Sprint-1

Team ID	PNT2022TMID38437
Project Name	Smart solution for railway

Display the temperature values:

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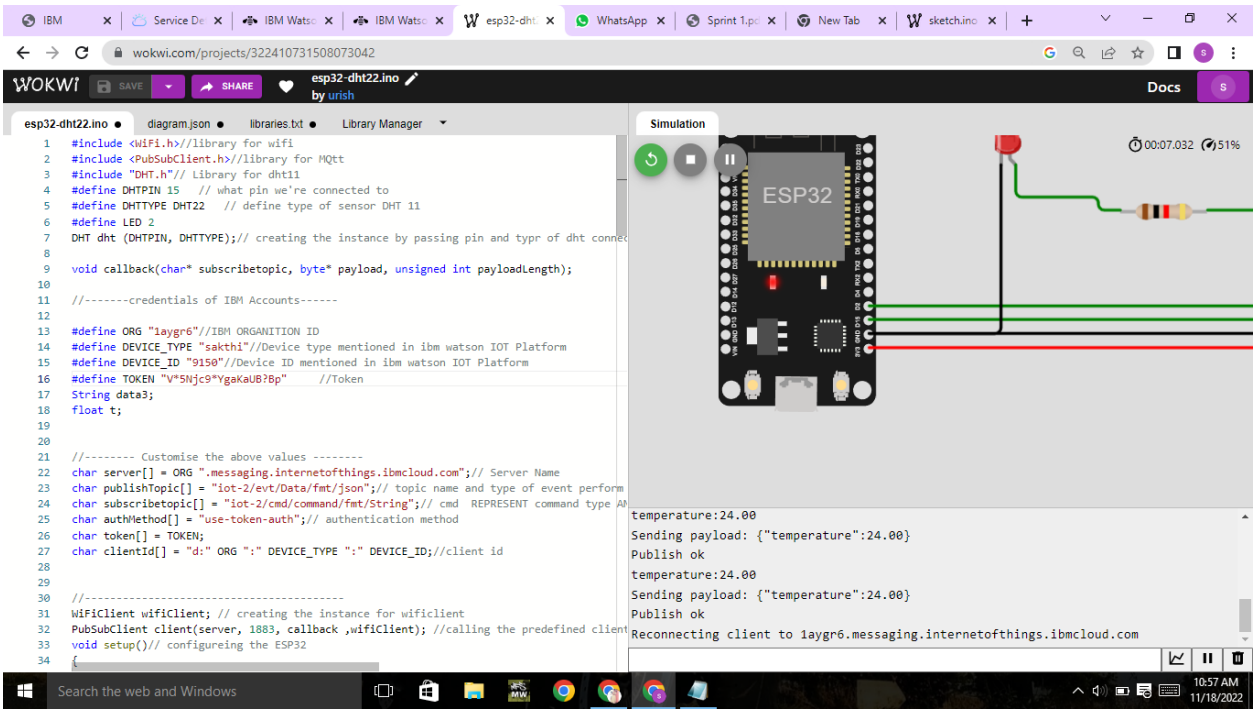


Program:

```
#include <WiFi.h>//library for wifi

#include <PubSubClient.h>//library for MQtt
```

```
#include "DHT.h"// Library for dht11

#define DHTPIN 15   // what pin we're connected to

#define DHTTYPE DHT22   // define type of sensor DHT 11

#define LED 2

DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and typr of dht connected



void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);


//-------credentials of IBM Accounts------


#define ORG "1aygr6"//IBM ORGANITION ID

#define DEVICE_TYPE "sakthi"//Device type mentioned in ibm watson IOT Platform

#define DEVICE_ID "9150"//Device ID mentioned in ibm watson IOT Platform

#define TOKEN "V*5Njc9*YgaKaUB?Bp"     //Token
String data3; float t;



//-------- Customise the above values --------
```

```
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name

char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform and format in which data to be send

char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd  REPRESENT command type AND COMMAND IS TEST OF FORMAT STRING char authMethod[] = "use-token-auth";// authentication method char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id




//---------------------------------------

WiFiClient wifiClient; // creating the instance for wificlient

PubSubClient client(server, 1883, callback ,wifiClient); //calling the predefined client id by passing parameter like server id,portand wificredential void setup()// configureing the ESP32

{

  Serial.begin(115200);   dht.begin();

pinMode(LED,OUTPUT);

delay(10);   Serial.println();

wificonnect();   mqttconnect();


}  void loop()// Recursive

Function
{
```

