EDSGN 100

Original Lightsaber 3D Model

Solid Works Personal Project.

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4-22-2016
Inspiration:

During Spring break of 2016, I sketched out my own custom lightsaber design. Being an active prop maker and Star Wars enthusiast, making my own lightsaber is a must. I really wanted to get back into using my personal 3D printer so I decided that I wanted to 3D print my first lightsaber hilt. I used the 3D modeling program Autodesk Inventor. I virtually created my 2D sketch, broke it down into different pieces and then 3D printed it. I am passionate about prop making, I love 3D printing, and Star Wars was my childhood, so I figured that I would design a new and original lightsaber design that I would not only model for this project but use these designs to fabricate it. The design with the red blade was sketched first. I did not really like the design and it did not coincide with the ideas I originally had in my head. The design on the right is much more accurate to what I imaged. You will notice my side sketches where I am giving myself other visual representations so I know how to go about modeling specific parts.

Figure 1: Concept sketches.

Modeling Tools

From the experience I gained from the first lightsaber I modeled I had an idea of how I wanted to approach this new design. The five main features I used were Extrude Boss/Base, Extrude-Cut, Loft, Fillet, and Chamfer. Some other useful tools I used were Revolve and Reference Geometry for an offset plane. There are lots of details that I added to the hilt but I did not want to make twenty to one hundred planes just for one design so I learned how to use the Circular Pattern tool. In Autodesk Inventor, this is a tool I used all the time and I knew that I would need it for this one, however, the procedure was different in Solid Works and that took more time to learn than I expected. In Solid Works I selected the feature I wanted to copy then I had to select a specific axis. In Autodesk Inventor, I select the feature then I choose the surface for which I want to revolve around. In order to make a circular pattern of a feature tangent to a circular object I first needed to create that feature on said surface. To do that, I developed a sketch on a plane that was tangent to the desired surface. Though the Reference Geometry feature was not used as much as the top five features, it was still a vital tool in the creating of this model.
The Challenge

The cross-sectional/exposed core was the most challenging part of the model. In reality, if I were to make this model as a prop, the inside would not look this elegant because I would like a stunt capable prop. However, this model was all about the aesthetic look and elegance of a lightsaber. I referenced master replicators of lightsabers to see what the inside these sci-fi tools look like. Also I wanted to give myself this challenge because without this cross-sectional view, the model would be just a bunch of cylinders and in the end, the model would not accurately depict my 3D modeling abilities. I must say that it was a fun challenge. My favorite part of the core is the crystal. It’s part of the lore of Star Wars and I used the hexagon sketch tool and extruded it. Then I used the chamfer tool multiple times on many edges to create a “crystal” look.

Take Away

Aside from learning a few new tools I believe I am one of few who learned something different than most of the other students. Many of the students in the class never had prior 3D modeling practice let alone exposure to these programs. I have previous experience and gained a lot of skill because of in class and out of class experience. What I noticed, is I learned how to transfer what I know and my skills from one program to a different one. I will admit, it was bumpy learning how to use Solid Works at first but now I am almost as fluent in it as I am in Autodesk Inventor. I am at the point where I am now comparing and contrasting both software. (Below are more images of my lightsaber model).
Figure 6: CAD drawing of the lightsaber hilt assembly.