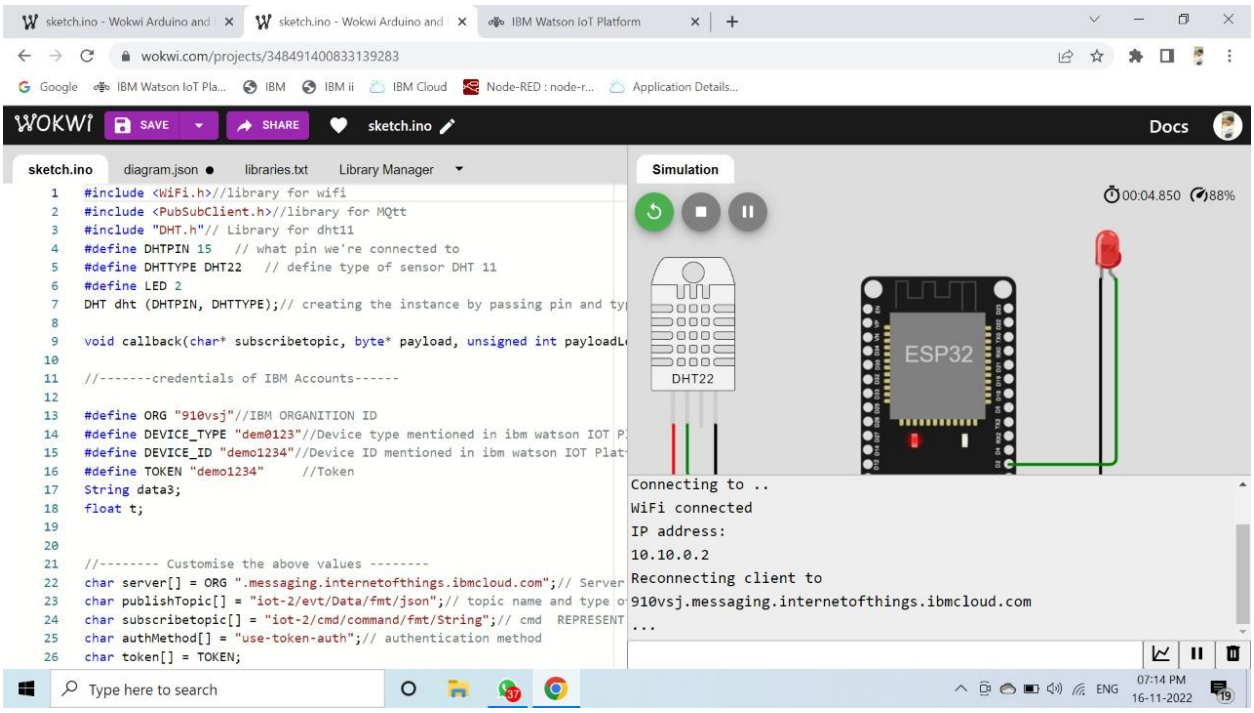
SPRINT 1

TEAM ID	PNT2022TMID36752
PROJECT NAME	REAL-TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM
TEAM LEADER	DHARANIKUMAR.B
TEAM MEMBER 1	HARI.N
TEAM MEMBER 2	JAYACHANDRAN.R
TEAM MEMBER 3	JOHN YABAZ.S
TEAM MEMBER 4	SURESH.S



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

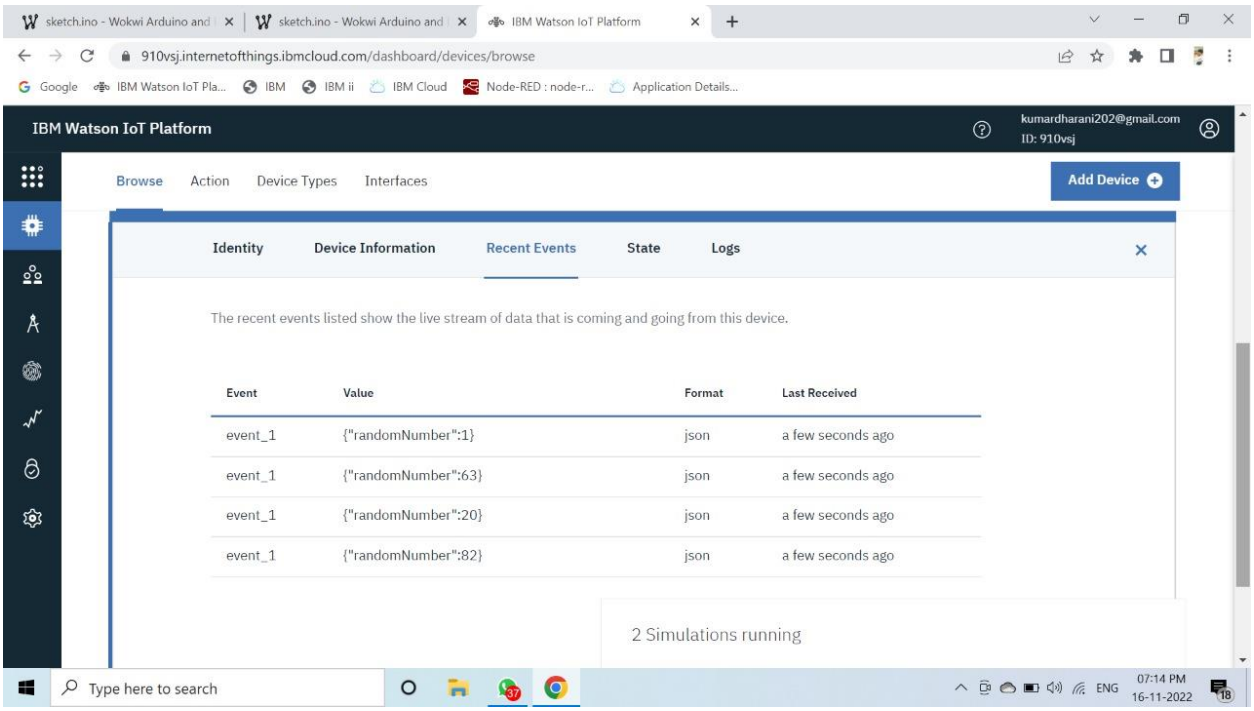
```
DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and typr of dht connected


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


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


#define ORG "910vsj"//IBM ORGANITION ID

#define DEVICE_TYPE "dem0123"//Device type mentioned in ibm watson IOT Platform

#define DEVICE_ID "demo1234"//Device ID mentioned in ibm watson IOT Platform

#define TOKEN "demo1234"     //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="";



}
```


sketch.ino - Wokwi Arduino and
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IBM Watson IoT Platform
910vsj.internetofthings.ibmcloud.com/dashboard/devices/browse
Google
IBM Watson IoT Pla...
IBM
IBM ii
IBM Cloud
Node-RED : node-r...
Application Details...
IBM Watson IoT Platform
kumardharani202@gmail.com
ID: 910vsj
Browse
Action
Device Types
Interfaces
Add Device
Identity
Device Information
Recent Events
State
Logs
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
event_1
{"randomNumber":1}
json
a few seconds ago
event_1
{"randomNumber":63}
json
a few seconds ago
event_1
{"randomNumber":20}
json
a few seconds ago
event_1
{"randomNumber":82}
json
a few seconds ago
2 Simulations running
Type here to search
ENG
07:14 PM
16-11-2022