Title of the Project:

OpenGl Scene Scroller

By:

Vinayak ‘Vin’ Regmi

Project Description:

This project is a 3D Scene Creator allowing users to import, manipulate, and explore models in a custom environment. The scene supports interactive lighting with multiple light sources, real-time object transformations, and customizable textures for imported models. The goal is to create an immersive experience by providing flexible camera controls and shader effects, which will enable users to visualize scenes dynamically.

Key Features:

- **Model Import and Placement:** Users can import 3D models, place them within the scene, and apply textures.
- **Interactive Lighting:** Multiple lights illuminate the scene, creating diverse lighting effects and enhancing the visual experience.
- **Camera Control:** Users can navigate the scene using first-person camera controls with WASD keys and mouse.
- **Cube Mapping:** Reflection effects enhance realism, adding depth to objects in the scene.

Approach:

OpenGL will be used for rendering, with GLFW for windowing and input handling. Model import will rely on Assimp to allow for diverse file formats. GLM will handle transformations and camera movements, while ImGui will manage the user interface, providing model manipulation tools and lighting adjustments.

Related Work:

This project is inspired by real-time 3D scene editors, as seen in applications like Unity or Blender, where users can import, manipulate, and visualize models with dynamic

lighting. Similarities lie in the approach to interactive lighting and flexible camera controls.