# Team 7700B CAD Challenge

Team 7700B made the 90 degrees screwangler. We created this part to solve the problem of trying to screw on a part that can only be screwed on by an Allen Key, which is very slow. For example, when you have two motors on the same axle and that are close together you typically reach for an Allen Key to tighten a loose screw. This tool can tighten a screw from a 90 degrees angle very fast. This saves time from using an Allen Key. We made many evolutions of this device but only CADed the final version. The CAD we used for the device is Autodesk Inventor Professional version 2017. We CADed each section one piece at a time. Then at the end we put all the sections together until we got the final tool. It is made up of two bevel gears, a modified differential frame, and a custom piece.
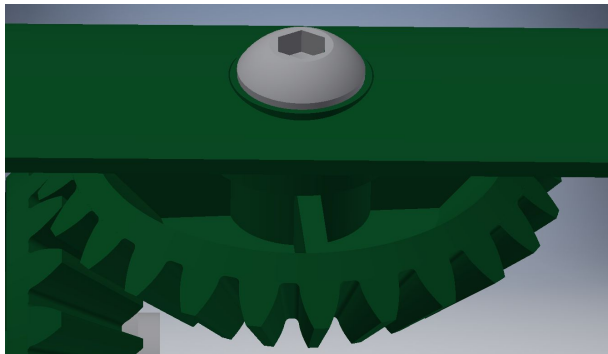

The first bevel gear is the staring piece. It has a 6-32 screw attached to it. This allows you to use a regular screwdriver to screw in a part. This is attached to an ordinary bevel gear with a custom piece on it.
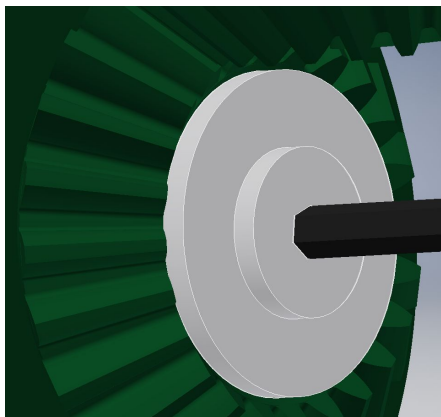
The custom piece is designed to fit on top of the bevel gear and have a hexangular shape so a 3/32 screwdriver can fit through it. This is what screws in the screw. The 3/32 screwdriver is held in place by the modified differential frame.
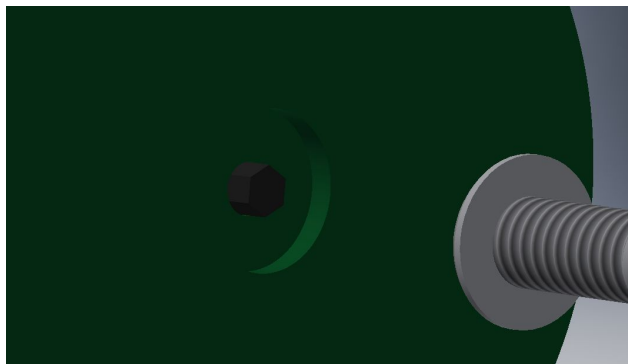
The frame has a circle engraved in it to hold the screw while screwing in a part. We found this to be better that just holding the screw with your hand.
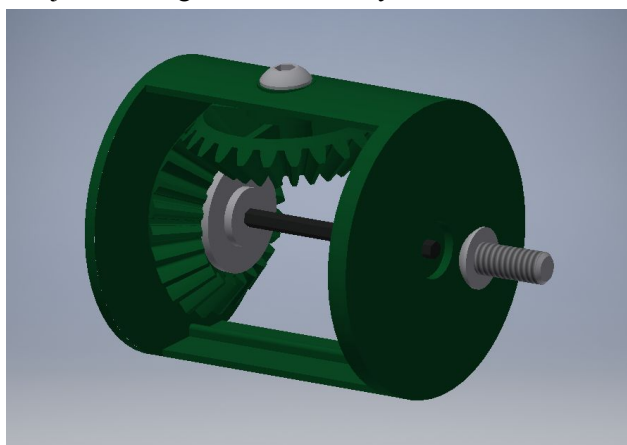
All these different sections together create the full tool. Overall we learned that coming up and then CADed the device isn't as easy as we first thought it was. Also, we use Inventor more to help us save time. We can CAD a piece on our robot before we build it. We can see errors with the design and not struggle with attaching the piece and then taking it off. We all agree that learning more about 3D design software will help us in all our different jobs. Personally in my future job I would use it to design satellites before my future team builds it as satellite engineers. CADing is a great way to design parts.