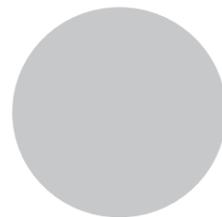
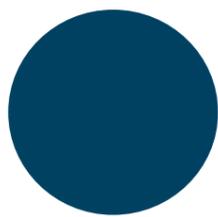
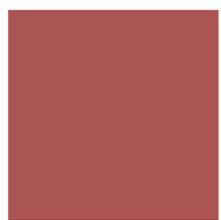


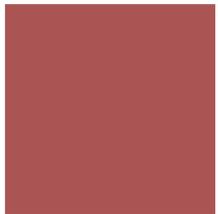
Bethany Procter

Ba 3D Design: Product Design

University of Plymouth



Contents



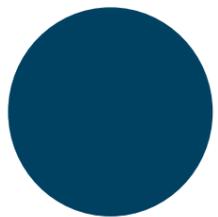
Cynosure

A desk designed to improve well-being in an office environment



Arctic 1

A clip buckle redesigned for polar environments.



Delaunay

A light shade designed to combine digital and manual process, and the beauty that both afford



Longevity

A fan redesigned to embrace mature technologies to improve product lifespan and thus sustainability.



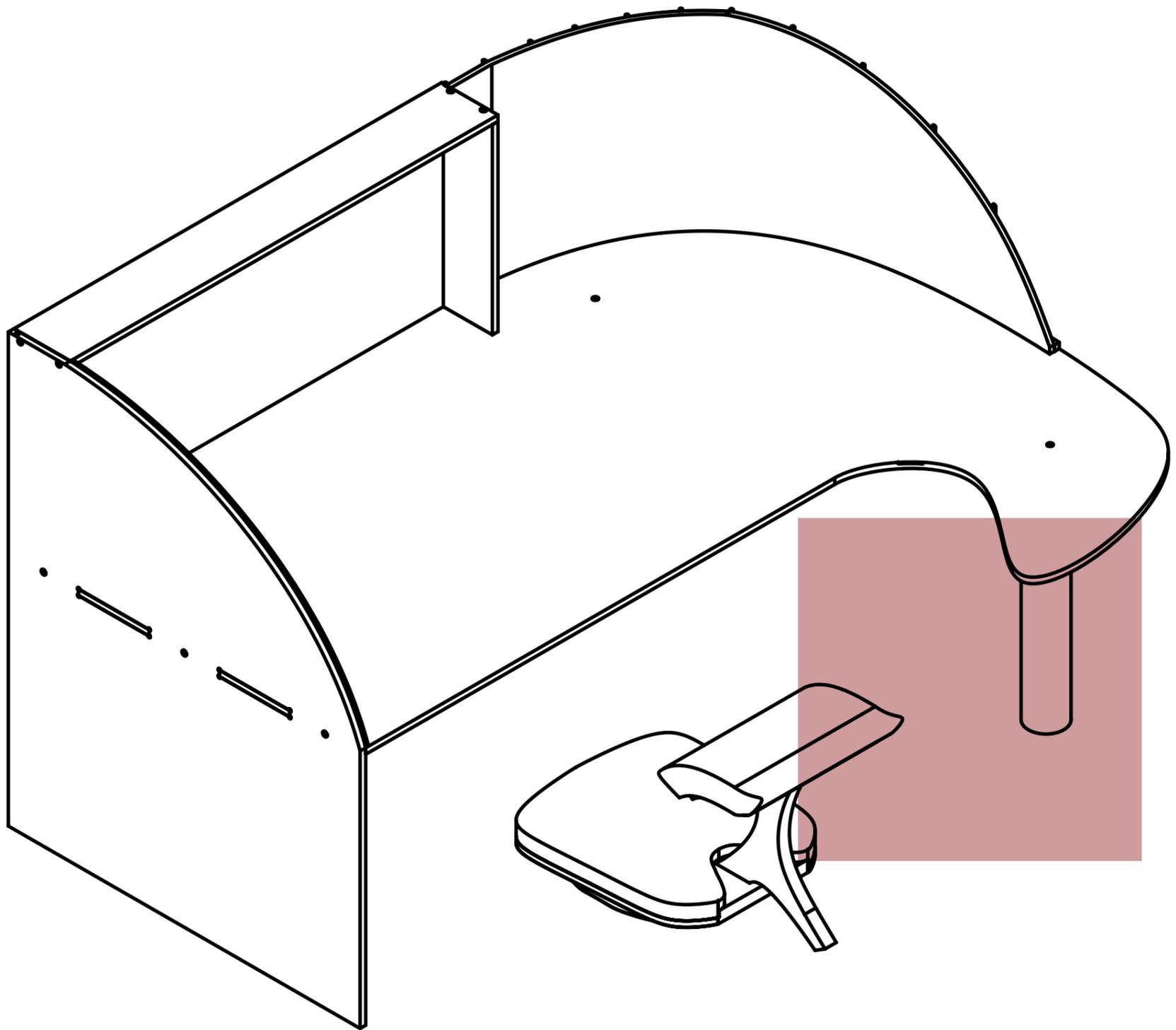
Scroll

A device to mitigate the distracting and addictive qualities of social media while studying.



Extra Curriculars

Cynosure



A Desk designed to improve wellness and focus in an office environment.

May 2020



A systematic approach to workplace wellness and distraction-free working

This project looked into concentration and focus in the work place.

Key Insights:

- On average an office worker loses up to 86 minutes a day.
- Designated work and rest spaces increase productivity.
- Kneeling is better for your posture.

To address these insights, Cynosure is a **full system**; composed of a desk and kneeling stool. The desk is designed to provide a designated focused working space, and to encourage rest and breaks to be taken regularly and away from the desk, by using a kneeling stool.

Development

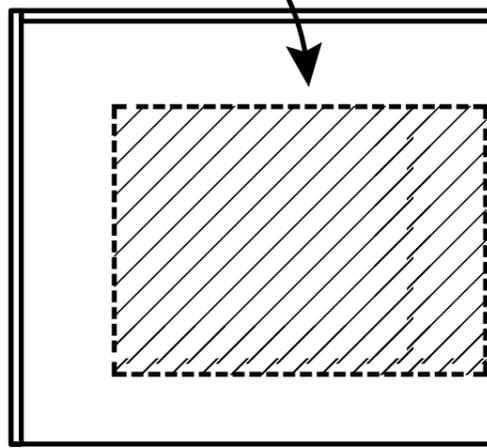
One of the issues with the design was that due to the thickness of the desk surface it would make it difficult for the user to get their knees under the desk.

Initial development explored different shapes, heights and styles.



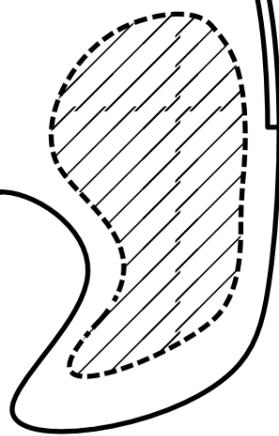
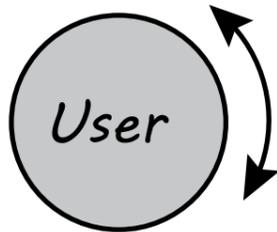
Also developed my scale modelling techniques. These models are 1:10 scale.

Focused Work Area



Screens

Social Area



Analysis of working spaces on a desk surface. Shaded zones show high traffic or activity areas (meaning objects and individuals enter and leave these zones more frequently than in the unmarked areas).

