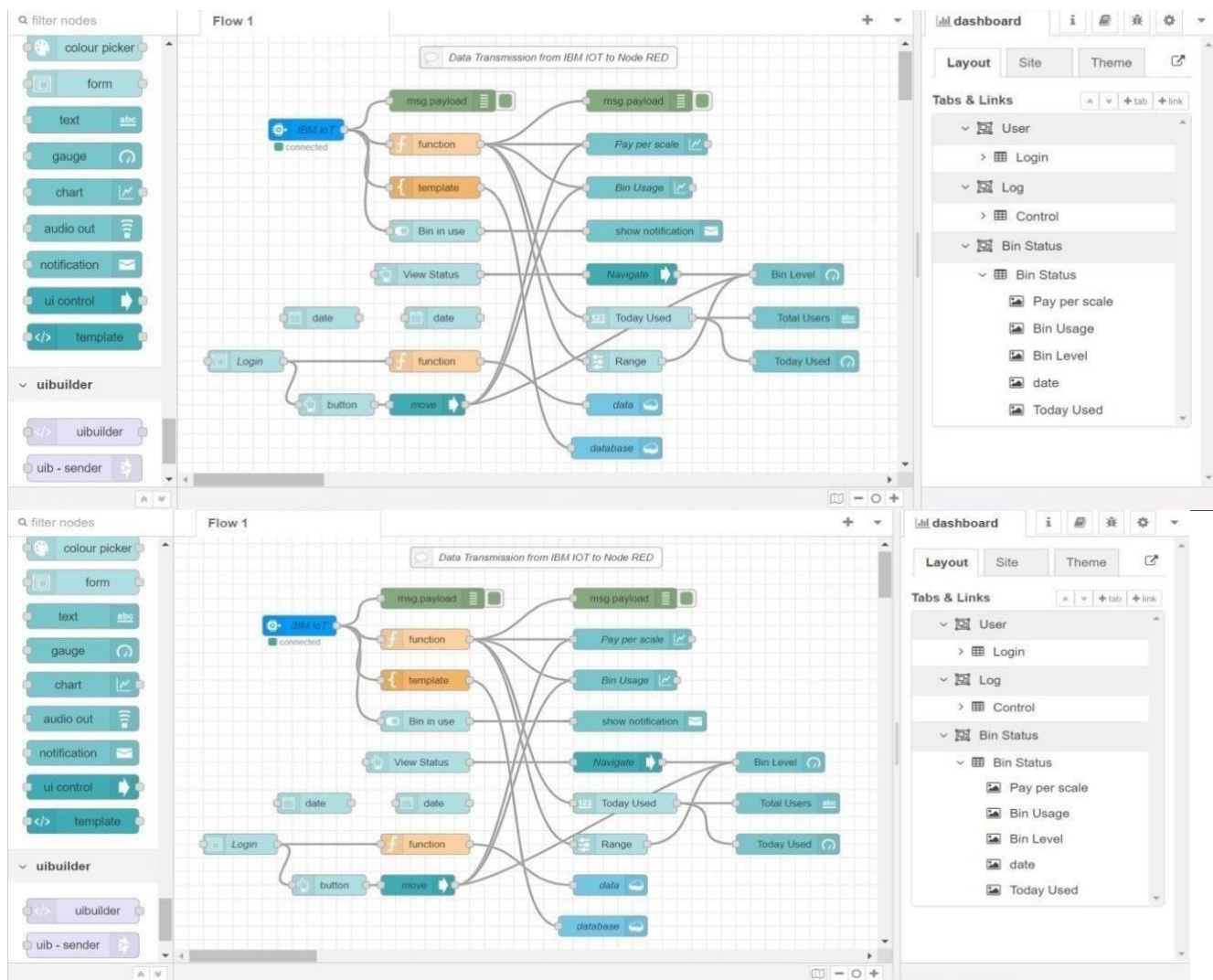


SPRINT-3

Node Red Connection to IBM Cloudant

Date	17 October 2022
Team ID	PNT2022TMID26651
Project Name	Smart Waste Management system for metropolitan cities
Maximum Marks	4 Marks

