

```
1 #include <WiFi.h>//library for wifi
2 #include <PubSubClient.h>//library for MQTT
3 #define TrigPIN 15
4 #define EchoPIN 4
5 #define MINDIST 100
6
7
8
9 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);
10
11 //-----credentials of IBM Accounts-----
12
13 #define ORG "mn4dhq"//IBM ORGANITION ID
14 #define DEVICE_TYPE "Abishek"//Device type mentioned in ibm watson IOT Platform
15 #define DEVICE_ID "182"//Device ID mentioned in ibm watson IOT Platform
16 #define TOKEN "12345678" //Token
17 String data3;
18 float h, t;
19
20
21 //----- Customise the above values -----
22 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
23 char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform a
24 char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT command type AND
25 char authMethod[] = "use-token-auth";// authentication method
26 char token[] = TOKEN;
27 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
28
29
30 //-----
31 WiFiClient wificlient; // creating the instance for wificlient
32 PubSubClient client(server, 1883, callback ,wificlient); //calling the predefined client
33
34
35 void setup()// configureing the ESP32
36
```

00:27.240 62%

HC-SR04

VCC Trig Echo Gnd

Pin 1 Pin 2 Pin 3 Pin 4

Pin 5 Pin 6 Pin 7 Pin 8

Pin 9 Pin 10 Pin 11 Pin 12

Pin 13 Pin 14 Pin 15 Pin 16

Pin 17 Pin 18 Pin 19 Pin 20

Pin 21 Pin 22 Pin 23 Pin 24

Pin 25 Pin 26 Pin 27 Pin 28

Pin 29 Pin 30 Pin 31 Pin 32

Pin 33 Pin 34 Pin 35 Pin 36

Pin 37 Pin 38 Pin 39 Pin 40

Pin 41 Pin 42 Pin 43 Pin 44

Pin 45 Pin 46 Pin 47 Pin 48

Pin 49 Pin 50 Pin 51 Pin 52

Pin 53 Pin 54 Pin 55 Pin 56

Pin 57 Pin 58 Pin 59 Pin 60

Pin 61 Pin 62 Pin 63 Pin 64

Pin 65 Pin 66 Pin 67 Pin 68

Pin 69 Pin 70 Pin 71 Pin 72

Pin 73 Pin 74 Pin 75 Pin 76

Pin 77 Pin 78 Pin 79 Pin 80

Pin 81 Pin 82 Pin 83 Pin 84

Pin 85 Pin 86 Pin 87 Pin 88

Pin 89 Pin 90 Pin 91 Pin 92

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Pin 105 Pin 106 Pin 107 Pin 108

