**User Guide:**

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Git repository link: <https://github.com/DorCarmi94/MovieEditor>

In this project we implemented a 3D Scene Editor.

The project is implemented using the OpenGL engine.

The abilities and the way to use them are described here:

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| --- | --- | --- |
| **Subject** | **What** | **How** |
| Moving objects | You can create animation to objects. The objects will be added with default Bezier curve. You can edit the curve and add delay to make it start as you want | * Select an object with the mouse * Edit its curve using the control points in the edit window (on the right) |
| Camera | You can add cameras to the scene. You can switch the view between the cameras and edit their position and rotation. The camera can move with a Bezier curve, like the other objects | * Choose "Add Camera" from the menu * A camera object will be added to the scene * To switch to it's view choose "Switch camera" from the menu, or press 'S' on the keyboard * You can move the camera by moving its object, using left click of the mouse * You can rotate the camera by rotating its object using the right click of the mouse * You can move the current camera you are looking from by pressing the keys: 'U', 'D', 'L', 'R', 'F', 'B' * Move main camera to original location using the "Reset Camera" option from the menu |
| Multi picking | You can select many objects using a selection area, created by the mouse. You can then affect the objects that were selected, together. The selected objects will be highlighted with red color. | * Select the check box on the menu: "region selection" * Drag the right click of the mouse to select the area you want to select |
| Cube map | You can change the background of the cube map to one of your selections | * Choose "Switch Background" on the menu * You will be asked to choose 6 files for all the sides of the background cube |
| Load objects | You can load objects to the scene | * Choose "Load" from the menu * Select the file of the object you want to load |
| Add layer | You can add layers to the scene, and select which objects will be in which layer | * Choose "Add Layer" to create more layers * You can select between the layers in the "Choose layer" part of the menu * To move an object to a different layer, simply select the object and choose "Switch Layer" on the menu * You can hide/unhide layers choosing from the menu * You can remove layers and the objects will move to the previous layer |
| Time slider | You can watch the scene from different times using the time slider. The time slider will show you the time of the animation. You can choose to add delay to an object, so its animation will start with delay | * Time slider bar on the menu * Delay slider on the menu |
| Change material | You can change material of an object. | * Select an object with the mouse * Choose "Change" under material part of the menu * Select the file of the material you want to switch to. |
| Zoom in to a chosen area | You can zoom I to a chosen area. | * Choose "region selection" and "zoom on region" on the menu * Select with the mouse an area, dragging your mouse click * The scene will be zoomed in according to your selection |
| Transparent object | You can edit the opacity of an object | * Select an object * On the menu you can change its opacity using the opacity bar on the menu |

* We also implemented the blur for far objects.

Keys:

|  |  |
| --- | --- |
| **Key** | **Purpose** |
| Mouse left | Select objects  Drag objects |
| Mouse right | Rotate Objects |
| Menu region selection + right click and drag | Multi object selection |
| Menu region selection + menu zoom on region + right click and drag | Zoom in to chosen area |
| Backspace key | Cancel multi object selection |
| Space key | Start/Stop animation |
| Keys: Left, Right, Up, Down | Rotate camera |
| Keys: U, D, L, R, B, F | Move camera |
| Keys: 1,2 | Move object on Z axis |
| Key 3 | Select zoom option |
| Key 4 | Move main camera to original location |
| Key S | Switch between cameras |

Difficulties:

The project wasn’t easy at all:

1. Understanding how to work with the viewports and drawinfos
2. Understanding how to create the Bezier curves, and understanding how to visualize it
3. Understand how to work with the stencil and scissor tests for the highlight and the area selection- the stencil test didn’t work as we planned
4. Working with the different cameras and editing the scene

We struggled with the different parts of the project, and eventually came up with a pretty good outcome that satisfies the necessary abilities.