

Assignment-4

Assignment Date	8 November 2022
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Maximum Marks	2Marks

Question-1:

Write code and connections in work wifortheultrasonicsensor.

Whenever the distance is less than 100cm send an "alert" to the IBM cloud and display in the device's center events.

Upload document with workshare link and images of IBM cloud

Solution:

```
#include<WiFi.h>#include
<PubSubClient.h>#include
<ArduinoJson.h> WiFiClient wifiClient;

#define ORG "nhpwjc"
#define DEVICE_TYPE "raspberrypi"
#define DEVICE_ID "12345"
#define TOKEN "123456789" #define speed 0.034

char server[] = ORG
".messaging.internetofthings.ibmcloud.com"; char publishTopic[] = "iot-
2/evt/Data/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 ec
hopin = 18; String comma
nd; String data = "";

long
duration; int
dist; void setup()
{
  Serial.begin(115200); pin
  Mode(trigPin, OUTPUT); pin
  Mode(ecHopin,
  INPUT); wifiConnect(); mqt
  tConnect();
}

void loop(){

publishData(); delay(500);
  if(!client.loop()){m
   qttConnect();
  }
}

void wifiConnect(){
  Serial.print("Connecting to"); 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());
}

void mqttConnect(){
    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();
    }
}

void initManagedDevice(){
    if (client.subscribe(topic))
        {Serial.println(client.subscribe(topic));Serial.println("su bscribeto
        cmdOK");
    }else{
        Serial.println("subscribetocmdFAILED");
    }
} void publishData()
{ 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");
}
}
}
}

```



