SPRINT - 3

Date	8 November 2022
Team ID	PNT2022TMID17659
Project Name	Smart waste management system for metropolitan cities
Points	20

Created a IOT device to sense the level of bins and do code for device and send to Node Red using the API keys from Watson platform

CODE :

```
#include <cstdlib>

#include <time.h>

#include <WiFi.h>

#include <PubSubClient.h>



#define ORG "zuhtbq"

#define DEVICE_TYPE "Rasp"

#define DEVICE_ID "12345"

#define TOKEN "12345678"

#define speed 0.034



char server[] = ORG ".messaging.internetofthings.ibmcloud.com";

char publishTopic[] = "iot-2/evt/data/fmt/json";

char authMethod[] = "use-token-auth";

char token[] = TOKEN;

char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;



WiFiClient wifiClient;

PubSubClient client(server, 1883, wifiClient);

int weight = 0;
```

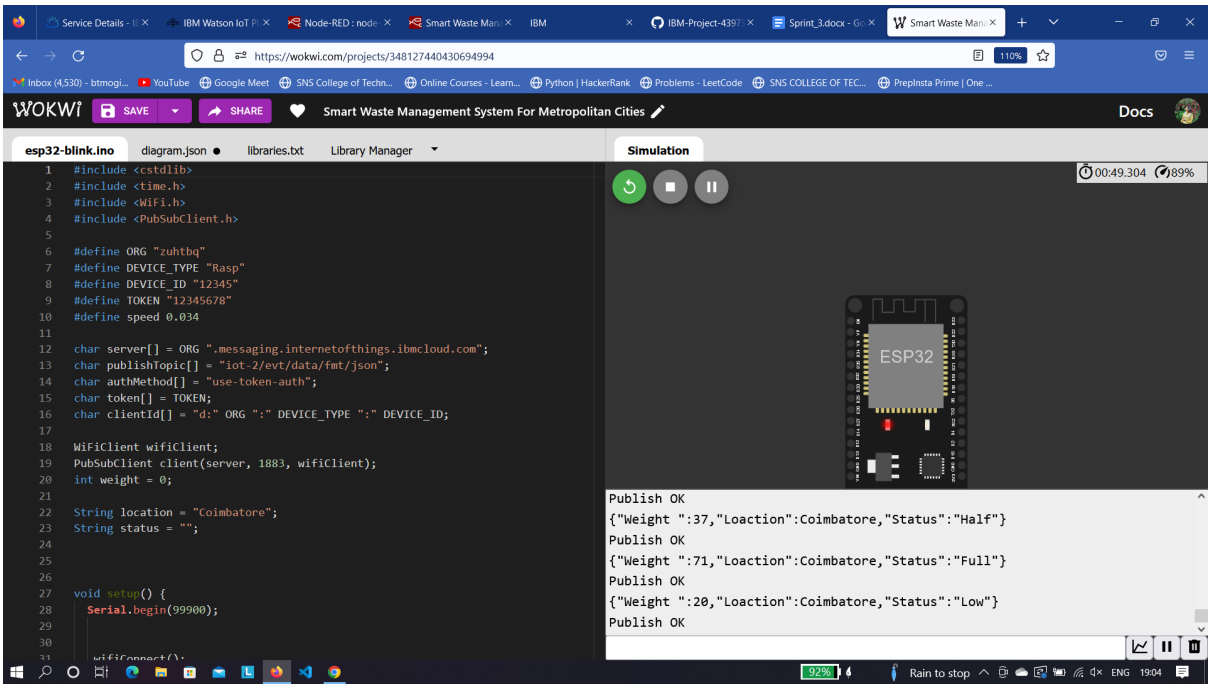
```
String location = "Coimbatore";
String status = "";




void setup() {
  Serial.begin(99900);



   wifiConnect();
   mqttConnect();
}


void loop() {


  srand(time(0));



    int p;


    weight = random(0,80);
    if(weight > 0  && weight < 25){
        p = 0;
    }
    else if(weight > 25  && weight < 50){
        p = 1;
    }
    else{
```

```
  p = 2;
}




switch (p) {
case 0:
    status = "Low";
    break;
case 1:
    status = "Half";
    break;
case 2:
    status = "Full";
    break;
}



String payload = "{";
payload+="\"Weight \":";
payload+=weight;
payload+=",";
payload+="\"Loaction\":";
payload+="Coimbatore";
payload+=",";
payload+="\"Status\":\""+status+"\"}";
Serial.println(payload);
```