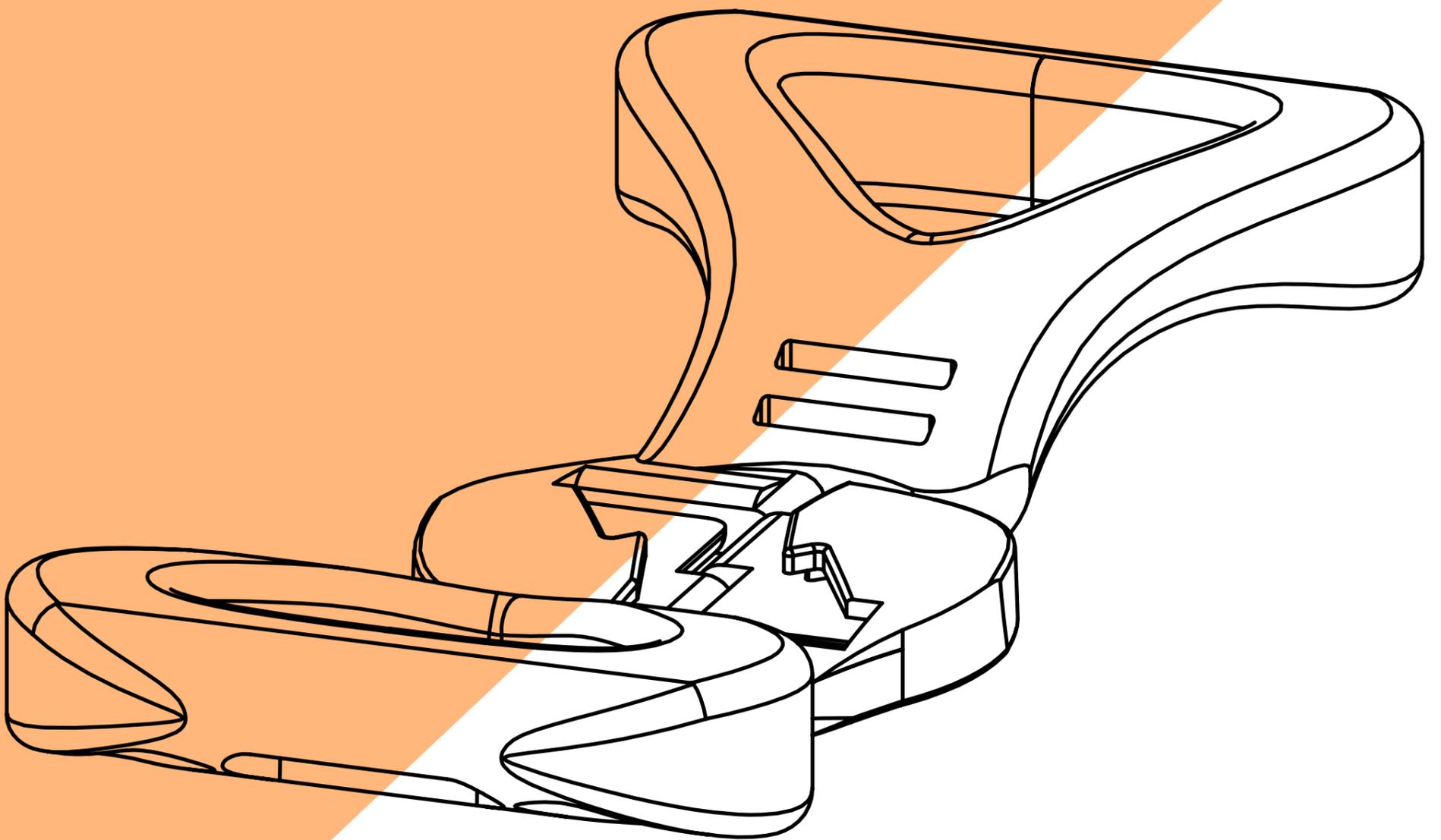




Cynosure in context



Arctic 1



A buckle designed for extremes of polar exploration.

September 2019

Arctic 1 was designed for polar exploration. A key finding in my research was that **existing clip buckles (even larger ones) are very difficult to use with cold or gloved hands.**

Arctic 1 was designed so that the movements required to release it would **require less dexterity.** Additionally there was to be **no flexing elements** as in subzero temperatures materials become brittle and prone to snapping.

To achieve both of these specification points Arctic 1 uses an interlocking twisting mechanism and has large handles which could also function as a **grab handle for rescuing individuals** from snow drifts, ravines and icy water.

The buckle also features a locking mechanism to prevent it springing open while in use.



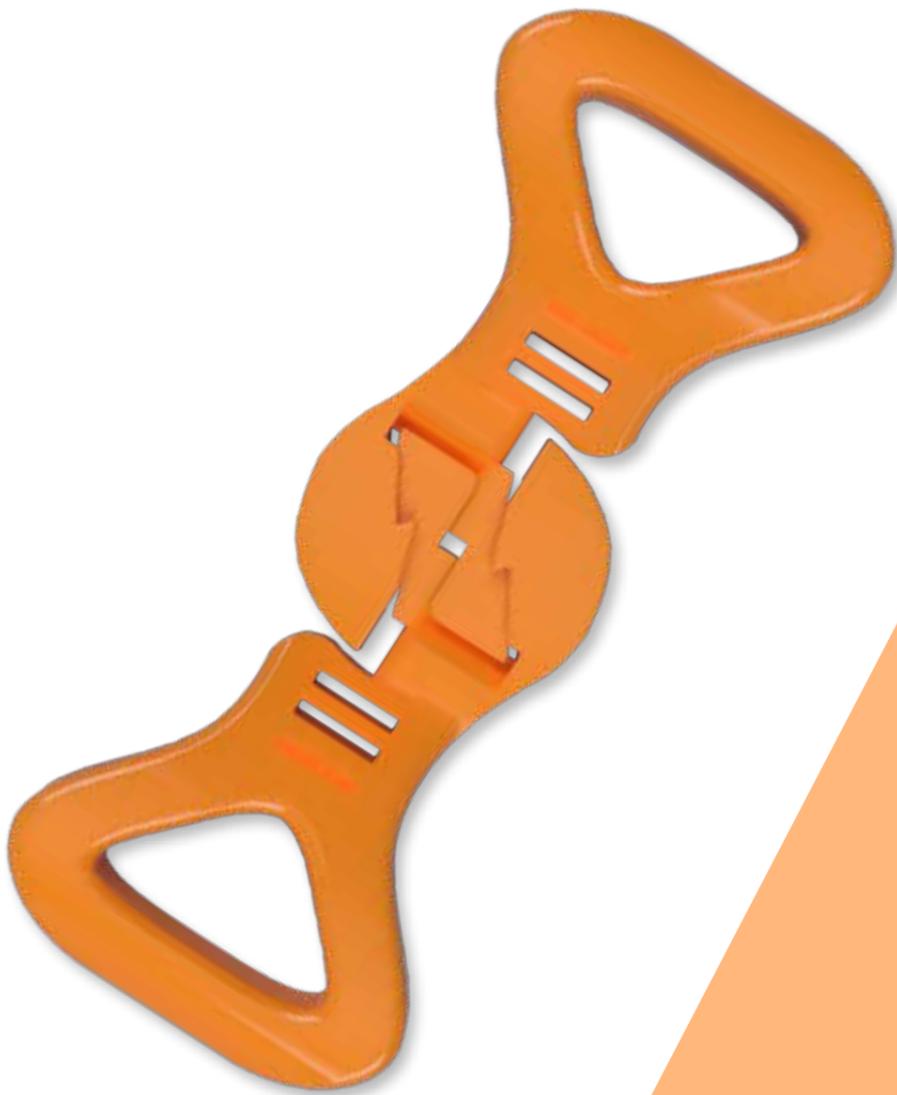
Demonstrating the twisting mechanism. In this image Arctic 1 is in the open position.

Large handles for improved grip with reduced dexterity

Identical parts halves tooling costs.

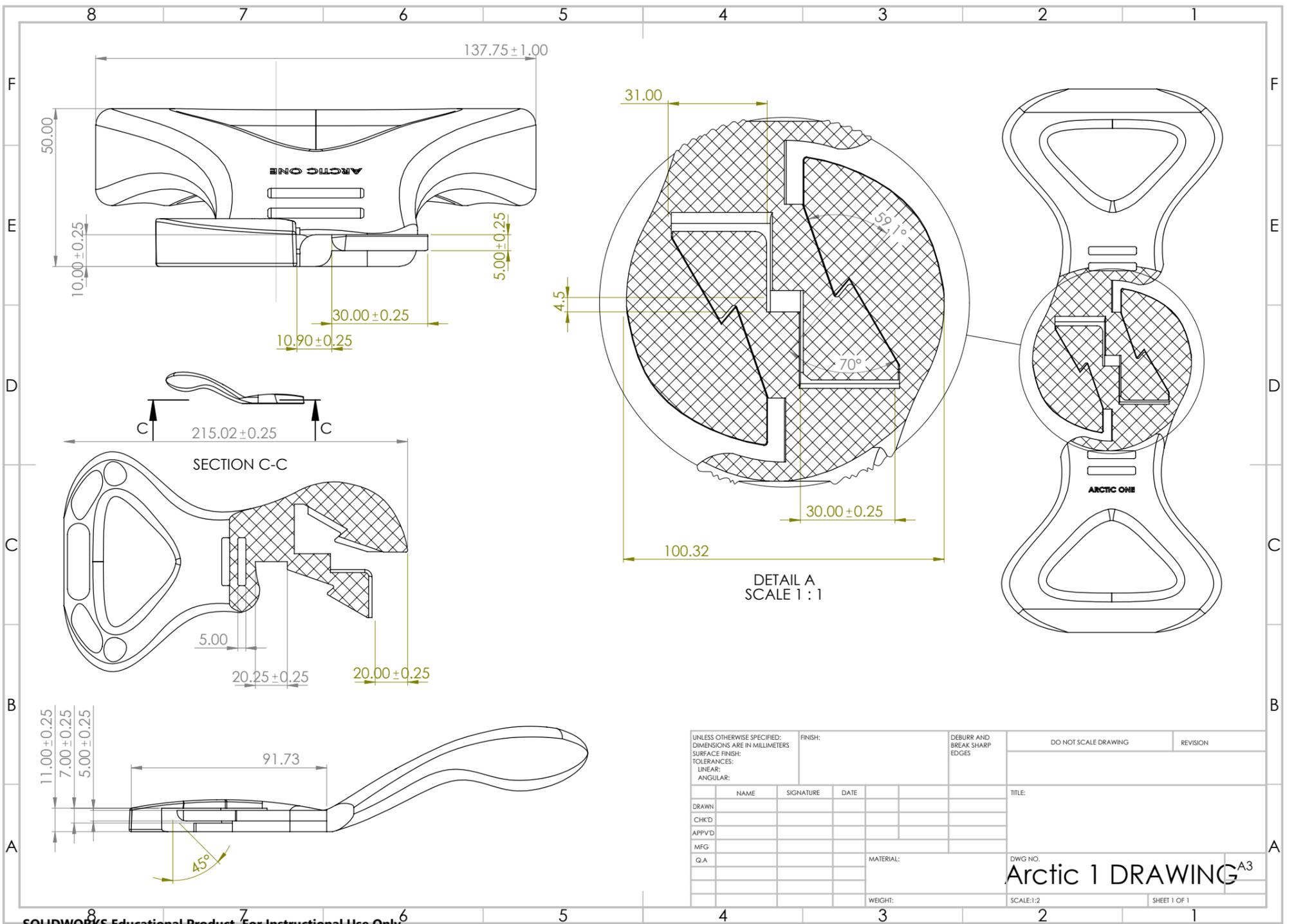
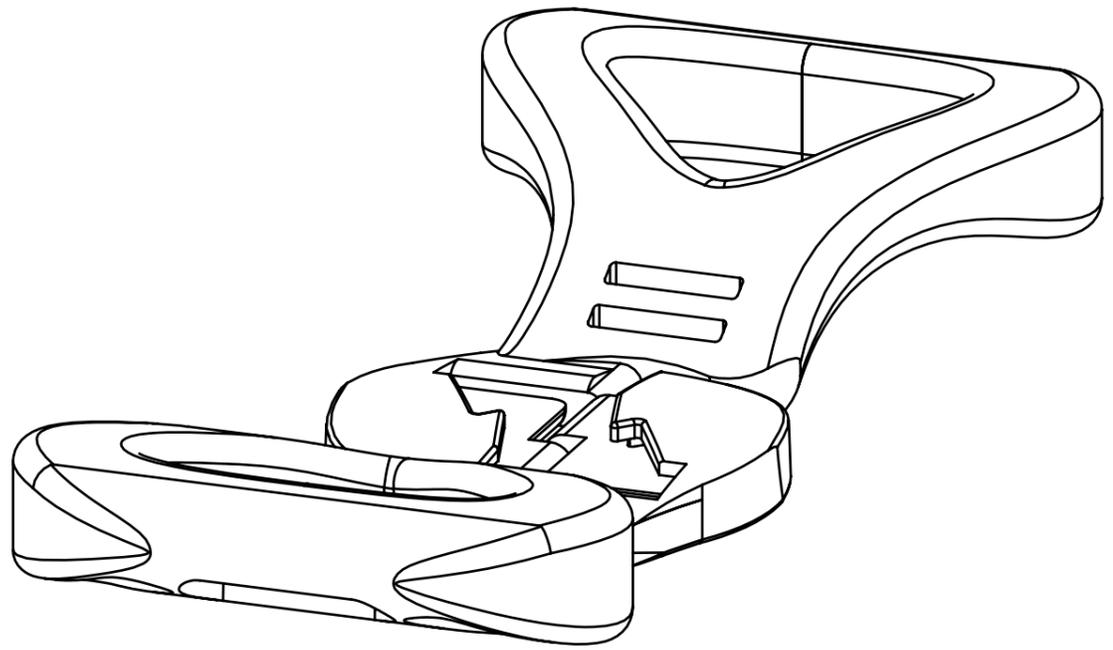
Large mechanism so as to be operable with gloved hands.

