

Using Autodesk Inventor to Create and Build a Magnetized Rube Goldberg Machine

Julian Jackson, Juniata College

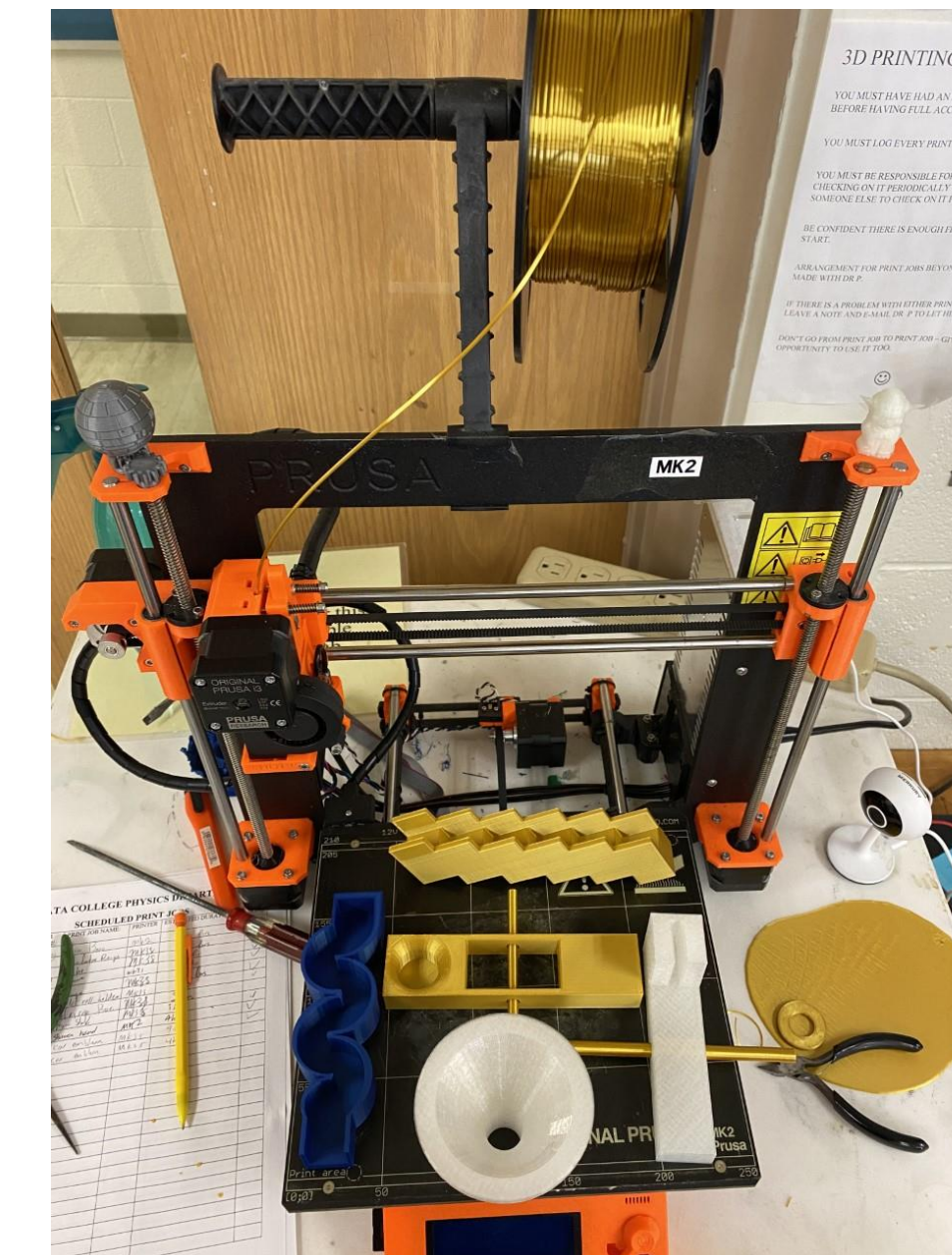


Introduction

The Advanced Physics Lab (PC 307) is one of the most important courses someone could take in the physics department. It teaches a lot of great techniques and lessons that will be used in the real world. Visual Basic, and experience with Excel are critical areas of expertise and will certainly land a job having any experience with this kind of software. Another great part about this course is an independent project. This project allows creativity to come alive. The software known as Autodesk Inventor made it possible to create anything imaginable. Being a mechanical engineer, this would be great to have experience with. Designing, and building anything one could possibly need.

Materials

- Autodesk Inventor Software
- PrusaSlicer Software
- Original Prusa i3 MK3 3D Printer
- Neon Mood Light
- Magnetic Tape with Adhesives
- Metal wall
- PLA Filament

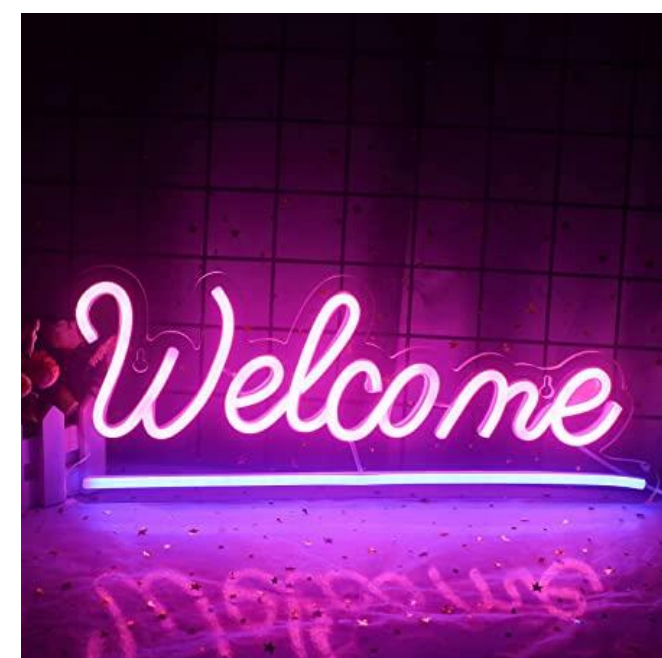


Conclusions

This has been a great experience overall and will help all people who dream of being engineers. Obtaining a skill with software like this is so crucial with engineering and everyone should have the experience of learning how to 3D print. The final product, will have a lot of pieces working together for a small task of just turning on a neon sign.

