

Final Project

CS 420

Using the starter code as a basis, design a small maze, based on several rooms that fit into a 100×100 or larger grid. Your display should provide a small overhead view and an immersed view. Here are eight design extensions:

1. It would be better to be able to drag the overhead view around on top of the immersed view rather than maintain it in its own corner of the window, as done in the starter code.. An alternative (probably better) would be to create a second window for this view.
2. Put a few obstacles in each room as well as using two spheres which roll around the maze.
3. Model simple collision detection and response.
4. Modify the key movements so that the left arrow rotates the view to the left by $1/16$ th of a turn and the right arrow rotates the view to the right by $1/16$ th of a turn. Add an indication in the overhead view that shows the direction the viewer is looking.

You may modify the keys assigned to movement and add additional keys to follow gaming conventions. Make sure to document this in your user guide!

5. Include a “zombie” which slowly follows the viewer. If the zombie ever collides with the viewer, the “game” is over. The zombie has the power to pass through walls.
6. Add lighting. At least two light sources, one moving and one fixed. (You may suggest variations, subject to my approval.)
7. Add texture mapping. Nearly all objects should be realistically texture mapped.

Implement any five of these seven extensions.