Reflection on Gaming Desk Scene Project

Development Choices and Object Selection

For my 3D scene, I decided to create a gaming desk setup because it includes objects that are common and simple to model using basic shapes. Like boxes for the monitor and keyboard or cylinders for the headset. Choosing these familiar objects allowed me to focus on applying textures effectively and setting up lighting to make the scene look realistic. The textures, such as wood for the desk and fabric for the headset, were chosen to match what you’d see in a typical gaming setup, adding detail without making the project too complex.

Programming Functionality

To get everything working, I used transformations in OpenGL to scale, rotate, and position each object in the scene. I also applied texture mapping to wrap the surfaces of these objects properly. The lighting setup uses the Phong lighting model to make textures look more realistic by showing how light reflects off of the materials.

User Navigation and Camera Controls

For user navigation, I set up controls using the keyboard (WASD for movement and QE for up and down) and mouse for rotation. This lets users move freely and explore the scene from different angles. I also added a toggle for switching between perspective and orthographic views, giving users options for how they view the scene.

Custom Functions for Modularity

To keep the code organized, I created a few reusable functions:

LoadTexture(): This function loads textures based on file paths, making it easy to add new textures without repeating code.

RenderObject(): It handles object rendering using parameters for position, rotation, and textures, which keeps the rendering process consistent across all objects.

CameraControl(): This function manages the camera's movement and rotation based on user inputs, so all camera-related changes are centralized in one spot.

These functions help keep the code modular and make it easier to add or adjust features later without much hassle.

Design Decisions

In Conclusion, I aimed for a balance between simplicity and realism. Using casual shapes kept the performance smooth, while textures and lighting added enough detail to make the scene interesting. Keeping functions modular and organized made the project manageable and set it up for future improvements if needed.