

**Project Development Phase**  
**Sprint-3: MIT App Design and Testing**

Date	19 <sup>th</sup> November 2022
PNT2022TMID277860	PNT2022TMID277860
Project Name	Project – Signs with Smart Connectivity for Better Road Safety
Maximum Marks	8 Marks

**Wokwi Simulation:** <https://wokwi.com/projects/348855035785904723>

The screenshot displays a Wokwi simulation environment. On the left, the code for the ESP32-DHT22 example is shown:

```
1  /**
2   * ESP32 + DHT22 Example for Wokwi
3   *
4   * https://wokwi.com/arduino/projects/322410731508073042
5   *
6   */
7  #include "DHTesp.h"
8
9  const int DHT_PIN = 15;
10
11  DHTesp dhtSensor;
12
13  void setup() {
14    Serial.begin(115200);
15    dhtSensor.setup(DHT_PIN, DHTesp::DHT22);
16  }
17
18  void loop() {
19    TempAndHumidity data = dhtSensor.getTempAndHumidity();
20    Serial.println("Temp: " + String(data.temperature, 2) + "°C");
21    Serial.println("Humidity: " + String(data.humidity, 1) + "%");
22    Serial.println("---");
23    delay(1000);
24  }
```

On the right, the simulation shows an ESP32 microcontroller connected to a DHT22 sensor. The sensor is connected to the ESP32's pins 15 (VCC), 16 (GND), and 14 (DATA). The simulation output shows the following readings:

```
Temp: 24.00°C
Humidity: 40.0%
---
Temp: 24.00°C
Humidity: 40.0%
---
Temp: 24.00°C
```

