

## Assignment -4

### Python Programming

Assignment Date	26 October 2022
Student Name	Kokila.P
Student Roll Number	MECR19EC044
Maximum Marks	2 Marks

#### Question-1:

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.

#### Solution:

```
sketch.ino • diagram.json libraries.txt • Library Manager • Sim
1 #include<WiFi.h> //library for wifi
2 #include<PubSubClient.h> //library for MQTT
3 void callback(char* subscribetopic, byte* payload, unsigned int payloadlength);
4 //-----credentials of IBM Account-----
5 #define ORG "iyy6o" // IBM ORGANIZATION ID
6 #define DEVICE_TYPE "iotdeviceproject" //DEVICE TYPE MENTIONED IN IOT WATSON PLATFORM
7 #define DEVICE_ID "229714" //DEVICE ID MENTIONED IN IOT WATSON PLATFORM
8 #define TOKEN "24681012" //Token
9 String data3;
10 float dist;
11 //-----customize the above value-----
12 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; //server name
13 char publishtopic[] = "ultrasonic/evt/Data/fmt/json"; //topic name and type of event perform
14 and format in which data to be send*/
15 char subscribetopic[] = "ultrasonic/cmd/test/fmt/String"; //cmd REPRESENT Command tupe and
16 COMMAND IS TEST OF FORMAT STRING*/
17 char authMethod[] = "use-token-auth"; //authentication method
18 char token[] = TOKEN;
19 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //CLIENT ID
20 //-----
21 WiFiClient wificlient; // creating an instance for wificlient
22 PubSubClient client(server, 1883, callback, wificlient); //calling the predefined client id
23 by passing parameter like server id, port and wificredentials*/
24 int LED = 4;
25 int trig = 5;
26 int echo = 18;
27 void setup()
28 {
29   Serial.begin(115200);
30   pinMode(trig, OUTPUT);
31 }
```

```

92     }
93     initManagedDevice();
94     Serial.println();
95   }
96 }
97 void wificonnect()//function definition for wificonnect
98 {
99     Serial.println();
100     Serial.print("Connecting to ");
101     WiFi.begin("wokai.GUEST", "",6);//PASSING THE WIFI CREDENTIALS TO ESTABLISH CONNECTION
102     while (WiFi.status() !=WL_CONNECTED){
103         delay(500);
104         Serial.print(".");
105     }
106     Serial.println("");
107     Serial.println("Wifi connected");
108     Serial.println("IP address");
109     Serial.println(WiFi.localIP());
110 }
111 void initManagedDevice(){
112     if(client.subscribe(subscribetopic)){
113         Serial.println((subscribetopic));
114         Serial.println("subscribe to cmd OK");
115     }else{
116         Serial.println("subscribe to cmd failed");
117     }
118 }
119 void callback(char* subscribetopic,byte*payload,unsigned int payloadLength)
120 {
121     Serial.print("callback invoked for topic: ");
122     Serial.println(subscribetopic);

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```
123   for(int i=0; i< payloadlength; i++){
124       //Serial.print((char)payload[i]);
125       data3 +=(char)payload[i];
126   }
127   //Serial.println("dta: "+ data3);
128   //if(data3=="Near")
129   //{
130       //Serial.println(data3);
131       //digitalWrite(LED,HIGH);
132   //}
133   //else
134   //{
135       //Serial.println(data3);
136       //digitalWrite(LED,LOW);
137   //}
138   data3="";
139 }
```

OUTPUT:  
DATA IS SENT TO IBM CLOUD WHEN NO OBJECT IS DETECTED

Browser

Action

Device Types

Interfaces

Add Device

▼

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DISTANCEDETECT

Disconnected

ULTRASON

Device

Oct 20, 2022 9:46 AM

➔ ...

Identity

Device Information

Recent Events

State

Logs

✕

This is the main content area of the application, displaying a table of events.

Event	Value	Format	Last Received
Data	{\"Distance\": 79.65, \"Object\": \"None\"}	json	a few seconds ago
Data	{\"Distance\": 79.65, \"Object\": \"None\"}	json	a few seconds ago
Data	{\"Distance\": 79.65, \"Object\": \"None\"}	json	a few seconds ago
Data	{\"Distance\": 79.65, \"Object\": \"None\"}	json	a few seconds ago
Data	{\"Distance\": 79.65, \"Object\": \"None\"}	json	a few seconds ago

Items per page: 50

1 of 2 items

1 of 1 page

1

When no object is detected

Browser

Action

Device Types

Interfaces

Add Device

DistanceDetect

Disconnected

ULTRASON

Device

Oct 20, 2022 9:46 AM

Identity

Device Information

Recent Events

State

Logs

When object is detected in ultrasonic detector