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 image shows the Wokwi IDE interface. On the left, the code editor displays a C++ file named `esp32-blink.ino`. The code is a simulation for a PIR motion sensor. It includes logic to trigger an alert when motion is detected (simulated by a button click) and to publish the distance to a topic. The code is as follows:

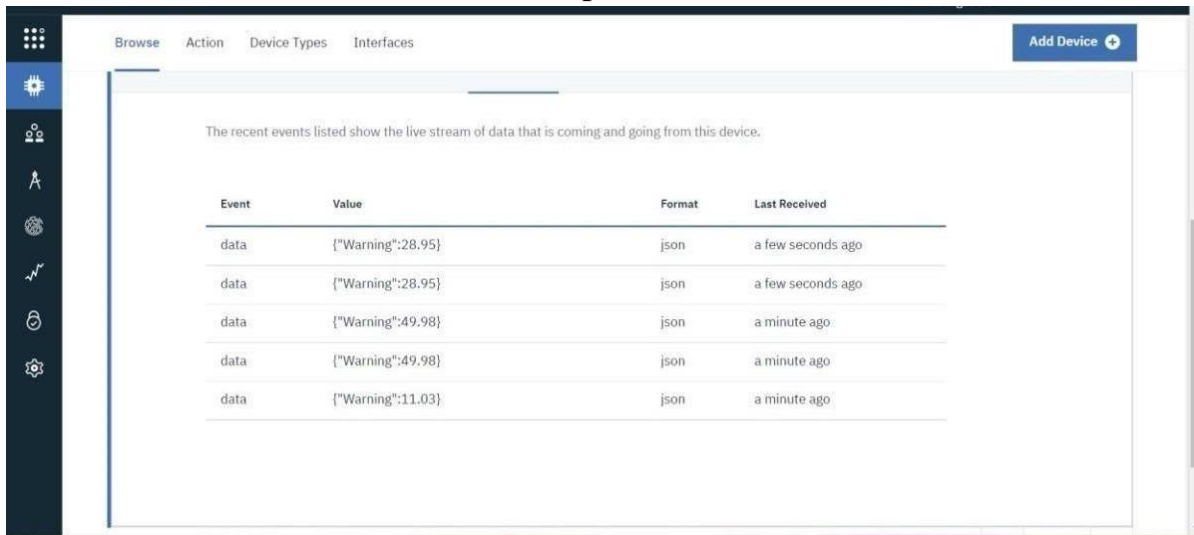
```
177 }
178
179
180
181
182 if(cm <= 25)
183 {
184   digitalWrite(21,HIGH);
185   String payload = "{\"High_Alert\":\"";
186   payload += cm;
187   payload += " }";
188   Serial.print("\n");
189   Serial.print("Sending payload: ");
190   Serial.println(payload);
191
192   if (client.publish(publishTopic, (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 circuit diagram of an ESP32 microcontroller connected to a PIR Motion Sensor, two speakers, and a green LCD display. The simulation is running, and the log window at the bottom displays the following output:

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

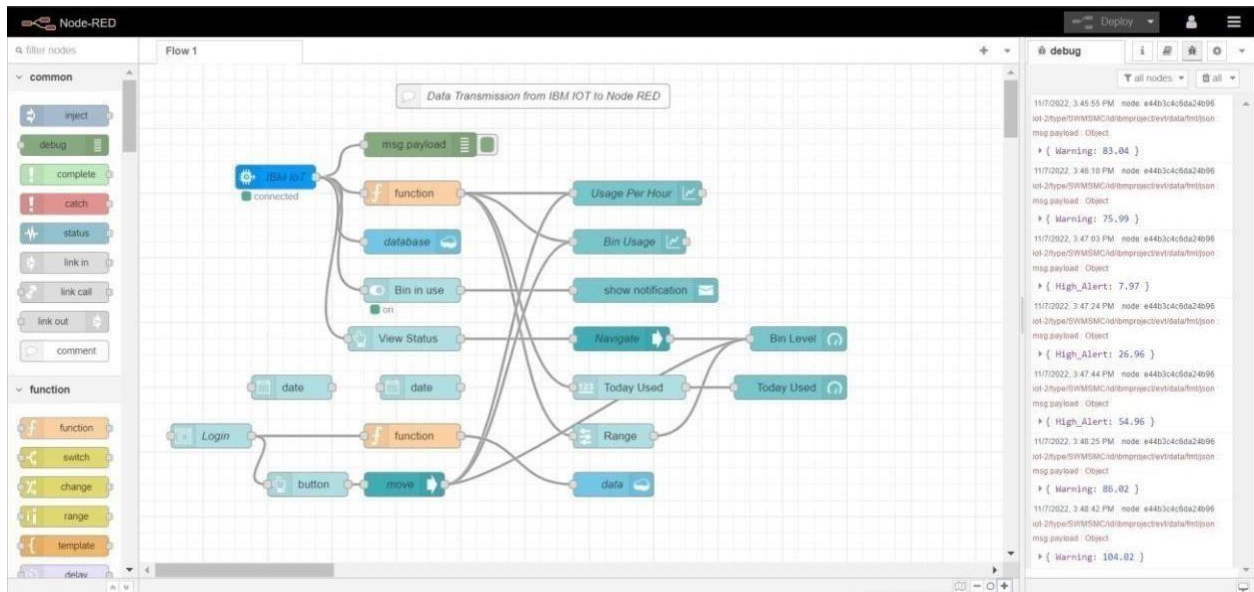
3. Data transfer to Watson IOT platform.

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



The screenshot displays the IBM Watson IoT Platform interface. At the top, there are tabs for 'Browse', 'Action', 'Device Types', and 'Interfaces'. A blue 'Add Device' button with a plus icon is located in the top right corner. Below the tabs, a message states: 'The recent events listed show the live stream of data that is coming and going from this device.' Below this message is a table with four columns: 'Event', 'Value', 'Format', and 'Last Received'. The table contains five rows of data, all with 'data' as the event and 'json' as the format. The values are JSON objects containing a 'Warning' field with a numerical value. The 'Last Received' column shows the time relative to the current time: 'a few seconds ago' for the first two rows and 'a minute ago' for the last three rows.

