USER MANUAL AND PROJECT DEMONSTRATION

Project Name: DATA SET CREATION WITH AGENT-BASED SIMULATION AND OPTIMAL PATH FINDING SUPPORTED BY PARKING AND TRAFFIC DATA

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Technical Specifications

Steps to launch and view simulation:

1) Download and install the latest version of Python:
    https://www.python.org/downloads/
2) Download and install the latest version of SUMO to your computer:
    (Download 64-bit installer with all extras)
    https://sumo.dlr.de/docs/Downloads.php
3) Open the Parking Simulation folder and launch `login.py`.
4) After the registration and successful login, you can start the simulation by clicking the green 'Run' button at top left in the opened simulation window.

Simulation data is saved every 10 seconds in the SimulationFiles folder, named `vehicleData.txt` and `parkingLotData.txt`. You can check the data from these files.

Main Features

The user can log in to the application by entering the correct username and

password. After successful login, it enters the simulation interface of the selected

region.

If he wants to use a different region for simulation, he opens the entire map for region selection from the settings section.

After making the desired settings for the region to be used (e.g. closing railways, displaying maritime vehicles, etc.), it generates a new simulation. It then adds car parks to the simulation using the provided tools. He can then use it by running the simulation.

Main Scenario

Being able to log in to the application with username and password. Warning message when entered incorrectly.

The simulation region can be changed from the settings tab in the menu, and different regions can be selected on the map.

Simulating traffic flowing in the selected map area

Traffic density can be changed on this simulation.

Simulation speed can be changed.

The occupancy rate of parking lots can be controlled. In flowing traffic, vehicles may choose to stop in
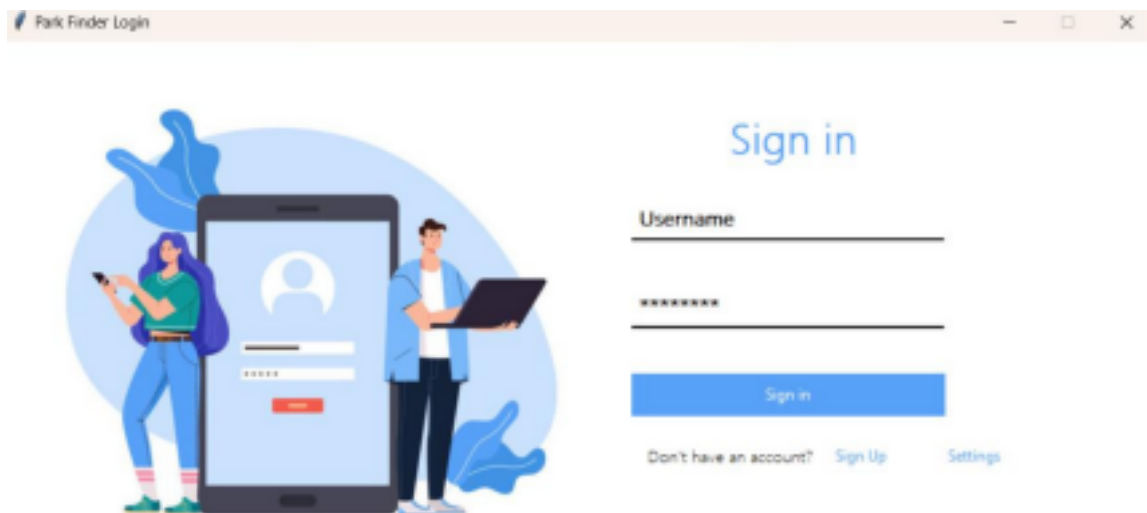
these car parks, affecting the occupancy rate.

The routes that the vehicles will follow can be displayed.

