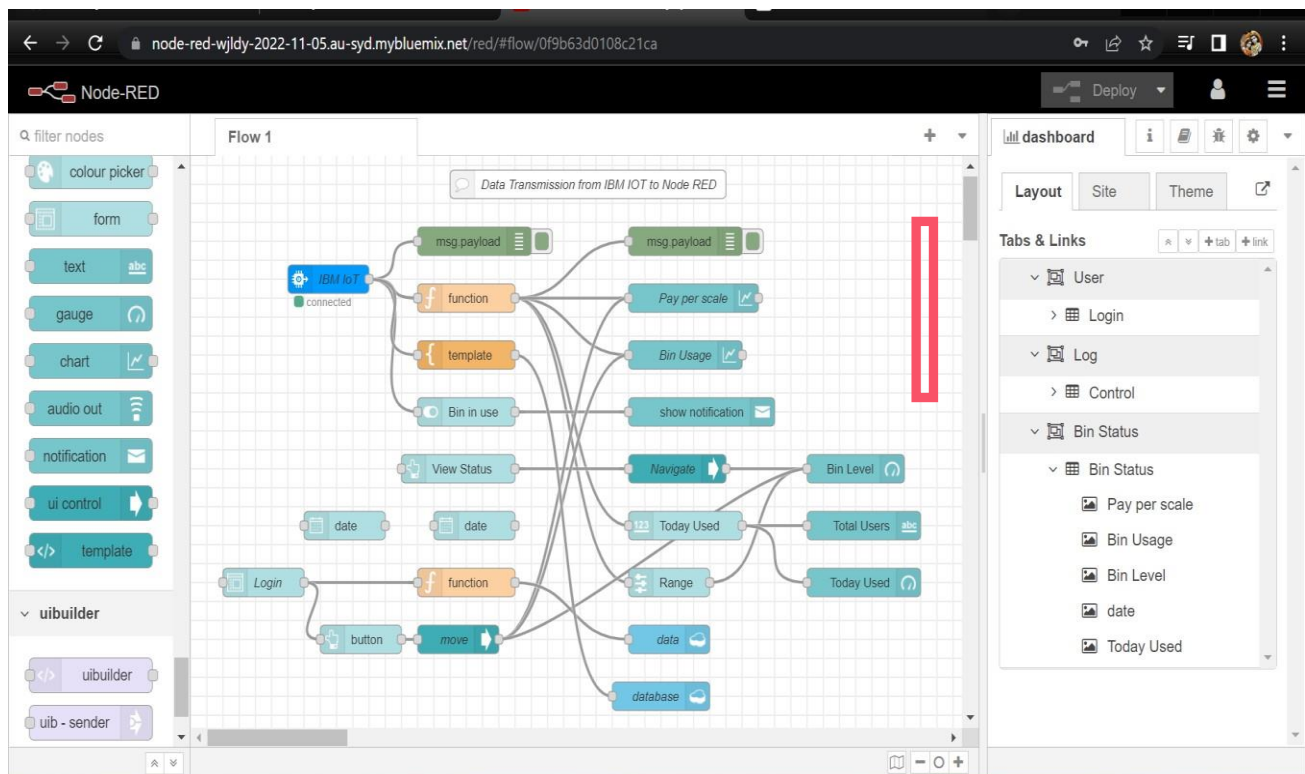
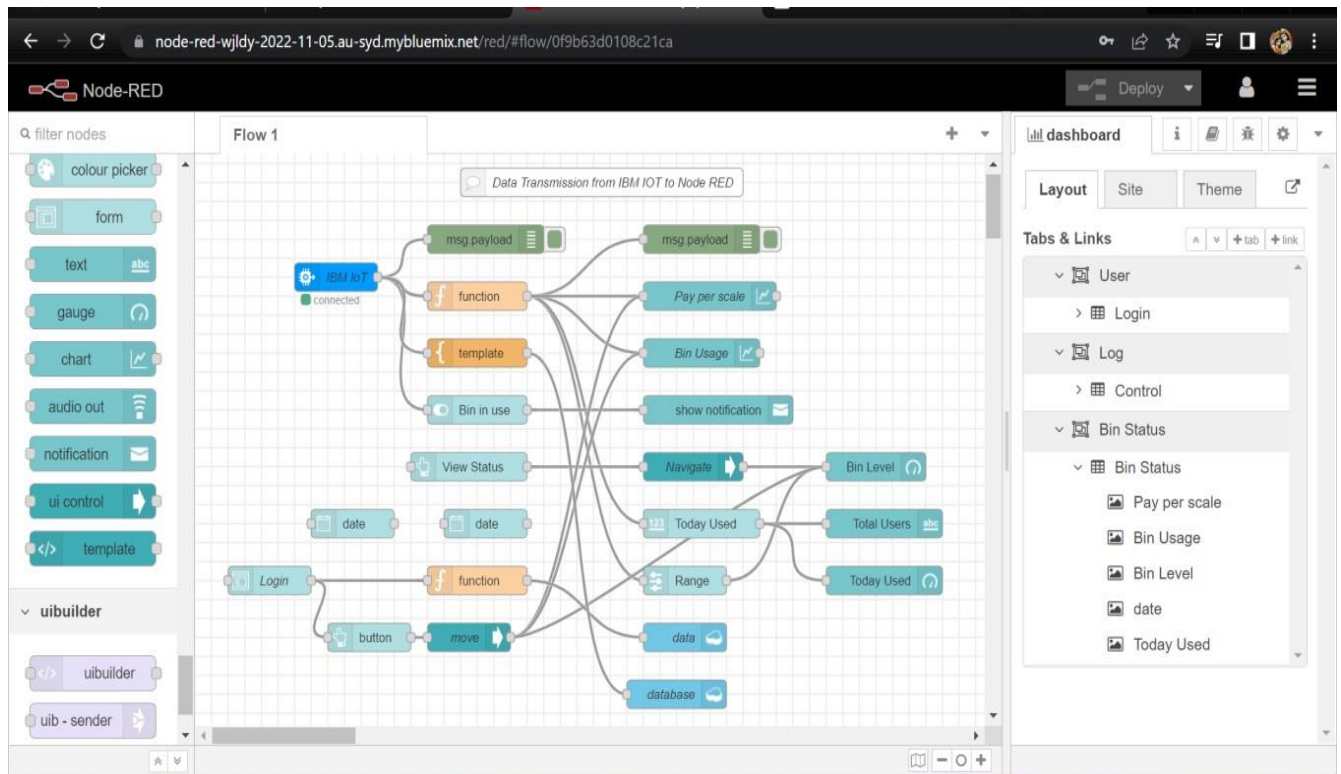


SPRINT -4

Date	14 November 2022
Team ID	PNT2022TMID14224
Project Name	Smart Waste Management System 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 WatsonIoT platform and then to Node Red dashboard.

```

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

PIR Motion Sensor

