| Team ID | PNT2022TMID27921 |
| --- | --- |
| Project Name | Project - Real-Time River Water Quality Monitoring and Control System |

# USING WOWKI

## SOURCE CODE:

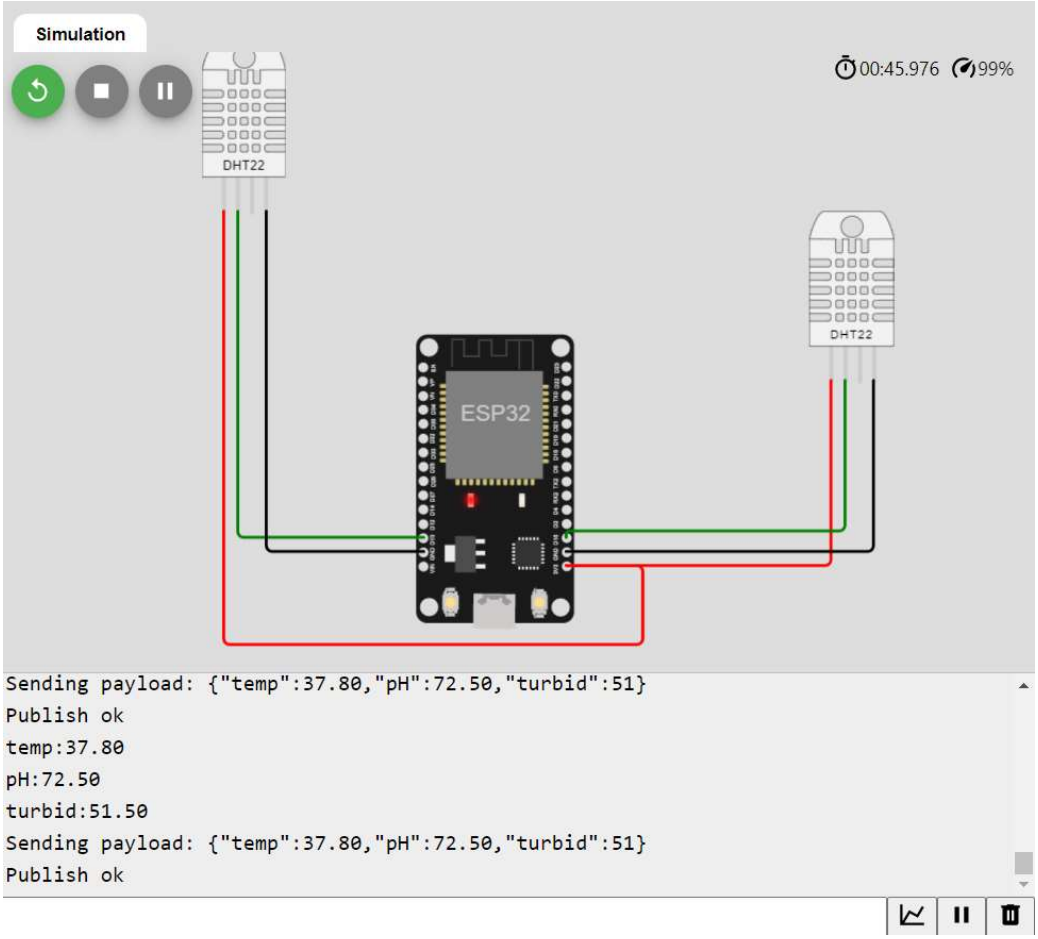
```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt
#include "DHT.h"// Library for dht11
#define DHTPIN 15
#define dhtpin 13     // what pin we're connected to
#define DHTTYPE DHT22   // define type of sensor DHT 11
#include <ESP32Servo.h>


DHT dht1 (DHTPIN, DHTTYPE);// creating the instance by passing pin and typr of dht
connected
DHT dht2 (dhtpin, DHTTYPE);
void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);

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

#define ORG "swz5ou"//IBM ORGANITION ID
#define DEVICE_TYPE "abcd"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "12"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "12345678"     //Token
String data3;

float pH , t;
float tu,T;
int f;



//-------- 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
float dist,dur;
String data;
//-----------------------------------------
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);
  dht1.begin();
  dht2.begin();
  delay(10);
  Serial.println();
  wificonnect();
  mqttconnect();
}

void loop()// Recursive Function
{

  pH = dht1.readHumidity();
  t = dht1.readTemperature();
  tu = dht2.readHumidity();

  Serial.print("temp:");
  Serial.println(t);
  Serial.print("pH:");
  Serial.println(pH);
  Serial.print("turbid:");
  Serial.println(tu);


  PublishData(t,pH,tu);
  delay(1000);
  if (!client.loop()) {
    mqttconnect();
  }
}



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

void PublishData(float temp, float pH, int turbid) {
  mqttconnect();//function call for connecting to ibm
  /*
     creating the String in in form JSon to update the data to ibm cloud
  */
  String payload = "{\"temp\":";
  payload += temp;
  payload += "," "\"pH\":";
  payload += pH;
  payload += "," "\"turbid\":";
  payload += turbid;
  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 PublishAlert() {
  mqttconnect();//function call for connecting to ibm
  /*
     creating the String in in form JSon to update the data to ibm cloud
  */
  String payload = "{\"alert\":";
  payload += 10000;
  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) {
```

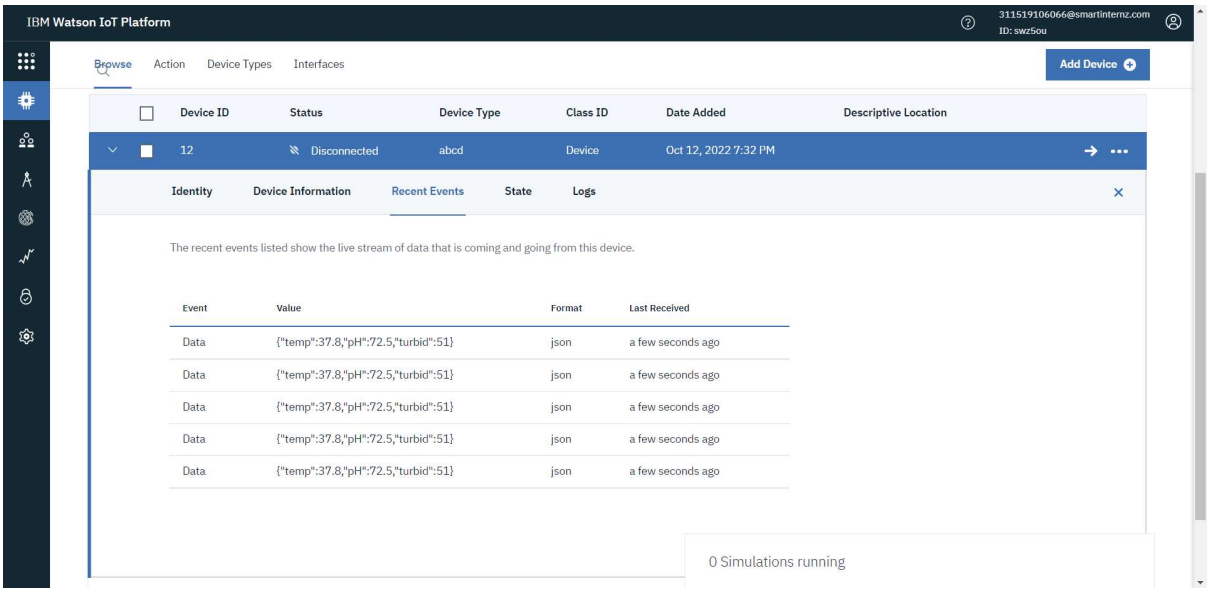
```
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  Serial.println(WiFi.localIP());
}

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)
{

}
```

## WOWKI SOURCE CODE-OUTPUT:



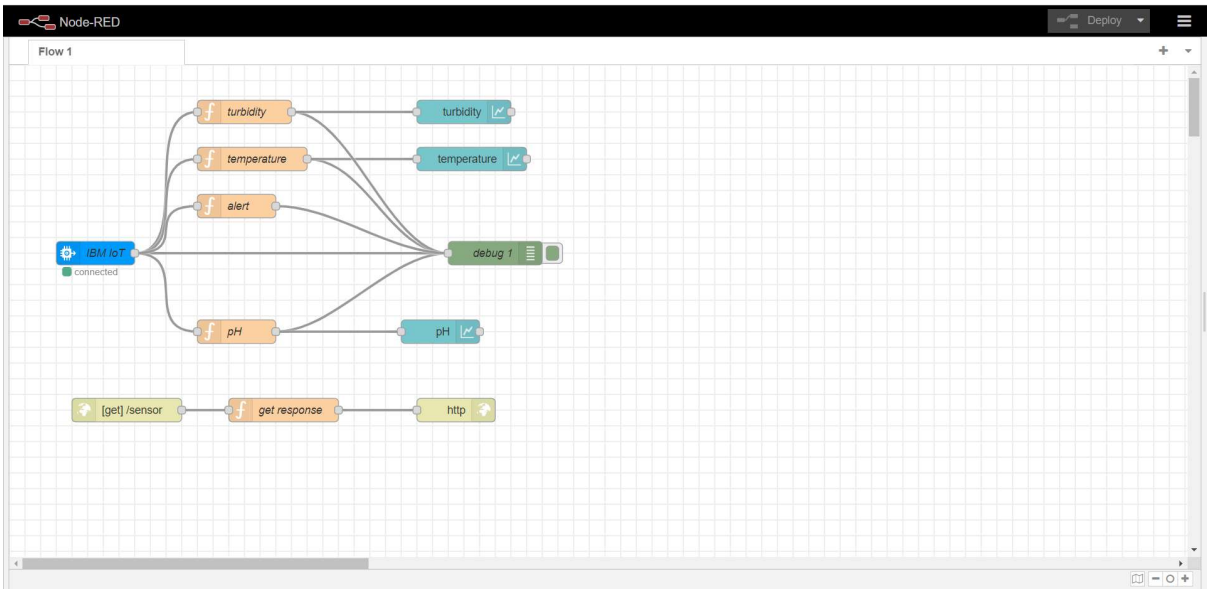
# IBM IOT WATSON:

## PUBLISHING DATA TO IBM IOT WATSON:

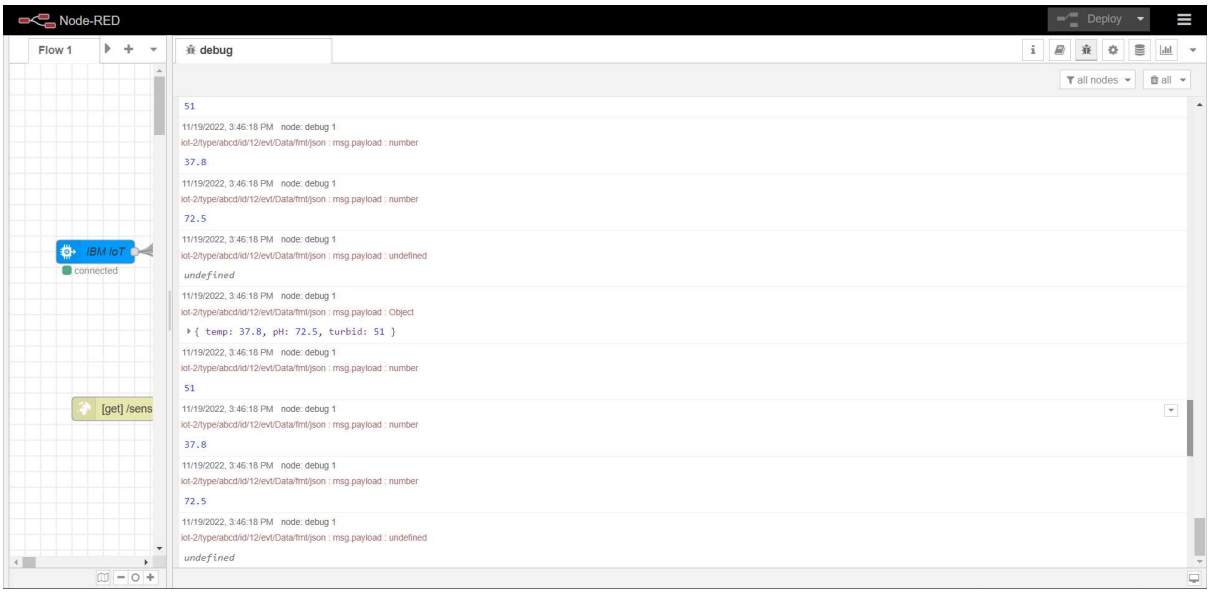



# NODE-RED:

## NODE-RED FLOW DIAGRAM:



# PUBLISHING DATA FROM IBM IOT WATSON TO NODE-RED:




# SOURCE CODE:

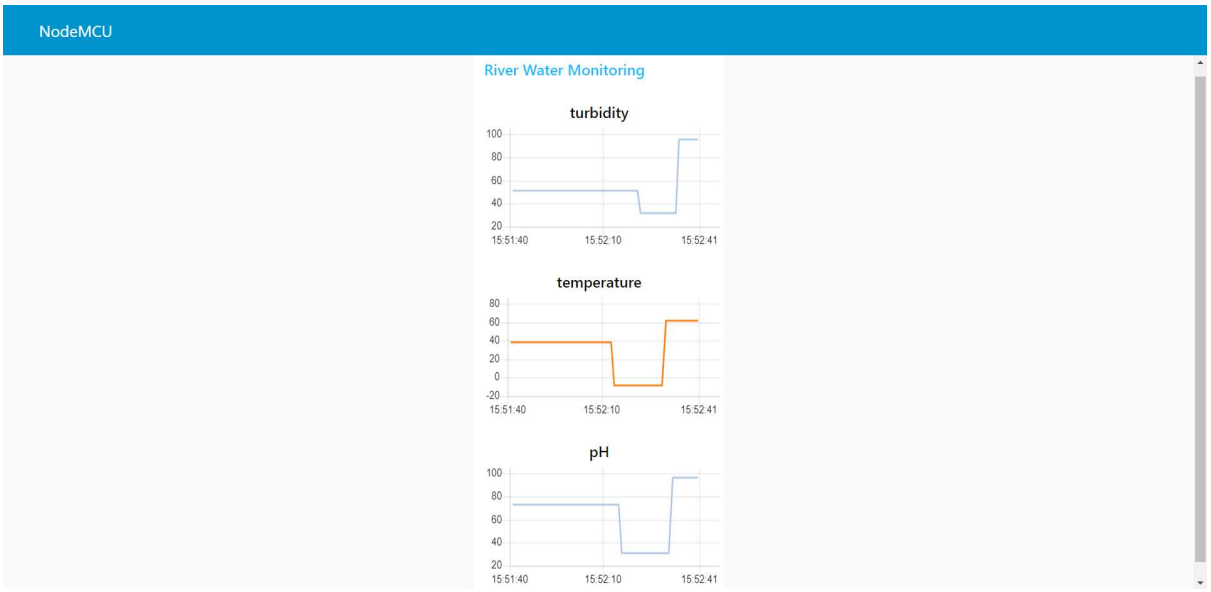
msg.payload = {"temp":global.get('t'),"pH":global.get('pH'),"turbid":global.get('tur'),"alert":global.get('a')}

return msg;

# HTTP REQUEST USING NODE RED:


{"temp":78,"pH":10,"turbid":666,"alert":1}

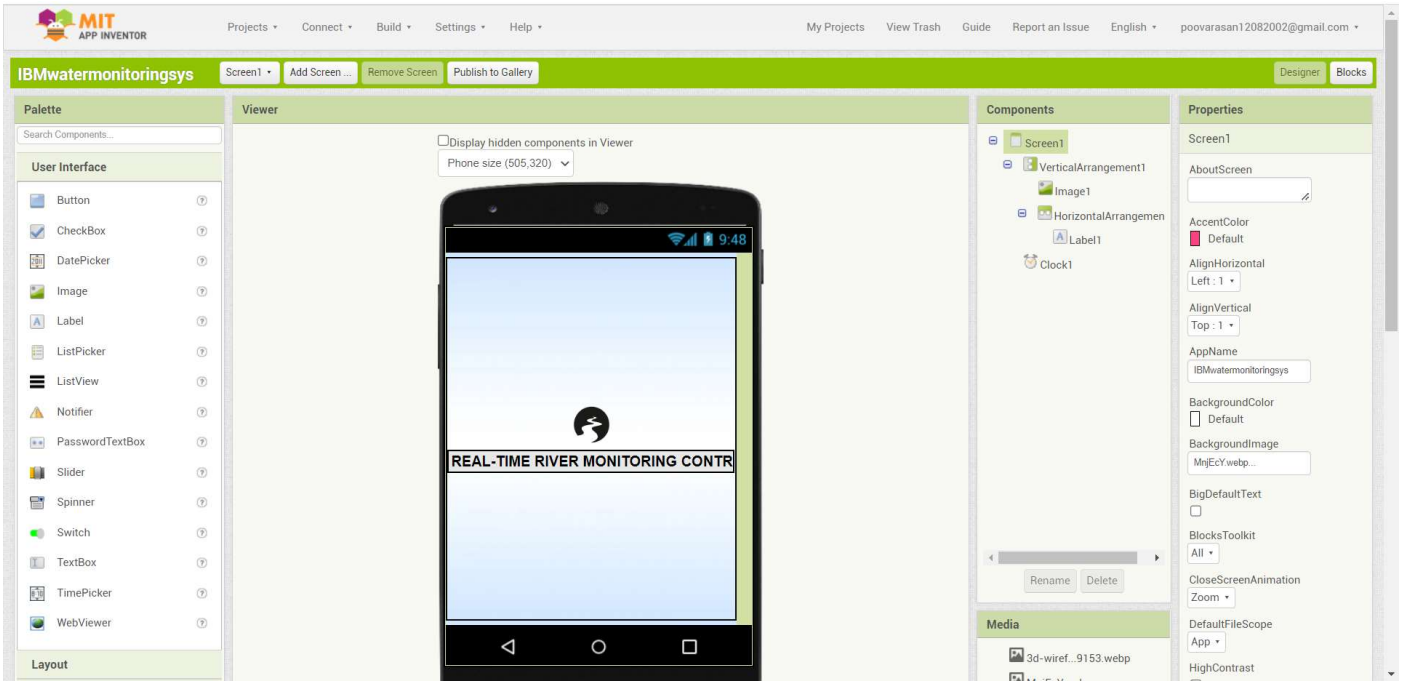
# GENERATING THE OUTPUT FOR RECENT EVENTS:



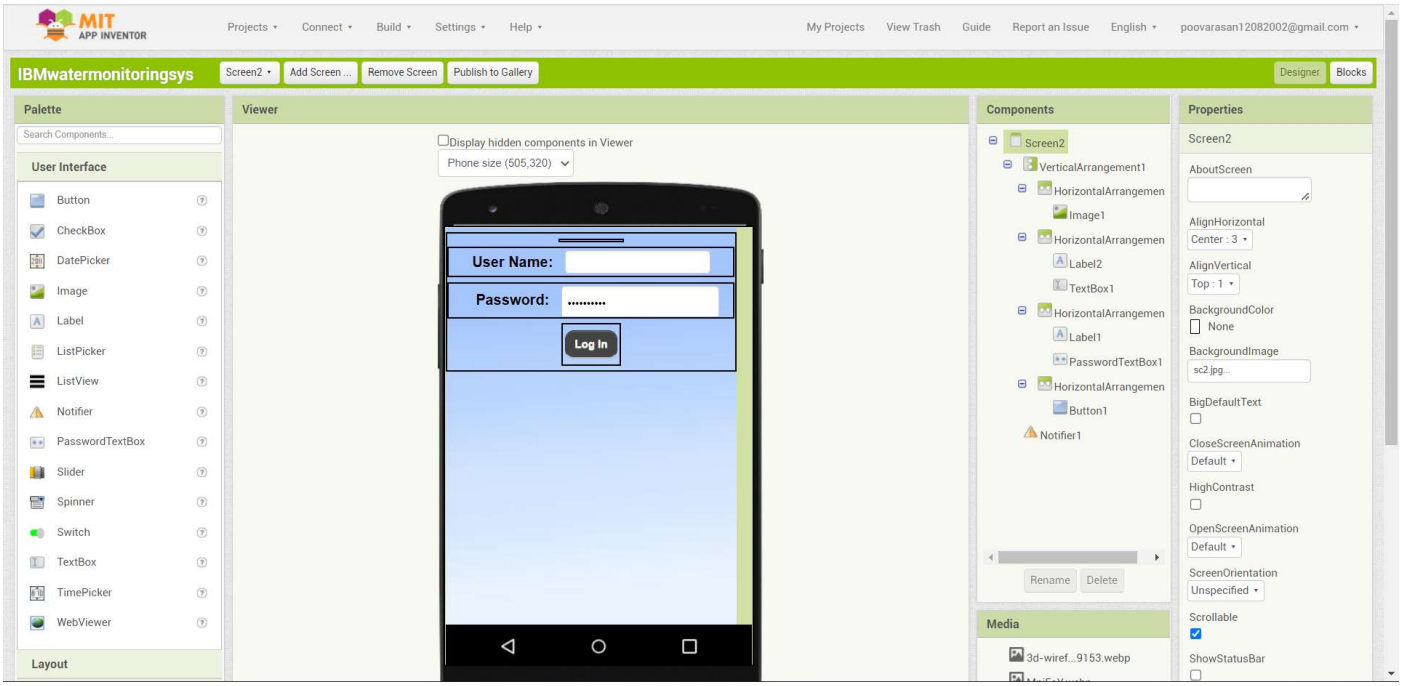
# MIT APP INVERTOR:

# FRONT END:

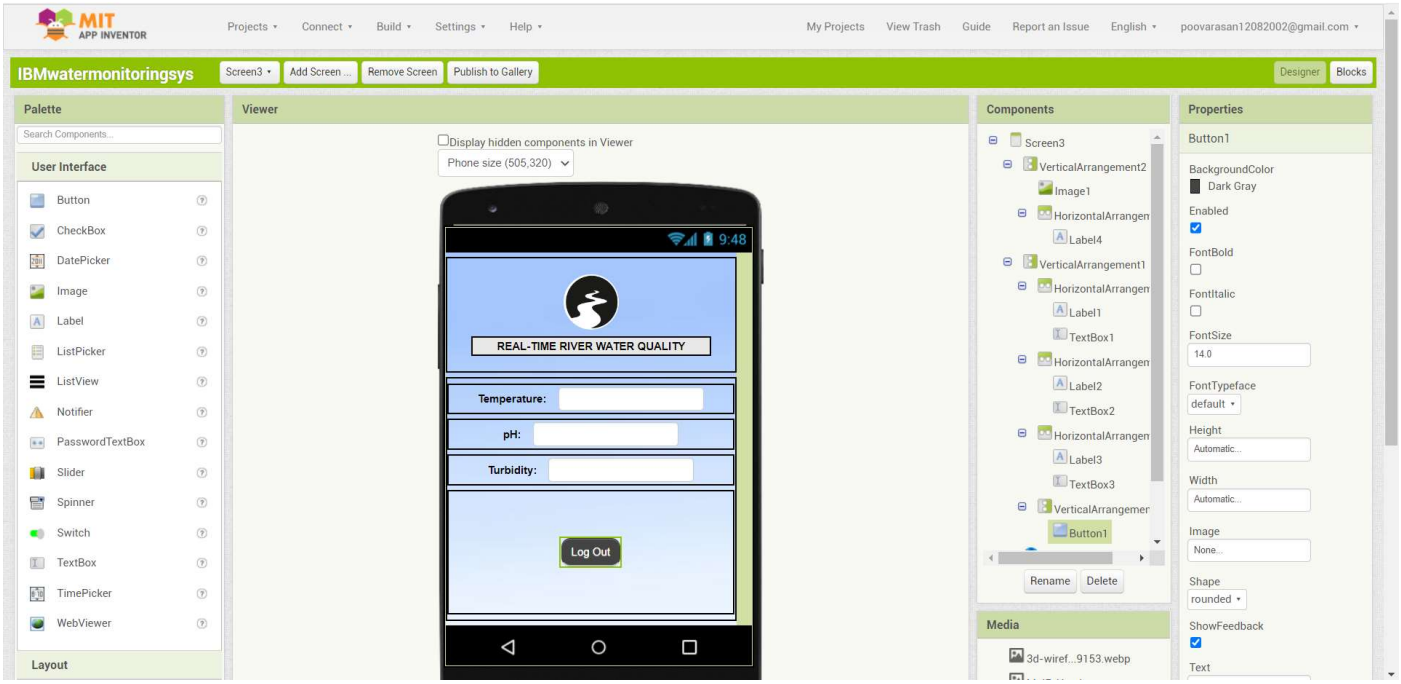
## SCREEN-1:




## SCREEN-2:

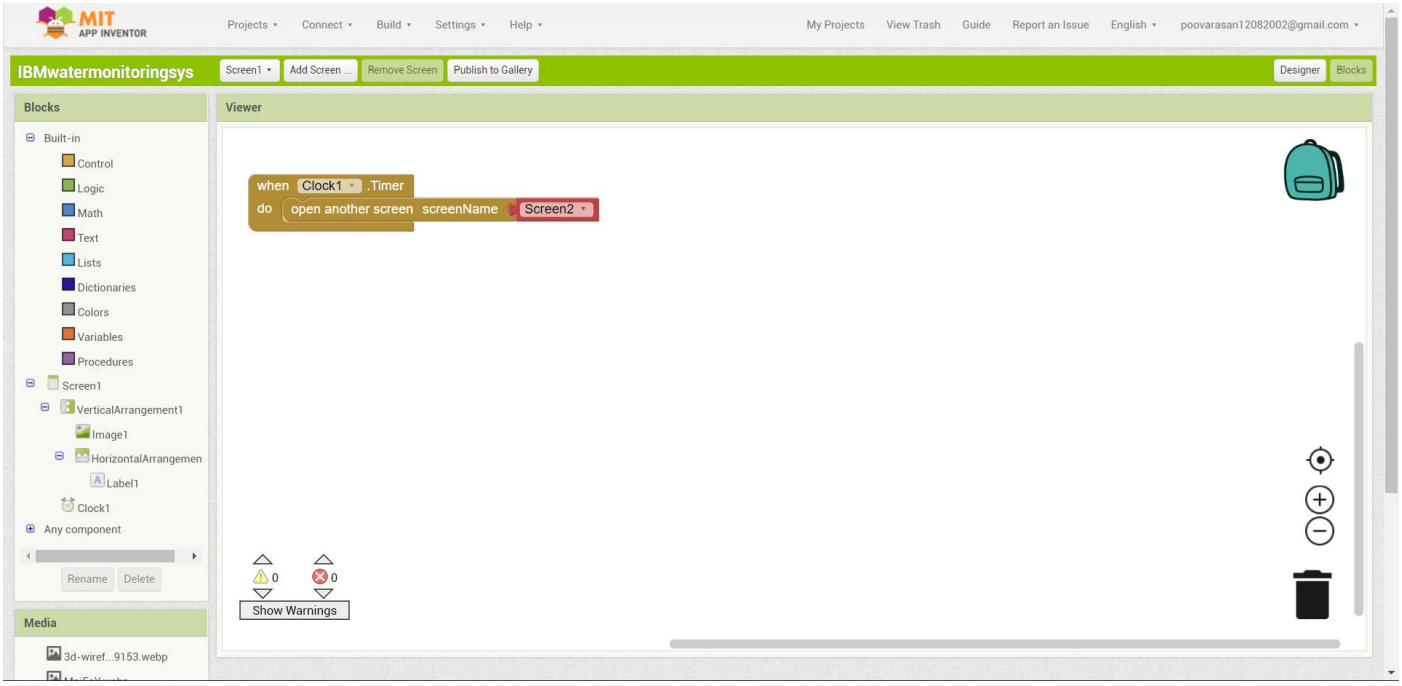


# SCREEN-3:

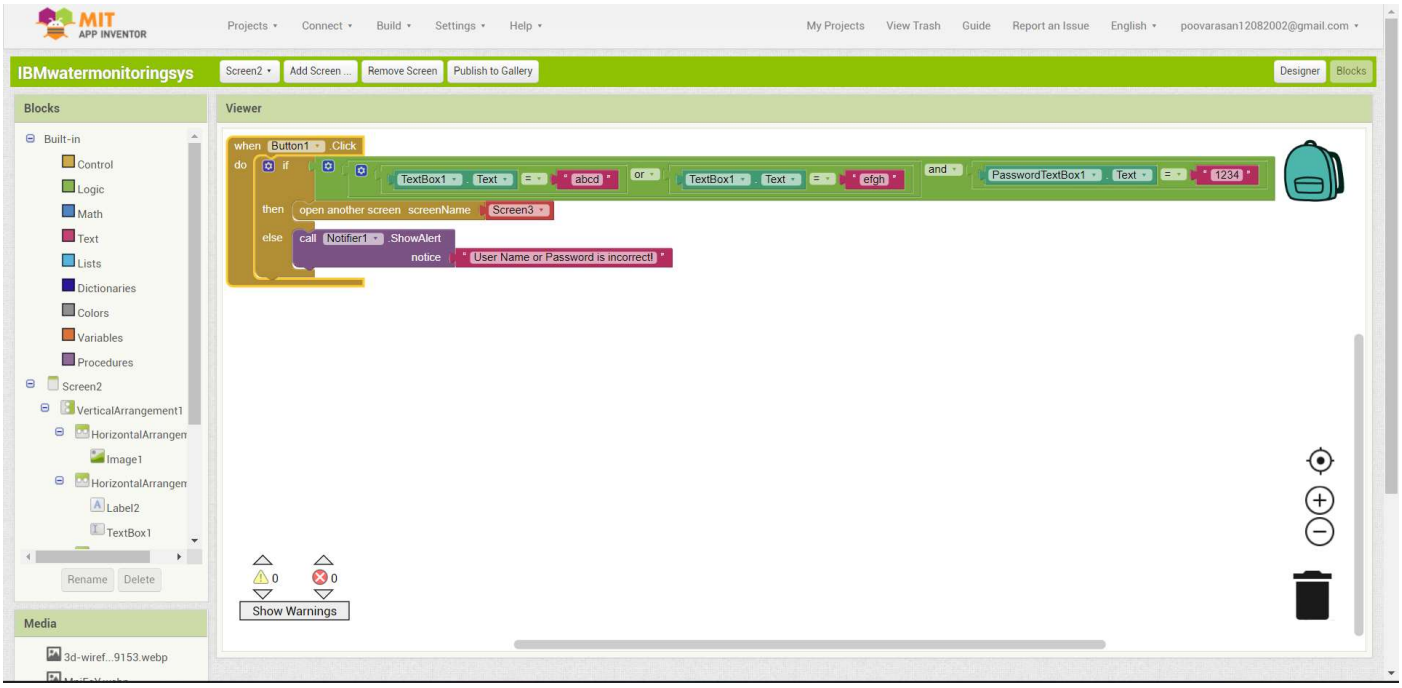



# BACK END:

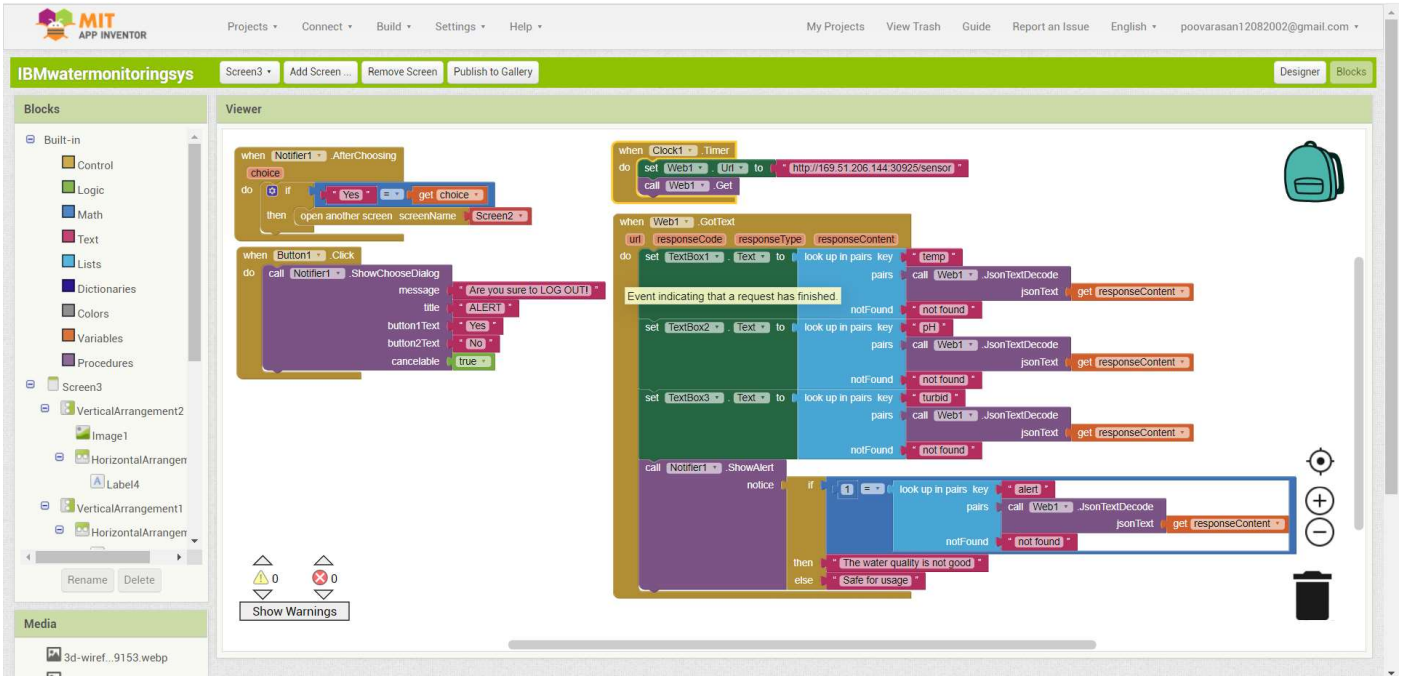
