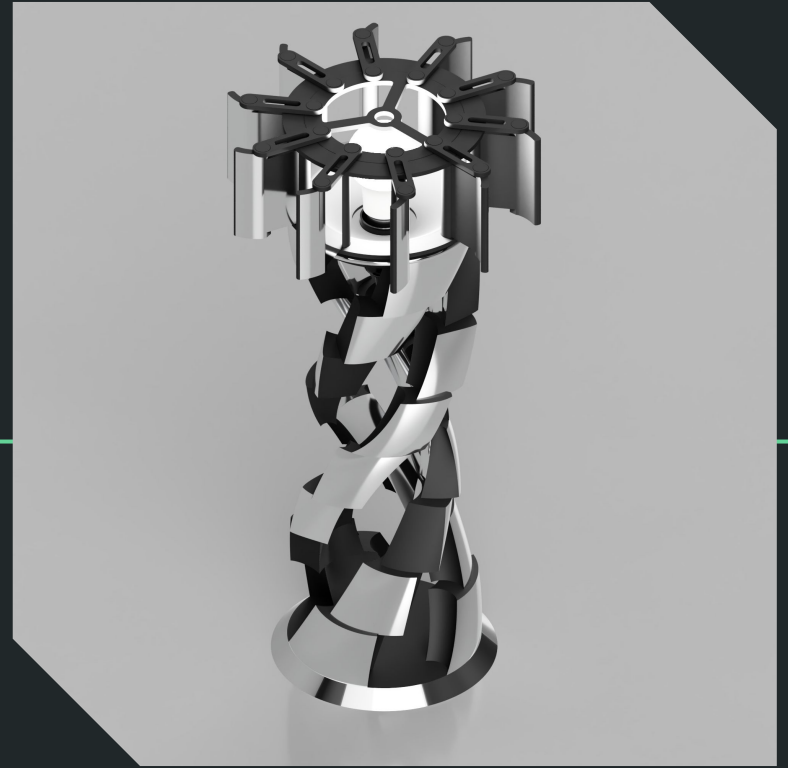
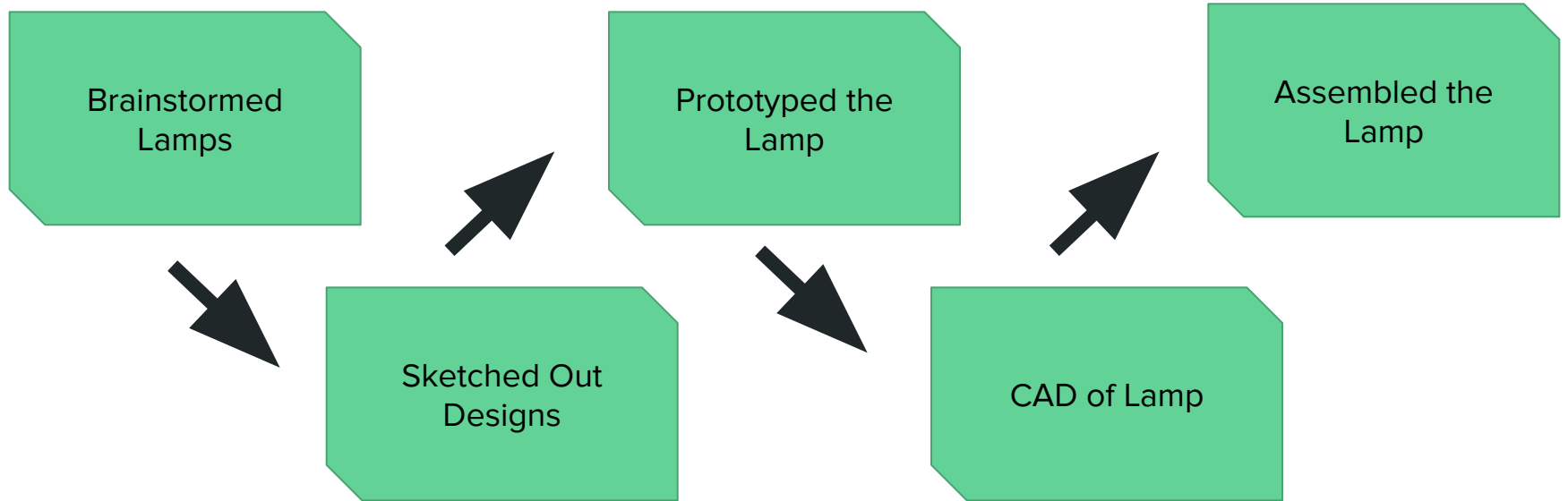


