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Phase 1 Report

Our team has been familiarizing with the concepts, the code, and the MATLAB technology. First, we read "Simulating dynamical features of escape panic," which helped us understand the human reactions of an emergency evacuation, causing stampede. We plan to utilize the article more to determine the different speeds and decisions of the agents in our project. Every agent identifies the door, solves for the quickest path to the exit, and proceeds to that door until the exit is reached. After we looked at the various functions in the project, we proceeded to change the code from C and MATLAB to C++.

InitAgents.m is the function that creates the agents that appear in the simulation. We used Agent.h, to create a class to define each agent with a mass and radius. We have been able to understand all of the parts of the code, and successfully run the code. fastSweeping.c is a function that determines how people will choose the exit, with steps and direction clearly defined. The Floor.h file creates the Cartesian plane, making two dimensional points for the floor plan. Lerp2.c designates points for every part of the plane.

The tree files and tree functions are used to manage the agents and query them. We are currently in the process of navigating the variables and methods. Working with tree_build.c, tree_build.h, and tree_free.c has been some of our biggest challenges thus far.

Our future plans for the project include translating every function to C++, changing the size of the doors, assigning different reaction speeds of the agents, assigning panic reactions for the agents, creating more classes, and making the simulation more engaging. The code is located in https://github.com/prasantadh/csp.