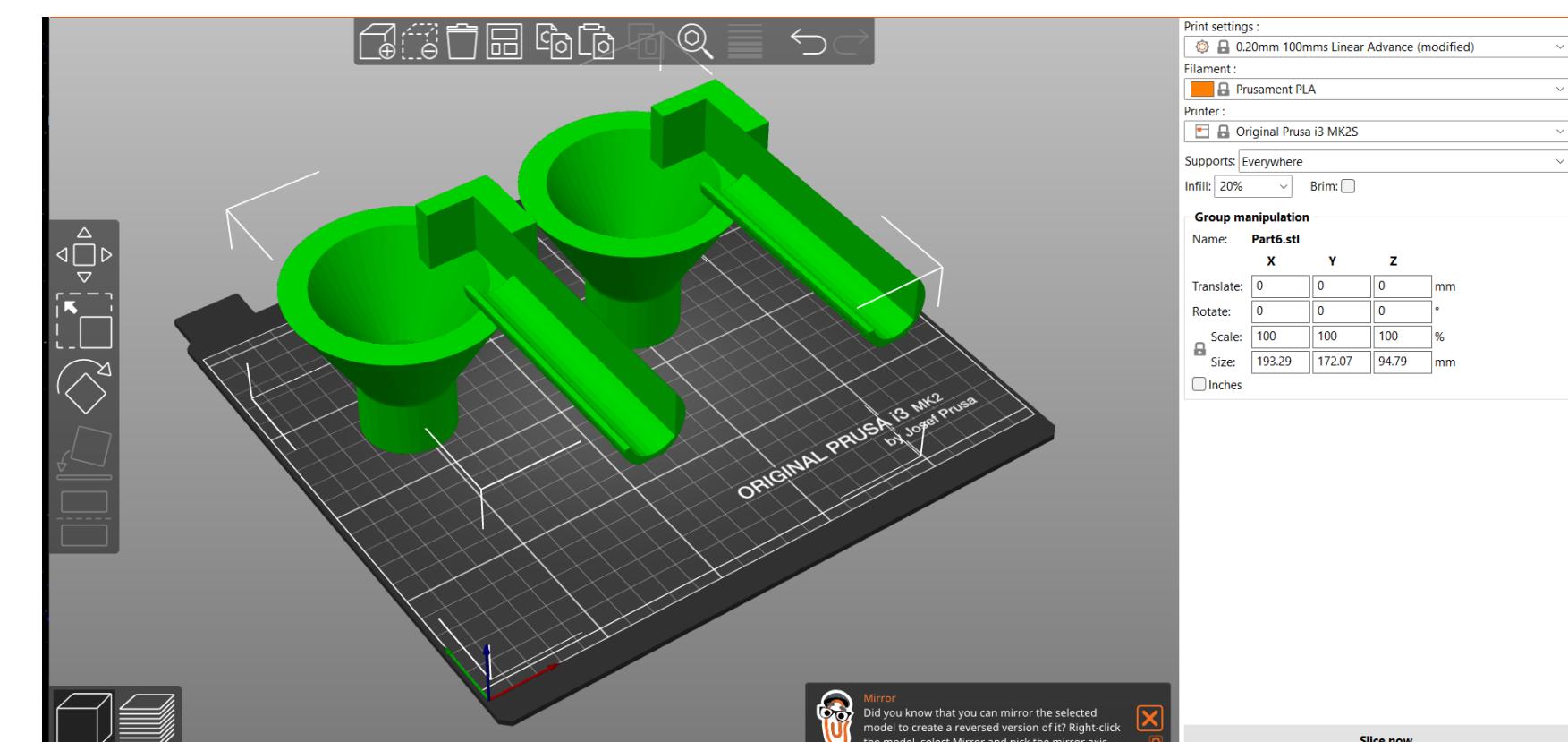