Lamp Project

Alex Racel



Design Process



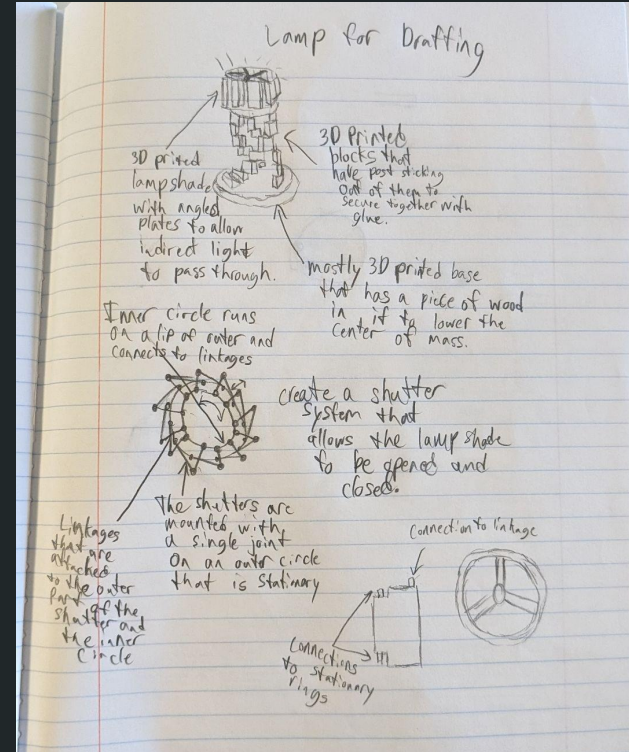
Inspiration

I was inspired by DNA for the shape, but decided to use 3 coils instead of 2 for structure.



Preliminary Sketches

In this stage I decided that I wanted my lamp to be constructed of 3 curved supports holding up the lamp with a shutter on top, and later changed the shutter by allowing for the manual adjustment of the shutter rather than being rigidly fixed.



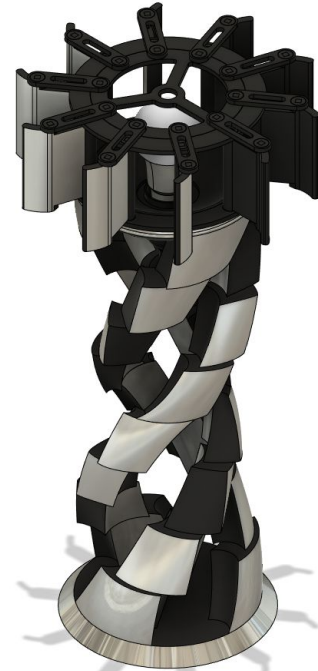
Prototype of Lamp

I created a prototype of the lamp out of cardboard with the rigidly mounted shutter which helped me adjust the final size of the lamp along with the choice to make the shutter adjustable.

