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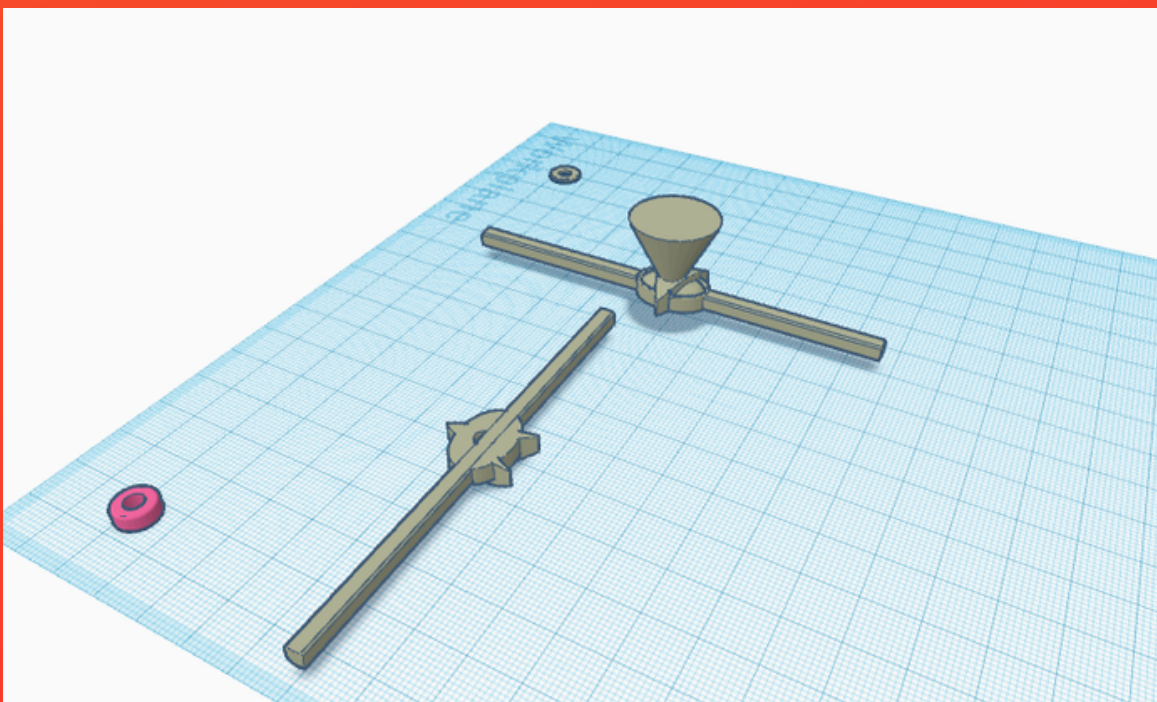
74177Y

The Horivertical Shaft

VEX IQ "MAKE IT REAL"
CAD CHALLENGE

By:

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The Purpose & Background Research

The purpose of the horivertical shaft is to serve as a stabilizer for wheels, collars, gears, etc.

Plastic Shafts, Capped Shafts, and Motor Shafts

Capped Shafts eliminate the need for a shaft collar on the capped side. The cap can secure a wheel, gear, or other motion components. Motor Shafts include a flange that will capture the shaft when a Smart Motor is mounted directly to a 2X Beam or 4X Plate.

A shaft's dimensions are 9.88 millimeters. And the shaft is a 2x8 shaft. It's Vex number is: 228-2500-124.(Even though the websites are websites where to buy it, it still serves as a good website since it states the dimensions and the size of the shaft.)

THE IDEA AND SOFTWARE

Our Idea

Our idea is to create a vertical and horizontal shaft that can be used to put wheels or washers or collars on all 4 sides; we call it "The Horivertical Shaft."