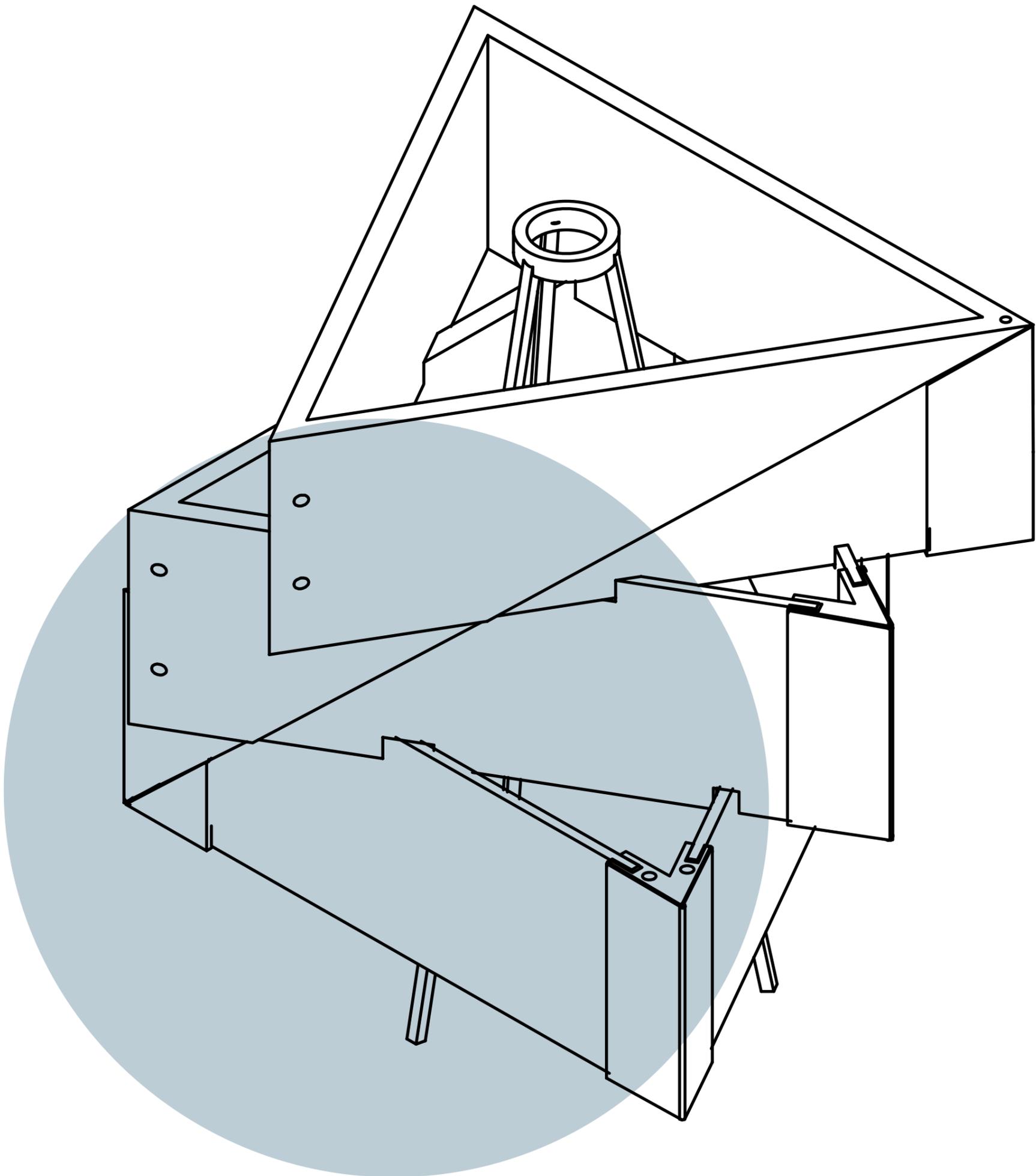
Overhang to make lock stronger.





A sample of the CAD work completed for this project. Completed largely on Solidworks. The form of this product allowed me to learn how to augment solid modelling techniques with surface modelling.





A light combining digital and manual processes

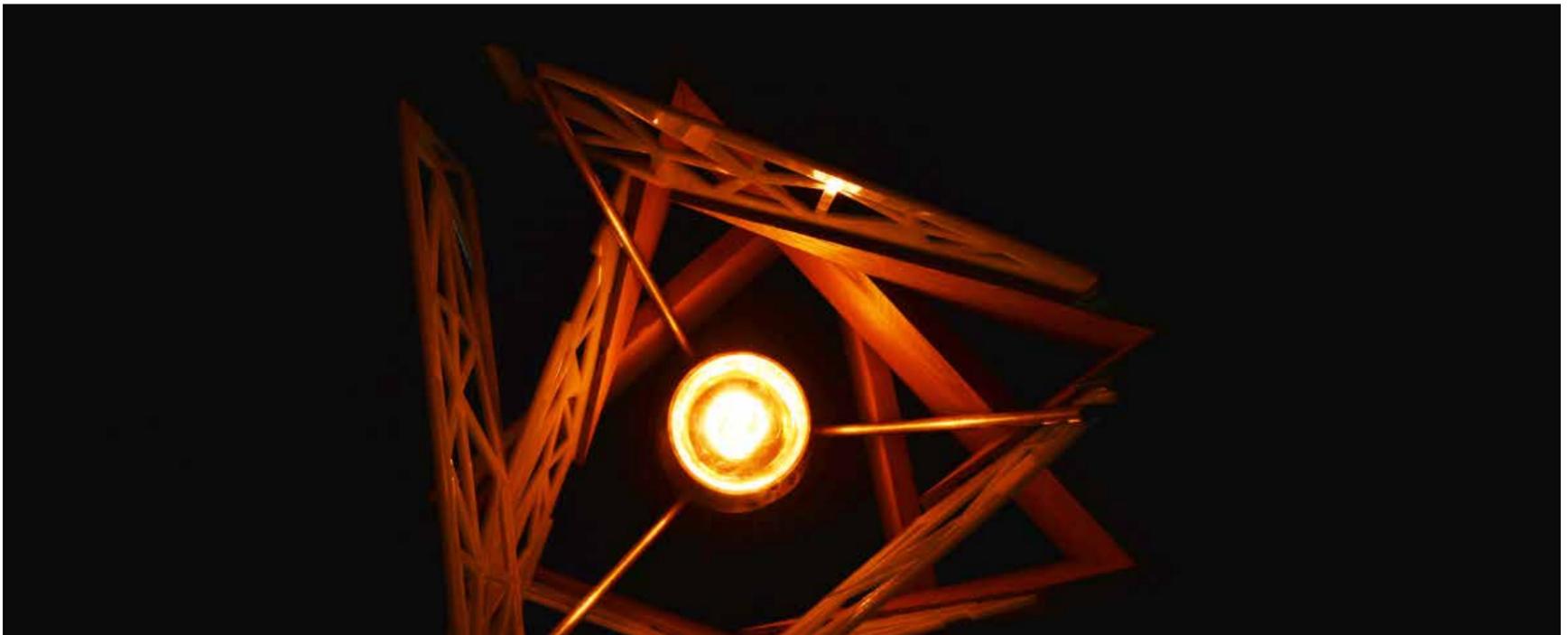
February 2020

The design is based on Delauney Triangles found in mathematics, and used to generate the triangle meshes in STL files.

