

CSC 476 – Lab2 – Due 4/22/10 - To be demoed in lab

View frustum culling (VFC): Simple game including time based movement, textures and view frustum culling

This lab builds off of your first lab. You will work with your previously created world with moving game objects (moving using time based motion), which includes collision detection. Please increase the size of the world and the number of game objects significantly (try at least 50 game objects). Also include in your world, some simple obstacles scattered throughout (for example some hierarchically modeled trees or just do something simple like boxes at minimum). Implement view frustum culling to remove any game objects not in the current view frustum. Though not required you are encouraged to use any textures to improve the look of your world.

Please note that you are given base code for this assignment which includes subwindow code, where the subwindow draws a top down view of your scene and a 2D figure of the view volume, which illustrates what objects are being drawn in your frame. An example image is included below.

Learning Objectives

- Learn about **view frustum culling**

- **Programming Design and Implementation Requirements**
 1. Generate a simple game with time based motion with many game characters (please feel free to use your copy of lab 1).
 2. Make sure all objects are included in some kind of bounding structure, for example bounding spheres or AABB. If you are ready to build a bounding hierarchy you are encouraged to do so, but that is not required at this time.
 3. Implement view frustum culling. You should cull out any objects that are not in the view volume.
 4. You will need to either use the given base code or implement a display, which includes a standard view into your world, AND a top down view of what is being rendered to demonstrate that the view frustum culling is culling out game objects not in the frustum. This will be a small glut sub-window rendered from above to show that indeed objects are culled that are out of view of the main “camera” window.