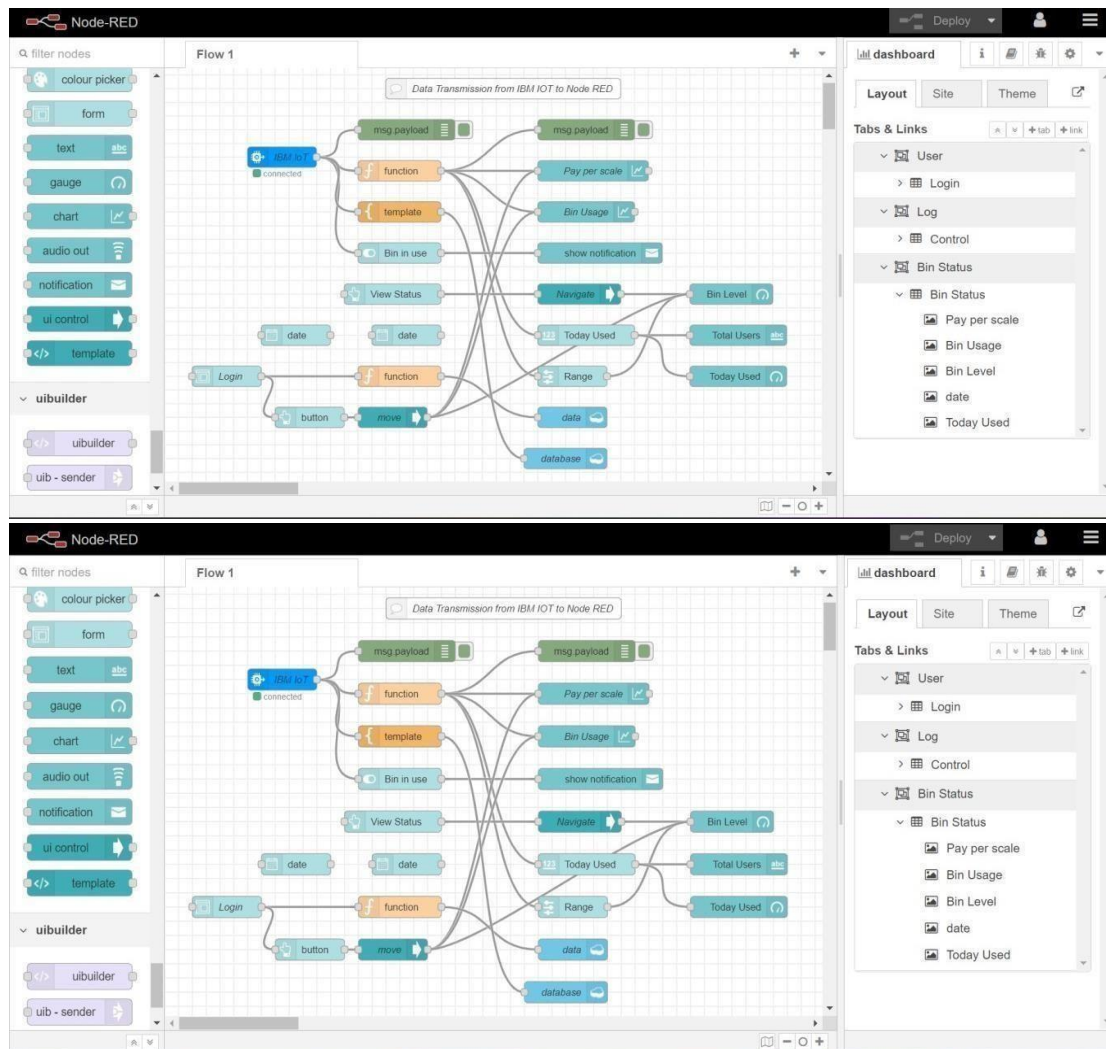


SPRINT – 3

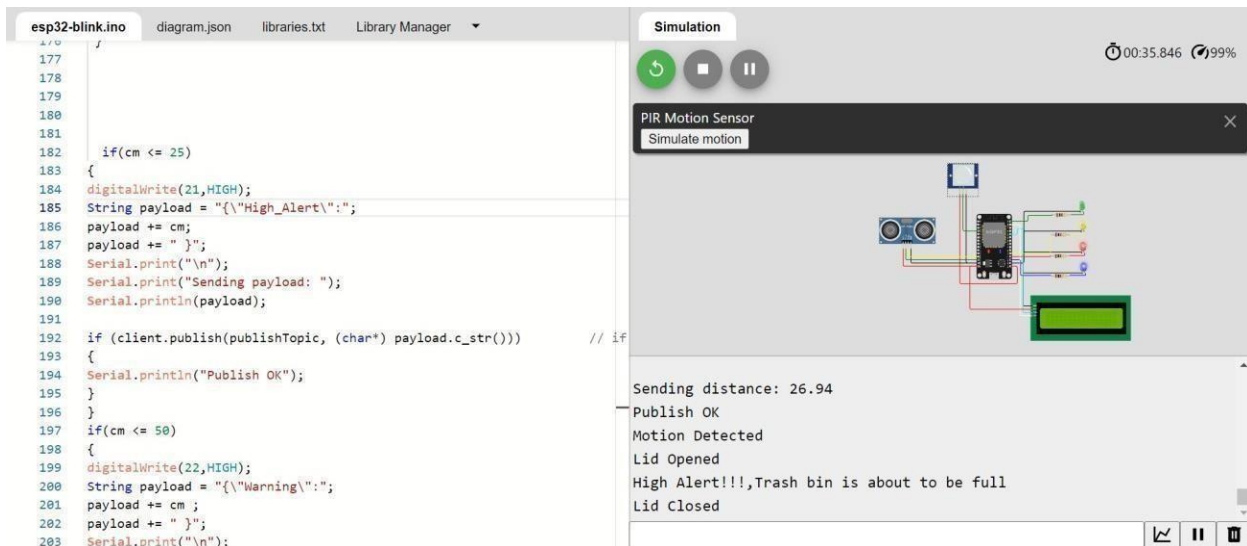
Node Red Connection to IBM Cloudant

Date	12 November 2022
Team ID	PNT2022TMID15286
Project Name	Project – 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.