Pin 109 Pin 110 Pin 111 Pin 112

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```
34
35 void setup()// configureing the ESP32
36 {
37   Serial.begin(115200);
38   pinMode(TrigPIN, OUTPUT);
39   digitalWrite(TrigPIN, LOW);
40   pinMode(EchoPIN, INPUT);
41   delay(10);
42   Serial.println();
43   wificonnect();
44   mqttconnect();
45 }
46
47 void loop()// Recursive Function
48 {
49   unsigned long t1;
50   unsigned long t2;
51   unsigned long pulse_width;
52   float distance;
53
54   digitalWrite(TrigPIN, HIGH);
55   delayMicroseconds(10);
56   digitalWrite(TrigPIN, LOW);
57
58   pulse_width = pulseIn(EchoPIN,HIGH);
59
60   distance= pulse_width *0.034 / 2;
61
62   if(distance<100)
63   {
64     PublishData();
65   }
66
67   delay(1000);
68   if (!client.loop()) {
69     mattconnect();
```

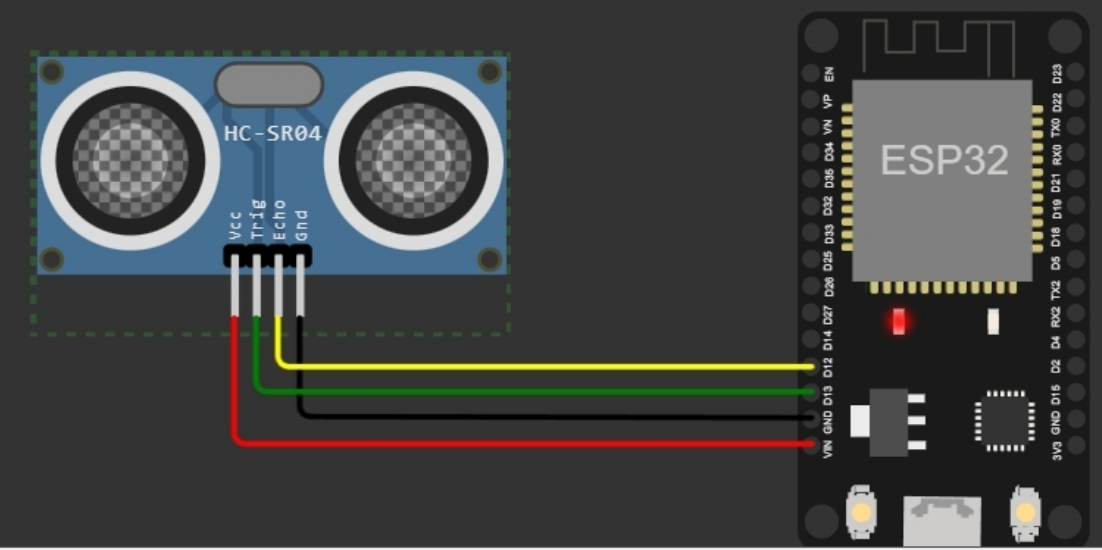
Simulation

01:02.193 81%

Reset Stop Pause

Editing Ultrasonic Distance Sensor

Distance: 228cm



Publish ok  
Sending payload: {"MESSAGE":"ALERT"}  
Publish ok  
Sending payload: {"MESSAGE":"ALERT"}  
Publish ok  
Sending payload: {"MESSAGE":"ALERT"}  
Publish ok

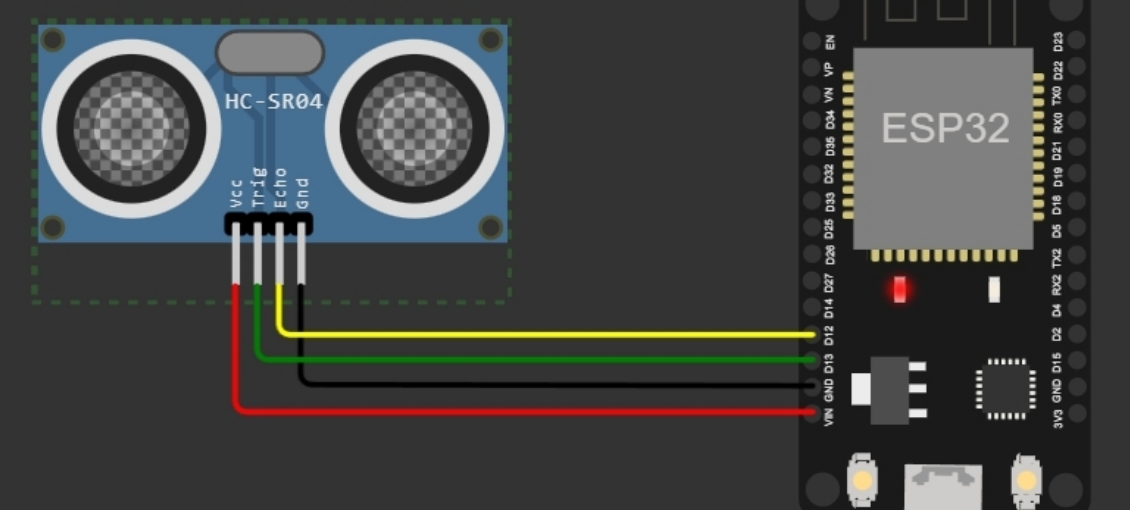
```
67 delay(1000);
68 if (!client.loop()) {
69   mqttconnect();
70 }
71 }
72
73
74
75 /*.....retrieving to Cloud.....
76
77 void PublishData() {
78   mqttconnect();//function call for connecting to ibm
79   /*
80   | creating the String in in form JSON to update the data to ibm cloud
81   */
82   String payload = "{\"MESSAGE\":\"ALERT\"}";
83
84
85   Serial.print("Sending payload: ");
86   Serial.println(payload);
87
88
89   if (client.publish(publishTopic, (char*) payload.c_str())) {
90     Serial.println("Publish ok");// if it sucessfully upload data on the cloud then it wi
91   } else {
92     Serial.println("Publish failed");
93   }
94 }
95
96
97
98 void mqttconnect() {
99   if (!client.connected()) {
100     Serial.print("Reconnecting client to ");
