

Assignment -3

Python Programming

Assignment Date	2 November 2022
Student Name	Abirami S
Student Roll Number	513419106002
Maximum Marks	2 Marks

Question-1

Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cms send an “alert” to the IBM cloud and display in the device recent events.

Upload document with wokwi share link and images of IBM cloud.

Solution

The screenshot displays the Wokwi web interface for a project titled "sketch.ino". The left pane shows the C++ code for an ESP32 that uses the WiFi and PubSubClient libraries to connect to IBM Cloud IoT. The code defines a server, topics, and a token, and includes logic to send distance data to the cloud. The right pane shows a simulation of the hardware, including an ESP32 module and an HC-SR04 ultrasonic sensor. A distance of 57cm is shown. The bottom pane displays the MQTT client logs, showing successful connections and data publishing to the IBM Cloud IoT endpoint.

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 WiFiClient wifiClient;
4 String data;
5 #define ORG "zpw049"
6 #define DEVICE_TYPE "esp"
7 #define DEVICE_ID "esp_23"
8 #define TOKEN "3kXKf1gic7lh7bS9S"
9 #define speed 0.034
10 #define led 14
11 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
12 char publishTopic[] = "iot-2/evt/Data/fmt/json";
13 char topic[] = "iot-2/cmd/home/fmt/String";
14 char authMethod[] = "use-token-auth";
15 char token[] = TOKEN;
16 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
17 PubSubClient client(server, 1883, wifiClient);
18 void publishData();
19
20
21 const int trigpin=33;
22 const int echopin=32;
23 String commands;
24 String data="";
25
26 long duration;
27 float dist;
28
29
30 void setup()
31 {
32   Serial.begin(115200);
33   pinMode(led, OUTPUT);
34   pinMode(trigpin, OUTPUT);
35 }
```

Simulation

Editing Ultrasonic Distance Sensor

Distance: 57cm

Sending payload: {"Normal Distance":56.97}
Publish OK

Sending payload: {"Normal Distance":56.97}
Publish OK

Reconnecting MQTT client to zpw049.messaging.internetofthings.ibmcloud.com

Reference:

[https://wokwi.com/projects/3](https://wokwi.com/projects/347740680995471955)

47740680995471955