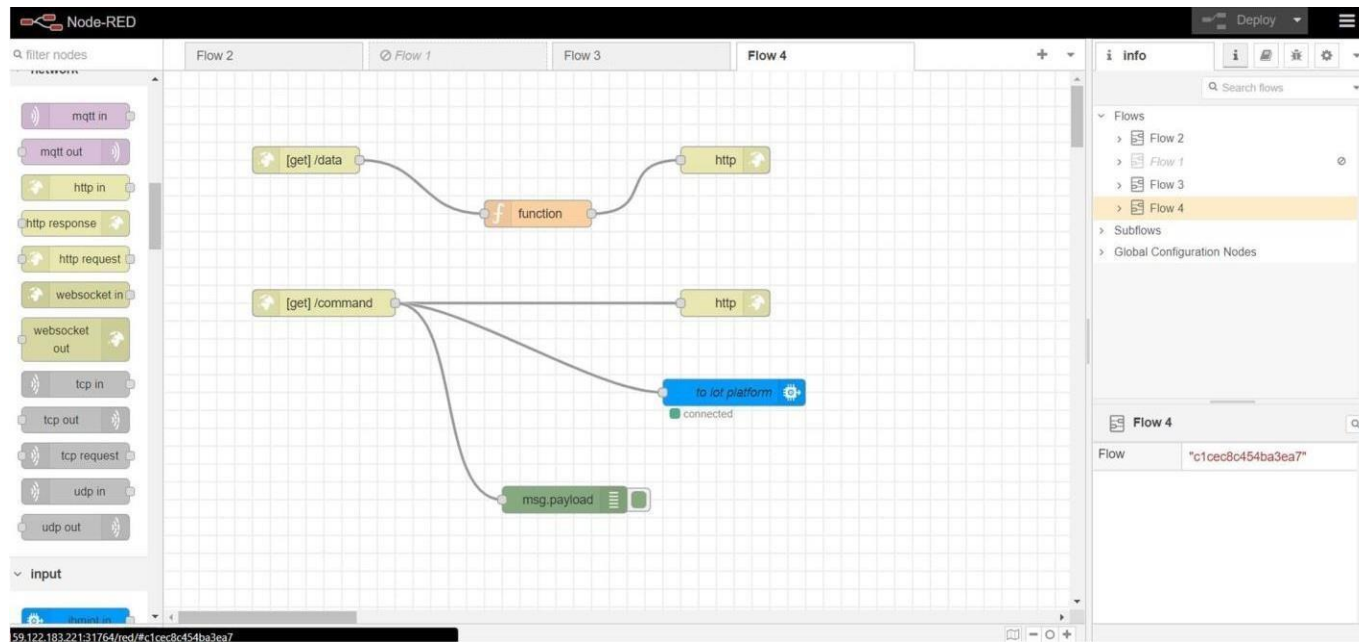
## IoT Device – IoT Platform

The screenshot displays the 'Recent Events' tab for a device named '0001'. The interface includes a top navigation bar with 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons for navigation. The main content area shows a table of recent events with columns for Event, Value, Format, and Last Received. The events are JSON objects representing lane data. A status bar at the bottom right indicates '1 Simulation running'.

Event	Value	Format	Last Received
rnd_number	{"Lane_1":5,"Lane_2":83,"Lane_3":30,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":59,"Lane_2":59,"Lane_3":94,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":93,"Lane_2":88,"Lane_3":49,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":2,"Lane_2":61,"Lane_3":21,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":70,"Lane_2":11,"Lane_3":69,"Lane_4":...	json	a few seconds ago

1 Simulation running

## Node Red – Connect with MIT AppInventor



## Edit function node

Delete

Cancel



☐ Properties



'g• Name

Name



☐ Setup

On Start

On Message

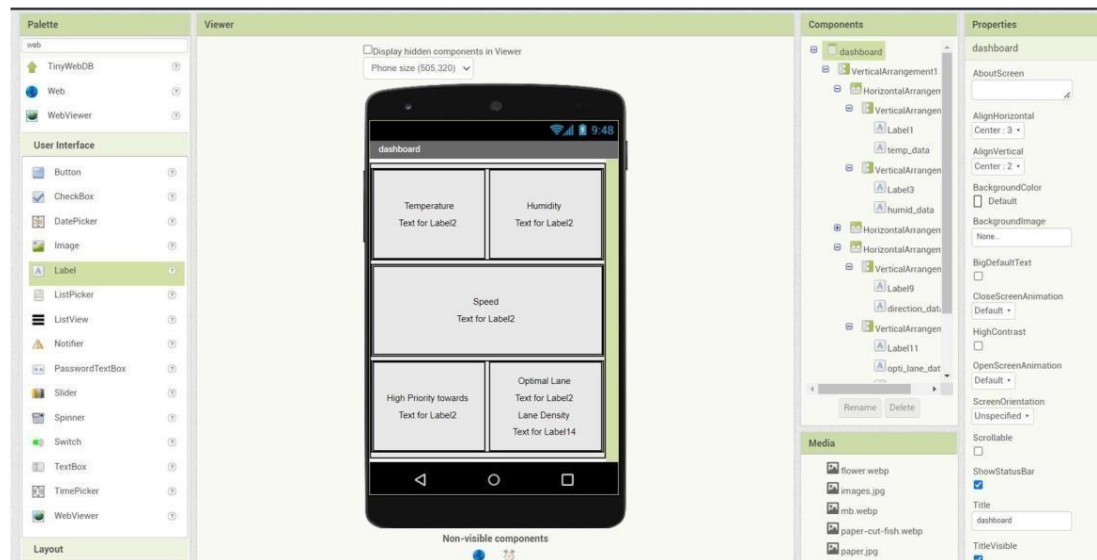
On Stop

```
• msg.payload = {
2   "temp":global.get("temp"),
3   "humid":global.get("humid"),
p  "speed":global.get("speed"),
s   "n":global.get("n"),
6   "s":global.get("s"),
7   "e":global.get("e"),
8   "w":global.get("w"),
g   "res":global.get("res"),
16  "11":global.get("11"),
tt  "12":global.get("12"),
12  "13":global.get("13"),
13  "14":global.get("14"),
t4  "optimal lane":global.get("optimal lane")
15
16' };
17
ig  return msg;
```

