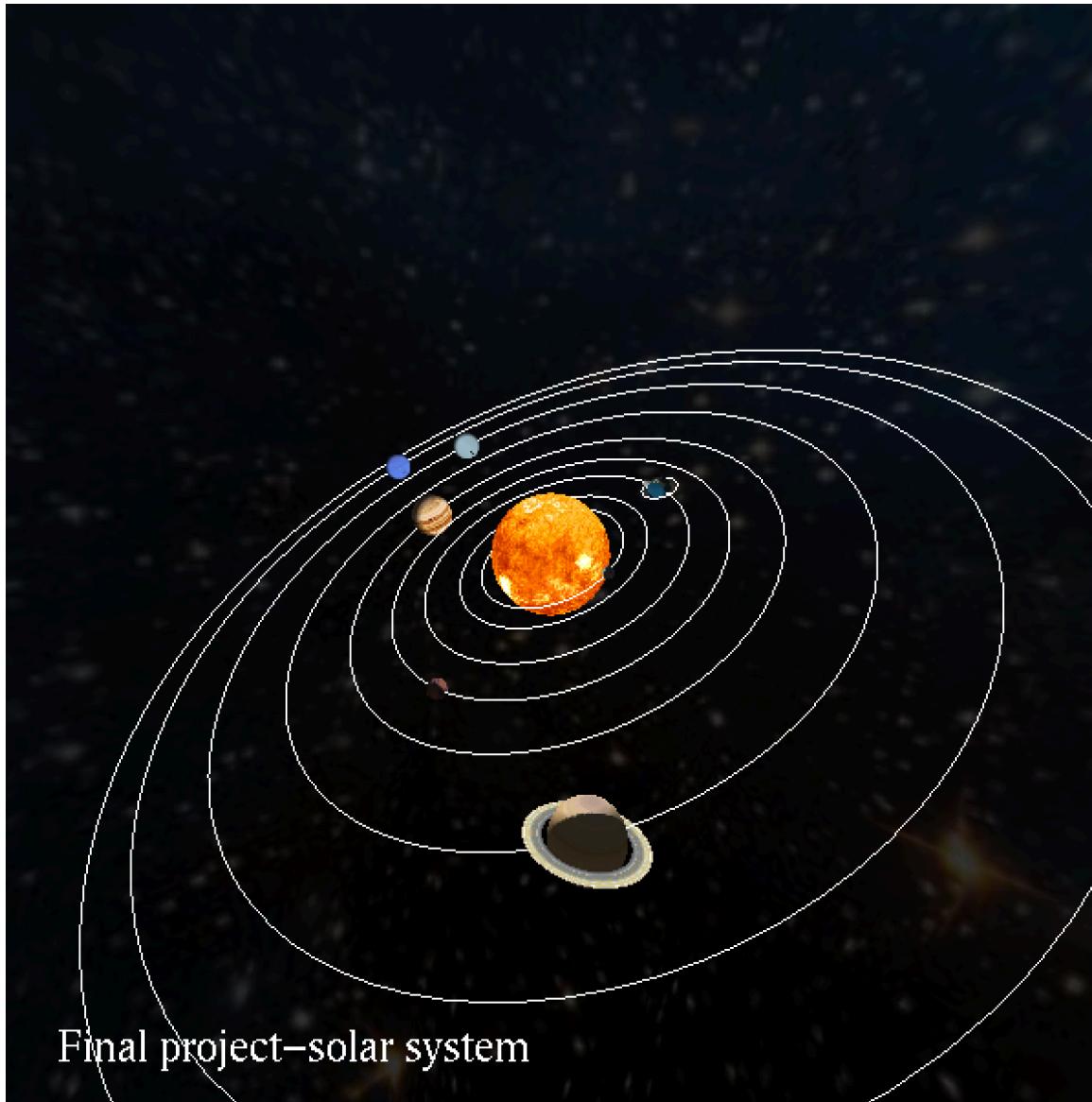


CS 550 Final Project Report

Solar system



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Link: https://media.oregonstate.edu/media/t/0_wbyx0u1v

