Final Project

3D Solar System

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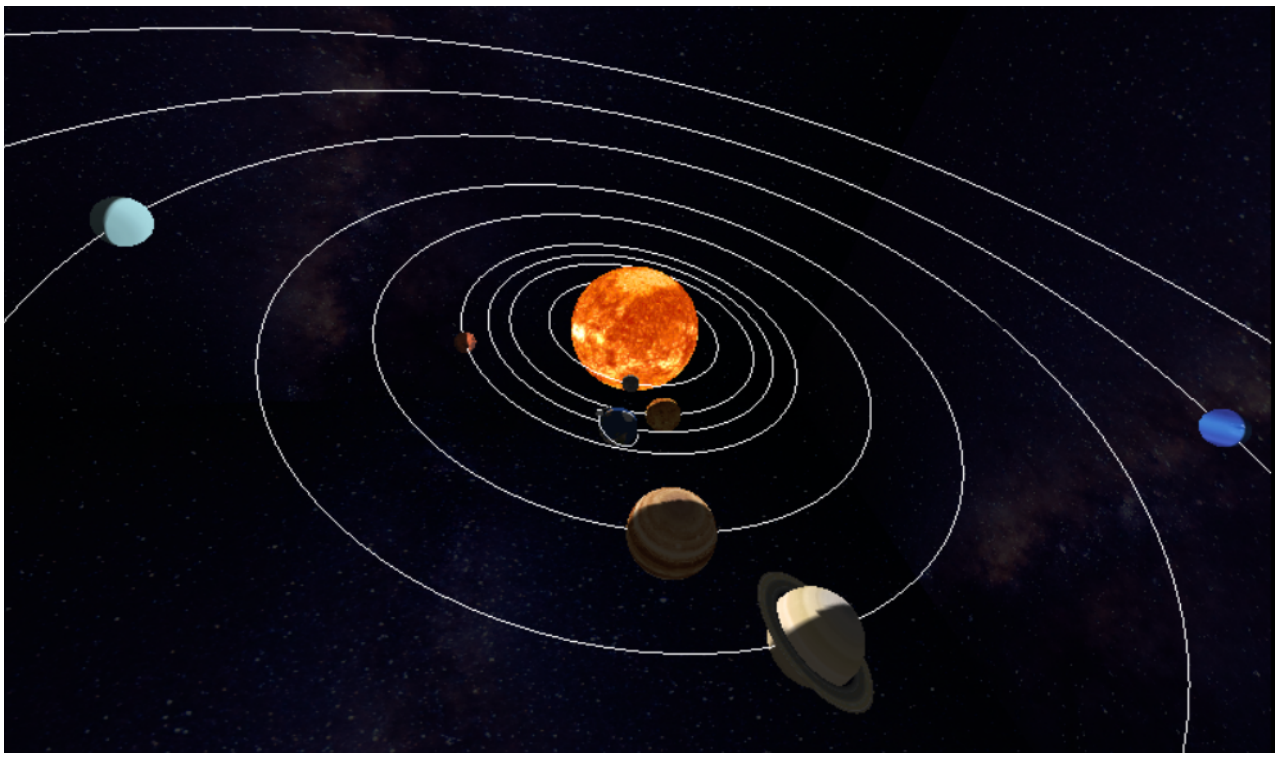
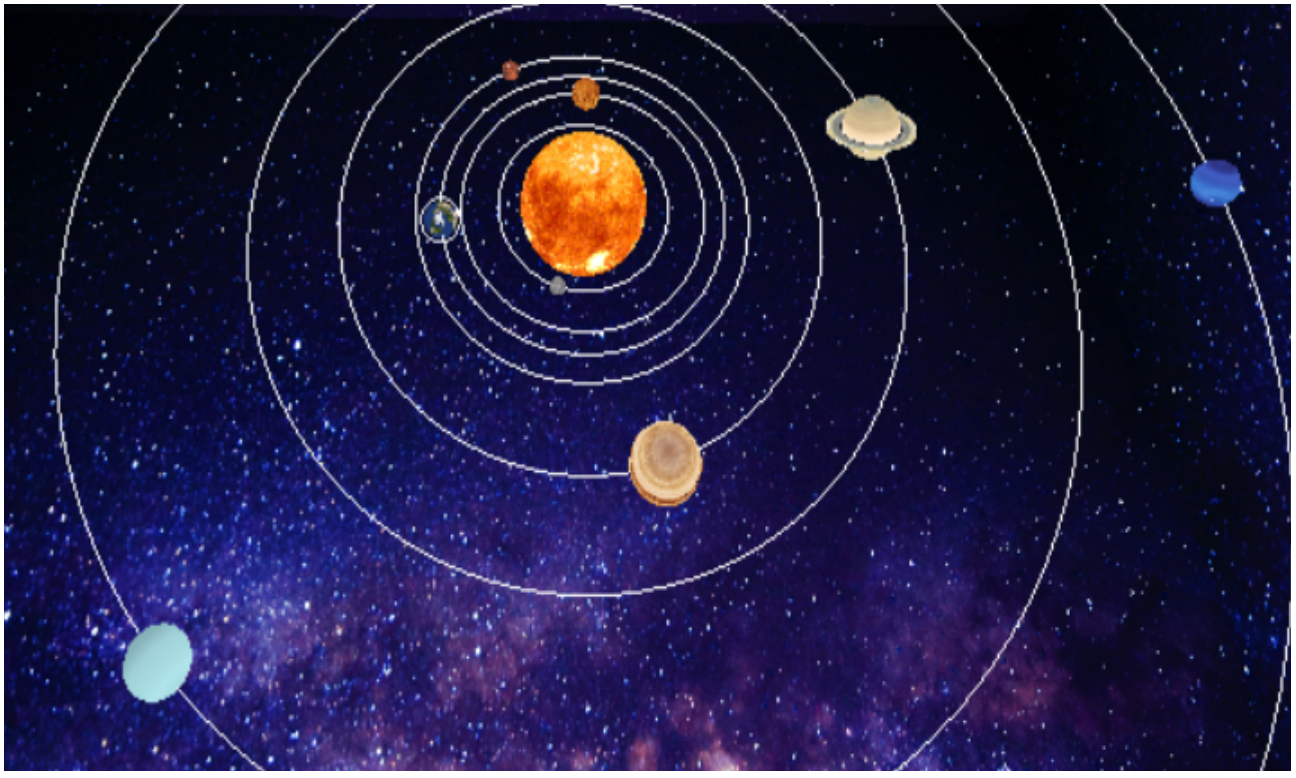
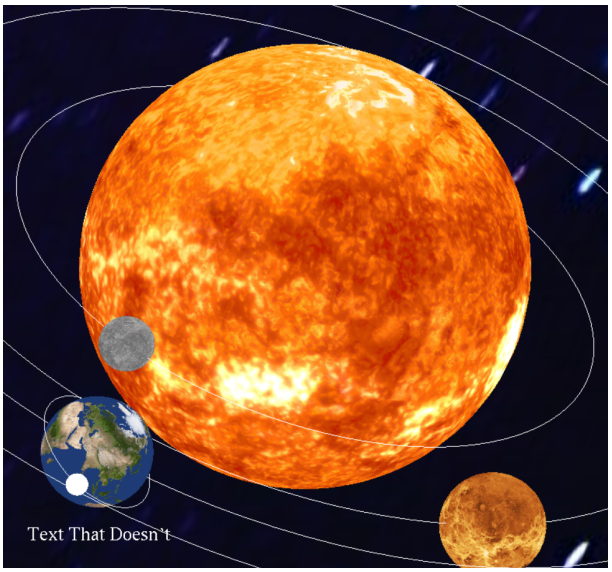
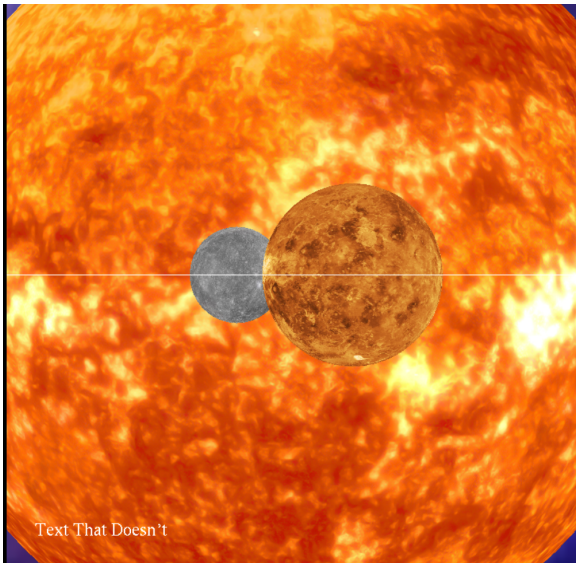
For my final project, I want to use OpenGL to create a 3D solar system. It must include: As a solar system, there need 8 spheres to represent each planet, and I need to create the spheres that are proportional to the sizes of the planets, and then find a good texture or color for the sun and all the planets. Moreover, planets must have accurate orbital motions and scale the orbit period, keeping the orbital period proportional(Planet A has an orbital period twice that of Planet B). In addition, I can change the perspective, zoom in or out of my 3D scene. Finally, the half of the sphere facing the sun should be bright, and the other half should be dark.

For my project, I aimed to create a 3D solar system in OpenGL, and I actually did it! In addition to the initial requested items, I also textured a galaxy background for my solar system. The control key was added in keyboard(), the l/L key can control the light, and the f/F key freezes the animation.









I did work about the solar system before I started the final project, therefore, I learned information about stars, including star radius, revolution period, rotation period, orbit, and revolution radius, orbit has only one radius attribute. After that, I have the basic knowledge to calculate the orbital period and the proportional planet after understanding the above information. As the sphere, which represents each planet, I used OsuSphere, and textured the bmp resources that I found on the Internet. Additionally, sun was set as a light, so the side of each planet facing away from the sun is dark.

Media Link: https://media.oregonstate.edu/media/t/1_dgc0glil