

COSC 363 OpenGL Assignment

Alex Westphal (9819 6992)

The Scene

The scene is of a stack of crates (4x4x2) and a forklift placed atop a mountain. The forklift is capable of driving around the scene and moving crates.

Each of the crates contains an object, some of which are animated, they range from spheres, tetrahedrons and dodecahedrons to miniature forklifts and robots.

Animations

There are two two preprogrammed animated task that the forklift is capable of carrying out. The first is to move the entire stack of blocks (32) to a different location then move them back again. The second is to drive around the stack of blocks.

Mouse Controls

The mouse can be used to rotate the camera inside the scene. The scene can be dragged both horizontally and vertically to adjust the respective rotations.

Keyboard Controls

- m - switches the camera mode
- r - resets the scene
- 1 - activates the first pre-programmed animation
- 2 - activates the second pre-programmed animation
-] - move the lift up a level
- [- move the lift down a level
- > - increase the speed on animations
- < - decrease the speed of animations
- + - zoom in to the scene
- - zoom out of the scene
- <up> - move the forklift forward
- <down> - move the forklift backward
- <left> - turn the forklift left
- <right> - turn the forklift right

View Modes

The program has 3 separate view modes, fixed position mode (looking at the origin), follow mode (follows the forklift) and inside mode (positioned inside the forklift cockpit and oriented with the forklift). All 3 of these maintain their own zoom levels and rotations.

Features

- The forklift has two articulations, the lift rises and the front rails tilt.
- The cockpit has transparent windows.
- The forklift has 6 driving lights (2 headlights, 2 tail lights, a left indicator and a right indicator). These turn on when the forklift is driving forward, backward, turning left and turning right respectively.
- The scene is lit by a single light aligned with the lens flare of the wall image.
- The forklift is drawn with a display list to improve performance.

Images

The images used for the walls and floor are all personal photographs of mine. The walls being a single 360 degree panorama (access-able here <http://picasaweb.google.com/lh/photo/mISP1bH956Qh4XrMSG6zyQ?feat=directlink>)