

3D Public Transport Simulator v.1.0

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- Railtracks used by Public Transport
- Bus Roads
- All Roads
- Stations
- 3D Buildings

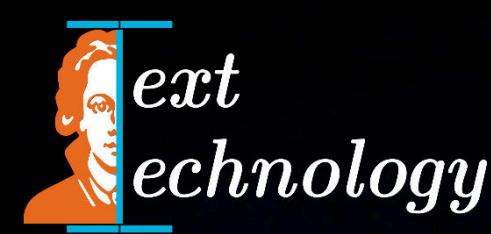
- Subways
- Trams
- Trains
- Railways
- Light Rails
- Busses

Return

Based on the user specified location, this simulation automatically generates a three-dimensional representation of the buildings and the local public transport. The user transfers an OSM XML source file to the application, which was previously downloaded from the official OSM website. All required geographic information is contained within this source file. This in turn makes it possible to simulate every location available in OSM. After the programm has processed the file and rendered the scene, the user can observe the scene in flight mode or interact with the stations and menu options in cursor mode.

The simulation was developed as part of the Bachelor thesis "Development and Testing of an interactive 3D City Model using the example of the local Public Transport Network of the City of Frankfurt" and is intended to produce a valuable 3D simulation for further research. The simulation should be used as a backbone for the development of various more complex simulation elements and applications.

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This simulation has been developed as part of a Bachelor thesis by Alen Smajic at Goethe University in Frankfurt, Germany.

This project has been developed at the Text Technology Lab under the supervision of Prof. Dr. Alexander Mehler. The thesis was supervised by Prof. Dr. Alexander Mehler; Mr. Giuseppe Abrami advised the author regarding technical aspects.

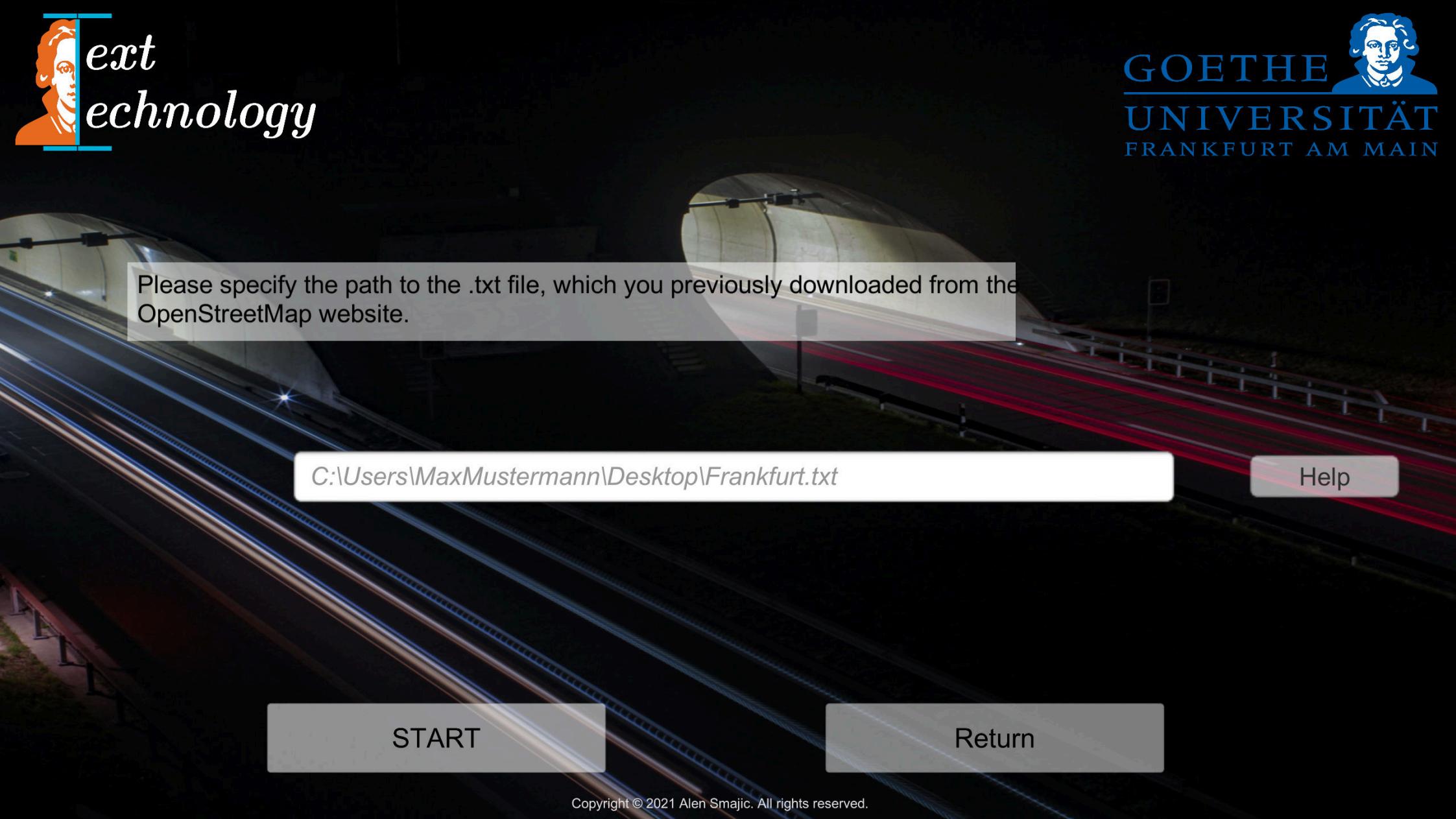
The basic structure for the data extraction and automatic object generation was developed by Mr. Sloan Kelly in his work "Scene Based Real World Map Data".

