

Assignment 4

ESP32 Program

Assignment Date	01 November 2022
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Maximum Marks	2 Marks

Question:

Write code and connections in Wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send "alert" to IBM cloud and display in device recent events Upload document with Wokwi share link and images of IBM cloud.

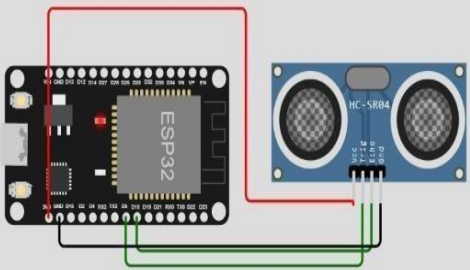
esp32-blink.ino

```

1 #include <WiFi.h>
2 #include <WiFiClient.h>
3 #include <PubSubClient.h>
4 const int trigPin = 5;
5 const int echoPin = 18;
6 //define sound speed in cm/us
7 #define SOUND_SPEED 0.034
8 #define CM_TO_INCH 0.393701
9 long duration;
10 float distanceCm;
11 float distanceInch;
12
13
14 void callback(char* topic, byte* payload, unsigned int payloadLength);
15 //-----credentials of IBM Accounts-----
16
17 #define ORG "fleg7e"//IBM ORGANIZATION ID
18 #define DEVICE_TYPE "ultrasonic"//device type mentioned in ibm watson IOT Platform
19 #define DEVICE_ID "shud_2"//Device ID mentioned in ibm watson IOT Platform
20 #define TOKEN "CV2AxIfQUG7sa_7hKz" //Token
21 String data3;
22
23
24
25 //-----Customise the above values -----
26 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
27 char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform
28 char subscribTopic[] = "iot-2/cmd/test/fmt/String";// cmd REPRESENT command type AND CO
29 char authMethod[] = "use-token-auth";// authentication method
30 char token[] = TOKEN;
31 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
32
33 WiFiClient wifiClient; // creating the instance for wifiClient
34 PubSubClient client(server, 1883, callback ,wifiClient);
35

```

Simulation



01:37.753 99%

Publish ok
Distance (cm): 216.94
Distance (inch): 85.41
Sending payload: {"Distance (cm)":216.94}
Publish ok
Reconnecting client to fleg7e.messaging.internetofthings.ibmcloud.com
..

Browse Action Device Types Interfaces

Add Device

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
shud_2	Disconnected	ultrasonic	Device	Oct 27, 2022 1:52 PM	

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	{"Distance (cm)":216.94}	json	a few seconds ago
Data	{"Distance (cm)":216.97}	json	a few seconds ago
Data	{"Distance (cm)":216.94}	json	a few seconds ago
Data	{"Distance (cm)":216.94}	json	a few seconds ago
Data	{"Distance (cm)":216.94}	json	a few seconds ago