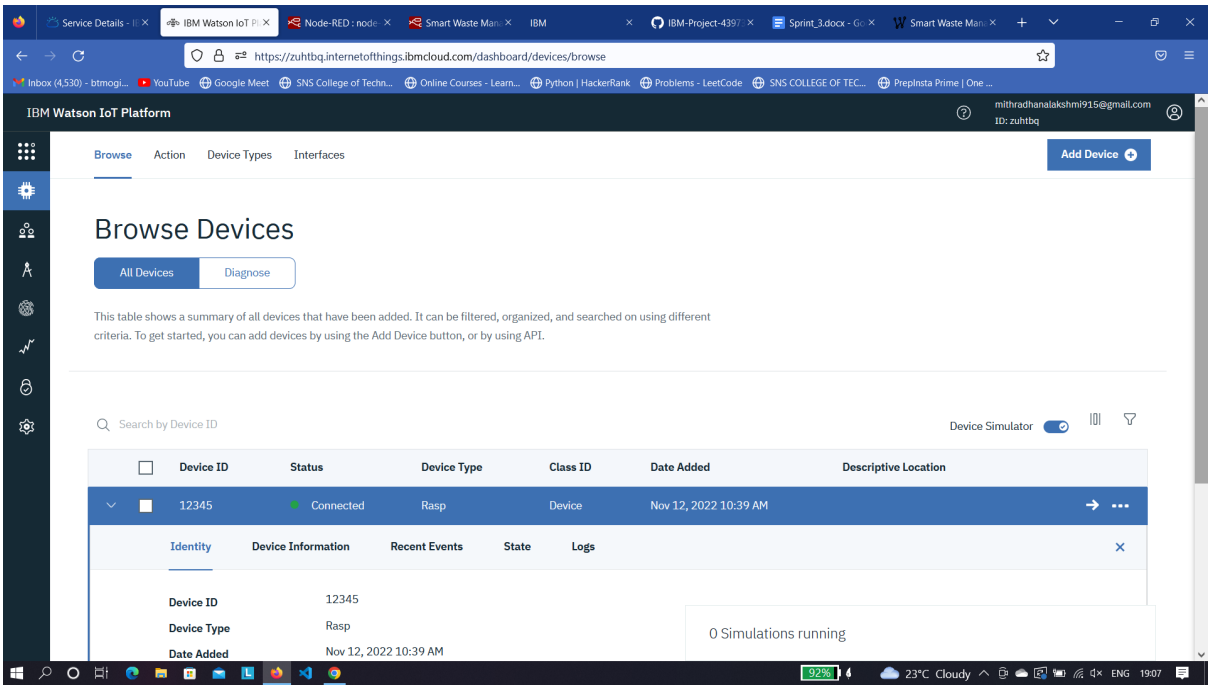
```
  if(client.publish(publishTopic, (char*) payload.c_str()))
  {
    Serial.println("Publish OK");
  }
  else{
    Serial.println("Publish failed");
  }
  delay(1000);



  if (!client.loop())
  {
    mqttConnect();
  }




}



void wifiConnect()
{
  Serial.print("Connecting to ");
  Serial.print("Wifi");
  WiFi.begin("Wokwi-GUEST", "", 6);
  while (WiFi.status() != WL_CONNECTED)
  {
```

