

Edward Pultar
Scott Brown
Stuart Wilde
Cool Team Name

1.0 Project preferences

	Edward	Scott	Stuart	Total
Pedestrian Modeling	10	10	10	30

2.0 Qualifications and tradeoffs

2.1 Strengths and qualifications

Lead member is a geographer/computer scientist with experience in social sciences and researching pedestrian modeling since Summer 2004. All members have high interest in agent-based modeling for urban simulations and are taking GEOGR 6960 - Agent-Based Modeling class.

2.2 Trade-offs, constraints, and special considerations

Thorough understanding of CrystalSpace 3D and Crystal Entity Layer Engines. Limited expandability of software we have selected for use. Check for hardware requirements for large simulations. Modeling pedestrian animations such as cell phone answering, shaking hands, etc.

3.0 Pedestrian Modeling

3.1 Approach

From extensive research and reading on the topic of pedestrian modeling we hope to have a good understanding of how to create realistic human behavior. Making use of CrystalSpace 3D and Crystal Entity Layer to visualize our system.

Our project goal is to realistically model pedestrian movement in urban environments. We will use an agent-based modeling approach to create our system. By studying a great deal of literature available on the topic we plan to attack this project from a different perspective than previous attempts. We plan to take into account the geographic and social science aspects of pedestrian movement and combine them with computer science and artificial intelligence methods. Each pedestrian in our simulation can be seen as an independent agent with its own knowledge of and associations with an environment. By taking this approach we hope to run simulations of many different types of pedestrians ranging from school children to elderly folks or from football players to lawyers.

3.2 Implementation considerations.

In our project we hope to focus mainly on the agent choreography in the environment. We will use a pre-existing graphics engine to handle the graphic detail so we can focus the majority of our time on creating realistic human behavior. The Crystal Space 3D (www.crystalspace3d.org) engine is our most likely candidate for our system development. It is in C++, free, open-source, and uses OpenGL to accommodate our project's needs.

We will do extensive reading and research for how to best model human behavior. We intend this research to stem from geography and social sciences. We plan to spend considerable effort rendering these motions into workable algorithms that are usable within our system.

Our first steps on our project are to get familiar with the 3D engine we select for use. To get familiar with it we plan to create a series of simple models involving single or small amounts of people in simple situations like avoiding or approaching regions as desired. Using origins and destinations with pathfinding will also be an early goal to complete. Also, simple agent to agent choreography will be a foundation step to accomplish.