Computing in Communication Networks

Assignment #4: Vehicular Scenario

Vu Anh Minh Le

June 11, 2022

1 Running with docker

1.1 Running the server

Pull the docker server by the command: **docker pull minhval0307/unitn_gpstracking_server:latest**
Then run the command: **docker run -it –rm -d -p 8080:80 –name web minhval0307/unitn_gpstracking_server**
On a web browser, access: http://localhost:8080/

To stop the container, run: **docker stop web**

1.2 Running the clients

There are two kinds of clients, say CARS and DRONES.

To run CARS client, run the following commands:
docker pull minhval0307/publisher_cars:latest
docker run -it –rm –name cars minhval0307/publisher_cars

To run DRONES client, run the following commands:
docker pull minhval0307/publisher_drones:latest
docker run -it –rm –name drones minhval0307/publisher_drones

To stop CARS and DRONES clients, run:
docker stop cars drones

2 Running directly with application files

Access https://github.com/minhval/ComputingInComNet.git to download the application source for both server and clients.

Inside folder server/src, run **index.html** (by double clicking on it) to start the tracking page.

Inside folder clients/cars, run command **python3 publisher_cars.py** to start CARS client.

Inside folder clients/drones, run command **python3 publisher_drones.py** to start DRONES client.

Note: packages **numpy** and **paho-mqtt** must be installed before starting the clients.

3 Images on the run

Here are several images presenting the result after running the sever and the clients.

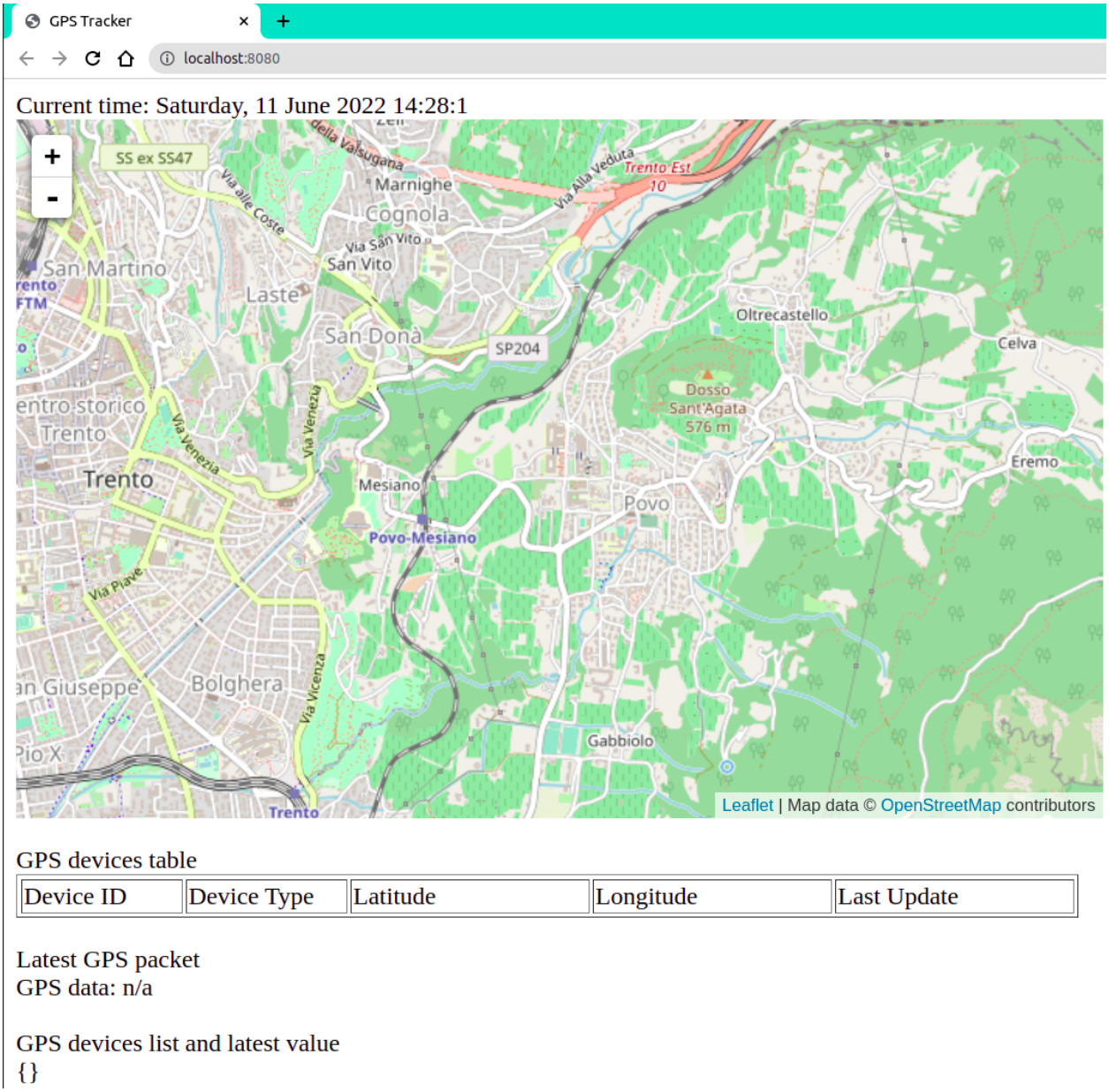
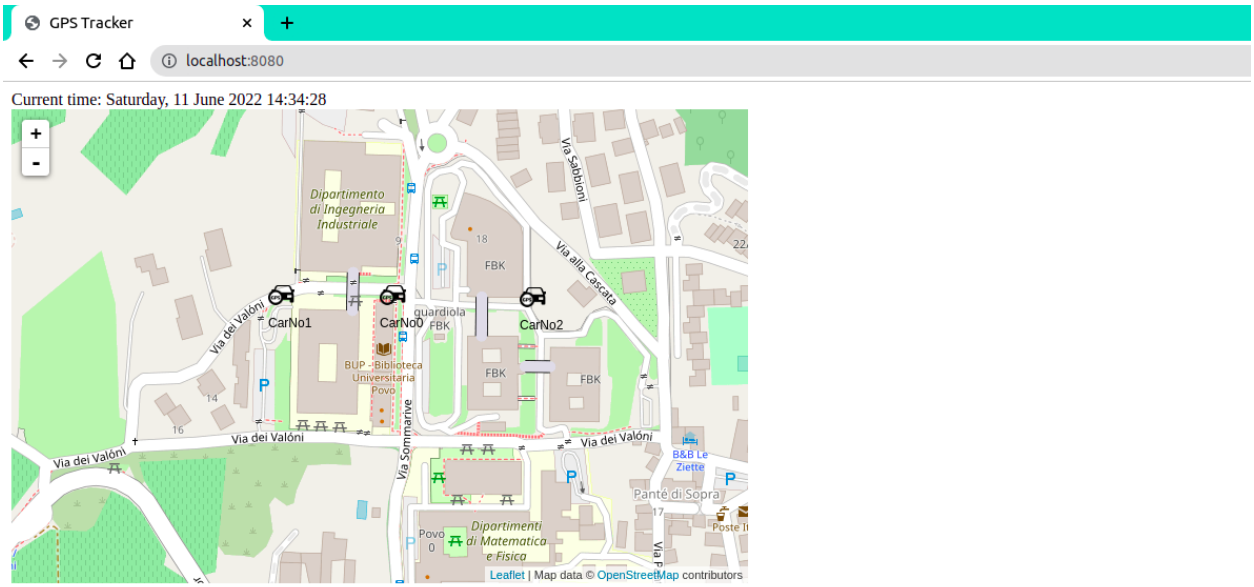


