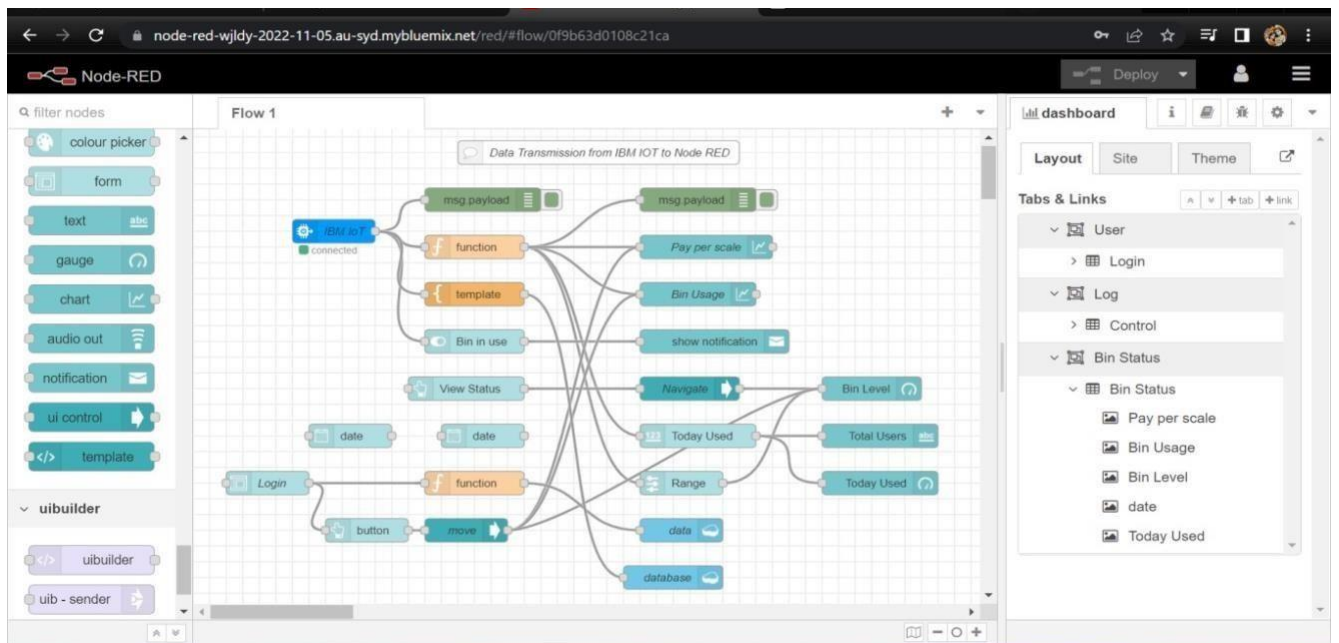
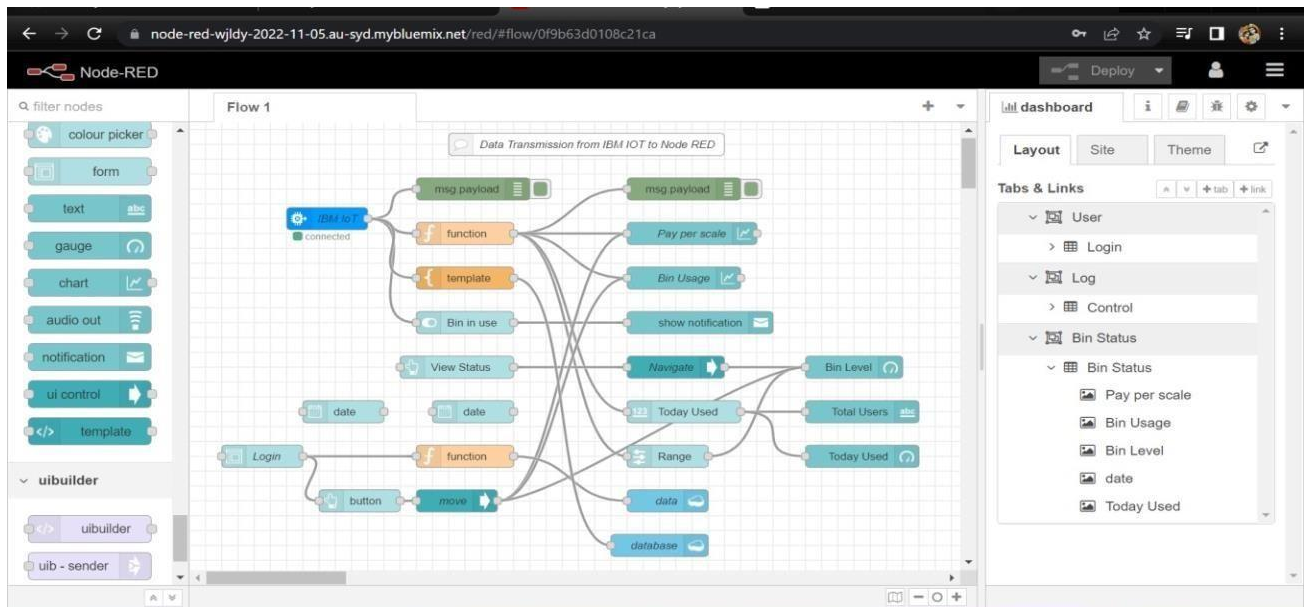


Delivery of Sprint – 3

Node Red Connection to IBM Cloudant

| | |
|--------------|--|
| Date | 5 November 2022 |
| Team ID | PNT2022TMID41478 |
| Project Name | Smart Waste Management for Metropolitan Cities - IOT |

1. Node-RED Connection setup for data transmission from IBM Watson IOT platform to Node-REDDashboard.



2. Simulate Wokwi connection to transmit data from wokwi account to IBM Watson IOT platform and then to Node Red dashboard.

The screenshot shows the Wokwi IDE interface. On the left, the code for the ESP32 is displayed:

```

177
178
179
180
181
182 if(cm <= 25)
183 {
184   digitalWrite(21,HIGH);
185   String payload = "{\"High_Alert\":\"";
186   payload += cm;
187   payload += " }";
188   Serial.print("\n");
189   Serial.print("Sending payload: ");
190   Serial.println(payload);
191
192   if (client.publish(publishTopic, (char*) payload.c_str())) // if
193   {
194     Serial.println("Publish OK");
195   }
196 }
197 if(cm <= 50)
198 {
199   digitalWrite(22,HIGH);
200   String payload = "{\"Warning\":\"";
201   payload += cm;
202   payload += " }";
203   Serial.print("\n");

```

On the right, the simulation window shows a breadboard with an ESP32, a PIR motion sensor, and a distance sensor. The console output shows the simulation running and sending data to the MQTT topic:

```

Sending distance: 26.94
Publish OK
Motion Detected
Lid Opened
High Alert!!!,Trash bin is about to be full
Lid Closed

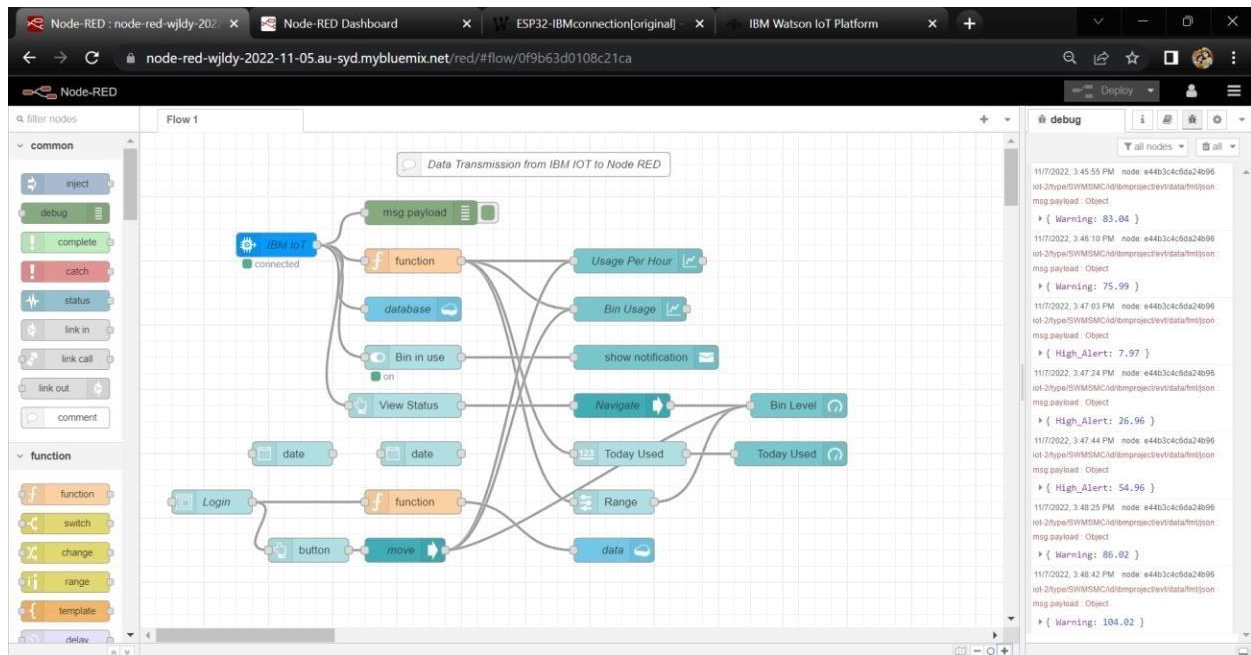
```

3.Data transfer to Watson IOT platform.

The screenshot shows the IBM Watson IoT Platform dashboard. The 'Browse' tab is selected, and the 'Recent events' section is displayed. The events are listed in a table:

| Event | Value | Format | Last Received |
|-------|-------------------|--------|-------------------|
| data | {"Warning":28.95} | json | a few seconds ago |
| data | {"Warning":28.95} | json | a few seconds ago |
| data | {"Warning":49.98} | json | a minute ago |
| data | {"Warning":49.98} | json | a minute ago |
| data | {"Warning":11.03} | json | a minute ago |

4.Data transfer from IBM Watson IOT platform and wokwi to Node red.



5. Storing database in IBM cloudant DB.

ee6aeb4a-3006-499e-940e-af19edf953bf-bluemix.cloudant.com/dashboard.html#/all_dbs

Databases

Database name

Create Database

{ } JSON

Log Out

Your Databases

| Name | Size | # of Docs | Partitioned | Actions |
|----------------------|---------|-----------|-------------|---------|
| login_credentials | 13.7 KB | 111 | No | |
| noderedwjldy20221105 | 37.4 KB | 4 | No | |
| sample | 59.4 KB | 351 | No | |
| sensor_data | 15.7 KB | 90 | No | |

Showing 1-4 of 4 databases. Databases per page 20

| id | key | value |
|-------------------------------|-------------------------------|------------------------------------|
| 0198213c192cb2c244cc2433f1... | 0198213c192cb2c244cc2433f1... | {"rev": "1-cde2dd17c519394df...", |
| 0198213c192cb2c244cc2433f1... | 0198213c192cb2c244cc2433f1... | {"rev": "1-d26c5b40891e13c6c...", |
| 0198213c192cb2c244cc2433f1... | 0198213c192cb2c244cc2433f1... | {"rev": "1-cde2dd17c519394df...", |
| 0198213c192cb2c244cc2433f1... | 0198213c192cb2c244cc2433f1... | {"rev": "1-f96eb0460bc16cfab0...", |
| 1a921f21cbe229b86f599acb45... | 1a921f21cbe229b86f599acb45... | {"rev": "1-7226f08794cd47b7c...", |
| 1a921f21cbe229b86f599acb45... | 1a921f21cbe229b86f599acb45... | {"rev": "1-1bbdd9a985bd56cf9...", |
| 20a854e5445fa818e6c1de049... | 20a854e5445fa818e6c1de049... | {"rev": "1-7226f08794cd47b7c...", |
| 20a854e5445fa818e6c1de049... | 20a854e5445fa818e6c1de049... | {"rev": "1-3ad288ecad57f039e...", |
| 20a854e5445fa818e6c1de049... | 20a854e5445fa818e6c1de049... | {"rev": "1-1bbdd9a985bd56cf9...", |
| 298ed6fhd9h3h815f5ac7c061e... | 298ed6fhd9h3h815f5ac7c061e... | {"rev": "1-4e7240f6e5307a1b9...", |

6.Data is stored in JSON format

```

1 {
2   "_id": "0198213c192cb2c244cc2433f1802b91",
3   "_rev": "1-cde2dd17c519394dfb774738c495f8b",
4   "topic": "iot-2/type/SWMSMC/id/ibmproject/evt/data/fmt/json",
5   "payload": {
6     "Warning!!": "244.971eft"
7   },
8   "deviceId": "ibmproject",
9   "deviceType": "SWMSMC",
10  "eventType": "data",
11  "format": "json"
12 }

```

