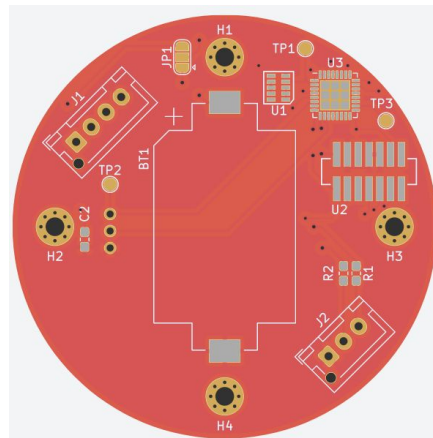
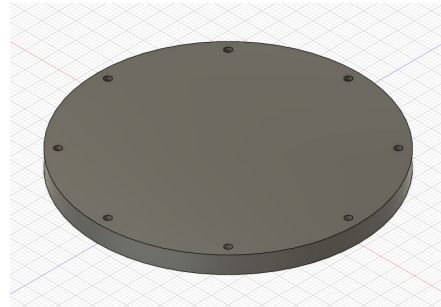
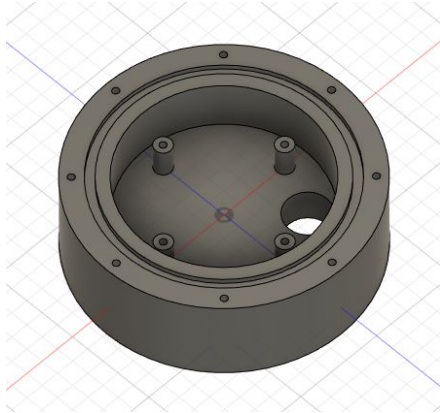


Prototype Cost Estimation

Background

For the design, we made sure to account for all mounting necessary. The four holes inside are ready for screws that mount the PCB to the base. The base will be 3D printed with a basic plastic material. It does not have to be anything more as plastic will last a while in basic outdoors conditions. The lid will be laser cut from clear acrylic. It must be clear to allow light through for the light sensor. All of the smaller holes in the lid and base are used for connecting the two and including some type of material to seal the two together, whether it be an o-ring or some type of glue. The PCB layout is the same layout that was designed in Lab 8.



Cost Analysis

Sculpteo

	5	20	50	100
Base	\$355.60	\$1,890.00	\$4,725.00	\$9,450.00
Lid	\$14.35	\$40.00	\$92.50	\$180.00
Total	\$369.95	\$1,930.00	\$4,817.50	\$9,630.00

Shapeways (not including 15% edu discount) (does not offer laser cutting, prices for 3D printing)

	5	20	50	100
Base	\$251.95	\$1,007.80	\$2,519.50	\$5,039.00
Lid	\$78.90	\$315.60	\$789.00	\$1,578.00
Total	\$330.85	\$1,323.40	\$3,308.50	\$6,617.00

Macrofab

	5	20	50	100
PCB	\$143.77	\$532.55	\$834.45	\$1,092.39

The above tables show prices to obtain each part from the different companies that offer 3D printing, laser cutting, and PCB printing services. For each company, I chose the most cost effective solution which involved prioritizing cost over speed. For most of the companies, it would take around 2-4 weeks to receive the components ordered. Speed is not as important of a factor when we are trying to make sure the boards are as low-priced as possible.

Conclusion

Based on the various prices, the best and cheapest way to obtain the base + lid combo would be to use Sculpteo for the lid, Shapeways for the base, and Macrofab for the PCB. The price for Shapeways would also be reduced by taking advantage of the 15% education discount, which was not included in the above graphs. Adding this sum up, with the education discount included, the total for 100 light sensors would be \$5,555.54. The price per unit would then be \$55.55.