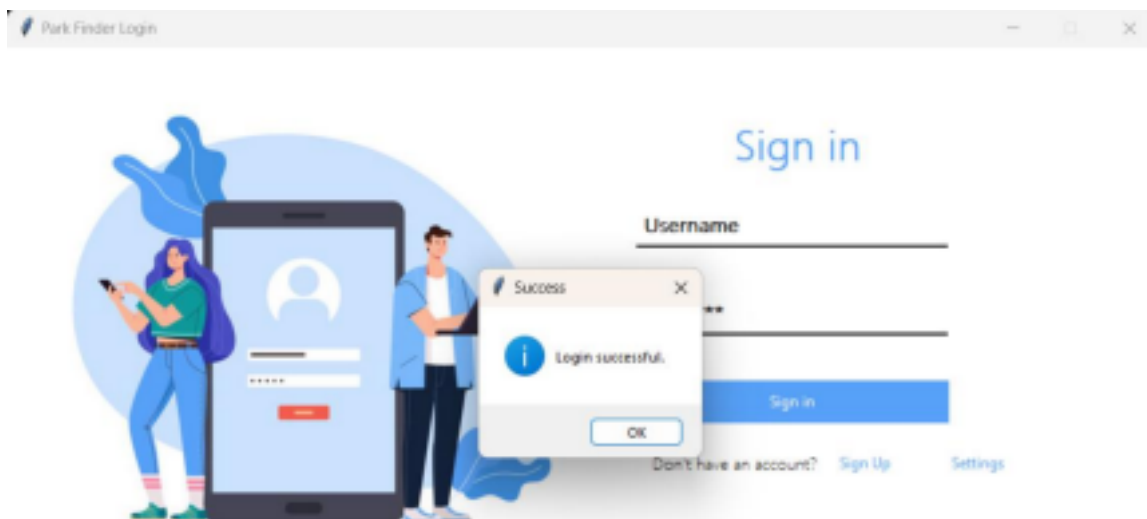The time the vehicle can use the park can be displayed.

