Chainsaw

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1. Homelite chainsaw used as a model

View depicts all dimensions encompassed by the 3-D sketch

This image depicts the overall dimensions in the drawing of the assembled chainsaw
This Solidworks project was modeled after an existing product, a chainsaw. The project created via Solidworks was guided by the Homelite chainsaw depicted above. I chose this project because I work as a landscaper, and have often used these tools during work. I enjoy using chainsaws, and while I aspire to become a Mechanical Engineer, the use of machines fascinates me. I made this chainsaw out of three main parts; the housing, the bar, and the pull cord handle. To make the chainsaw body I starting by extruding the basic geometries such as rectangles and circles to obtain a basic shape. I then used a combination of lines and splines to create the shape of the handle. I then extruded the handle from these lines and splines, and then extruded the trigger and safety mechanism on the handle. I used fillets to round the edges of the housing for aesthetic appeal. On the air filter portion of the housing an extruded cut was used to remove interior material.

The pull cord was the second item made, and this feature was made via a loft. It also comprised of an extrusion and fillets for the region that is to be held. These fillets were created to give a sense of comfortability when operating the chainsaw. The bar was the third part made, and this consisted of a line and semi-circle extrusion. One tooth was then drawn and extruded on top of the chainsaw, and then was mirrored along the bar to create the teeth.

The new feature utilized for this project was the 3-D sketch. The fore grip of the chainsaw was made utilizing a 3-D sketch and a sweep. The lines were sketched via the 3-D sketch, then a circle was drawn around the line to sweep the feature. A 3-D sketch was also used to create the grip of the chainsaw, and this 3-D sketch also comprised of a fillet to provide the rounded edge. This was the most challenging part of the project because it required the use of a new feature and required drawings to constantly change the planes in which they were drawn. In order to learn this new technique I utilized the 3-D sketch tutorial provided by Solidworks (2).
This feature allowed me to sketch the handle and add curvatures in all three dimensions while providing the capability to add a fillet to the whole sketch and sweep the feature.

The Solidworks portion of this class taught me how to use and operate computer aided drafting. I had never used Solidworks prior to this class, and it was intimidating at first, but ultimately I really enjoyed the experience and learning the new skill. It also taught me a means of drawing and how to dissect a product to analyze it.
References