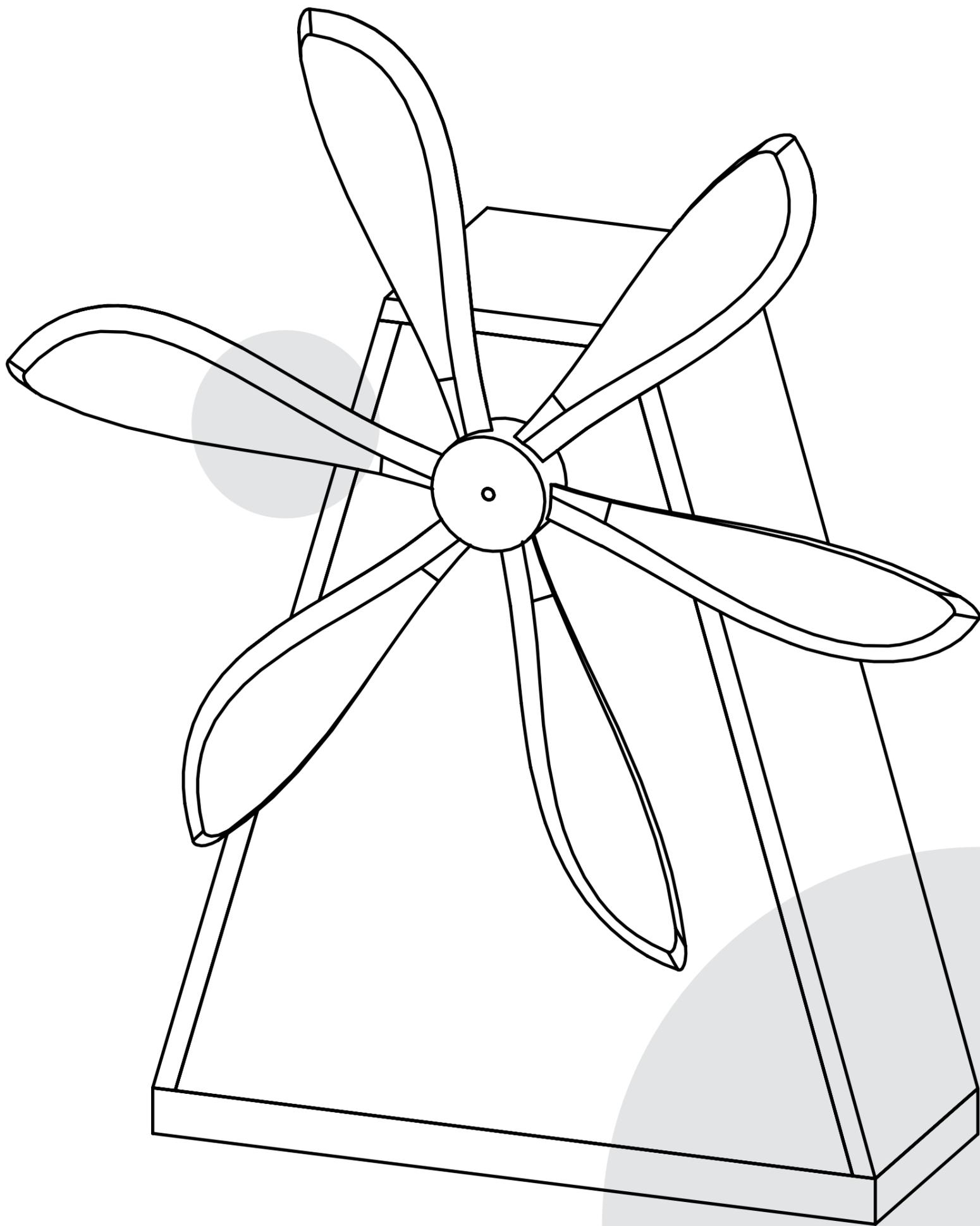


Although perfectly aligned, the nature of the triangles makes the light shade look like it is leaning from certain angles.





Longevity



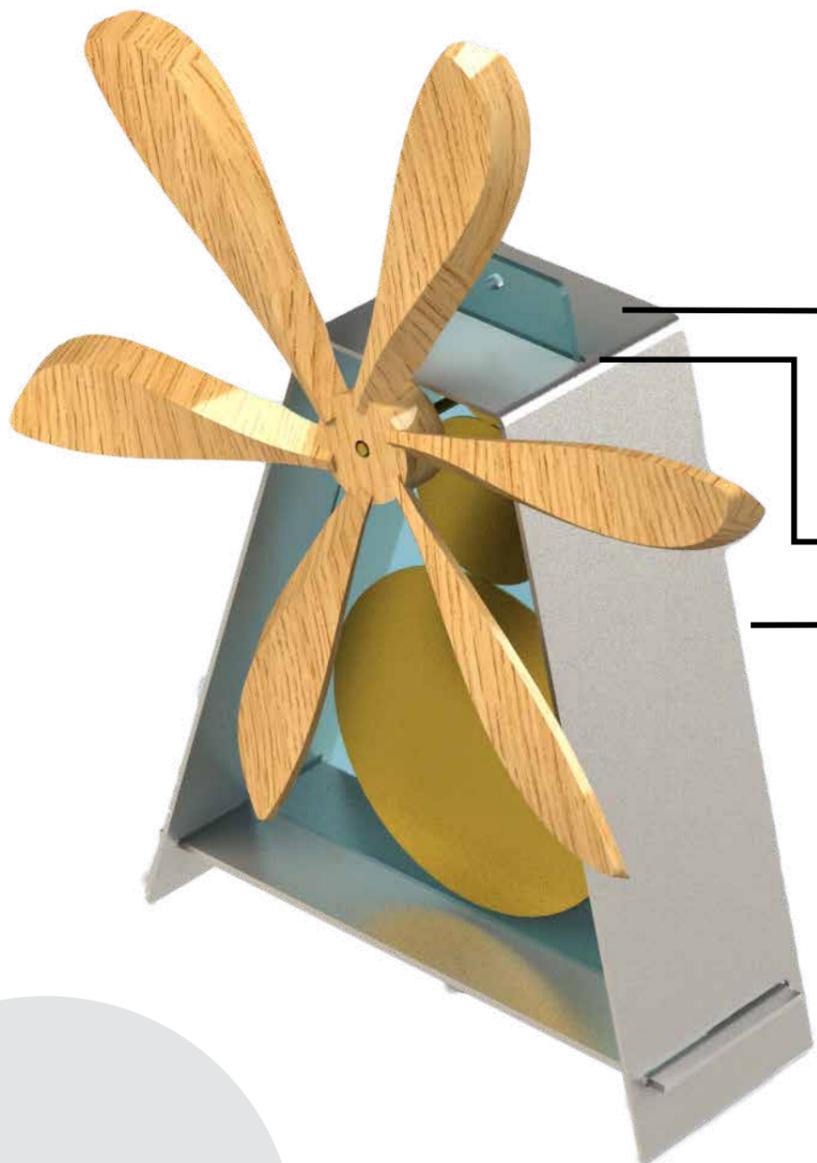
Old technology + Ecology + New Economy
= Longevity

November 2020



Longevity is designed using mature technology and durable materials so that it can last lifetimes not decades. In this way the embedded energy of this fan is lower of the course of its lifespan compared to even the most recyclable electric alternative.

Revised Design in metal, for greater sustainability considerations



Stainless Steel casing and mechanisms

- > Infinitely recyclable
- > Long lasting and durable (extends life)

Clockwork Mechanism

- > Mature technology (reliable)
- > Non-electric (Reduces CO2 footprint)
- > Repairable (Widely know technology)

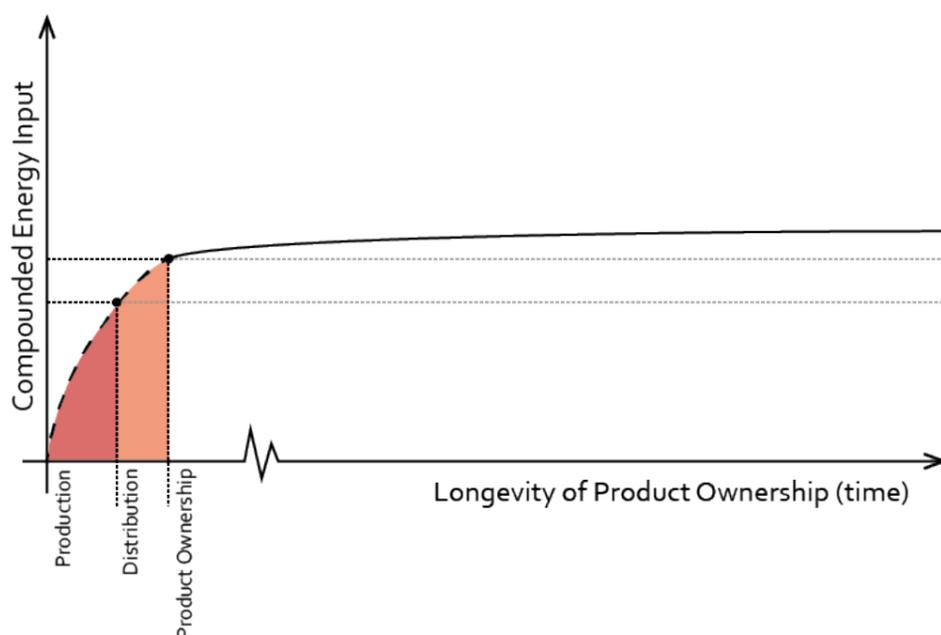
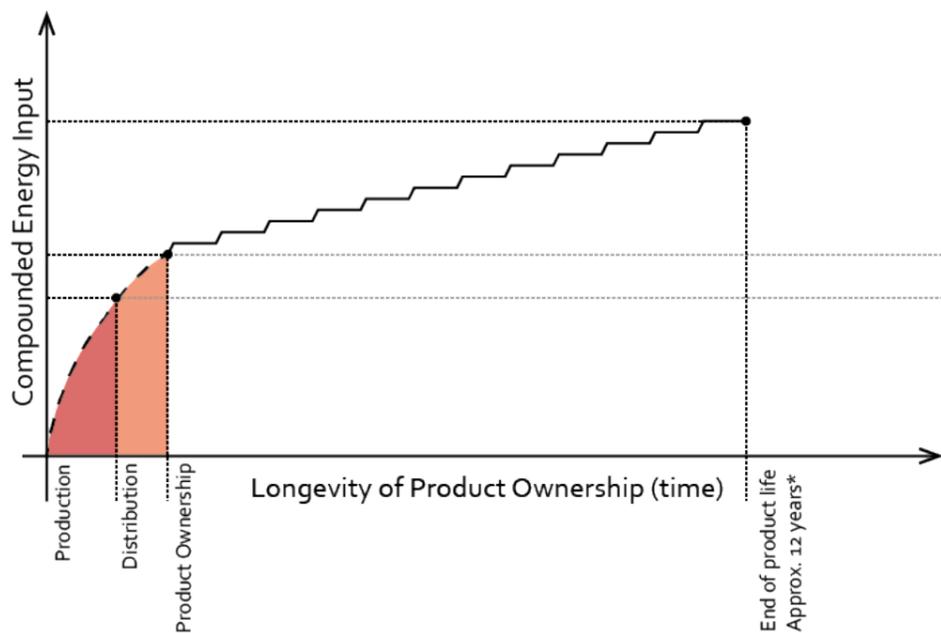
Glass panel

- > Easy to recycle

Wood propellers

- > 6 propellers (More propellers moves more air with fewer rotations)
- > Good aesthetic and adds inherent value & emotional attachment (Owner more likely to repair and not replace)

Product sustainability is not limited to beginning and end of life.

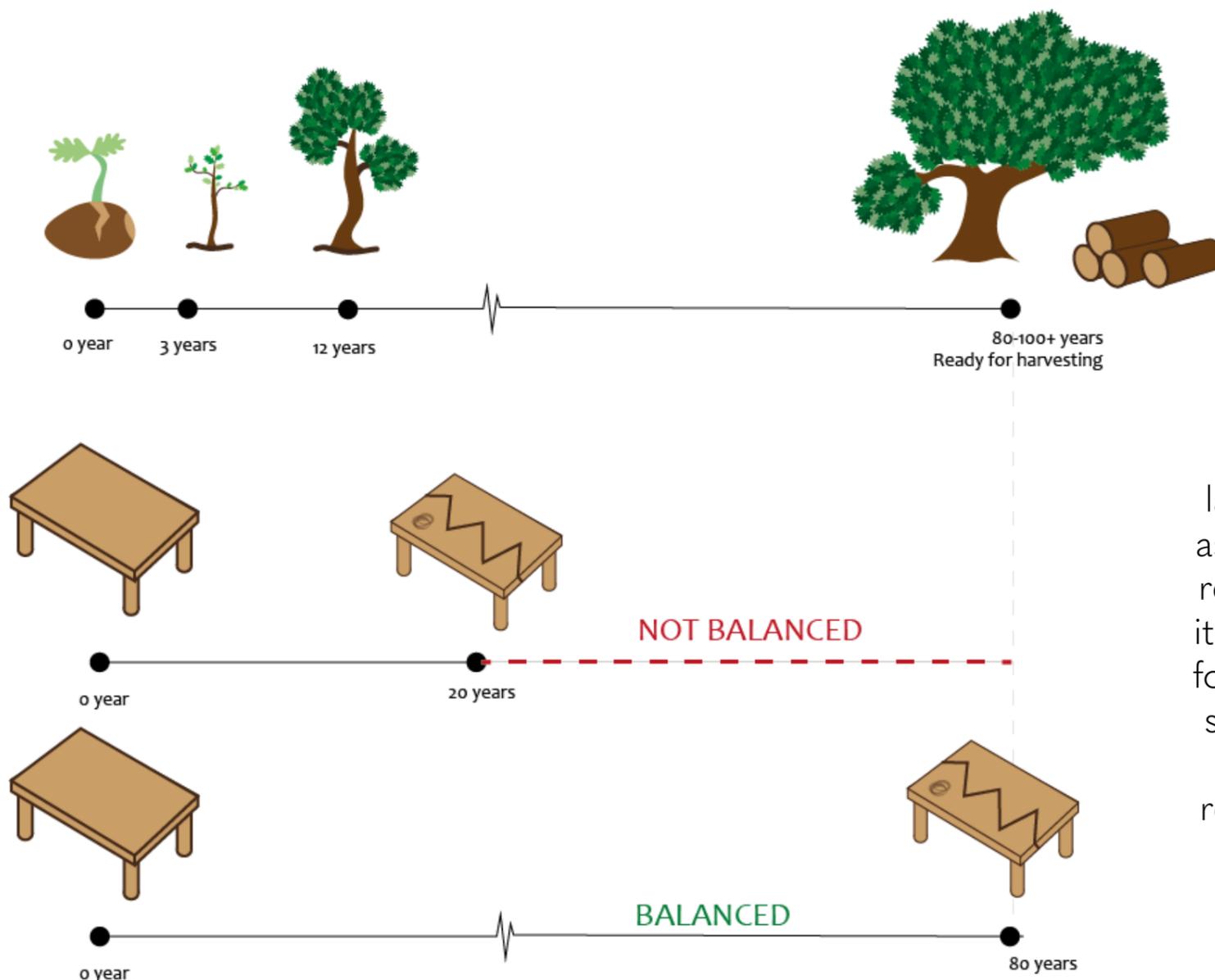


This project had a focus on sustainability through the entrancement of different economies and ecologies of design. I chose to incorporate regenerative mindset thinking and a repair culture to this design.

To do this I wanted to look beyond cradle and grave points in a products lifespan. This is because energy and resources are invested in products throughout their lifespan.

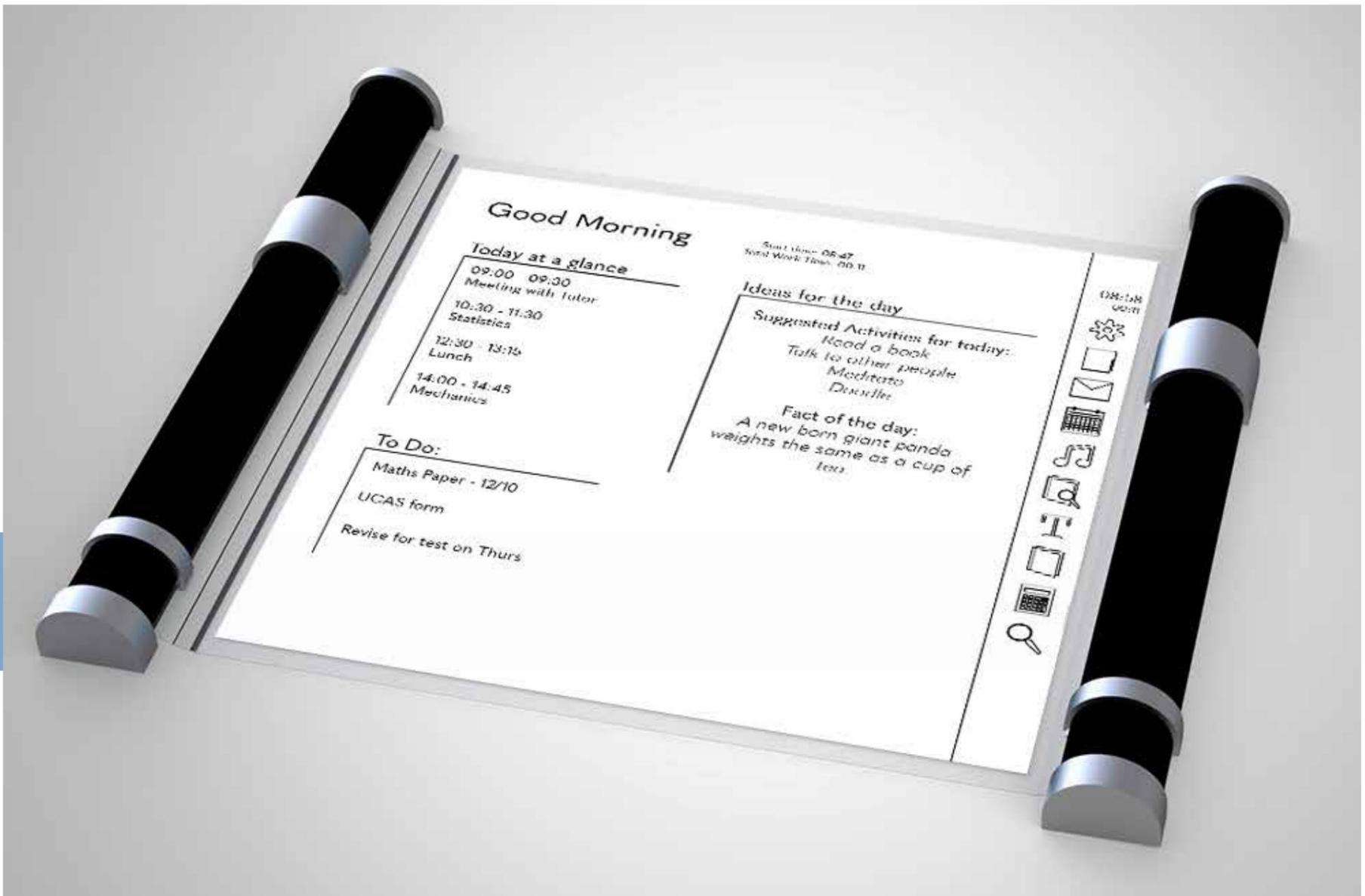
The two graphs illustrate energy consumption through out a products lifetime assuming the initial energy input was the same.