The Mapbox SDK for Unity was used for the rendering of 3D buildings.

The application is based on OpenStreetMap data.

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Please specify the path to the .txt file, which you previously downloaded from the OpenStreetMap website.

C:\Users\MaxMustermann\Desktop\Frankfurt.txt

Help

START

Return

First Steps before Starting the Simulation

1. Open the website "https://www.openstreetmap.org" inside your browser.
2. Choose the location you want to simulate.
3. Zoom in into your desired location. Everything inside your view will be exported. To do so, click on the export button on the top left corner (Figure 3.1). Care not to zoom too far away.
4. Next you have to choose the Overpass API option (Figure 4.1).
5. The download of the file should start in a few seconds.
6. Save the file into a destination folder.

Figure 3.1

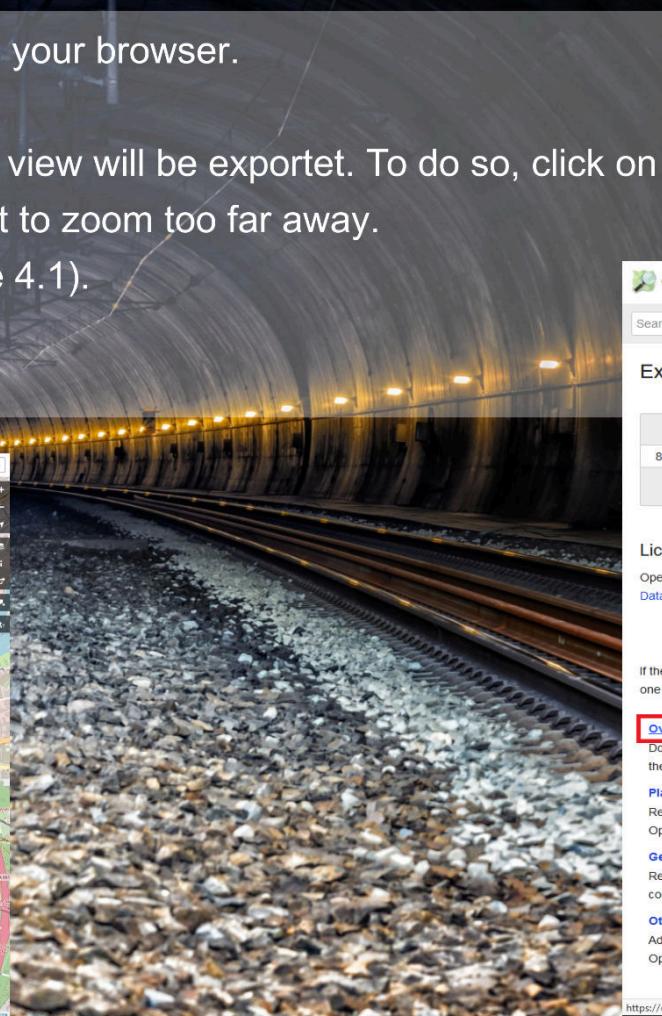
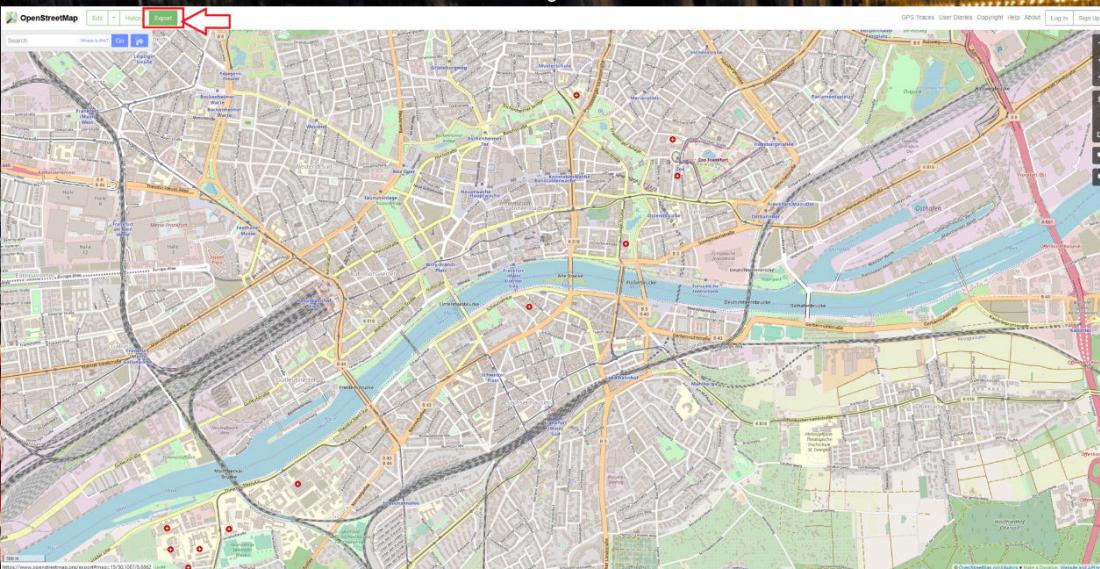
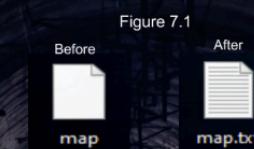


