

Cool Team Name

<http://walked.edwardpultar.com>

Project Plan

1.0 Introduction

1.1 Project Overview

WalkEd will be an agent-based system for modeling pedestrian movements within an urban environment. We hope that our final version will be capable of simulating many tens or hundreds of individual agents within a large, fully 3D environment such as a shopping mall. We will find and understand an existing, open-source software package for visualization. Then, we plan to dig deeply within sociological and geographical publications for affective models of human walking behavior. Through experimentation, we will find a maximally predictive model and implement it within our chosen open-source engine. The remainder of our time will be spent constantly improving our implementation until release.

1.2 Definitions, Acronyms, and Abbreviations

Cal3D:	Character Animation Library 3D
CEL:	Crystal Entity Layer
CES:	Complex Emergent Systems
CS:	Crystal Space
MAS:	Multi-Agent System

1.3 References

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1.4 Overview of Document

The remainder of this document is organized around a template provided by Prof. Henderson. In it one may find descriptions of our process model and other organizational information, as well as a more detailed look at the team and project.

2.0 Project Organization

2.1 Process Model

Our first milestone is to have a basic walking demo with humanoid agents walking around the simulation. Another milestone is to get multiple agents in a simulation and have them avoiding each other while still moving. We also hope to implement origins and destinations for people. Then we want to incorporate realistic human choreography looking in detail at social science and geographical aspects. We hope to have each step reviewed by our sponsor Professor Paul Torrens and make each major step in our development a deliverable.

2.2 Organizational Structure and Responsibilities

Edward Pultar is the project leader and our team always meets with all three of us together. This is done so we are always on the same page and are aware of everything that goes on with the project. We talk each day during the week and decide what we will work on next. Responsibilities will be given throughout the semester as group members see fit. We do share roles as well since people may be absent sometimes, for instance one group member recently had his colon removed so he still has occasional doctor appointments.

Preliminary Roles

Edward Pultar – Team Leader, Project Webpage, E-Mail Management, Weekly Management Reports, Lead Tester, Code Reviewer, QA Lead, Documentation Lead

Scott Brown – Source Control, Lead Programmer, Repository Controller, Researcher

Stuart Wilde – Code Architect, Graphics, User Interface, Server Machine Maintenance, Researcher

2.3 Organizational Boundaries and Interfaces

Our customer is anyone interested in urban simulations and possibly marketing directors at places like malls that want to see human simulations. Also we are interested in trying to create realistic looking human behavior based off of realistic underlying algorithms. Our instructor is Professor Thomas Henderson. He is teaching our CS4500 senior project class. We also meet with him once a week to make sure we are on track. We also exchange emails for anything we need to discuss. Our main mentor is Professor Paul Torrens. We listen to Paul's multi-agent systems lecture each Monday and Wednesday and meet with him whenever we assign times, usually before or after lecture on Monday and Wednesday. We also communicate with Paul via email and he points us to relevant documents for our tasks. He is our main mentor on the social science and geographic aspects of the project.

2.4 Reviews, walkthroughs, inspections, and audits

Each of our releases will be reviewed by our sponsor Paul Torrens. For the first release we hope to have some basic system working with at least one pedestrian moving around an environment. For the second release we hope to have larger simulations running with us the programmers have more control over their environment and actions. For the final release we hope to have a basic pedestrian simulation and perhaps a user interface with user-customizable simulations. If we have enough time we will also implement different actions for people.

2.5.1 Procedures for reviews, walkthroughs, inspections, and audits

For these we plan to follow the procedures at <http://www.cs.utexas.edu/users/s2s/admin/procedures/review-info.html>

With proper preparation, participants, and roles we will conduct efficient review, etc. when that time in the semester comes.

2.5.2 Schedule of reviews, walkthroughs, inspections, and audits

We hope to have our main reviews, walkthroughs, etc. by the time of our stage 1 release around March 7. We hope to have another session by our second release around March 28. Then final reviews and such before our final release at the end of April.

