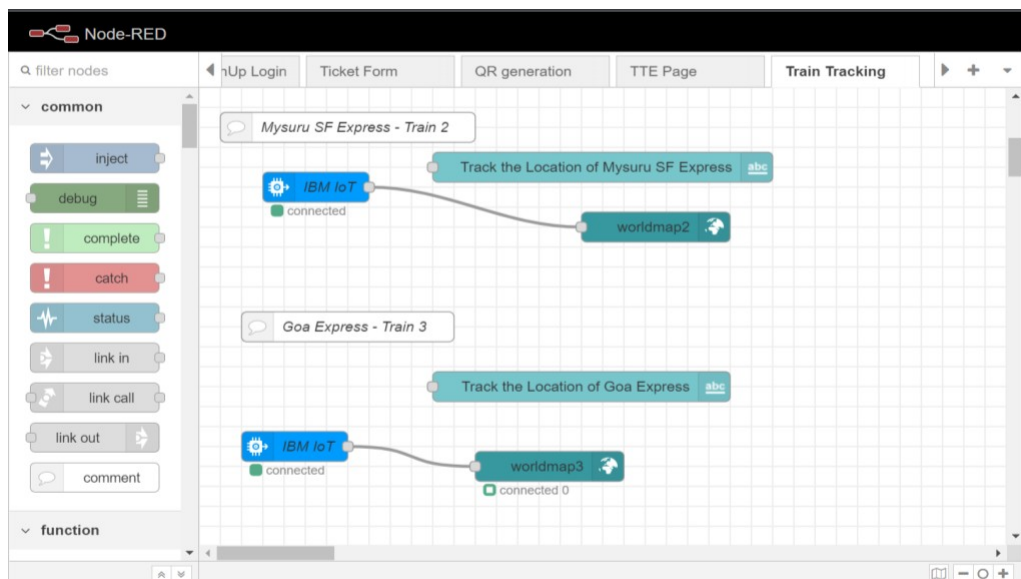
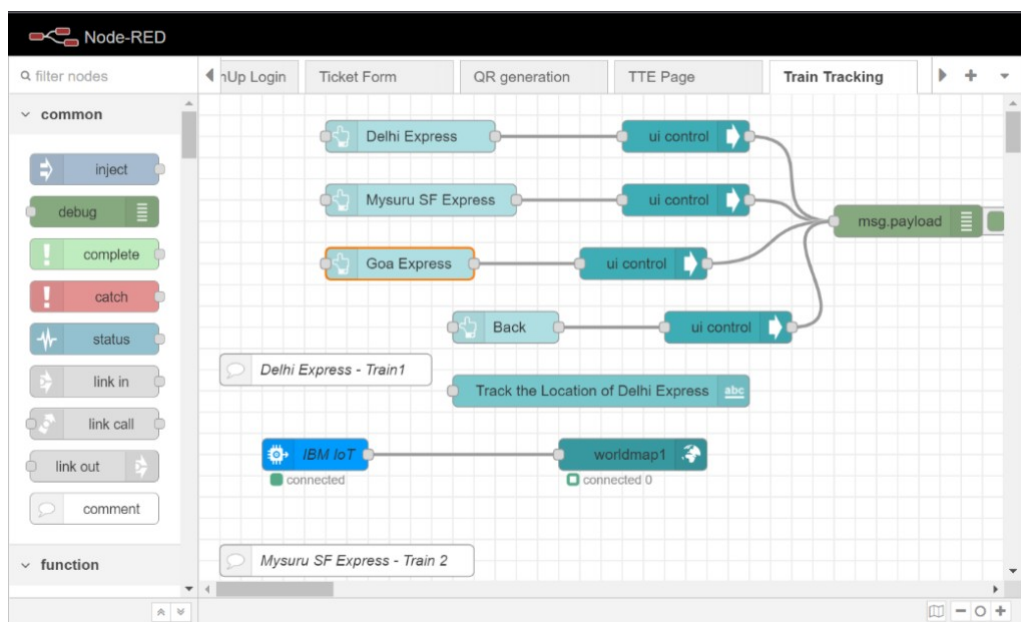


## Sprint-4

### GPS Tracking

Sprint Start Date	14 November 2022
Sprint End Date	19 November 2022
Team ID	PNT2022TMID34503
Project name	Smart Solutions for Railways

