SPRINT – 3

Date	8 November 2022
Team ID	PNT2022TMID20530
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 :

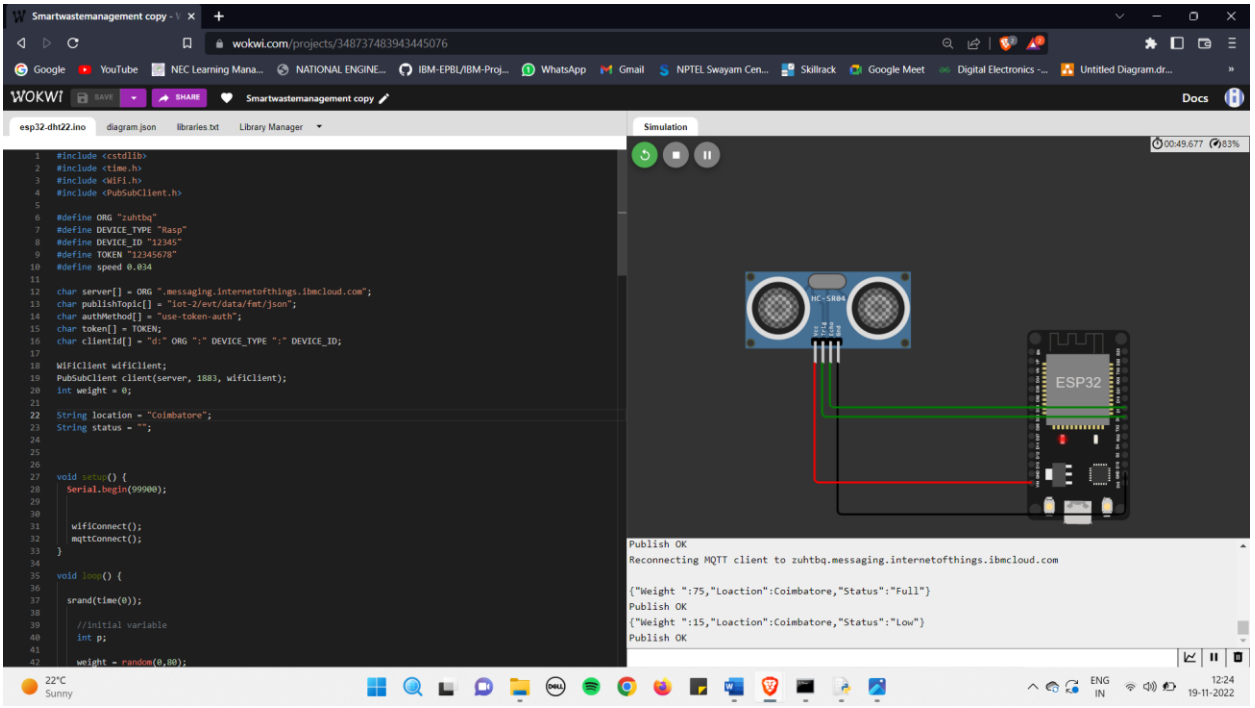
```
#include <cstdlib>
#include <time.h>
#include <WiFi.h>
#include <PubSubClient.h>

#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));

    //initial variable
    int p;

    weight = random(0,80);
    if(weight > 0  && weight < 25){
        p = 0;
    }
    else if(weight > 25  && weight < 50){
        p = 1;
    }
    else{
      p = 2;
    }

    //set a quality status

    switch (p) {
    case 0:
        status = "Low";
        break;
    case 1:
```

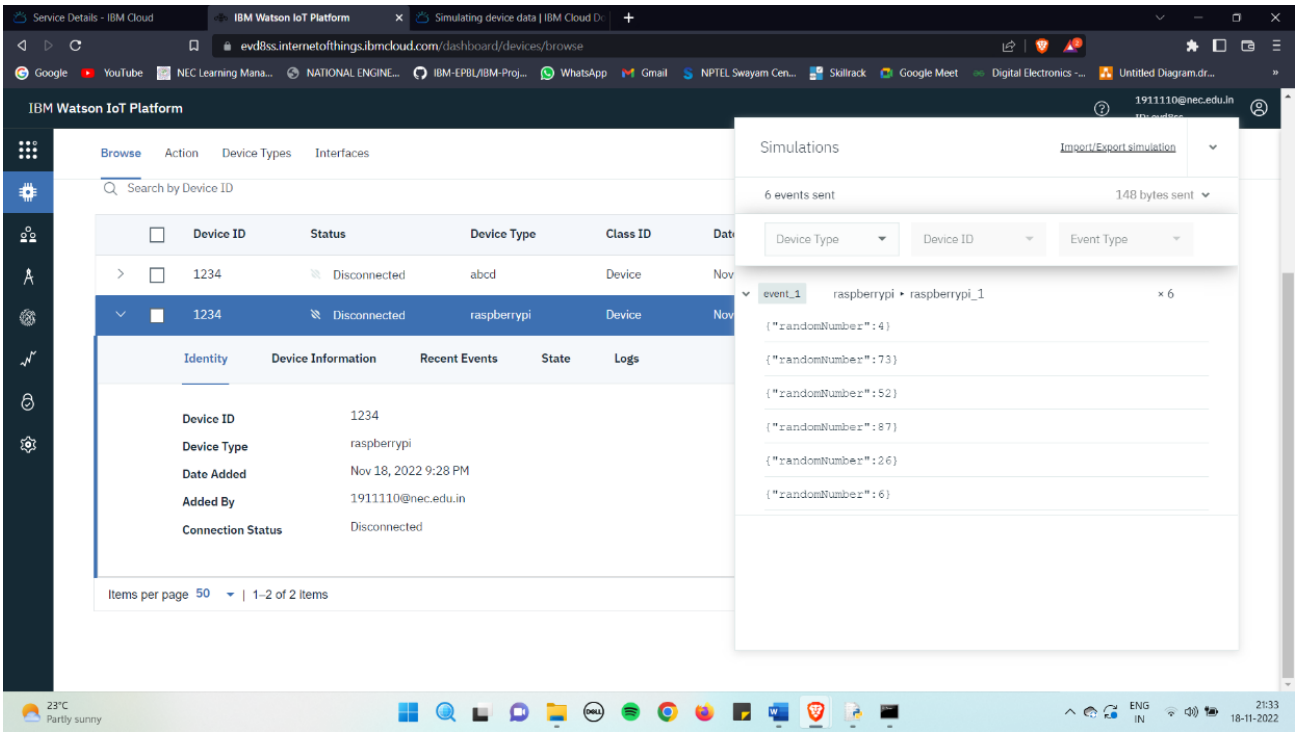
```
      status = "Half";
      break;
    case 2:
      status = "Full";
      break;
    }

  //Obivously the output.It is like json format 'cause it will help us for
future sprints
    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();
 }
}
```

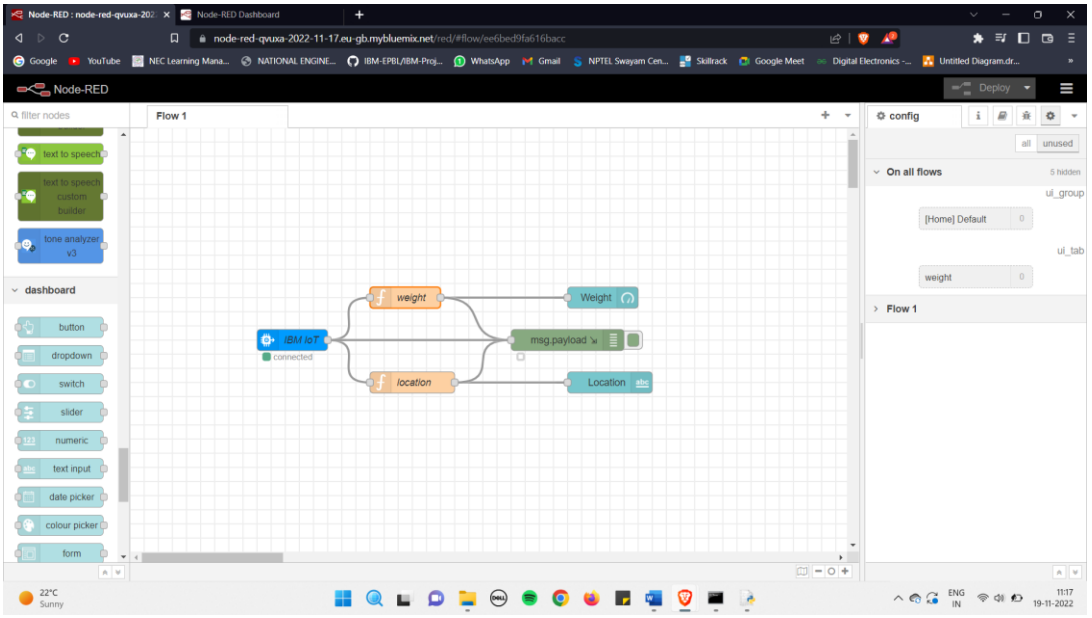
Sensor circuit:



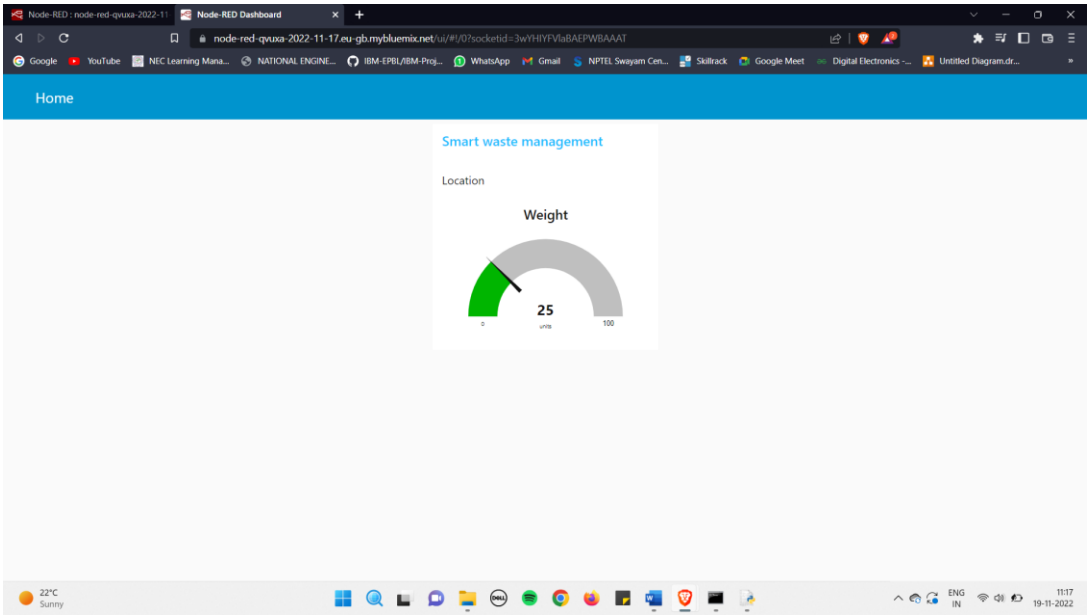
Watson IOT Platform:



Node-RED Connections :



Web UI :



Run the code here :

https://wokwi.com/projects/348737483943445076