Simulate motion

Sending distance: 26.94

Publish OK

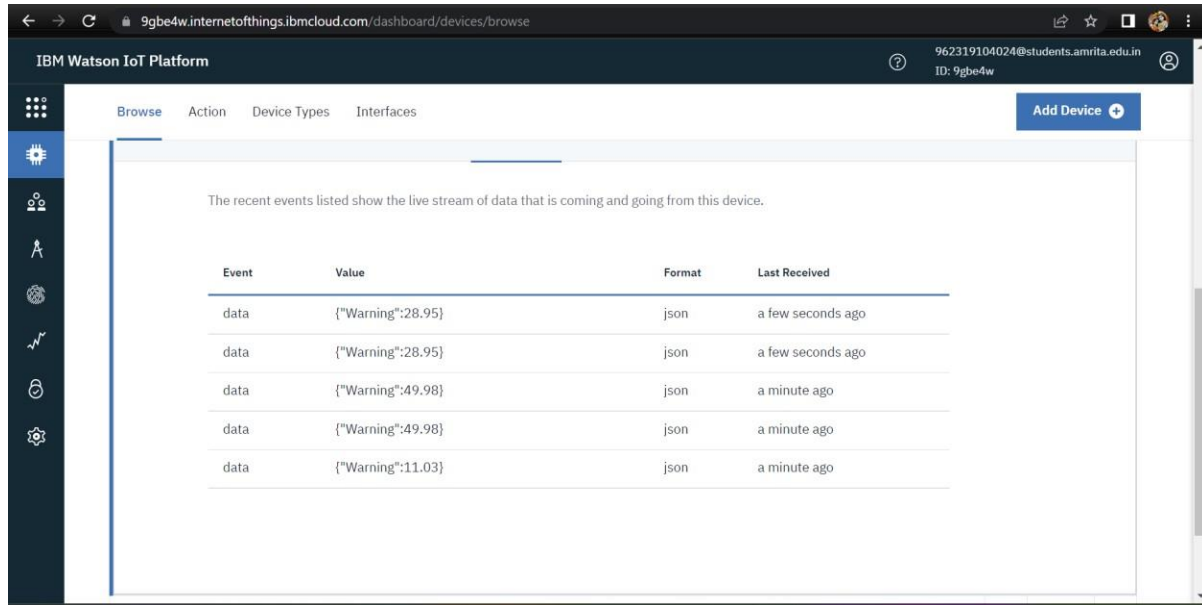
Motion Detected

Lid Opened

High Alert!!!,Trash bin is about to be full

Lid Closed

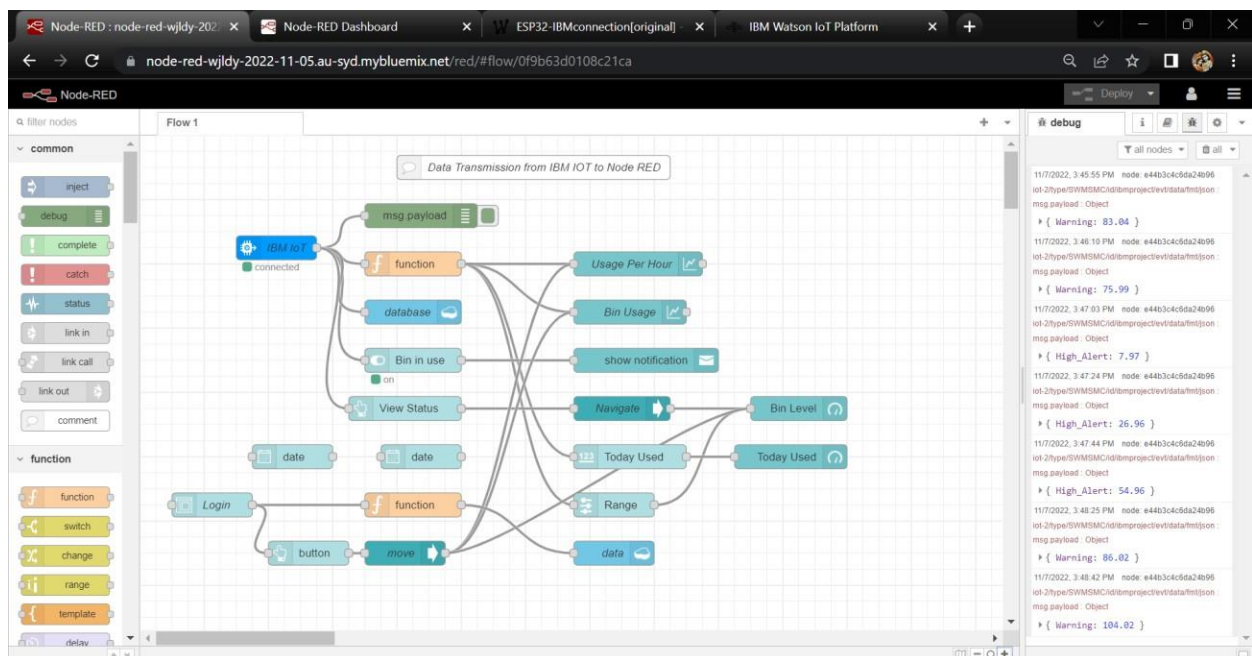
3. Data transfer to Watson IOT platform.



The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons for navigation. The main content area displays a table of recent events for a device. The table has four columns: 'Event', 'Value', 'Format', and 'Last Received'. The events listed are all 'data' events with JSON values containing a 'Warning' field. The values are: {'Warning':28.95}, {'Warning':28.95}, {'Warning':49.98}, {'Warning':49.98}, and {'Warning':11.03}. The 'Last Received' times are 'a few seconds ago' and 'a minute ago'.