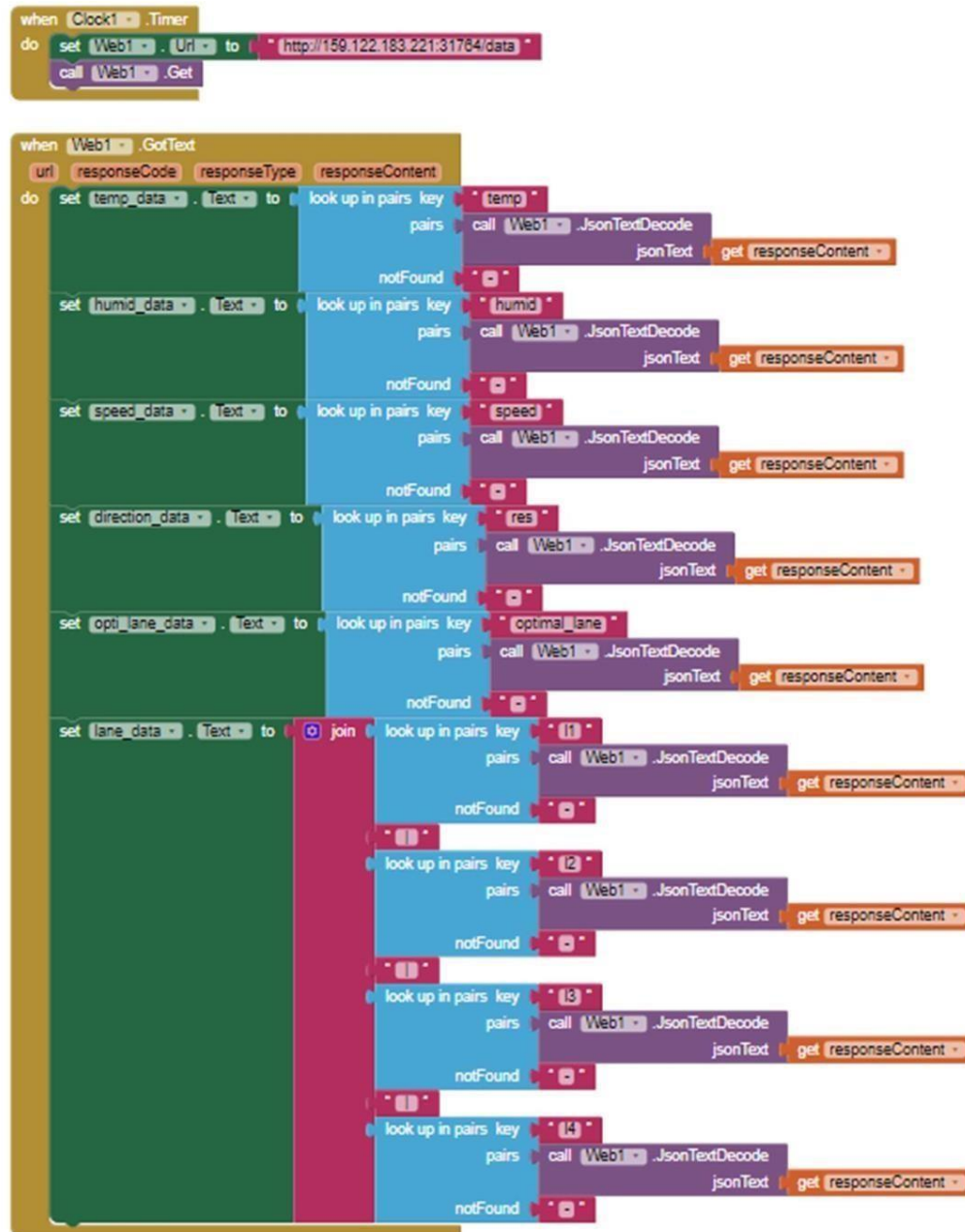
## Output from Node red:

```
← → ↻ Not secure | 159.122.183.221:31764/data  
Google YouTube MATLAB Document... LaTeX Base | Online... ECE Notes Seniors' Download - Know... see eSim Sanskrit Word List...  
{ "temp":14.9, "humid":86, "speed":80, "n":0, "s":0, "e":0, "w":1, "res": "West", "11":69, "12":99, "13":19, "14":40, "optimal_lane": "Lane 3" }
```

## MIT App Inventor UI design:



## MIT App Inventor Backend design:



**Sprint 3 delivery:**  
**(OUTPUT) Display from MIT App:**

