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CS330 – 7-1 Reflection

I chose to model a gaming desk setup for my 3D scene because it features a good variety of objects, including a monitor, PC case, keyboard, mouse, headphones, and game controller. These items are visually distinct and can be constructed from basic geometric shapes, which allowed me to demonstrate different modeling techniques and apply a range of materials and textures. This scene also provided a practical way to showcase concepts like scaling, positioning, and lighting in a context that is easy to relate to.

To make the scene interactive, I implemented camera controls. Navigation is handled via the keyboard: **W** and **S** move the camera forward and backward, **A** and **D** move it left and right, and **Q** and **E** adjust vertical movement. The mouse controls the camera’s orientation, enabling the user to look around the scene, while the scroll wheel is used to adjust zoom speed. Pressing **P** switches to perspective projection, **O** changes to orthographic projection, and the **C** key toggles camera control and cursor visibility. These controls are encapsulated within the ViewManager class, ensuring a flexible and user-friendly navigation system.

To keep the code organized and modular, I created custom functions for each object in the scene, such as DrawKeyboard, DrawGameController, and DrawHeadphones. Each function is responsible for using the available meshes, defining the materials, and handling the transformations of its respective object, which makes the codebase easy to manage and extend. For example, DrawGameController assembles the controller’s body, handles, buttons, and thumbsticks using clear, reusable code blocks. This modular approach streamlines development and allows for easy updates or additions to individual scene elements without affecting the rest of the project.