101     Serial.println(server);
```

Simulation

01:06.743 83%

Editing Ultrasonic Distance Sensor

Distance: 228cm



Publish ok  
Sending payload: {"MESSAGE":"ALERT"}  
Publish ok  
Sending payload: {"MESSAGE":"ALERT"}  
Publish ok  
Sending payload: {"MESSAGE":"ALERT"}  
Publish ok



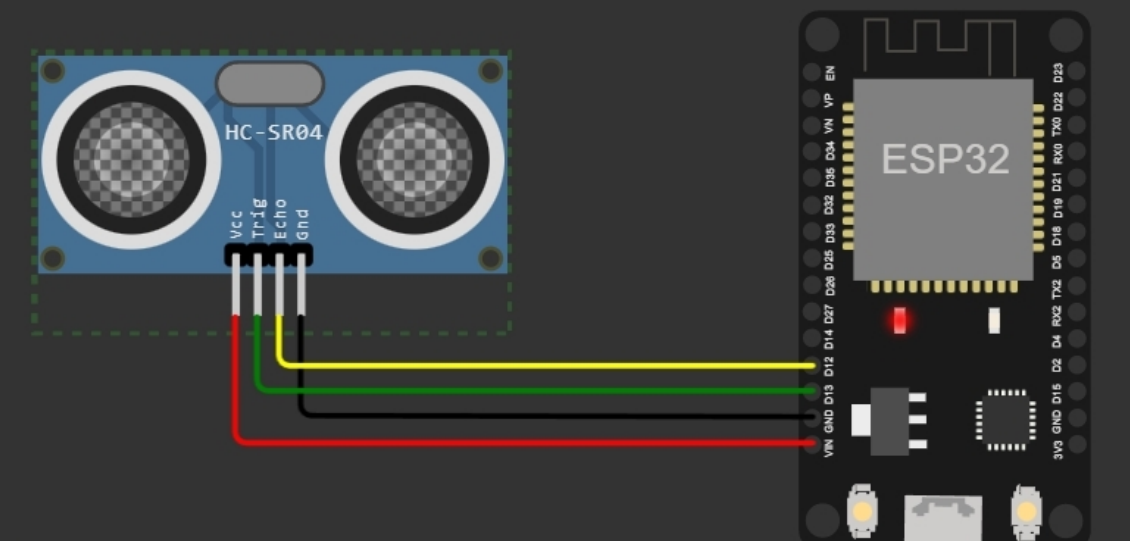
```
107   initManagedDevice();
108   Serial.println();
109 }
110 }
111 void wificonnect() //function defination for wificonnect
112 {
113   Serial.println();
114   Serial.print("Connecting to ");
115
116   WiFi.begin("Wokwi-GUEST", "", 6); //passing the wifi credentials to establish the connect
117   while (WiFi.status() != WL_CONNECTED) {
118     delay(500);
119     Serial.print(".");
120   }
121   Serial.println("");
122   Serial.println("WiFi connected");
123   Serial.println("IP address: ");
124   Serial.println(WiFi.localIP());
125 }
126
127 void initManagedDevice() {
128   if (client.subscribe(subscribetopic)) {
129     Serial.println((subscribetopic));
130     Serial.println("subscribe to cmd OK");
131   } else {
132     Serial.println("subscribe to cmd FAILED");
133   }
134 }
135
136 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
137 {
138
139 }
```

Simulation

01:12.778 93%

Editing Ultrasonic Distance Sensor

Distance: 228cm



Publish ok

Sending payload: {"MESSAGE": "ALERT"}

Publish ok

Sending payload: {"MESSAGE": "ALERT"}

Publish ok

Sending payload: {"MESSAGE": "ALERT"}

Publish ok

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
▼ <input type="checkbox"/>	182	<span>●</span> Connected	Abishek	Device	9 Nov 2022 00:28	➔ ...

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	{"MESSAGE":"ALERT"}	json	a few seconds ago
Data	{"MESSAGE":"ALERT"}	json	a few seconds ago
Data	{"MESSAGE":"ALERT"}	json	a few seconds ago
Data	{"MESSAGE":"ALERT"}	json	a minute ago
Data	{"MESSAGE":"ALERT"}	json	a minute ago