TJ Hallway Simulation
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Introduction

The people-traffic in the hallways at TJ is erratic. Some hallways and intersections are jam-packed between periods, during lunch, and before school. Others are deserted, save for three or four students standing in an alcove talking. My project models the traffic of people, both students and faculty, during the school day. Each agent has both physical and social factors coded into it which may change based on interactions with other agents. My program is easily alterable so that program variables (the school and agents) can be updated or completely swapped out without problems. Because the decisions are generated dynamically, the agents adapt to whatever environment they are generated in.

Abstract

Simulations are efficient ways to model data, once the framework is set up. By looking at a simulation, the user can glean any amount of information about a system (in this case, a school). A simulation of TJHSST could be useful not just to the administration is determining the effect of certain alterations to school policies, but also to visitors in learning the layout of the school and how to best interact with the diverse student populous. Simulations of TJ have been done before, but they were almost exclusively data (text- or number-based) none of them took into account the social interactions between students and faculty, therefore missing out on a large part of what makes a school tick. My simulation is highly visual and interactive to make it most-easily-understood. The data layer can include congestion, student-area density, average speeds, times to the next class, and time spent dawdling.

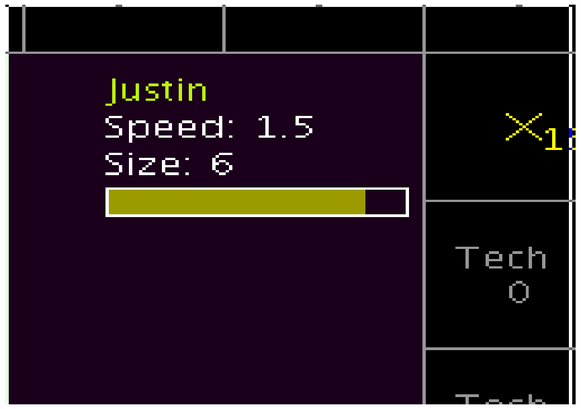

Fig 2: Justin has to dehydrate himself in the newly remodeled TJ bathrooms. (Right...)

Fig 1: A decent-looking map of the bottom floor is squished into too-small-a-space. But, it has gyms, tech labs, library, office, and the cafeteria.

Background

Simulations of TJ hallway traffic simulation have been done in the past, but they missed out on one of the factors that really makes a school – how the students interact with each other. Instead, their “students” were zombies who mindlessly traveled along the most direct route to their next class, not taking into account any friends they might pass in the hallway, not taking into account that seniors might hang out in the senior lounge between classes or that juniors can be most-easily found in the physics hallway at all times. Combining these types of student interactions with “social compatibility” algorithms will produce a superior simulation of the student population.

Developments over 2nd Quarter

Control	Interface	Framework
• Mouse (multiple windows) • More buttons • More keyboard commands	• One window per floor • Improved button layout • Improved visual cues • More accurate map of school • Bar graph data output	• Multiple floors • Multiple entrances per room • Improved path-finding (BFID) • Entrances/exits for the school • Restroom utilization

Data Interpretation

Each hallway 'block' on both floors has a rectangular detector laid out, running the length of two or three rooms. These 'detection areas' span every hallway in both floors and light up to different colors and brightnesses based on hallway densities, agent speed, and overall flow.