Figure 4.1

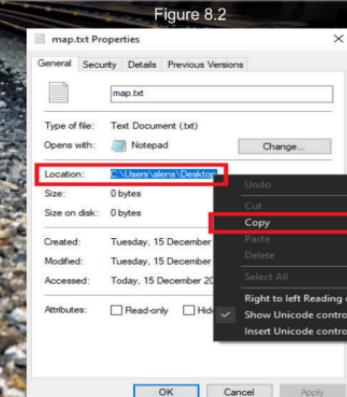
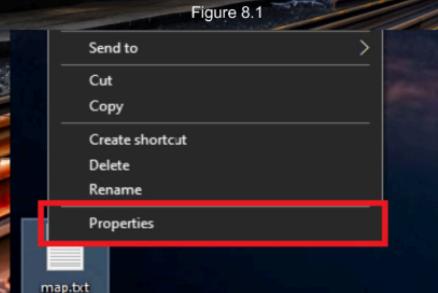
The screenshot shows the 'Export' feature of the OpenStreetMap website. It includes fields for latitude and longitude coordinates (50.1255, 8.6389, 50.0766, 8.7737) and a 'Manually select a different area' button. Below these are sections for 'Licence' (mentioning the Open Data Commons Open Database License), 'Export' (a blue button), and 'Other Sources' (listing Overpass API, Planet OSM, Geofabrik Downloads, and Other Sources). The 'Overpass API' section is specifically highlighted with a red arrow.

First Steps before Starting the Simulation

7. Convert the file to a .txt file. In most cases this can be done by renaming the file and including the extension ".txt" inside the file name (Figure 7.1).



8. Now you need to copy the path of the file. To do so, please right click on the file and choose "Properties" (Figure 8.1). Please copy the path under "Location:" (Figure 8.2).



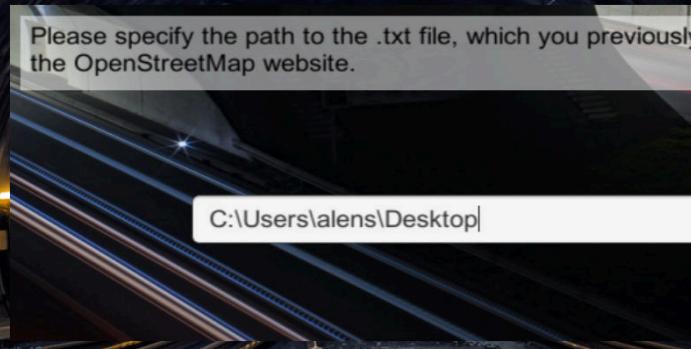
Return

Start Simulation

First Steps before Starting the Simulation

9. Please return now to the application and click inside the white input field. Press the button "Ctrl" and "v" at the same time. This will paste the path of the file, which you just copied (Figure 9.1).

Figure 9.1



10. Lastly you need to extend your path by adding a backslash "\\" followed by the name of the file (Figure 10.1).

Figure 10.1



Loading the file...

Tip: Use the TAB-button to switch between the flight and the cursor mode