#### Node RED flows:



### IBM Watson IoT Device:

**Browse**   Action   Device Types   Interfaces   Add Device +

---

12345   Disconnected   2702   Device   Oct 7, 2022 7:21 PM   → ...

Identity	Device Information	Recent Events	State	Logs
The recent events listed show the live stream of data that is coming and going from this device.				
Event	Value	Format	Last Received	
status	{"name": "Delhi Express", "lat": 15.927082, "lon": 8...	json	a few seconds ago	
status	{"name": "Delhi Express", "lat": 15.821409, "lon": 8...	json	a few seconds ago	
status	{"name": "Delhi Express", "lat": 15.747405, "lon": 8...	json	a few seconds ago	
status	{"name": "Delhi Express", "lat": 15.567568, "lon": 8...	json	a few seconds ago	

2 Simulations running

**Device Details**

Browse Action Device Types Interfaces Add Device +

12345 Disconnected 2702 Device Oct 7, 2022 7:21 PM → ...

Identity	Device Information	Recent Events	State	Logs
The recent events listed show the live stream of data that is coming and going from this device.				
Event	Value	Format	Last Received	
status	{"name": "Delhi Express", "lat": 15.927082, "lon": 8...	json	a few seconds ago	
status	{"name": "Delhi Express", "lat": 15.821409, "lon": 8...	json	a few seconds ago	
status	{"name": "Delhi Express", "lat": 15.747405, "lon": 8...	json	a few seconds ago	
status	{"name": "Delhi Express", "lat": 15.567568, "lon": 8...	json	a few seconds ago	

2 Simulations running

The screenshot displays the Cisco Packet Tracer interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A table lists two devices: '678910' (Disconnected, 2702) and 'mysore' (Disconnected, train2). The 'mysore' device is selected, showing its 'Recent Events' tab. The events table shows four status updates for 'Mysuru SF Express' with coordinates, all received 'a few seconds ago'. A status bar at the bottom indicates '2 Simulations running'.

Event	Value	Format	Last Received
status	{"name":"Mysuru SF Express","lat":12.987323,"l...	json	a few seconds ago
status	{"name":"Mysuru SF Express","lat":12.90702,"lo...	json	a few seconds ago
status	{"name":"Mysuru SF Express","lat":12.735622,"l...	json	a few seconds ago
status	{"name":"Mysuru SF Express","lat":12.655		

2 Simulations running

### **Python Code:**

The python programs are used to send data to the Watson IoT device to provide tracking of the trains on a World Map.

#### **Python code for “Delhi Express” train:**

```
import wiotp.sdk.device
import time
import random
myConfig = {
    "identity":{
        "orgId":"78kd0j",
        "typeId":"ltx33",
        "deviceId":"delhi"
    },
    "auth":{
        "token":"LTx@33333"
    }
}
def myCommandCallback(cmd):
    print("Message received fromIBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

def pub(data):
    client.publishEvent(eventId = "status", msgFormat="json", data=myData, qos=0,
onPublish=None)
    print("Published data Successfully: %s",myData)

while True:
    myData = {'name':'Delhi Express','lat':13.344279,'lon':80.214367}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Delhi Express','lat':13.515254,'lon':80.093518}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Delhi Express','lat':13.728799,'lon':80.005627}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Delhi Express','lat':13.910160,'lon':79.906750}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Delhi Express','lat':14.102035,'lon':79.851819}
```

```
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':14.261807,'lon':79.862805}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':14.623537,'lon':79.950695}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.111987,'lon':79.994641}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.313413,'lon':80.005627}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.567568,'lon':80.104504}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.747405,'lon':80.269299
}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.821409,'lon':80.302258}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.927082,'lon':80.445080}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':16.022141,'lon':80.554943}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':17.033801,'lon':80.295512}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':18.383088,'lon':18.383088}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':19.074762,'lon':79.487698}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':20.179065,'lon':79.001439}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':21.306421,'lon':78.789356}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':22.518024,'lon':77.829404}
```

```

pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':23.264139,'lon':77.429333}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':24.509723,'lon':78.330212}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':25.668840,'lon':78.451062}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':26.177704,'lon':78.170910}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':27.505914,'lon':77.676526}
pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':28.302041,'lon':77.308484}
pub(myData)
time.sleep(3)
client.commandCallback = myCommandCallback
client.disconnect()