Software

The software we are using is Tinkercad.
<https://www.tinkercad.com/>

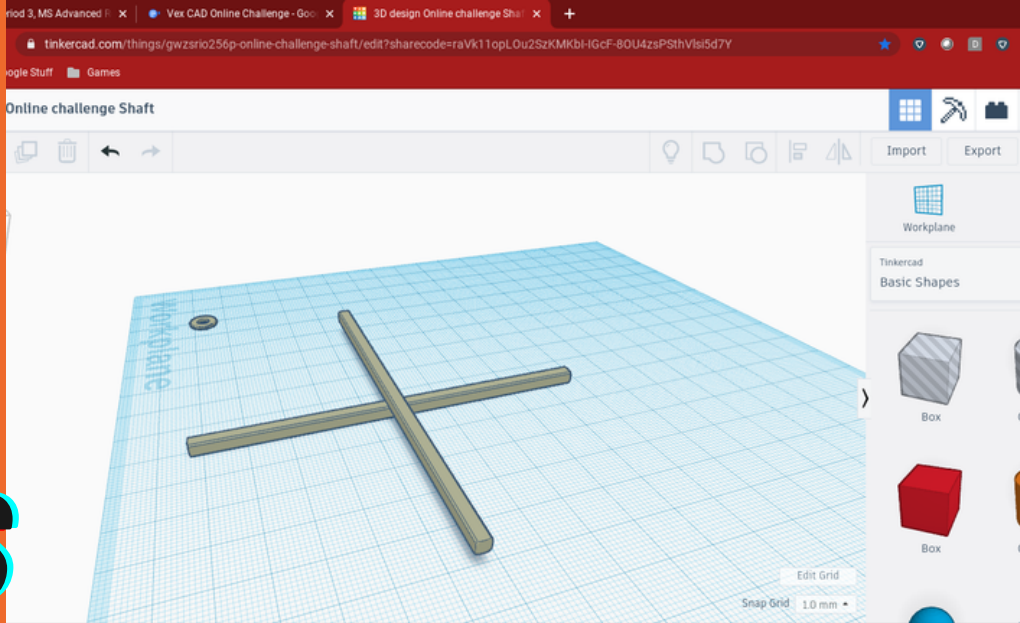
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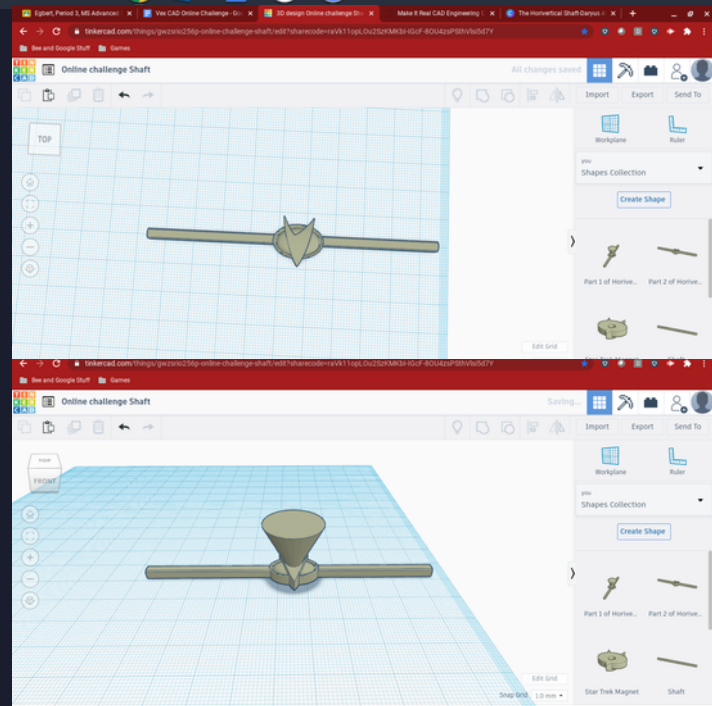
AUTODESK®
TINKERCAD®

