

SPRINT – 1

Date	16 November 2022
Team ID	PNT2022TMID11797
Project Name	Personal Assistance for Seniors Who Are Self-Reliant

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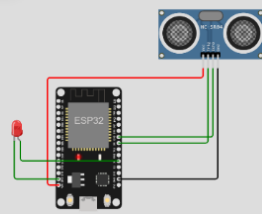
sketch.ino
diagram.json
libraries.txt
Library Manager

```

1  #include <WiFi.h>//library for wifi
2  #include <PubSubClient.h>//library for MQTT
3
4
5  void callback(char* subscribetopic, byte* payload, unsigned int payl
6
7  //-----credentials of IBM Accounts-----
8
9  #define ORG "lrv63o"//IBM ORGANITION ID
10 #define DEVICE_TYPE "ESP32"//Device type mentioned in ibm watson IOT
11 #define DEVICE_ID "IBM123"//Device ID mentioned in ibm watson IOT P1
12 #define TOKEN "6(v5lB!n8o2I7Y+KCu" //Token
13 String data3;
14 float dist;
15 //----- Customise the above values -----
16 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Se
17 char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and ty
18 char subscribetopic[] = "iot-2/cmd/test/fmt/String";// cmd REPRESENT
19 char authMethod[] = "use-token-auth";// authentication method
20 char token[] = TOKEN;
21 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
22
23 //-----
24 WiFiClient wifiClient; // creating the instance for wificlient
25 PubSubClient client(server, 1883, callback ,wifiClient); //calling t
26
27 int LED = 4;
          
```

Simulation

▶
■
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```

no object found
Sending payload: {"distance":403.49,"object":"No"}
Publish ok
Distancein cm403.49
no object found
Sending payload: {"distance":403.49,"object":"No"}
Publish ok
          
```

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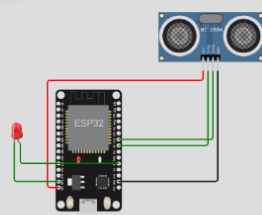
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Library Manager

```

27 int LED = 4;
28 int trig = 5;
29 int echo = 18;
30 void setup()
31 {
32   Serial.begin(115200);
33   pinMode(trig,OUTPUT);
34   pinMode(echo,INPUT);
35   pinMode(LED, OUTPUT);
36   delay(10);
37   wificonnect();
38   mqttconnect();
39 }
40 void loop()// Recursive Function
41 {
42
43   digitalWrite(trig,LOW);
44   digitalWrite(trig,HIGH);
45   delayMicroseconds(10);
46   digitalWrite(trig,LOW);
47   float dur = pulseIn(echo,HIGH);
48   float dist = (dur * 0.0343)/2;
49   Serial.print ("Distancein cm");
50   Serial.println(dist);
51
52
53   PublishData(dist);
          
```

Simulation

▶
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```

no object found
Sending payload: {"distance":403.47,"object":"No"}
Publish ok
Distancein cm403.49
no object found
Sending payload: {"distance":403.49,"object":"No"}
Publish ok
          
```

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Library Manager

```

52
53   PublishData(dist);
54   delay(1000);
55   if (!client.loop()) {
56     mqttconnect();
57   }
58 }
59
60 /*.....retrieving to Cloud.....
61
62 void PublishData(float dist) {
63   mqttconnect();//function call for connecting to ibm
64   /*
65    | creating the String in in form JSON to update the data to ibm c
66   */
67   String object;
68   if (dist < 100)
69   {
70     digitalWrite(LED,HIGH);
71     Serial.println("object is near");
72     object = "Near";
73   }
74   else
75   {
76     digitalWrite(LED,LOW);
77     Serial.println("no object found");
78     object = "No";

```

Simulation

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Sending payload: {"distance":403.47,"object":"No"}
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Library Manager

```

81   String payload = "{\"distance\":";
82   payload += dist;
83   payload += ","; payload += "\"object\":";
84   payload += object;
85   payload += "\"}";
86
87
88   Serial.print("Sending payload: ");
89   Serial.println(payload);
90
91
92
93
94   if (client.publish(publishTopic, (char*) payload.c_str())) {
95     Serial.println("Publish ok");// if it sucessfully upload data on
96   } else {
97     Serial.println("Publish failed");
98   }
99
100 }
101 void mqttconnect() {
102   if (!client.connected()) {
103     Serial.print("Reconnecting client to ");
104     Serial.println(server);
105     while (!client.connect(clientId, authMethod, token)) {
106       Serial.print(".");
107       delay(500);

```

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Library Manager

```

114 void wificonnect() //function definition for wificonnect
115 {
116     Serial.println();
117     Serial.print("Connecting to ");
118
119     Wifi.begin("Wokwi-GUEST", "", 6); //passing the wifi credentials to
120     while (Wifi.status() != WL_CONNECTED) {
121         delay(500);
122         Serial.print(".");
123     }
124     Serial.println("");
125     Serial.println("Wifi connected");
126     Serial.println("IP address: ");
127     Serial.println(Wifi.localIP());
128 }
129
130 void initManagedDevice() {
131     if (client.subscribe(subscribetopic)) {
132         Serial.println((subscribetopic));
133         Serial.println("subscribe to cmd OK");
134     } else {
135         Serial.println("subscribe to cmd FAILED");
136     }
137 }
138
139 void callback(char* subscribetopic, byte* payload, unsigned int payl
140 {

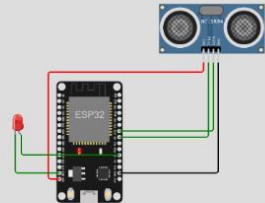
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```

145 // Serial.print((char)payload[i]);
146 data3 += (char)payload[i];
147 }
148 // Serial.println("data: "+ data3);
149 // if(data3=="Near")
150 // {
151 // Serial.println(data3);
152 // digitalWrite(LED,HIGH);
153 }
154 // }
155 // else
156 // {
157 // Serial.println(data3);
158 // digitalWrite(LED,LOW);
159 // }
160 // }
161 data3="";
162 }
163 }
164 }
165 }
166 }

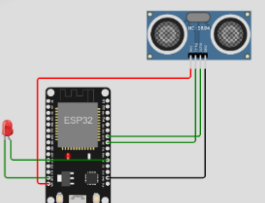
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