```

### **Python code for “Mysuru SF Express” train:**

```

import wiotp.sdk.device
import time
import random
myConfig = {
    "identity":{
        "orgId":"ltx33",
        "typeId":"train2",
        "deviceId":"mysore"
    },
    "auth":{
        "token":"LTx@33333"
    }
}
def myCommandCallback(cmd):
    print("Message received fromIBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

```

```
def pub(data):
    client.publishEvent(eventId = "status", msgFormat="json", data=myData, qos=0,
onPublish=None)
    print("Published data Successfully: %s",myData)
```

```
while True:
```

```
    myData = {'name':'Mysuru SF Express','lat':11.024938,'lon':76.982315}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':11.220325,'lon':77.570083}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':11.564960,'lon':77.993057}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':11.780142,'lon':78.037002}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.134824,'lon':78.130386}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.226105,'lon':78.091934}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.344187,'lon':78.037002}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.489034,'lon':78.009536}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.655239,'lon':77.866714}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.735622,'lon':77.756851}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.907020,'lon':77.696426}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.987323,'lon':77.646988}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.955205,'lon':77.509659}
    pub(myData)
    time.sleep(3)
```

```

myData = {'name':'Mysuru SF Express','lat':12.665958,'lon':77.136123}
}
pub(myData)
time.sleep(3)
myData = {'name':'Mysuru SF Express','lat':12.548022,'lon':76.921890}
pub(myData)
time.sleep(3)
myData = {'name':'Mysuru SF Express','lat':12.336809,'lon':76.644485}
pub(myData)
time.sleep(3)
client.commandCallback = myCommandCallback
client.disconnect()

```

### **Python code for “Goa Express” train:**

```

import wiotp.sdk.device
import time
import random
myConfig = {
    "identity" :{
        "orgId":"ltx33",
        "typeId":"2702",
        "deviceId":"goa"
    },
    "auth":{
        "token":"LTx@33333"
    }
}
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

def pub(data):
    client.publishEvent(eventId = "status", msgFormat="json", data=myData, qos=0,
onPublish=None)
    print("Published data Successfully: %s",myData)

while True:
    myData = {'name':'Goa Express','lat':11.688572, 'lon':78.098877}
    pub(myData)
    time.sleep(3)
    myData = {'name':'Goa Express','lat':11.711433, 'lon':78.076905}

```

```
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':11.978226, 'lon':78.116730}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':12.085676, 'lon': 78.119477}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':12.402400, 'lon':78.023347}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':12.884795, 'lon':77.707490}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.018630,'lon':77.614106}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.334194, 'lon':77.086762}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.299448, 'lon':76.858796}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.344884,'lon': 76.205109}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.619985, 'lon':75.966157}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.974739, 'lon':76.119965}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':14.423398, 'lon':75.949677}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':14.922914, 'lon':75.389374}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.119216, 'lon':75.389374}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.449980, 'lon':74.406230}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.352006,'lon':74.307353}
pub(myData)
```

