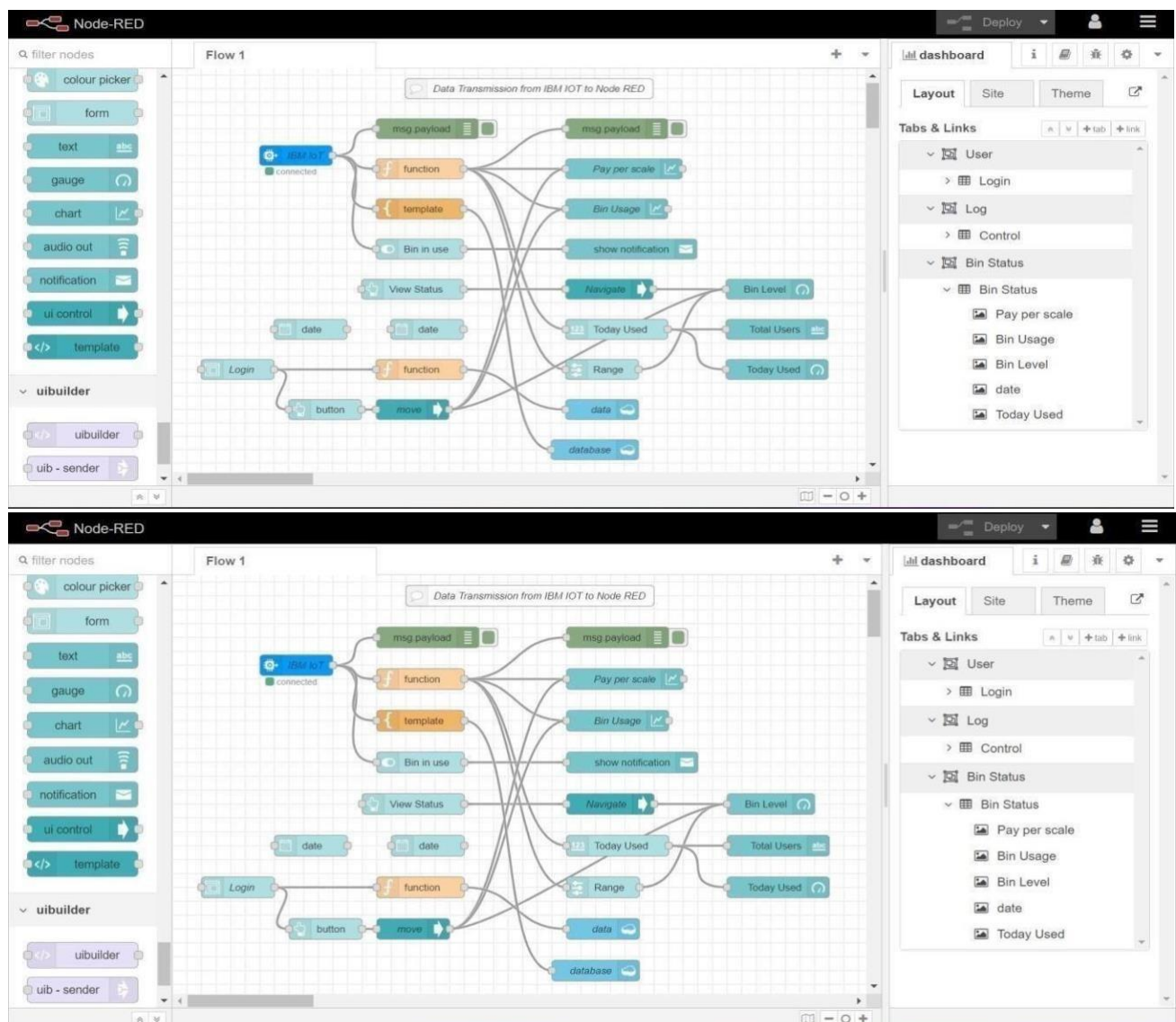


Delivery of Sprint – 3

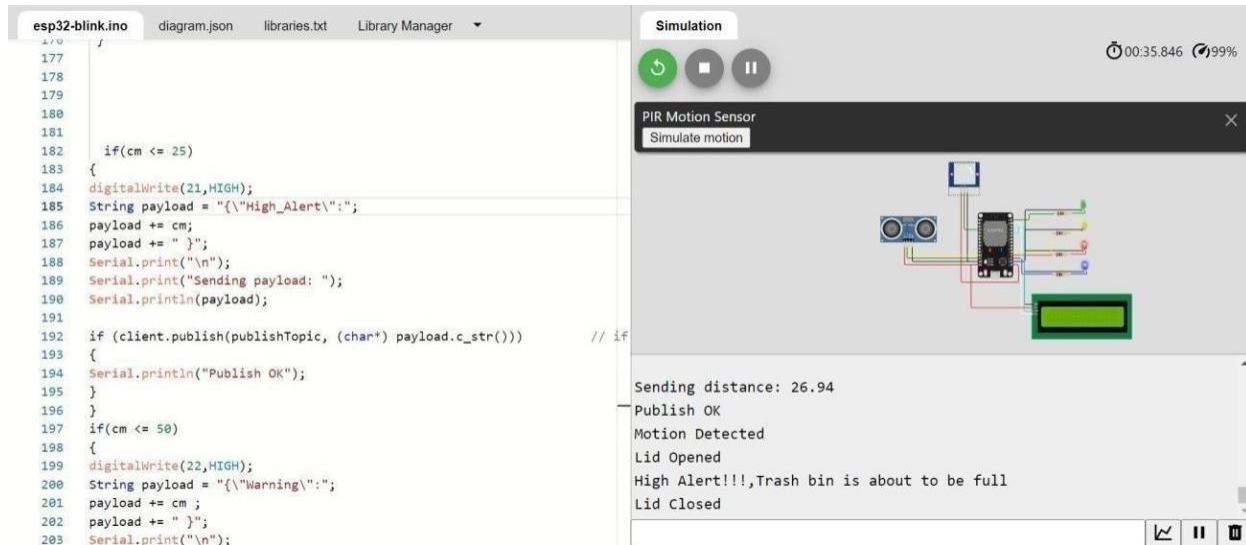
Node Red Connection to IBM Cloudant

Date	10 November 2022
Team ID	PNT2022TMID04392
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.



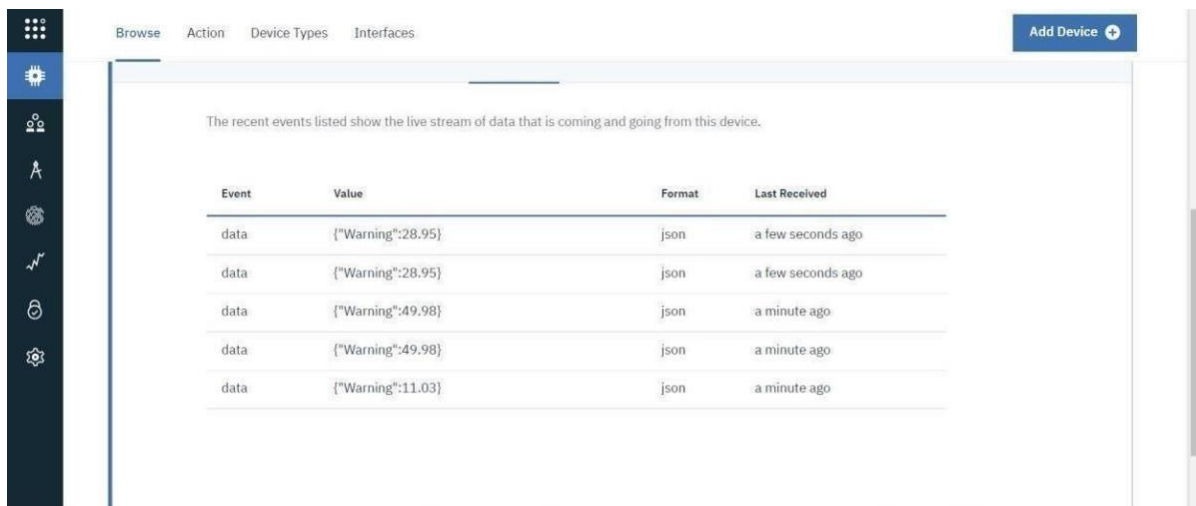
The screenshot displays the Wokwi IDE interface. On the left, the 'esp32-blink.ino' file is open, showing an Arduino sketch. The sketch includes code for a PIR motion sensor and an ultrasonic sensor, which triggers an alert when the distance is less than 25 cm. The code is as follows:

```
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 is active, showing a virtual circuit diagram of the ESP32 board with a PIR sensor and an ultrasonic sensor. Below the diagram, the simulation log displays the following output:

