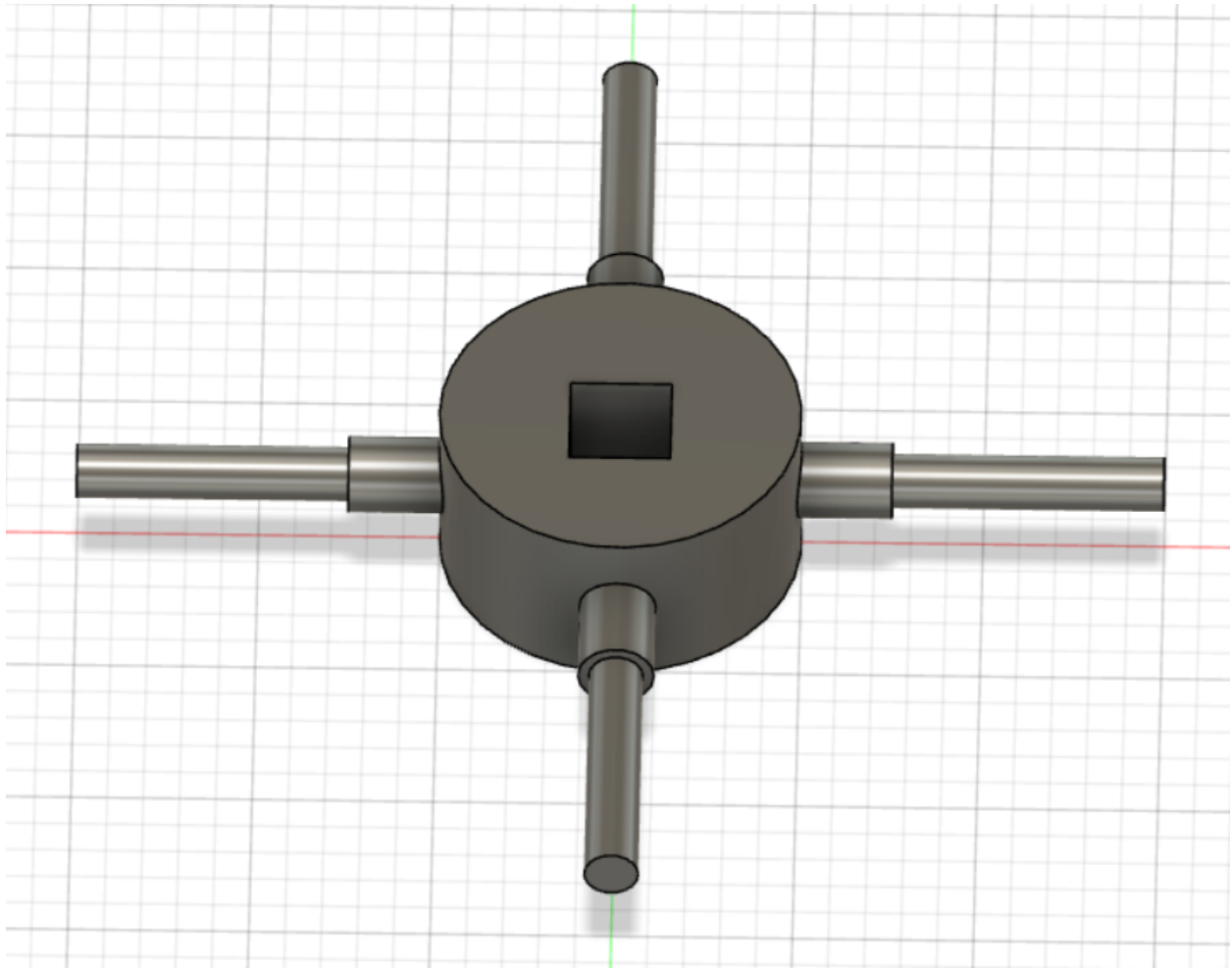


Latex Tubing Hub



RIT (Rochester New York)

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Our idea was to make a hub to hold latex tubing so that the tubing could be used as an intake. The part of the design that has the hole in the middle is designed to fit a shaft. It can accommodate either a high strength shaft or a low strength shaft. When using a high strength shaft, you would attach it to the hub without any further pieces. For use with a low strength shaft, you would first add the vex square inserts (1 on either side) to accommodate the low strength shaft, then just slide the hub onto a low strength shaft. The extruded tubes on the sides of the hub are where the latex tubing goes. Any latex tubing that has a 0.18 inch inner diameter will fit as that is the same size as a vex screw. The builder would slide the latex tubing onto the extruded tubes and the fitment of the tubes should hold the tubing in place. If needed a zip tie can be tied around where the tubing overlaps the part to hold it in place. This hub accommodates all lengths of latex tubing. You are able to use shorter but stiffer tubing or the tubing can stick out past the extruded tube in order for it to be a little more floppy. In addition, the hub is small enough that it will not take up too much space on a robot and will not interfere with the field elements that you are intaking.

This hub was made using Fusion 360. The features that were used to create this part included sketching, extruding, offset planes, and the hole feature. Sketching was used to make all of the bits of the part 2D before extruding them. The extruding feature was used to convert the sketches into 3D pieces. Because the side of the part is round, the offset plane feature was used to drag a plane out to the rounded part in order to be able to sketch there. The hole feature came in handy when making the square hole in the top of the part for the axle to go through.

While working on this project, we learned how to use Fusion 360 to model and design a part. We learned how to problem solve and adjust our model when we ran into issues with sizing and functionality. We found many YouTube tutorials online to get a basic understanding on how to use Fusion 360. We also utilized the Autodesk Design Academy to help us through the design process. This knowledge will help us in future VexU and university class projects, internships and co-ops. In addition, the ability to create designs with CAD software such as Fusion 360 will help us during our job searches and in our careers, especially with companies that require us to 3D model our designs before they go into production.