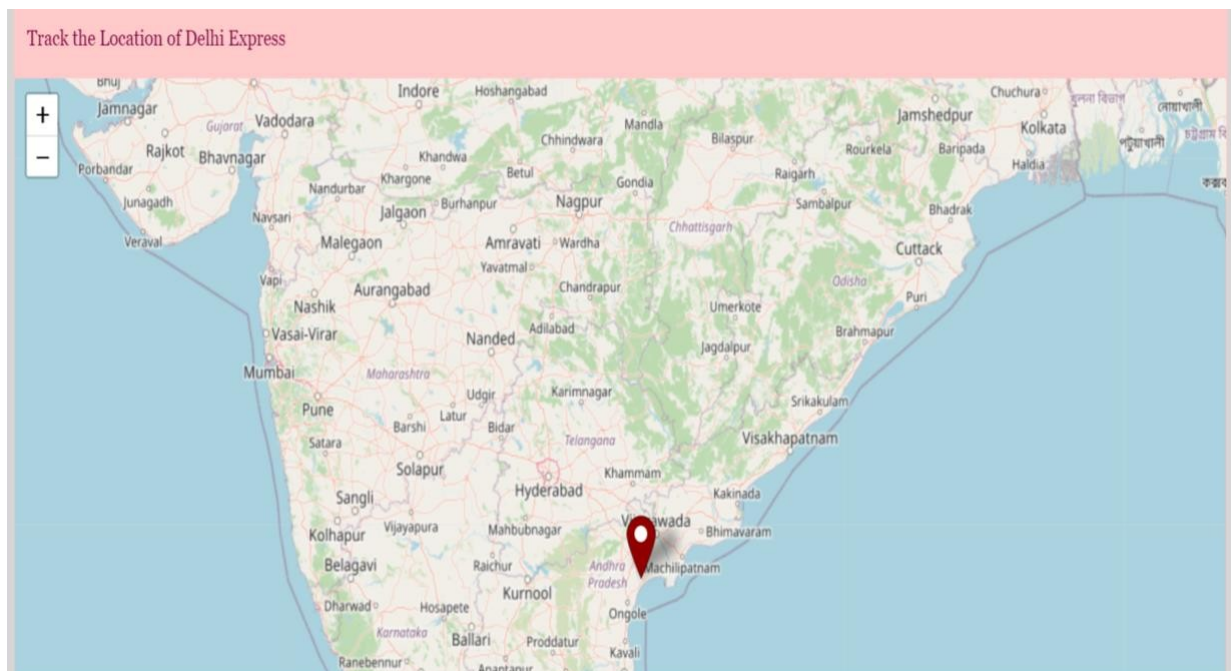


```

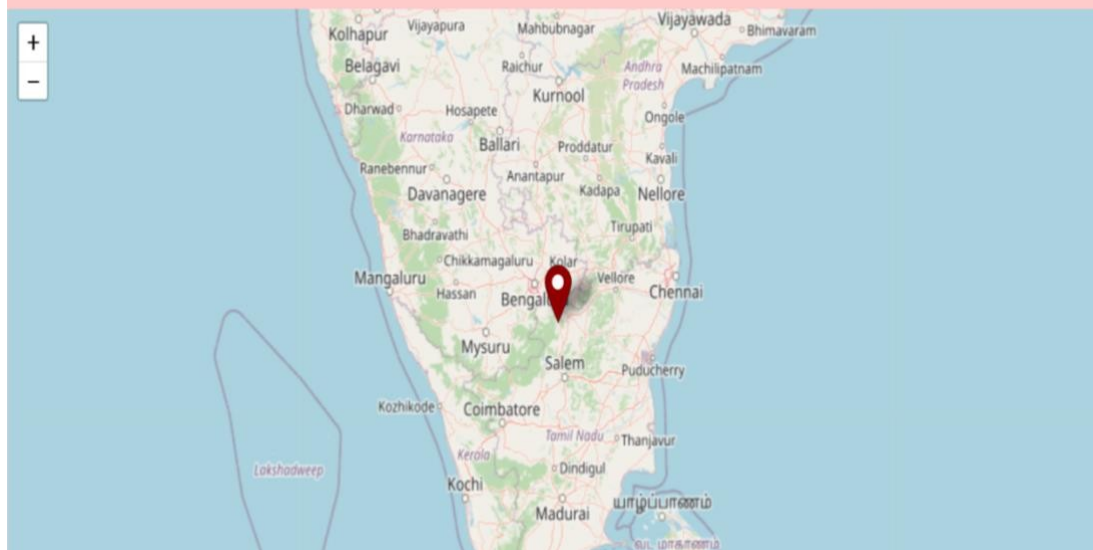
time.sleep(3)
myData = {'name':'Goa Express','lat':15.314922, 'lon':74.218089}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.283131, 'lon':74.146678}
pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.276839, 'lon':74.129855}
pub(myData)
time.sleep(3)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.282800, 'lon':74.125392}
pub(myData)
time.sleep(3)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.296378,'lon':74.135692}
pub(myData)
time.sleep(3)
client.commandCallback = myCommandCallback
client.disconnect()

```

### **Train Tracking in World Map:**



Track the Location of Goa Express



Track the Location of Mysuru SF Express

