CS4052: Computer Graphics – Assignment 4

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Abstract

For this assignment we were asked to create our own game, implementing a selection of features from a provided list.

Game Description

Two floating red orbs are positioned on either side of a square map filled with trees. When the player steps away from one the red orbs their health will start to go down. The objective of the game is to collect as many points scattered across the map before the players health reaches zero. 8 points are placed on the map at a time, which are regenerated once the player collects them all. Once all points have been collected the rate at which the player's health goes down will increase.

Solution

To start this assignment I began by creating the models for the terrain, trees, points and health orbs in blender. I then modified my solution from the previous assignment to load these models and random position trees and points throughout the map.

I added fog to my scene, by modifying my fragment shader. Initially, I made the fog density increase linearly, but to create a more realistic effect, I changed it to increase exponentially.

I then worked on making the health points glow, by modifying my fragment shader to allow multiple light sources.

Following this, I worked on animating the points and health orbs. To do this I created a class called Animatable which provides an API for updating the properties of a mesh such as scale and position.

I then added collision detection by creating an interface called Collidable which allows objects to specify a collidable area around them and handle collisions. Using this I was also able to detect the distance of the player from the health orbs to implement the health system.

Finally, I created a class for handling audio playblack using irrKlang. Using this class I trigger sounds when the player collides with certain objects.

Screenshot