

Computer Graphics Final Project, Fireworks

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1 Introduction

This is a short document about the documentation for the final project of the course Computer Graphics. It is categorised by the category "Fireworks", and allows you shoot multiple fireworks into the sky, with different shapes, colors, and sounds.

There are 8 textures for the cone, and an additional 8 for the cylinder used as a firework model. There are 4 different sounds for the explosion, and 4 different sounds for the flight (when a firework shoots in the sky).

Fireworks are able to be shot into the sky using the key 'f'

There are currently two different shapes for the firework, spheroid and square.

The firework shows a slight shadow when viewed from an angle, and are able to have different random textures. There's also a rainbow firework which rapidly switches colors.

Gravity is able to be toggled using the key 'g', which means that the particles will fall down in relation with the gravitational acceleration .

You can move the camera using left mouse click and change the X and Z coordinates accordingly.

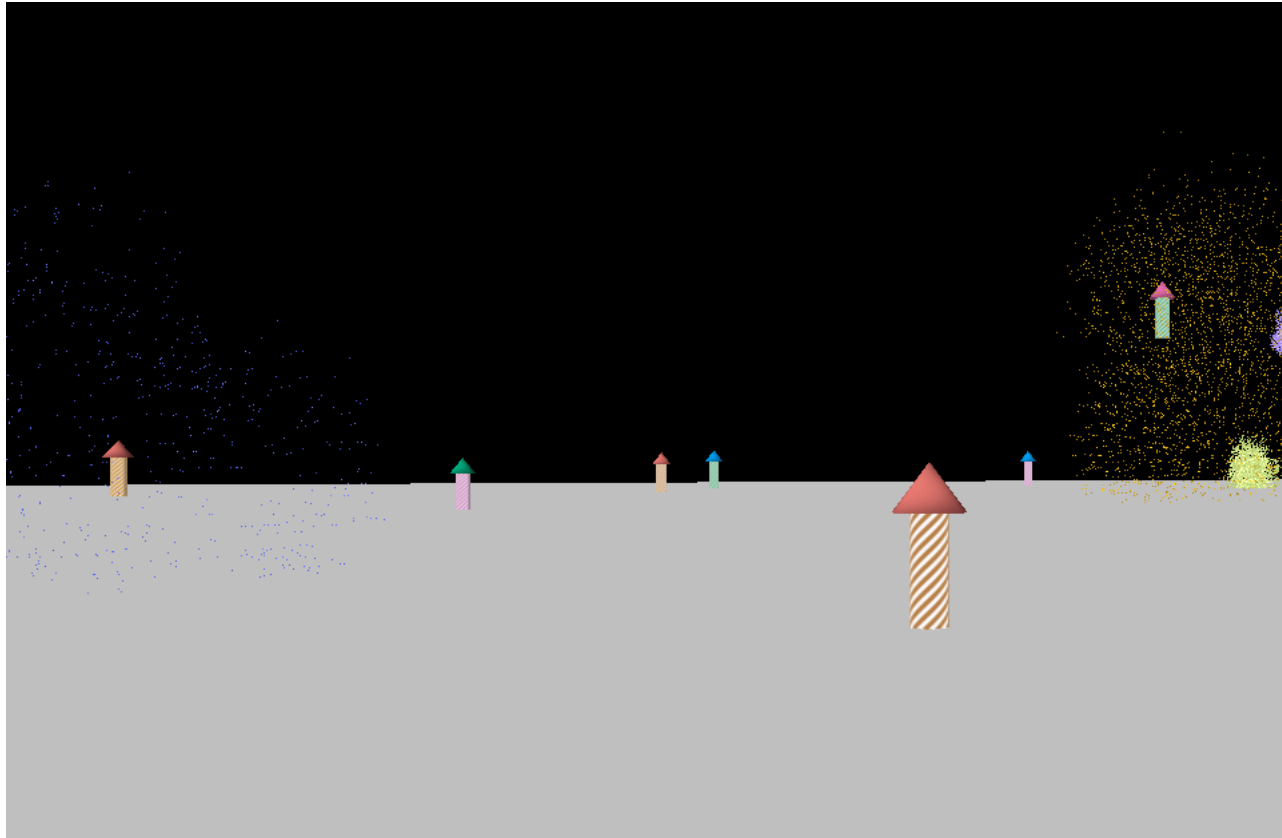
You can move the camera using right mouse click to change the y coordinate.

