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Final Project Report

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The final project for CS 550 is an interpretation on the Lego animation. Using what we learned in class, I implemented a building block made up of different objects that comes apart and put back together via *Keytimes* animation. Below is the original text of the proposal was made on how the project was going to look like:

***Description:** For the final project, I am creating a 3D object building using the basic shape we learn throughout the class so far to build an **object** (e.g. house, ice cream, etc...). From there the object is made up of many small pieces that will come together to build the object. Using the reference link below, I am thinking of having those small pieces be at randomize spot on the axis floating and will have various **colors** and **lighting** to distinguish on the grid. Using **keytime animation**, I will have these small pieces will come together to build the final object of what it looks like. This can be seen in the reference link of how the animation works. On top of that, we will have the eye-position be spinning in 360 views for the viewer to see how all these objects come together.*

*Also, it is a may be to include a loop **keytime animation** to see these pieces come together to build the object and then break apart again and rebuild again. It is like something we did for the **keytime animation** project but with a lot of animation points to make the animation smoother.*

The idea for the project comes from how animation looks when Lego pieces are built together to become something big and below is a picture animation showing what it is like, or the project will mimic something like this:

***Video Reference Link:** https://www.youtube.com/watch?v=Cc_slRiWRs4*

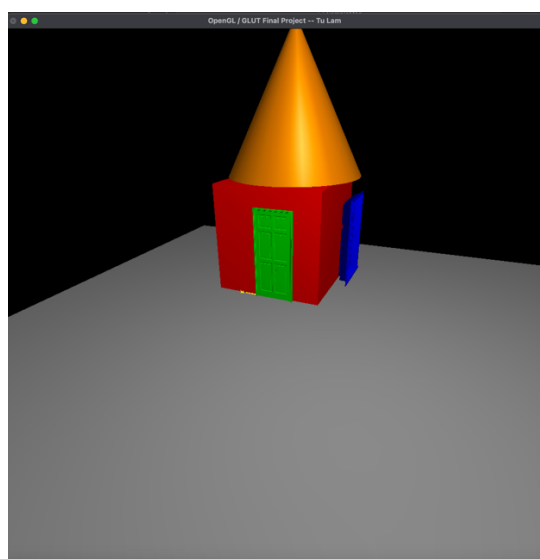
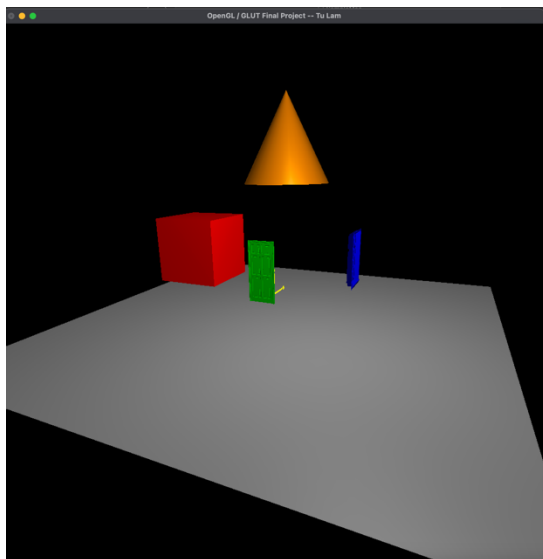
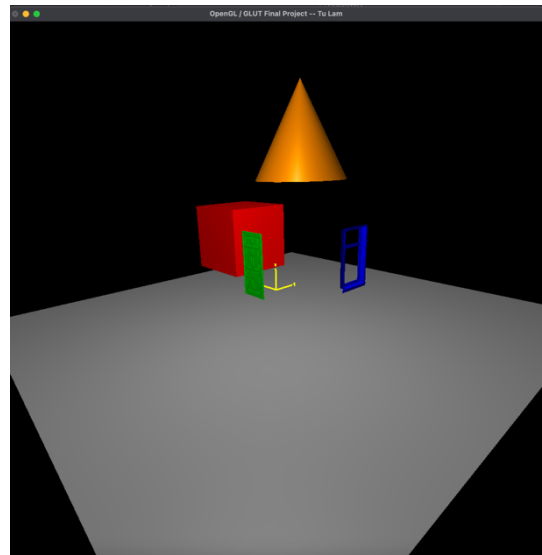
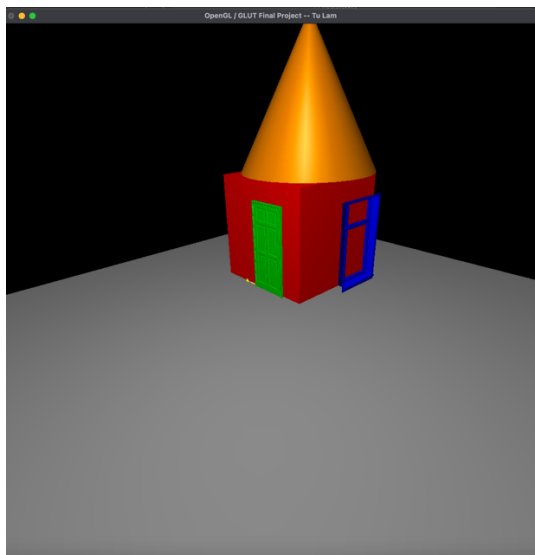
In the project, I implemented by importing in various object that built up into a house. These objects include in a *cube, cone, window, and a door* via OBJ file that was free and can be found on the internet and the cone is found via the provided OSU cone file. Then once imported, I align by rotate, scale, and translate to fit in one position that I know when they come together once the animation pulls them apart. Also, I added in lighting and grid to help with depth and seeing the animation in a better condition. Lastly, I used the *Keytimes* file and their functionalities to build the animation that each object pull apart and comes back together like a Lego animation. The animation lasted 10 seconds and it also have the camera pan in and out to see the full effect of the animation as well.

With the implementation in mind, there is changes that differ from the proposal. One thing in mind that the proposal has the eye-view position spin in the circle to view the animation, but due

to lighting staying in one spot, I make pan in and out to focus on the lighting capturing the animation itself better. Another one is the animation supposed to have it bobbing up and down for each object and it start each object in a random location and coming together. But in the end, I have the objects come together first and split out into their own direction and come back to the original position in the implementation phase.

As implementing the project, what I learned from this project is the amount of importing you can find online and use OBJ file to use for the project is crazy. And I also learn the art trying to master the animation with *Keytimes* finding the right time to make the animation smooth when matching it with other objects as well.

Below are couple screenshots from the project and a video demo link to the final project outcome:



Video Demo: https://media.oregonstate.edu/media/t/1_xxih7e68