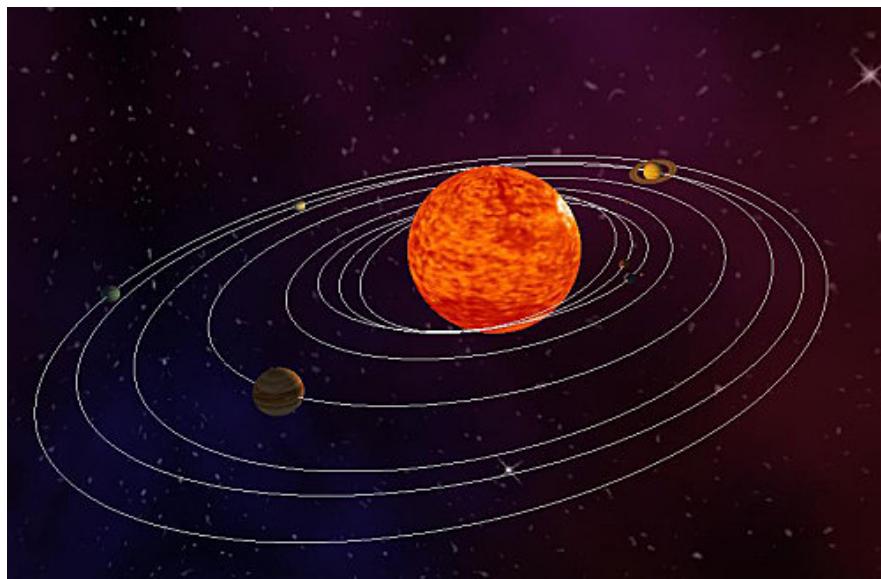
Proposal:

In this final project, I plan to make a complete a solar system. I am very interested in solar system when I was a child because I always think the solar system is mysterious. Also, I really like to find information about the solar system or read the books of the solar system.

To begin this project, I will draw 10 spheres with different size. About these spheres, I plan to use texture mapping in creating the solar system. Then, I will create orbits for each planet.

Then, after creating different spheres and orbits, I will try to make the sphere turn around the sun. Because of different sizes and different orbital radius, I will set different speed on each sphere. I think this part is the most difficult to me because I need to let each sphere turn around the sun along the orbits. If I have more time, I will try to do some stars.

This graph is what I expect to do.



Final Report:

What I did in my project:

1. First, I found and downloaded different textures which are with different spheres.
2. Because all images I downloaded are .jpg format, I converted all images from .jpg to .bmp.
3. I created eleven different size of spheres which are the sun, 9 planets, the moon, and the star sky and these spheres with different textures. In this step, I also created different orbits for each planet.
4. About the star sky, I built very big sphere with star texture and this sphere can cover whole solar system.
5. After I created different spheres, I set up 9 planets to turn around the Sun. In this step, I also set up the moon to turn around the Earth.
6. Then, I built the spotlight on the Sun.
7. Besides I proposed my ideas in my proposal. I also did other functions in my final report. I built 9 functional buttons which are number 1 to number 9. These functional buttons can control light on or light off for each planet. In addition, I set up initial planets are dark. For example, if I press one, the Mercury will light on.

Difference:

In my proposal, I just wanted to create a simple solar system. It means that I just wanted to build different size spheres and these spheres with different textures. The reason why I just wanted to build the simple solar system is that I think creating the solar system is not an easy thing because I needed to adjust coordinate

many times. However, after I finished my simple solar system, I still had much time. Therefore, I decided to add more function which is controlling light for each planet.