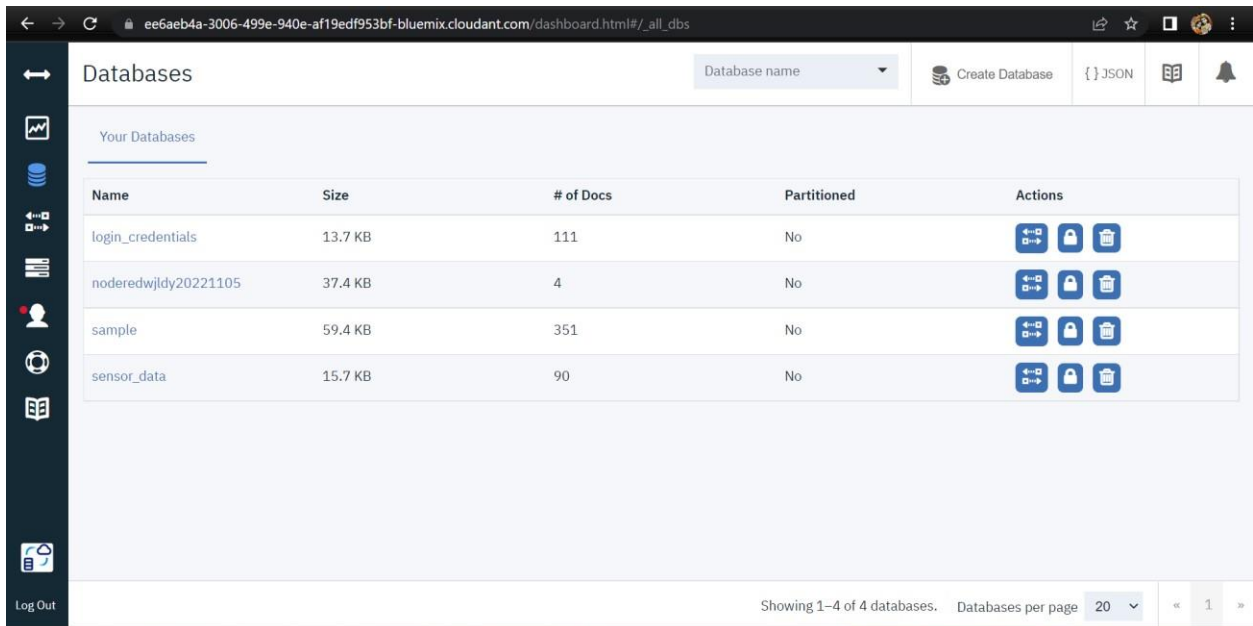
Event	Value	Format	Last Received
data	{\"Warning\":28.95}	json	a few seconds ago
data	{\"Warning\":28.95}	json	a few seconds ago
data	{\"Warning\":49.98}	json	a minute ago
data	{\"Warning\":49.98}	json	a minute ago
data	{\"Warning\":11.03}	json	a minute ago

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



The screenshot shows the Node-RED dashboard with a flow titled 'Data Transmission from IBM IoT to Node RED'. The flow starts with an 'IBM IoT' node (connected) which sends data to a 'msg payload' node. The data is then processed by a 'function' node. The output of the function node is split into several paths: one to 'Usage Per Hour', one to 'Bin Usage', one to 'Bin in use', one to 'View Status', one to 'Navigate', one to 'Bin Level', one to 'Today Used', one to 'Range', and one to 'data'. The 'data' node is connected to a 'move' node, which is connected to a 'button' node. The 'button' node is connected to a 'Login' node. The 'Login' node is connected to a 'function' node, which is connected to a 'switch' node. The 'switch' node is connected to a 'range' node, which is connected to a 'template' node. The 'template' node is connected to a 'delay' node. The 'delay' node is connected to a 'debug' node. The 'debug' node is connected to a 'comment' node.

