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Industrial Designer

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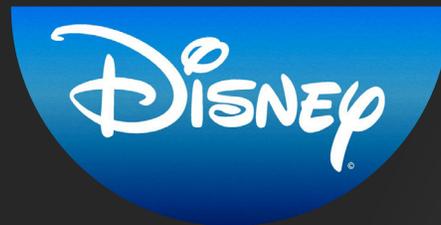
**STAR  
WARS**  
**LIGHTSABER**  
Legends

# Star Wars brand today

has 2 categories

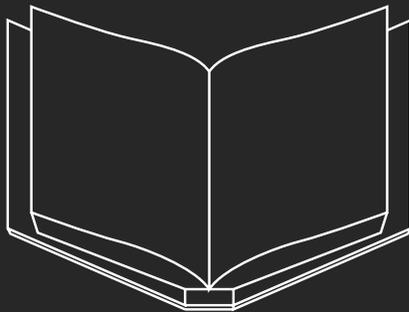


**Before 2012**  
stories are now unofficial  
“Legends”

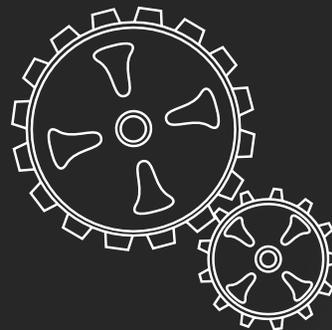


**After 2012**  
official stories  
“Canon”

- The Lightsaber is the most iconic single item in the Star Wars franchise, and **there are no toys focusing on the factitious internals.**
- This type of Lightsaber toy is not currently on the market, a lightsaber with internal Syfy mechanisms designed for a young audience.
- The goal for the toy is to inspire Mechanical thought in an iconic brand staple while paying respects to the older Star Wars stories.



Tied in with Star Wars Lore



Mechanically Functional



Fun to Tinker and Play with

# Star Wars Lightsaber Lore

“... Your father’s Lightsaber, the weapon of a Jedi Knight. Not as clumsy or as random as a blaster.”  
-Obi-Wan Kenobi

## Lightsaber Combat Forms



**Form I**  
Primal  
Instructional

**Form II**  
Precise  
Balanced

**Form III**  
Defensive  
Resilient

**Form IV**  
Aggressive  
Acrobatic

**Form V**  
Aggressive  
Powerful

**Form VI**  
Balanced  
Diplomatic

**Form VII**  
Passionate  
Furious

## Views of the Force



Light-Side Practitioners

Dark-Side Practitioners

### White

The purest spiritual view of the light-side of the force. The view is passive to the cosmic flow of the force.

### Yellow

A view of the force that understands both the physical nature and the spiritual power of the force.

### Green

A view of the force that is focused on the living force that dwells in all living things.

### Blue

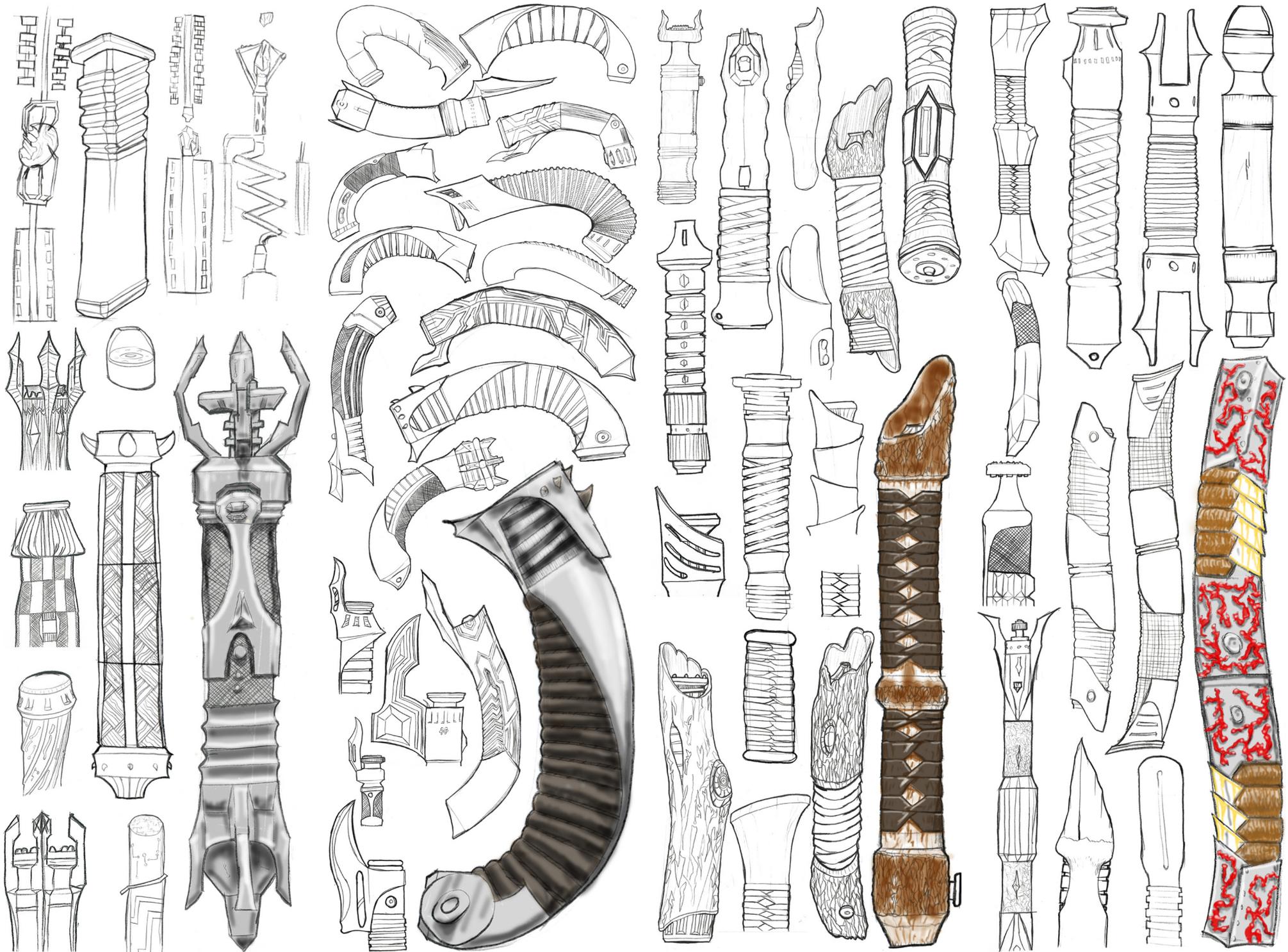
Focusing on the physicality of the force in a light and tangible way.

### Violet/Purple

A view of the force that understands the necessity of emotions, yet still understands the need to balance emotions with serenity.

### Red/Crimson

Practitioners immerse themselves in raw emotion as a way of manipulating the force to their will instead of following the flow of the force.



# Decisions and Execution



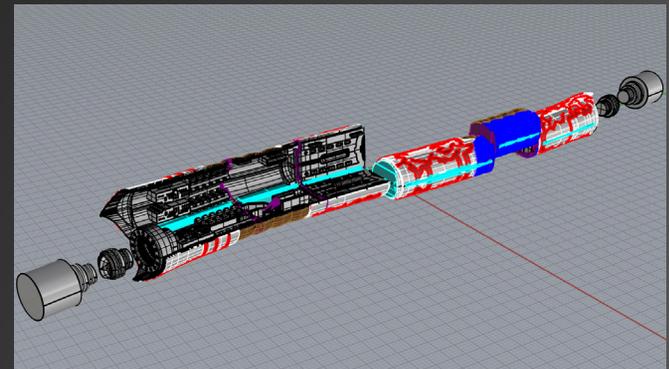
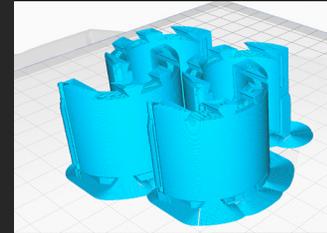
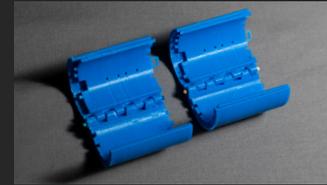
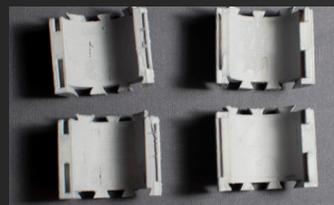
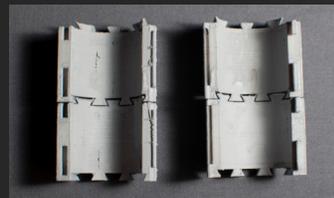
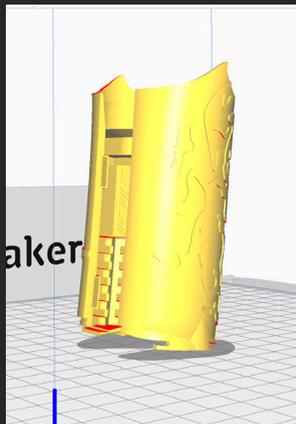
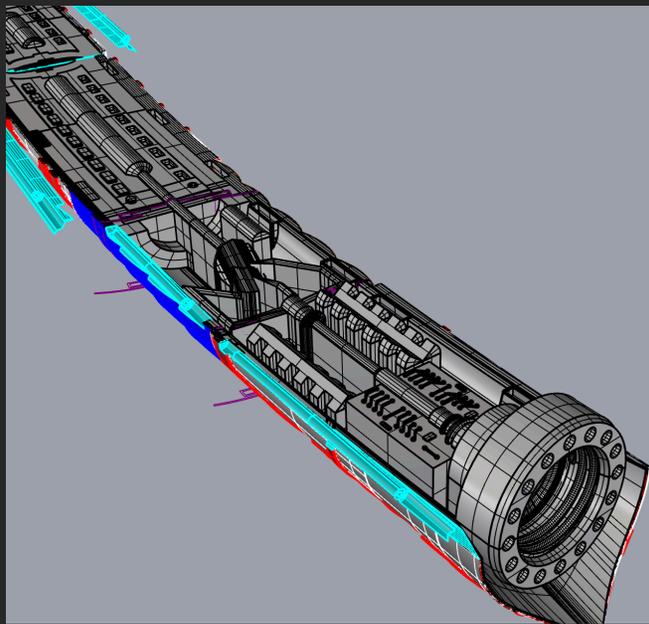
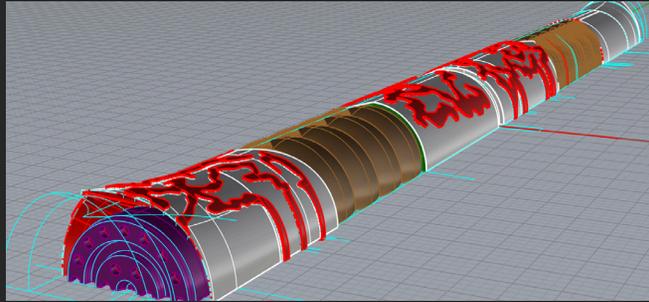
The lightsaber combat style of this new character, Elana Vev, is very similar to the well liked Clone Wars/Rebels character, Ahsoka Tano.

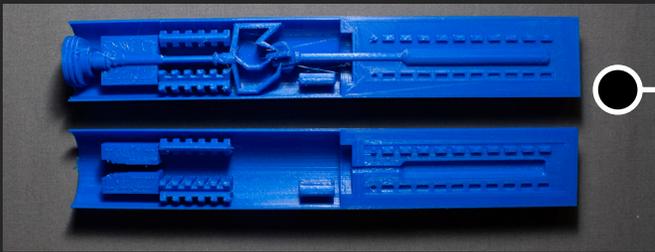
Twin blades are generally held behind Vev. This style is more common in the Old Republic Era.



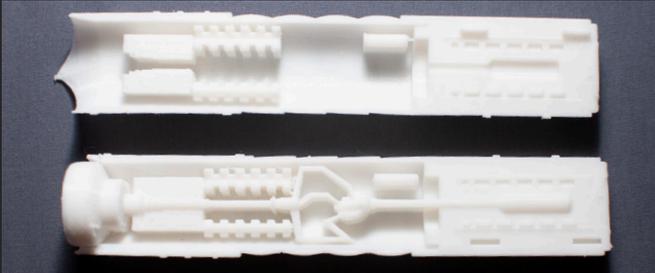
General dimensions are derived from Katana hilts and Ahsoka Tano's Lightsabers.

A lightsaber with a double-sided configuration and the ability to be split in half leads to a strong combat advantage. A small Shoto blade and one primary blade are needed for this combat style.





Many iterations of the surface modeling were required to understand the scale and functionality.



During COVID-19 quarantine, the work on 3D printing was completed.



Creating a system to connect the sections both vertically and horizontally required more iterations.



Each lightsaber is separated into 3 sections; battery (power), crystal (focus power), and emitter.



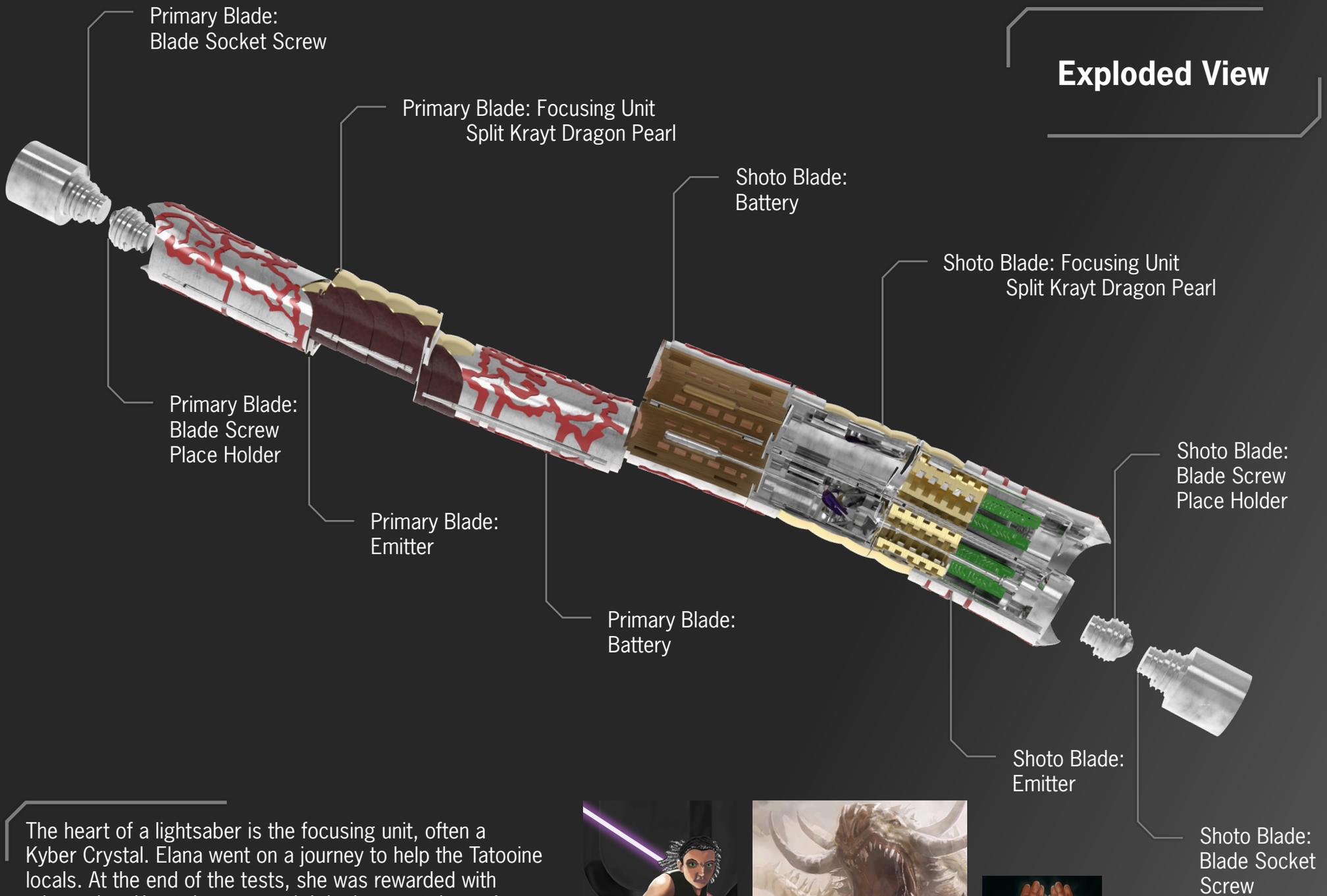
Detail painting was required.



The secondary lightsaber in the product line was a New Republic era Jedi, Lowbacca.

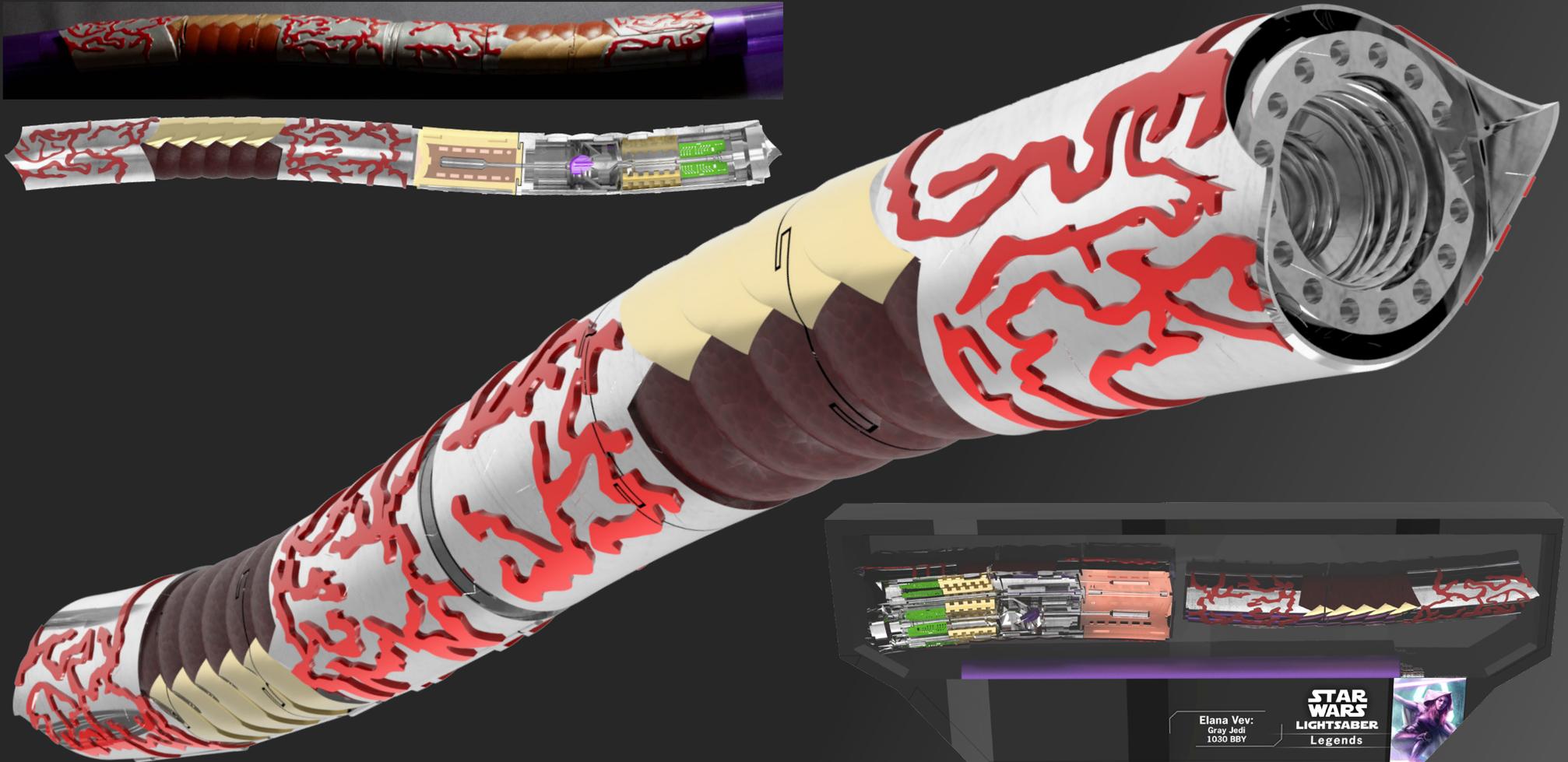
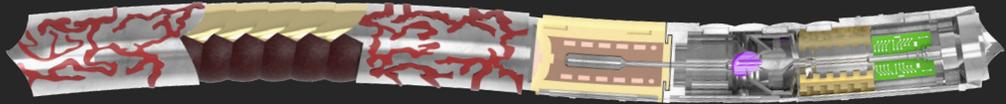
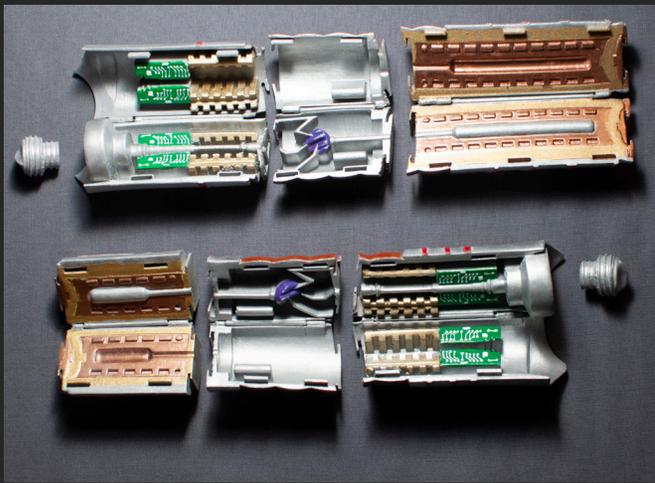


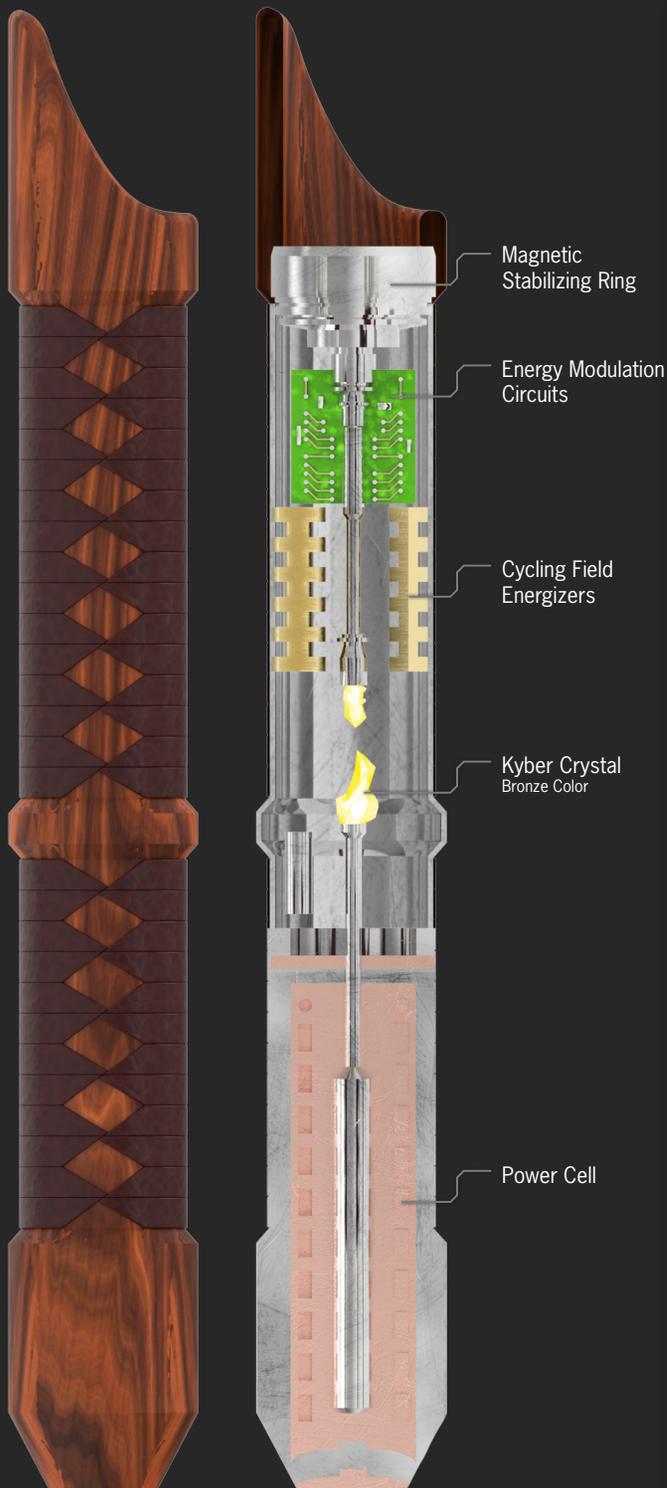
# Exploded View



The heart of a lightsaber is the focusing unit, often a Kyber Crystal. Elana went on a journey to help the Tatooine locals. At the end of the tests, she was rewarded with a legendary Krayt dragon pearl. It is the great dragon's gallstone, a vessel for the force. She picked it up and it split in half, one half for each lightsaber.







## Lowbacca: Light Side 55 ABY

Lowbacca, meaning dutiful, was a Wookiee and the nephew of the famed rebellion fighter Chewbacca “Chewy”. Born on the planet of Kashyyyk, Lowbacca studied computer sciences and Kashyyykian biology. He was good friends with Jason and Jena Solo, Han Solo and Leia Organa Solo’s twins. He trained as a padawan Jedi at Luke Skywalker’s Jedi Praxeum on Yavin 4, where he learned about his rare force-sensitive powers. A Wookiee is granted force-sensitivity only once every hundred years. He was a warrior that enjoyed the heat of battle. He fought during the Yuuzhan Vong War (invaders from another galaxy), the Dark Nest Crisis (an ancient insectoid threat in the expansion regions) and in the Second Galactic War (a second rising of the Sith). With a bronze blade, leather wrap and wood hilt, his saber is exotic as is his character.

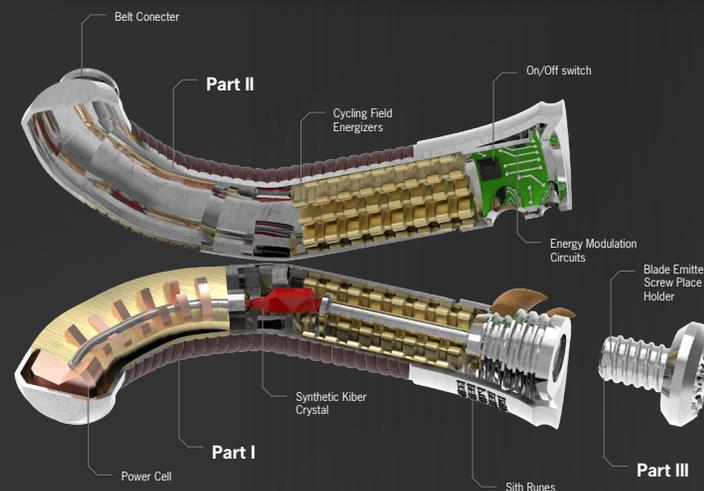
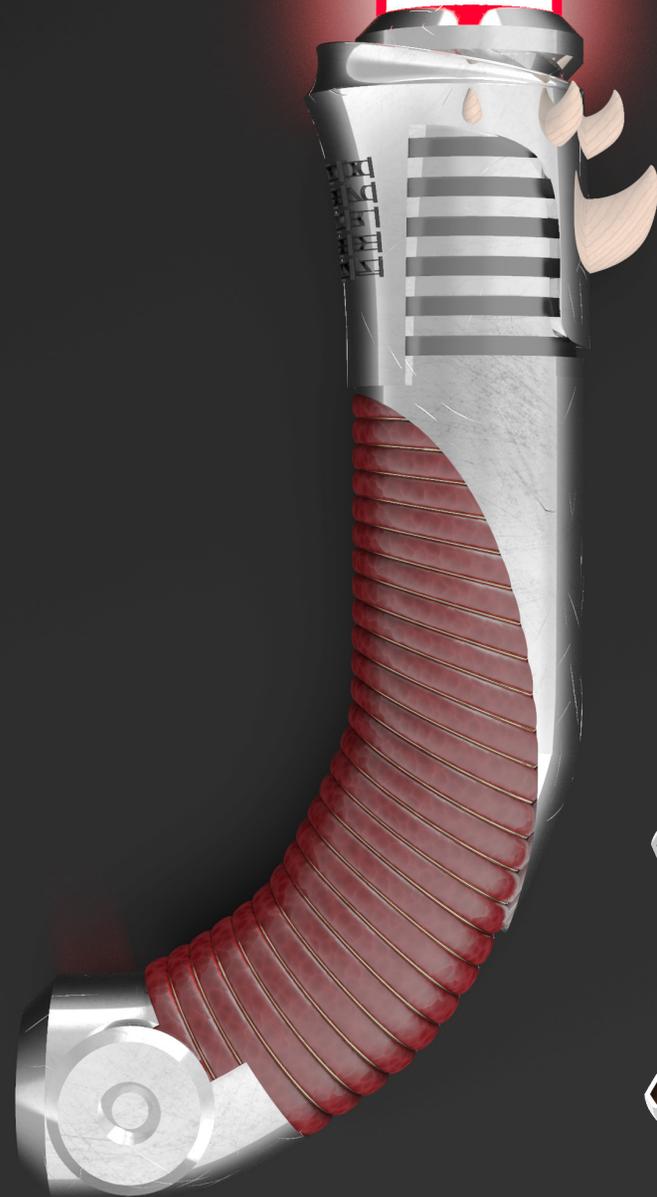
# Darth Bane

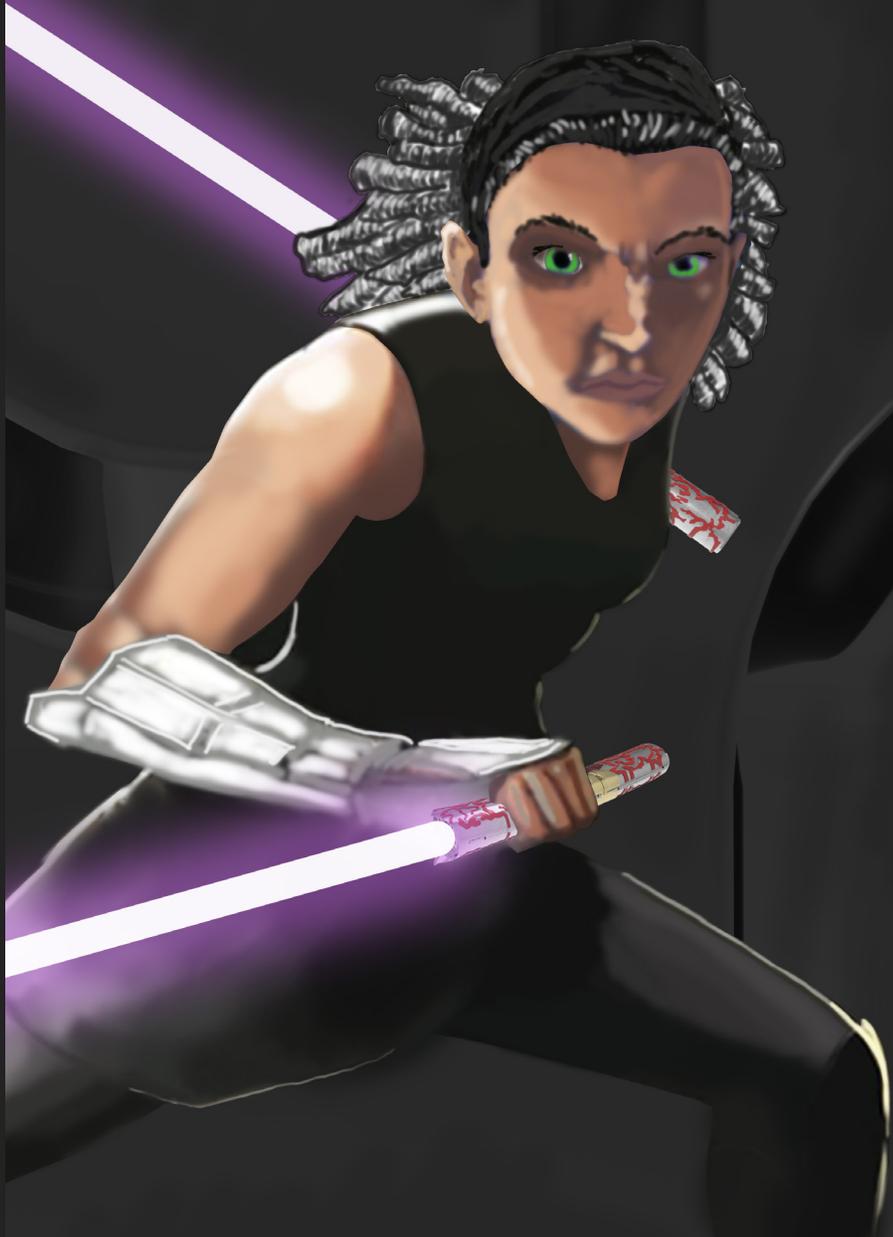
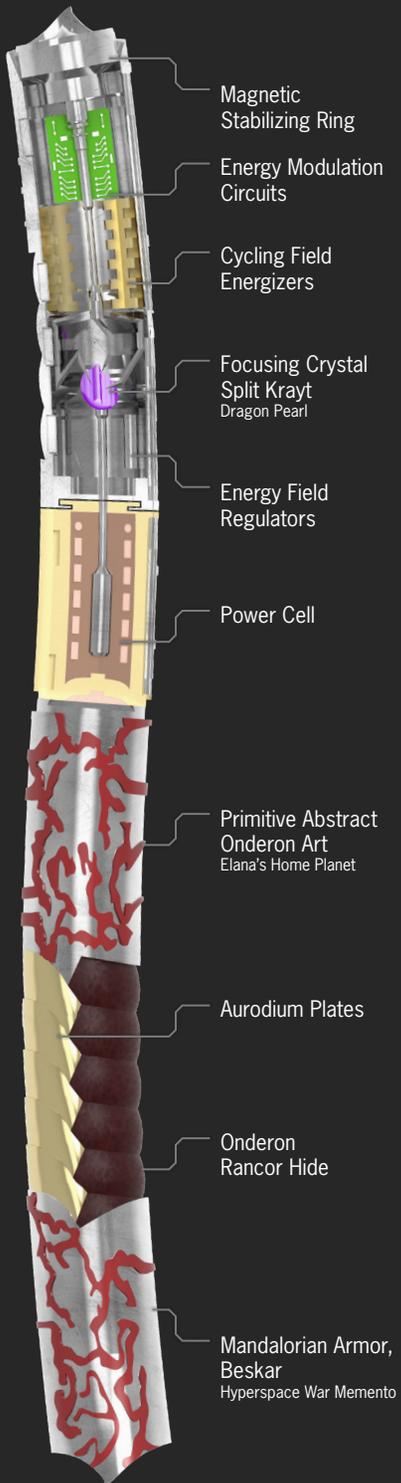
## Master of the Dark Side

### 1000 BBY

A thousand years before Anakin rose as a Jedi and fell as a Sith, Darth Bane was the Master of the Sith Order. He was the dark and twisted character that killed all other Sith in the galaxy and established the only rule of the Sith Order. Only one Sith Master and one Apprentice, no more, no less.

The rule of two was his greatest Legacy, next to his earth-shattering power. What made him an interesting figure was how he chose to do battle. Darth Bane didn't attack the Republic's forces openly, but rather used manipulation and cunning to put a Sith, at some point in the future, in a position to lead the Republic. This became the foundation where Darth Sidious grew to power and was able to create the Empire out of the Republic.





## Elana Vev: Gray view of the Force 1030 BBY

A thousand years before Darth Vader rose to power, thousands of Jedi and Sith battled for control of the galaxy on the planet Ruusan. The forces at play would scar the planet in the force forever. Elana Vev was a Jedi Master on the front lines of combat. Holding off the ancient enemy of the Jedi, her padawan, Nabeb, fought beside her pushing back wave after wave of Sith troopers and Dark Lords of the Sith. Nabeb was strong and skilled, but against the growing darkness in the Sith, he fell. Elana, Jedi Master, failed to protect her Padawan. Overwhelmed and outnumbered, she picked up her fallen padawan's lightsaber, and let the force flow through her body. Creating a swathe of purple and blue light she pushed the darkness back. Jedi Master Elana Vev succeeded, but she did not feel victorious.

The war ended on Ruusan by the Sith's Thought bomb that killed the last of the Sith and some of the Jedi. Elana was far enough from the Thought Bomb to stay alive, but she felt a strong dark presence in the force survive the bomb. The Jedi Council dismissed her words about a Sith surviving. She tried to get more Jedi to her cause of finding this last Sith. The Jedi Council thought she was creating a panic within the Republic. They removed her from the order because they feared the panic that would ensue if even one Sith Survived. Upon leaving the order, she made it her responsibility to track down and destroy dark side users at places like the night sisters on Dathomir, powerful dark side sorceresses, and the Shadow Academy on Umbara, deadly assassins that used the dark side as a cloak to hide within.

# Anger Management Computer Mouse



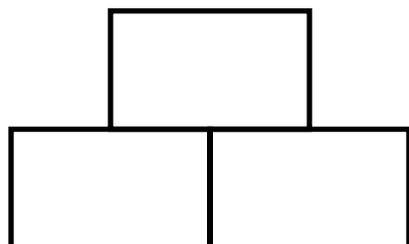
## Untapped Target Market

The feature that is not on the market as of now is a computer mouse that is capable of being thrown like a stress ball or Nokia cell phone.

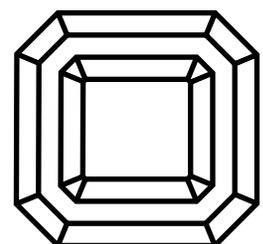
## Product Needs



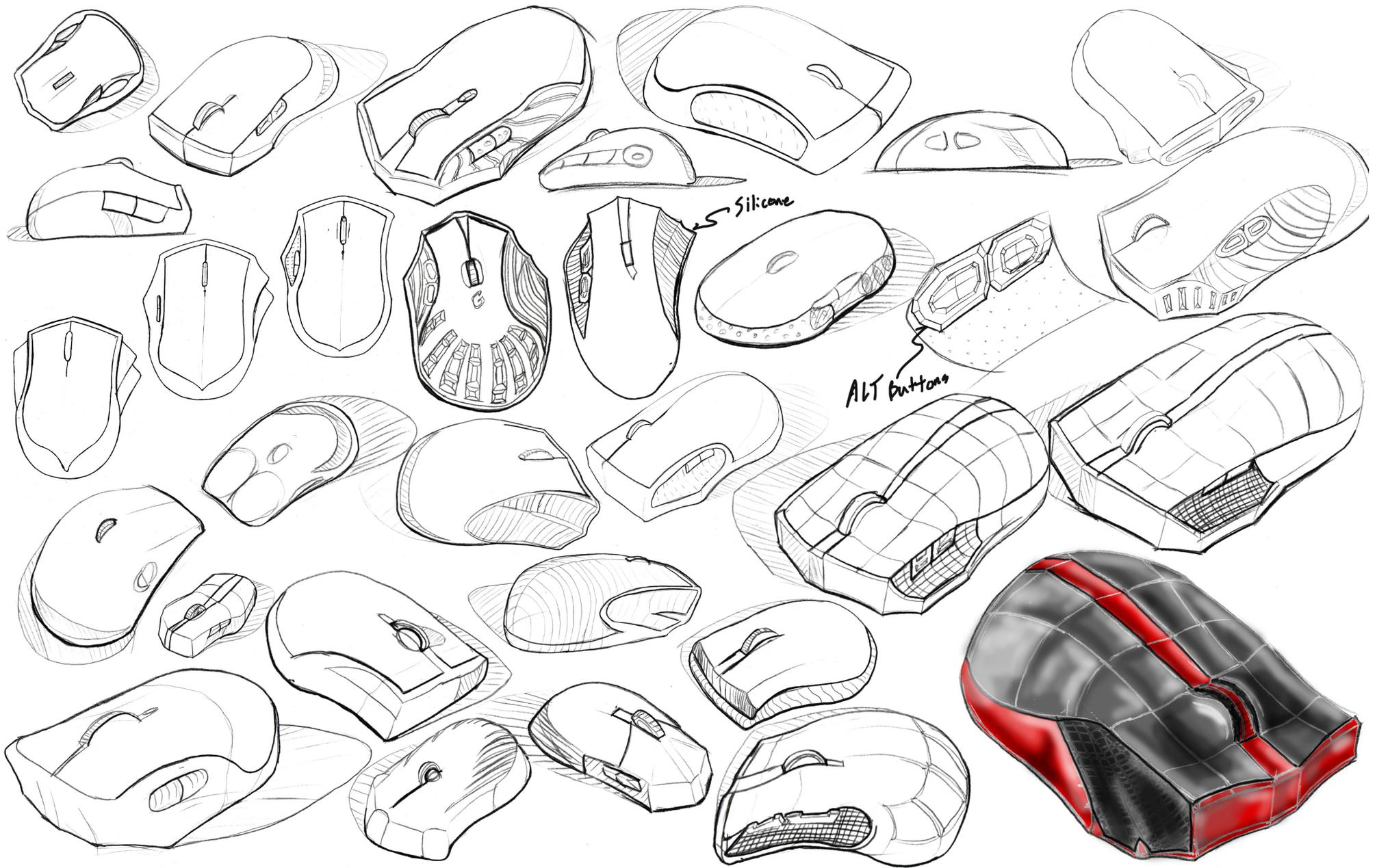
Ergonomic



Strong Build



Electronic Gaming Look

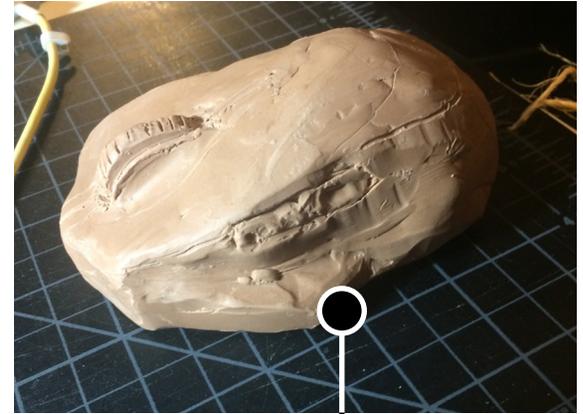




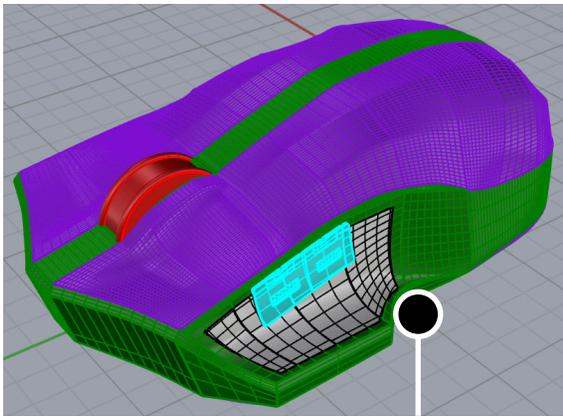
Taking apart a Bluetooth mouse gave the dimensions and restrictions for the internal mechanisms.



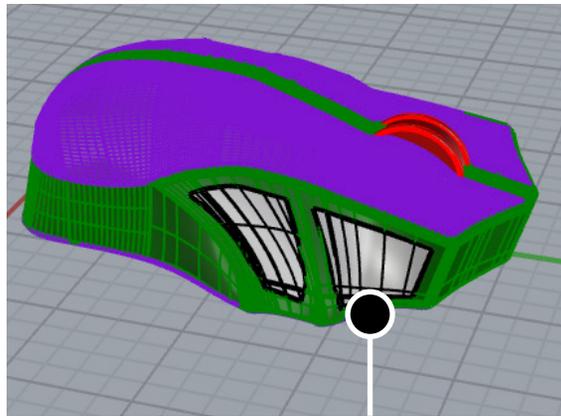
Working in clay gave a loose understanding of the different approaches possible in making a computer mouse.



Finding out that the ALT buttons need to be placed at the joint of the thumb informed the proportions of the sketches.



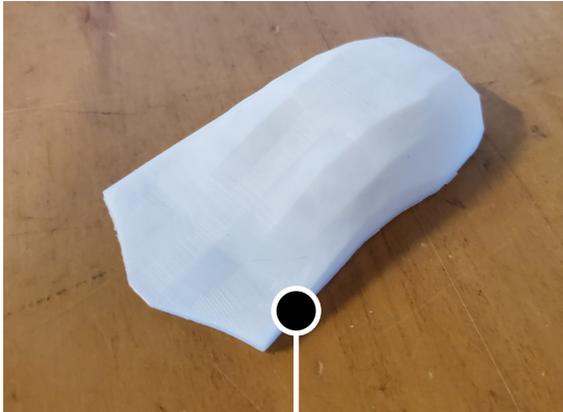
Modeling silicone inserts for thumb rest needed to slight but not minimal or the thumb slides on the mouse pad.



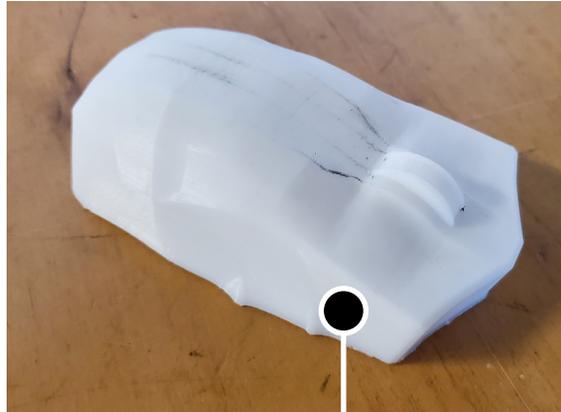
Two silicone inserts were needed to hold the ring and pinkie fingers in place without sliding.



Priming and sanding the model in different pieces helps the appearance model painting and create part lines.



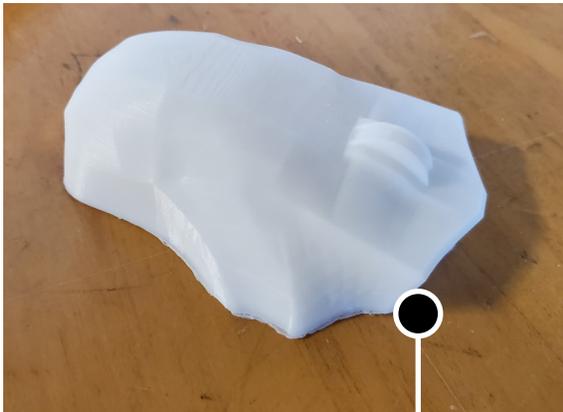
Choosing the best geometric design for the palm swell required testing for hot spots.



Making this for right-handers means having a comfortable place for the last two fingers.



The finger wells needed more hills with deeper valleys for better dexterity.



More prints were needed to apply the properly scaled finger wells.



The left-click and right-click were too bumpy with the geometric surface detail, so an increase in surface detail was added.



The ALT buttons need to be placed at the joint of the thumb and slightly after it for fast use.



Exploded View of how I exploded the 3d model for surface finishing in the appearance model.



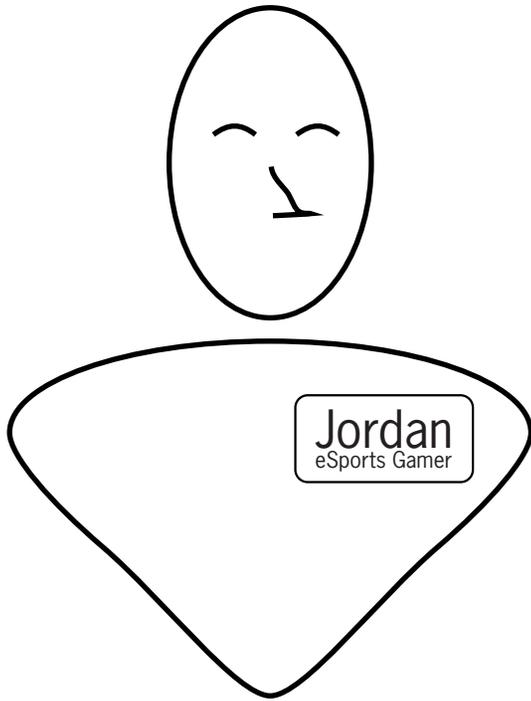


# Red Bull

eSports Streaming Bag

Project Pilot Run 2PointZeRo:  
Red Bull Sponsored Project

# eSports Streaming Bag

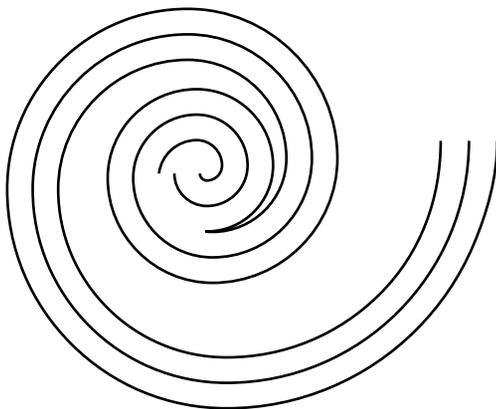


The primary could be someone like “Jordan,” An eSports gamer for Super Smash Bros sponsored by Red Bull. “Jordan” had many issues with the bag he and his camera operator used for live streaming the event to his YouTube channel at arenas and contests. The task is to make a purpose-built bag for his devices to stream smoothly.



This is an eSports gamer describing what goes in his streaming bag, and how the product works with the items in it.

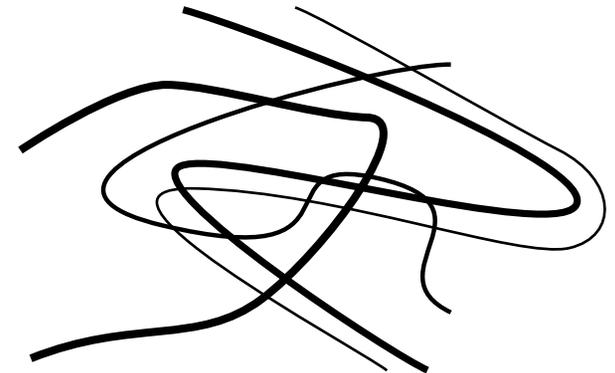
I had several discussions with an eSports gamer. He was enthused about a side bag's idea for easy access to the items that need constant fine-tuning.



