Elevator Simulation Report

[1. Problem description: (at least 3 carts; at least 30 floors) - Research about feasible parameters (how fast can a cart move, stop, accelerate, - etc.), capacity, etc., performance metrics]

Please refer to the “Important parameters” part in ReadMe.pdf.

[2. Your “unique” design features, if any.]

This design mainly focus on realness and do not have any unique design.

[3. How many threads should be used? What is the role each thread?]

I made each cart(consumer) as a thread and each floor request manager(provider) as a thread because they are main roles in this project.

[4. Simulation, data analysis, and optimization.]

Please refer to “Design process and workflow” for the simulation and performance metrics.

For optimization, I think there is not much space to optimize if we do not change the most common model we based on. Some elevators in real life use segmentation(that is, for three carts, each cart is responsible for 10 more floors), or use memorization(to do statistics on the number of passengers on each floor) to improve the performance.

[5. Collecting data and visualizing them use any third party visualization tools, JavaScript or directly on console.]

I use windows.h console facilities for parallel rendering. Please refer to “Design process and workflow” part for rendering.