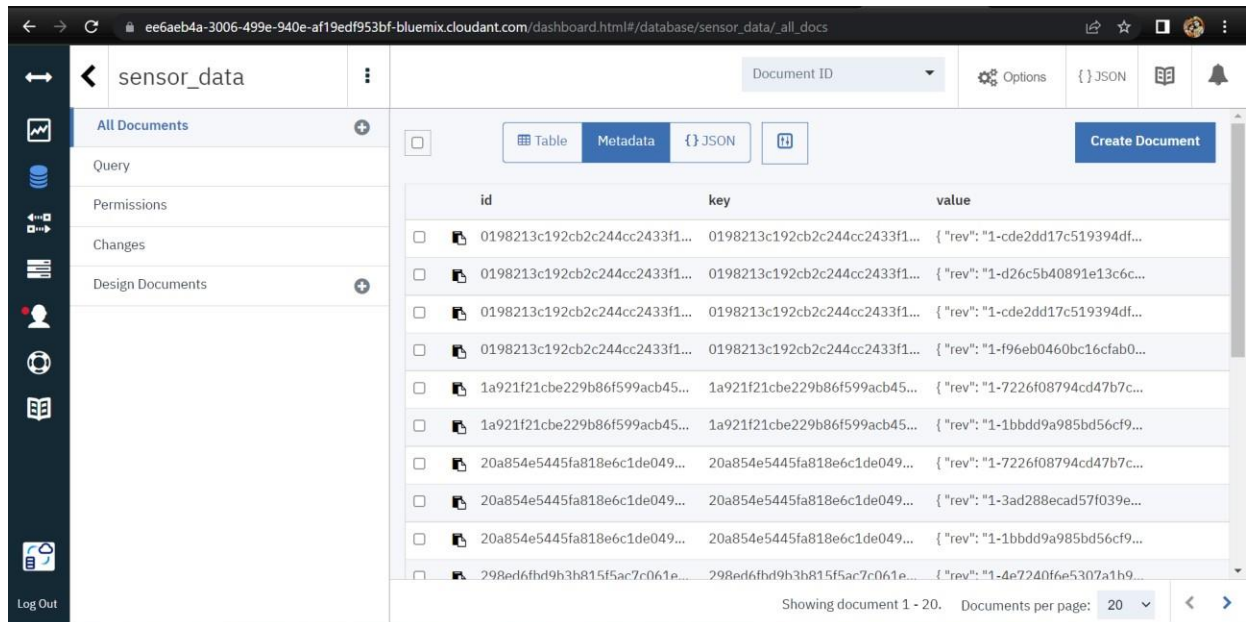
5 . Storing database in IBM cloudant DB.



The screenshot shows the IBM Cloudant Databases dashboard. The URL is `ee6aeb4a-3006-499e-940e-af19edf953bf-bluemix.cloudant.com/dashboard.html#/all_dbs`. The dashboard displays a table of databases:

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

At the bottom, it says "Showing 1-4 of 4 databases. Databases per page: 20".



The screenshot shows the IBM Cloudant document view for the `sensor_data` database. The URL is `ee6aeb4a-3006-499e-940e-af19edf953bf-bluemix.cloudant.com/dashboard.html#/database/sensor_data/all_docs`. The interface shows a list of documents with columns `id`, `key`, and `value`. The documents are displayed in a table format, and the `value` column shows JSON data. A "Create Document" button is visible in the top right.

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..." }
298ed6fhd9b3b815f5ac7c061e...	298ed6fhd9b3b815f5ac7c061e...	{ "rev": "1-4e7240f6e5307a1b9..." }

At the bottom, it says "Showing document 1 - 20. Documents per page: 20".

6. Data is stored in JSON format

ee6aeb4a-3006-499e-940e-af19edf953bf-bluemix.cloudant.com/dashboard.html#database/sensor_data/0198213c192cb2c244cc2433f1802b91

sensor_data > 0198213c192cb2c244cc2433f1802b91

Save Changes Cancel Upload Attachment Clone Document Delete

```
1 {
2   "_id": "0198213c192cb2c244cc2433f1802b91",
3   "_rev": "1-cde2dd17c519394df774730c495f8b",
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 }
```

Log Out

7. Web UI

node-red-wjldy-2022-11-05.au-syd.mybluemix.net/ui/#/0?socketid=mTvbzmznbI9ri5aUmAACX

Log

Log Bin Status

Control

Bin In use

Range

Today Used 0

date 06/11/2022

VIEW STATUS