Below is a series of timelines to illustrate the resource deficit created by relying on short-lived products, even if they are made out of "good" or "sustainable" materials.



The lifespan of the last table is the same as the time needed to replace the resources it is made from. There for in this instance the second table is more sustainable from a resource perspective.

Scroll



A device to cut out digital distractions from focused working.

June 2021



KEY INSIGHTS:

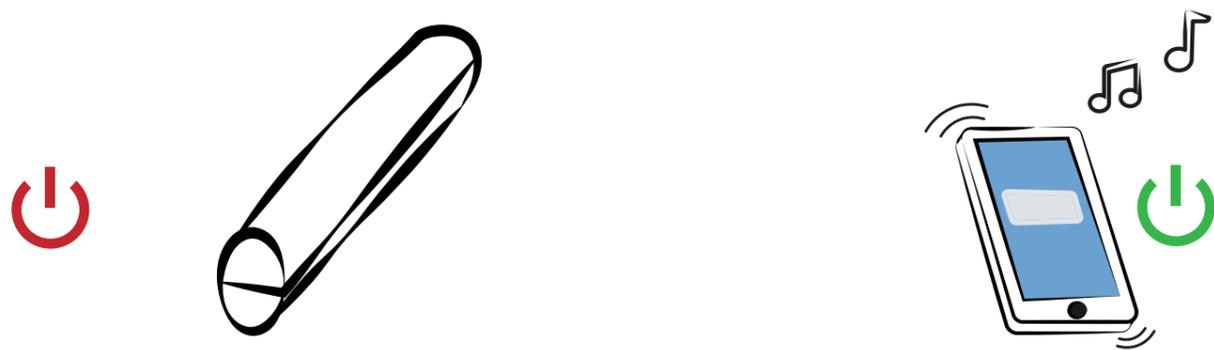
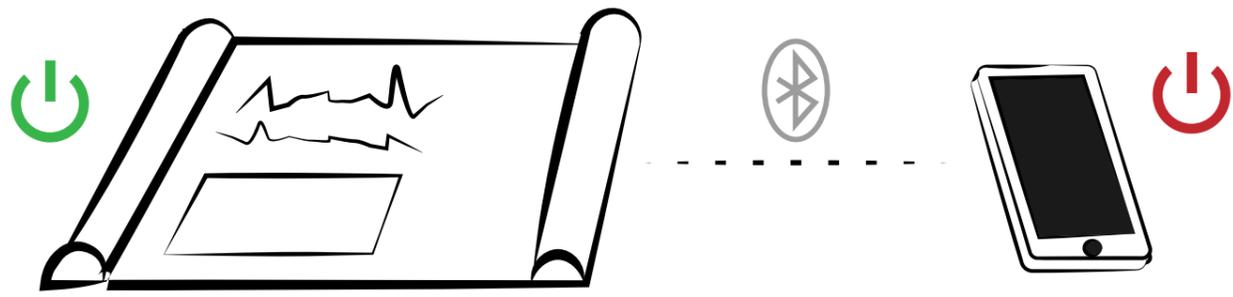
- Mobile smart technology is very useful but very distracting.
- They significantly reduce our ability to focus and be productive.
- On average we loose at least 1hr a day to digital distractions.

These affects would be harmful to anyone, however I chose to look specifically at A-level and University students. Between the ages of 16-25 the final stages of brain development occur. During this time we learn how to develop and maintain social relationships.

I spoke with sixth form teachers who did agree that the presence of mobile phones in the classroom did make the class less productive, how because many of their resources are digital now (due to the pandemic) it was difficult to remove them entirely as they were used to access teaching resources. They also expressed support for this project saying that it would be a valuable tool to have in the classroom.

Not just another tablet...

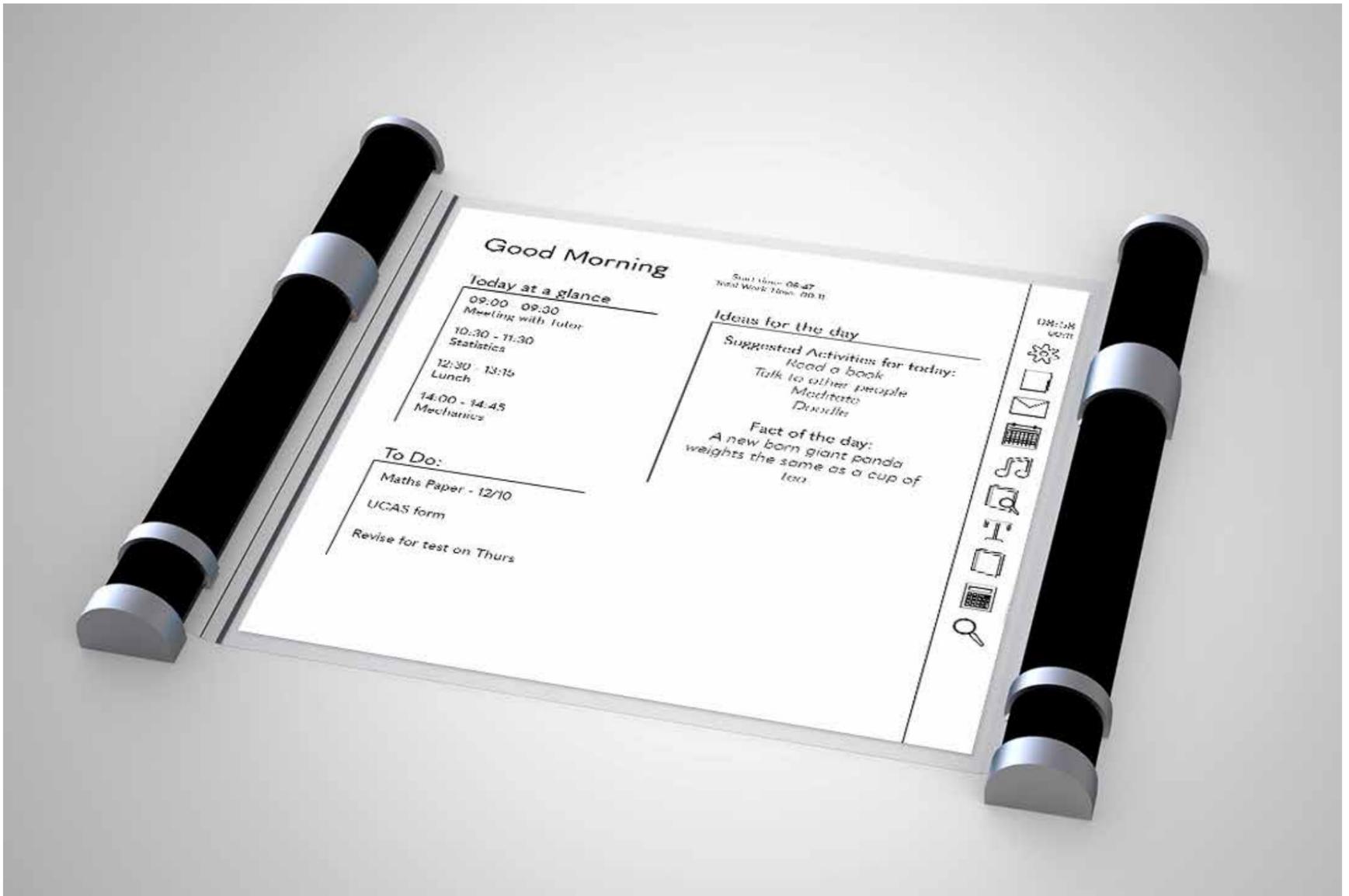
Clear physical language



At home on the periphery.

Assisting not distracting.







Colour variations for Scroll.

Benefits of Scroll

- More Productive = Takes less time to do tasks
- Gives user more free time.
- Extended use can reduce anxiety associated with missing out.
- Learn work life balance.
- Reduces social media exposure, which is beneficial for health.