You can move the camera left or right using 'a' or 'd' respectively

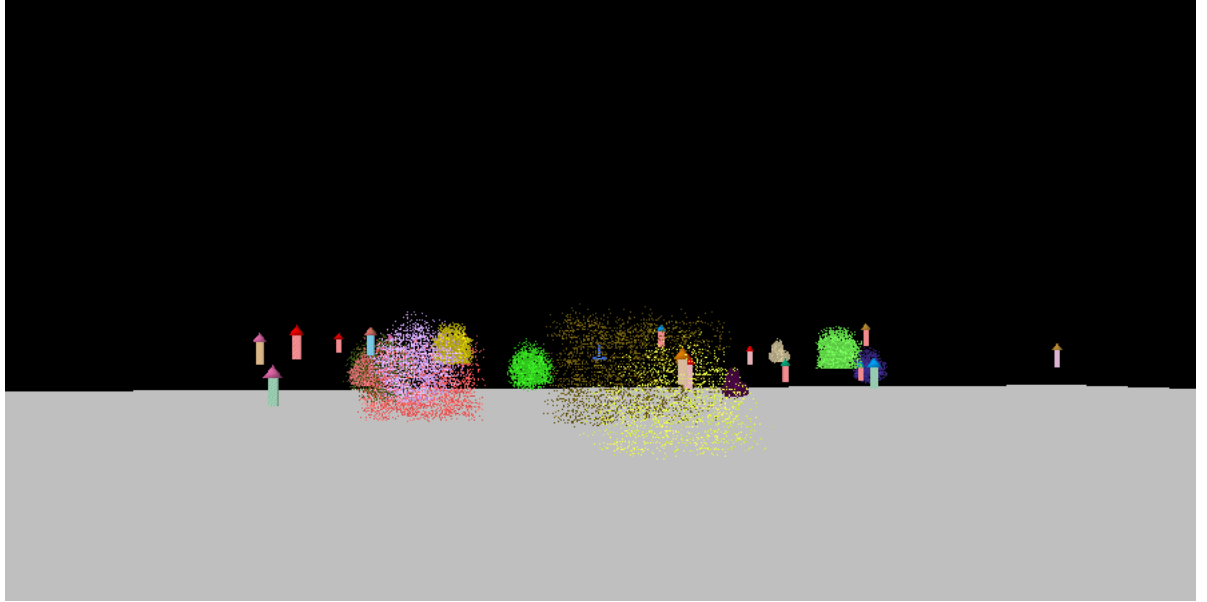
You can return to the original camera position using the key 'h'

2 Screenshots

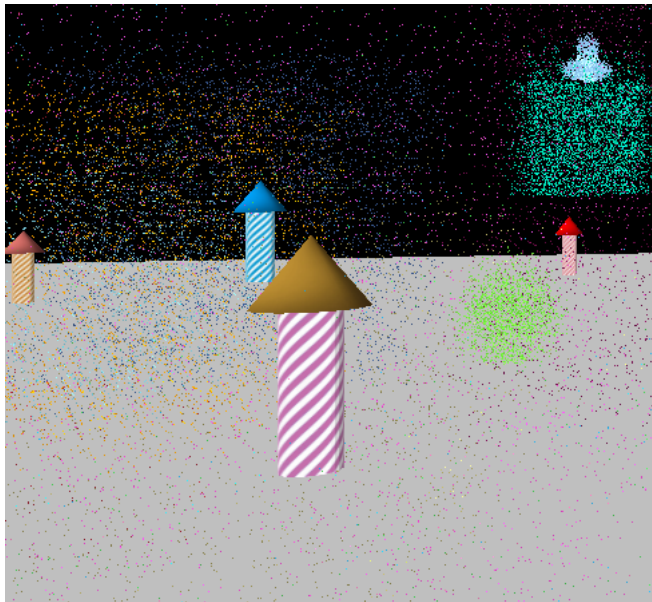
2.1 General overview of fireworks



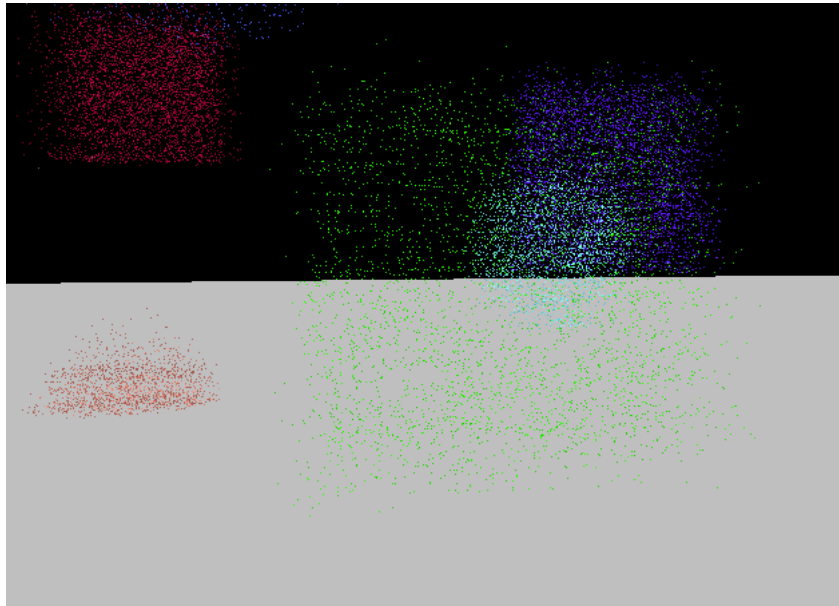
2.2 Firework explosion



2.3 Firework shadow on cylinder



2.4 Firework particles are dragged down and sit on the floor because of gravity



3 Setup

You might need to install some libraries like SDL2

Type the following commands, once you extract the zip file

```
cd final_project;
```

```
cd src;
```

```
make; ../bin/fireworks
```

4 Credits

Author: Song Ho Ahn (song.ahn@gmail.com)

Website: http://www.songho.ca/opengl/gl_cylinder.html

Cylinder shape

Keyboard movement

Mouse movement

Texture loader

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Author: jarreed0

Website: https://github.com/jarreed0/random_projects/tree/main/c%2B%2B/mixer

Load and play Audio