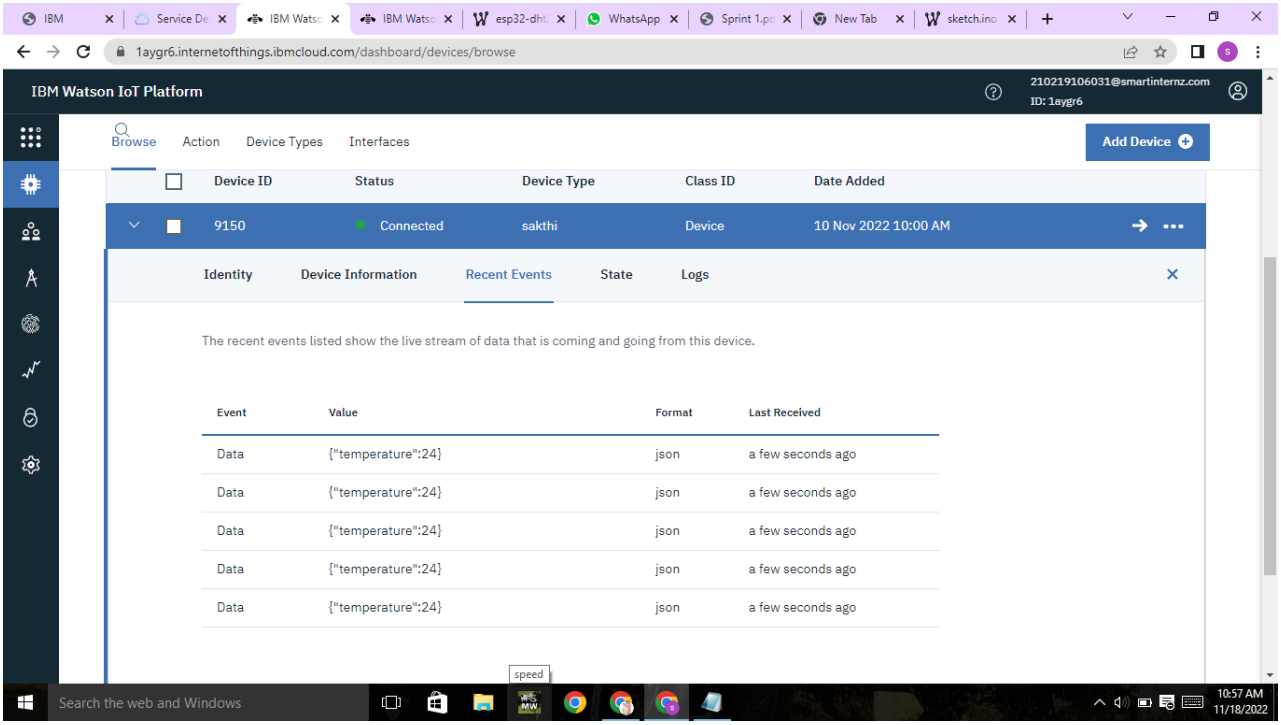
```
 t = dht.readTemperature();

  Serial.print("temperature:");

  Serial.println(t);



  PublishData(t);   delay(1000);   if
(!client.loop()) {     mqttconnect();

  }

}
```

```
/*.....retrieving to  Cloud.....*/

 void PublishData(float temp) {
mqttconnect();//function call for connecting to ibm

  /*      creating the String in in form JSon to update the data to ibm cloud     */


  String payload = "{\"temperature\":";   payload +=
temp;   payload += "}";
```

```
   Serial.print("Sending payload: ");

   Serial.println(payload);       if (client.publish(publishTopic, (char*)
payload.c_str()))

{

   Serial.println("Publish ok");// if it sucessfully upload data on the cloud then it will print publish ok in Serial monitor or else it will print publish failed

  } else {

   Serial.println("Publish failed");

  }

  } void mqttconnect() {   if
(!client.connected()) {

   Serial.print("Reconnecting client to ");
Serial.println(server);     while
(!!!client.connect(clientId, authMethod, token)) {
Serial.print(".");       delay(500);

   }          initManagedDevice();
Serial.println();
```

```
} } void wificonnect() //function defination for wificonnect {

  Serial.println();

  Serial.print("Connecting to ");


 WiFi.begin("Wokwi-GUEST", "", 6);//passing the wifi credentials to establish the
connection   while (WiFi.status() != WL_CONNECTED) {     delay(500);

  Serial.print(".");

 }

 Serial.println("");

 Serial.println("WiFi connected");

 Serial.println("IP address: ");
Serial.println(WiFi.localIP());

}  void initManagedDevice() {   if
(client.subscribe(subscribetopic)) {
Serial.println((subscribetopic));

  Serial.println("subscribe to cmd OK");

 } else {

  Serial.println("subscribe to cmd FAILED");

 }
```

```
}

void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)

{
```



```
                Serial.print("callback invoked for topic: ");
Serial.println(subscribetopic);   for (int i = 0; i <
payloadLength; i++) {
//Serial.print((char)payload[i]);     data3 +=
(char)payload[i];
  }

  Serial.println("data: "+ data3);   if(data3=="lighton")

  {
Serial.println(data3); digitalWrite(LED,HIGH);

  }    else

  {
Serial.println(data3); digitalWrite(LED,LOW);

   } data3="";
```

}

Displaying DHT22 sensor values: