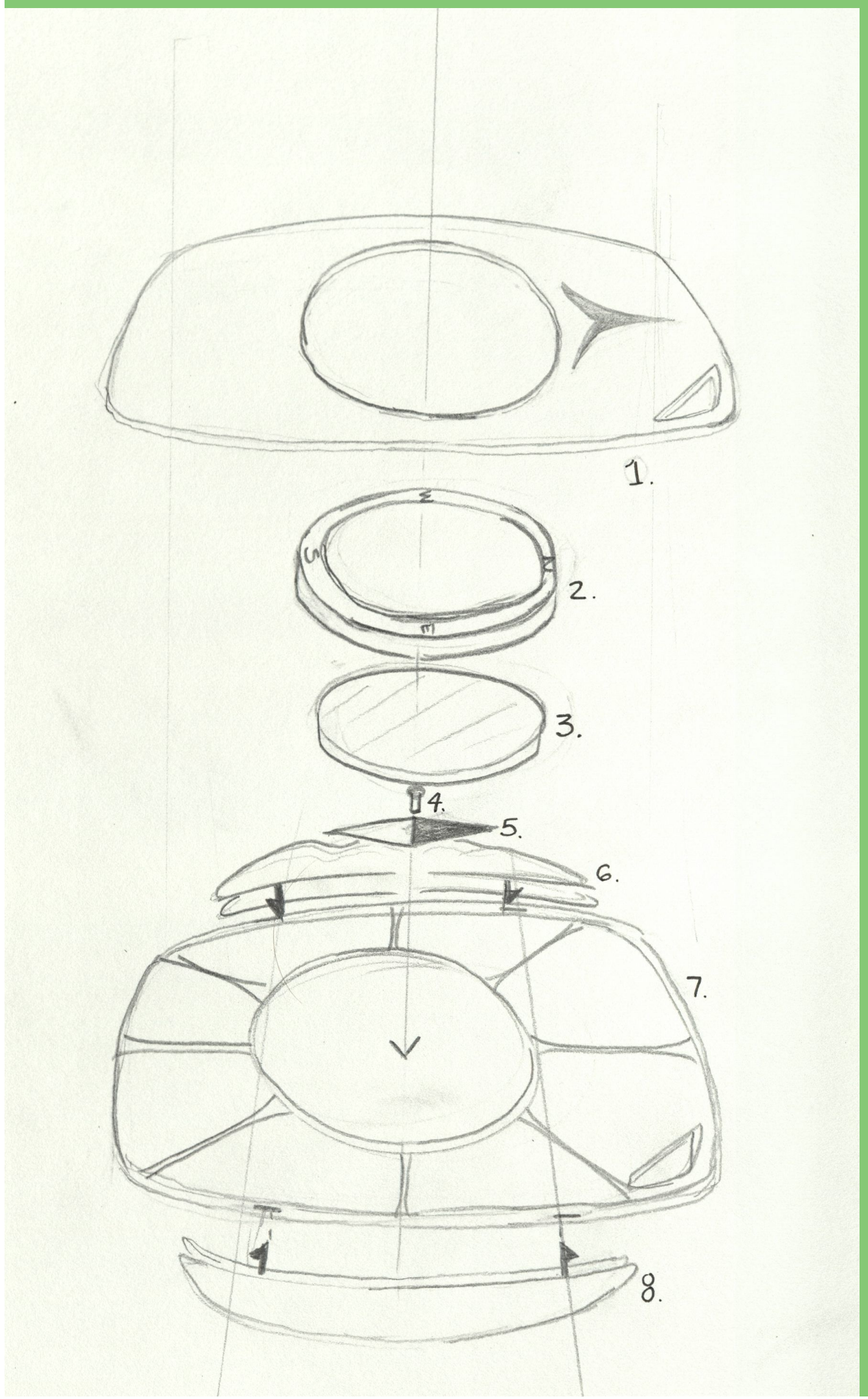
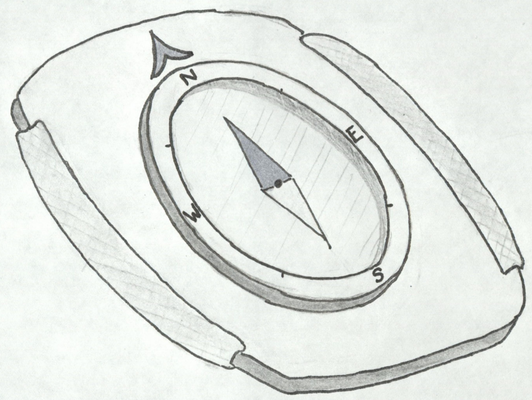
Bill Of Materials And Exploded View

Part Number	Part Name	Material	Weight	Okala Impact Mat.	Process	Okala Impact Pro.	Color/finish	Notes
1	Front Plate	Zinc	.4lbs	14	Die Cast Zinc	5.6	Grey/Anodized	N/A
2	Compass Declination	Zinc	.2lbs	5	Die Cast Zinc	2.4	Grey/Anodized	N/A
3	Water filled housing	PMMA	.1lbs	0.87	Injection Mold	1.3	Clear	N/A
4	Rotational Pin	Zinc	.01lbs	N/A	Injection Mold	0.2	Grey	N/A
5	Compass Pointer	Iron	.001lbs	0.1	Die Cast Iron	3	red/grey	N/A
6	Plastic Grip	HDPE/Poly	.1lbs	1.2	Injection Molded	1.5	Black	N/A
7	Base Plate	Zinc	.4lbs	14	Die Cast Zinc	5.6	Grey/Anodized	N/A
8	Plastic Grip	HDPE/Poly	.1lbs	1.2	Injection Molded	1.5	Black	N/A

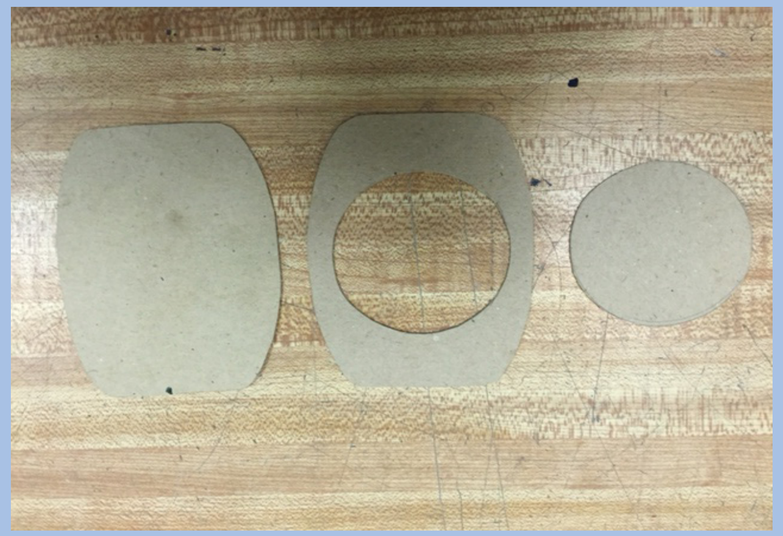


Assembled and finished Final drawing

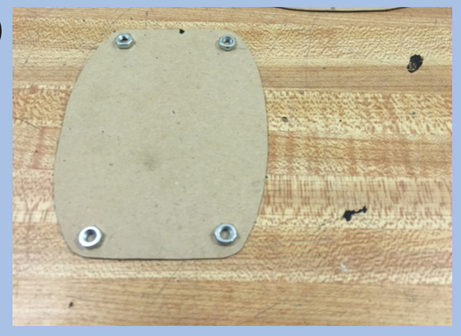


Zinc Comapass
Paper Model

In addition to being light-weight and durable, zink Holds No Magnetyic Properties, Making it a great fit for a Compass housing. So for this Project I Set out to make a sheet material prototype giving me an idea of what the product might look like and the parts involved. I found the Three main parts included to be the **Baseplate (1)**, The compass **frontplate (2)**, and the 360 degree, turnable **Compass (3)** itself.



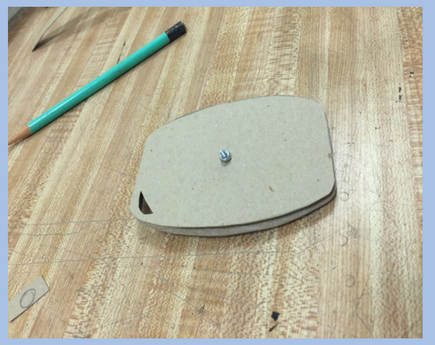
(1)

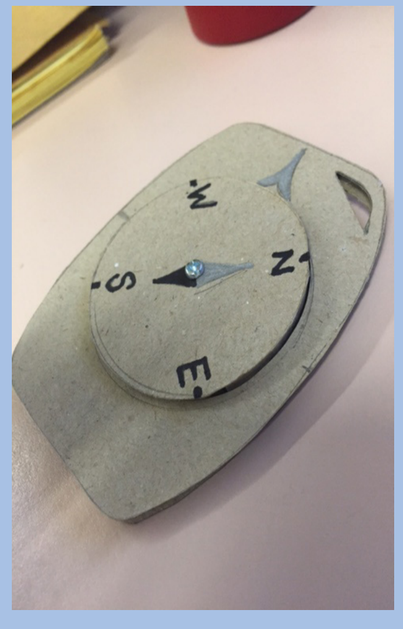


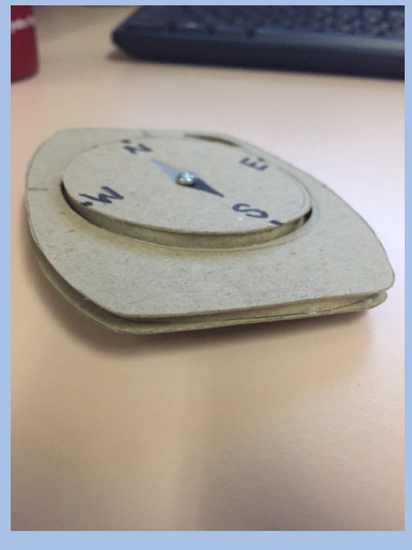
(2)

(3)

The finished Product turned out to be a Good representation of my thoughts going into the prototype. A small screw through the center allows the compass to turn for map cardinal direction and declination settings. I added four screws along the outter edges and glued both pieces together to create the 3D effect and stability of a real die cast plate of zink. I then added slighly more depth to the Turning Comapss in order to give it the real turning ability and feel of a real compass. Finishing off with the slit in the top right corner for a neck/wrist strap, THe final design turned out to be very aeshthetic and have the feel of a real comapass.

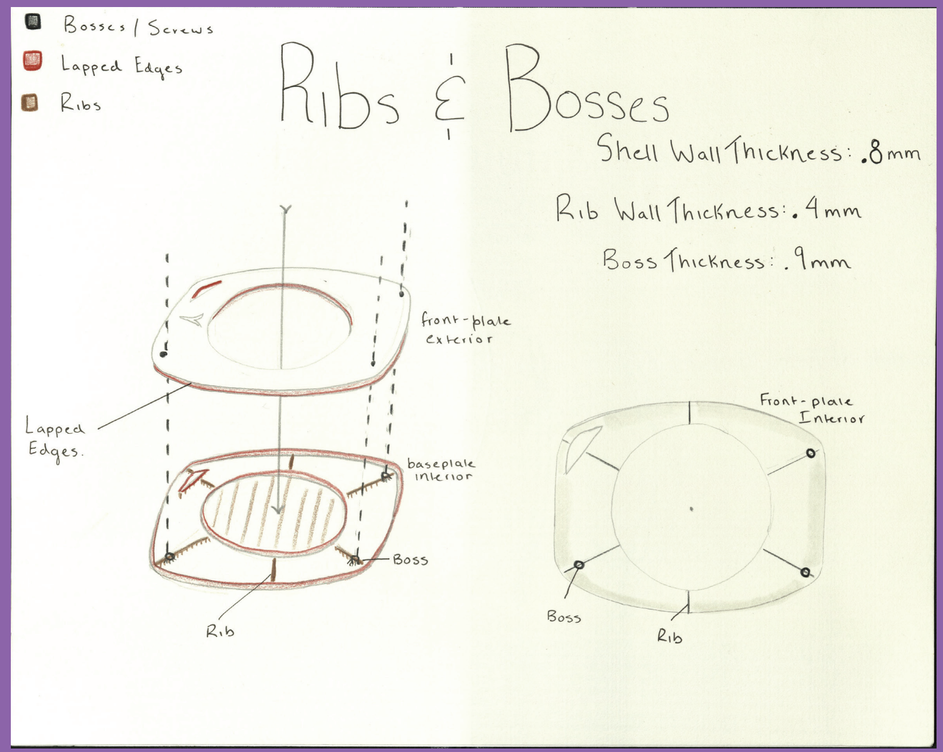


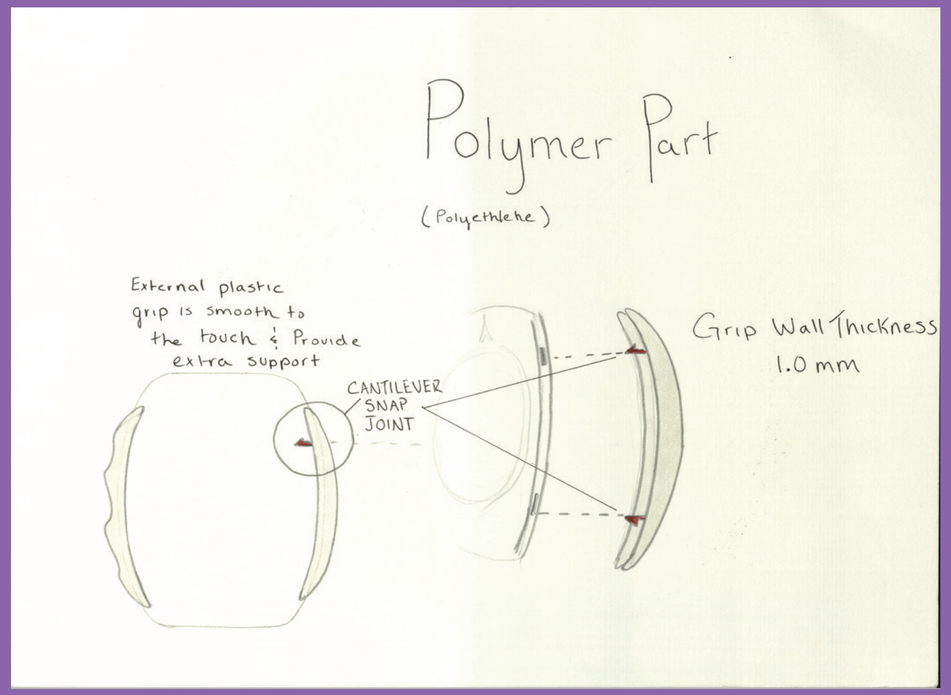


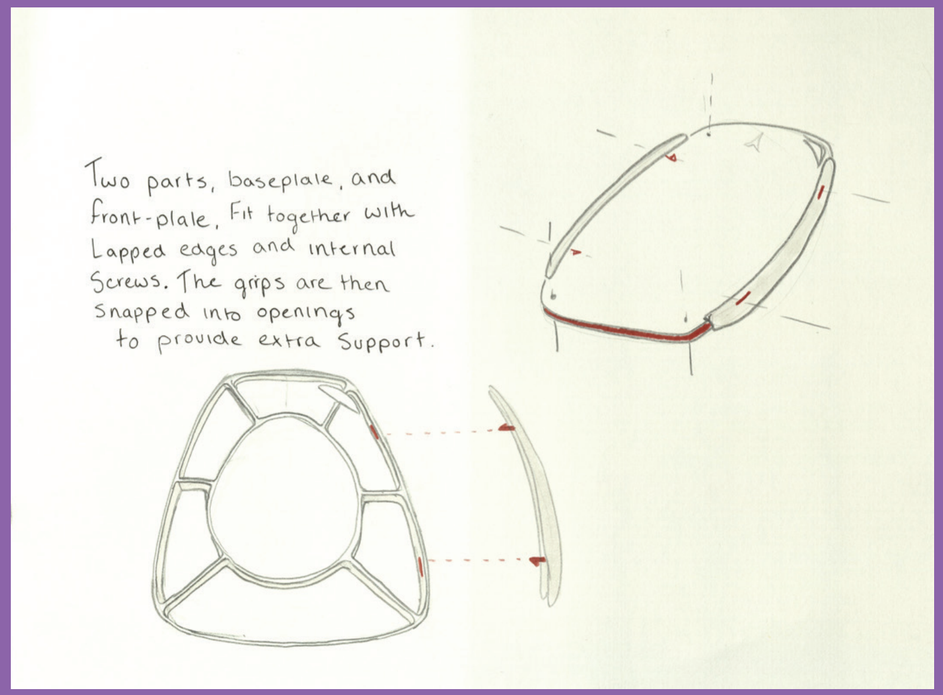


Design Continued

In the top right sketch, as you can see, I initially thouhgt it necessary to have four screws in order to hold the two plates together. These screws would have stuck out like a sore thumb. So instead, I decided it would would add two grips that would run along the outside edges as seen below. Held in with cantilever snap joints, these two grips made it possible to hold the piece together with no screws and a smooth design. I found polyethylene would be a suitable material givin it's strenth and waxy feel. These grip pieces would be manufactured though injection molding and finished with a rough texture for more grip.



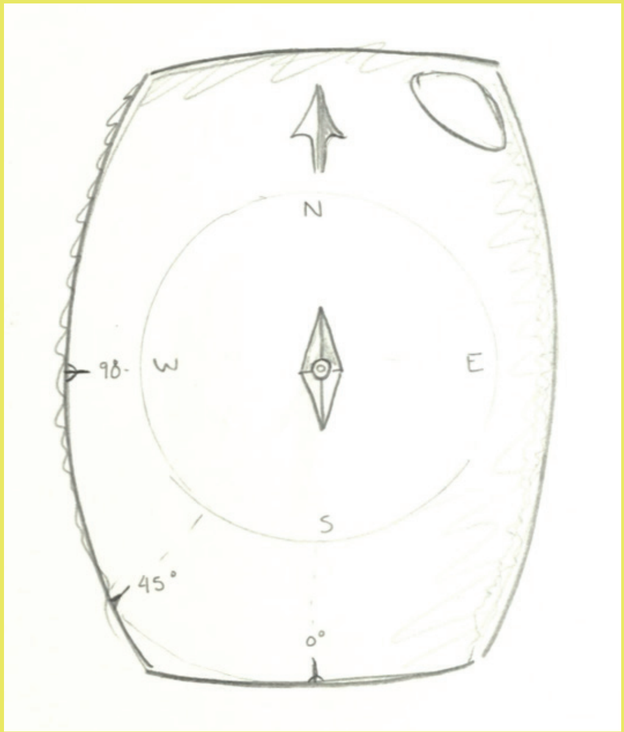


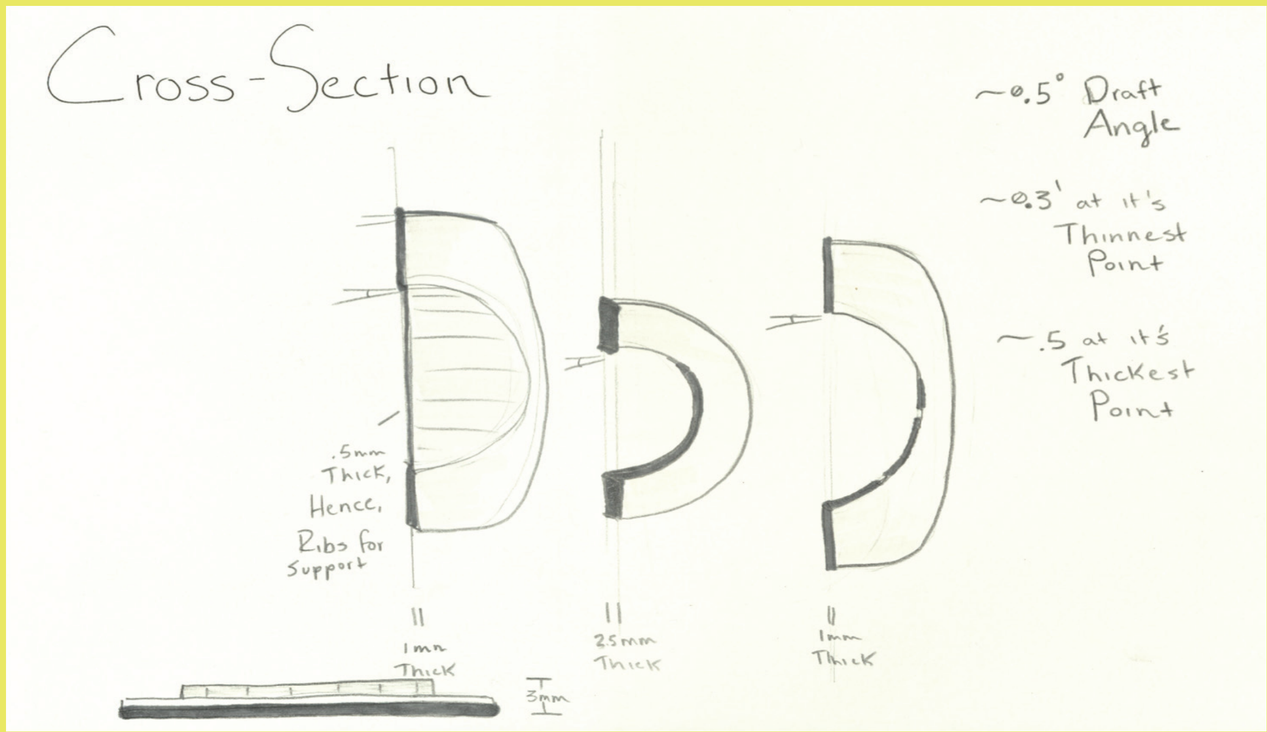


Overview

For this project I set out to design a compass that would be Durable, Aesthetic and Ergonomic. I started with a shape I thought would fit nicely in the hand as you can see in the first sketch to the right.

For the complexity and detail of the individual parts I concluded that the best fit manufacturing process for this product would be die casting.





Zinc was a great fit for this process of die casting being non-ferrous and having a lower melting temp. I wanted my design to have rounded corners as well as a consistant wall thickness of 1mm which is ideal for die casting parts.