2.5.3 Schedule of Major Project Deliverables

Feb. 11, 2005	Stage 1 Release
Mar. 25, 2005	Stage 2 Release
Apr. 8, 2005	Stage 3 Release
Apr. 25, 2005	Final Product Release & Demo

2.5.4 Schedule of Effort and Project Estimates

Our schedule of effort put forth by the team will be at least 10 hours/week and a general outline can be found at <http://walked.edwardpultar.com/project/schedule.pdf>. A weekly schedule of effort and our project estimates for what we hope to accomplish can be found at <http://walked.edwardpultar.com/project/bid1-presentation.pdf>.

3.0 Team-specific aspects

3.1 Management Objectives and Priorities

Our philosophy is to be passionate about our project and have a good desire to work on it thus always having fun when we are working on it. That is our goal and priority and we believe if we can accomplish that then working on the project will not be a struggle and we will be able to focus plenty of time each week on the project to get a good prototype by the end of the class.

3.2 Team name

Cool Team Name is our team name because we are cool and CTN is a cool macro.. We also consider CES or Complex Emergent Systems.

3.3 Possible Meeting Times

We thought this was one of the most important and first things to do so we did it over a week ago in pdf format. Our possible meeting times are well documented at

<http://walked.edwardpultar.com/project/schedule.pdf>

3.4 Team's Range of Skills and Experience

We are all Senior Computer Science Undergraduate Students and have experience programming. Edward has experience in artificial intelligence, geography, multi-agent

systems, cellular automata, and graphics. Scott has experience in neural networks, machine learning, decision making, finite state machines. Stuart has extensive experience with artificial intelligence and databases. We have all worked on group projects before in our computer science undergraduate careers thus far. The following skill table ranges from 1 for very experienced to 5 for no experience.

Skill	Edward	Scott	Stuart
C++ Programming	2	1	1
Graphics	3	5	4
Webpage Design	1	3	3
Multiagent Systems	3	4	4
Artificial Intelligence	3	2	2
Research	3	3	3
Team Skills	2	2	2

4.0 Preliminary Sketch of Project Requirements

4.1 Overview of Functional Requirements

The WalkEd program should, upon release, be capable of simulating a large body of agents within a 3D environment. The agents themselves should have mutable characteristics, which can be observed or altered directly during run time. Agents should be addable within a running simulation, and a simulation should be pausable, for further changes or alteration to the environment and agents within.

4.2 Overview of Data Requirements

Potentially users may be able to load different environments and simulations from files, and save existing parameter sets, agent states, and simulations to hard disk for later study. Furthermore, there may be an output file for hard data associated with the simulation. Users may find this data useful, as the simulation may be able to pinpoint critical regions or time periods which the casual observer may miss. Because of our as of yet limited understanding of the CS engine, we dare not make firm predictions in this area.

4.3 General Constraints, Assumptions, Dependencies, Guidelines

The product must be run on a machine with an OpenGL-compliant video card running Windows XP/2000. For larger simulations, performance will degrade significantly on slower machines: for this reason, it is recommended that WalkEd be run on a high-performance machine. The theoretical limitations for CS for an agent-based system are as of yet unknown, so this document is based on the assumption that it is capable of handling the order of magnitude the project intends.

4.4 User View of Product Use

For example, the user looks from a preset camera perspective down at an early afternoon in the Gateway mall complex. Teens walk in groups, seeing movies, gaming, and the latest fashion trends. Children stick near their parents as they are hustled from store to store. Young couples meander slowly down the boardwalk, in many ways oblivious to their surroundings. The time display mounted in the corner of the display reaches two, and soon a rush of youths, freshly released from West High School, flood the complex. The user depresses keys and uses the mouse to alternate between several significant camera positions, before pausing the scene to investigate the dealings of one interesting agent. The user wonders what might happen should this agent have a different set of stats, so the agent is altered from young to old, and the simulation is continued. The teens around their once friend break away, and the now aged agent is left to wander slowly back to its car.