

SPRINT - 1

DATE	28 October 2022
TEAM ID	PNT2022TMID24952
PROJECT NAME	Industry specific intelligent fire management system

WOKWI WEB URL:

<https://wokwi.com/projects/348547612897444435>

SNAPSHOTS OF SIMULATION:

The screenshot displays the Wokwi web interface for a project titled "Sketch.ino copy". The interface is split into two main sections: a code editor on the left and a simulation window on the right.

Code Editor (Sketch.ino):

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #define temp_pin 15
4 void callback(char* topic, byte* payload, unsigned int payloadLength);
5 #define ORG "ugapx5"
6 #define DEVICE_TYPE "raspberrypi"
7 #define DEVICE_ID "12345"
8 #define TOKEN "12345678"
9 String data3;
10
11 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
12 char publishTopic[] = "iot-2/evt/Data/fmt/json";
13 char subscribeTopic[] = "iot-2/cmd/test/fmt/String";
14 char authMethod[] = "use-token-auth";
15 char token[] = TOKEN;
16 char clientId[] = "d:" + ORG + ":" + DEVICE_TYPE + ":" + DEVICE_ID;
17
18 WiFiClient wifiClient;
19 PubSubClient client(server, 1883, callback, wifiClient);
20
21
22
23 // should match the Beta Coefficient of the thermistor
24
25
26 void setup() {
27   Serial.begin(9600);
28   analogReadResolution(10);
29   pinMode(32, INPUT);
30   pinMode(14, OUTPUT);
31 }
```

Simulation Window:

The simulation window shows a diagram of an ESP32 microcontroller connected to a breadboard. The status bar indicates the simulation is running at 100% speed. The console output shows the following messages:

```
Connecting to..
WIFI CONNECTED
IP address:
10.10.0.2
Reconnecting to ugapx5.messaging.internetofthings.ibmcloud.com
```

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wokwi.com/projects/347585277883056723

WOKWI SAVE SHARE

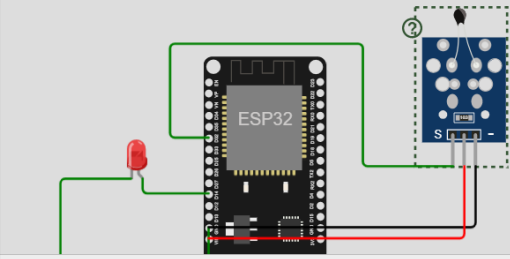
sketchino diagram.json libraries.txt Library Manager

```

32 wificonnect();
33 mqttconnect();
34
35 }
36 void loop() {
37   const float BETA = 3950; // should match the Beta Coefficient of the thermistor
38   int analogValue = analogRead(A4);
39   float temp = 1 / (log(1 / (1023. / analogValue - 1)) / BETA + 1.0 / 298.15) - 273.15;
40   //float temp = 1 / (log(1 / (1023. / analogValue - 1)) / BETA + 1.0 / 298.15) - 273.15;
41   Serial.print("Temperature: ");
42   Serial.print(temp);
43   Serial.println(" °C");
44   if(temp>35){
45     PublishData2(temp);
46     digitalWrite(14, HIGH);
47   }else{
48     digitalWrite(14, LOW);
49     PublishData1(temp);
50   }
51   delay(1000);
52   if(!client.loop()){
53     mqttconnect();
54   }
55
56   //delay(2000);
57 }
58 void PublishData1(float tem){
59   mqttconnect();
60   String payload= "{\"temp\":\"";
61   payload += tem;

```

Simulation



subscribe to cmd ok

Temperature: 23.99 °C
Sending payload:{"temp":23.99}
publish ok

Temperature: 23.99 °C
Sending payload:{"temp":23.99}

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Go to Settings to activate Windows.

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WOKWI SAVE SHARE

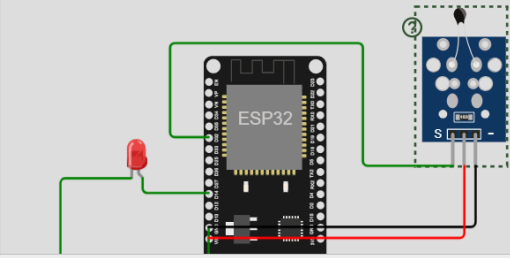
sketchino diagram.json libraries.txt Library Manager

```

62 payload+="";
63
64 Serial.print("Sending payload:");
65 Serial.println(payload);
66
67 if(client.publish(publishTopic,(char*)payload.c_str())){
68   Serial.println("publish ok");
69 } else{
70   Serial.println("publish failed");
71 }
72
73 void PublishData2(float tem){
74   mqttconnect();
75   String payload= "{\"ALERT\":\"";
76   payload += tem;
77   payload+="\"";
78
79   Serial.print("Sending payload:");
80   Serial.println(payload);
81
82   if(client.publish(publishTopic,(char*)payload.c_str())){
83     Serial.println("publish ok");
84   } else{
85     Serial.println("publish failed");
86   }
87 }
88 void mqttconnect(){
89   if(!client.connected()){
90     Serial.print("Reconnecting to");
91     Serial.println(server);

```

Simulation



Temperature: 23.99 °C
Sending payload:{"temp":23.99}
publish ok

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```

92 while(!client.connect(clientID, authMethod, token)){
93   Serial.print(".");
94   delay(500);
95 }
96 initManagedDevice();
97 Serial.println();
98 }
99 }
100
101 void wificonnect(){
102   Serial.println();
103   Serial.print("Connecting to");
104
105   WiFi.begin("Wokwi-GUEST","",6);
106   while(WiFi.status()!=WL_CONNECTED){
107     delay(500);
108     Serial.print(".");
109   }
110   Serial.println("");
111   Serial.println("WIFI CONNECTED");
112   Serial.println("IP address:");
113   Serial.println(WiFi.localIP());
114 }
115
116 void initManagedDevice(){
117   if(client.subscribe(subscribeTopic)){
118     Serial.println((subscribeTopic));
119     Serial.println("subscribe to cmd ok");
120   }else{
121     Serial.println("subscribe to cmd failed");
122   }
123 }

