

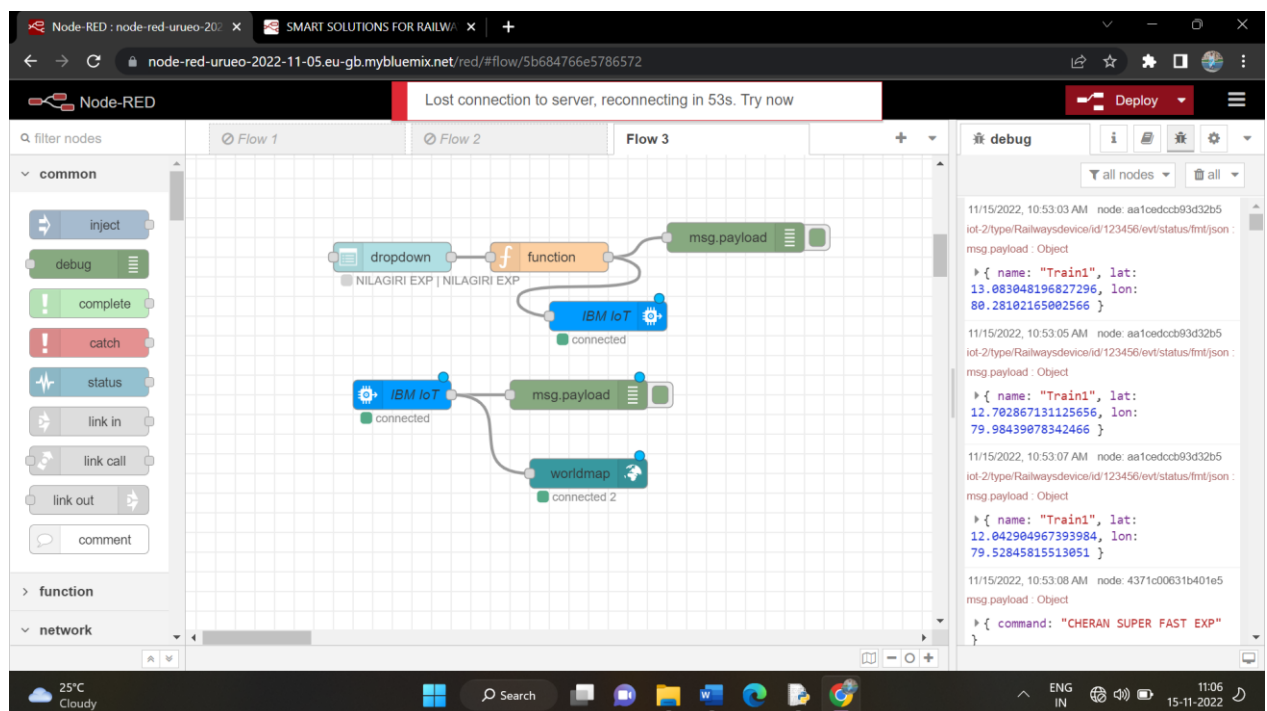
PROJECT DEVELOPMENT PHASE - SPRINT 3

Date	12 November 2022
Team ID	PNT2022TMID42243
Project Name	Smart Solutions for railways

SPRINT 3– Train Tracking

At the time of the journey, the user could able to track their train location by selecting the particular train. Once the train is selected ,the live location of the train can easily be tracked by the user.

NODE-RED FLOW FOR TRAIN TRACKING:



CODE:

```
import wiotp.sdk.device
import time
import random

myConfig = {
    "identity": {
        "orgId": "j96451",
        "typeId": "Railwaysdevice",
        "deviceId": "123456"
    },
    "auth": {
        "token": "Aarthy@270901"
    }
}

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': 'NILAGIRI EXP', 'lat': 13.083048196827296, 'lon':
80.28102165002566}
        pub (myData)
        time.sleep (2)
        myData={'name': 'NILAGIRI EXP', 'lat': 12.702867131125656,
'lon':79.98439078342466}
```

```
pub (myData)
time.sleep (2)
myData={'name': 'NILAGIRI EXP', 'lat': 12.042904967393984,
'lon':79.52845815513051}
pub(myData)
time.sleep(2)
myData={'name': 'NILAGIRI EXP', 'lat': 11.81717546843628,
'lon':79.38563588602632}
pub (myData)
time.sleep (2)
myData={'name': 'NILAGIRI EXP', 'lat': 11.591259751090618,
'lon':78.73194934666482}
pub (myData)
time.sleep (2)
myData={'name': 'NILAGIRI EXP', 'lat': 11.580497272057597,
'lon':78.75392200345009}
pub (myData)
time.sleep (2)
myData={'name': 'NILAGIRI EXP', 'lat': 11.51534247291403,
'lon':77.94873197618158}
pub (myData)
time.sleep (2)
myData={'name': 'NILAGIRI EXP', 'lat': 11.208368689552955, 'lon':
77.53125149726162}
pub (myData)
time.sleep (5)
myData={'name': 'NILAGIRI EXP', 'lat': 11.035888995239656,
'lon':76.94348292825593}
pub (myData)
client.commandCallback = myCommandCallback
client.disconnect ()
```

PYTHON CODE FOR TRACKING LIVE LOCATION:

```
train_tracking.py - C:\Users\ARTHY\OneDrive\Desktop\IBM\CODE\train_tracking.py (3.9.6)
File Edit Format Run Options Window Help

import wiotp.sdk.device
import time
myConfig = {
    "identity": {
        "orgId": "j96451",
        "typeId": "Railwaysdevice",
        "deviceId": "123456"
    },
    "auth": {
        "token": "Aarthy8270901"
    }
}

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': 'NILAGIRI EXP', 'lat': 13.083048196827296, 'lon': 80.28102165002566}
    pub (myData)
    time.sleep (2)
    myData={'name': 'NILAGIRI EXP', 'lat': 12.702867131125656, 'lon': 79.98439078342466}
    pub (myData)
    time.sleep (2)
    myData={'name': 'NILAGIRI EXP', 'lat': 12.042904967393984, 'lon': 79.52845815513051}
    pub (myData)
    time.sleep (2)
    myData={'name': 'NILAGIRI EXP', 'lat': 11.81717546843628, 'lon': 79.38563588602632}
    pub (myData)
    time.sleep (2)
    myData={'name': 'NILAGIRI EXP', 'lat': 11.591259751090618, 'lon': 78.73194934666482}
    pub (myData)
    time.sleep (2)
    myData={'name': 'NILAGIRI EXP', 'lat': 11.580497272057597, 'lon': 78.75392200345009}
    pub (myData)
    time.sleep (2)
    myData={'name': 'NILAGIRI EXP', 'lat': 11.51534247291403, 'lon': 77.94873197618158}
    pub (myData)
    time.sleep (2)
    myData={'name': 'NILAGIRI EXP', 'lat': 11.208368689552955, 'lon': 77.53125149726162}
    pub (myData)
    time.sleep (5)
    myData={'name': 'NILAGIRI EXP', 'lat': 11.035888995239656, 'lon': 76.94348292825593}
    pub (myData)
    client.commandCallback = myCommandCallback
client.disconnect ()
```

OUTPUT:

```
IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help

Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/ARTHY/OneDrive/Desktop/IBM/CODE/train_tracking.py =====
2022-11-15 11:22:55,255 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:j96451:Railwaysdevice:123456
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 13.083048196827296, 'lon': 80.28102165002566}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 12.702867131125656, 'lon': 79.98439078342466}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 12.042904967393984, 'lon': 79.52845815513051}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.81717546843628, 'lon': 79.38563588602632}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.591259751090618, 'lon': 78.73194934666482}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.580497272057597, 'lon': 78.75392200345009}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.51534247291403, 'lon': 77.94873197618158}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.208368689552955, 'lon': 77.53125149726162}
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Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 13.083048196827296, 'lon': 80.28102165002566}
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Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 12.042904967393984, 'lon': 79.52845815513051}
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Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.580497272057597, 'lon': 78.75392200345009}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.51534247291403, 'lon': 77.94873197618158}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.208368689552955, 'lon': 77.53125149726162}
|
```

WATSON IBM CLOUD:

The screenshot displays the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains icons for various IoT functions. The main content area shows details for a device named 'Railwaysdevice' (ID: 123456), which is 'Connected'. Below this, the 'Recent Events' tab is active, displaying a table of live data streams.

Event	Value	Format	Last Received
status	{"name":"NILAGIRI EXP","lat":11.20836868955...	json	a few seconds ago
status	{"name":"NILAGIRI EXP","lat":11.51534247291...	json	a few seconds ago
status	{"name":"NILAGIRI EXP","lat":11.58049727205...	json	a few seconds ago
status	{"name":"NILAGIRI EXP","lat":11.59125975109...	json	a few seconds ago
status	{"name":"NILAGIRI EXP","lat":11.81717546843...	json	a few seconds ago

USER INTERFACE FOR TRAIN TRACKING:

The screenshot shows a web application titled 'Train Tracking'. The main interface features a map of India with a red pin indicating the location of 'NILAGIRI EXP'. The map includes labels for various cities and states, such as Kurnool, Proddatur, Anantapur, Kadapa, Nellore, Tirupati, Kolar, Vellore, Chennai, Bengaluru, Mysuru, Coimbatore, Madurai, and Nagercoil. The application is running on a Node-RED instance, as indicated by the browser tabs and the URL.