Impressive cleverness:

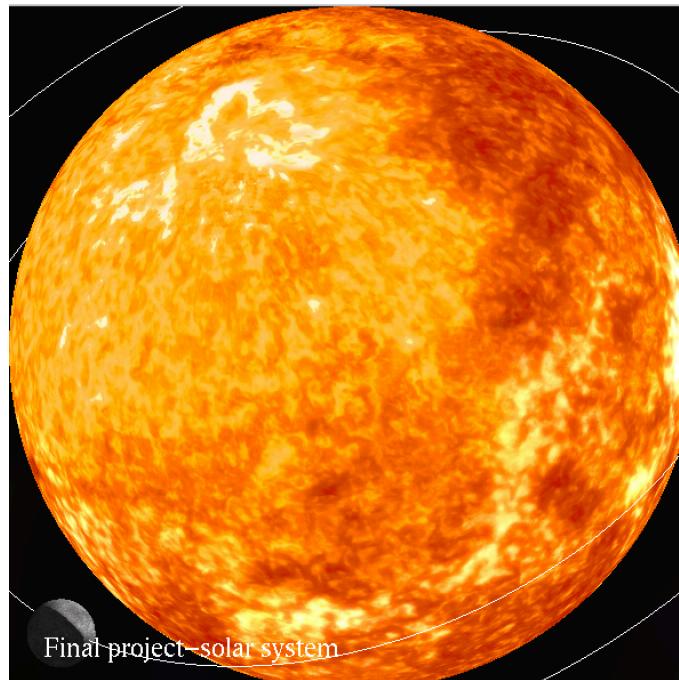
In my project, the biggest problem is about how to make the planets be whole dark. Originally, I thought I just put `glMaterialfv(GL_FRONT, GL_SPECULAR, MulArray3(.8f, black))` and my planets will be whole dark. However, it does not work. Therefore, I search information and read the powerpoint again. I knew that “Diffuse” also influence the darkness. Then, I add `glMaterialfv(GL_FRONT, GL_DIFFUSE, Array3(0, 0, 0,))` in my code with `glMaterialfv(GL_FRONT, GL_SPECULAR, MulArray3(.8f, black))`. Finally, it works.

What I learn:

I really learned a lot from this project. First, I more clearly know how to do texture mapping because in this project, I did so many textures such as the Sun, sky, the moon and nine planets. Secondly, I learned how to control different light on or light off with each planet. Also, I knew that how to make the object be whole dark. Third, my lighting skill improved a lot. Last one, I learned how to adjust coordinate more quickly because I can image my graphics more clearly.

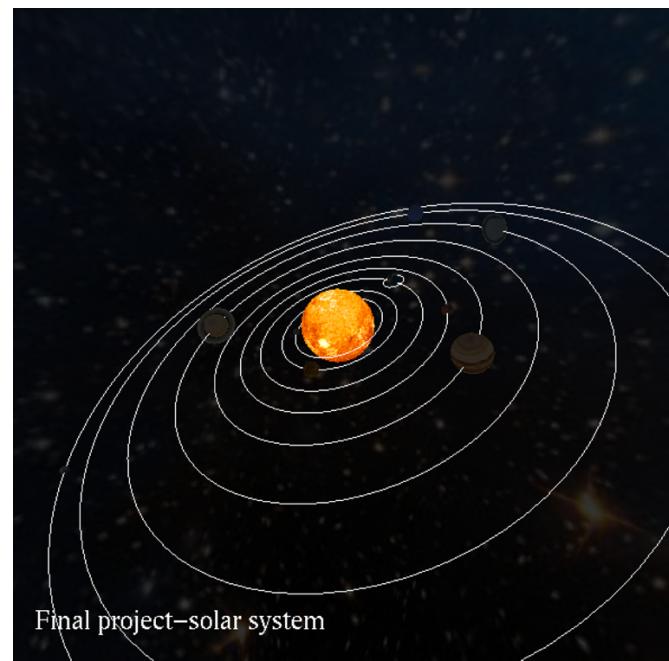
Below are images from my project:

The sun:



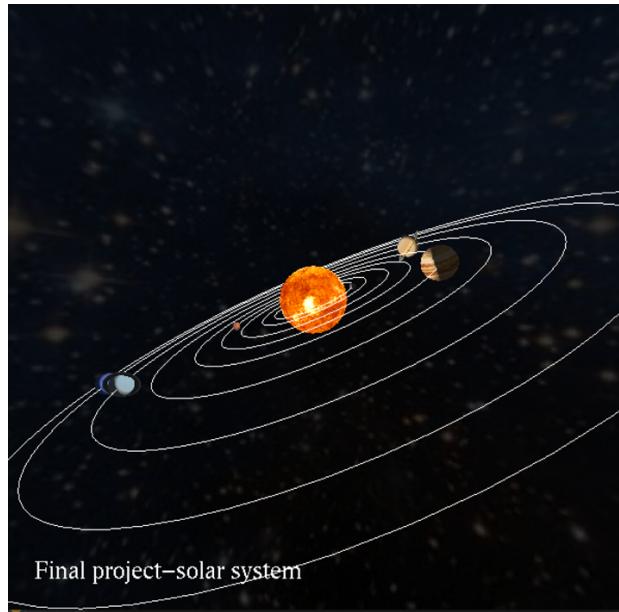
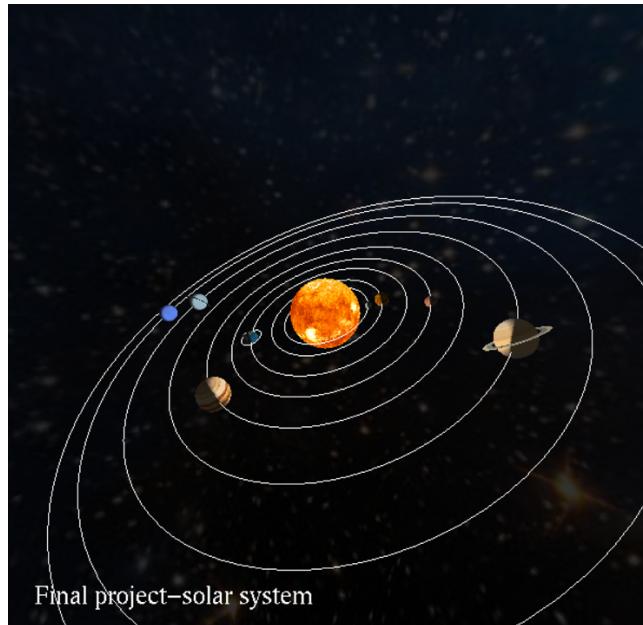
Final project–solar system

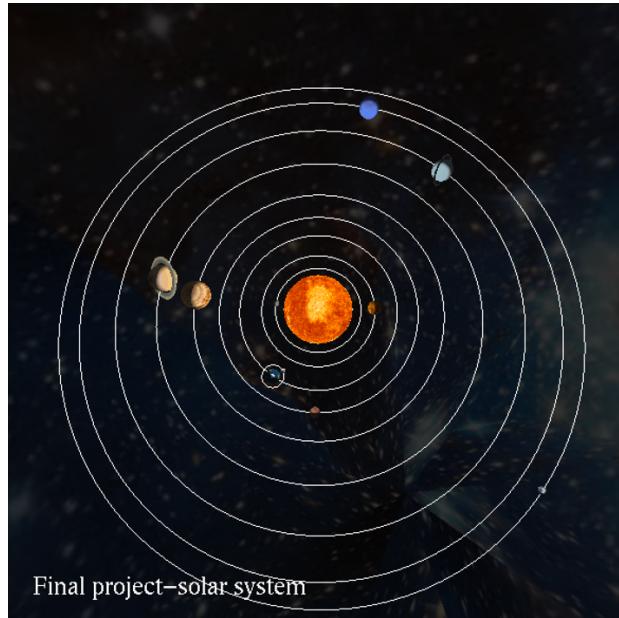
The initial solar system:



Final project–solar system

The solar system with light on:





Final project–solar system