# Assignment -4

**Distance Detection Using Ultrasonic Sensor**

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| --- | --- |
| **Date** | 10 November 2022 |
| **Team ID** | **PNT2022TMID47589** |
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| **Register Number** | 911019104018 |
| **Maximum Marks** | 2 Marks |

**Code:**

#include <WiFi.h>

#include <PubSubClient.h>

void callback(char\* subscribetopic, byte\* payload, unsigned int payloadLength);

//-------credentials of IBM Accounts------

#define ORG "kotoq5"//IBM ORGANITION ID

#define DEVICE\_TYPE "ESP32"//Device type mentioned in ibm watson IOT Platform

#define DEVICE\_ID "12345"//Device ID mentioned in ibm watson IOT Platform #define TOKEN "12345678" //Token

String data3;

char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; char publishTopic[] = "iot-2/evt/Data/fmt/json";

char subscribetopic[] = "iot-2/cmd/test/fmt/String"; char authMethod[] = "use-token-auth";

char token[] = TOKEN;

char clientId[] = "d:" ORG ":" DEVICE\_TYPE ":" DEVICE\_ID;

WiFiClient wifiClient;

PubSubClient client(server, 1883, callback ,wifiClient); const int trigPin = 5;

const int echoPin = 18;

#define SOUND\_SPEED 0.034 long duration;

float distance; void setup() { Serial.begin(115200); pinMode(trigPin, OUTPUT); pinMode(echoPin, INPUT); wificonnect(); mqttconnect();

}

void loop()

{

digitalWrite(trigPin, LOW); delayMicroseconds(2); digitalWrite(trigPin, HIGH); delayMicroseconds(10); digitalWrite(trigPin, LOW); duration = pulseIn(echoPin, HIGH);

distance = duration \* SOUND\_SPEED/2; Serial.print("Distance (cm): "); Serial.println(distance); if(distance<100)

{

Serial.println("ALERT!!"); delay(1000); PublishData(distance); delay(1000);

if (!client.loop()) { mqttconnect();

}

}

delay(1000);

}

void PublishData(float dist) { mqttconnect();

String payload = "{\"Distance\":"; payload += dist;

payload += ",\"ALERT!!\":""\"Distance less than 100cms\""; payload += "}";

Serial.print("Sending payload: "); Serial.println(payload);

if (client.publish(publishTopic, (char\*) payload.c\_str())) { Serial.println("Publish ok");

} else {

Serial.println("Publish failed");

} }

void mqttconnect() {

if (!client.connected()) { Serial.print("Reconnecting client to "); Serial.println(server);

while (!!!client.connect(clientId, authMethod, token)) { Serial.print(".");

delay(500);

}

initManagedDevice(); Serial.println();

}

}

void wificonnect()

{

Serial.println(); Serial.print("Connecting to "); WiFi.begin("Wokwi-GUEST", "", 6);

while (WiFi.status() != WL\_CONNECTED) { delay(500);

Serial.print(".");

}

Serial.println(""); Serial.println("WiFi connected");

Serial.println("IP address: "); Serial.println(WiFi.localIP());

}

void initManagedDevice() {

if (client.subscribe(subscribetopic)) { Serial.println((subscribetopic)); Serial.println("subscribe to cmd OK");

} else {

Serial.println("subscribe to cmd FAILED");

}

}

void callback(char\* subscribetopic, byte\* payload, unsigned int payloadLength)

{

Serial.print("callback invoked for topic: "); Serial.println(subscribetopic);

for (int i = 0; i < payloadLength; i++) {

//Serial.print((char)payload[i]); data3 += (char)payload[i];

}

Serial.println("data: "+ data3); data3="";

}





