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Final Project – Design Decisions

For my scene, I chose a desktop computer setup. I wanted to capture the feel of the scene without having all components that would be involved in the scene. The two main components for a scene like that would be the computer monitor and desktop computer. While a keyboard would be nice to add, I chose to leave it out to ensure that its complex shape and number of polygons would be within the limits. To compensate, I chose a couple different objects that may be found on a desktop as knickknacks. This would be the Newton’s cradle and the mug of coffee.

Starting with the simplest, I chose a simple box for the desktop computer. I added texturing for the input side of the computer, or computer back panel, so that the viewer can assume what the primitive shape would be. I used a plane to keep the metallic edges of the computer but fit a texture in a smaller area on the face. I edited the texture so that the dimensions were roughly correct and would be able to stretch to fit the shape of the plane and then ensured the texture’s size was appropriate for use in Open GL.

Next, I created the monitor for the computer with much the same design philosophy as the desktop computer and used a mix of shapes to create a complex object. I used a cylinder with an unrendered bottom to create the base, the bottom being unrendered because it would not be viewable and be unnecessary since the desk’s plane would be blocking it. The monitor screen is a plane overlayed on top of a simple rectangle (cube) to create an illusion of a bordered screen without having to use multiple cubes to create the inset screen. I then used another custom texture for the screen to ensure viewers are able to tell exactly what the object is.

Thirdly, the mug of coffee. I used a cylinder without a top rendered to create the mug’s body and a torus for the handle. Since the torus would be clipping into the mug and be viewable when looking into the mug, I added another cylinder with only the top face rendered, sunk it into the mug just high enough to cover the clipping parts of the torus. This completed the mug of coffee and solved any viewing issues that was to be seen with the clipping meshes.

Finally for the objects, I created the Newton’s Cradle. This was the most complex object of the scene and required a good bit of planning, thus requiring it to be done first. This was where I decided, for the code aspect when refactoring, to encapsulate the code into its own render function. Additionally, I created global location parameters for the object rendering functions so that I could freely move the objects around the scene without having to change each function every time I wanted to move the object by simply adding the global parameter to what would be the local location for the object itself. This meant that I skipped any unnecessary and tedious work by investing some development time into properly creating the function, shortening any development time for later objects.