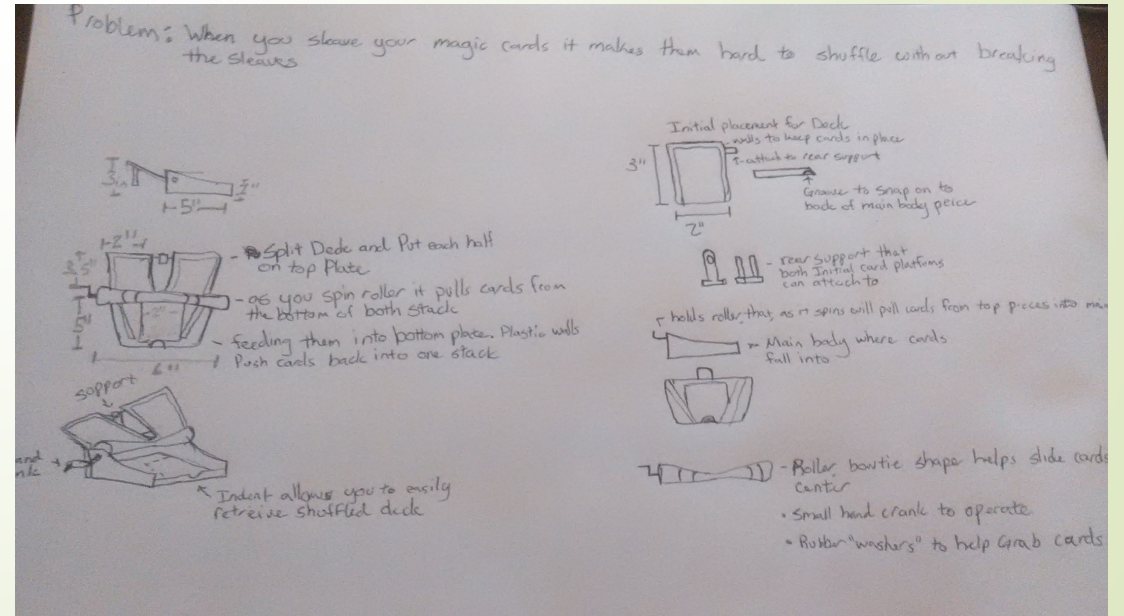


3D Project-Card Shuffler

Jacob W. Parks

Creating a Concept

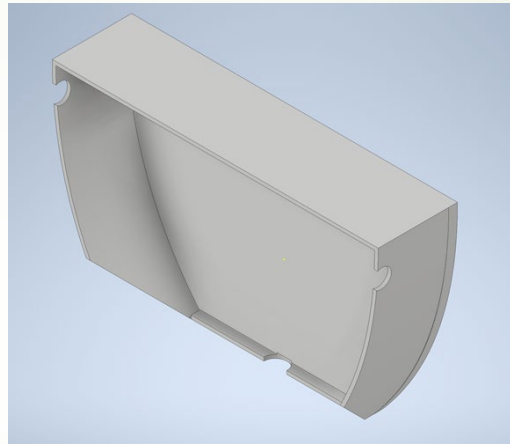
Our goal was to produce a design that involved at least four parts and one mechanism. I had recently put card sleeves on my magic cards, however, this made them hard to shuffle conventionally. I wanted to come up with an effective way of shuffling them. After looking at how electronic card shufflers work, I was able to develop my own concept.



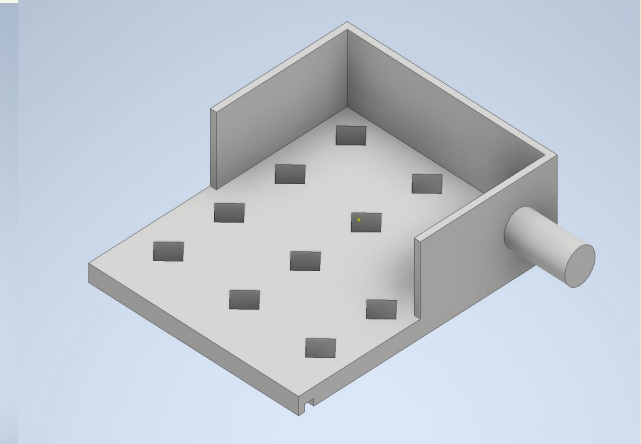
Creating the first models

Using what we learned in class as well as just experimenting with some other tools in Inventor I was able to produce an initial model.

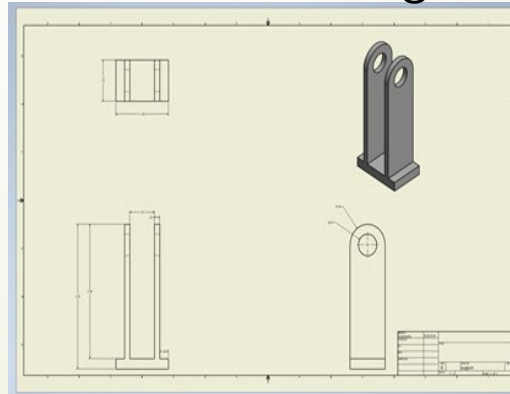
Extrude



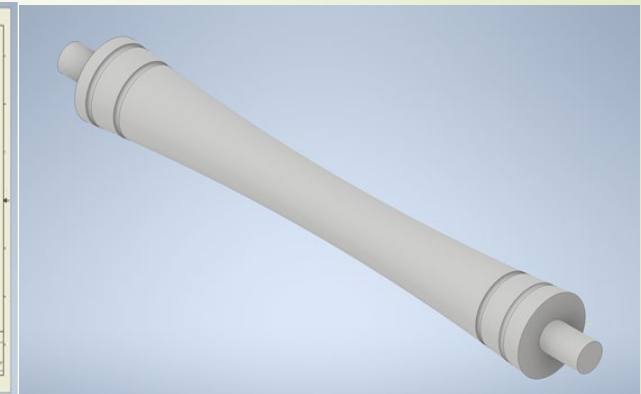
Rectangular Pattern



Detailed drawing

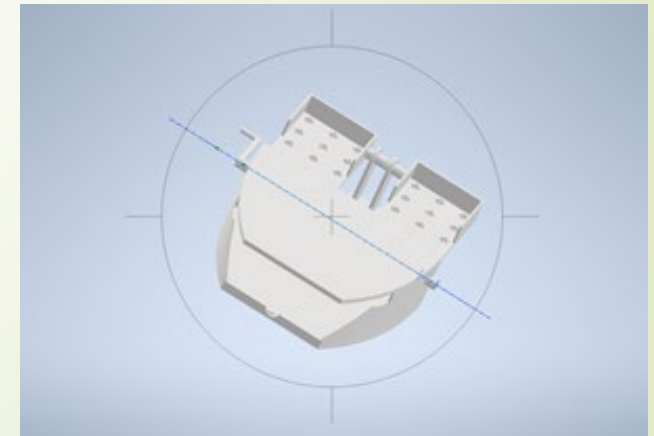
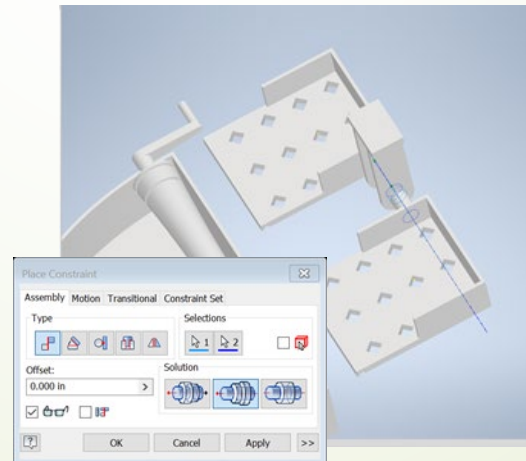
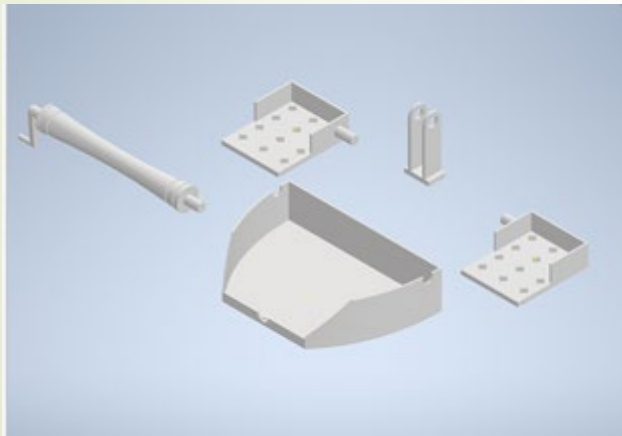


Revolve



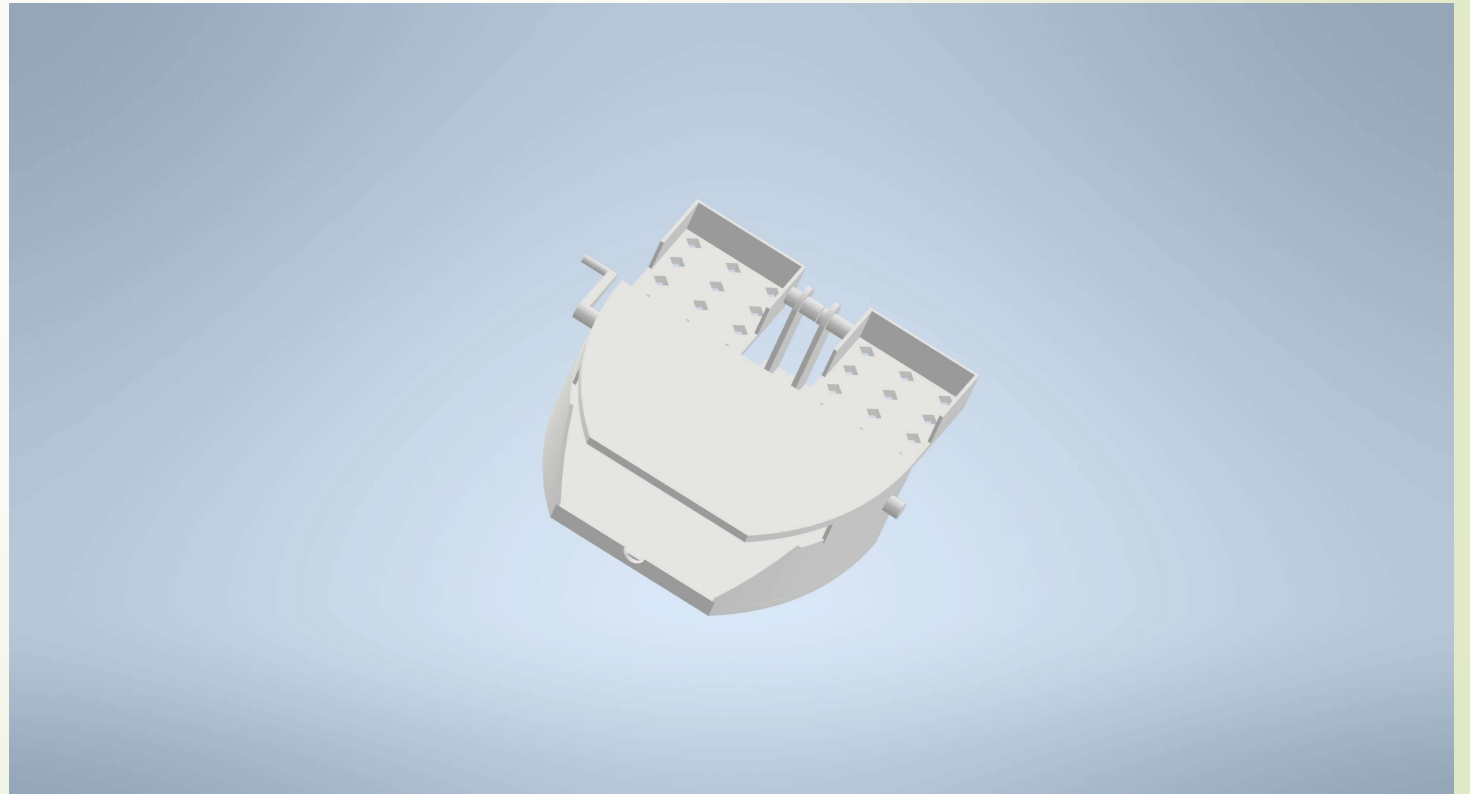
Assembly

Using the assembly function in Inventor I was able to test how my parts would fit together. This was a good chance to make changes before printing and realizing it wouldn't fit together perfectly. I had to make a few adjustments to get the roller in the right spot.



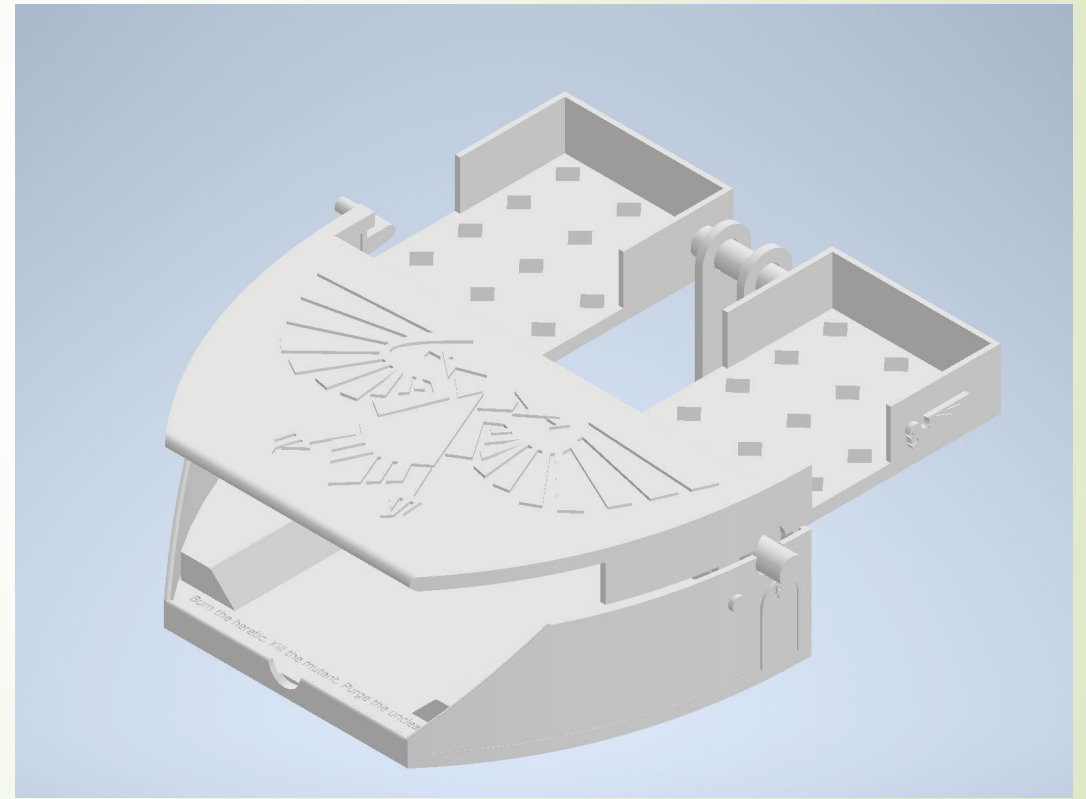
Creating a Presentation in Inventor

Using my assembly I was able to create a short video that shows how all the parts will fit together



Finishing Touches

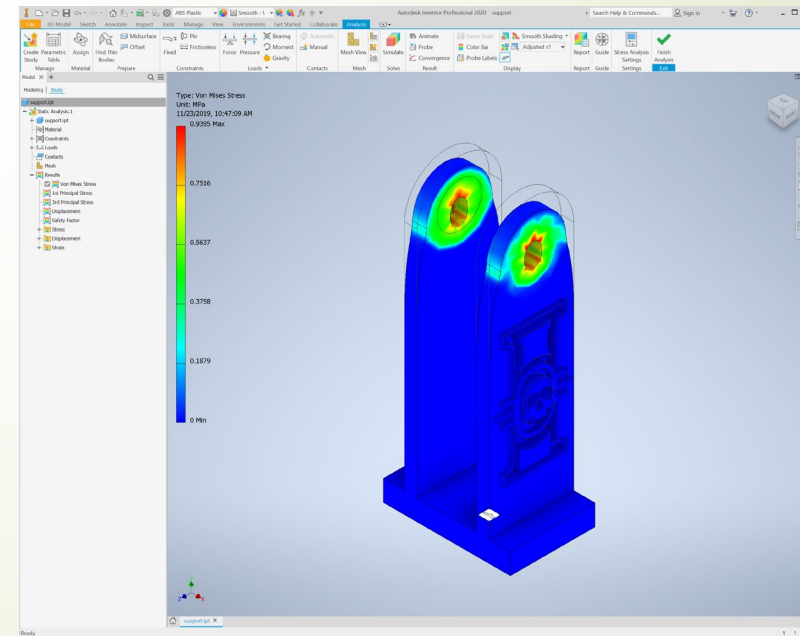
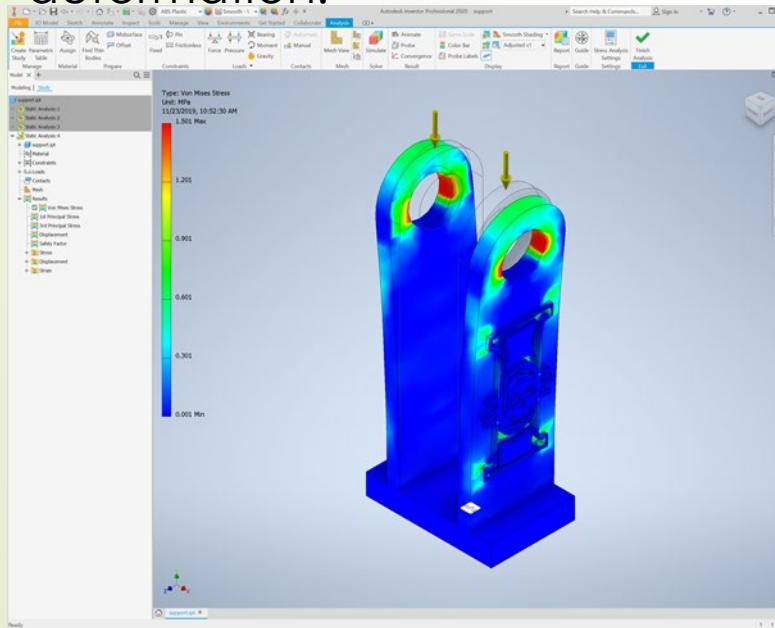
Now that I had a working model it was time to have some fun! I added some artistic features with the extrude and emboss tools, as well as using the fillet tool to smooth out some edges. I also refined the bottom tray with some barriers to keep the shuffled cards in a neater stack. Doing this I think I have made it more appealing and increased functionality.



Stress testing

Even though this support piece will only be holding up a deck of cards I wanted to do a stress test well above the estimated weight. With 15lbs of force you start to see deformation.

I did however have to apply the force to the top of the piece. If I tried to put it in the hole, I'd get some odd results. Inventor seemed to apply the force to the entire circumference.





Conclusion

- ▶ In conclusion the project went quite smoothly. If I had to change anything, I would have used the loft tool rather than the revolve to make the roller piece. I also want to play around with more snap-fit designs to facilitate in assembling the physical project. In the future I would like to develop different artistic designs on it, such as one for each of the elements in the magic the gathering card game.