

Public Transit Simulation

Introduction:

Many game genres like city builders, transit/transport management have included some sort of a public transit system with them for a long time. But often, the usage of the public transit system is less realistic due to a variety of reasons. This project aims to study and develop a more realistic public transit simulation in video games.

Background:

In my initial experience with city builder games, the public transit system within the overarching traffic simulation is comparatively simple, i.e.; it does not consider a lot of the intricacies and nuances that control the expected usability and actual usage of the public transit setups. In real life, the expected usability can depend on hundreds of factors such as weather phenomenon, availability, walkability, social demand for the service, etc. Since not all the factors can be accounted for, many games consider only a few of the interconnected factors, such as in Cities: Skylines, the game determines public transit usage based on the availability and total path distance.

This makes the usage of the transit system “unrealistic” as even a shorter path in its distance may take a longer time compared to an alternate option. A more “realistic” approach might be using a lot more of these factors into consideration, such as having the usage of a particular train line be impacted by the current weather conditions, total walking distance, or the total time required for the journey.

Who and Why?

This project is aimed towards the designers and developers that want to develop a more detailed simulation game. This project could be used to experiment, understand, and explore how many of the variables/parameters can affect public transit usage. The designers can use this as a tool to determine a potential design complexity for their games. It also aims to show how such a system can be implemented in a robust, scalable, and modular fashion from a software engineering standpoint.

What will I learn?

By the end of this project, I intend to deliver a prototype for users to experiment with various simulation parameters to understand their effects on the realism of the simulation. This will require the use of better decision-making techniques and designing robust and scalable software architecture for the prototype.