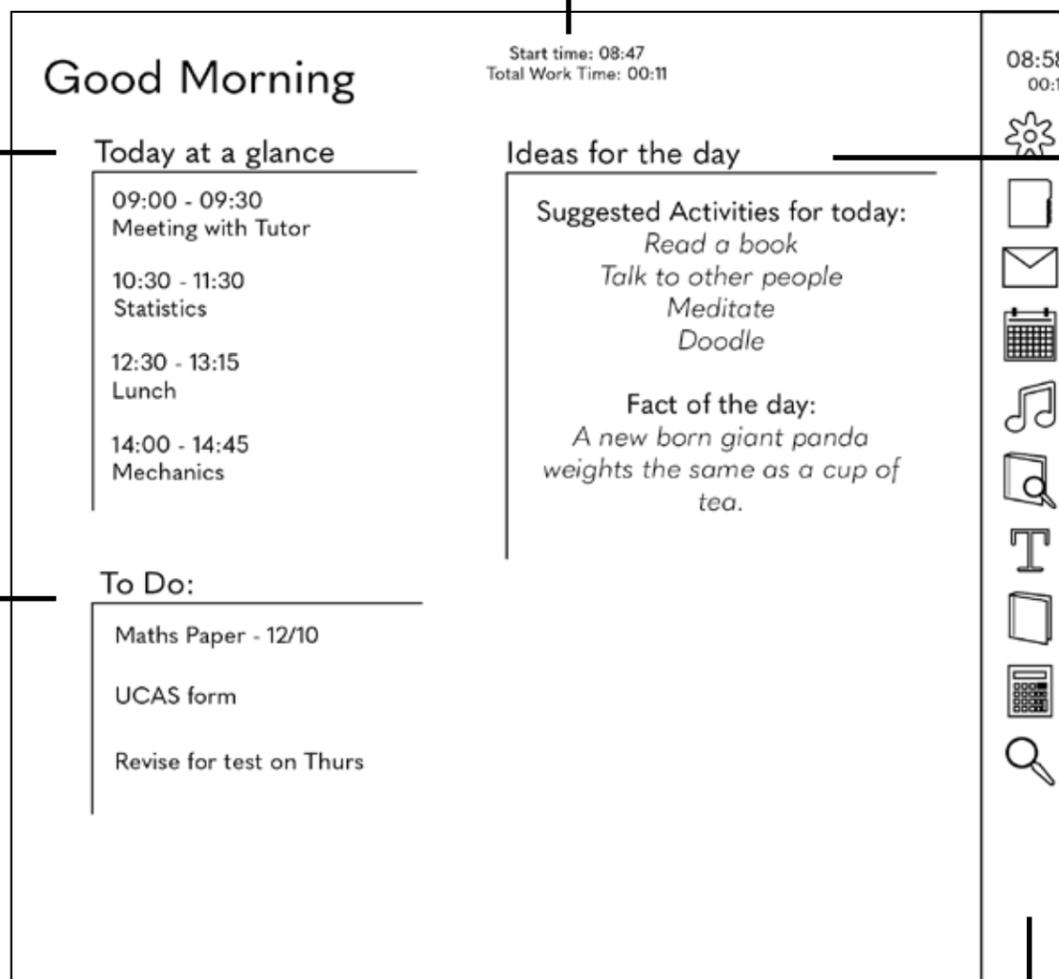
Target Market: Students (aged 16-25)

Although possessing potential for adaptation for other user groups.

The interface is custom designed to be as simple and streamlined as possible. So as to reduce distractions and aid in productivity.

There are limited numbers of apps as revision, learning or Digital learning environment (DFL) apps can be accessed via a web browser.

Records active time on device so that the student can keep track of their hours and stick to a quota of hours.



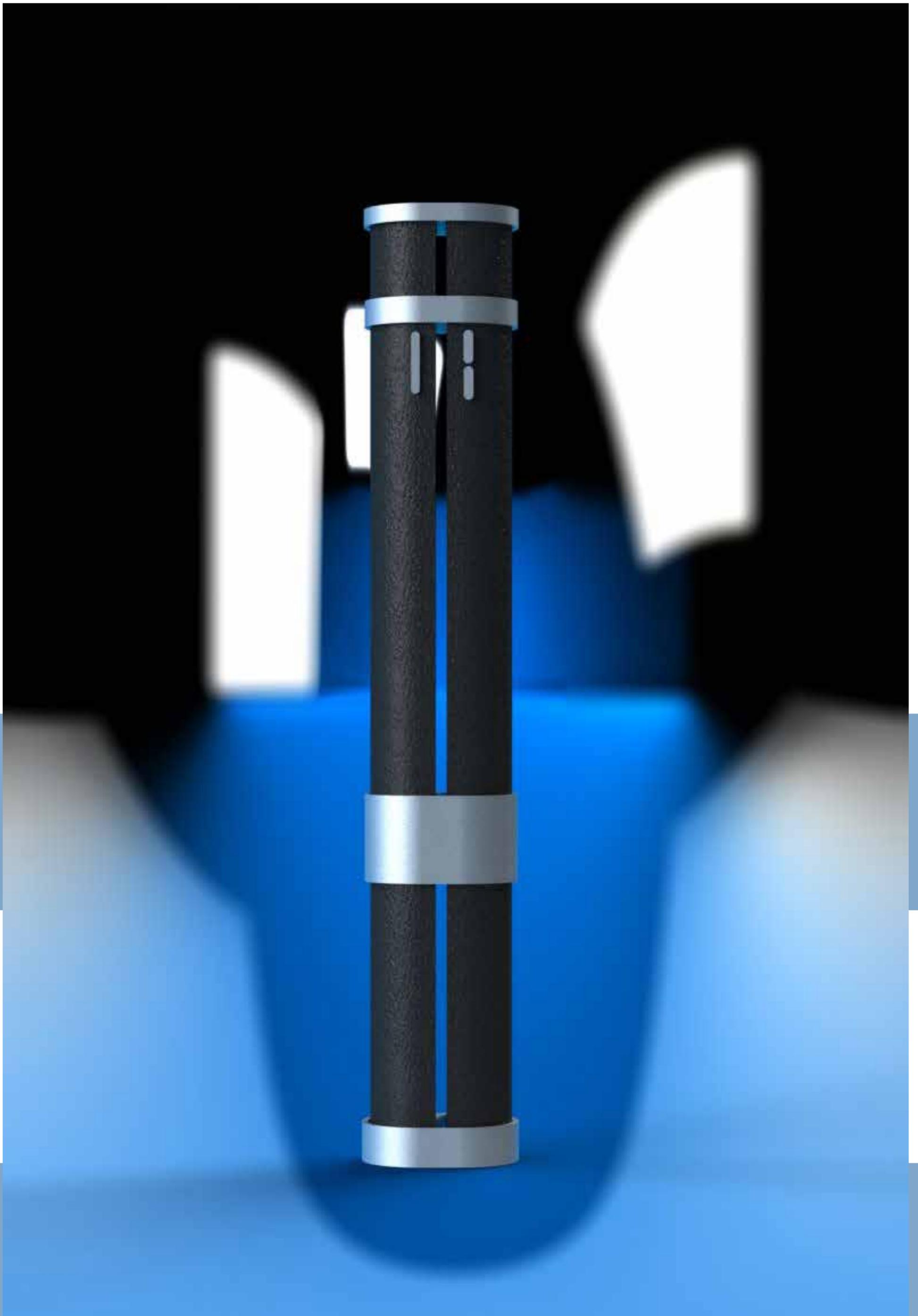
A schedule clearly displaying the timetable for the day so that the student can plan their day.

A list that is entered by the student so that they can see what they have outstanding, so as to optimise their time.

A section for non-academic suggestions. For example alternative activities to do during breaks and study breaks that scrolling through social media.

Simplified functionality. Necessities for studying only. Things that you might use your phone for when studying. e.g. internet searches, music, notes, calculator, dictionary.

The screen also incorporates large and simple symbols and fonts for increased accessibility.