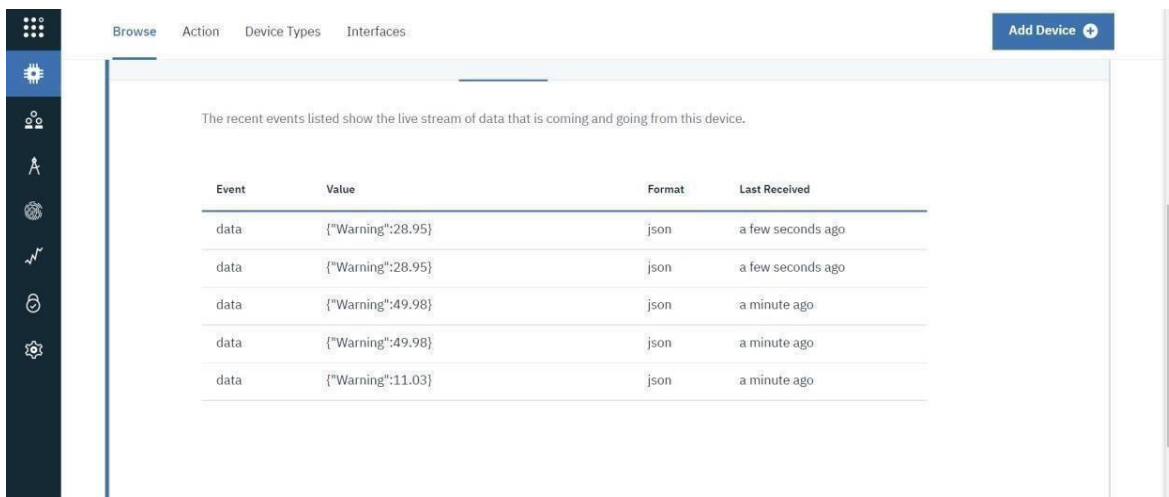


The screenshot shows the Wokwi IDE interface. On the left, the 'esp32-blink.ino' file is open, displaying an Arduino sketch. The sketch includes code for a PIR motion sensor (pin 21) and an LCD display (pins 22, 23, 24, 25). The code checks for motion and publishes data to an MQTT topic. On the right, the 'Simulation' window shows a 3D model of the ESP32 board with the PIR sensor and LCD. Below the simulation, a log window 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 shows the IBM Watson IoT Platform dashboard. The 'Recent Events' section displays a table of data received from a device. The table has four columns: Event, Value, Format, and Last Received. The data is as follows:

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.

Databases

Database name

Create Database

{ } JSON

Your Databases

Name	Size	# of Docs	Partitioned	Actions
login_credentials	13.7 KB	111	No	
noderedwjljdy20221105	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

The screenshot displays the Node-RED web interface. On the left, the 'common' and 'function' node palettes are visible. The main workspace contains a flow titled 'Data Transmission from IBM IoT to Node RED'. The flow begins with an 'IBM IoT' node (status: connected) which connects to a 'msg.payload' node. From there, the flow splits into two parallel processing paths. The top path includes a 'function' node, followed by 'Usage Per Hour', 'Bin Usage', and 'show notification' nodes. The bottom path includes a 'database' node, followed by 'Bin in use', 'View Status', and 'Navigate' nodes. Both paths converge into a final set of nodes: 'Bin Level', 'Today Used', 'Range', and 'data'. A 'Login' node and a 'button' node are also present but not connected to the main flow. On the right, the 'debug' console shows a series of logs and warnings, including timestamps, node IDs, and the content of the 'msg.payload' object, such as '{ Warning: 83.04 }' and '{ HighAlert: 7.97 }'.

sensor_data
Document ID
Options
{ } JSON

- All Documents
- Query
- Permissions
- Changes
- Design Documents

	id	key	value
<input type="checkbox"/>	0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{"rev": "1-cde2dd17c519394df..."}
<input type="checkbox"/>	0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{"rev": "1-d26c5ba40891e136c..."}
<input type="checkbox"/>	0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{"rev": "1-cde2dd17c519394df..."}
<input type="checkbox"/>	0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{"rev": "1-f96eb0460bc16fab0..."}
<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": "1-3ad288ead57f039e..."}
<input type="checkbox"/>	20a854e5445fa818e6c1de049...	20a854e5445fa818e6c1de049...	{"rev": "1-1bbdd9a985bd56cf9..."}
<input type="checkbox"/>	298ed6fd9b3b815f5ac7c061e...	298ed6fd9b3b815f5ac7c061e...	{"rev": "1-4e72d0f6e5307a1b9..."}

Showing document 1 - 20. Documents per page: 20

6.Data is stored in JSON format

The screenshot displays a web-based JSON editor interface. At the top, the document is titled "sensor_data" followed by a long alphanumeric ID. The interface includes a sidebar on the left with various icons for navigation and editing. The main area shows a JSON document with the following content:

```
1 {  
2   "_id": "0198213c192cb2c244cc2433f1802b91",  
3   "_rev": "1-cde2dd17c519394dfcb774730c495f8b",  
4   "topic": "iot-2/type/SwMSMC/id/ibmproject/evt/data/fmt/json",  
5   "payload": {  
6     "Warning!!": "244.971eft"  
7   },  
8   "deviceId": "ibmproject",  
9   "deviceType": "SwMSMC",  
10  "eventType": "data",  
11  "format": "json"  
12 }
```

The interface also features a top bar with buttons for "Save Changes", "Cancel", "Upload Attachment", "Clone Document", and "Delete". A "Log Out" button is located at the bottom left of the sidebar.

