

Hospital Floor 3D Model - Final Report

1. Assignment Overview

The focus of this project was to develop a detailed 3D model of a hospital floor featuring surgery rooms, using realistic textures and GLB models to create a more realistic design. The model incorporates the following key features:

1. **Dynamic Illumination and Camera Movement:**

- Ambient lights with editable color and intensity.
- Options to manipulate the view angles, perspectives and orientation.

2. **Animations:**

- Simple animations to improve some of the movements made by the camera.

3. **Interactive User Menu:**

- Users can interact with the model in real time to:
 - Adjust lighting intensity and color.
 - Switch between views and projections.
 - Change orientations and zoom levels.
 - Check room occupancy for a specific date and time.

4. **Room Occupancy Visualization:**

- Unoccupied rooms appear empty, only having the default GLB models.
- Occupied rooms display a figure on the operating bed to symbolize ongoing surgeries.

2. Technologies Used

The following technologies were employed to create and integrate the 3D model:

- **Three.js:** For creating and rendering 3D graphics.
- **Tween.js:** To implement smooth and dynamic animations.
- **JavaScript:** The primary programming language for functionality.
- **HTML:** Used for structuring and styling the interface.

3. Interactions Adopted

The project includes intuitive keyboard and mouse interactions.

Keyboard Interaction

- **'i' Key:** Displays a toggle with detailed information about a selected room.

Mouse Actions

- Right Mouse Button: Changes the view orientation, enabling different perspectives.
- Left Mouse Button: Selects a room; clicking on a bed triggers a smooth animation, focusing the camera on the selected room.
- Mouse Wheel: Zooms in and out for greater control over the view.

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