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















5. Storing database in IBM cloudant DB.

Database name

Create Database

{ } JSON

Your Databases

Name	Size	# of Docs	Partitioned	Actions
login_credentials	13.7 KB	111	No	  
noderedwjlidy20221105	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

<

1

>

sensor_data

Document ID

Options

{ } JSON

All Documents

Query

Permissions

Changes











Design Documents

Table

Metadata

{ } JSON

Create Document

	id	key	value
<input type="checkbox"/>	 0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{ "rev": "1-cde2dd17c519394df...
<input type="checkbox"/>	 0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{ "rev": "1-d26c5b40891e13c6c...
<input type="checkbox"/>	 0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{ "rev": "1-cde2dd17c519394df...
<input type="checkbox"/>	 0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{ "rev": "1-f96eb0460bc16cfab0...
<input type="checkbox"/>	 1a921f21cbe229b86f599acb45...	1a921f21cbe229b86f599acb45...	{ "rev": "1-7226f08794cd47b7c...
<input type="checkbox"/>	 1a921f21cbe229b86f599acb45...	1a921f21cbe229b86f599acb45...	{ "rev": "1-1bbdd9a985bd56cf9...
<input type="checkbox"/>	 20a854e5445fa818e6c1de049...	20a854e5445fa818e6c1de049...	{ "rev": "1-7226f08794cd47b7c...
<input type="checkbox"/>	 20a854e5445fa818e6c1de049...	20a854e5445fa818e6c1de049...	{ "rev": "1-3ad288ecad57f039e...
<input type="checkbox"/>	 20a854e5445fa818e6c1de049...	20a854e5445fa818e6c1de049...	{ "rev": "1-1bbdd9a985bd56cf9...
<input type="checkbox"/>	 298ed6fbd9b3b815f5ac7c061e...	298ed6fbd9b3b815f5ac7c061e...	{ "rev": "1-4e7240f6e5307a1b9...

Showing document 1 - 20.

Documents per page:

20

<

1

>

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-cde2dd17c519394dfeb774738c495f8b",

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