

2024

Product Design **Portfolio**

Keelan Christie





Contact Details

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Keelan Christie

"I am a hardworking, dedicated and highly motivated student set to graduate from **Product Design and Technology** in the University of Limerick in August 2024.

Throughout my academic journey, I have developed a strong passion for **3D modelling**, **3D printing**, and the skills needed for **prototyping** and **model making**. These areas of focus have not only been integral to my coursework but have also become areas where I excel and find immense satisfaction. I am particularly drawn to the intersection of creativity and functionality, **where design meets practical application**, and I am constantly seeking opportunities to further refine my skills and broaden my experiences."



Education

- | 2014 - 2020 | - Secondary School, Ardscoil Rís, Limerick
- | 2020 - 2024 | - Bachelor's Degree in Product Design & Technology, University of Limerick

Co-op Placement

- | 2023 | - Internship at Odyssey Studios, Limerick
- 8 months as a Trainee Propmaker

Competences

Personal Skills

- Team work
- Leadership
- Communication
- Attention to detail
- Time Management

Design Skills

- Modelmaking
- 3D Modelling
- Prototyping
- Research
- Ideation

Software / Practical Skills

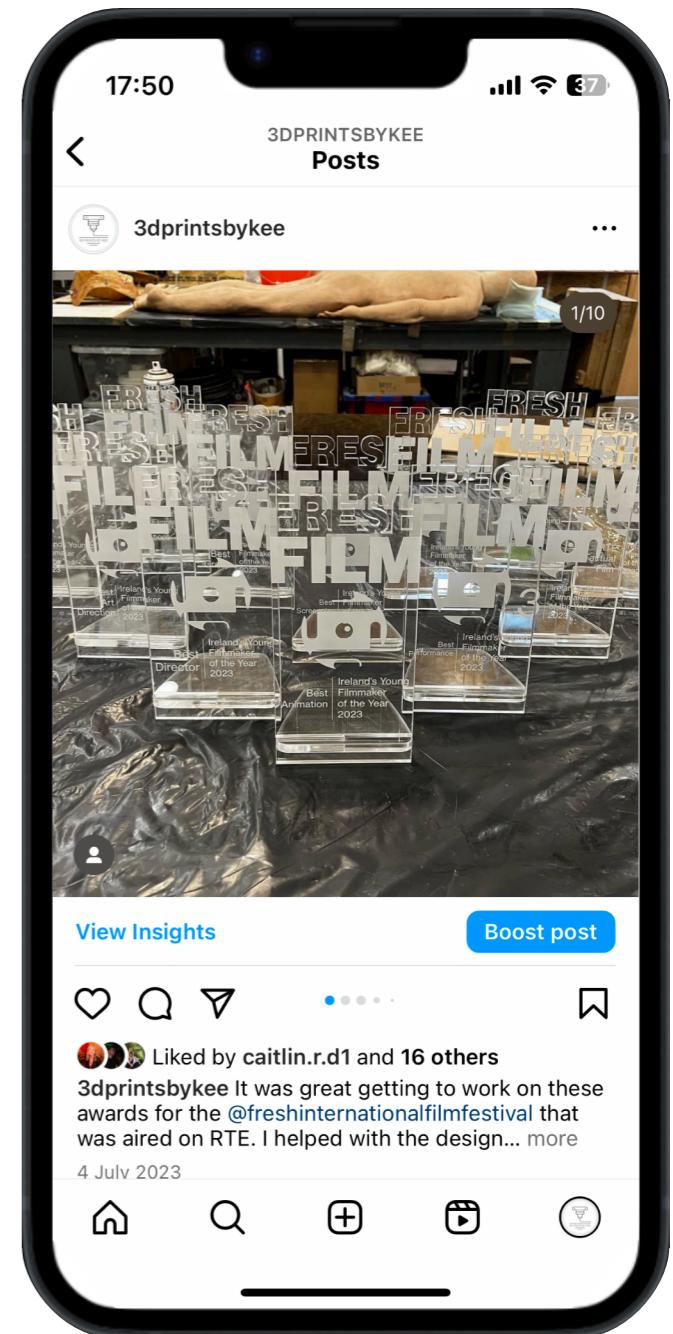
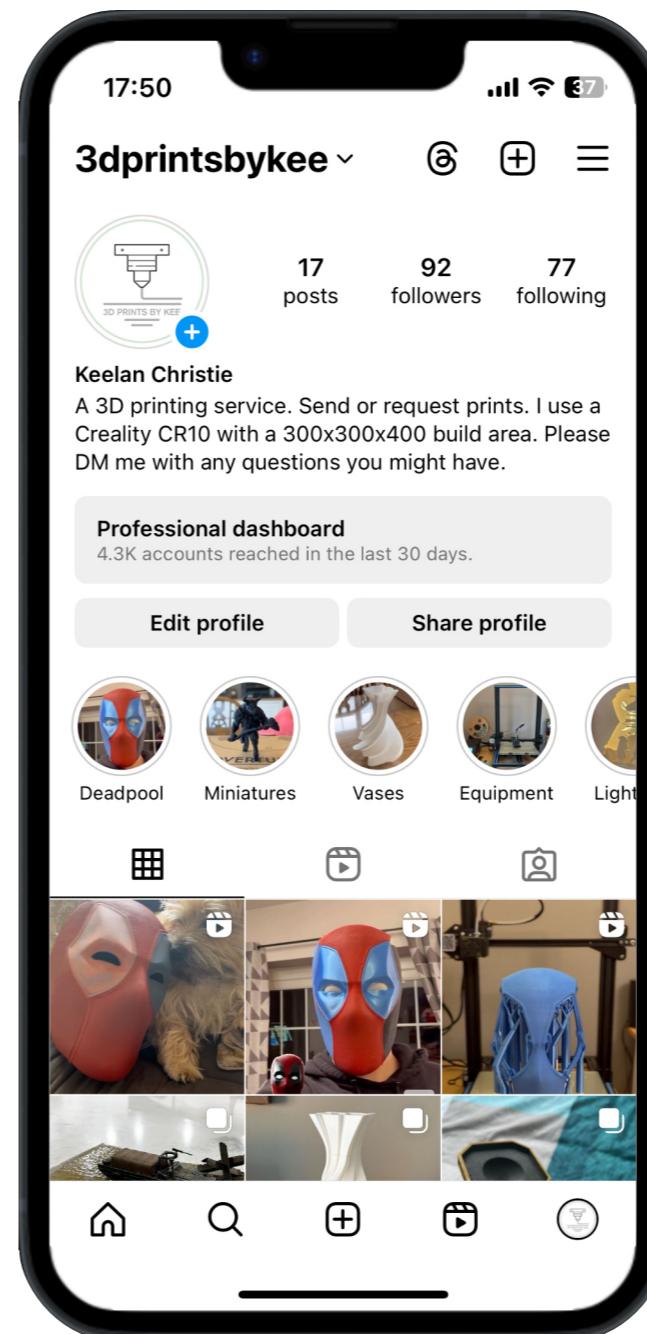
- | | | |
|--------------|-------------|---------------|
| • Solidworks | 3D Printing | Laser Cutting |
| • Affinity: | Adobe: | Woodworking |
| • Designer | InDesign | Mould making |
| • Publisher | Illustrator | Soldering |
| • Photo | Adobe XD | Sanding |



Digital Content

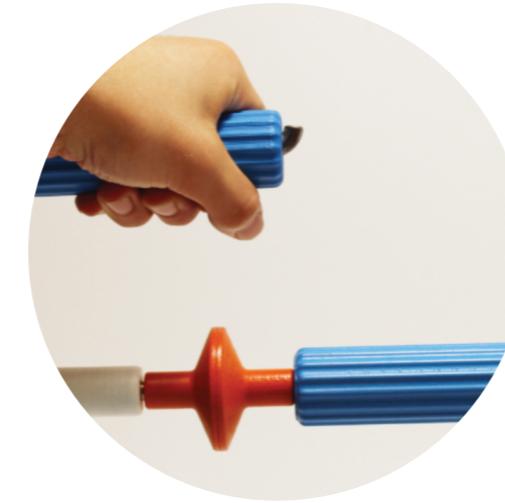
I am the creator of a **social media page** where I share my various **personal projects**, and **commissions** for my small 3D printing business. I love to **share** my skills and techniques with others, and most importantly **learn** from others too.

3D Prints by Kee





01 Headphones



02 Fixparts



03 Mouse



04 Mando



05 Wheelchair



06 Miscellaneous

01

Headphones

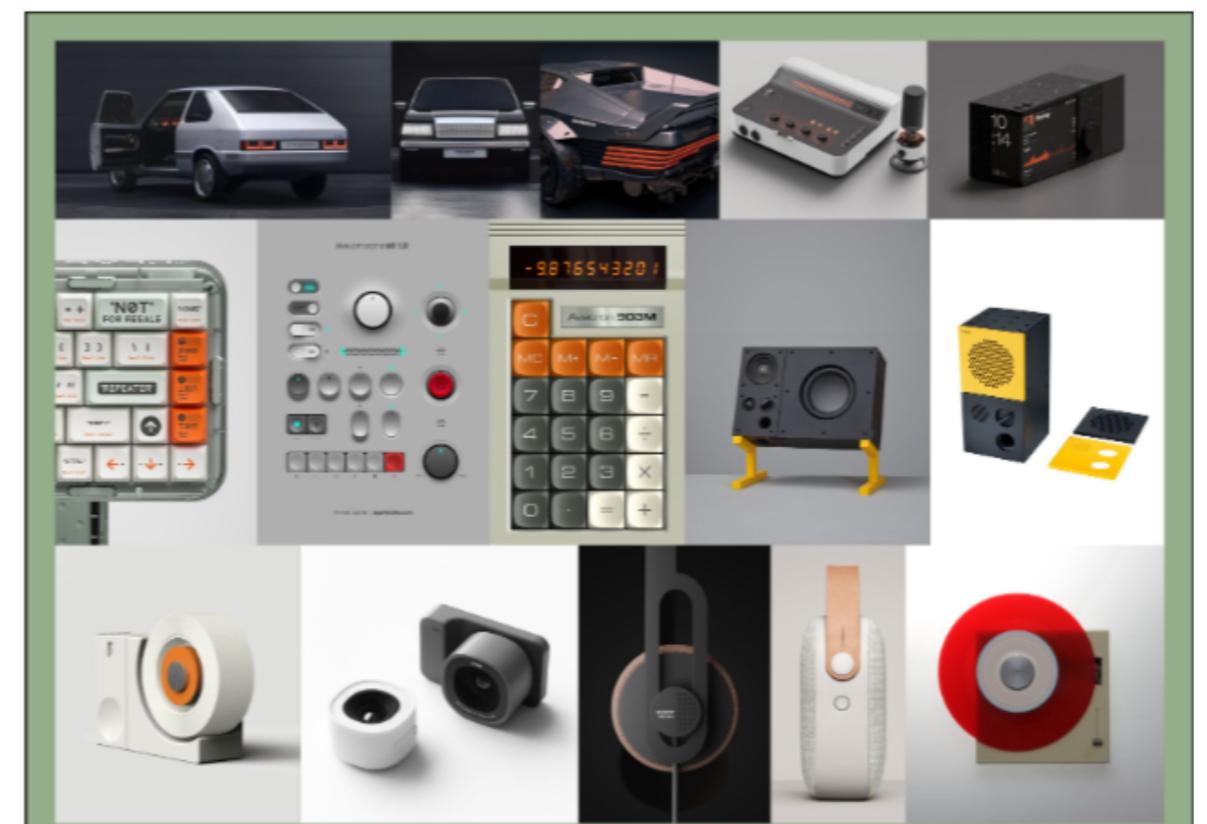
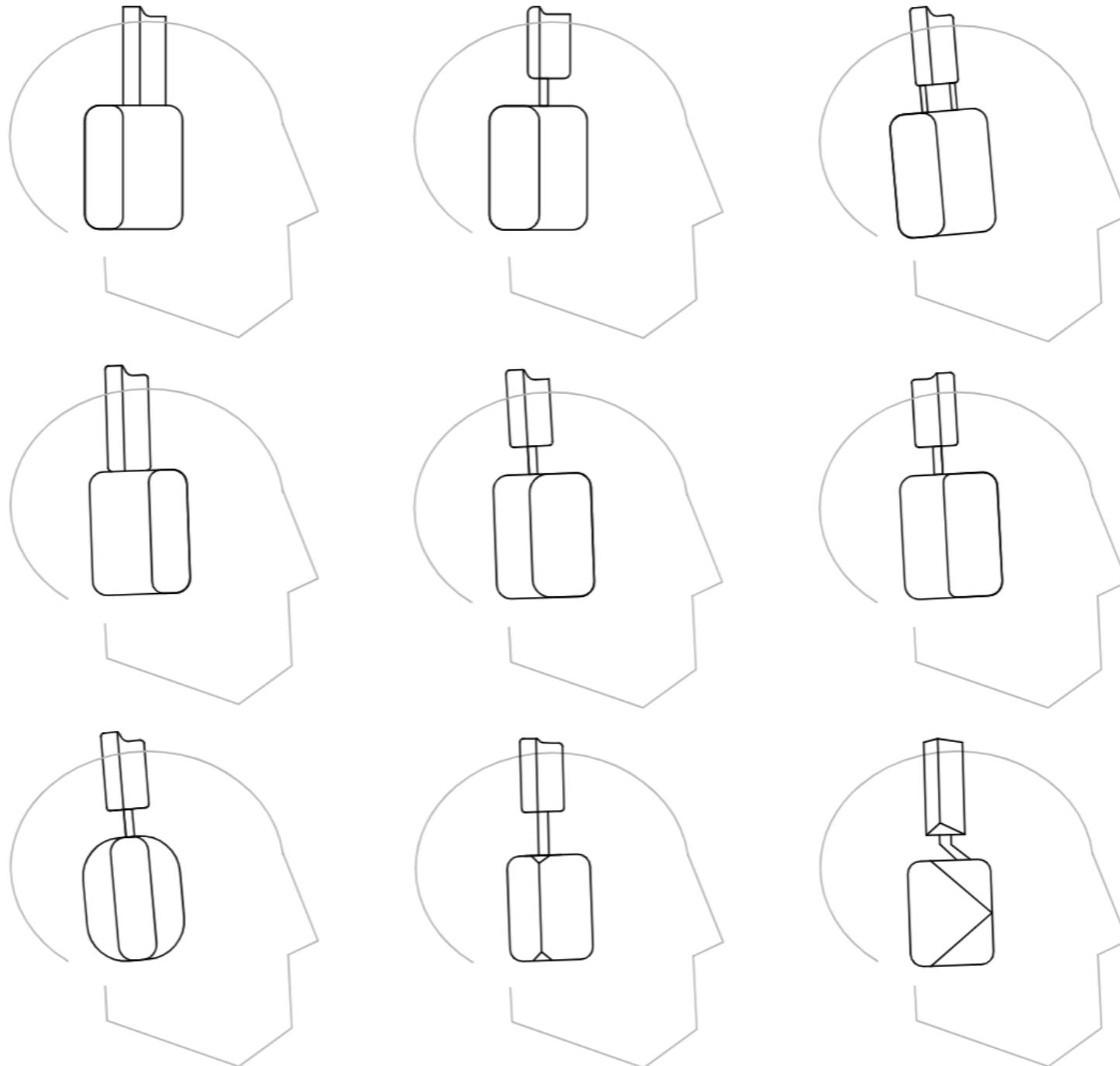
This project was centred around learning **clay modelling** for quick concept iterations.

I had to use **sketching** and clay modelling to create a **headset** for a fictional company (our company prompt was modern nostalgia).

| | |
|---------------|--|
| Type | University Project |
| Time | 6 Weeks |
| Team | 1 Person |
| Skills | Sketching, Ideation, Clay modelling, Linework, Design Visualisation, Digital Rendering |

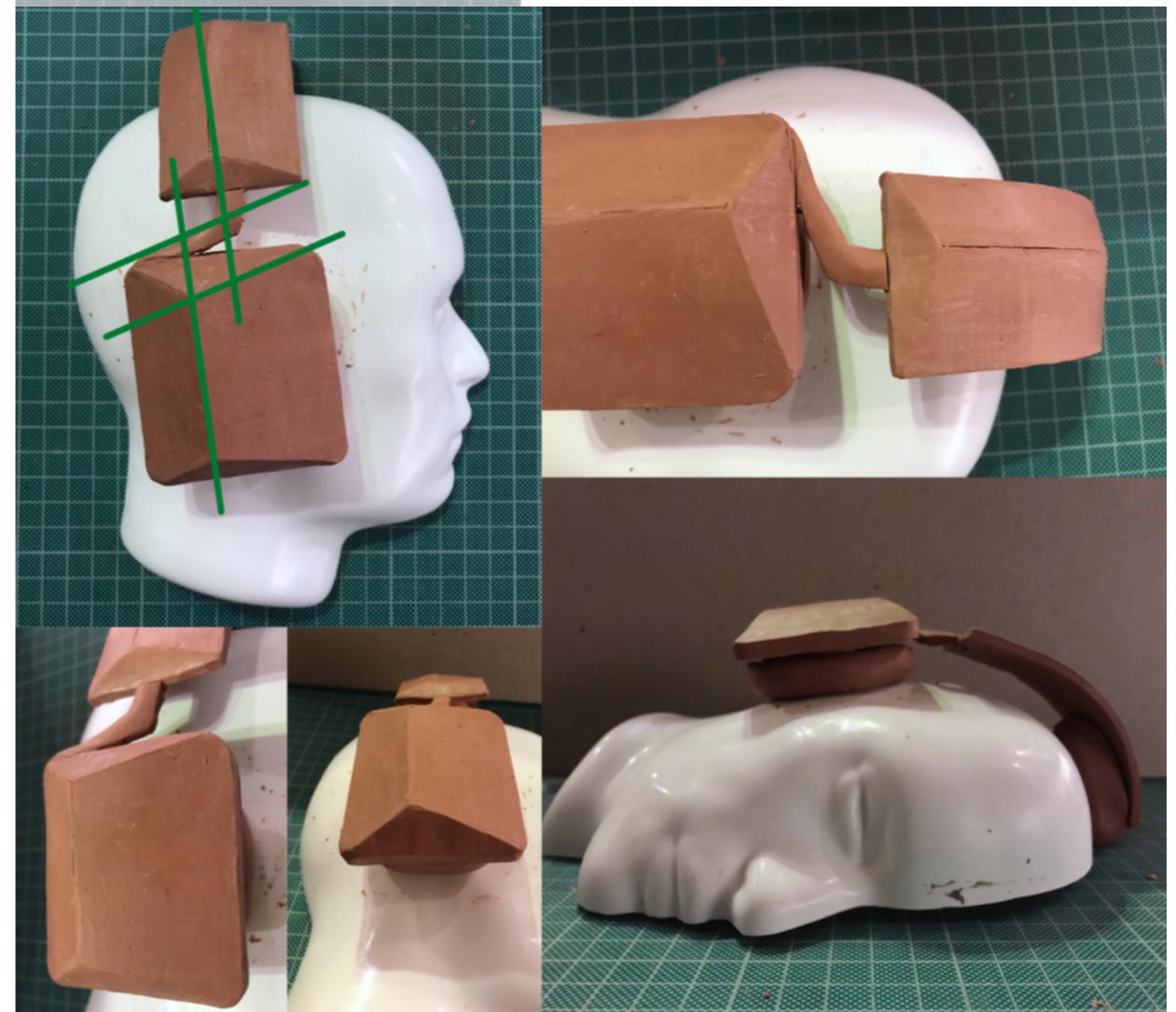
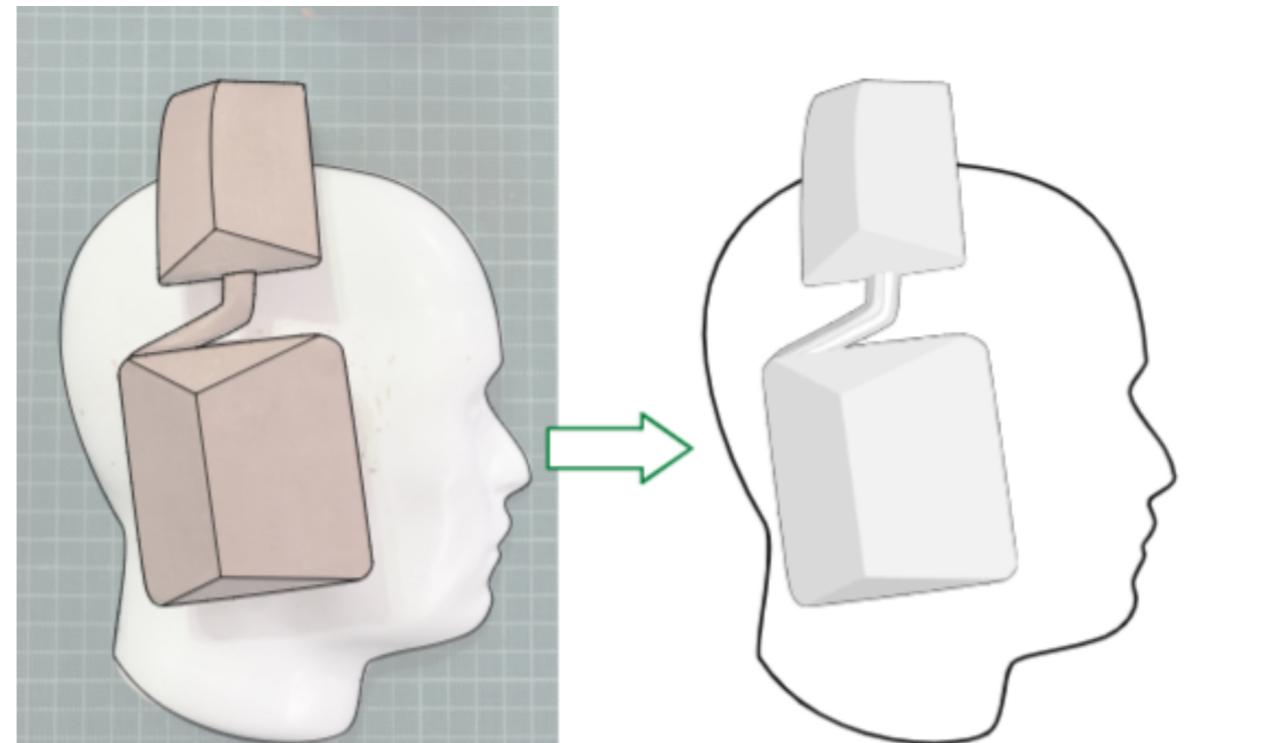
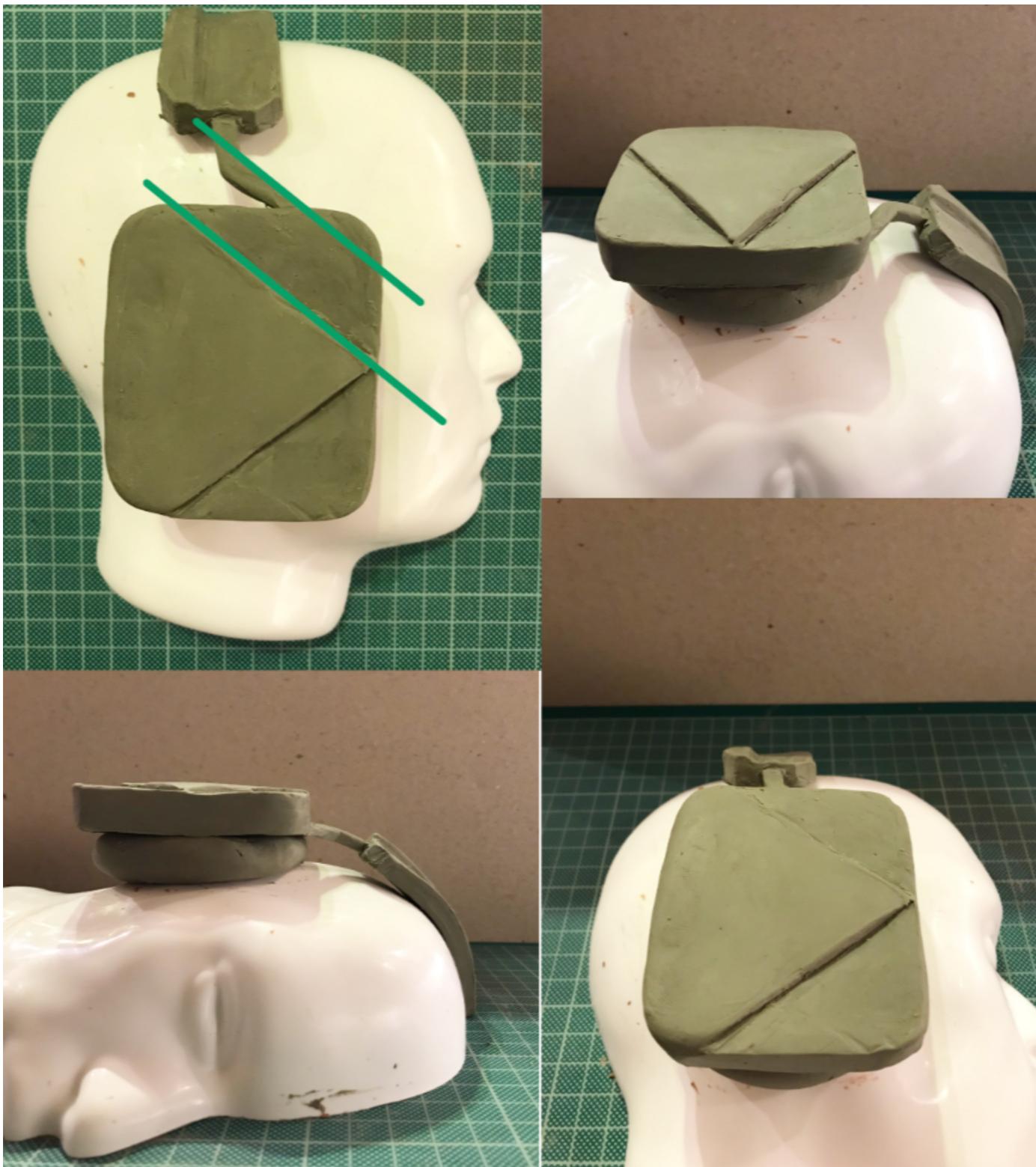


I started with **mood boarding** and defined the characteristics I felt were fitting for the **prompt**. Next, I moved to some **sketching** using **Affinity**, which allowed me to create a wider range of **outputs** in half the time.



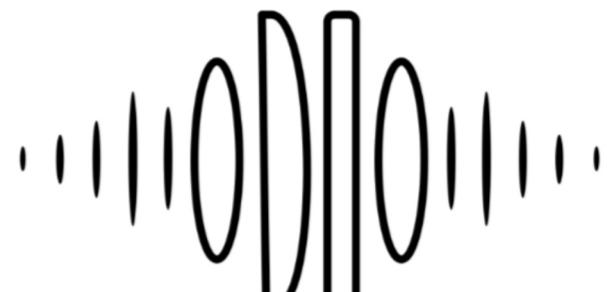
Modern Nostalgia Solid surfaces Contact Edges Contrast of light





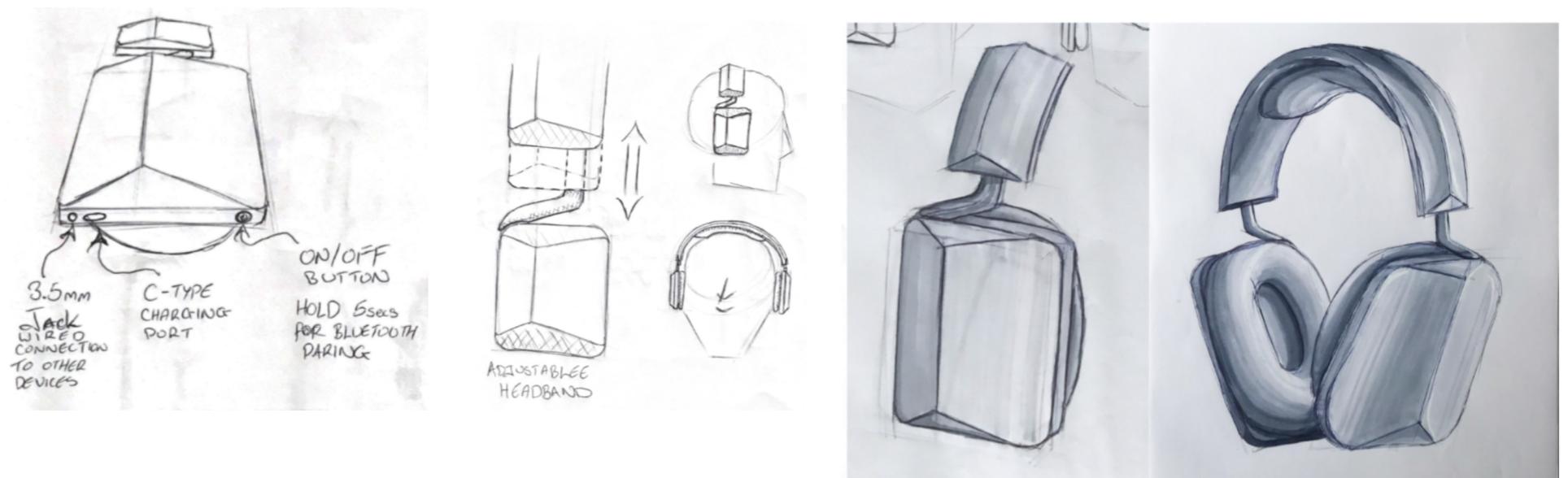
Following the sketching, I moved on to the **modelling process**. I began to clay model my favoured concepts. Building my concepts visually helped me get a better understanding of how it was suppose to look and the **scale** of the headset. My overall aim was to keep with the company's themes of **sharp edges** and **large flat panels**.

Final Concept

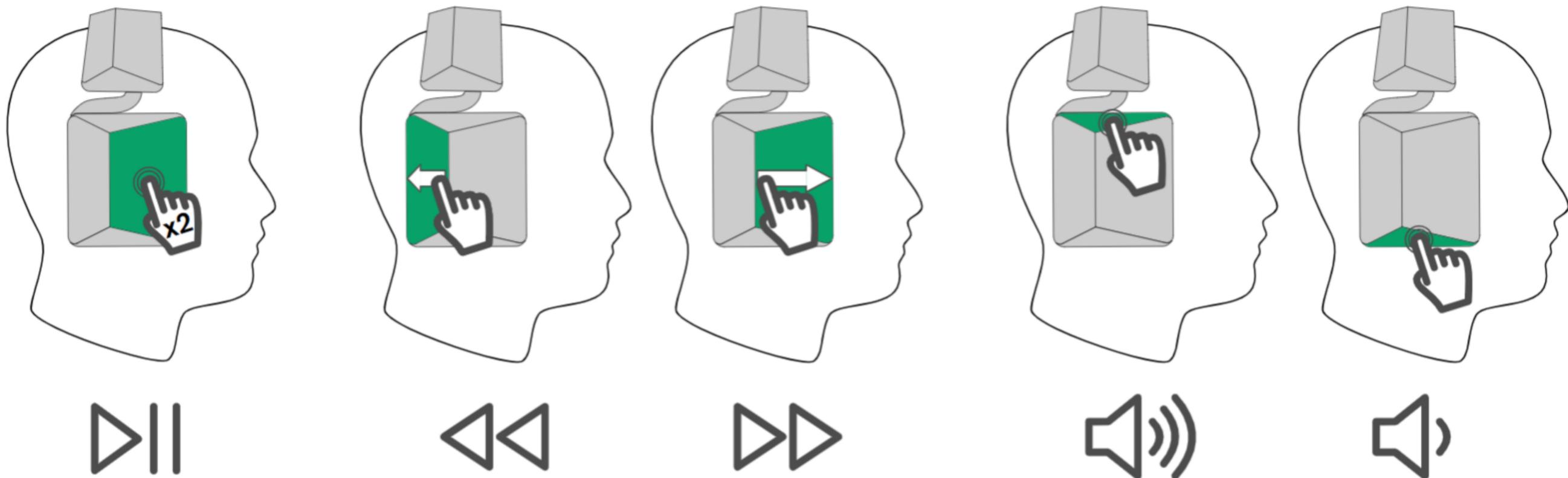
ODIO
TOKYO JAPAN

As building the **company identity** was a team project, we decided upon a name and location for the company, and I **designed the logo**. The company was called **Odio**.

To the right is my **final concept** with the final clay model and some sketches displaying the **functionality** of the headset.



