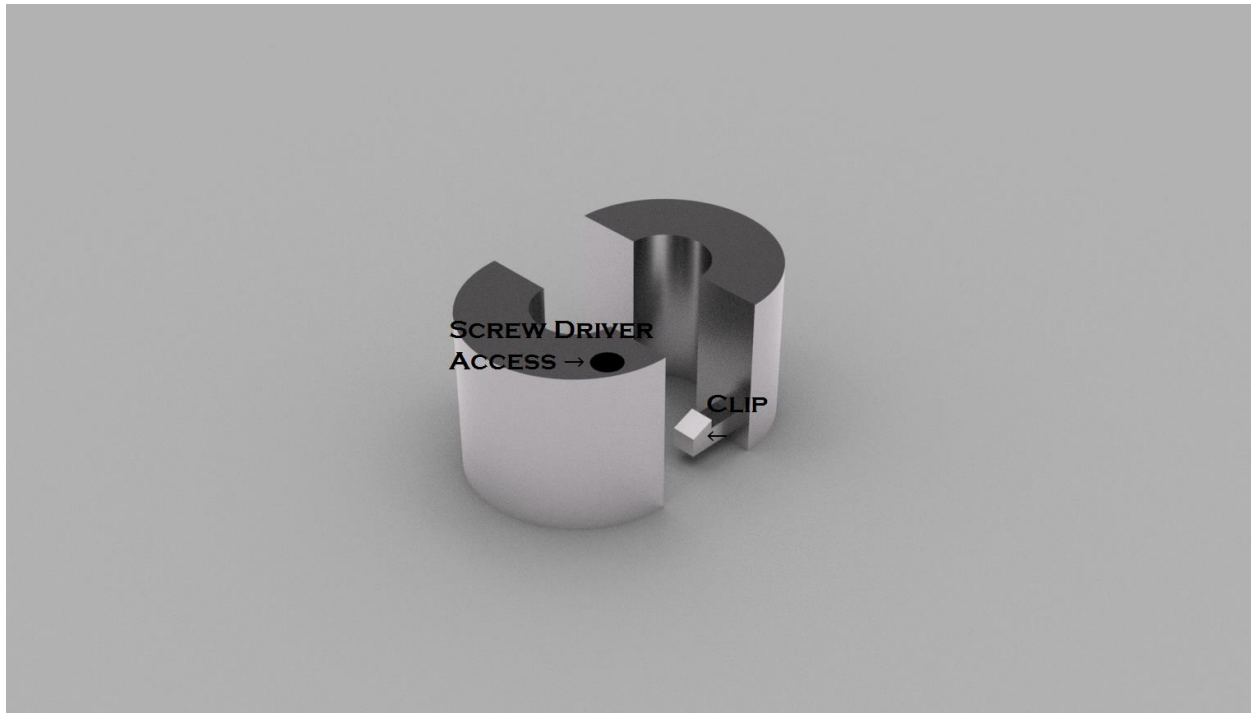## Cad Design

I have created this spacer design to make it easier when changing spacers on an axel due to size or wear and tear. This design utilizes a clip mechanic where you can simply push in one half of the spacer to the other half and it will snap together. To undo the whole spacer, push a vex screw driver into the hole located on the outside of the spacer; this will push the clip inward towards the socket so that you can pull the two halves of the spacer apart. This solution solves a time issue, since during a robotics competition, many hot fixes and changes are made to the robots. A lot of the time, axels bend or gears can get shredded; this makes it much easier to spend less time fixing these issues and more time being ready for the next match. With this spacer, you can just slide the axel through the gear, wheel, etc. and put spacers on after it is through the part. I used Autodesk Fusion 360 to make the spacer, I then used the sketch function to make the 2d shape of the clip. I had then used the "press pull" function to make it into a 3d model and had combined it to one of the spacer halves. I had then used the same model as the clip to extrude a hollow space in the corresponding spacer half so that the clip will fit in. Afterwards, I made a hole on the outside of the spacer on top of the clip's lip so that the screw driver can be applied to unclip it. This CAD design is very complicated to use, but with a couple hours of learning how to operate it through tutorial videos and playing around myself I found that it becomes very easy. The hard part is just memorizing where the functions are, how to move around, and the different modes. Understanding how to use the CAD is very useful in robotics and in other careers. This can allow us to input our robots digitally, making a scaled model to observe and make quick edits to save time rather than do it to the actual robot. It is especially useful to render an image of our robot to see how it would look completed (with changes made only in the CAD). I myself am interested in programs which create 3d models. To pursue a path in engineering, CAD design is very important because in this modern society we do everything digitally. We have access to precise measurements and less trial and error

progress is made more efficiently with computerized design. This competition is great because it is not

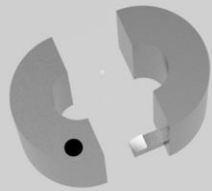really work, it's honestly having fun making something that could maybe one day be on a robot.

CAD Spacer Design

BOTTOM

TOP

SIDE