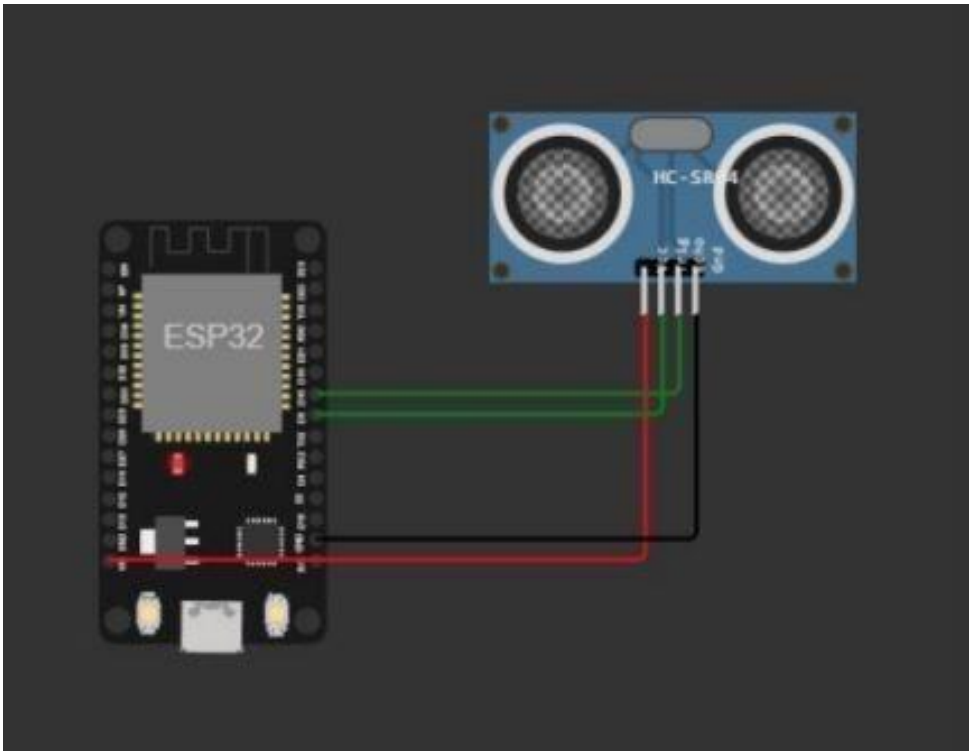
Writecodeandconnectionsinwokwifortheultrasonicsensor.
Wheneverthedistanceislessthan100cmssendan"alert"totheIBMcloudanddisplayinthedevicer ecentevents.
Upload documentwithwokwisharelinkandimages ofIBMcloud

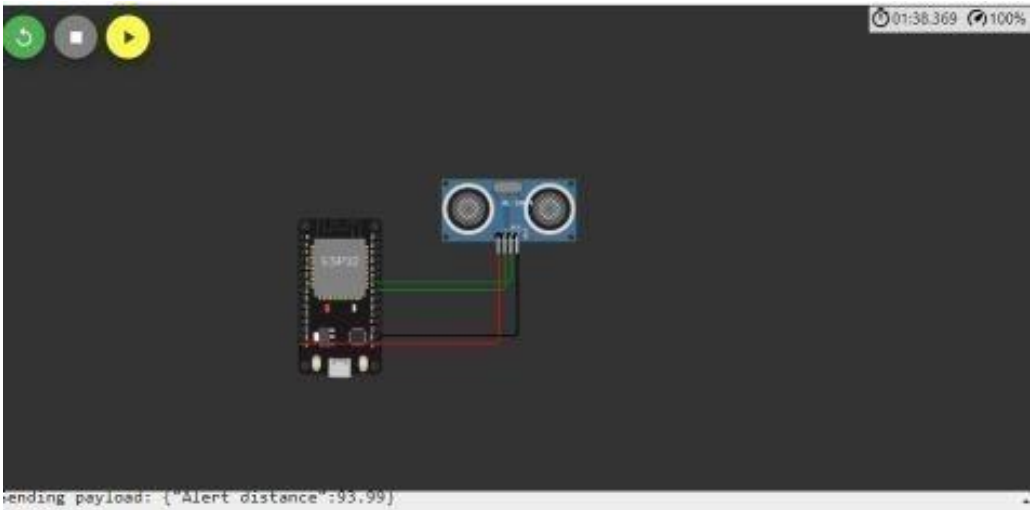
**Solution:**

```
#include<WiFi.h>#include<
PubSubClient.h>#include<A
rduinoJson.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";char
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);pinM
  ode(trigpin,OUTPUT);pinMo
  de(echopin,
  INPUT);wifiConnect();mqtt
  Connect();
}

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(".");d
      elay(1000);
    }
    initManagedDevice();
    Serial.println();
  }
}

voidinitManagedDevice(){
  if (client.subscribe(topic))
    {Serial.println(client.subscribe(topic));Serial.println("subs
    cribeto cmdOK");
  }else{
    Serial.println("subscribetocmdFAILED");
  }
}
voidpublishData()
{
  digitalWrite(trigpin,LOW);digitalWrite(t
  rigpin,HIGH);delayMicroseconds(10);digit
  alWrite(trigpin,LOW);duration=pulseIn(echo