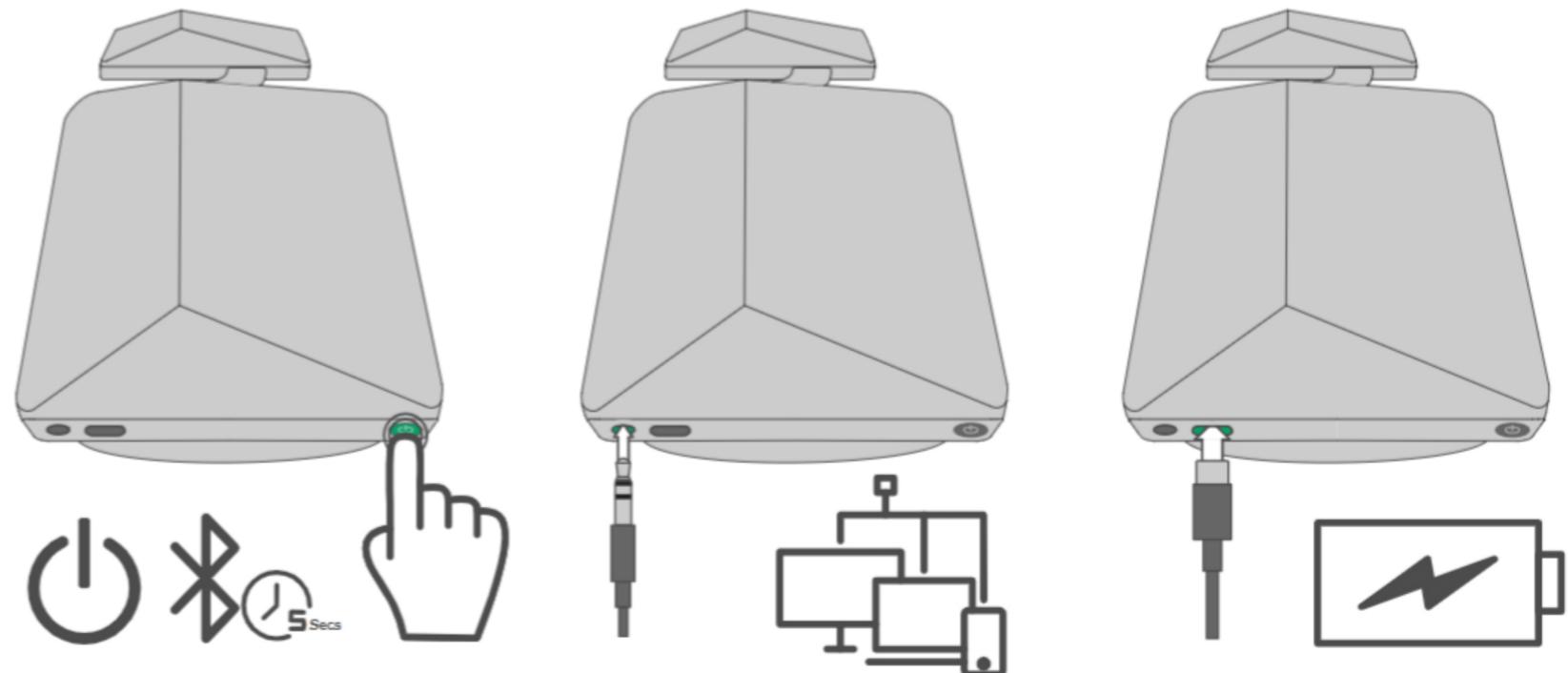
Instruction Manual

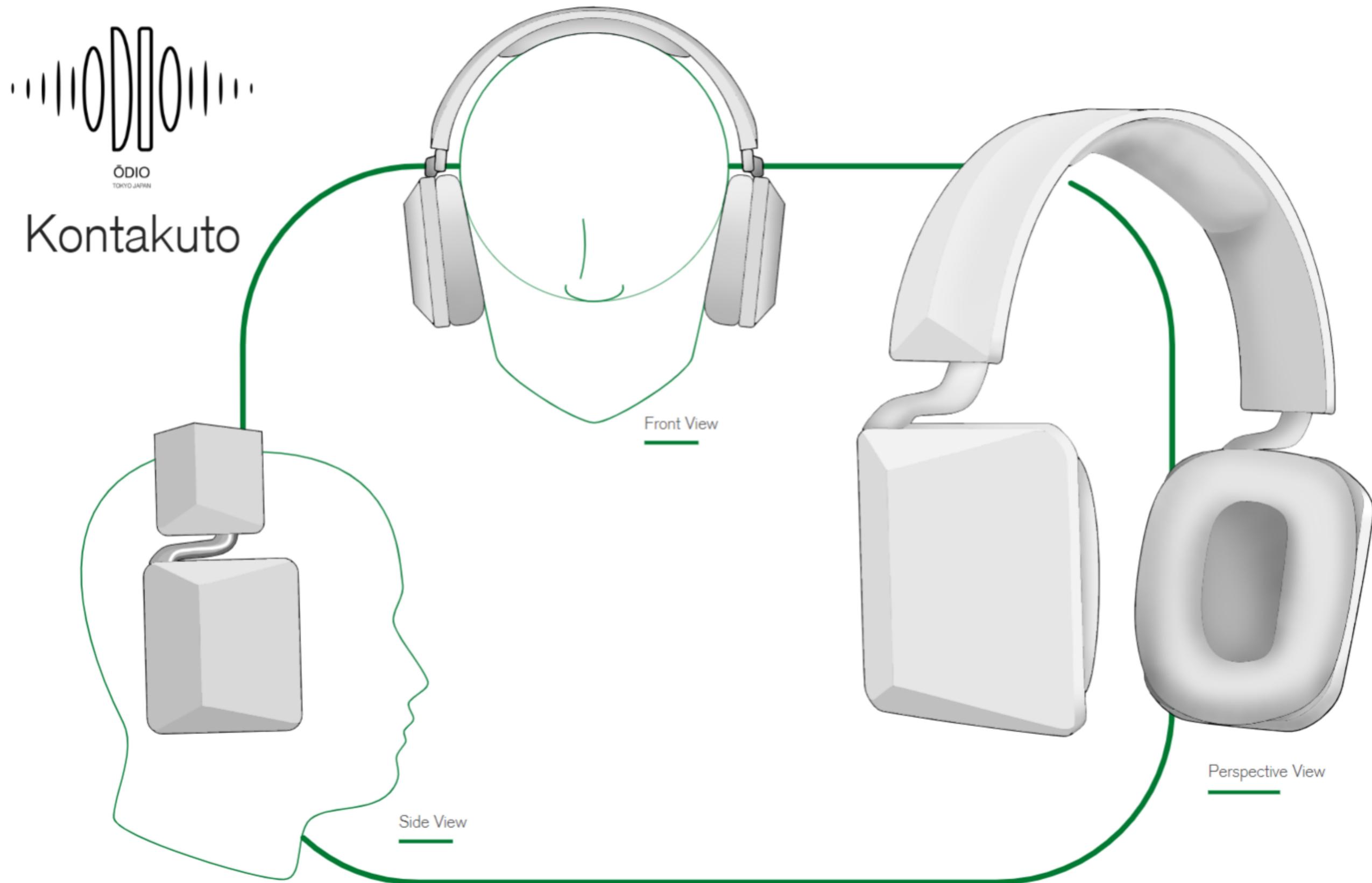


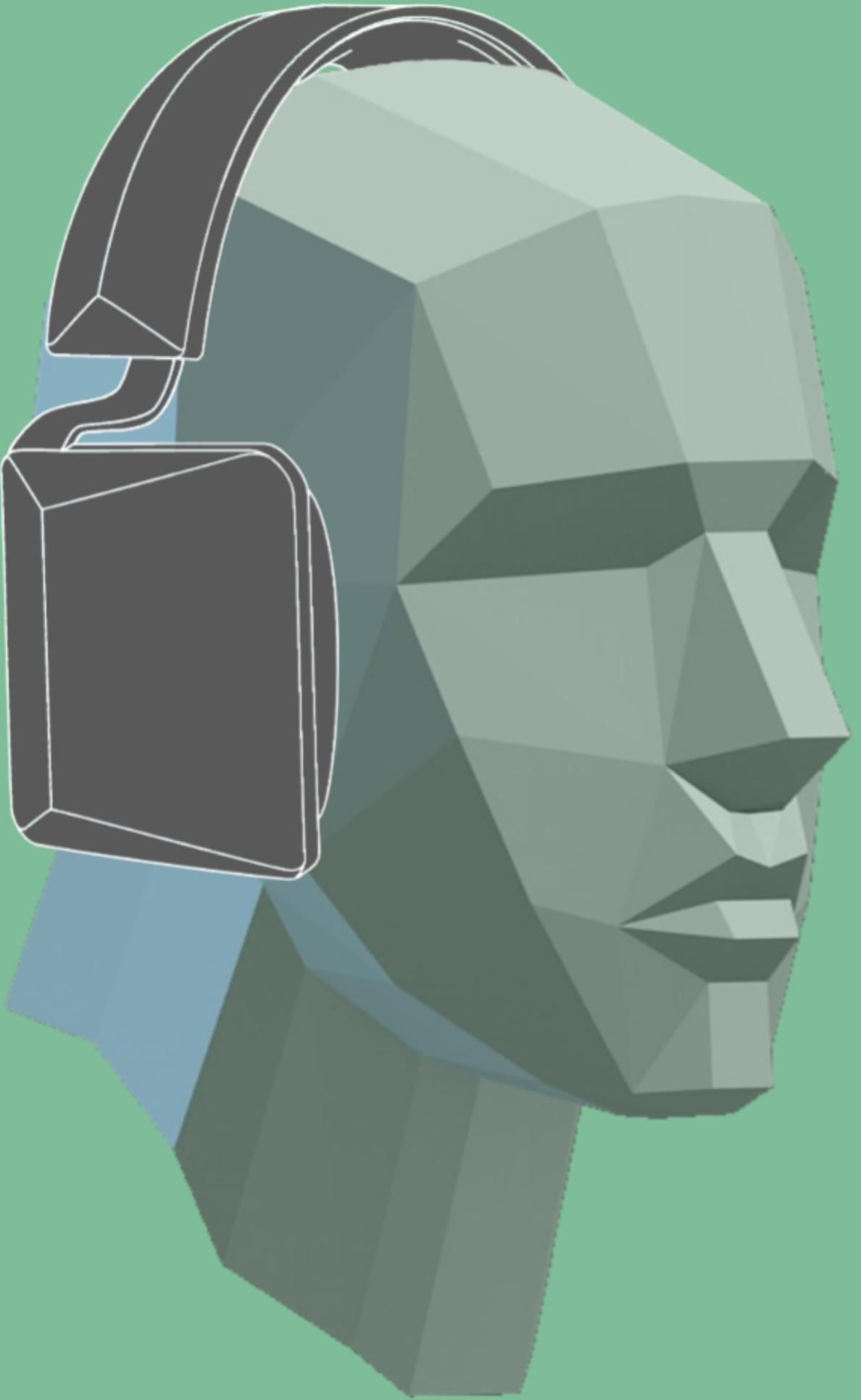
This was a mockup of how the **controls** would **function** and how the **user** would **interact** with the headset.

The design uses the large flat surfaces as **touch points**, with **gesture controls**.

It would then have some **buttons** and a charging port, like a typical headset.



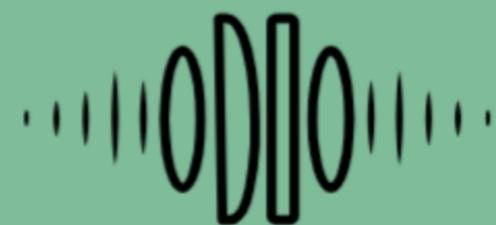




‘Tune it
all out’

Kontakuto

Active Noise Cancelling
Bluetooth Headphones



ÓDIO
TOKYO JAPAN



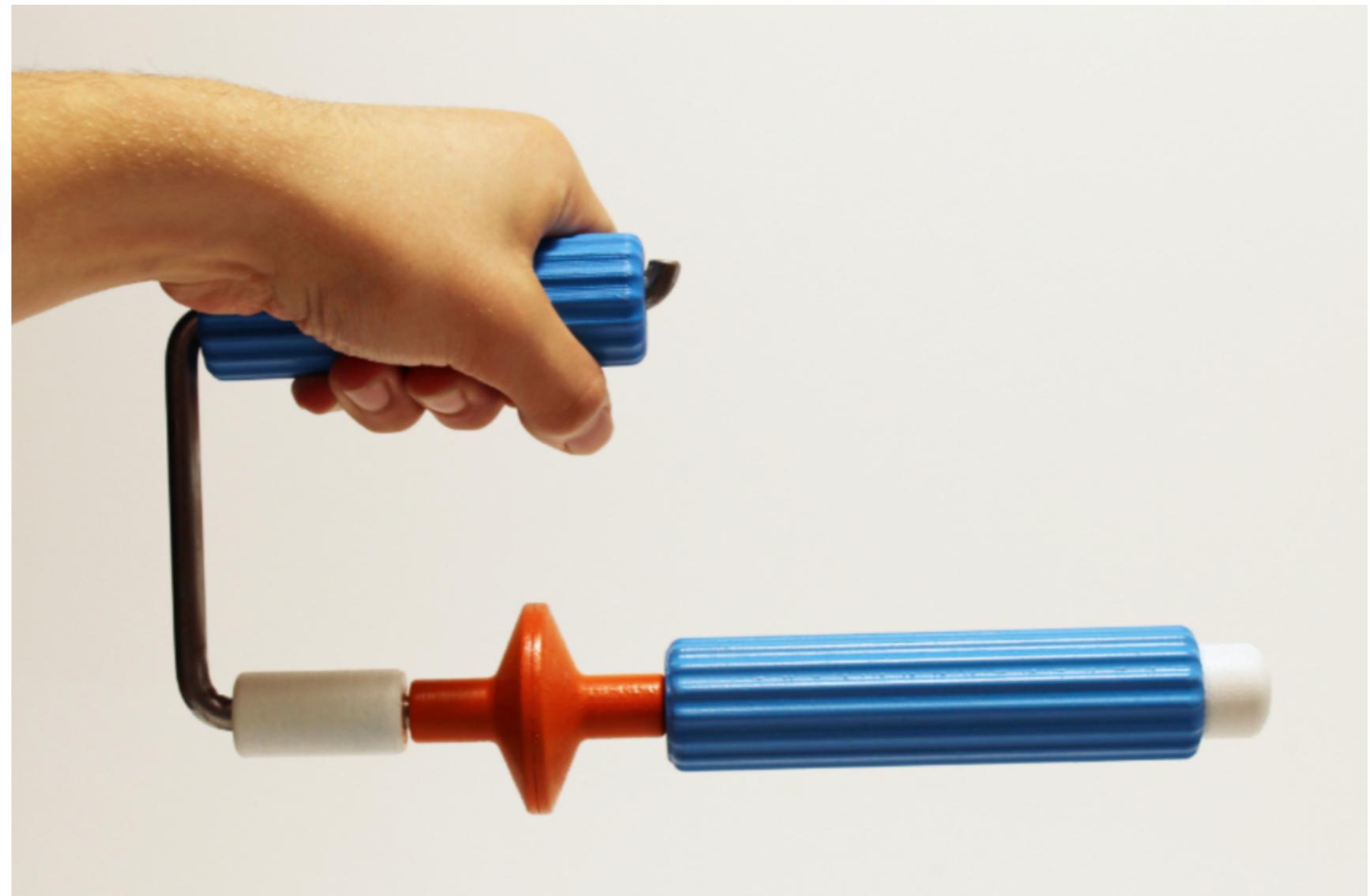
02

Fixperts[✓]

Fixperts is an **international** design **project** that tasks students to create a new and **innovative** fix to a specific **issue** affecting a person in their life.

On top of custom **designing** and building a new product you must also make a **short film** of your **process** from start to finish.

| | |
|---------------|--|
| Type | University Project |
| Time | 6 Weeks |
| Team | 2 People |
| Skills | Research, Prototyping, Human-centred design, Filming, Video Editing, 3D Modelling, 3D Printing, Sanding, Painting, Testing |



Fixperts[✓]

Meet The Team.



Cianán Ó hAnluain



Keelan Christie

Discovery Interview

We decided to conduct a **interview** with **Anna** to get a better **understand** of what she was going through.

We also asked what **products** she has used before, to see what **worked** and what **didn't work**.

This allowed us to create a list of research objectives.



Meet Our Fixpert Partner: Anna Christie.

For our Fixpert project we **partnered** with my sister **Anna**.

We choose Anna as she had been living with **severe pain in her feet** for as long as she can remember.

She was diagnosed with **enthitis related arthritis**.

It was our **hope to help** Anna **relieve** some of this pain in any we can.



Research Objectives

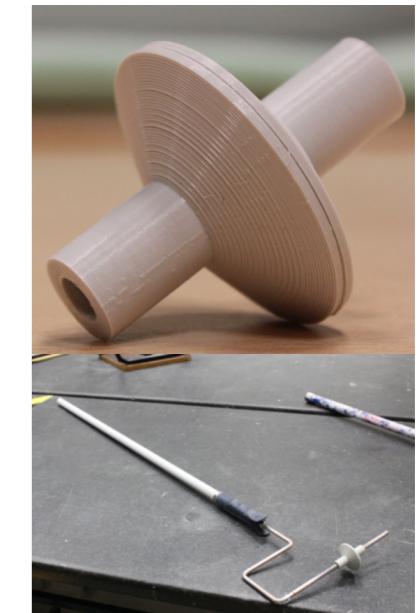
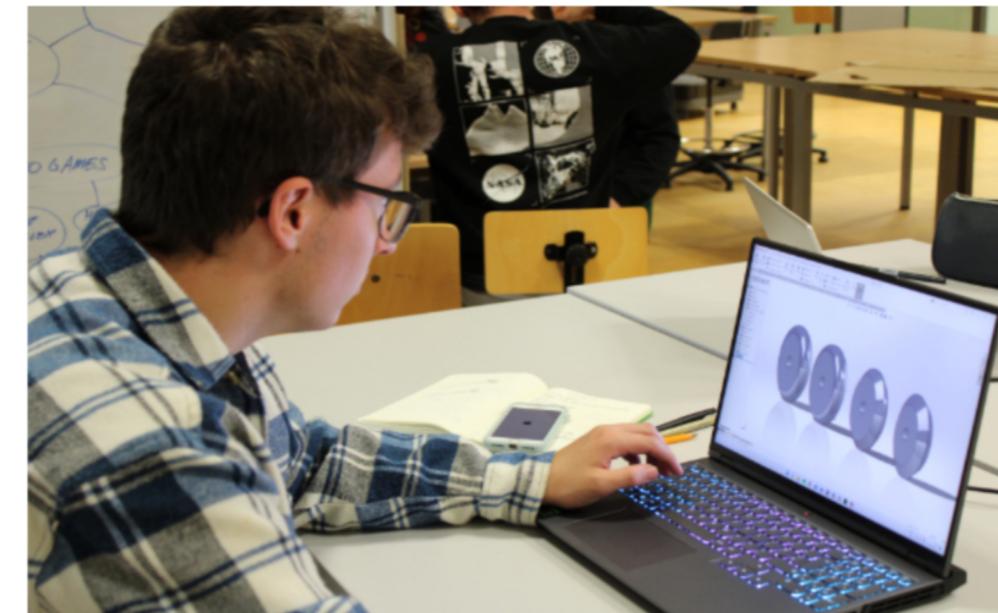
- Get an overview of a typical day for Anna
- Identify the Anna's pain points during the day.
- Learn about Anna's pain and how it makes her feel.
- Find out what effects this pain has on Anna day-to-day life.
- Note what the doctors and physios have said.
- Find out what Anna has done about this pain: what works, what doesn't.
- Identify which products Anna has used, which worked and which didn't? And why?



