

```
1  // ultra Source code ตัวส่ง
2  #include <ESP8266WiFi.h>
3  #include <PubSubClient.h>
4  const int pingPin = D8; //trig
5  int inPin = D5; //echo
6
7  const char* ssid = "Apple TV";
8  const char* password = "APPLE_TV";
9  const char* mqtt_server = "m12.cloudmqtt.com";
10
11  char msg[50];
12
13  WiFiClient espClient;
14  PubSubClient client(espClient);
15
16  void setup() {
17      Serial.begin(115200);
18      setup_wifi();
19      client.setServer(mqtt_server, 10250); //port ใน mqtt
20      client.setCallback(callback);
21  }
22
23  void setup_wifi() {
24
25      delay(10);
26      // We start by connecting to a WiFi network
27      Serial.println();
28      Serial.print("Connecting to ");
29      Serial.println(ssid);
30
31      WiFi.begin(ssid, password);
32
33      while (WiFi.status() != WL_CONNECTED) {
34          delay(500);
35          Serial.print(".");
36      }
37      Serial.println("");
38      Serial.println("WiFi connected");
39      Serial.println("IP address: ");
40      Serial.println(WiFi.localIP());
41  }
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42
43 void callback(char* topic, byte* payload, unsigned int length)
44 {
45     Serial.print("Message arrived [");
46     Serial.print(topic);
47     Serial.print("] ");
48 }
49 void reconnect() {
50     // Loop until we're reconnected
51     while (!client.connected()) {
52         Serial.print("Attempting MQTT connection...");
53         // Attempt to connect
54         if (client.connect("Ultra", "wvottqye", "tr8fy-KkiXay")) {
55             // topic,username,password
56             Serial.println("connected");
57             // Once connected, publish an announcement...
58             client.publish("iot", "Start");
59             // ... and resubscribe
60             //client.subscribe("Node2");
61             client.publish("/checkDistance", "Hi");
62         } else {
63             Serial.print("failed, rc=");
64             Serial.print(client.state());
65             Serial.println(" try again in 5 seconds");
66             // Wait 5 seconds before retrying
67             delay(5000);
68         }
69     }
70
71 void loop() {
72     if (!client.connected()) {
73         reconnect();
74     }
75     client.loop();
76     char so[50];
77     long duration, cm;
78
79
80

```

```
80
81     pinMode(pingPin, OUTPUT);
82     digitalWrite(pingPin, LOW);
83     delayMicroseconds(2);
84     digitalWrite(pingPin, HIGH);
85     delayMicroseconds(5);
86     digitalWrite(pingPin, LOW);
87     pinMode(inPin, INPUT);
88     duration = pulseIn(inPin, HIGH);
89
90     cm = microsecondsToCentimeters(duration);
91
92     Serial.print(cm);
93     Serial.print("cm");
94     Serial.println();
95     delay(100);
96
97     itoa(cm, so, 10);
98     snprintf (msg, 75, so);
99     client.publish("/checkDistance", msg);
100    Serial.print("MSG: ");
101    Serial.println(msg);
102    delay(1000);
103
104 }
105
106 long microsecondsToCentimeters(long microseconds)
107 {
108     return microseconds / 29 / 2;
109 }
110
```