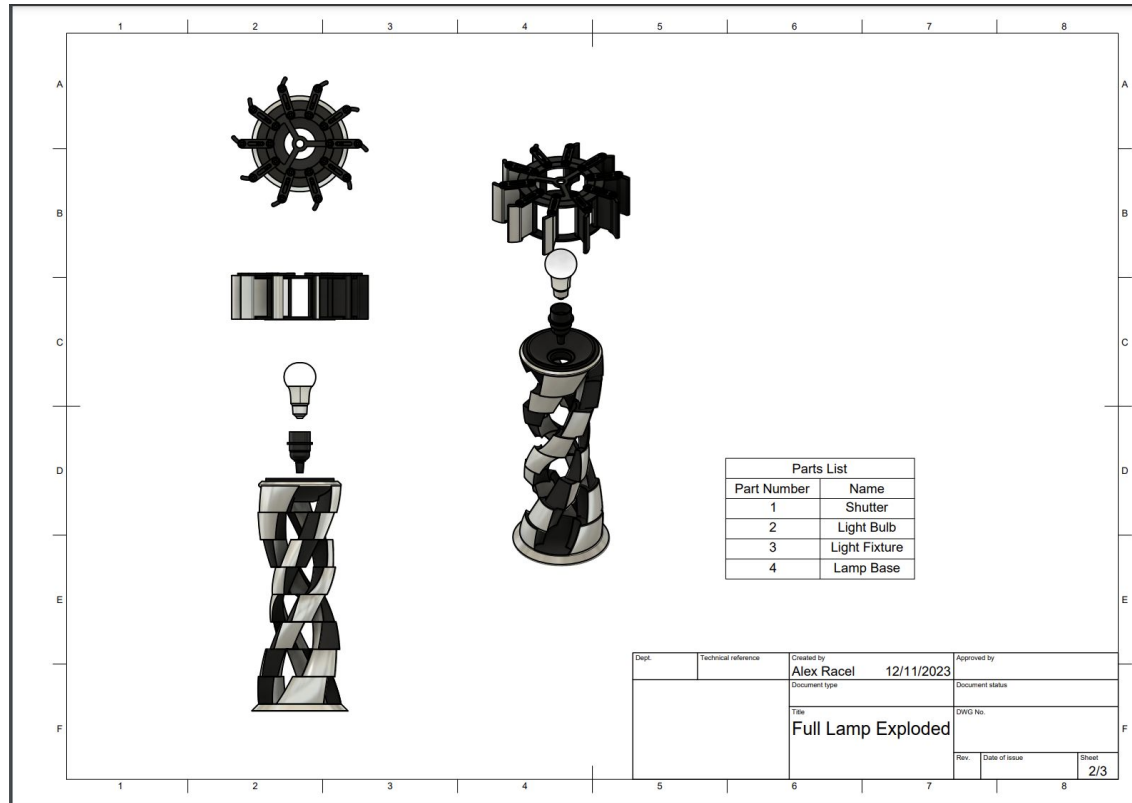


CAD of Lamp

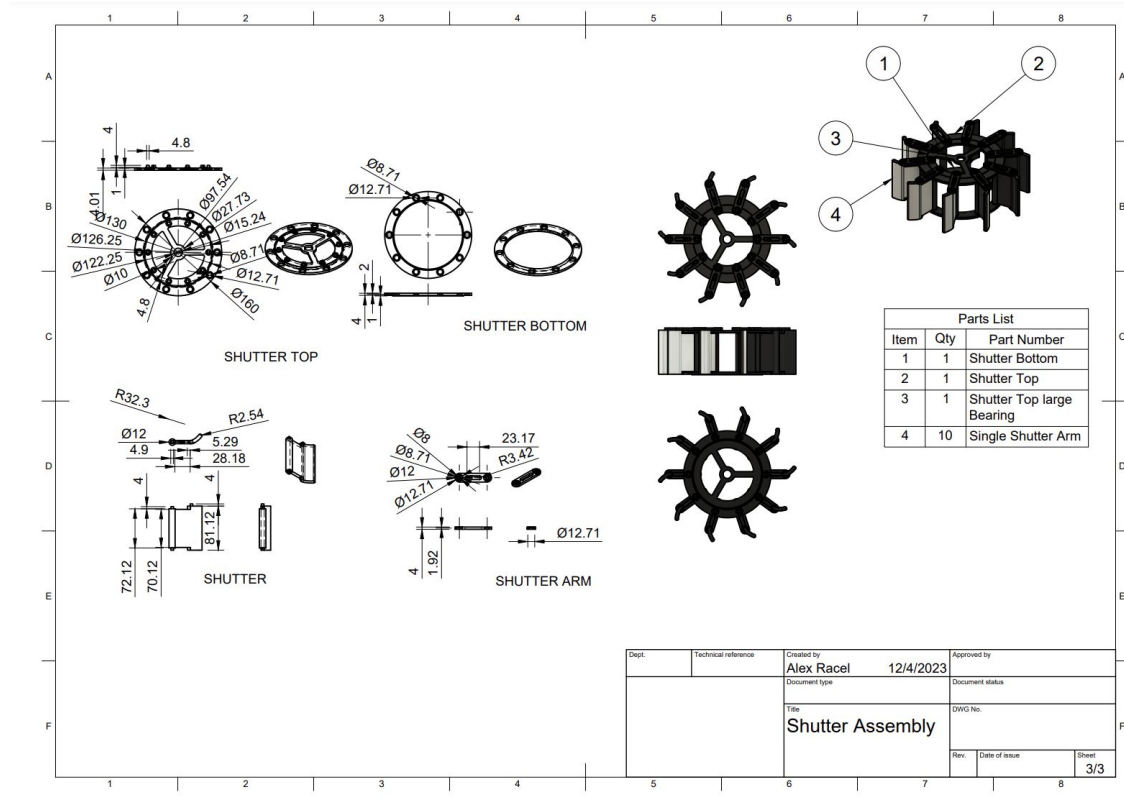
I created the design in CAD with the shutter system and all of the other parts with 3D printing in mind. At the time I planned on spray painting parts of the lamp silver as show on the render.



Technical Drawings



Technical Drawings



Final Lamp

I assembled the lamp, but had some difficulty since many of the pegs on the blocks kept on breaking off making assembly difficult.



Cost of Lamp

Bill of Materials

Quantity	Material	Cost
1	PLA Filament	\$15.29
2	Super Glue	\$3.99
1	Lightbulb	\$3.99
1	Fixture	\$8.34
	Total	\$35.60

Labor Estimates and Machine Time

# of Hours	Type of Labor	Cost
24	Design	\$1,080.00
1	Material Planning	\$45.00
5	Material Testing	\$225.00
4	Managing Printer/Support Removal	\$180.00
31	3D Printing	\$31.00
1	Sanding	\$45.00
5	Assembly	\$225.00
71	Total	\$1,831.00

Total Cost + 40% Gross Profit
\$2,613.24

Reflection

Overall I would say that the project was a success, but there would be some things that I would change if I were to redo it. I would change how all of the blocks are connected since the pegs on them broke off constantly, making assembly a lot more difficult than it should have been. I would switch to pegs that would be printed separately, or wooden dowels to avoid it breaking. I would also update the shutter system to make it work better than it does currently, since it doesn't move easily like it should.