Elliot Putnam

CS330 Computer Graphic and Visualization

Final Project

4/19/24

For this project I had four objects on my desk with various light sources ranging from window lighting, monitors, and an overhead bulb. The four objects I chose were a wooden spatula, a lemon, an empty Gatorade bottle, and an empty bowl. I chose these objects because of their variety of textures and how they would react with lighting. The Gatorade bottle was transparent and did not reflect light, the wooden spatula would not reflect much light, the lemon would reflect some light, and the bowl would reflect a lot of light. I began the earlier milestones by establishing my spatula first. This consisted of using two cubes and a prism. It was trial and error to get them to line up and have the correct angle to match the stage photo I chose. I then proceeded to add movement controls using WASD, along with QE to raise and lower the camera. The mouse was captured and controlled the scenes movement. I set O and P to orthographic and perspective views by entering in the camera parameters to portray each type. Following the implementation of camera controls, I began to add a wooden texture to my objects. Some objects had different rotations and shapes, so I needed to make some changes to my texture file to ensure that the seams between objects looked as if they were not there.

Next steps were taken during the final project of week 7 and the requirements included adding all items to the scene and texturing another item. I had to create a Gatorade bottle, a lemon, and the bowl. I started with the Gatorade bottle and decided that I would construct the body with an elongated cube, followed by a four-sided pyramid to act as the tapering towards the neck. Then I added a cylinder for the neck, and a slightly larger cylinder for the cap. After considering how it looked, I decided to add another cube with slightly shorter dimensions and 0.01 extra width to simulate the wrapper. All the base items except the cap were changed to a blue color with an alpha set low to look like plastic. The cap was an opaque orange, and the wrapper I set to be white with a slight decrement to it’s alpha to give it a thin, semi translucent appearance.

My next object was the lemon, which was a simple task and my next object with some texture. I used two half spheres to make up the shape and made the length slightly larger than the width to give the lemon its lemony shape. I applied a seamless texture, and it turned out to look nice. I chose to use ‘wood’ as its material due to the results in the program resembling the lemons real shine. Without a bump map added, the light does wash out some of the details but that was beyond the requirements, so it was sufficient and looks great.

Lastly, the bowl was to be created using a half sphere for the body, and I used a cylinder for its foot. This was straight forward in its design as I just increased the width and decreased the height to get a bowl-like shape. I added a shortened cylinder and purposely made it clip between the bottom of the bowl which gave a great looking foot, and it added a flat spot to the inside of the bowl which reflected the real construction of the object. I added a sand-like color to the bowl and set the material to be ‘gold’ for its high reflective properties.

I changed the texture on the plane which my objects sat to a dark wood to match the color of my desk and added the wood material properties to it. This enhanced the look of the Gatorade bottle giving some dark contrast through the transparent portions.