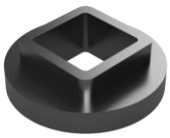
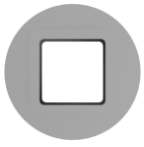
Team 1138A

Make It Real CAD Challenge Final Report

- **Introduction**
  - The part we created is a piece that allows you to lock a shaft to a piece of metal very simply and efficiently. While brainstorming ideas for this challenge, we all agreed that locking shafts to pieces of metal was very difficult, as using gears took up too much space and lock bars often didn't work with whatever we were trying to build. Therefore, we decided to make a new type of "lock bar" that solved these problems.
- **How this part is used**
  - To use this part, all you have to do is push it into any hole on a piece of VEX metal, and it snaps in. This makes the hole small enough to fit a standard VEX shaft, and it allows shafts to lock on to a piece of metal. This is very useful for arms, four bars, catapults, etc.
- **How Fusion 360 was used**
  - We used Autodesk Fusion 360 as our CAD program. The piece consists of two extrudes: one .3 inch circle, and one square that is .182x.182 inches. Additionally, there is a square cut that goes through the entire piece that's .14x.14 inches. This is the hole that the shaft goes through. There are also fillets on all the holes to allow it to fit in holes and shafts.
- **Conclusion**
  - This project taught us a lot about how to use Fusion 360, as we were all new to this program. The main things we were learned were extrudes, cuts, and how to render. Our team generally uses Solidworks, but we might consider Fusion 360 in the future for special projects and rendering. For a competitive robotics team, Fusion 360 is very useful, as it allows the team to visualize their robot and figure out problems before it is actually built. 3D design software will for sure help us in our career paths, as it is used in most engineering and design jobs.
- **CAD Renders <u>(All renders created in Autodesk Fusion 360 2.0.2604)</u>**





- 3D Print Pictures