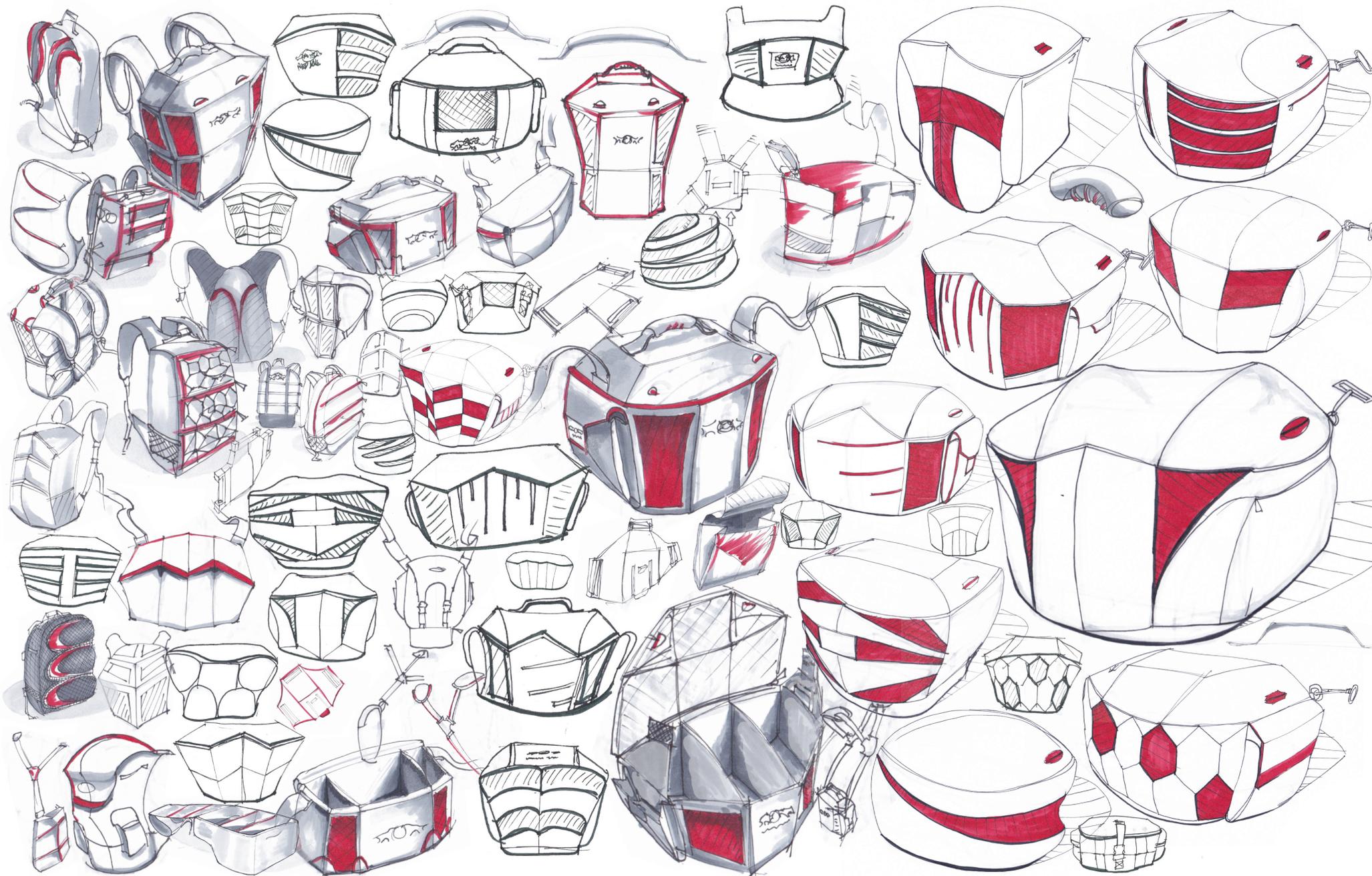
Airflow for Electronics



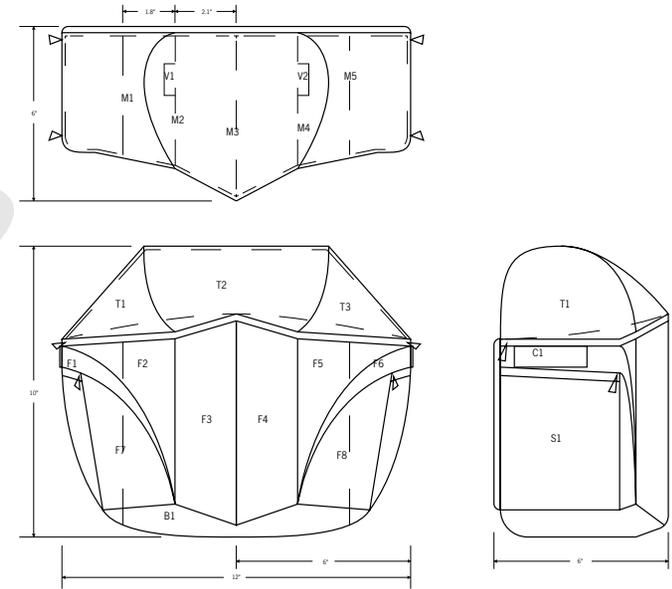
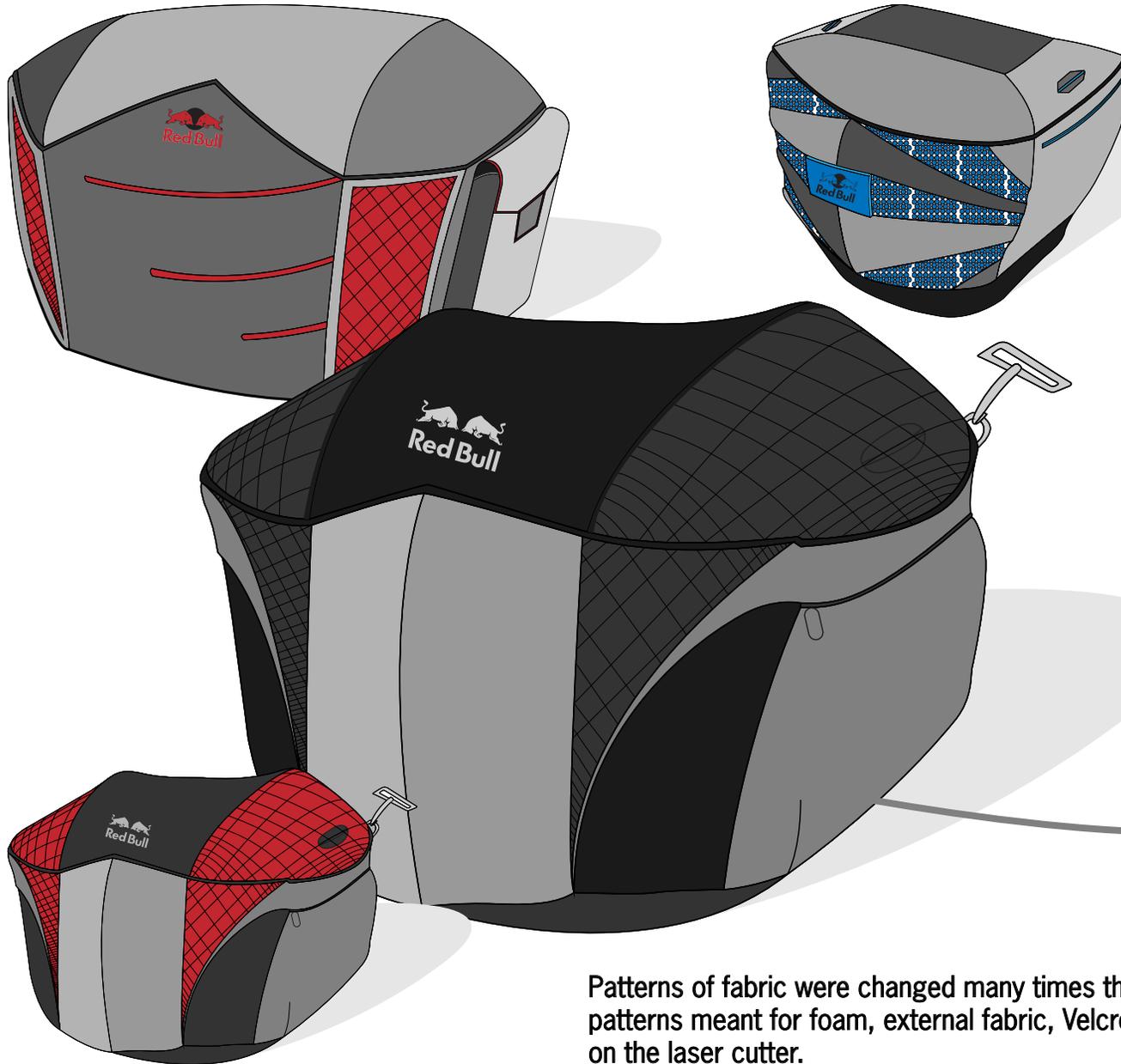
Easy Access to all needed Devices



Wire Management



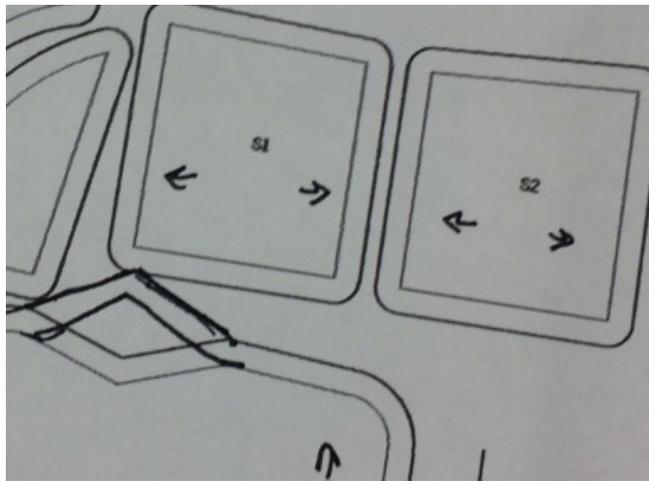
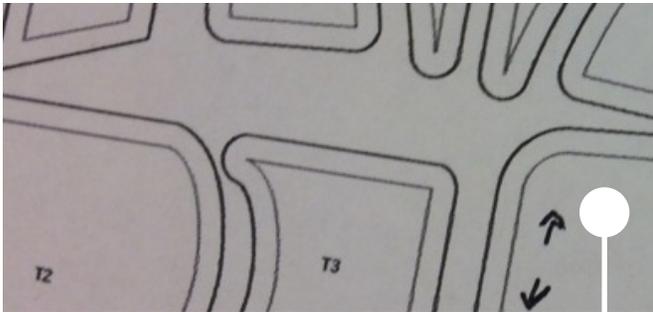
# Sketch Renders → Orthographics → Pattern



I derived the patterns for the fabric from my orthographic based on the selected design.

Patterns of fabric were changed many times through many iterations. This is the last iteration of patterns meant for foam, external fabric, Velcro able fabric and engraved leather that will be cut on the laser cutter.

# Process



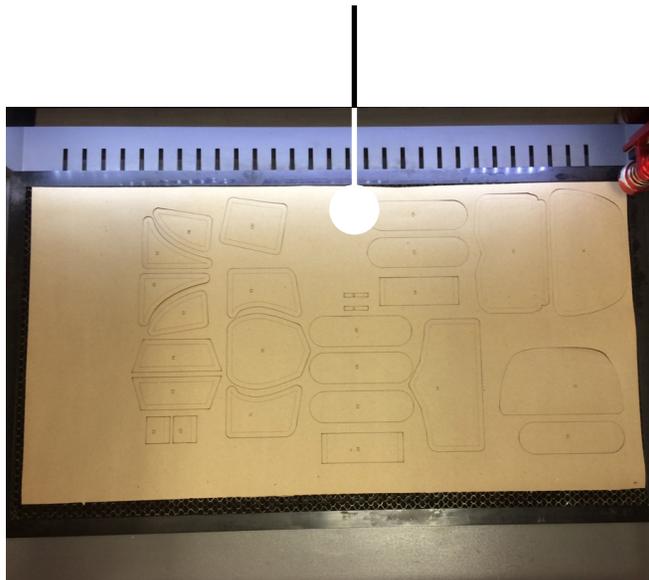
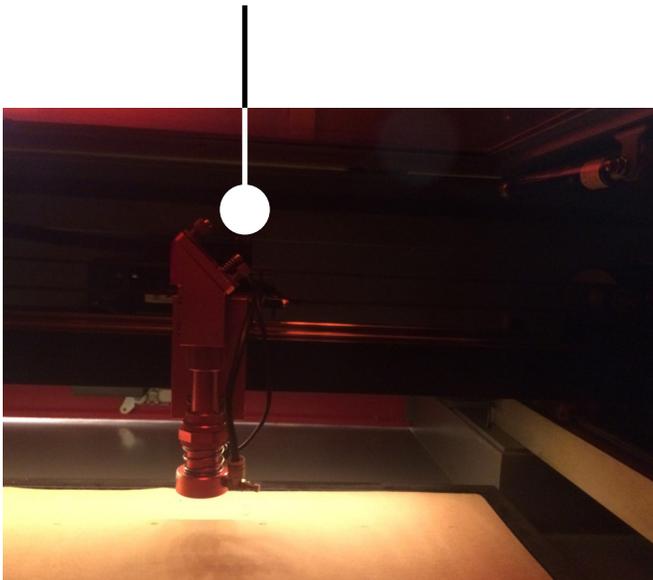
I created the first patterns from the orthographic. Modifying patterns required a lot of trial and error.

Me operating the laser cutter.

Laser cutter in use.

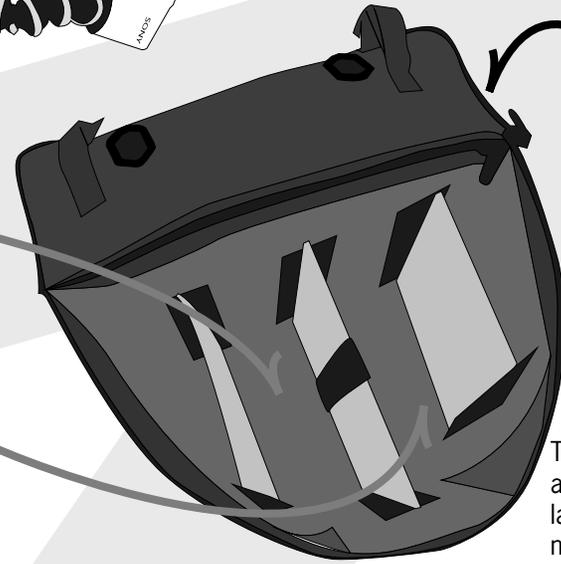
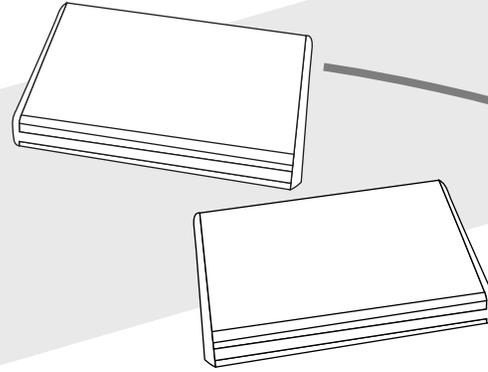
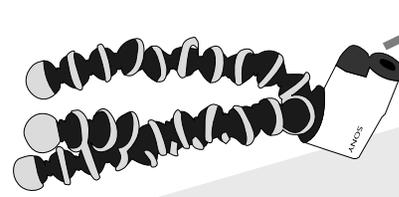
The laser cutter made paper and fabric patterns prior to gluing or sewing.

I used this sewing machine to put together my fabric mock-ups and the final bag.





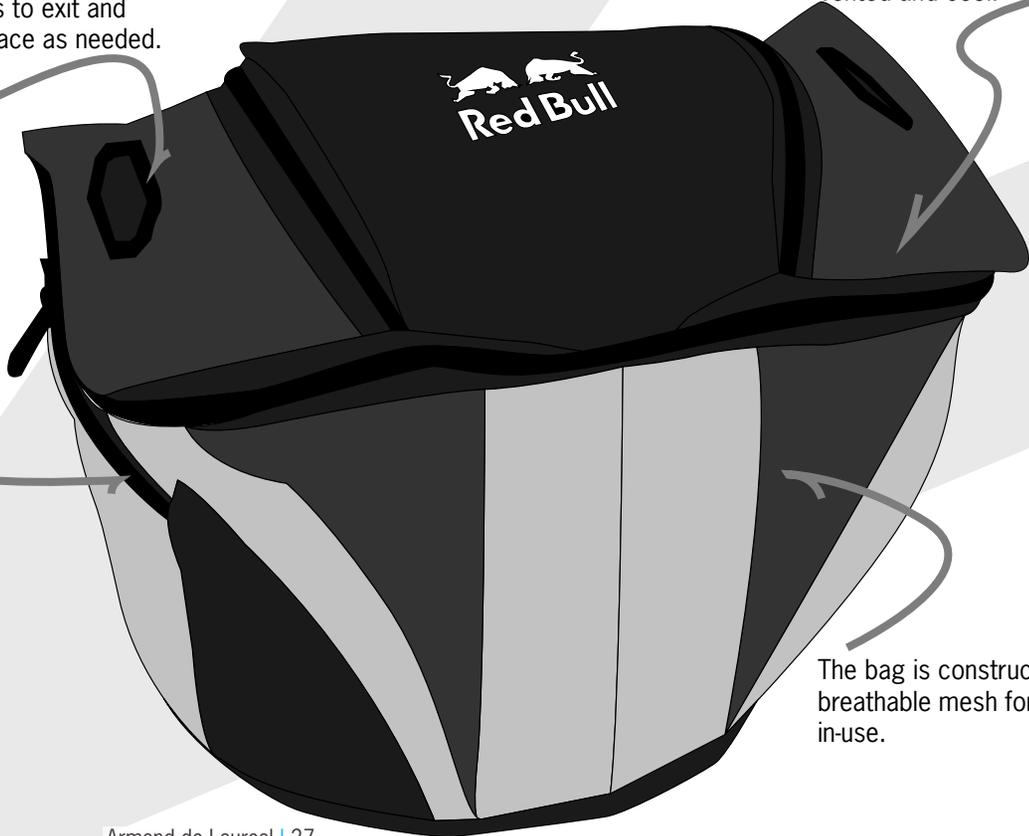
# Sketch Narrative



For wire management, the top pocket has 4 holes reinforced with ABS plastic for wires to exit and move around the space as needed.

The top of the bag can be accessed through 3 zippers and is largely constructed with breathable mesh to keep the electronics vented and cool.

Outside pockets are ideal for items like wallets or keys.



The bag is constructed with a very breathable mesh for electronics in-use.

## Project Pilot Run 2PointZeRo Second Place Winner

A satchel like messenger bag main strap is supported with a side strap that can be unbuckled.

The bag's top pouch is accessible through 3 zippers, two on the top and one on the inside. The top and bottom portions are separated by a large zipper.

2 wire holes are on the top of the top pocket and 2 wire holes are on the bottom for wire management of the streaming gear.

The logo is laser etched onto the leather then oil paint is put on the leather then waxed off to create a positive on the leather.

Much of the bag is made of mesh that breaths well, so that the electronics don't overheat.

Separators are used to divide the items for better accessibility to modify the items during use.



S T A R W A R S

# The Clone Wars

H a n d - P l a n e r

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## What is a hand held-planer?

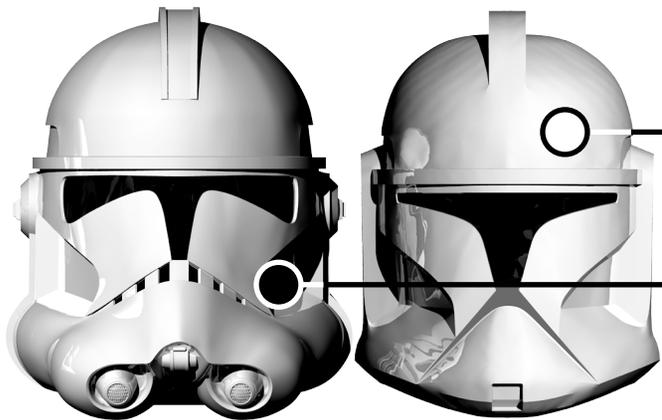
A hand-held planer is a powered tool used to get one side of a rough piece of wood straight enough to bring the wood to a table saw or other tools.



## Design Goals (Why)

- o Exposing loyal Star Wars fans to Woodwork
- o Creating a grip angle that works for one and two-handed planning

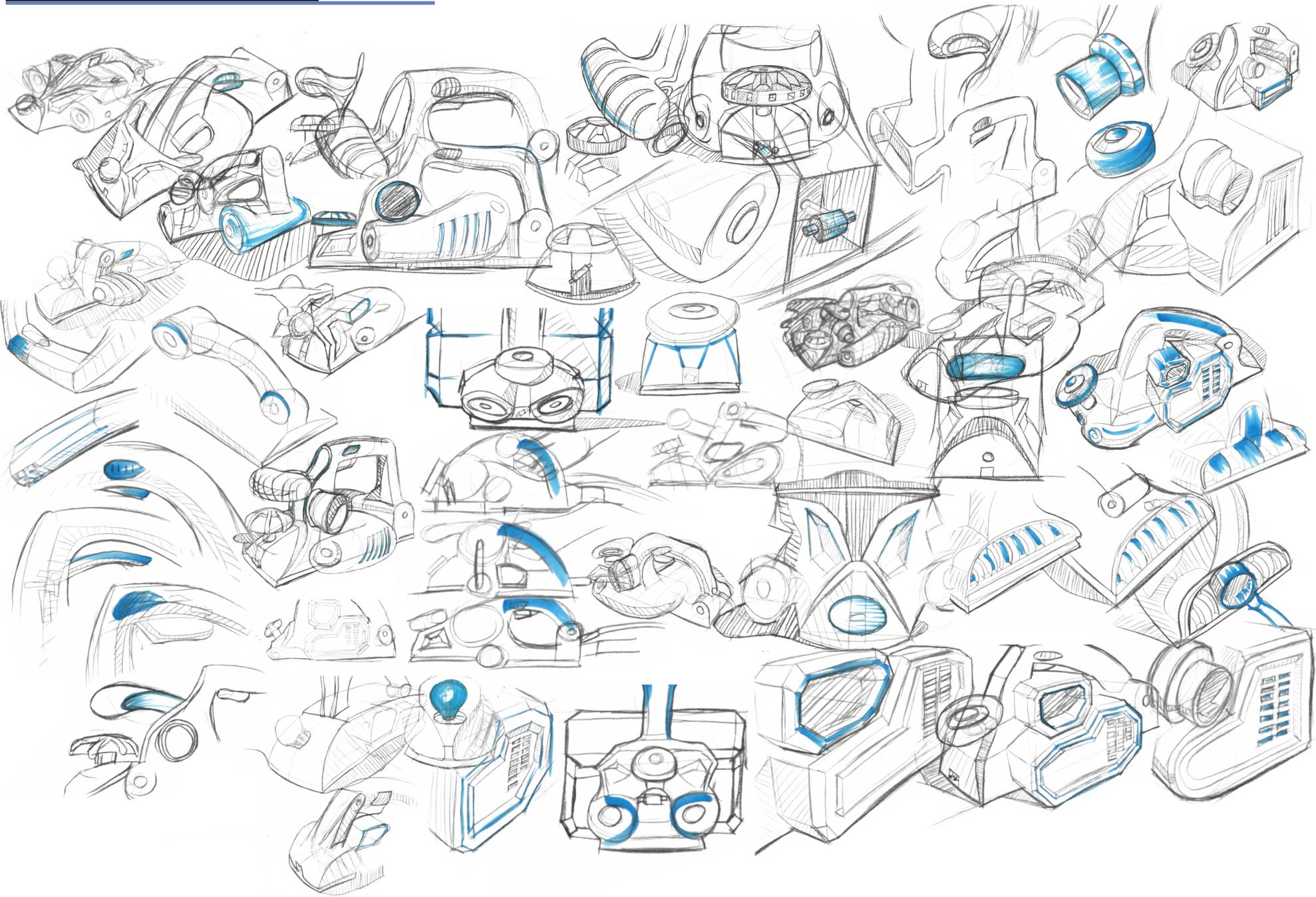
## Defining the Star Wars Clone Helmet Design