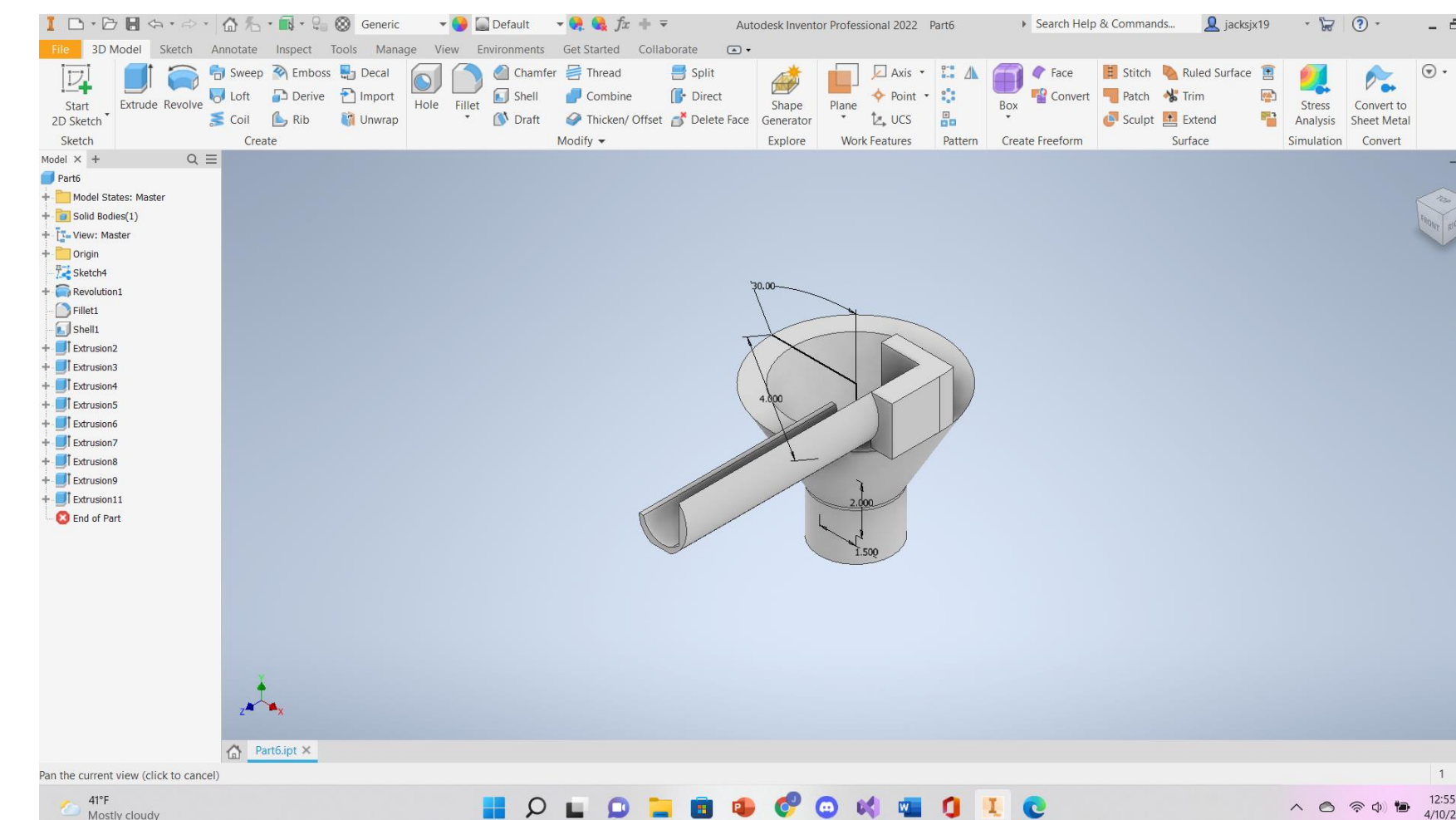
Methods

- Autodesk Inventor is a software used to design and create pieces of the Rube Goldberg machine.
- PrusaSlicer is a software used that imports files from Inventor, into Prusa, Prusa then prints said files with varying PLA filaments.
- Assemble each part in a way that it can execute its assignment or make the next event in the chain reaction to occur.
- Attach magnetic strips along the faces of each piece will allow the prints to stay along that metal wall.
- After each step in the process occurs, it will end with turning on a very pretty neon light.



Results

- Autodesk Inventor was used to design pieces for a Rube Goldberg project.
- Each print executes a different assignment.
- When it came to magnetizing each piece, magnetic strips was placed along a surface on piece in order to stick to the wall.
- Pieces are still being printed and will continue to grow in steps of the chain reaction.
- A marble has fallen onto a switch turning on a neon sign.



Literature cited

Swartz, By Clay. "How to Make a Rube Goldberg Machine." *Scout Life Magazine*, 4 Feb. 2022, scoutlife.org/hobbies-projects/projects/159359/how-to-make-a-rube-goldberg-machine.

Acknowledgments

Must give thanks Dr. Mark Pearson for everything he did this semester. Also, a special thanks to Dr. Matt Beaky, for his help throughout this whole process.

Further information

- Email: jacksjx19@juniata.edu
- Phone: 717-437-7282