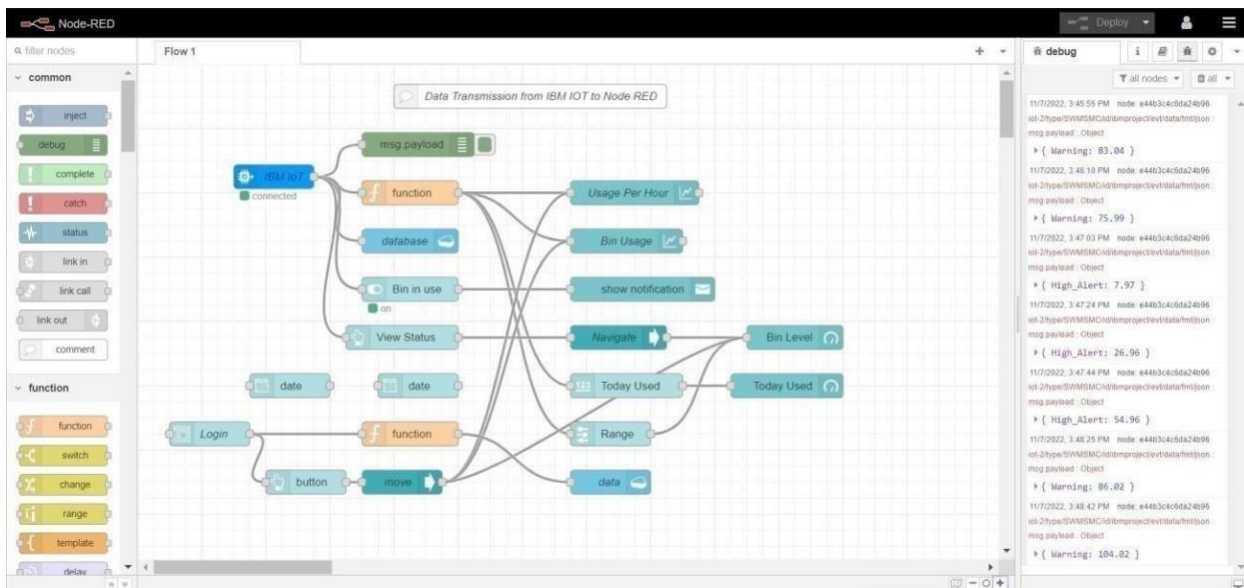
```
Sending distance: 26.94
Publish OK
Motion Detected
Lid Opened
High Alert!!!,Trash bin is about to be full
Lid Closed
```

3. Data transfer from IBM Watson IOT platform and Wokwi to Node Red.



The screenshot shows the IBM Watson IoT Platform dashboard. The 'Browse' tab is selected, and the 'Add Device' button is visible in the top right corner. The main area displays a table of recent events, which are live stream data points coming from the device. The table has four columns: Event, Value, Format, and Last Received.

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.Storing database in IBM cloudant DB.

Databases

Database name Create Database

Your Databases

Name	Size	# of Docs	Partitioned	Actions
login_credentials	13.7 KB	111	No	<input type="button" value="4-DB"/> <input type="button" value="8-DB"/> <input type="button" value="lock"/> <input type="button" value="trash"/>
noderedwjdjy20221105	37.4 KB	4	No	<input type="button" value="4-DB"/> <input type="button" value="8-DB"/> <input type="button" value="lock"/> <input type="button" value="trash"/>
sample	59.4 KB	351	No	<input type="button" value="4-DB"/> <input type="button" value="8-DB"/> <input type="button" value="lock"/> <input type="button" value="trash"/>
sensor_data	15.7 KB	90	No	<input type="button" value="4-DB"/> <input type="button" value="8-DB"/> <input type="button" value="lock"/> <input type="button" value="trash"/>

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