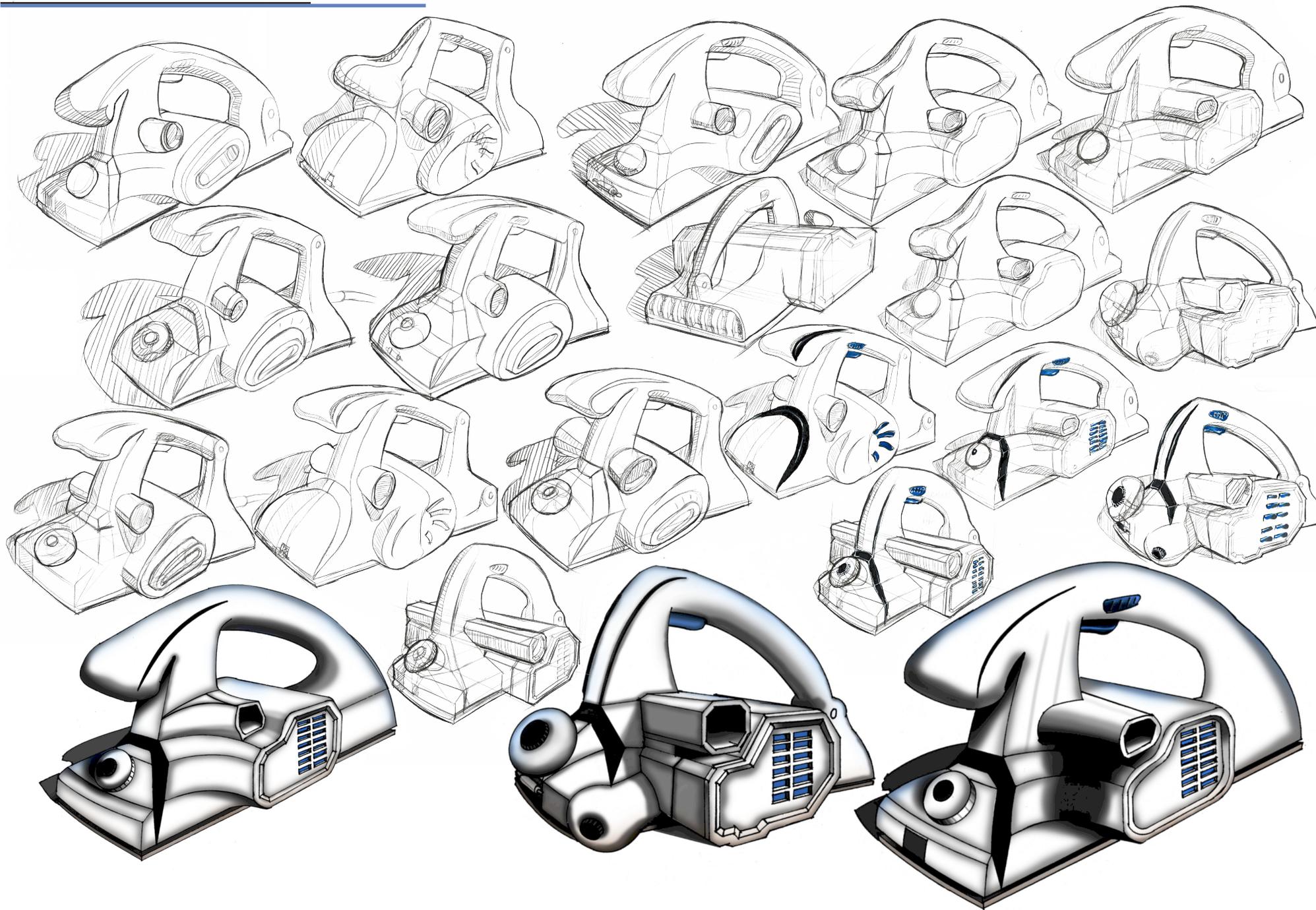
- o Organic curves intersecting at sharp points
- o Small lines or dabs of color
- o Flat transitions in planes
- o Heavily Gridded



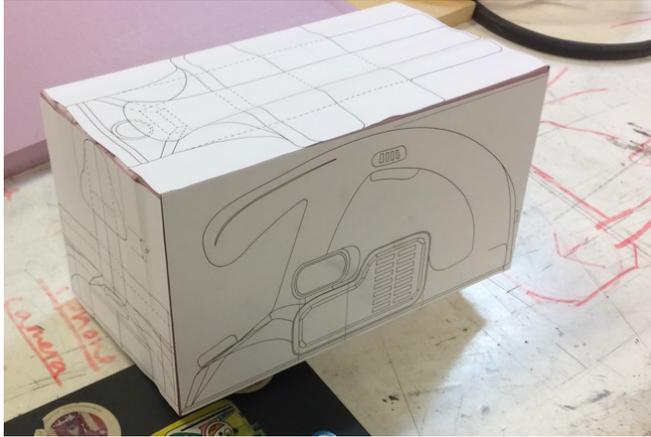
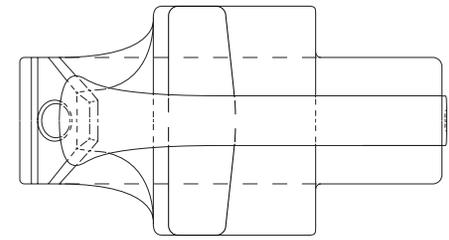
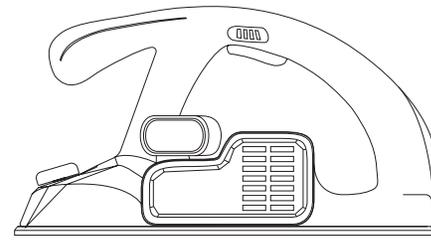
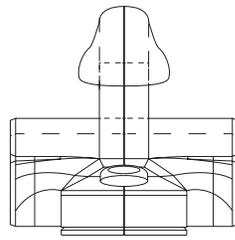
# Loose



# Gridded



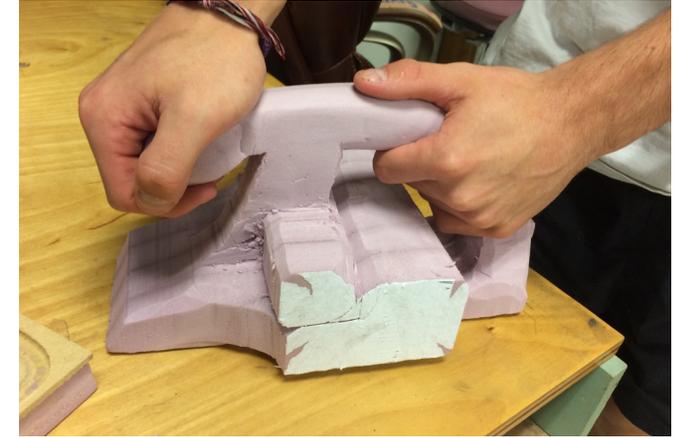
# Process



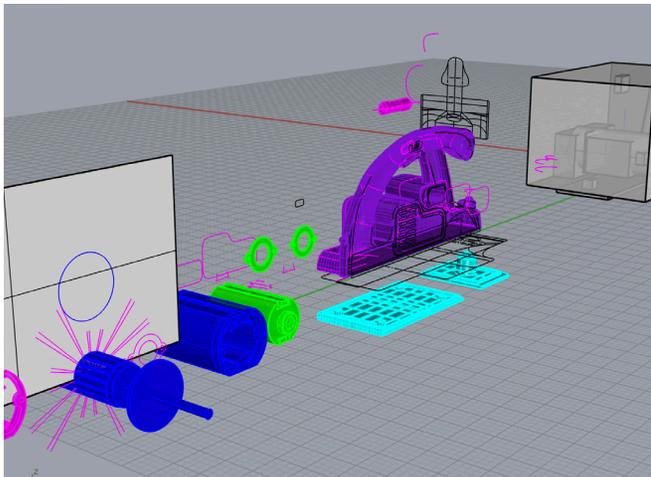
An orthographic drawing, based off of sketches, was made and applied to a foam model.



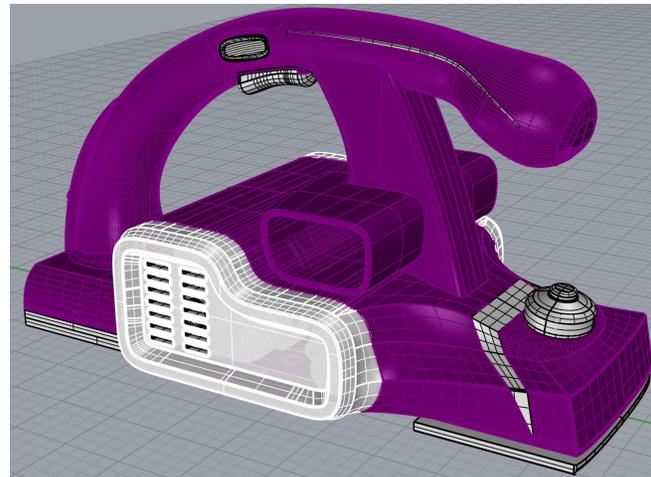
Sanding was needed to fine-tune the dimensions of the back and front handles.



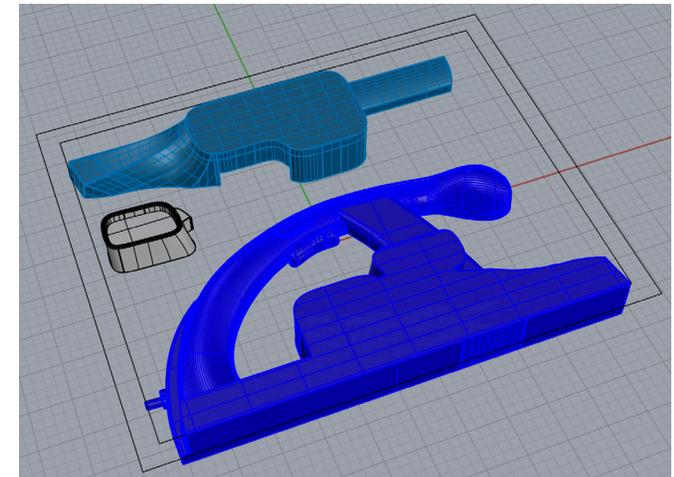
Additional sanding and feeling were needed to make better ergonomic grips.



The Rhino model needed extensive curve work. Knowing the internal mechanisms informed fine-tuning the model.

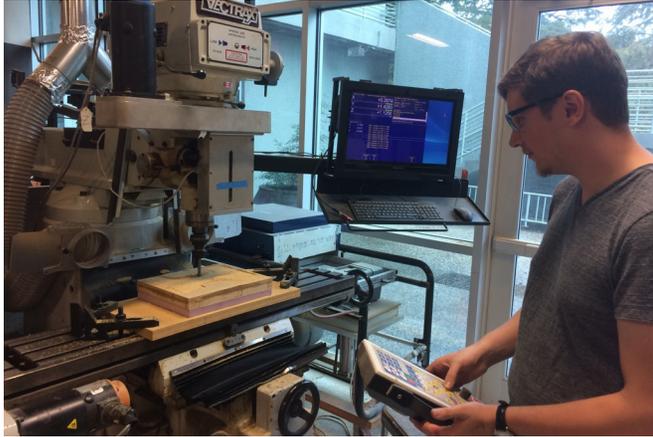


The model was made with all the mechanisms fitting properly inside. This model was separated by materials for KeyShot renders.



After the surface modeling was complete, the surface was split digitally into sections for CNC milling.

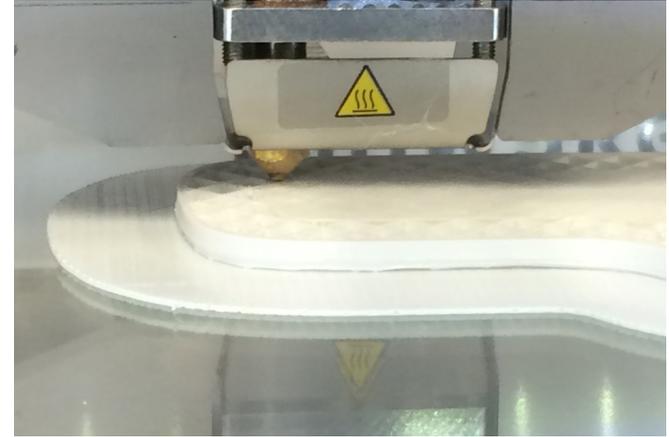
# Application of Digital Work



ULL's CNC Machine milling out the MDF needed for the appearance model.



The CNC machine cut the 2 of these forms out, each a mirror of the other.



3D printing the vent, because the detail was too detailed to CNC out.



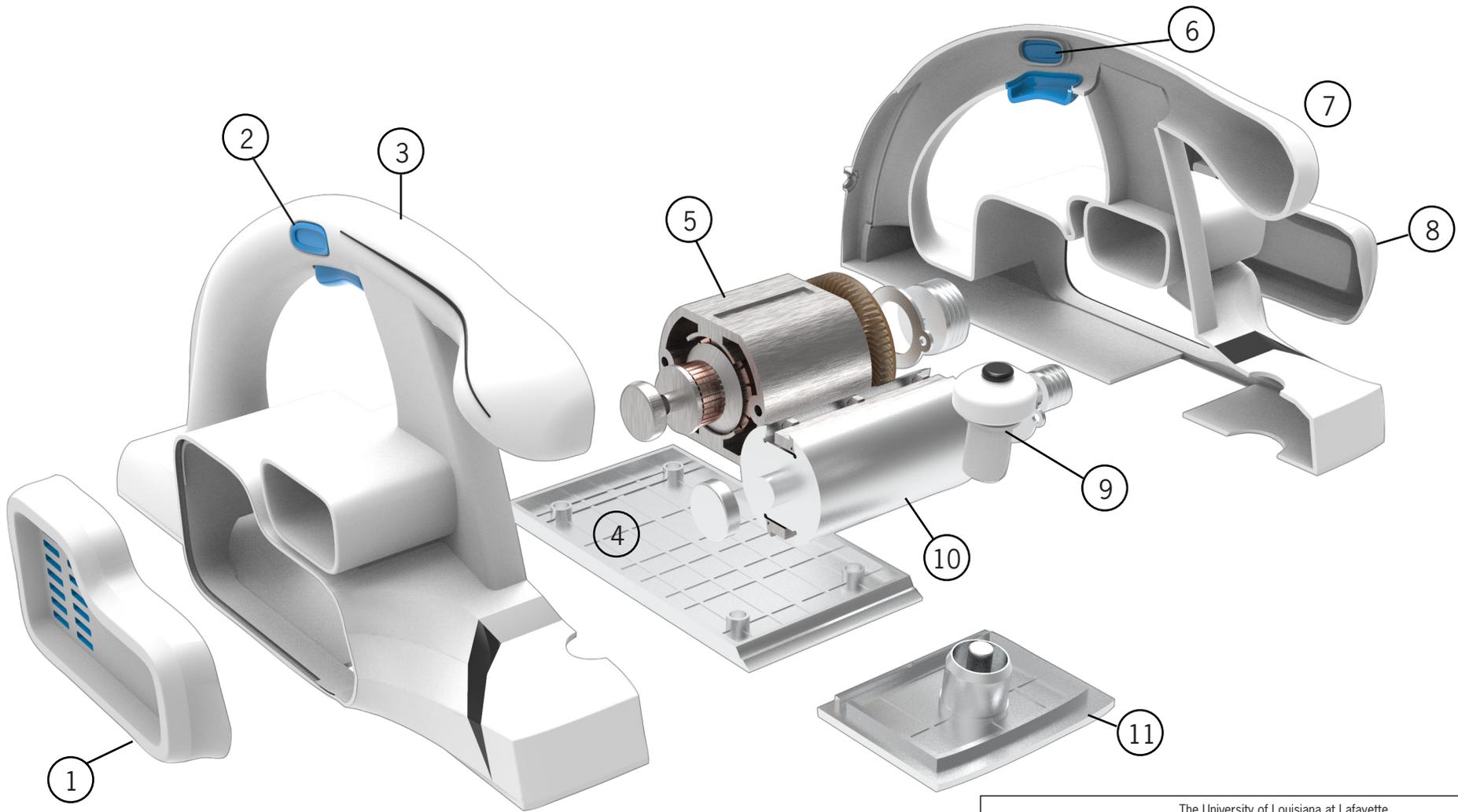
CNC parts glued with 3d printed parts, and the model is ready for prime and sanding work.



4 days of filling and 8 days of priming/sanding was needed to get the model ready for painting.



Painting the basecoat, highlights, and material changes.



# Exploded View

The University of Louisiana at Lafayette			
Exploded View and M&P		Drawn By: Armand de Laureal	
Class: INDN 301	Date: 12/07/14	Scale: NONE	
Part Name	NO.	Material	Process
Right Vent Cover	1	ABS Plastic	Injection Molded Plastic
Right Safety	2	ABS Plastic	Injection Molded Plastic
Right Shell	3	ABS Plastic	Injection Molded Plastic
Back Plate	4	Aluminum	Injection Molded Aluminum
Motor Assembly	5	Various Materials	Assembly
Left Safety	6	ABS Plastic	Injection Molded Plastic
Left Shell	7	ABS Plastic	Injection Molded Plastic
Left Vent Cover	8	ABS Plastic	Injection Molded Plastic
Front Adjuster	9	ABS Plastic	Injection Molded Plastic
Blade Calendar	10	Aluminum	CNC Aluminum
Front Plate	11	Aluminum	Injection Molded Aluminum



Physical Model

# STAR WARS

## The Clone Wars

### Hand-Planer



Small pops of color similar to some to the Star Wars trooper armor

Forward hand grip for more stability

Flat transitions in planes

Mouthpiece form to match the helmet's design, with an adjustment knob in the shape of another helmet sub-feature

# 3D Modeling

## (Rhino & ZBrush)

### Thingiverse

<https://www.thingiverse.com/delaureal/designs>

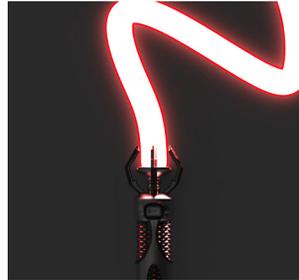
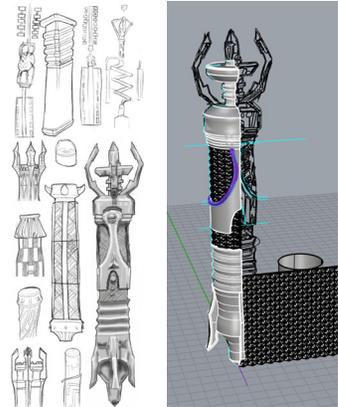
### MyMiniFactory

<https://www.myminifactory.com/users/deLaureal>

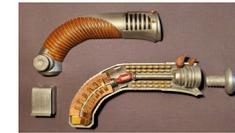
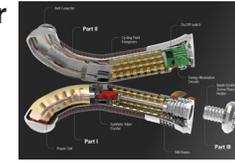
Star Wars Rebels: **Thrawn**  
Made in ZBrush



Star Wars: **Lightwip**  
Made in Rhino



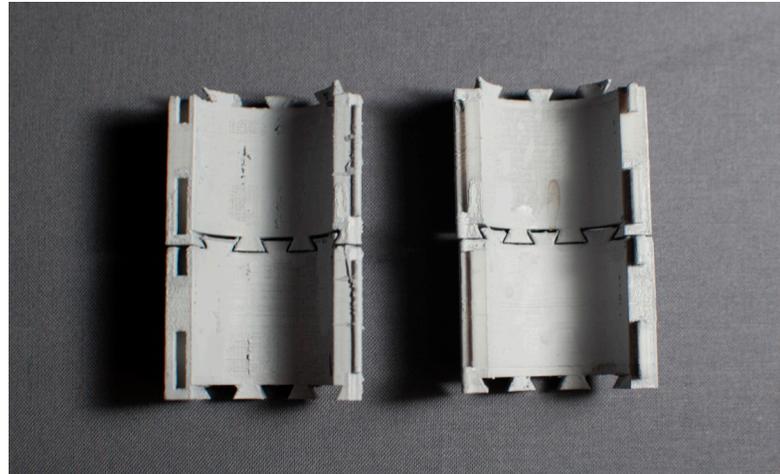
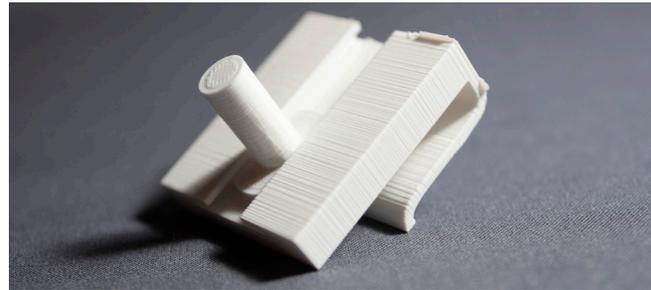
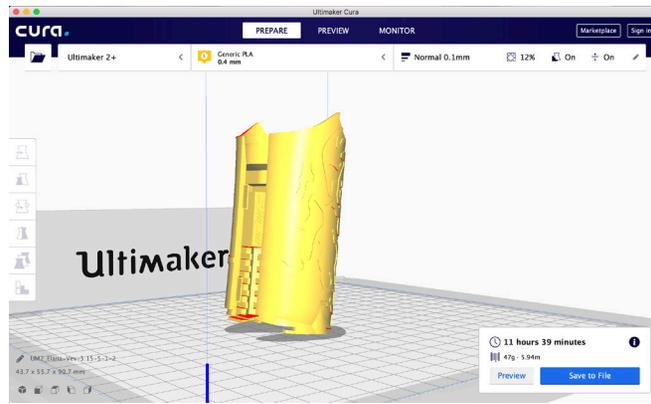
Star Wars: **Darth Bane Lightsaber**  
Made in Rhino



Star Wars: **Krayt Dragon**  
Made in ZBrush



# Digital Fabrication



## COVID 19: Helping make Face Shields Frames and Visors

katc.com/news/coronavirus/ul-lafayette-creates-face-shields-for-health-care-workers

### UL Lafayette creates face shields for health care workers



**Coronavirus Resources and Information**

- We're Open: Businesses Open in Ac...
- Screening and testing sites
- COVID-19: Cancellations, closures a...
- Coronavirus questions answered
- COVID-19: Coronavirus Map Tracker

**Global Coronavirus Tr...**

JHU CSSE ... Mo...

Total Confirmed  
**2,152,64**

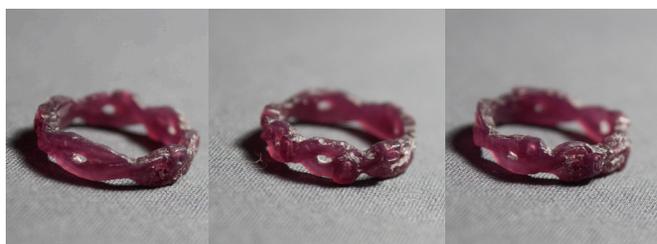
Total Deaths  
**143,807**

Photo by [Phebe](#) credit: University of Louisiana at Lafayette  
Armand de Laureat, a senior majoring in industrial design, participated in a comprehensive volunteer effort at UL Lafayette to design face shields for the Lafayette General Health System until its supply chain was recently restored.

By: **KATC NEWS**  
Posted at 10:00 AM, Apr 16, 2020 and last updated 11:45 AM, Apr 16, 2020



# Jewelry and Modeling Making



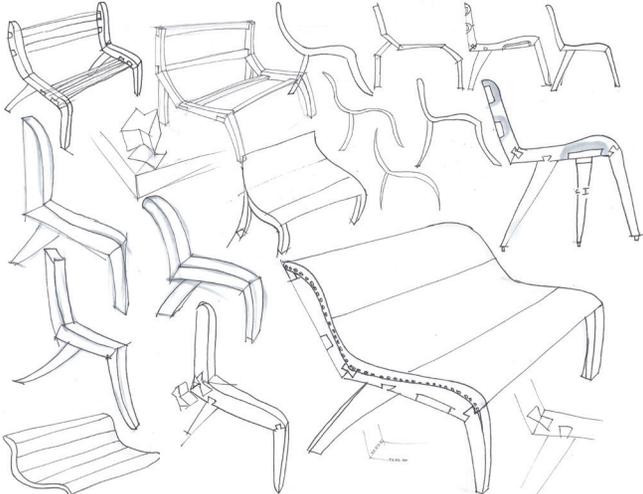
# Woodworking



Launched a woodworking business, Armand de Laurel Cutting Boards. Made cutting boards and small pieces of furniture to sell at the local farmers market.

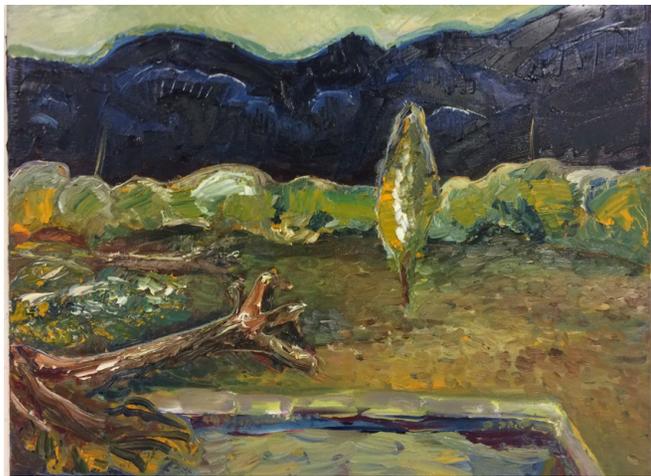
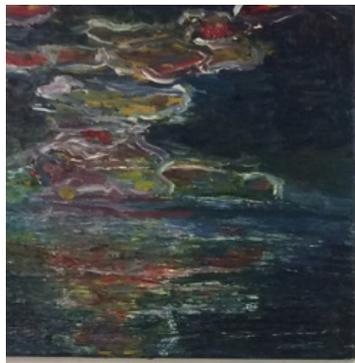


# Furniture



# Art

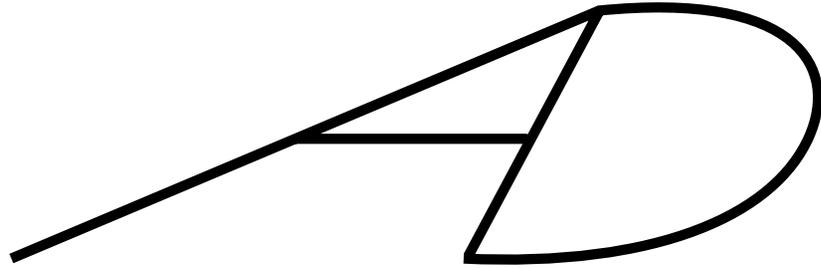
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Thank You for taking the time to review my work. If you wish to see more or to discuss further details, please feel free to contact me.





# Armand de Laureal

## Industrial Designer

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