|  |
| --- |
| #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=""; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| Diagram.json: |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| "version": 1, |
|  |

|  |
| --- |
| "author": "sweetysharon", |
|  |

|  |
| --- |
| "editor": "wokwi", |
|  |

|  |
| --- |
| "parts": [ |
|  |

|  |
| --- |
| { "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": -4.67, "left": -114.67, "attrs": {} }, |
|  |

|  |
| --- |
| { "type": "wokwi-hc-sr04", "id": "ultrasonic1", "top": 15.96, "left": 89.17, "attrs": {} } |
|  |

|  |
| --- |
| ], |
|  |

|  |
| --- |
| "connections": [ |
|  |

|  |
| --- |
| [ "esp:TX0", "$serialMonitor:RX", "", [] ], |
|  |

|  |
| --- |
| [ "esp:RX0", "$serialMonitor:TX", "", [] ], |
|  |

|  |
| --- |
| [ |
|  |

|  |
| --- |
| "esp:VIN", |
|  |

|  |
| --- |
| "ultrasonic1:VCC", |
|  |

|  |
| --- |
| "red", |
|  |

|  |
| --- |
| [ "h-37.16", "v-178.79", "h200", "v173.33", "h100.67" ] |
|  |

|  |
| --- |
| ], |
|  |

|  |
| --- |
| [ "esp:GND.1", "ultrasonic1:GND", "black", [ "h39.87", "v44.04", "h170" ] ], |
|  |

|  |
| --- |
| [ "esp:D5", "ultrasonic1:TRIG", "green", [ "h54.54", "v85.07", "h130.67" ] ], |
|  |

|  |
| --- |
| [ "esp:D18", "ultrasonic1:ECHO", "green", [ "h77.87", "v80.01", "h110" ] ] |
|  |

|  |
| --- |
| ] |
|  |

}