Program Screenshots

Login Screen

Users can login or register the simulation using this screen. They can click settings to create a simulation with a new map if they want.
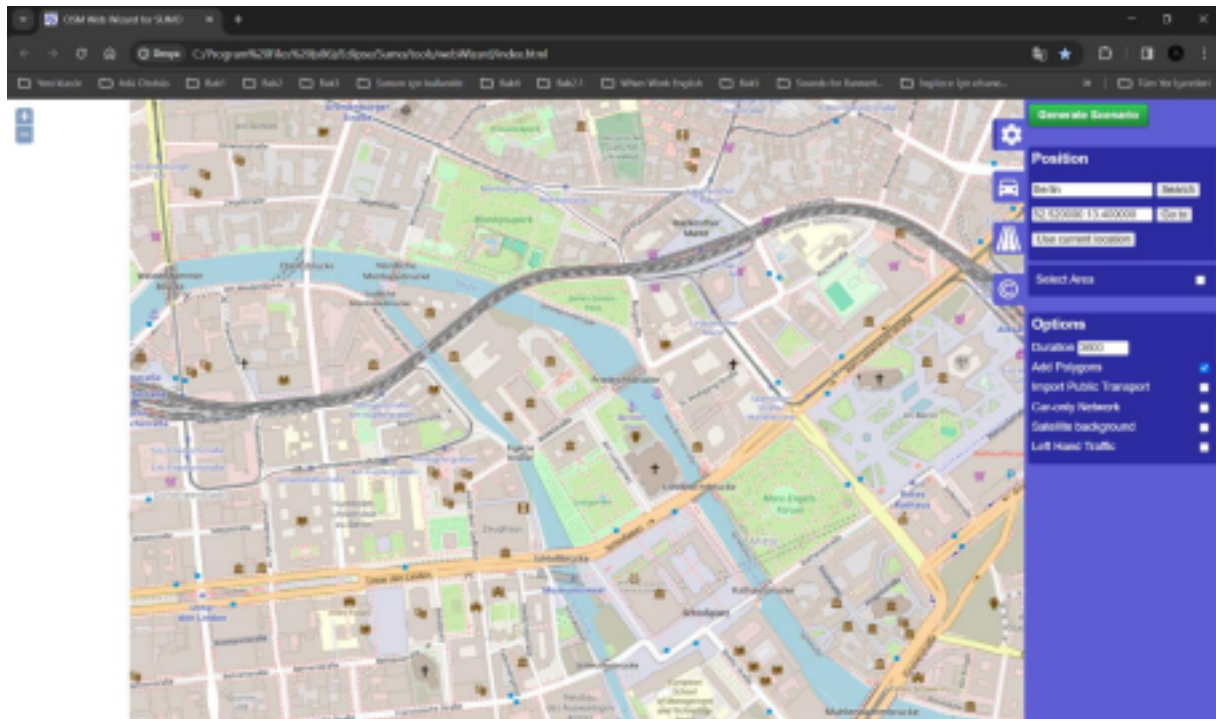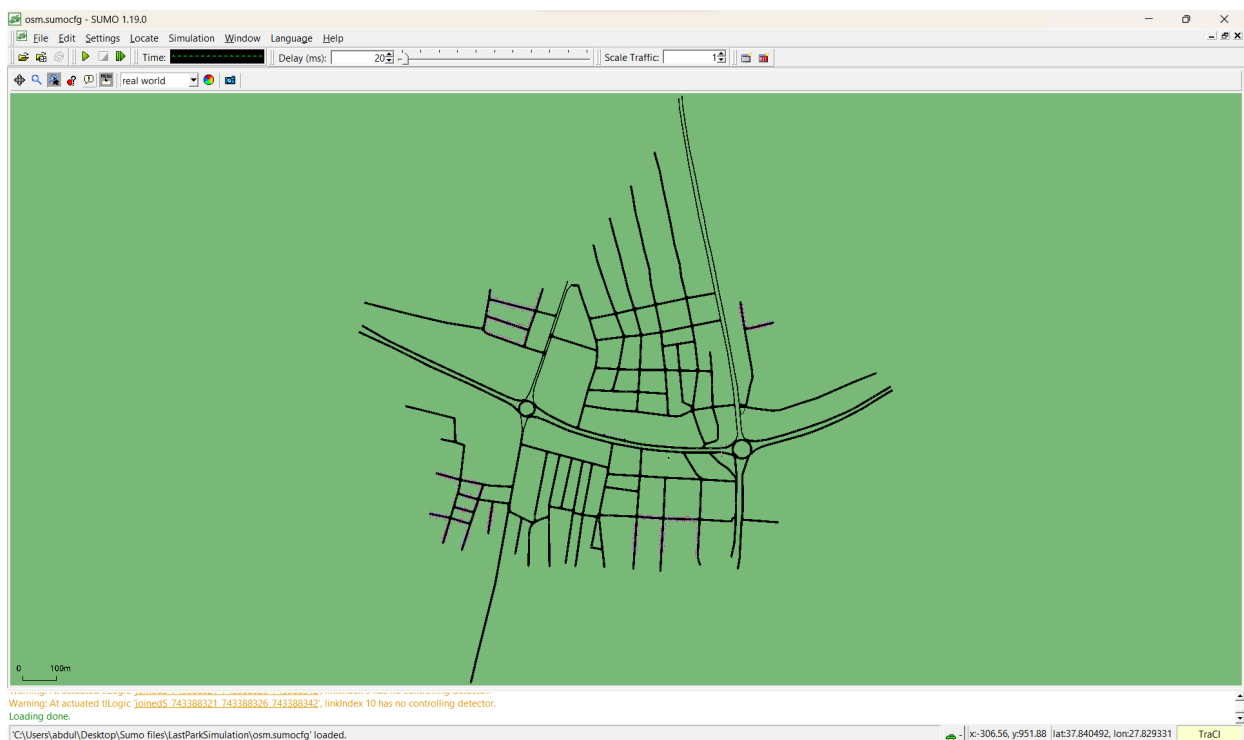

Successful Login

The screen to create a simulation with a new map.