# SCREEN-1:



# SCREEN-2:



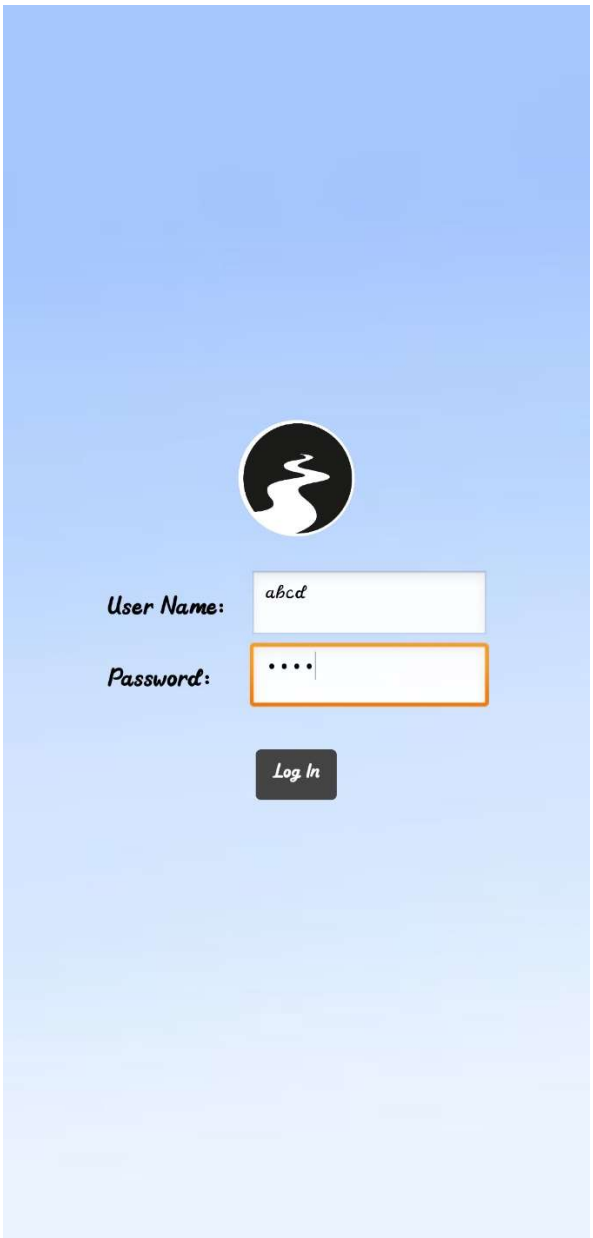

# SCREEN-3:



## MIT APP INVERTOR OUTPUT-MOBILE PHONE:

**SCREEN-1:**


**SCREEN-2(LOG IN PAGE)**



## SCREEN-3:


## LOG OUT PAGE: