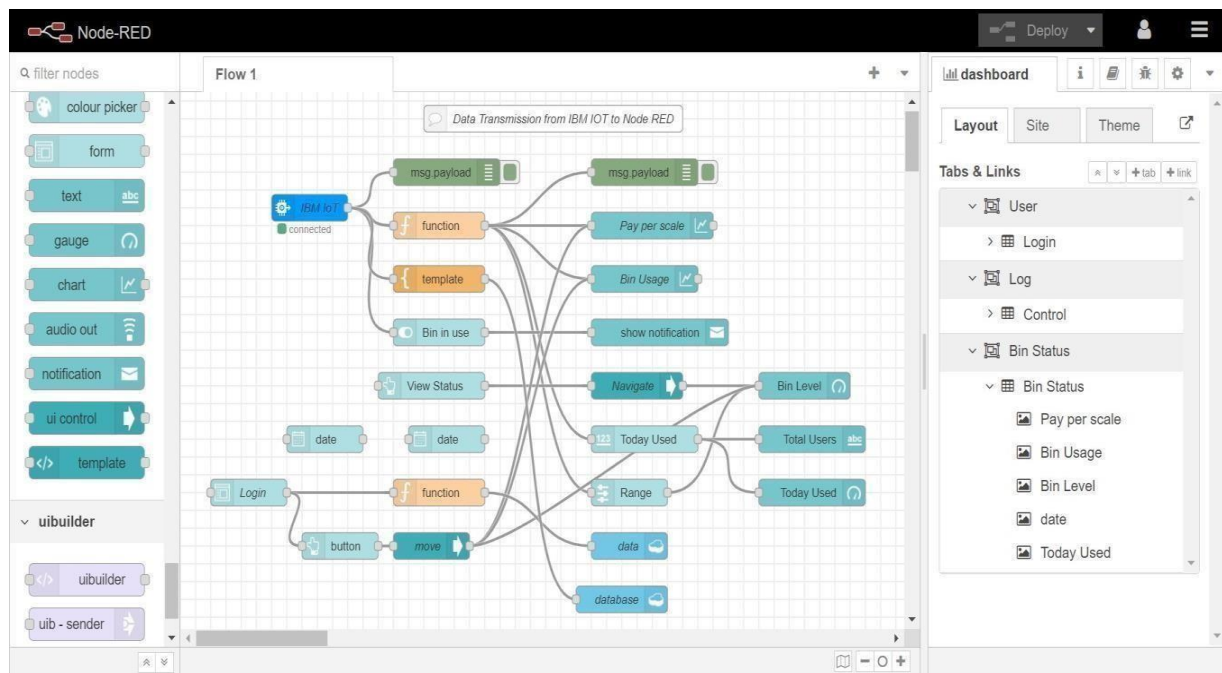
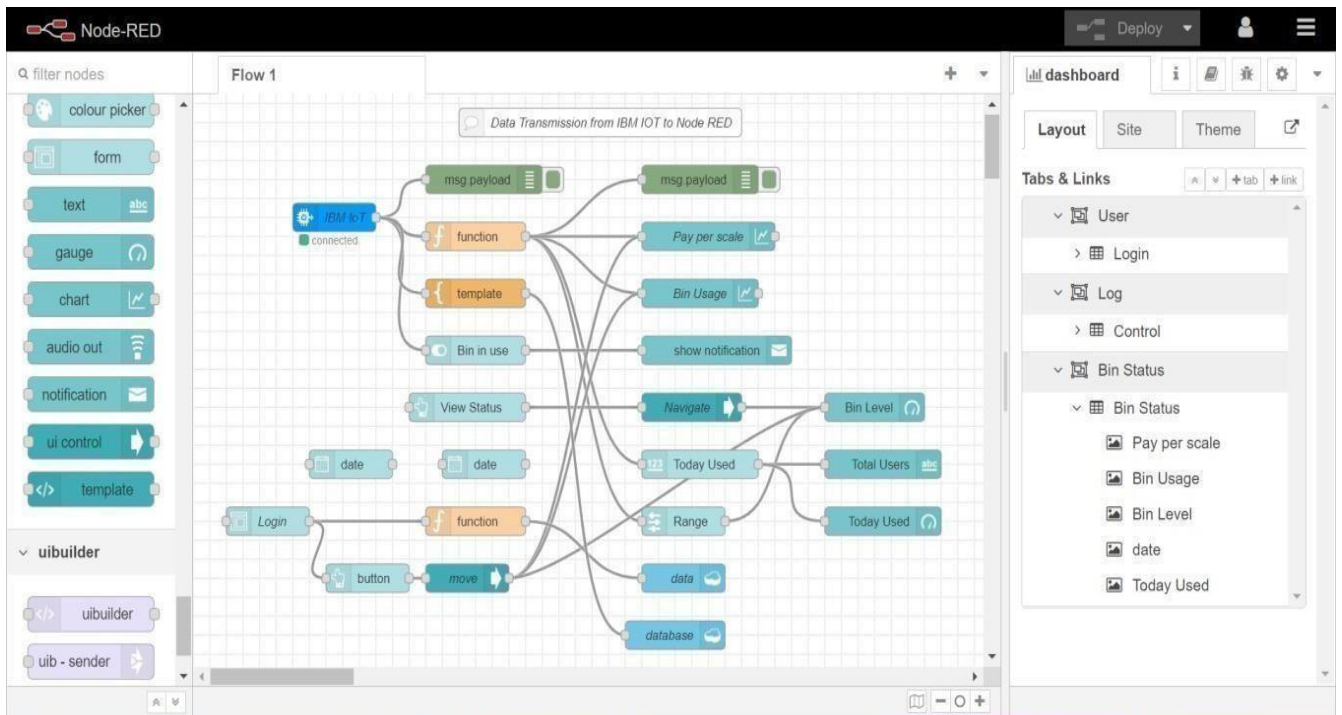


## Delivery of Sprint – 4

Team ID	PNT2022TMID26064
Project Name	Smart Waste Management for Metropolitan Cities

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





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

esp32-blink.ino

```

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");

```

Simulation

00:35.846 99%

PIR Motion Sensor  
Simulate motion

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.

Browse   Action   Device Types   Interfaces
Add Device +

---

The recent events listed show the live stream of data that is coming and going from this device.

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.

The screenshot shows the IBM Cloudant Databases interface. At the top, there's a 'Databases' header with a 'Database name' dropdown, a 'Create Database' button, and icons for JSON, a book, and a bell. Below this is a section titled 'Your Databases' containing a table with the following data:

Name	Size	# of Docs	Partitioned	Actions
login_credentials	13.7 KB	111	No	[Icons for edit, lock, delete]
noderedwjldy20221105	37.4 KB	4	No	[Icons for edit, lock, delete]
sample	59.4 KB	351	No	[Icons for edit, lock, delete]
sensor_data	15.7 KB	90	No	[Icons for edit, lock, delete]

At the bottom, it says 'Showing 1-4 of 4 databases.' and 'Databases per page: 20' with a dropdown arrow. There's also a 'Log Out' button in the bottom left corner.

The screenshot shows the IBM Cloudant interface for the 'sensor\_data' database. On the left, there's a sidebar with 'All Documents', 'Query', 'Permissions', 'Changes', and 'Design Documents'. The main area has a 'Document ID' dropdown, 'Options' gear icon, and icons for JSON, a book, and a bell. Below this is a 'Create Document' button. The main content area shows a table with columns 'id', 'key', and 'value'. The table contains 10 rows of document data, each with a checkbox, a document icon, and a truncated ID. The 'value' column shows JSON snippets like '{"rev": "1-cde2dd17c519394df..."}'. At the bottom, it says 'Showing document 1 - 20.' and 'Documents per page: 20' with a dropdown arrow. There's also a 'Log Out' button in the bottom left corner.

## 6. Data is stored in JSON format

↔

sensor\_data > 0198213c192cb2c244cc2433f1802b91

{ } JSON

Save Changes Cancel

Upload Attachment Clone Document Delete

1- {

2 "id": "0198213c192cb2c244cc2433f1802b91",

3 "\_rev": "1-cde2dd17c519394dfcb774730c495f8b",

4 "topic": "iot-2/type/SWMSMC/id/ibmproject/evt/data/fmt/json",

5 "payload": {

6 | "warning!": "244.97left"

7 },

8 "deviceId": "ibmproject",

9 "deviceType": "SWMSMC",

10 "eventType": "data",

11 "format": "json"

12 }

Log Out

## 7. Web UI

Log

Log

Bin Status

Control

Bin in use

Range


Today Used


date

VIEW STATUS


≡ Log


Control

Bin in use 

Range 

Today Used ▼ 0 ▲

date  06/11/2022 ▼

 VIEW STATUS