Users can create a simulation with any map they select using this interface.
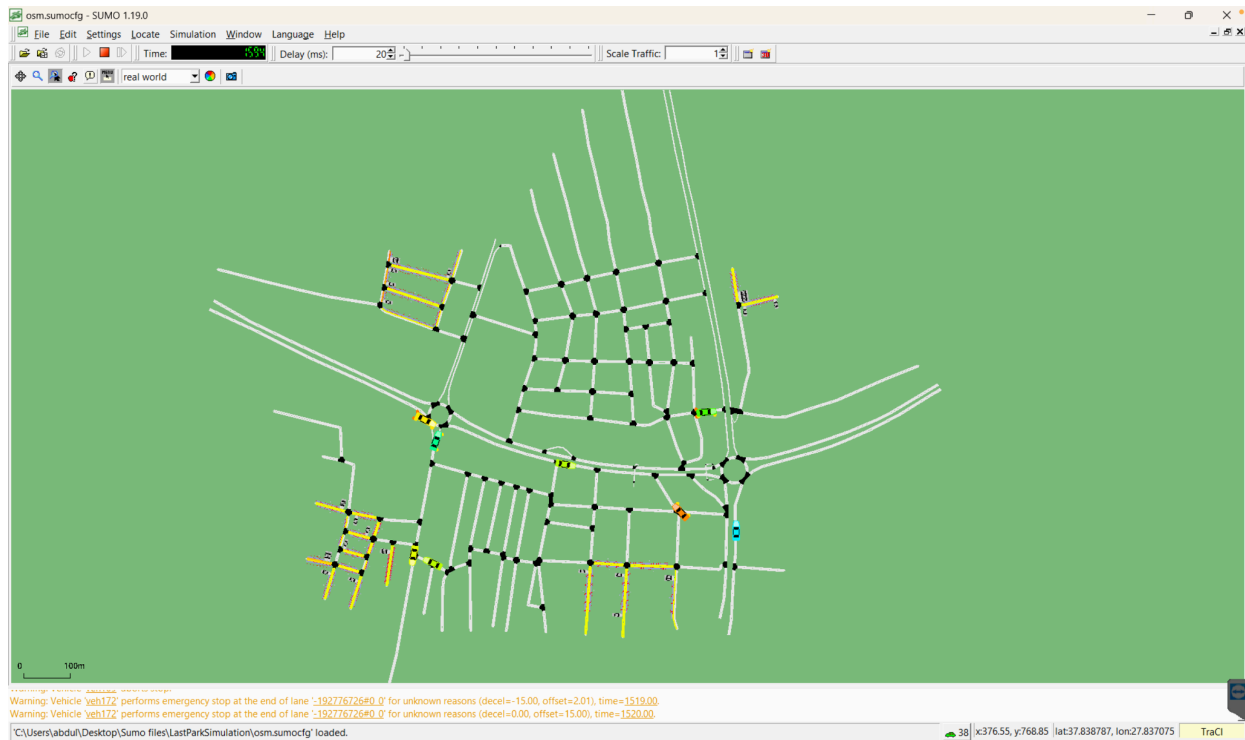

Simulation screen

Simulation screen that is not started yet. You can start the simulation by clicking the green triangle 'Run' button at top left.

