TJHSST Hallway Simulation

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Abstract:

The goal of this project is to write a computer program that accurately simulates the movement of students through the TJHSST hallways. The simulation uses the programming language C and a heuristic path finding algorithm to determine each student's paths.

Background:

During the 2006-2007 school year, Peter Riggins and Olesya Katkova conducted some of the first ever projects studying TJHSST hallway traffic. Since then, however, several changes have been made to the school, such as the addition of new trailers and larger class sizes. This project adds both updated and additional knowledge to past research.

Procedure:

The project creates a digital version of the first and second floors of TJHSST. The simulation uses a heuristic path finding algorithm that determines each student's path individually. The simulation then outputs data about the collective hallway crowding that results from each student's individually made decisions.

Results:

All students were able to go from their current class to their next class in the span of a ten minute break period. None of the students were late. As shown by Figure 1. The majority of students reached their goal 8 minutes after break had begun. By the ten minute mark (when break ended), all students had found their goal. Each hallway received a differing level of traffic. This is shown in Figures 2 and 3, which were created using the data from Figure 1.

Key

Color	Number of Students
Red	500+
Orange	400-300
Yellow	300-400
Green	0-300

Figure 1: Graph

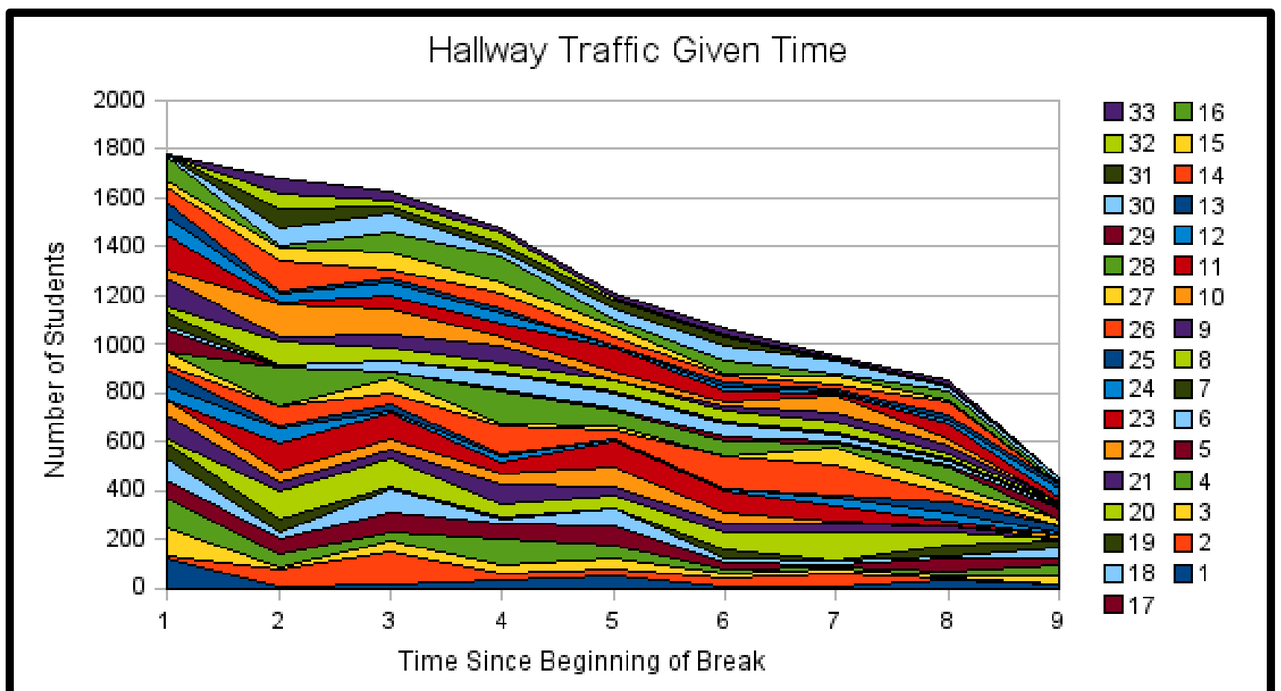

Figure 2: 1st Floor

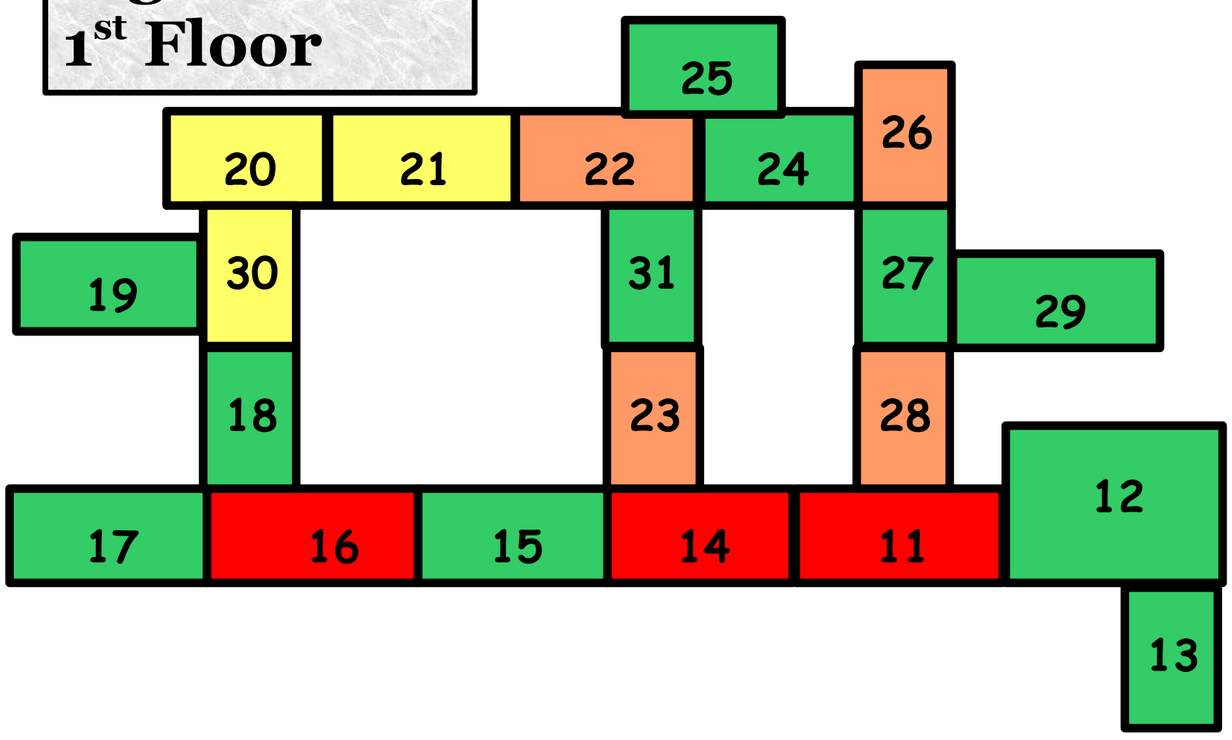
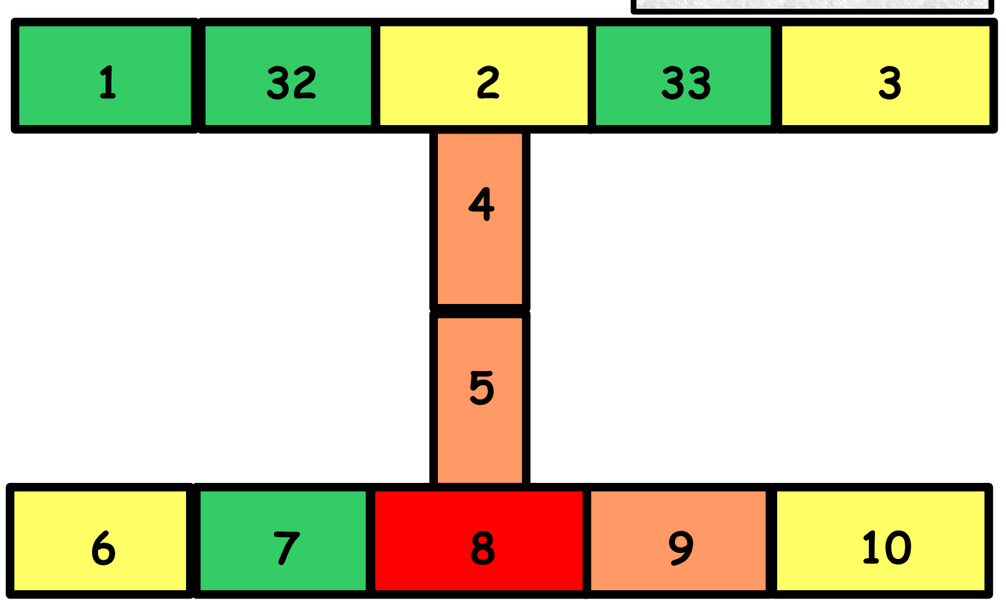
Figure 3: 2nd Floor