

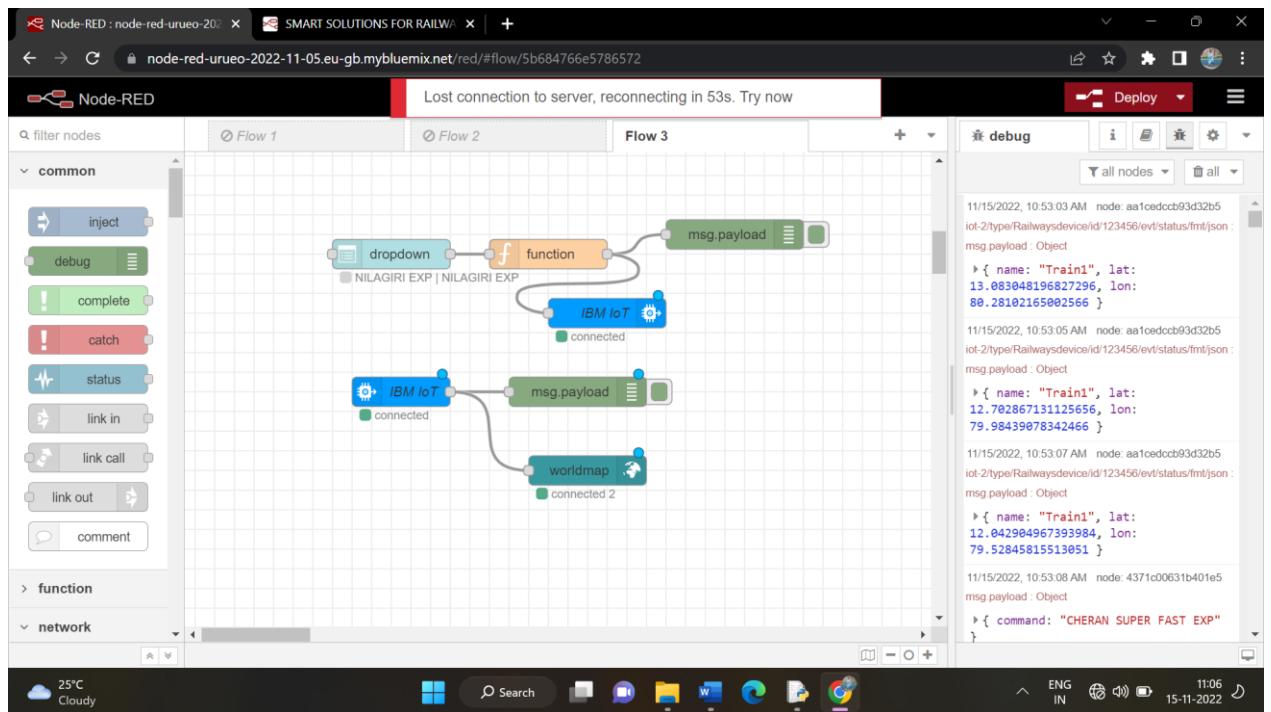
PROJECT DEVELOPMENT PHASE - SPRINT 3

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": "996451",
         "typeId": "Railwaysdevice",
         "deviceId": "123456"
        },
        "auth": [
            {"token": "Arthy8270901"
        }
    ]
}
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=data, 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': 11.035888995239656, 'lon':76.94348292825593}
    pub (myData)
    client.commandCallback = myCommandCallback
client.disconnect ()
Ln: 4 Col: 14
```

The screenshot shows a Windows desktop environment. A code editor window titled 'train_tracking.py' is open, displaying Python code for tracking live location data. The taskbar at the bottom shows various application icons, including a weather widget indicating 28°C Haze, system status icons like battery and signal strength, and the date/time (15-11-2022, 16:31).

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}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.035888995239656, 'lon': 76.94348292825593}
Published data Successfully: %s {'name': 'NILAGIRI EXP', 'lat': 11.083048196827296, '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}
Ln: 23 Col: 0
```

The screenshot shows an IDLE shell window running Python 3.9.6. The user has run the script 'train_tracking.py'. The output shows the device connecting successfully and then publishing data every two seconds. The published data includes the train name ('NILAGIRI EXP'), latitude, and longitude. The taskbar at the bottom shows a weather widget indicating 26°C AQI 75, system status icons, and the date/time (15-11-2022, 11:23).

WATSON IBM CLOUD:

The screenshot shows the IBM Watson IoT Platform dashboard. At the top, there are several tabs: Node-RED : node-red, Service Details - IBM, Cloudant Dashboard, SMART SOLUTION, IBM Watson IoT Pl, and IBM. The main title is "IBM Watson IoT Platform". The user information is "710019106005@smartinternz.com ID: j96451". On the left, there's a sidebar with icons for Browse, Action, Device Types, Interfaces, and a gear icon. The main content area shows a device named "123456" which is "Connected" and identified as "Railwaysdevice". The status bar indicates "Nov 7, 2022 8:55 AM". Below the device name, there are tabs for Identity, Device Information, Groups, Recent Events, State, and Logs. The "Recent Events" tab is selected. A message says, "The recent events listed show the live stream of data that is coming and going from this device." A table lists five recent events, all of which are "status" type and in JSON format, received "a few seconds ago". The table has columns for Event, Value, Format, and Last Received. The bottom of the screen shows a Windows taskbar with various icons and a weather widget indicating "28°C Haze".

USER INTERFACE FOR TRAIN TRACKING:

The screenshot shows a web-based application for train tracking. The title bar says "Node-RED : node-red-urueo-20" and "SMART SOLUTIONS FOR RAILWA". The main header is "Train Tracking". In the center, there's a map of southern India with a red location pin placed near Bangalore. The map includes labels for major cities like Bangalore, Chennai, Hyderabad, and Mysuru. The application interface includes a dropdown menu for selecting a train, with "NILAGIRI EXP" currently selected. The bottom of the screen shows a Windows taskbar with various icons and a weather widget indicating "28°C Cloudy".