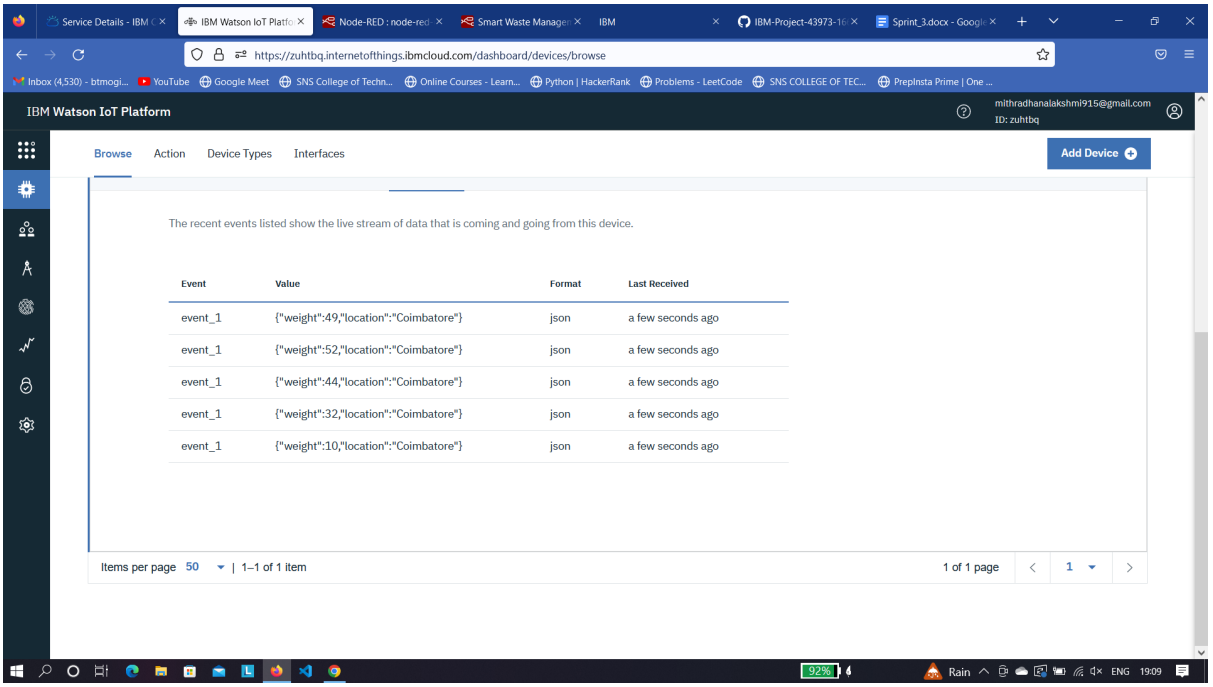
```
    delay(500);
    Serial.print(".");
  }
  Serial.print("WiFi connected, IP address: ");
  Serial.println(WiFi.localIP());

}



void mqttConnect()
{
  if (!client.connected())
  {
    Serial.print("Reconnecting MQTT client to ");
    Serial.println(server);
    while (!client.connect(clientId, authMethod, token))
    {
      Serial.print(".");
      delay(500);
    }

    Serial.println();
  }
}
```

Sensor circuit:

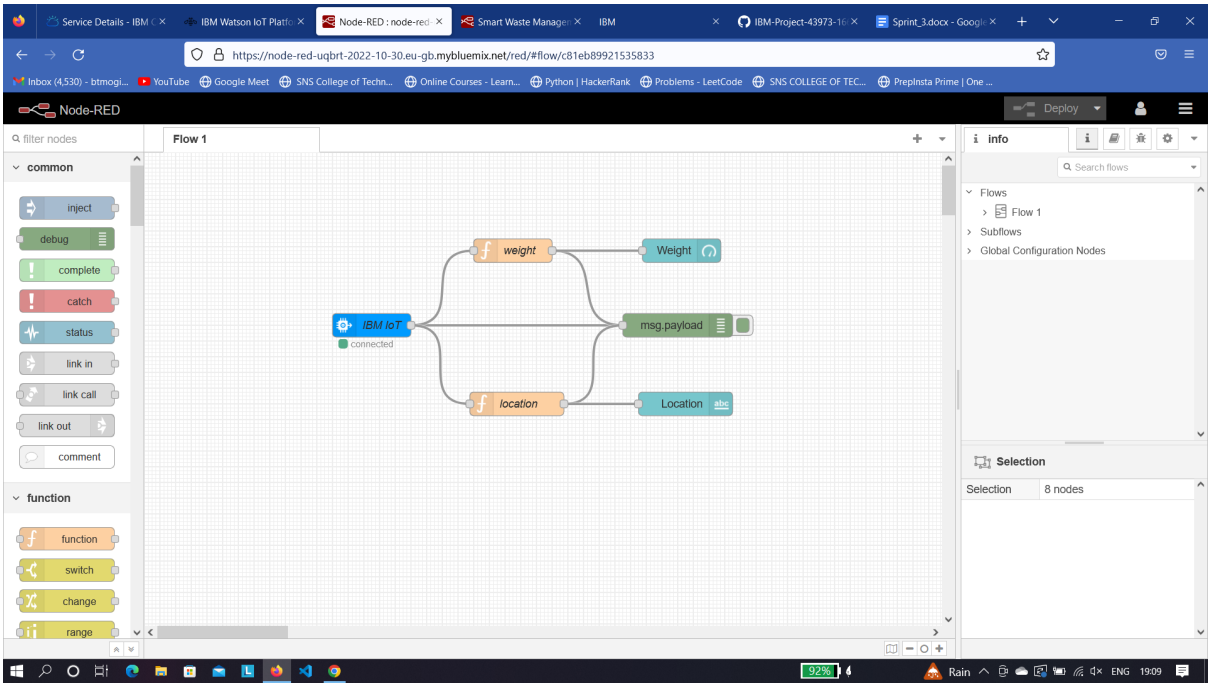


Watson IOT Platform:

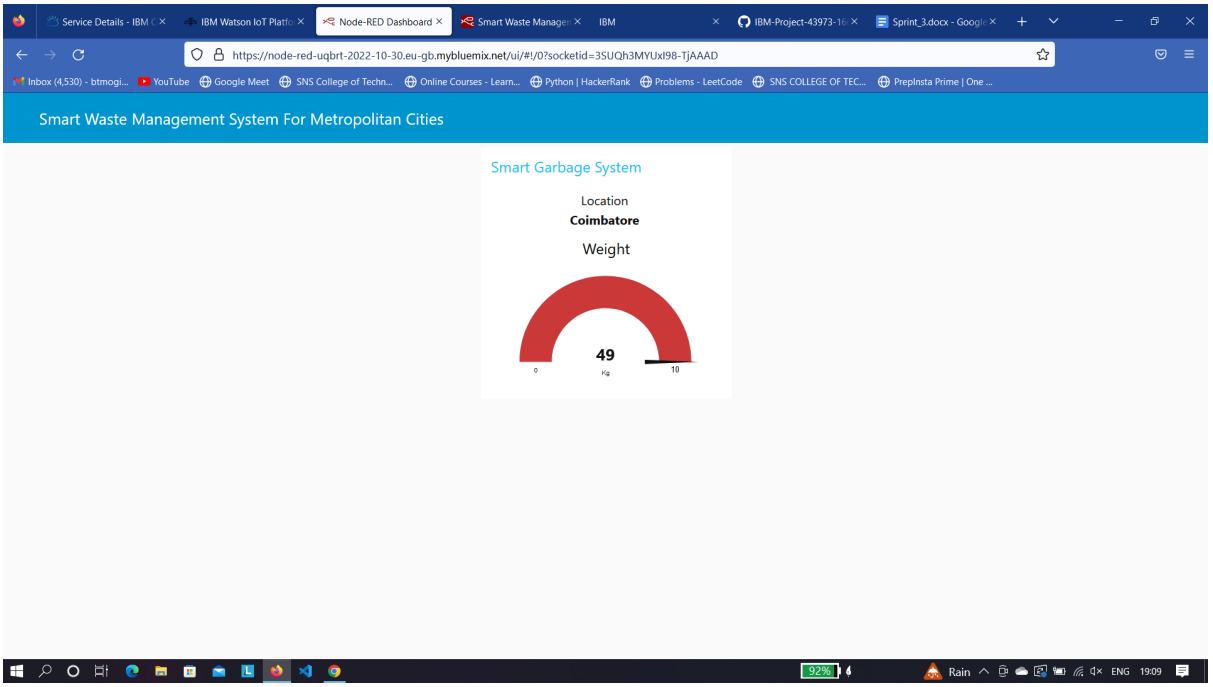




Node-RED Connections :



Web UI :



Run the code here : https://wokwi.com/projects/348127440430694994