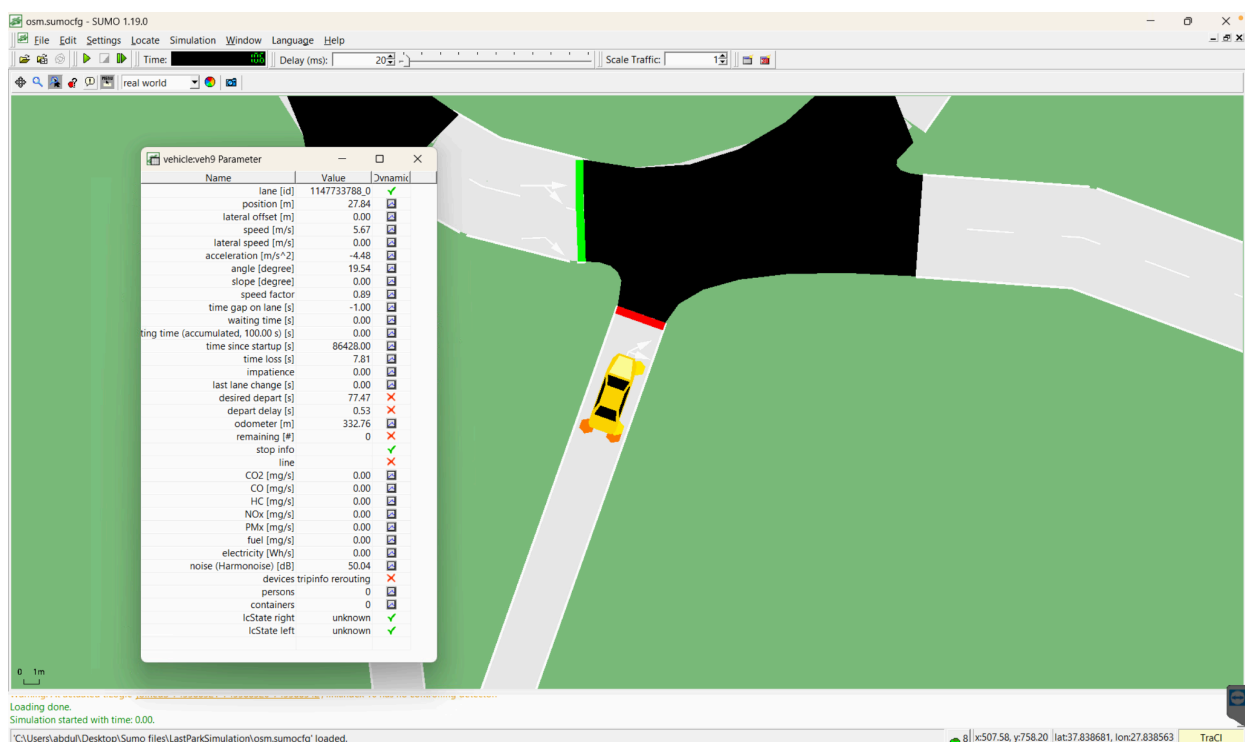A running simulation screen

Simulation Settings

Users can slow down or speed up the simulation by setting the delay from this bar. They can also set the traffic scale here which changes the traffic density.
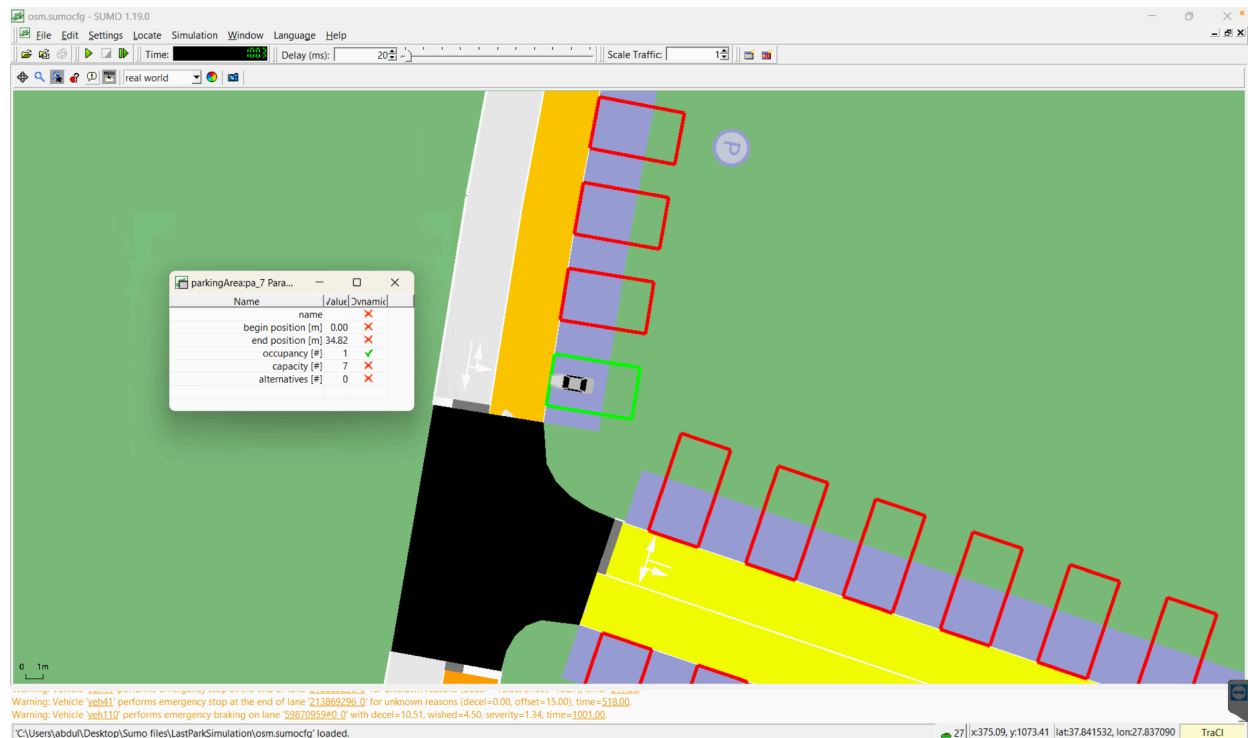

Parameter windows

Users can see vehicle parameters by right clicking the vehicle and clicking 'Show Parameter'

Users can see parking area parameters by right clicking the parking area and clicking 'Show Parameter'

Vehicle tracking

Users can track vehicles and see their routes live by right clicking the vehicle and click 'Start Tracking'.