

PROJECT DEVELOPMENT PHASE

SPRINT – 1

Date	16 November 2022
Team ID	PNT2022TMID29870
Project	Smart Solutions For Railways

Objective:

- To track the live location of the train using a GPS module to get the latitude and longitude values.
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- ❖ A python code is built as it updates the latitude and longitude values in the IBM IoT platform.

The image shows a Python script in a text editor and its execution output in a terminal window. The script, named `ssrf.py`, uses the `wiot.sdk.device` module to connect to the IBM IoT Platform. It defines a `myConfig` dictionary with device credentials and a `myCommandCallback` function to handle incoming commands. The main loop publishes simulated train location data (name, latitude, longitude) every 3 seconds. The terminal window shows the output of the script, displaying the published data for 'Train1' at various coordinates.

```

ssrf.py - C:\Users\VOVAN\Documents\ssrf.py (3,11.0)
File Edit Format Run Options Window Help
import wiotp.sdk.device
import time
import random
myConfig = {
    "identity": {
        "orgId": "nybqel",
        "typeId": "SSFR",
        "deviceId": "SSFR1"
    },
    "auth": {
        "token": "J0-y_YMEHgK+ILYh9"
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']

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

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

while True:
    myData={'name':'Train1','lat':10.184363,'lon': 77.922702}
    pub(myData)
    time.sleep(3)
    myData={'name':'Train1','lat':10.213225,'lon': 77.898765}
    pub(myData)
    time.sleep(3)
    myData={'name':'Train1','lat':10.285035,'lon': 77.921569}
    pub(myData)
    time.sleep(3)
    myData={'name':'Train1','lat':10.343369,'lon': 77.958056}
    pub(myData)
    time.sleep(3)
    myData={'name':'Train1','lat':10.356829,'lon': 77.980861}
    pub(myData)
    time.sleep(3)
    client.commandCallback = myCommandCallback
client.disconnect()

```

```

IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Published data Successfully:{"name": "Train1", "lat": 10.184363, "lon": 77.922702}
Published data Successfully:{"name": "Train1", "lat": 10.213225, "lon": 77.898765}
Published data Successfully:{"name": "Train1", "lat": 10.285035, "lon": 77.921569}
Published data Successfully:{"name": "Train1", "lat": 10.343369, "lon": 77.958056}
Published data Successfully:{"name": "Train1", "lat": 10.356829, "lon": 77.980861}
Published data Successfully:{"name": "Train1", "lat": 10.184363, "lon": 77.922702}
Published data Successfully:{"name": "Train1", "lat": 10.213225, "lon": 77.898765}
Published data Successfully:{"name": "Train1", "lat": 10.285035, "lon": 77.921569}
Published data Successfully:{"name": "Train1", "lat": 10.343369, "lon": 77.958056}
Published data Successfully:{"name": "Train1", "lat": 10.356829, "lon": 77.980861}
Published data Successfully:{"name": "Train1", "lat": 10.184363, "lon": 77.922702}
Published data Successfully:{"name": "Train1", "lat": 10.213225, "lon": 77.898765}
Published data Successfully:{"name": "Train1", "lat": 10.285035, "lon": 77.921569}
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Published data Successfully:{"name": "Train1", "lat": 10.343369, "lon": 77.958056}
Published data Successfully:{"name": "Train1", "lat": 10.356829, "lon": 77.980861}

```

- ❖ These values are updated in the IBM Watson IoT platform.

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes tabs for Service Details, IBM Watson, and Node-RED. The main content area displays a list of devices under the 'Browse' tab. The device list has columns for Device ID, Status, Device Type, Class ID, Date Added, and Descriptive Location. Two devices are listed: Jeeva_Yovan (Disconnected) and SSFR1 (Connected). The details for SSFR1 are expanded, showing tabs for Identity, Device Information, Recent Events, State, and Logs. The 'Recent Events' tab is active, displaying a table of events with columns for Event, Value, Format, and Last Received. The events are status updates with JSON payloads containing name, latitude, and longitude. At the bottom right, a status box indicates '0 Simulations running'.

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
Jeeva_Yovan	Disconnected	Watson	Device	28 Oct 2022 19:58	
SSFR1	Connected	SSFR	Device	16 Nov 2022 10:32	

Event	Value	Format	Last Received
status	{"name":"Train1","lat":10.285035,"lon":77.9215...	json	a few seconds ago
status	{"name":"Train1","lat":10.213225,"lon":77.8987...	json	a few seconds ago
status	{"name":"Train1","lat":10.184363,"lon":77.9227...	json	a few seconds ago
status	{"name":"Train1","lat":10.356829,"lon":77.9808...	json	a few seconds ago
status	{"name":"Train1","lat":10.343369,"lon":77.9580...	json	a few seconds ago

0 Simulations running

- ❖ A node red flow is created by fetching the data from the IBM IoT platform.
- ❖ ❖ The fetched data is made to locate in the Map