```

Simulation

Temperature: 23.99 °C
 Sending payload:{"temp":23.99}
 publish ok
 Temperature: 23.99 °C
 Sending payload:{"temp":23.99}
 publish ok
 Temperature: 23.99 °C

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```

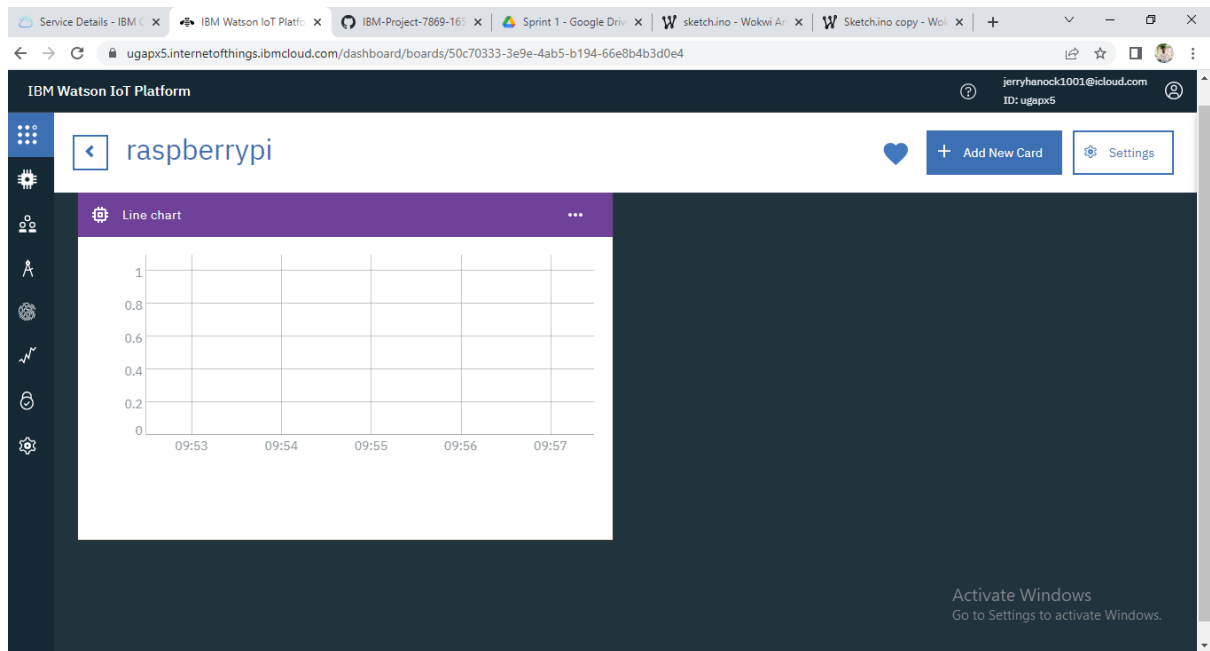
122 }
123 }
124
125 void callback(char* subscribeTopic, byte* payload, unsigned int payloadLength){
126   Serial.print("callback invoked for topic:");
127   Serial.println(subscribeTopic);
128   for(int i=0; i<payloadLength; i++){
129     data3 += (char)payload[i];
130   }
131   Serial.println("data:"+ data3);
132   if(data3=="lighton"){
133     Serial.println(data3);
134     digitalWrite(14,HIGH);
135   }else{
136     Serial.println(data3);
137     digitalWrite(14,LOW);
138   }
139   data3="";
140 }

```

Simulation

publish ok
 Temperature: 23.99 °C
 Sending payload:{"temp":23.99}
 publish ok
 Temperature: 23.99 °C
 Sending payload:{"temp":23.99}
 publish ok

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IMAGES OF IBM CLOUD:

The screenshot shows the IBM Watson IoT Platform dashboard with the 'Recent Events' tab selected for the device 'raspberrypi'. The dashboard header includes the platform name and user information (jerryhanock1001@icloud.com, ID: ugapx5). The main content area displays a table of recent events. The table has four columns: Event, Value, Format, and Last Received. The events listed are:

Event	Value	Format	Last Received
Data	{"temp":-21.37}	json	a few seconds ago
Data	{"temp":-21.37}	json	a few seconds ago
Data	{"temp":14.4}	json	a few seconds ago
Data	{"ALERT":63.94}	json	a few seconds ago
Data	{"ALERT":37.43}	json	a few seconds ago

Below the table, it indicates '0 Simulations running'. An 'Activate Windows' watermark is visible in the bottom right corner.