Computer Graphics
Spring 2019

Team Project
Your Own OpenGL Games

Team8

2014310296 송선민
2014311773 김용태

Development Enviroments

OS : Windows 10 pro

Programing language : C++

Tool
Microsoft Visual Studio Community 2019
Version 16.0.4
VGA
GTX 1060 3G

Algorithms

1) Load objects

We use tinyobj. Read the contents of the obj file and upload it to the buffer.

2) Flexible object movement

The object has the current location and destination, and the target is multiplied by the speed by the amount of time variation to realize the movement. The destination is designated as a mouse click.

For natural movement, the object rotates slightly in the desired direction as it moves.

3) Grasp

Press the W key to pick up an object that has fallen to the ground. Calculate the distance between the player and the object and hold it if it is within a certain distance.

4) Shooting

Press the Q key to throw it in the direction of the mouse. If there is an opponent in the

direction of flying object, the opponent will down.

5) Snap

Only one of the five Gauntlets is a real Gauntlet, and pressing the R key while holding the real Gauntlet will win the game.

6) Fall

The function that detects whether player is in or out of map. If player is in out of map, it will fall.

7) Computer

The computer has location information for each object, so it randomly visits the object sequentially and picks it up and does what it can do.

Sound & Text Rendering

1) Sound
   For sound Rendering we used irrKlang library. /Media directory have mp3, wav files that are used for BGM, flying, shooting, snapping, etc sounds.
   Make BGM engine and t_engine for sound effects.
2) Text
   For text Rendering we used Freetype library and we implement render_text() function for rendering string. Also made text.frag and text.vert shaders for it. For Rendering 2D text on the 3D scene, we first render 3D scene and we change program by glUseProgram() for text and afterwards we switched it to 3D render program.

2. Discussion

With this team project, we could understand the difficulty of shading and texture mapping in 3D. Also we could know about text rendering that it is as hard as rendering objects. Although it was tough to implement the whole game scene and environments, this project gave us the general knowledge and understanding about computer graphics.