Delivery of Sprint - 3

Team ID	PNT2022TMID05622
Project Name	Smart Waste Management for Metropolitan Cities

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

```
#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);
```

```cpp
  if(client.publish(publishTopic, (char*) payload.c_s
  {
    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());
```
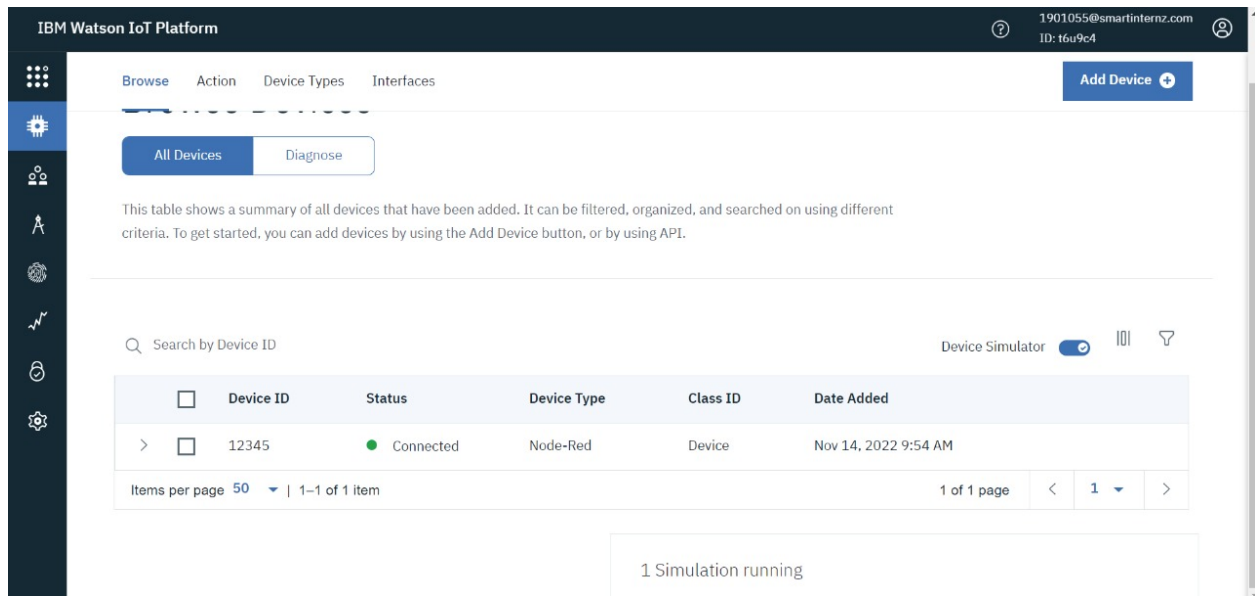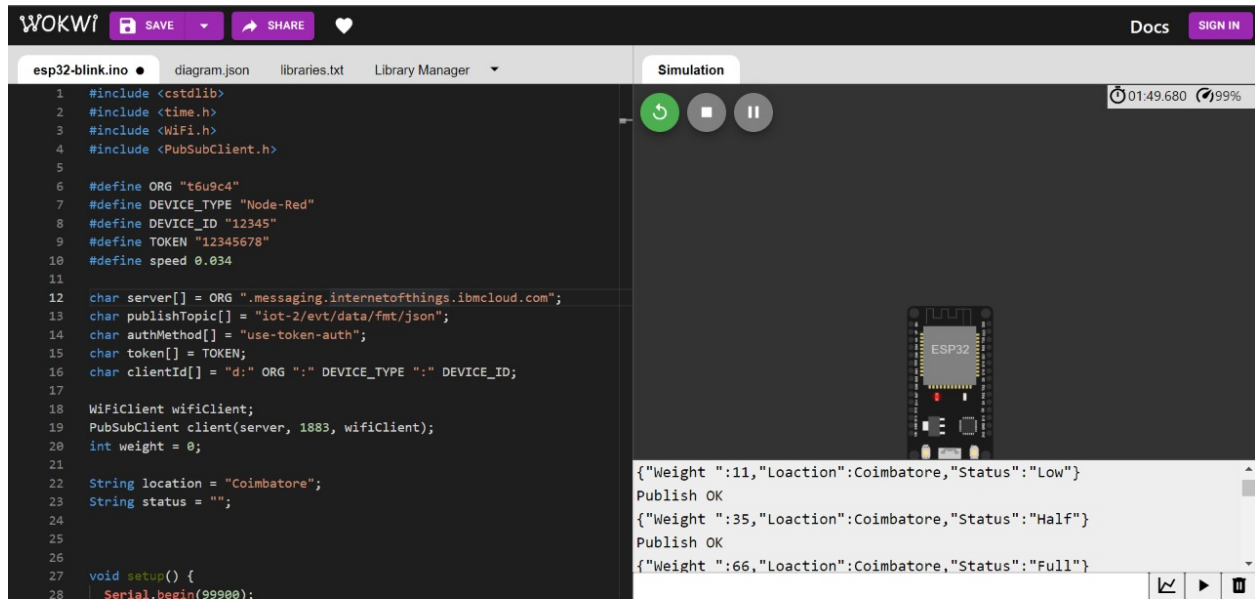
```cpp
}

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();
  }
}
```
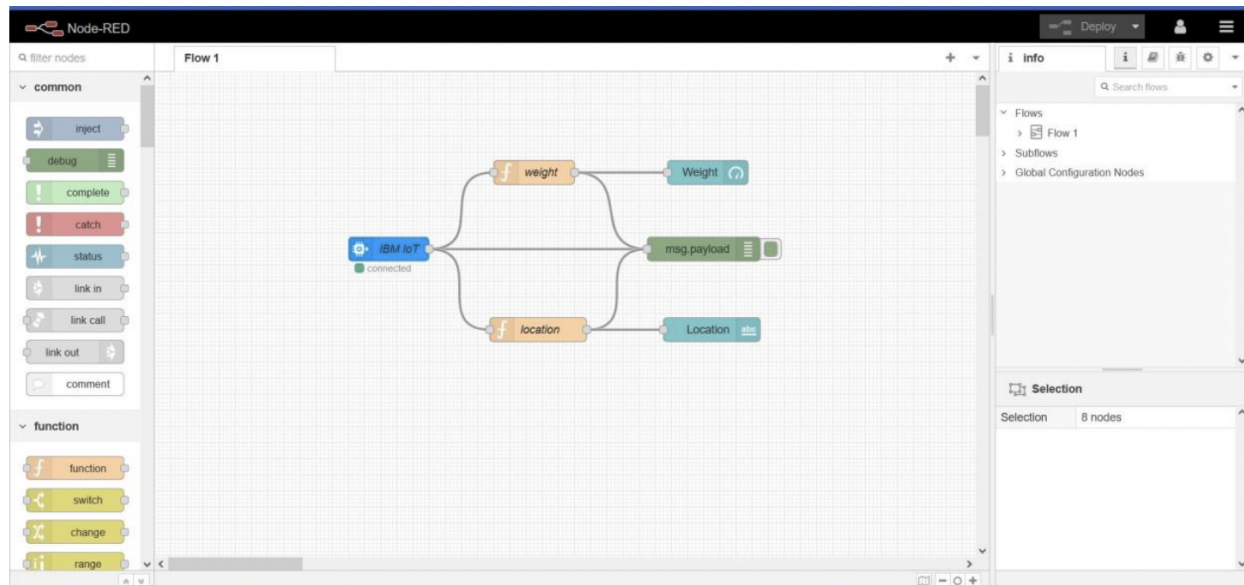
Watson IOT Platform:

Node-RED Connections :

Web UI :