

Assignment -4

Python Programming

Assignment Date	26 October 2022
Student Name	Santhiya.M
Student Roll Number	951219106061
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 recentevents.

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

Solution:

```
sketch.ino  diagram.json  libraries.txt  Library Manager  Simu
1  #include<WiFi.h> //library for wifi
2  #include<PubSubClient.h> //library for MQTT
3  void callback(char* subscribtopic, byte* payload, unsigned int payloadlength);
4  //-----credentials of IBM Account-----
5  #define ORG "i2yy0o" // 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 subscribtopic[] = "ultrasonic/cmd/test/fmt/String"; //cmd REPRESENT Command type 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 wificlient*/
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("wokwi.GUEST", ""); //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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sketch.ino • diagram.json libraries.txt • Library Manager

```
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
DistanceDetect	Disconnected	ULTRASON	Device	Oct 20, 2022 9:46 AM
Identity	Device Information	Recent Events	State	Logs
P21100000-0000-0000-0000-000000000000				
Event	Value	Email	Last Received	
Data	{Distance: 79.66, Object: "Near"}	post	a few seconds ago	
Data	{Distance: 79.66, Object: "Near"}	post	a few seconds ago	
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Items per page: 50 1/2 of 2 items				
1 of 1 page				

When no object is detected

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When object is detected in ultrasonic detector