2. Ideation and Prototyping



Exploring Roller Shapes & Densities



We set to **prototyping** with the information we got from **Anna's interview**.

We started by **foam modelling** different shaped rollers.

She found rollers with a pointed edge worked better as they got in **between the bone to the muscle**.

We had an **interactive meeting** with Anna to **test** and **discuss** the foam models to see what she liked.

Feedback & Ideating Session with Anna

ANNA IDEATING SESSION

OBJECTIVES:

- We want one clear product idea, to continue to iterate and refine.
- Confirm which additional components she wants e.g portable, foldable, modular?
- We want to know what materials and which properties she wants in the product.

P.O.A:

- Show Sketches, with an extra few blank sheets to ideate on, with Anna's feedback and ideas. (Timelapse)
- Show her roller shapes, get feedback
- Show the rolling pin idea, (Photos)
- Bring up paint roller idea.
- Ask about materials, rigidity



Once we had found some shapes that worked, I began **3D modelling** some prototypes on **Solidworks** which I could then **3D print** for Anna to **test** and get **feedback** on.



Prototype Test

Anna using the product over her shoulder:



Roller would fly off quite often:



We had the idea of using a **painting pole** to hold the roller, as it allowed a **comfortable position** and was **shaped perfectly** for what we needed.

We could now get Anna to test our **rollers**. With **foam spacers** to keep the roller in place.

Our testing found the long handle made it difficult to control but found, the **metal bar** was **shaped** perfectly for a two handled system.

This allowed us to move to a **final build plan**.

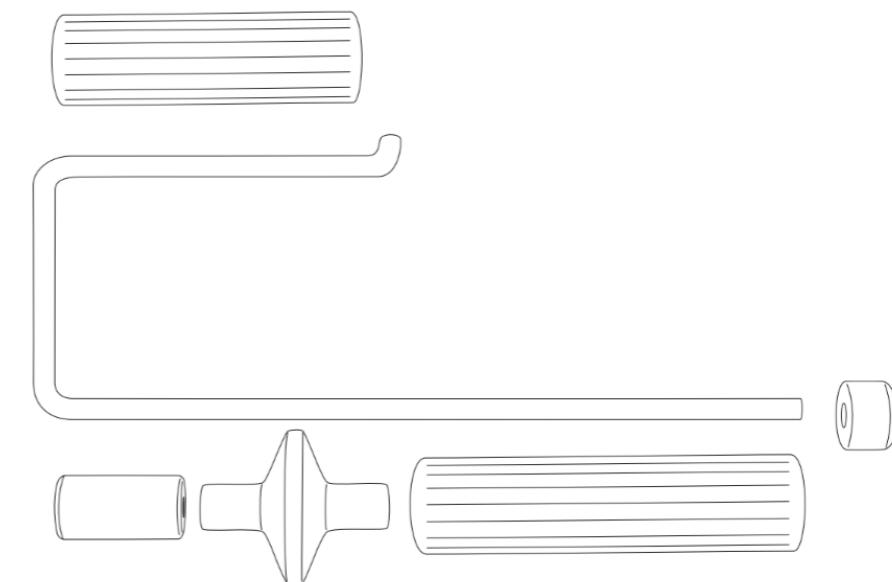


Prototype Test

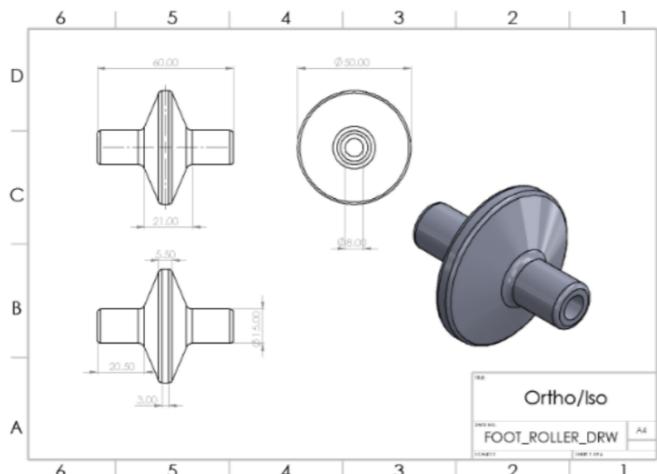


Build Plan

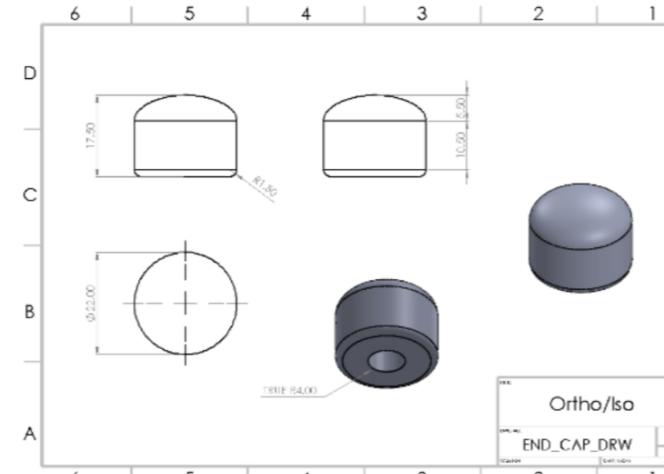
| PART NAME | MATERIAL | PRODUCTION METHOD | QTY. |
|---------------|----------|-------------------|------|
| Bottom Handle | PLA | 3-D Printed | 1 |
| Roller | PLA | 3-D Printed | 1 |
| Top Handle | PLA | 3-D Printed | 1 |
| Spacer | PLA | 3-D Printed | 1 |
| Metal Body | Steel | N/A | 1 |



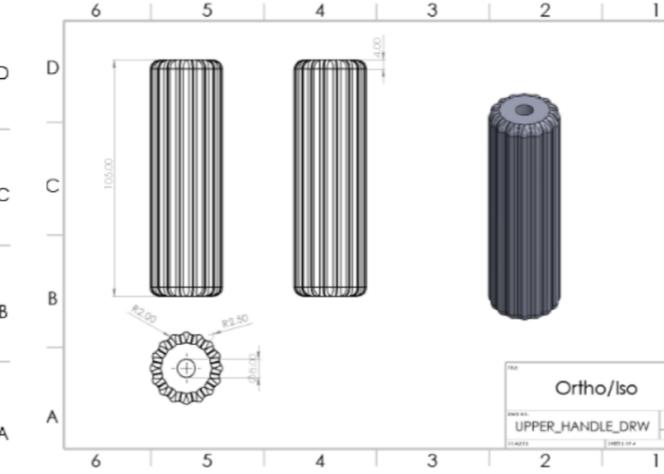
Working Drawings



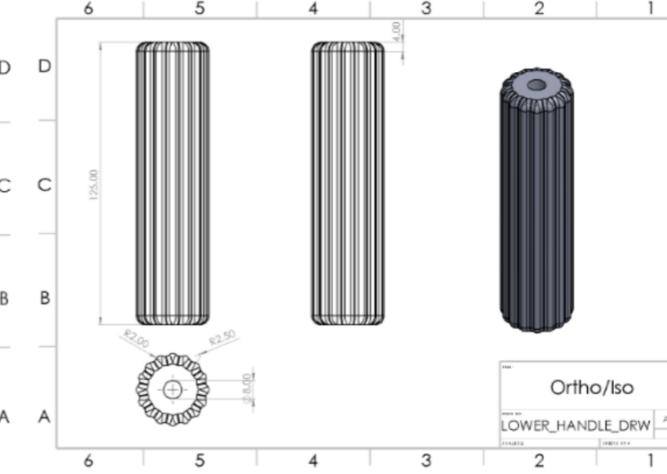
Foot Roller Piece



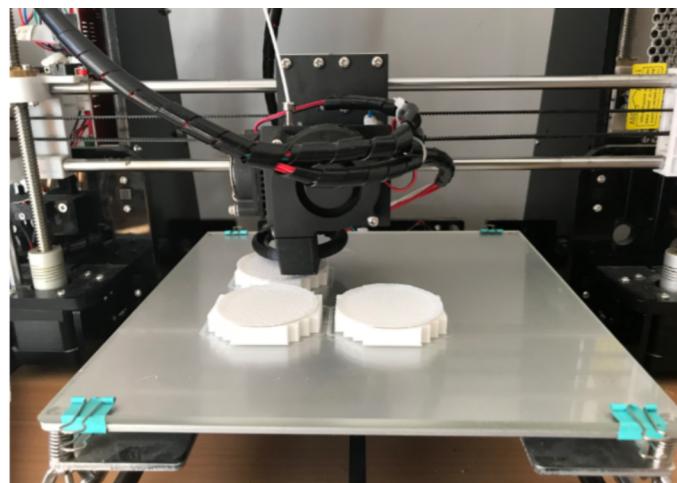
End Cap Piece



Upper Handle



Bottom Handle



We could now **model** and **3D print** the final parts for **assembly**.

Once it was all together, we got **Anna** to **test** one last time.

Thankfully she found it very **helpful**, **ticking all the requirements** she had set.



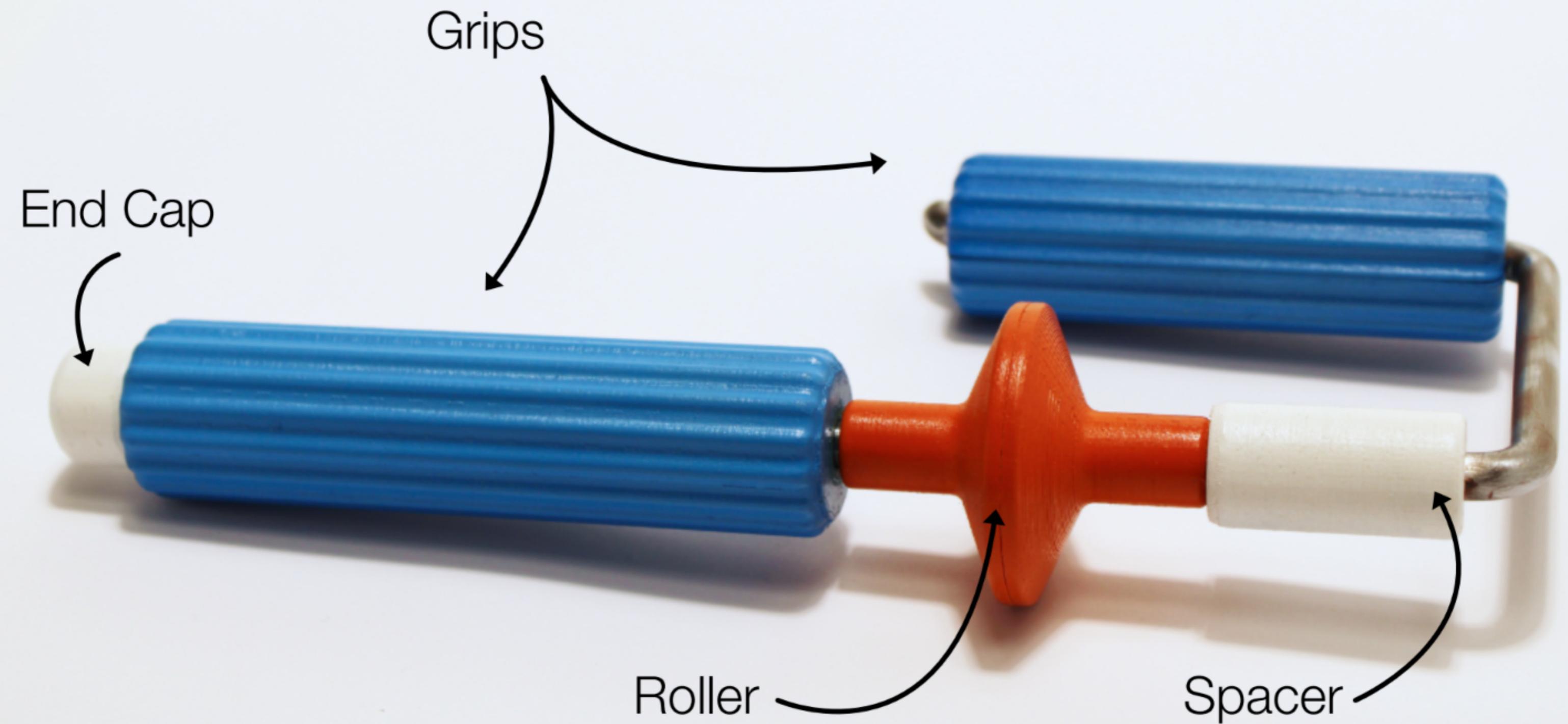
I then **compiled** our **process** flow into a **video** to prepare for submission. Here, is the **link**.

https://youtu.be/h-hFyATSmkE?si=BsGYnzdT_1ZTqBJb



Following submission we were then informed our project had **made it to the final** of the Helen Hamlyn **Fixperts** award which was a huge honor.







03

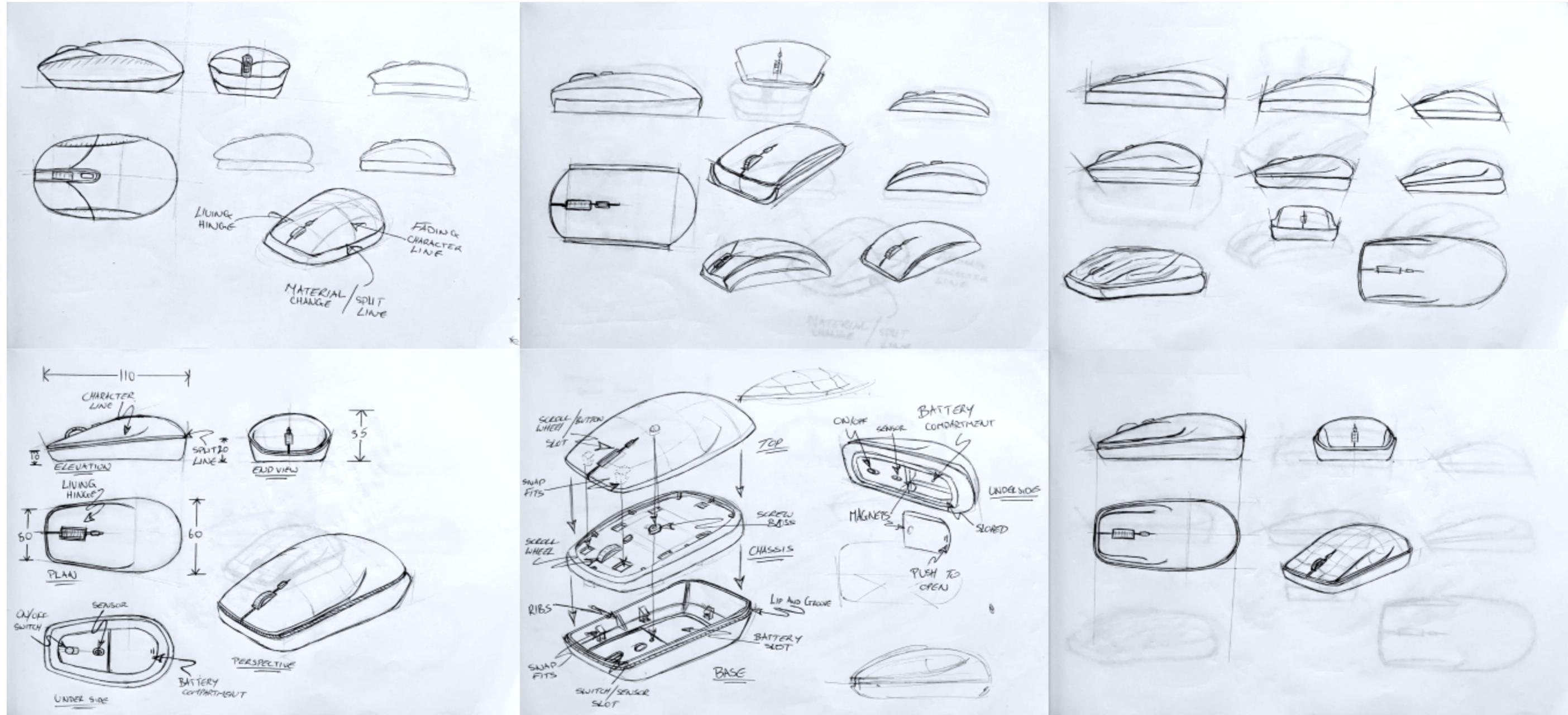
Mouse

This project required me to design a computer mouse. The aim of this project was to **model** in **Solidworks** using **surfacing** and then create it to be designed with **manufacturing** in mind. Once created, I learned to create **photorealistic** renders in **Keyshot**.

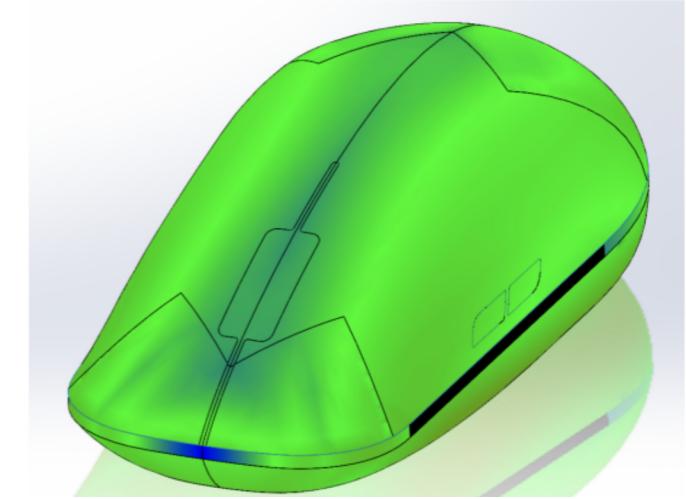
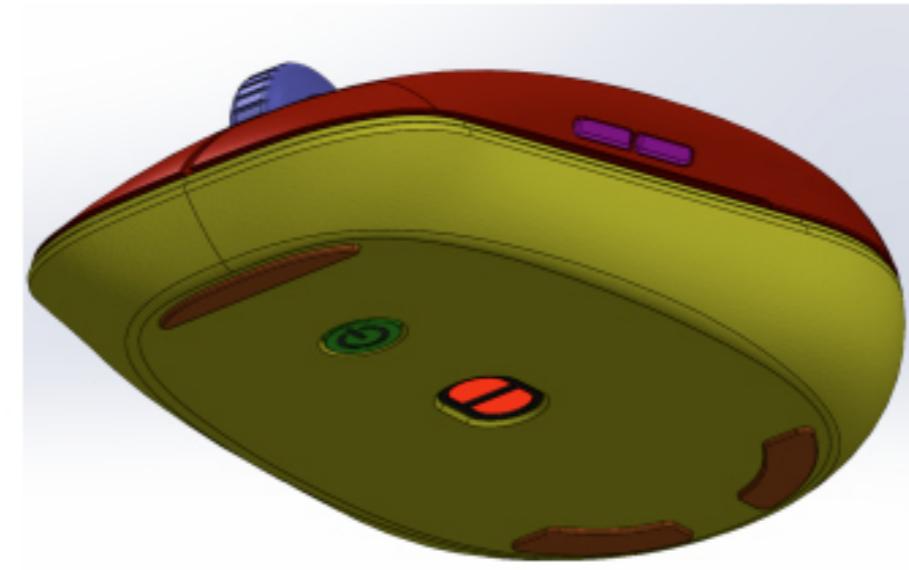
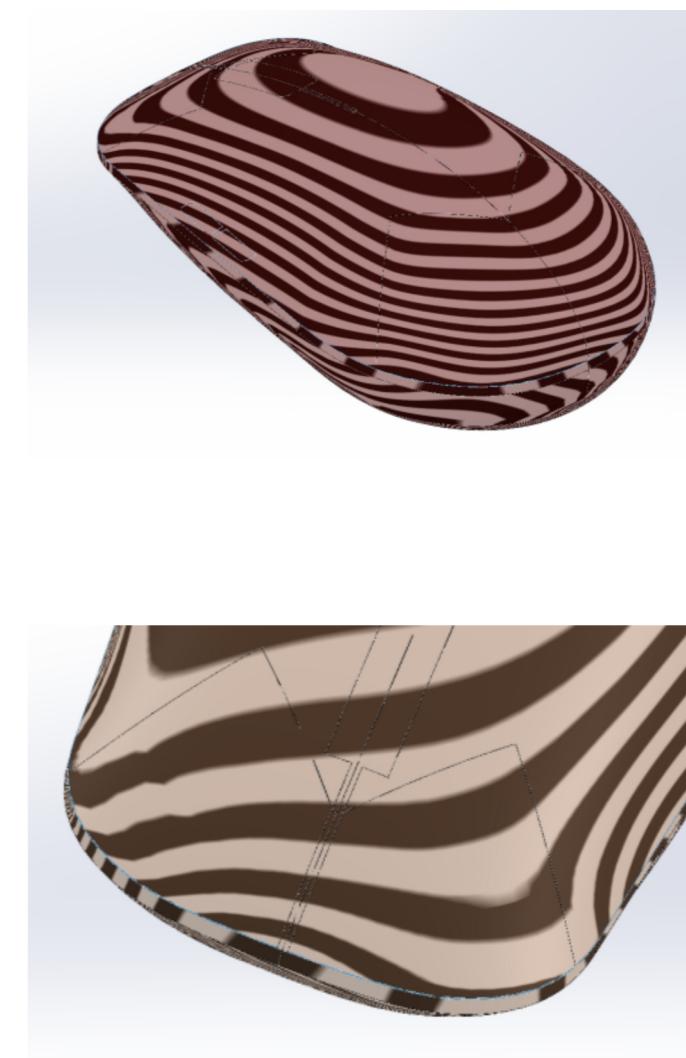
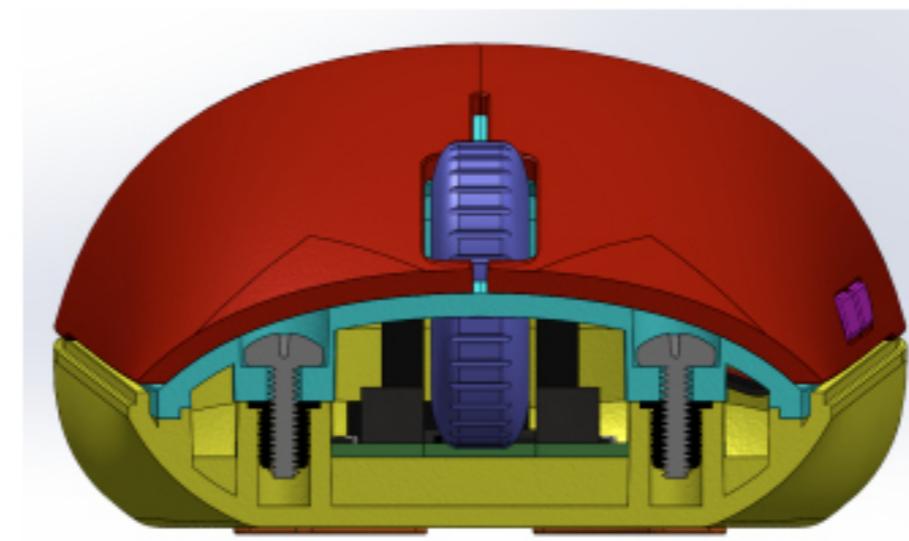
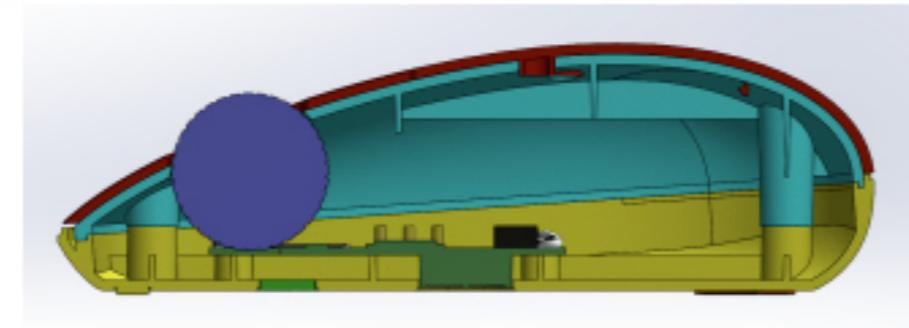
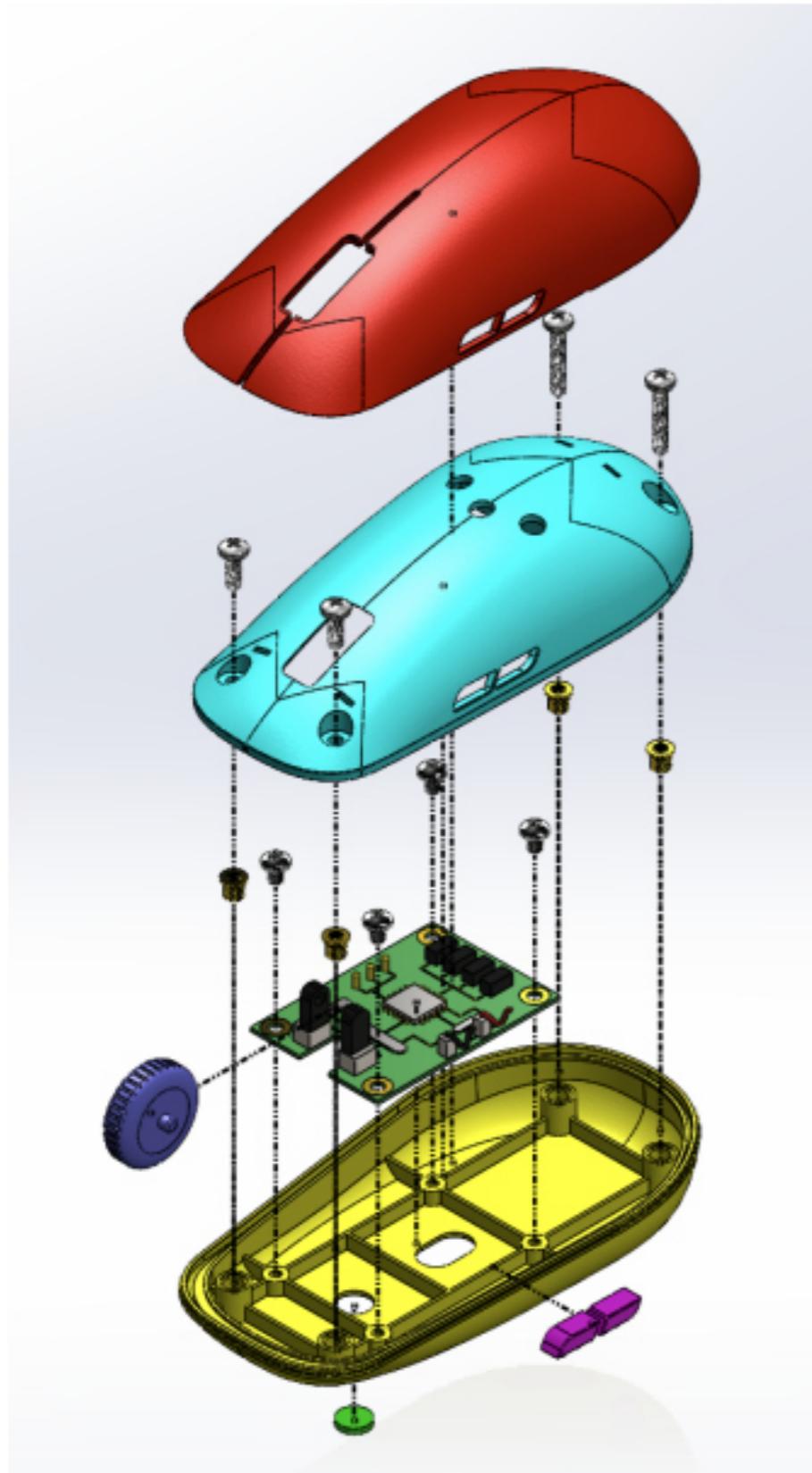
| | |
|---------------|---|
| Type | University Project |
| Time | 6 Weeks |
| Team | 1 Person |
| Skills | Sketching, Ideation, Solidworks Surfacing, Design for Manufacture, Keyshot Rendering |

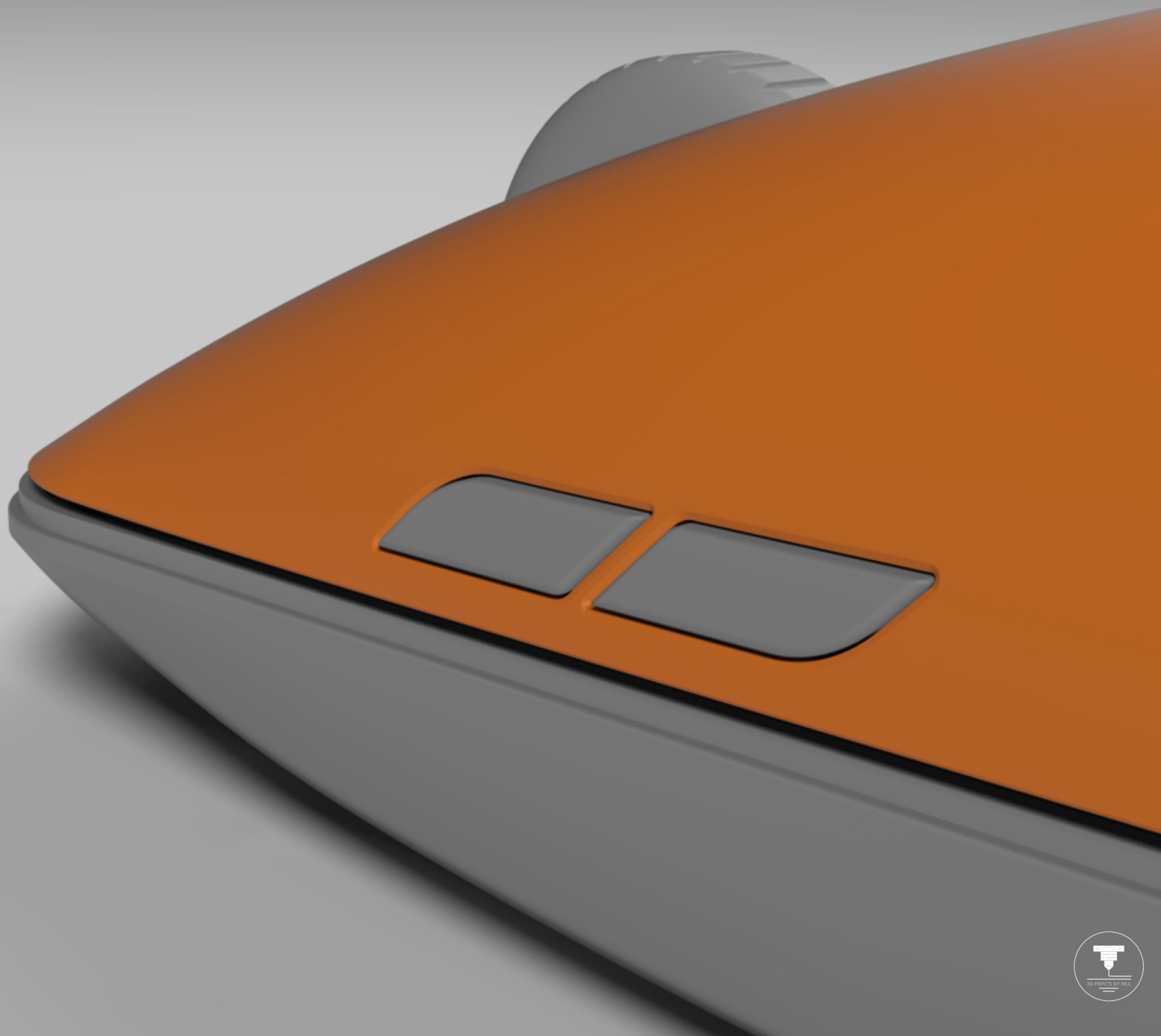


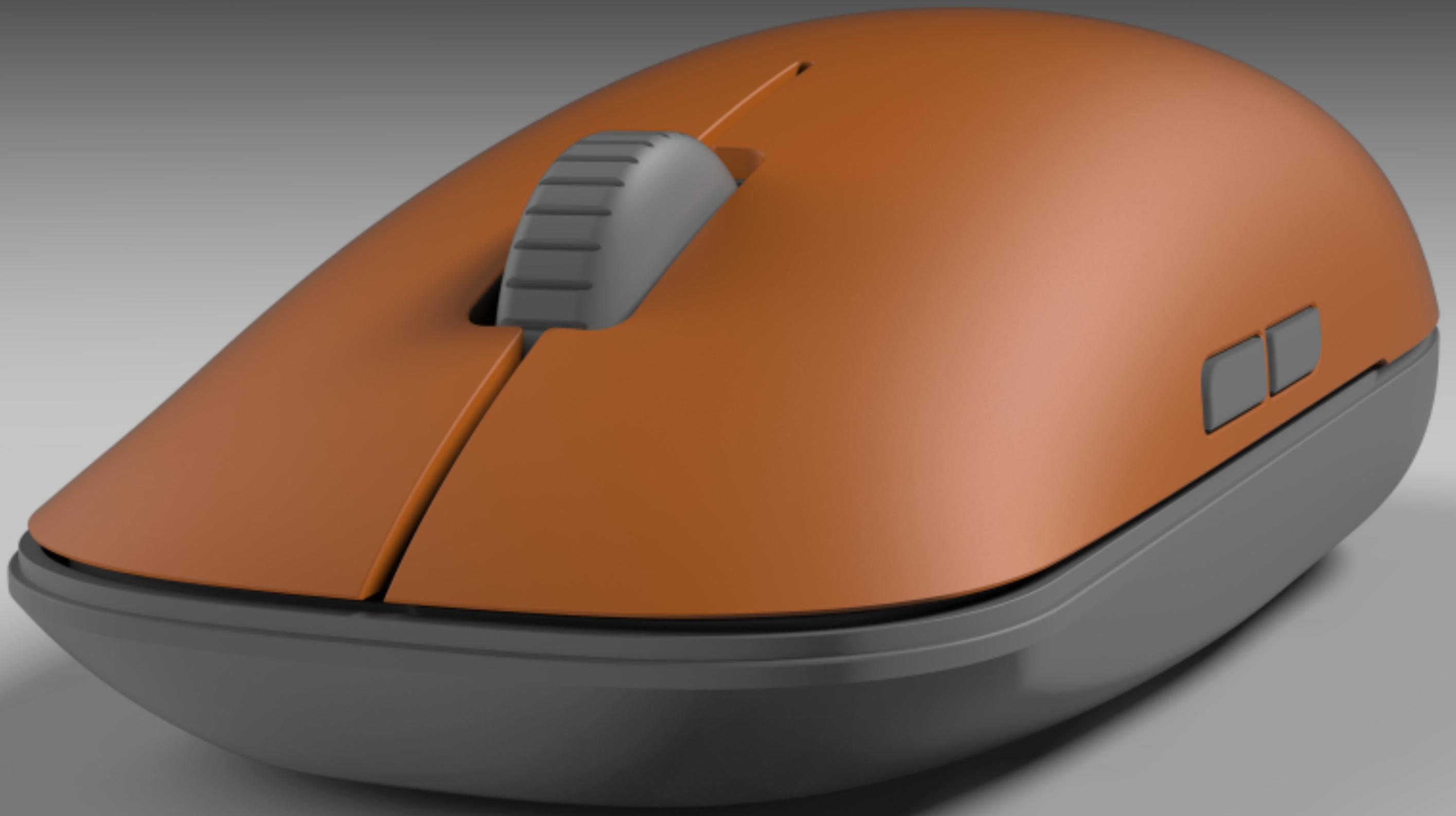
Sketching

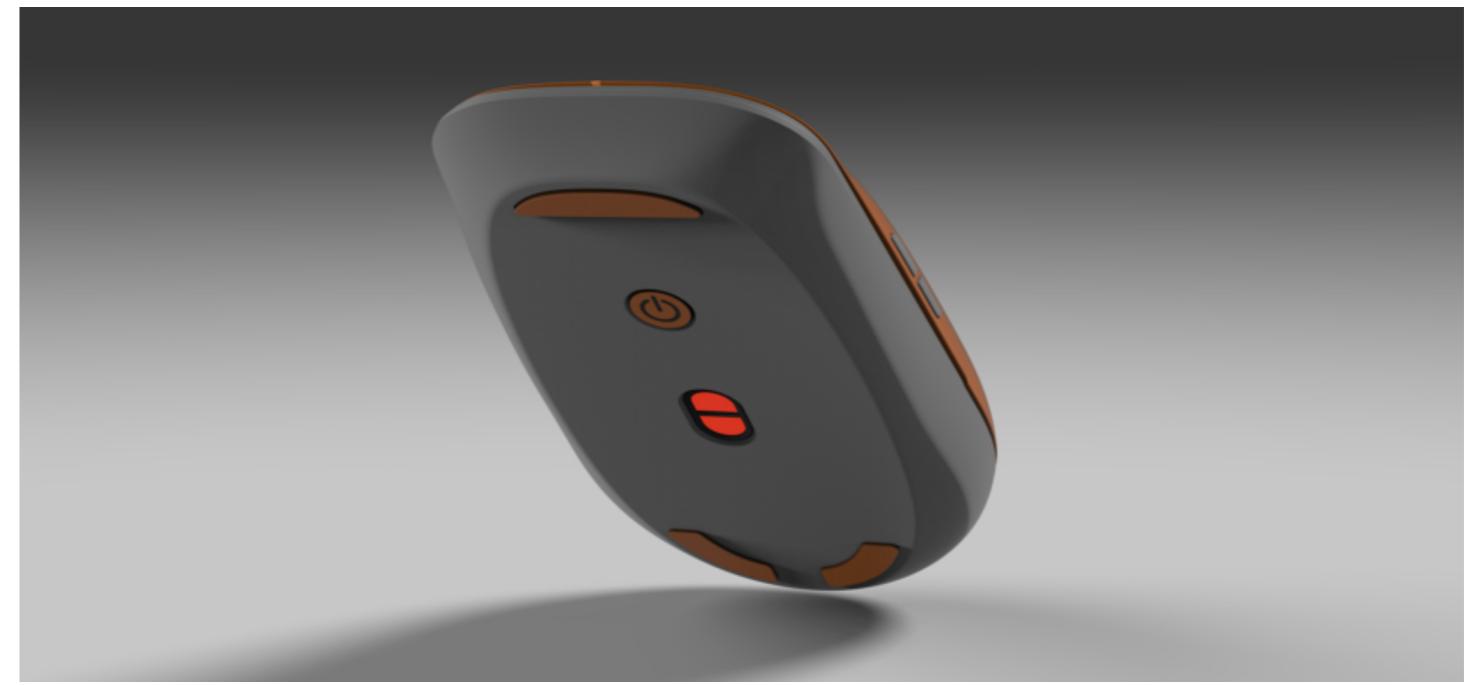
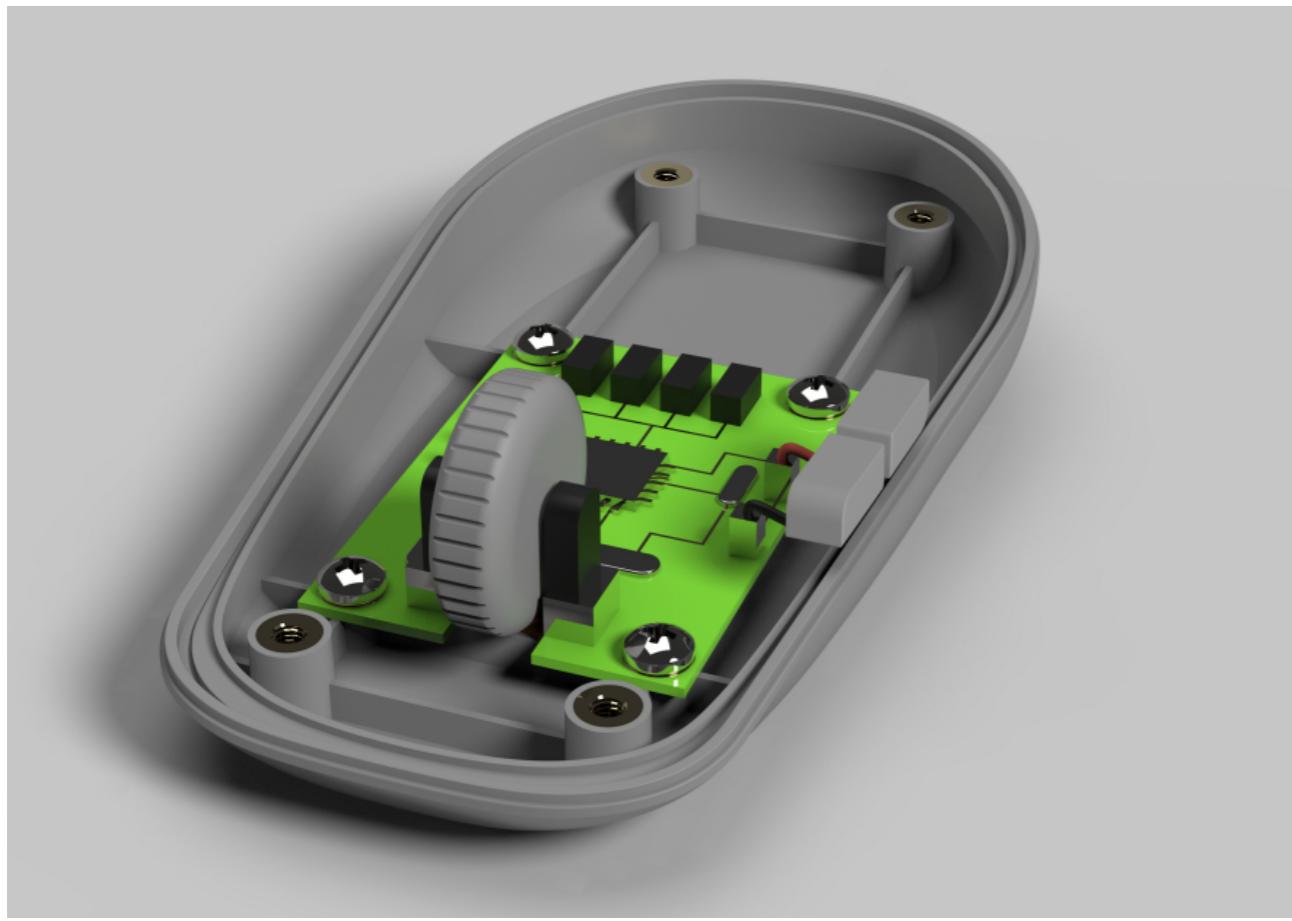
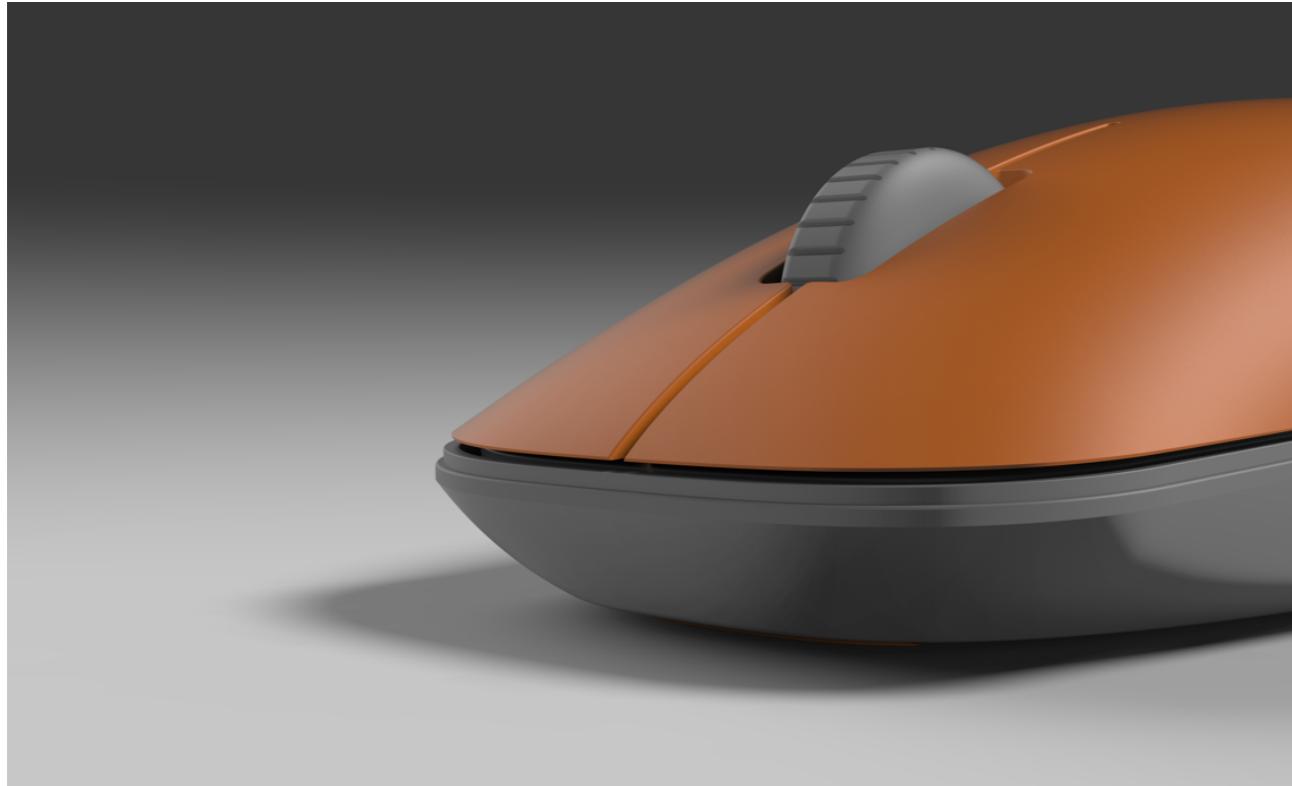


CAD Modelling









04

Mandalorian Helmet.

While on Co-op Placement in **Odyssey Studios**, Limerick, I got the chance to work on personal projects to help upgrade my skills. So I decided I wanted to learn to create a **two part-mould** of a **3D Printed** Mandalorian Helmet.

| | |
|---------------|--|
| Type | Personal Project |
| Time | 6 Weeks |
| Team | 1 Person |
| Skills | 3D Printing, Sanding, Mould-making, Spray painting |

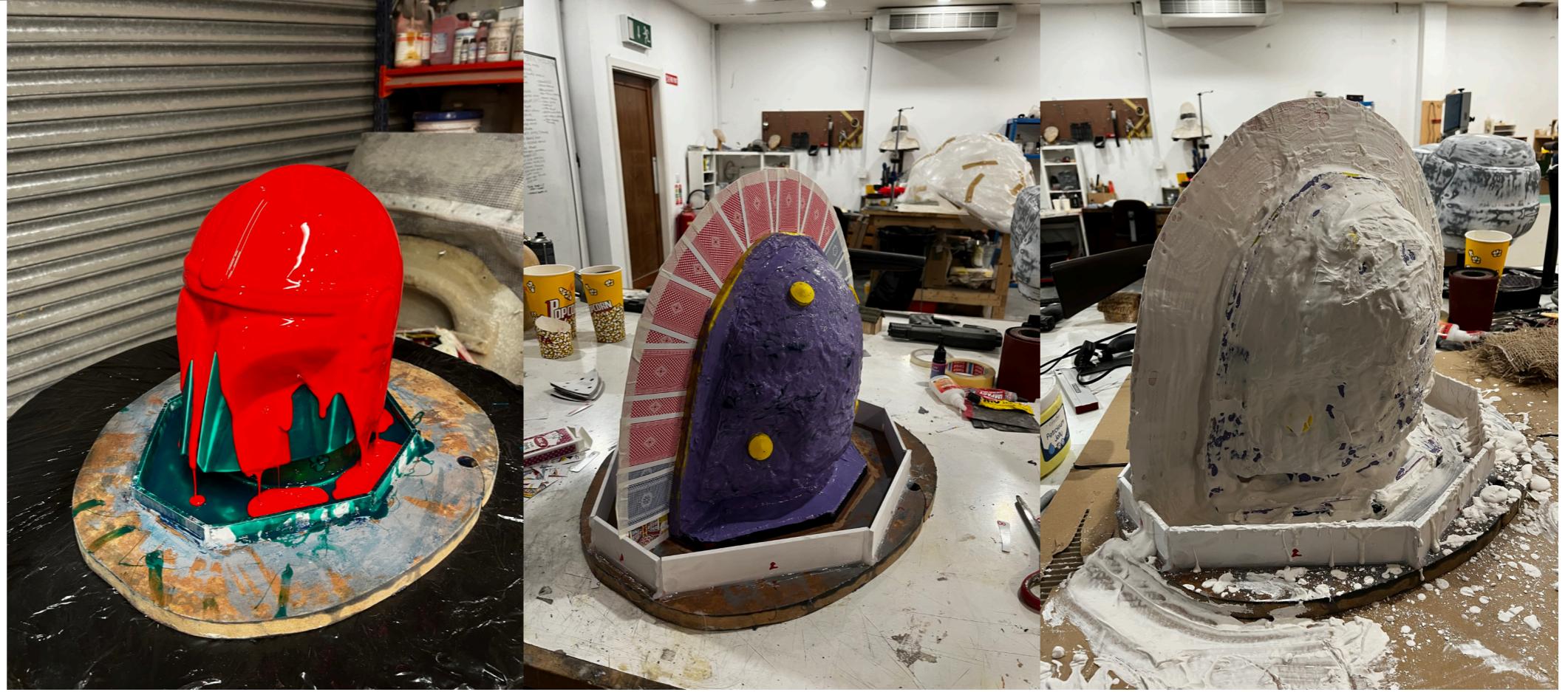


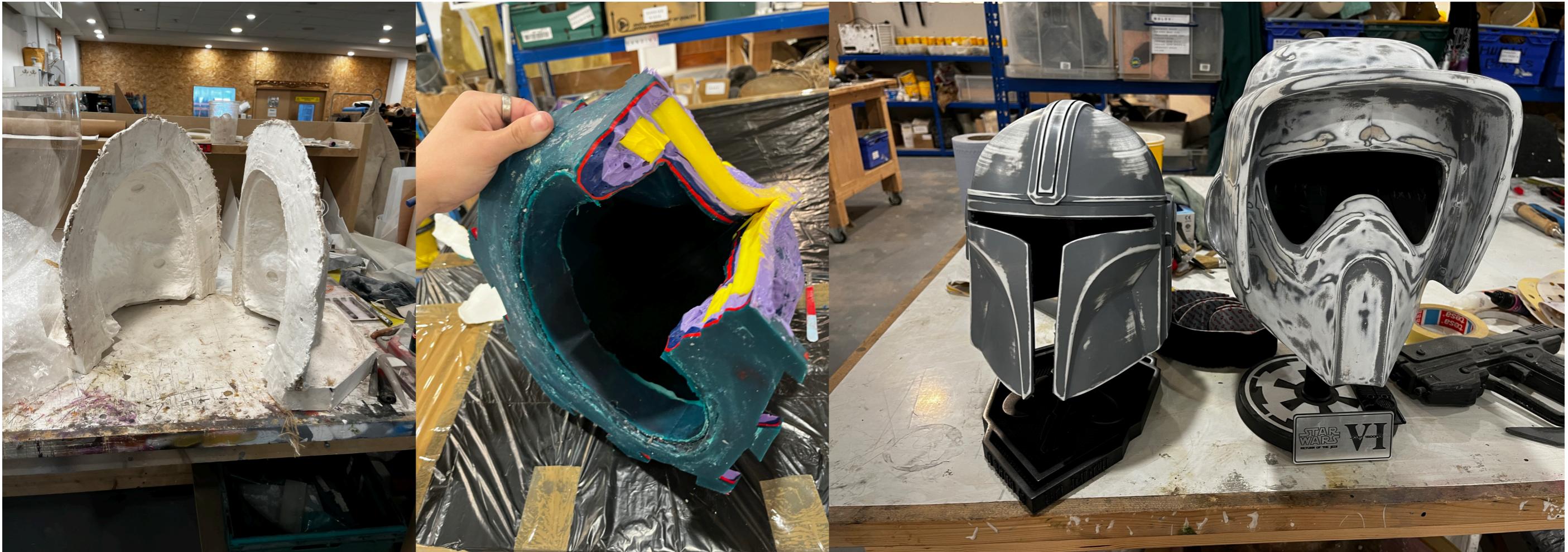


I started by **3D printing** a file I had bought online, then began the days of **sanding** and **filling** the layer lines until it was shiny and **smooth**.

Next I **prepared** the print for **moulding**. Using **clay** to block up undercuts.

Then I used **silicone** in several layers to create the mould. This was then given a **plaster jacket**.





Once the **plaster** had set, the **silicone** could be **removed** along with the print.

The **mould** could now be used to **cast** identicle copies of my print.

To finish, I cleaned the print and began **painting** a **gloss** black **undercoat** using **graphite powder** that I rubbed into the surface to give the desired look.



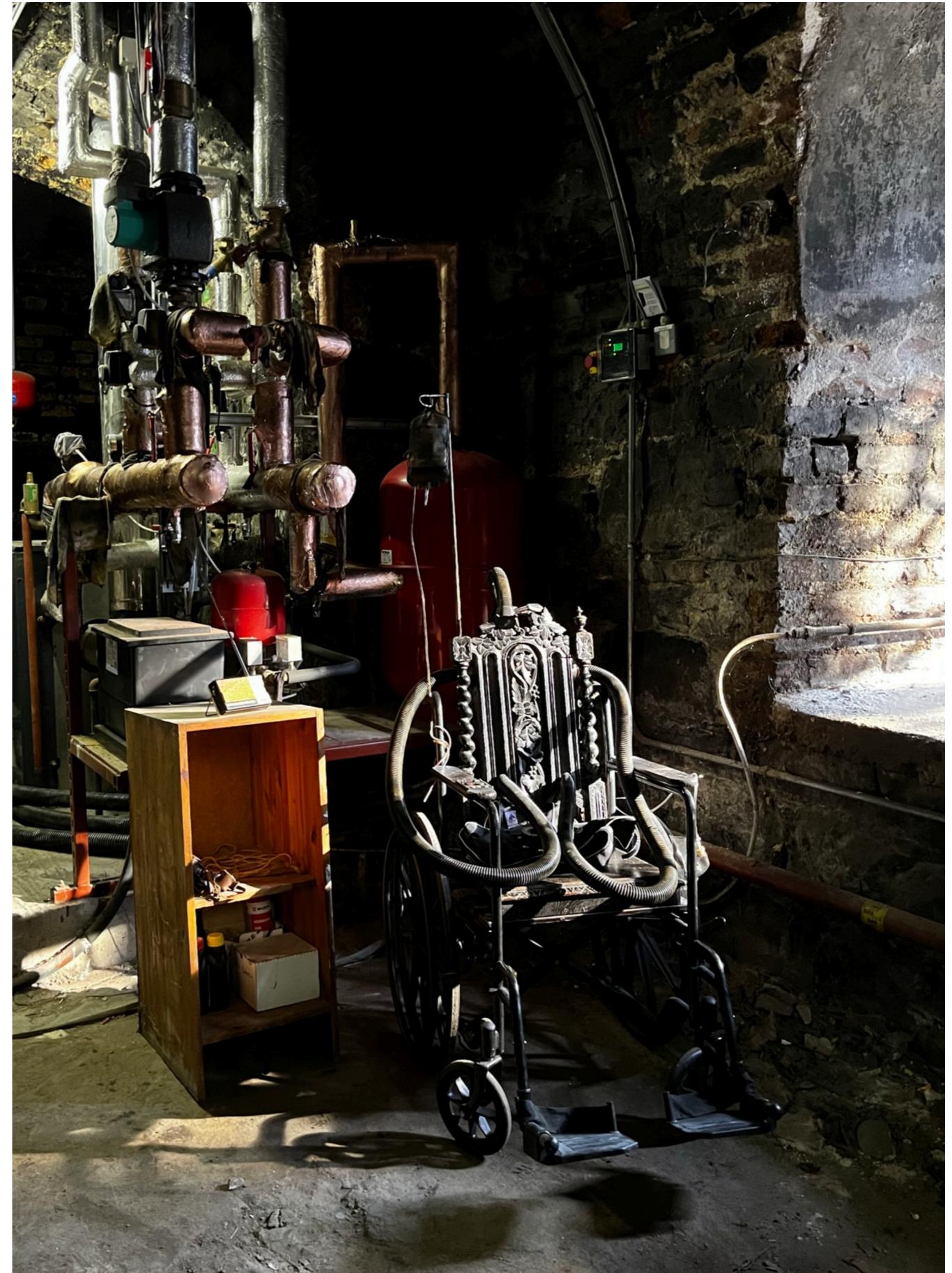


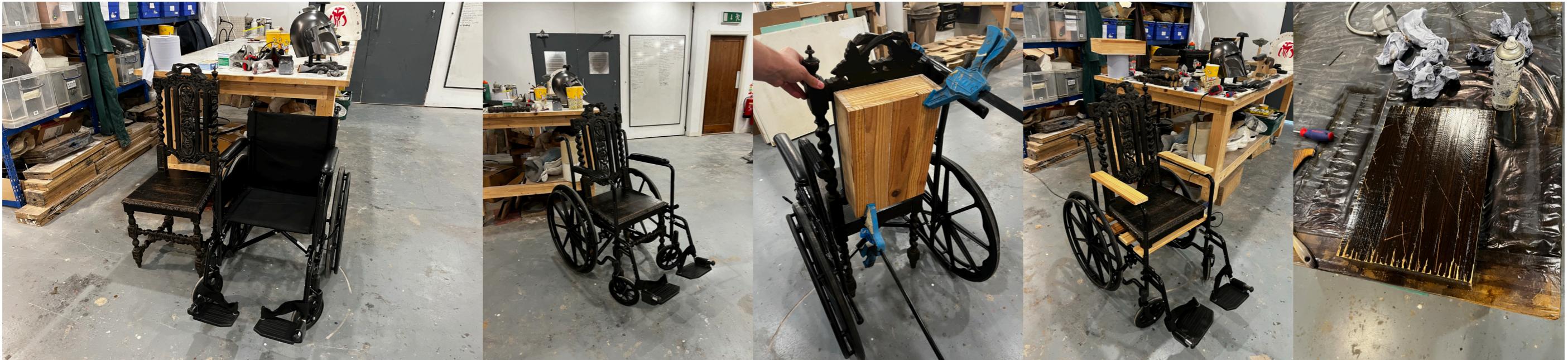
05

Wheelchair Movie Prop.

During my Co-op placement I was contacted by the **Emerging Limerick Filmmakers** (ELF), as they needed a **Sci-fi wheelchair** and a few other **small props** for a **short film** they were making called *Mob The Trench*.

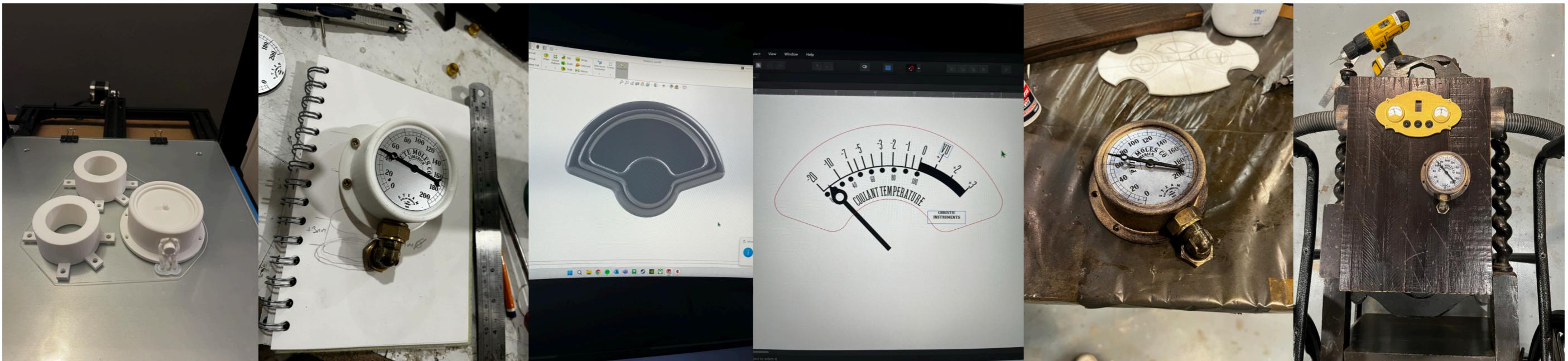
| | |
|---------------|---|
| Type | Movie Prop |
| Time | 4 Weeks |
| Team | 1 Person |
| Skills | Research, Sketching, Fabrication, Woodwork, 3D Printing, Laser Cutting, Adobe Illustrator, Painting, Weathering, Set Decorating |





I started by **sourcing** a wheelchair and an old wooden antique chair and began **chopping up** the chair and **mounting** it securely to the wheelchair frame.

Next, I moved to creating the ‘life support’ unit that would be on the back of the chair and **chipped, painted and weathered** it to give it the desired affect.



Following on from the physical chair, I **modelled** some **small details** such as the **connectors, dials** and a big old fashioned **steam gauge** in **solidworks**.

To finish, I created **line works** for the dial faces and **laser cut** those out.



As it was a dystopian future, I added modern elements for example; a control panel to the arm rest which was **laser cut**.

Next I had to figure out how the life support tubes would connect to the actor. To solve this issue I **made a harness** that could hold the tubes.

The last touches included a **fire extinguisher** 'oxygen tank' and a **custom IV drip** which I **painted and weathered** to match the aesthetic.





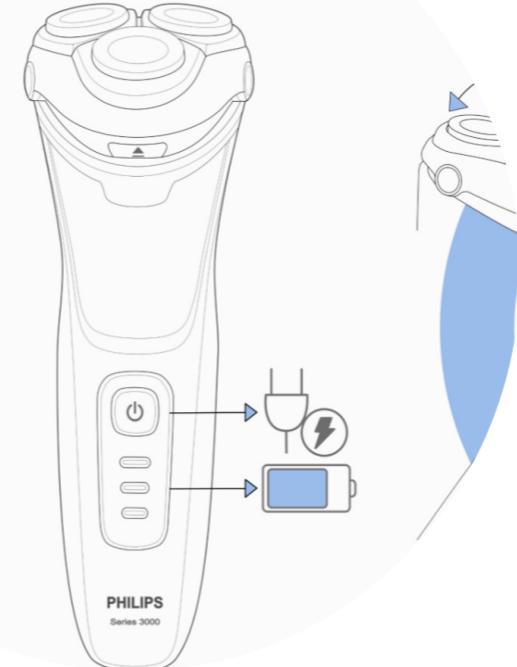


06

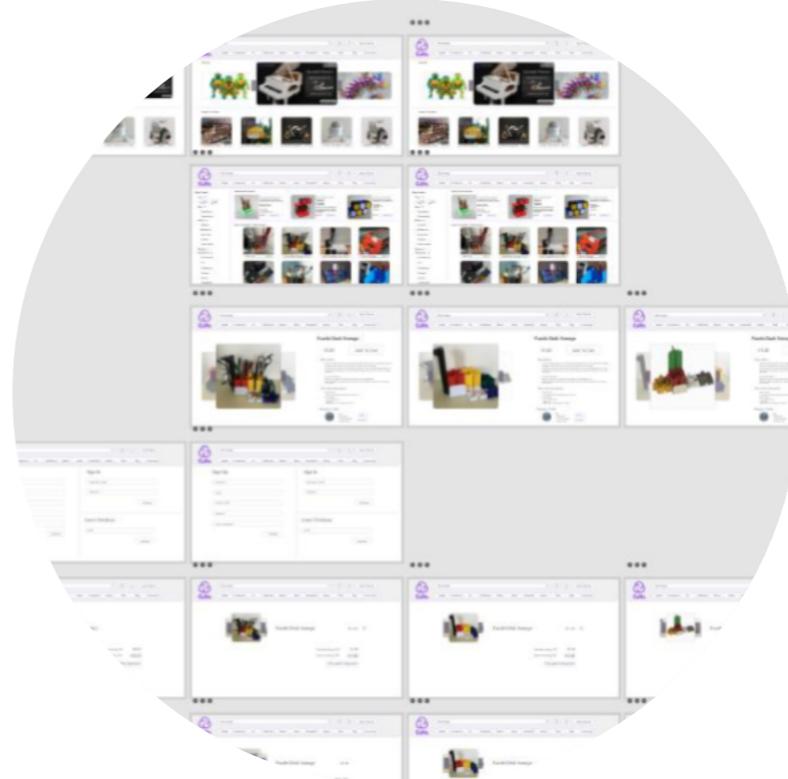
Miscellaneous

This is a collection of a couple **smaller projects** that I have done. Showing my skills in **linework**, **UX** website design, **mock ups** and **digital rendering**.

PHILIPS Series

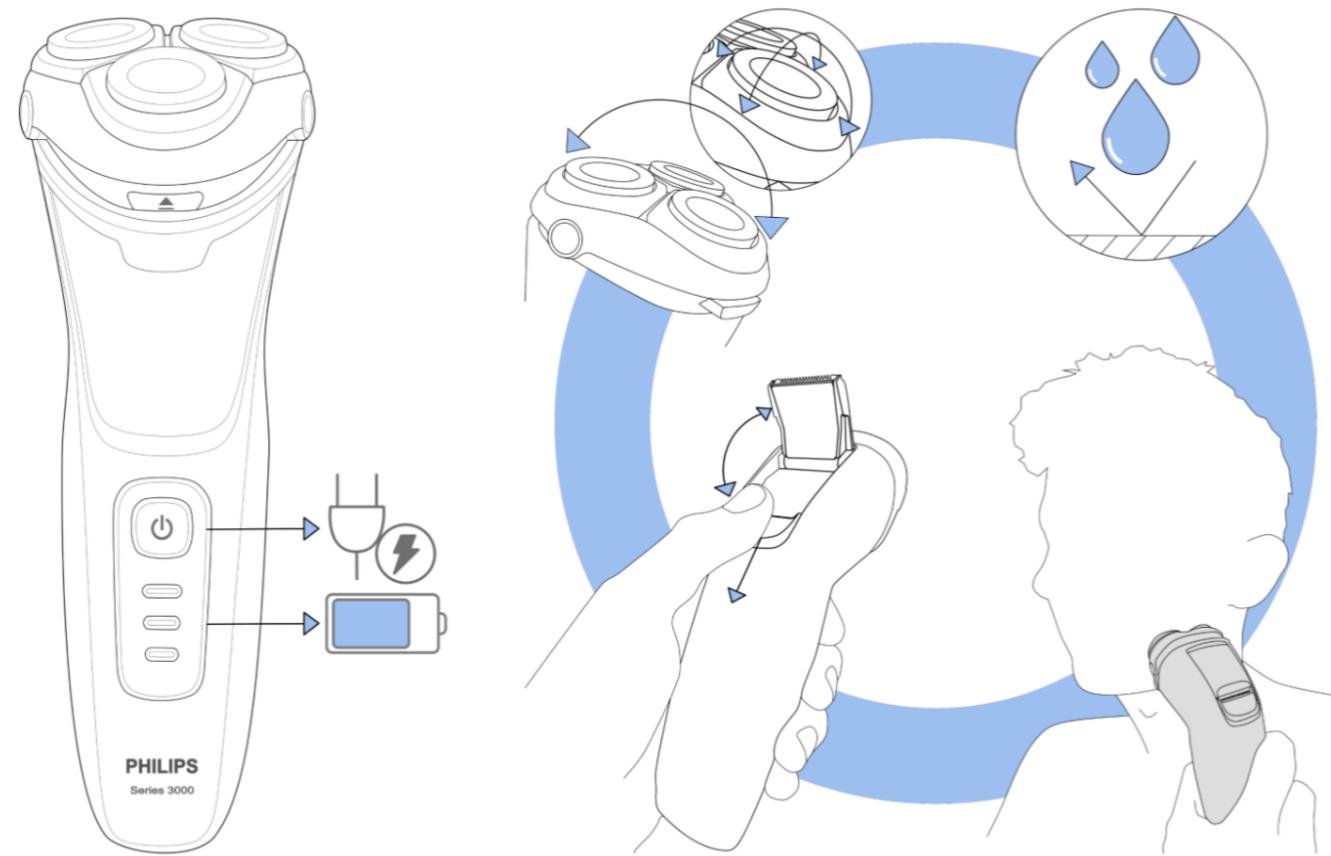


| | |
|---------------|---|
| Type | University Projects |
| Time | 4 Weeks |
| Team | 1 Person |
| Skills | Affinity linework, Design Visualisation, Product branding, Website design, User Interaction, Product Mockups, Digital Rendering |



Affinity Linework - Electric Razor

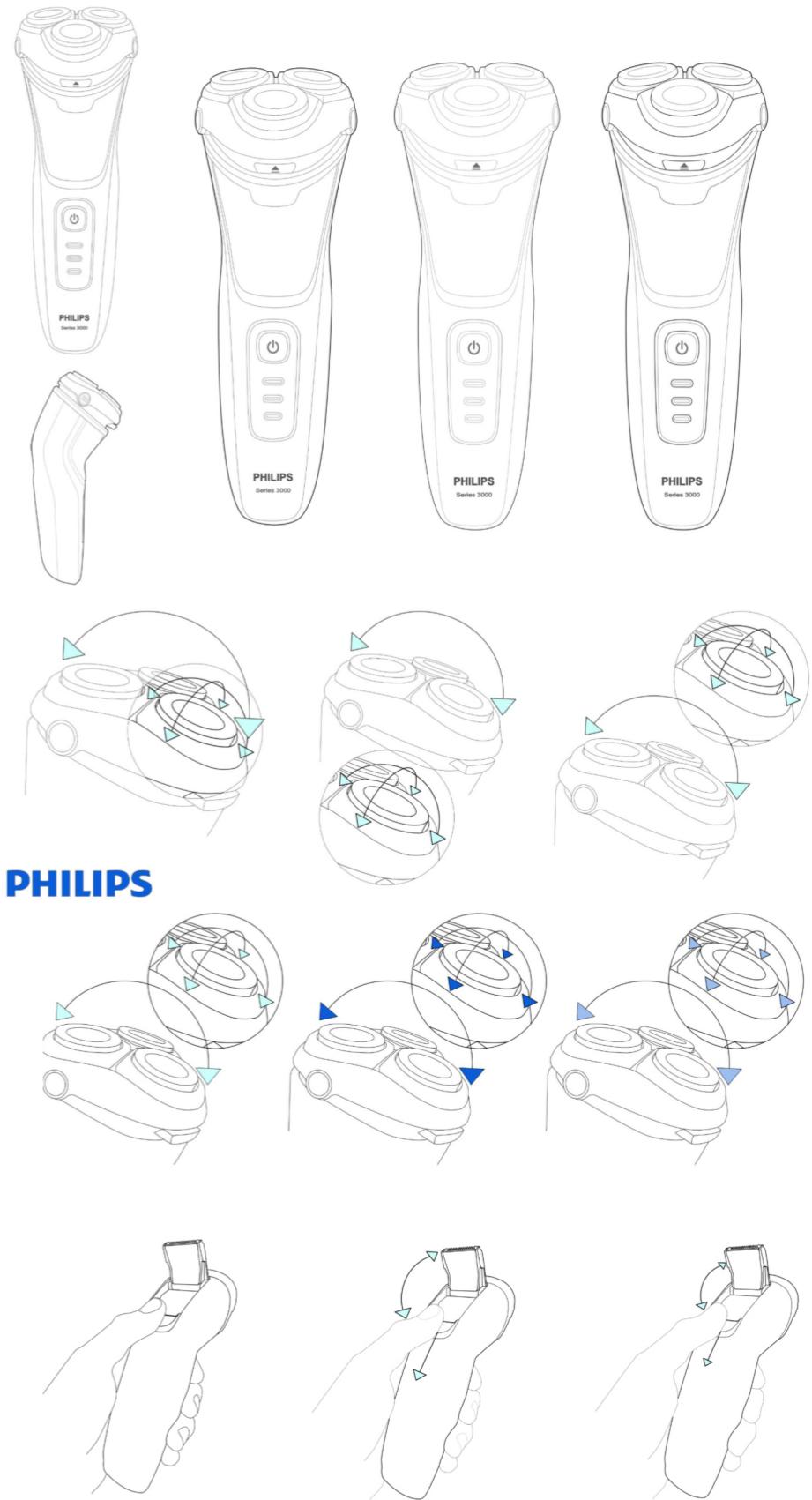
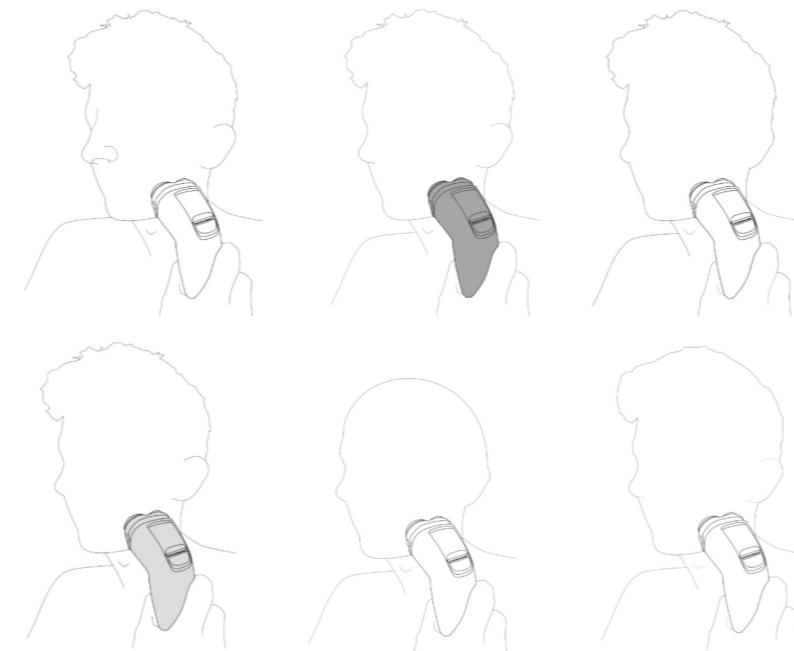
PHILIPS Series 3000 Electric Razor



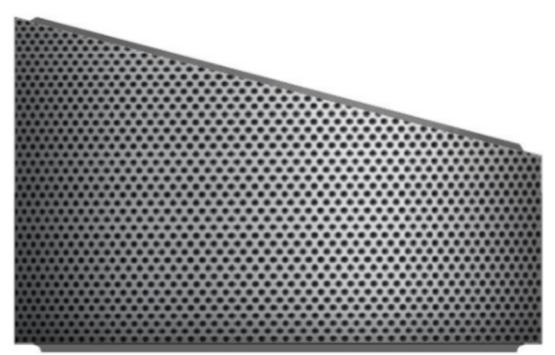
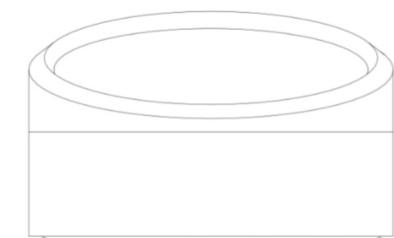
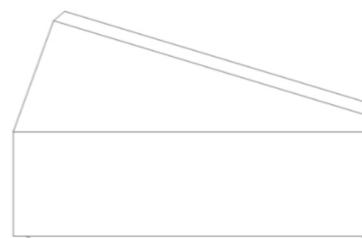
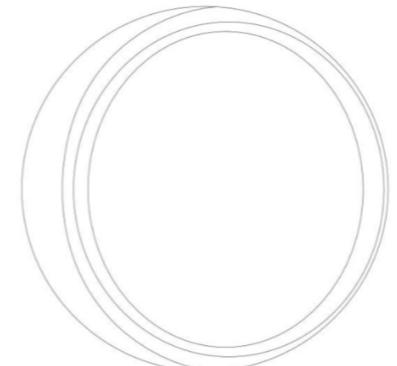
The purpose of this project was to understand the effects of **different line weights** on a **detailed** product drawing.

I choose an electric razor as it had several **material changes** and **shadow gaps** which made for an interesting **mix of line weight**.

We then had to make an **informative product function page** that displayed the product in **context**.



Affinity Rendering - Speaker



The brief for this assignment was to use **Affinity** to create a **speaker** that could be **digitally rendered**.

I started with some quick **sketches**, creating some **iterations** of my design.

I began with linework, then moved to **adding textures** and **colours**, which I could then **digitally render** to create **realistic shadow** and **glare** on the screen.

Adobe XD - Website Redesign



Visibility
Featured items are displayed in a clear rotational section

Visibility
The most popular files per week are displayed here

This project tasked us to pick two similar websites and **critique** the layout, graphics and **funcionality** for the **user's experience**.

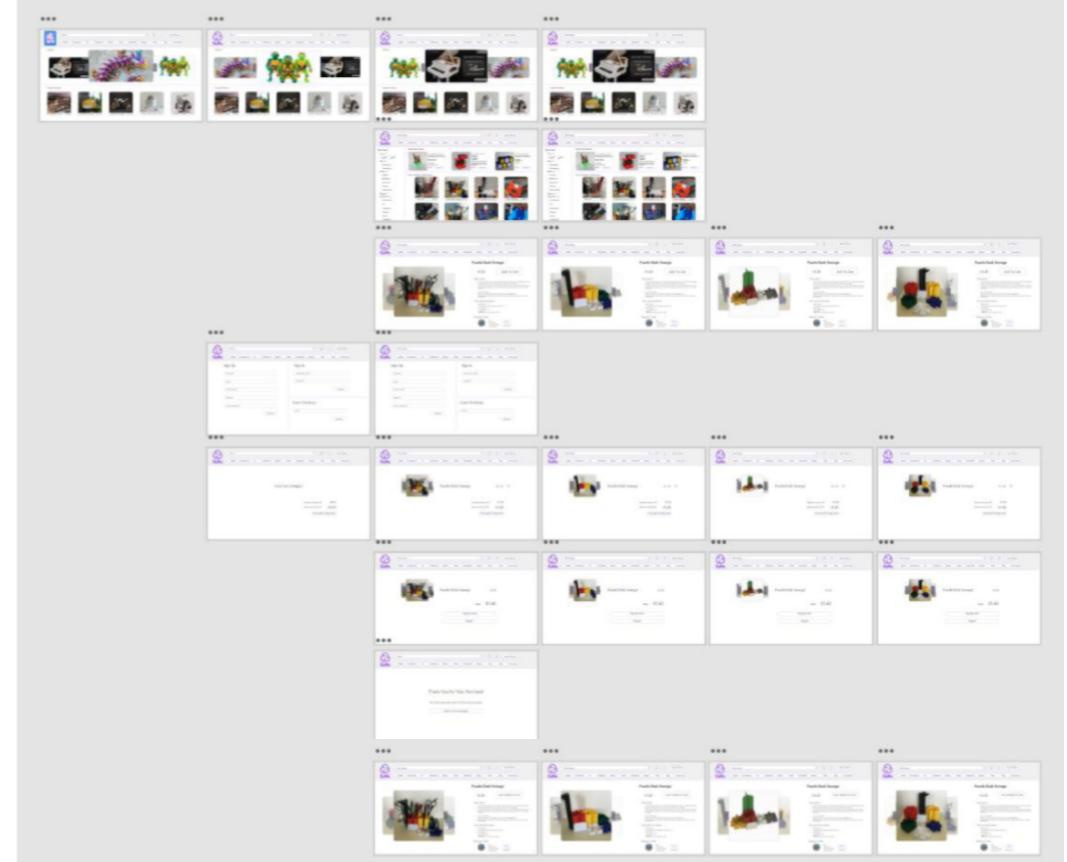
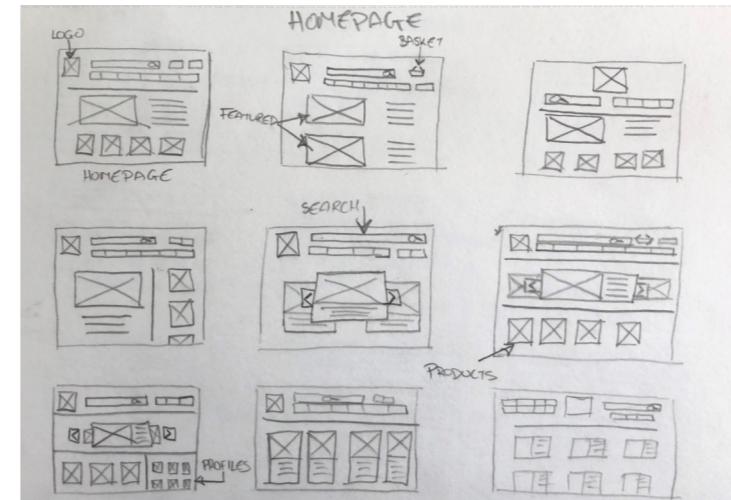
I choose **3D printing websites**, which I had a lot of experience with, as I had found them to be **quite difficult to navigate** and search exactly what the user is looking for.

I ultimately **redesigned** the **website** 3D Cults. It origianlly had a dark purple and black **theme**, so I kept the **purple accents** and made it **lighter**.

Making sure it was now **clearer** and **easier to use**. I have attached a link to a **video** of the websites walkthrough.
<https://youtu.be/48HBkX5dUiM>

The screenshot shows the Cults website homepage. At the top is a navigation bar with a search bar, a login/sign-up button, and various category links like Upload, Architecture, Art, Collections, Fashion, Game, Household, Jewelry, Tools, Blog, and Community. Below the navigation is a 'Featured' section containing three images: a group of Teenage Mutant Ninja Turtles figurines, a white grand piano, and a colorful, multi-layered 3D print. To the right of the piano is a 'CROWD FUNDING' box for a 'GRAND PIANO' with a 'FREE PIANO KEY STL' download link and a 'SIGN UP NOW' button. Below the 'Featured' section is a 'Popular This Week' section displaying five images with their names and prices: Mississippi Queen (\$8.90), Caravan Birdhouse (\$2.61), Motorbike Agusta... (\$7.52), Droid - Echo Dot H... (\$4.20), and Mazda RX7 Engine (\$2.33).

| Stage | Observation | | Decision | | Considerations | | Delight |
|------------------|--|--|---|--|---|--|---------|
| Touch Point | Home Page | Product Results | Product Page | Cart | Account Page | Checkout | |
| Customer Process | Looked for applicable categories. Selected the search bar to find specified product. | Wanted to use filters to refine search results | Looked at the product photos, descriptions, and creator page. Clicking add to basket. | Confirmed product choice. Continued to checkout. | Mandatory account creation. Signing up involves adding email, number phone, etc. Continued to checkout. | Adding card details/Paypal. Clear total cost. Purchased product. | |
| Experience | | | | | | | |
| Pain Points | Small search bar and distracting colour palette. | Lack of filter options and large volume of results make searching difficult. | Badly laid out. Unclear placement of sections. | | A lot of information required. | | |





Thank You

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