

WalkEd

<http://walked.edwardpultar.com>

V&V Results outline

1. Introduction and overview

The WalkEd project is a pedestrian modeling system for urban environments. The objective of this VVR document is to discuss the results of our verification and validation of our system.

2. Summary of Results

The V&V activity of testing the movement component went well and was successful. Pedestrians can move about the world as we had planned. The agent desire decision system is able to bring in agent characteristics via XML files and have them react to entities in the world appropriately.

3. Results from reviews, walkthroughs, inspections, and audits

Our stage 1 release review featured a walkthrough and demonstration to Tom Henderson. We demonstrated the movement system and some of the AI capabilities of our system. The agent desire decision system has also made significant progress since stage 1 release.

4. Results from testing

A simulation with multiple agents was tested and the pedestrians acted well by properly doing collision avoidance. We plan to try and restrict pedestrians to areas such as sidewalks or areas that are more appropriate for pedestrians. The agent desire decision system has made a lot of progress and is one of the final features being tested.

4.1 Summary of component test

- Movement Component – This was tested by the whole team and showed at our release demonstration to Tom Henderson. Our agents are moving appropriately and avoiding collisions properly. The test was done on our own systems and in Tom Henderson's office, it took a few minutes to show the movement abilities of our pedestrians.

- Agent Desire Decision System Component – This component is tested by the whole team and involves each agent/pedestrian's attraction or repulsion to another given entity such as a store.

4.2 Summary of integration test / testing product as a whole

The system as a whole is working and there are accomplishments thus far and future goals planned that will be worked towards until the final deadline.

5. Evaluation of the process

5.1 Evaluation of test cases

Our main test case is the movement system and we still feel that is an important and necessary part of the system. We have begun testing the agent desire decision system as agent characteristics can be imported via XML files. More test cases were added as more features were added.

5.2 Results from defect tracker

When a defect is noticed we take note of it in the defect list in order to track it. The defect remains on the list until it is fixed. Each defect is assigned to a member of the team as a responsibility. Volunteers or voting will be used to decide who works on what defect. The defect tracker is located on the WalkEd site at <http://WalkEd.edwardpultar.com>.

5.3 Lessons learned

We wish we could have discovered our current engine sooner. The tests went well for what was possible. Testing on a laptop as the client with a remote server running the server portion of the code worked well. We still feel a visual test of our overall system is a good way to go as its appearance is an important results.

6. Outcome of acceptance test and delivery

- Pedestrians are walking and ambulating – this was conducted and worked as planned as discussed previously.
- Many (50+) pedestrians in a simulation – this test was conducted and worked. Our systems top out with around 100 pedestrians before running into network overflow errors for which we hope to find a solution.
- Pedestrians form groups – this has not been tested yet and group and flocking behavior has not been implemented yet.

- Pedestrians avoid collisions with objects – This was tested and pedestrians properly are avoiding entities like boxes and other pedestrians.
- Pedestrians stick to pedestrian walking zones – This is not completely implemented yet but agents are able to follow walls thereby sticking to the edge of the map. We plan to implement restrictions for areas pedestrians can walk in the future.
- Pedestrians make desire-based reactions towards the environment – This has been in development for a few weeks and all of the team has been working on the testing of it.
- Support for maps of different urban regions – We were able to test other maps and load maps that we created to put pedestrians into urban environments like a downtown mall. The environment has been further enhanced as we see fit.

7. Summary of open issues

No major defects are needing to be resolved as we have a stable release with our source control and will fall back on that if any later tweaking results in major defects.

8. Additional information

All information relevant to the verification and validation process was covered in earlier sections.

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