Figure 1: *localhost:8080* with no data received.



GPS devices table

Device ID	Device Type	Latitude	Longitude	Last Update
CarNo0	CAR	46.06752624453603	11.150250478269971	2022-06-11 14:34:27
CarNo1	CAR	46.06752624453603	11.149120722845327	2022-06-11 14:34:27
CarNo2	CAR	46.06752624453603	11.151698074509016	2022-06-11 14:34:27

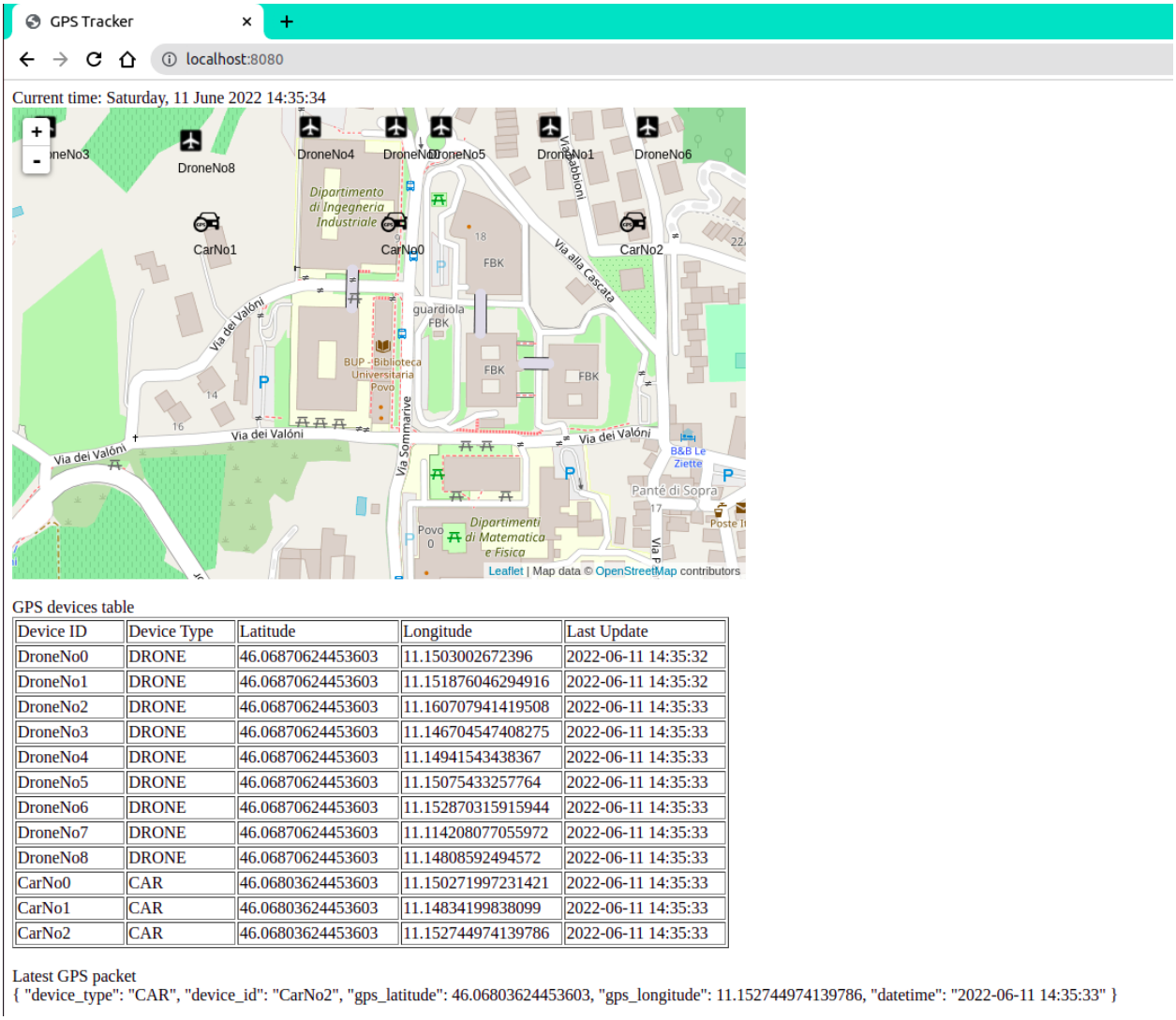
Latest GPS packet

{ "device_type": "CAR", "device_id": "CarNo2", "gps_latitude": 46.06753624453603, "gps_longitude": 11.15171860195275, "datetime": "2022-06-11 14:34:28" }

GPS devices list and latest value

{"CarNo2":{"device_type":"CAR","device_id":"CarNo2","gps_latitude":46.06752624453603,"gps_longitude":11.151698074509016,"datetime":"2022-06-11 14:34:27"},"CarNo1":
{"device_type":"CAR","device_id":"CarNo1","gps_latitude":46.06752624453603,"gps_longitude":11.149120722845327,"datetime":"2022-06-11 14:34:27"},"CarNo0":
{"device_type":"CAR","device_id":"CarNo0","gps_latitude":46.06752624453603,"gps_longitude":11.150250478269971,"datetime":"2022-06-11 14:34:27"}}

Figure 2: *localhost:8080* with CARS data after a while.



Device ID	Device Type	Latitude	Longitude	Last Update
DroneNo0	DRONE	46.06870624453603	11.1503002672396	2022-06-11 14:35:32
DroneNo1	DRONE	46.06870624453603	11.151876046294916	2022-06-11 14:35:32
DroneNo2	DRONE	46.06870624453603	11.160707941419508	2022-06-11 14:35:33
DroneNo3	DRONE	46.06870624453603	11.146704547408275	2022-06-11 14:35:33
DroneNo4	DRONE	46.06870624453603	11.14941543438367	2022-06-11 14:35:33
DroneNo5	DRONE	46.06870624453603	11.15075433257764	2022-06-11 14:35:33
DroneNo6	DRONE	46.06870624453603	11.152870315915944	2022-06-11 14:35:33
DroneNo7	DRONE	46.06870624453603	11.114208077055972	2022-06-11 14:35:33
DroneNo8	DRONE	46.06870624453603	11.14808592494572	2022-06-11 14:35:33
CarNo0	CAR	46.06803624453603	11.150271997231421	2022-06-11 14:35:33
CarNo1	CAR	46.06803624453603	11.14834199838099	2022-06-11 14:35:33
CarNo2	CAR	46.06803624453603	11.152744974139786	2022-06-11 14:35:33

Figure 3: *localhost:8080* with CARS and DRONES data after a while.

—