  pin,HIGH);dist=duration*speed/2;

  if(dist<100){DynamicJsonDocument
    doc(1024);Stringpayload;doc["
    AlertDistance:"]=dist;seriali
    zeJson(doc,
    payload);delay(3000);Serial.p
    rint("\n");
    Serial.print("Sendingpayload:");
    Serial.println(payload);
    if(client.publish(publishTopic,(char*)payload.c_str())){
      Serial.println("PublishOK");
    }else{
      Serial.println("PublishFAILED");
    }
  }
}
```



```
ending payload: {"Alert distance":93.99}
ublish OK

ending payload: {"Alert distance":93.96}
ublish OK

ending payload: {"Alert distance":93.96}
ublish OK

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ublish OK

ending payload: {"Alert distance":93.96}
ublish OK

ending payload: {"Alert distance":93.96}
ublish OK
```

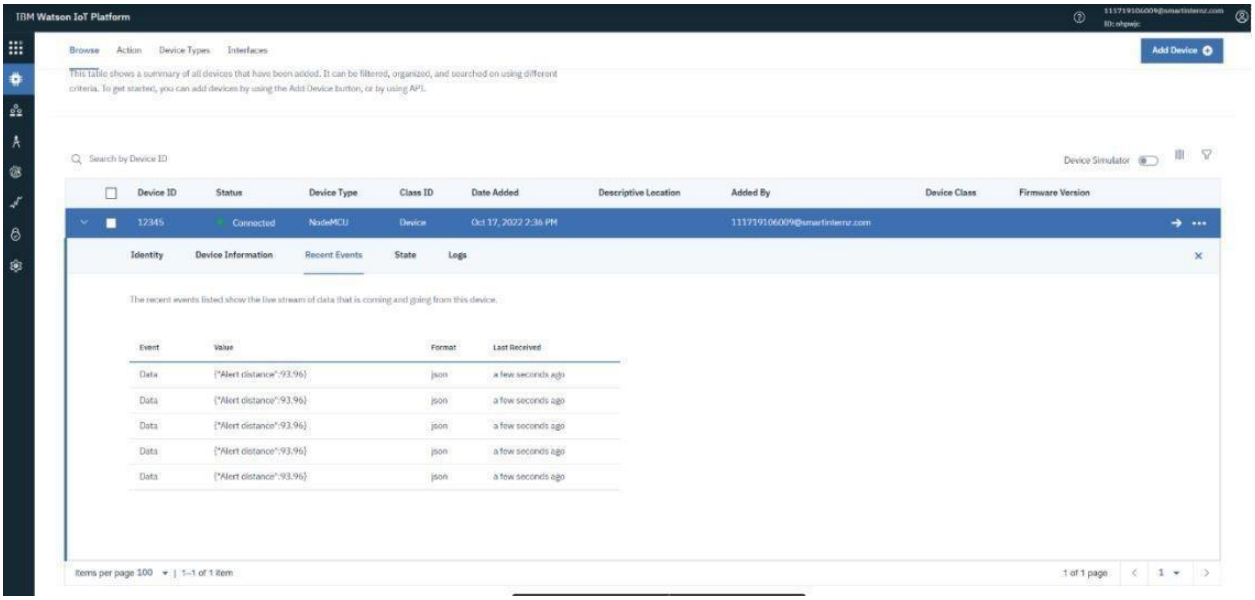
IBM Watson IoT Platform
Browse
Action
Device Types
Interfaces
Add Device
This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.
Search 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
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