The Beginning Of the Design Process

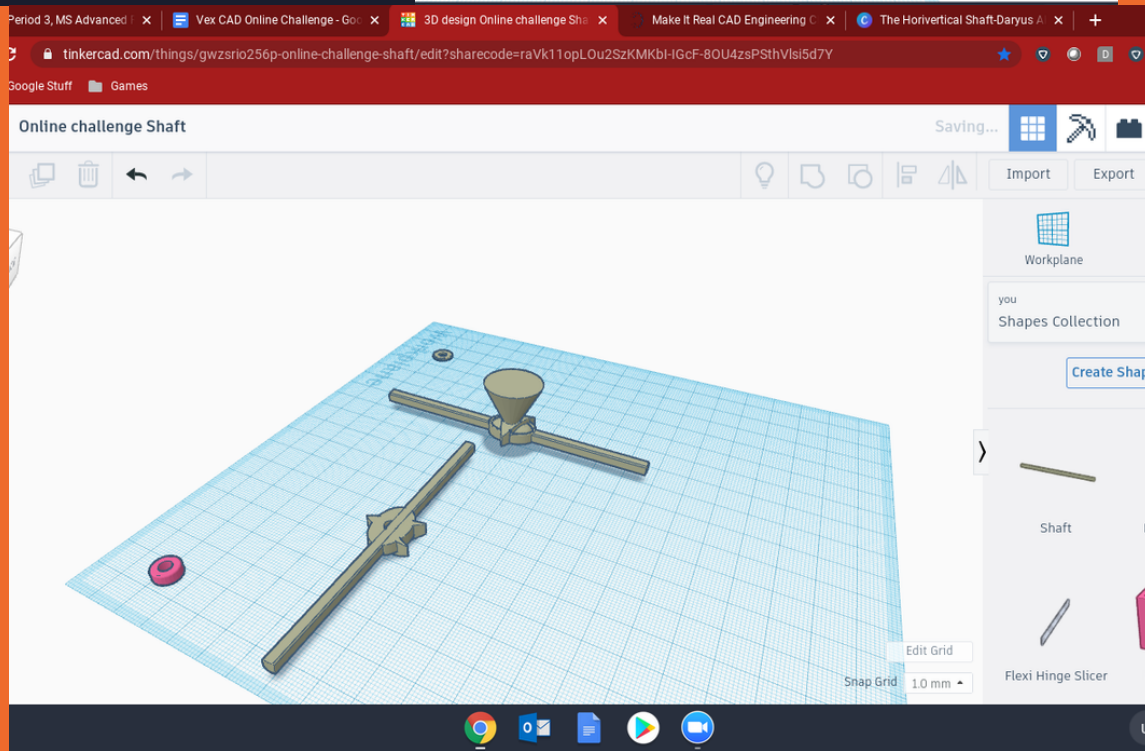
DESIGN PROCESS



Half-Way Through



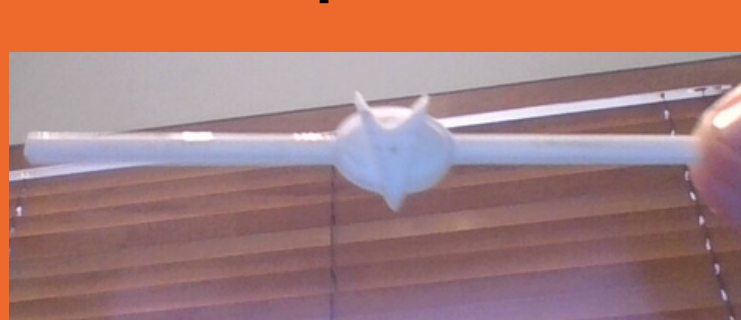
The Final Product Page #4



THE EXPLANATION

In conclusion, we worked very worked hard to put this piece together. Our piece we've put together was a two part piece. We used magnets to make this work, it is able to go in any directions including vertical and horizontally.

First, we downloaded 2 STL files for the part. Then, we decided that it would be one piece that went vertical and horizontal. Next, we decided that it could be one piece that could be 2 parts; like it would attach together into one piece. Then, we decided; for them to be together than we would need to add a magnet or something like that so we decided to download a magnet STL from thingiverse. Finally, we attached the magnets together and attached the cone to the other piece and that is all of the design process.



The Mobility PAGE #6



The reason for the magnet on the shaft is to solve the problem that: pieces can go in many ways. So that is why we created the Horivertical Shaft where it can connect multiple pieces together. This magnet was created on the shaft to attach the 2 pieces to make one singular piece that could go horizontal, vertical, or both.

This part improves functionality and mobility by acting as a support for one part and many more; such as if you need a wheel for your robot, it will fit and it will not bend and or break. It can also fit into every shaft space you need for your robot. And it could come together or it could split into 2 parts but it would still act as one part.

Sources

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Entry title: The Horivertical Shaft

Team Number: 74177Y

Names of entrants: Tarek Lahlou & Daryus Alo

Vex IQ Parts Catalog. (n.d.). Retrieved October 28, 2020, from <https://content.vexrobotics.com/catalog/VEXIQ-228-6357-20191111.pdf>

Shaft Base Pack. (n.d.). Retrieved October 28, 2020, from <https://www.vexrobotics.com/228-3506.html>

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