3D Scene Planning Proposal  
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**Abstract**

This proposal outlines the plan for creating a 3D scene based on a 2D image of my husband's gaming desk setup. The scene includes two monitors, keyboard, mouse, coffee mug, notebook, gaming mouse pad, and wood drink coaster. Each object is broken down into basic 3D shapes such as boxes, cylinders, and planes. The monitors will be represented by two boxes, the keyboard by a long flat box, the mouse by a rounded tapering cylinder, the coffee mug by a cylinder and torus, the notebook by a thin box, the gaming mouse pad by a plane, and the wood drink coaster by a thin cylinder. This project will demonstrate the skills learned in constructing and rendering 3D objects using OpenGL, providing a realistic and relatable scene that combines a variety of shapes and challenges. The selection of objects and shapes ensures the project is both exciting and achievable, laying the groundwork for further development and refinement in 3D modeling.

*Keywords:* 3D modeling, OpenGL, 2D to 3D conversion, basic shapes, virtual environment.

**Overview**

For this milestone, I have chosen to replicate a 2D image of an office desk scene in a 3D environment. This image was taken from my husband's desk, who is an avid gamer. I love his setup, which includes several distinct objects that provide a good mix of basic shapes, making it an ideal choice for this project. The primary objects I will focus on are two monitors, keyboard, mouse, coffee mug, notebook, gaming mouse pad, and wood drink coaster.

**Selected Image**

**A computer with a couple of screens

Description automatically generated**

I took my own photos of the scene, capturing multiple angles of my husband's gaming desk. This approach allows me to view the objects from various perspectives, aiding in accurately replicating them in 3D. The scene includes the following objects: 2 monitors, keyboard, mouse, coffee mug, notebook, gaming mouse pad, and wood drink coaster.

**Objects to be Replicated**

The first object I will replicate is the monitor, which consists of a screen and a stand. This object is fundamental to any desk setup and provides a straightforward starting point. Next, I will replicate the keyboard, another essential tool for computer-related work. Its long, flat box shape makes it a manageable choice. The mouse, used for computer navigation, presents a slightly more complex shape, offering a modest challenge.

Additionally, I will include a coffee mug in the scene, adding a personal touch. The mug’s shape allows for the use of both a cylinder and a torus. Another object I will replicate is a notebook, a common desk item that is simple yet effective for this project. The gaming mouse pad, an integral part of my husband’s setup, has a flat, rectangular shape. Finally, the wood drink coaster completes the scene with its simple, flat cylindrical shape.

**Basic 3D Shapes Used**

To accurately replicate the 2D objects, I will use the following basic 3D shapes. For the monitor, I will use a box for the screen and a smaller box for the stand. The keyboard will be represented by a long, flat box. The mouse will be modeled using a rounded tapering cylinder or an oval-shaped box. The coffee mug will consist of a cylinder for the body and a torus for the handle.

The notebook will be constructed as a thin box. For the gaming mouse pad, I will use a plane to represent its flat, rectangular shape. The wood drink coaster will be modeled as a thin, flat cylinder. Including a plane in the scene is essential as it will serve as the ground for the rest of the objects. These selections are practical and achievable while providing a variety of shapes and challenges.

**Conclusion**

By breaking down the selected 2D image into these fundamental shapes, I will be able to recreate the scene effectively in a 3D environment. This project will demonstrate the skills and concepts learned in this course, such as constructing objects from basic shapes, adding textures, and rendering in OpenGL. The chosen objects and shapes not only reflect a realistic and relatable scene but also provide an exciting opportunity to explore and apply the techniques of 3D modeling.

**References**

GLEW. (n.d.). The OpenGL Extension Wrangler Library. Retrieved from http://glew.sourceforge.net/

3D Graphics with OpenGL by Examples. (n.d.). https://www3.ntu.edu.sg/home/ehchua/programming/opengl/CG\_Examples.html

### DRAF : 3D Scene Planning Proposal

#### Overview

For this milestone, I have selected a 2D image of an office desk scene to replicate in a 3D environment. This scene includes several distinct objects that provide a good mix of basic shapes, making it an ideal choice for this project. The primary objects I will focus on are a monitor, keyboard, mouse, coffee mug, notebook, gaming mouse pad, and wood drink coaster.

#### Selected Image

I chose an image of my own office desk which includes the following objects:

* Monitor
* Keyboard
* Mouse
* Coffee Mug
* Notebook
* Gaming Mouse Pad
* Wood Drink Coaster

Having taken my own photos allows me to view the objects from multiple angles, aiding in accurately replicating them in 3D.

#### Objects to be Replicated

1. **Monitor**: The monitor includes a screen and a stand, which are fundamental components of any desk setup.
2. **Keyboard**: A necessary tool for any computer-related work, the keyboard’s straightforward shape makes it a manageable choice.
3. **Mouse**: Essential for computer navigation, the mouse’s slightly more complex shape offers a slight challenge.
4. **Coffee Mug**: Adding a personal touch to the scene, the mug’s shape provides an opportunity to work with both a cylinder and a torus.
5. **Notebook**: A common desk item that is simple yet effective for this project.
6. **Gaming Mouse Pad**: Adds a practical element to the scene with its flat, rectangular shape.
7. **Wood Drink Coaster**: Completes the scene with its simple, flat cylindrical shape.

These items are a good choice because they cover a range of basic 3D shapes and are common objects that make the scene realistic and relatable.

#### Basic 3D Shapes Used

To accurately replicate the 2D objects, the following basic 3D shapes will be used:

1. **Monitor**
   * **Screen**: Box
   * **Stand**: Smaller Box
2. **Keyboard**
   * **Body**: Long, Flat Box
3. **Mouse**
   * **Shape**: Rounded Tapering Cylinder or Oval-Shaped Box
4. **Coffee Mug**
   * **Body**: Cylinder
   * **Handle**: Torus
5. **Notebook**
   * **Shape**: Thin Box
6. **Gaming Mouse Pad**
   * **Shape**: Plane
7. **Wood Drink Coaster**
   * **Shape**: Thin, Flat Cylinder

Including a plane in the scene is essential as it will serve as the ground for the rest of the objects. These selections are practical and achievable, while still providing a variety of shapes and challenges.

#### Conclusion

By breaking down the selected 2D image into these fundamental shapes, I will be able to recreate the scene effectively in a 3D environment. This project will demonstrate the skills and concepts learned in this course, such as constructing objects from basic shapes, adding textures, and rendering in OpenGL.