Extra Curriculars

Graphic Design Work

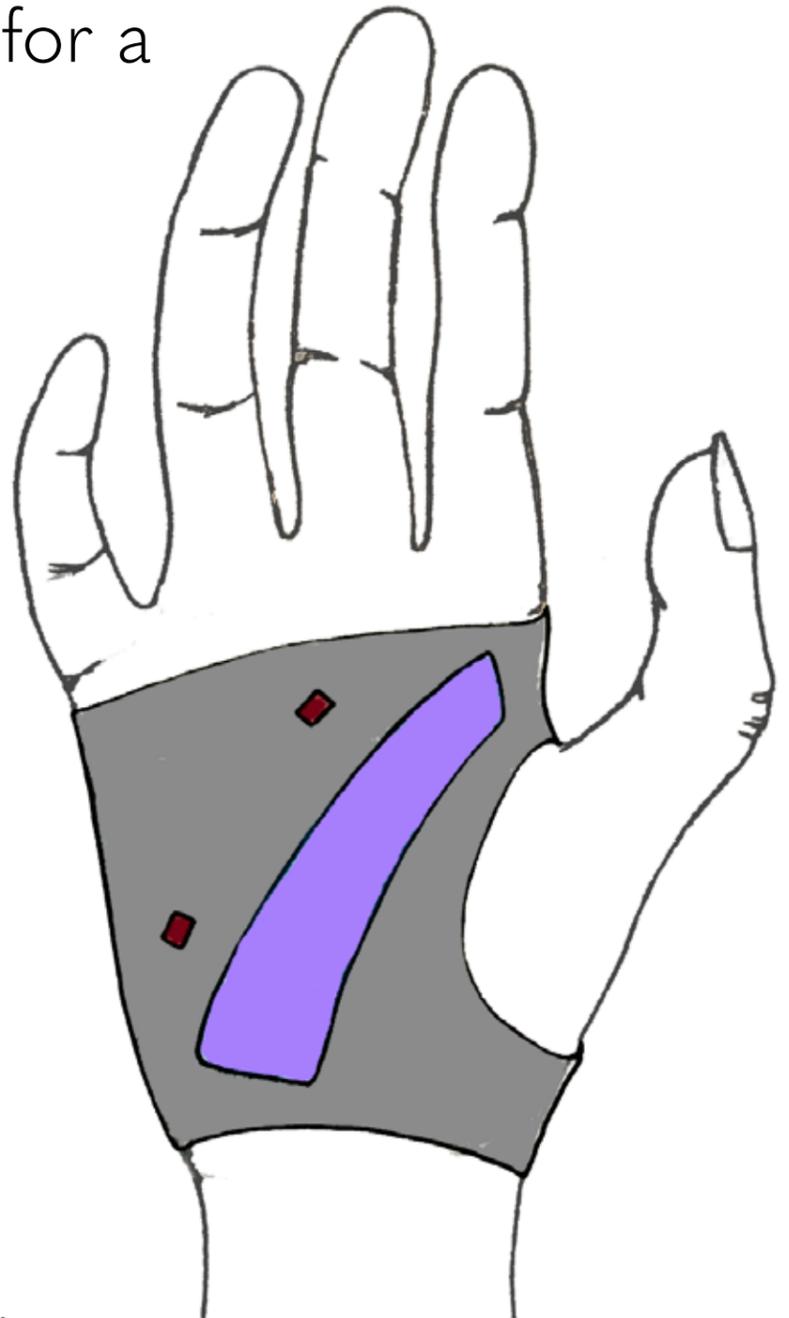
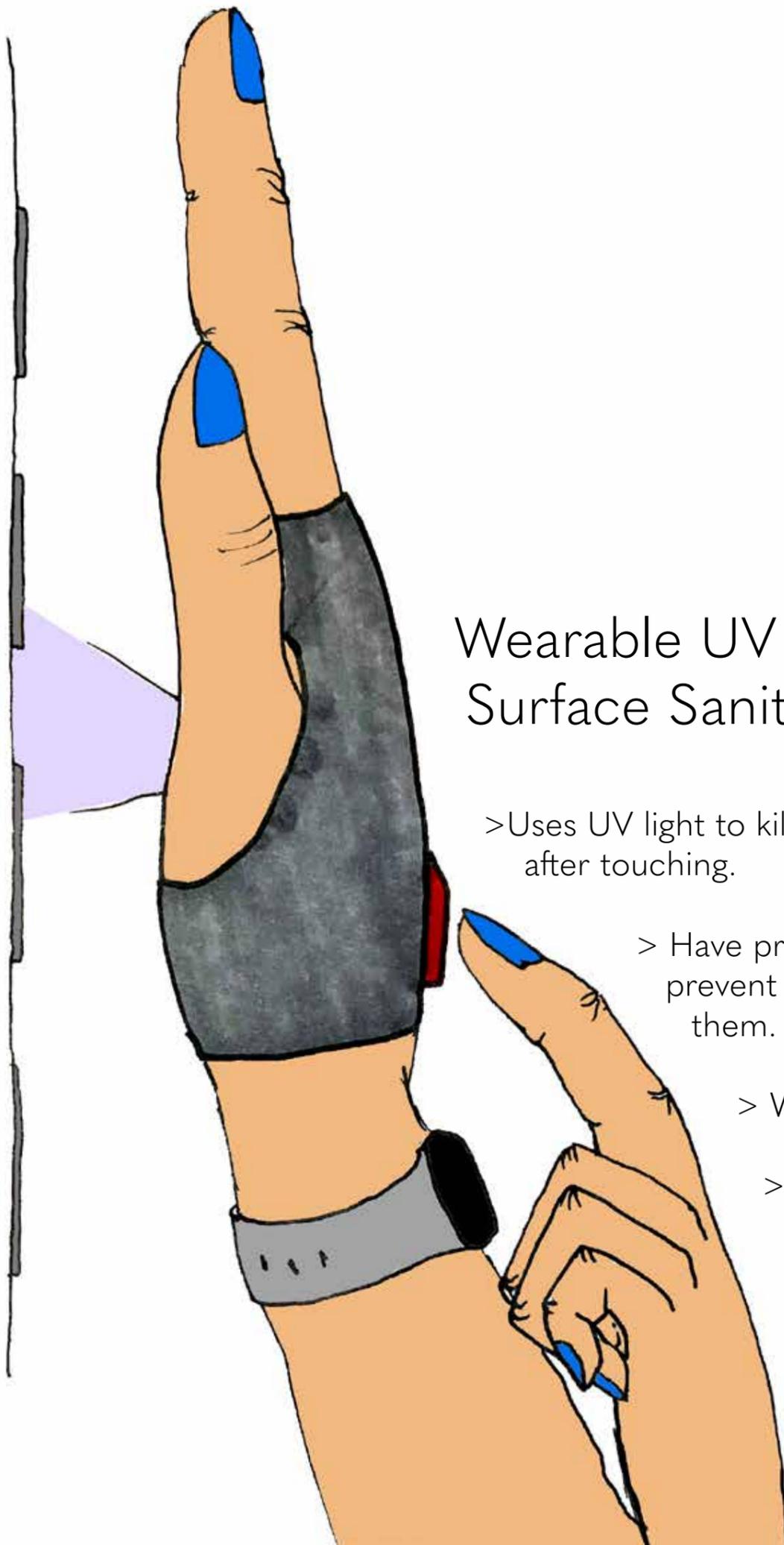


WOODGATES
TREES



Design for Next

A design sprint held in the first COVID 19 lockdown, to design for a post COVID 19 future.

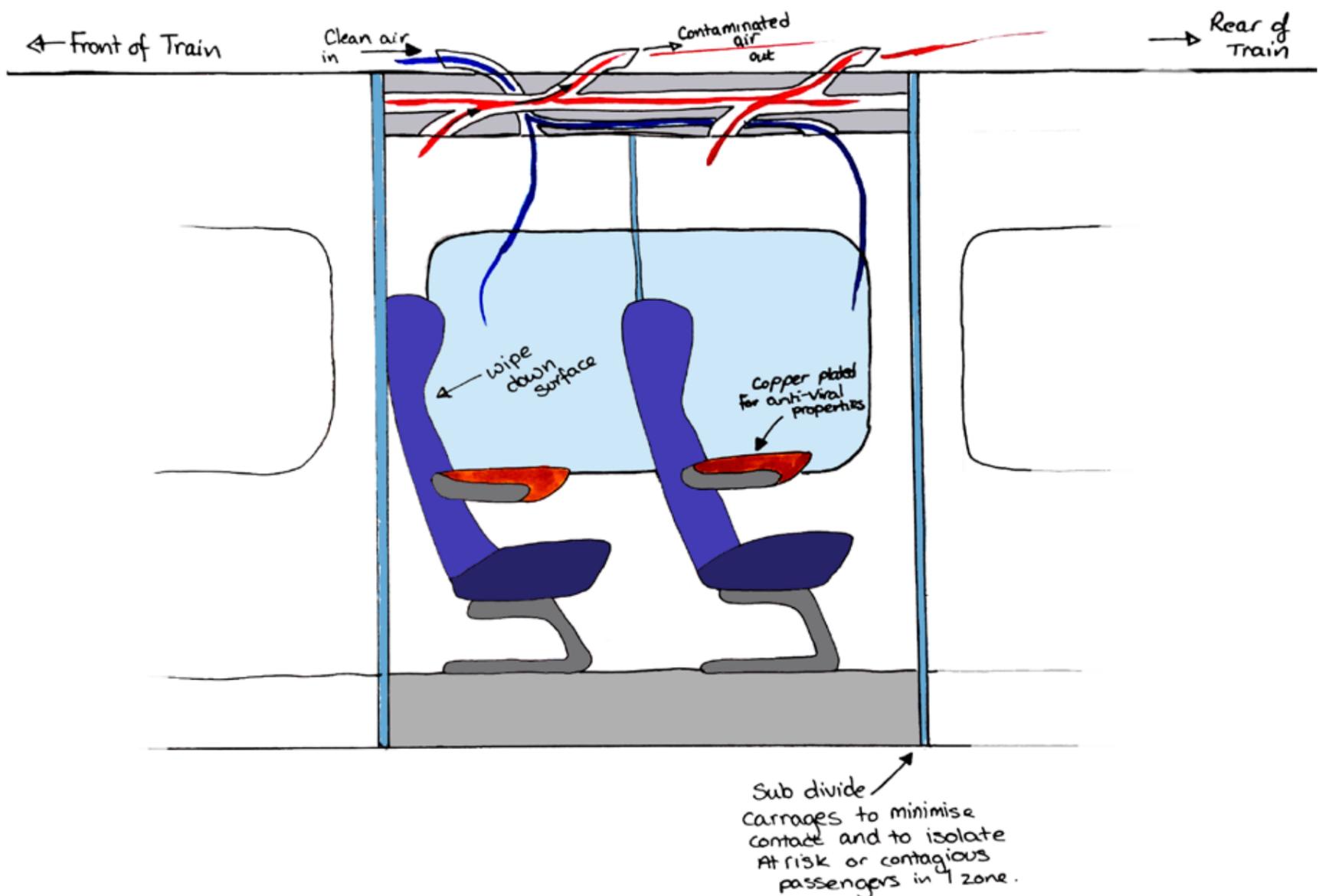
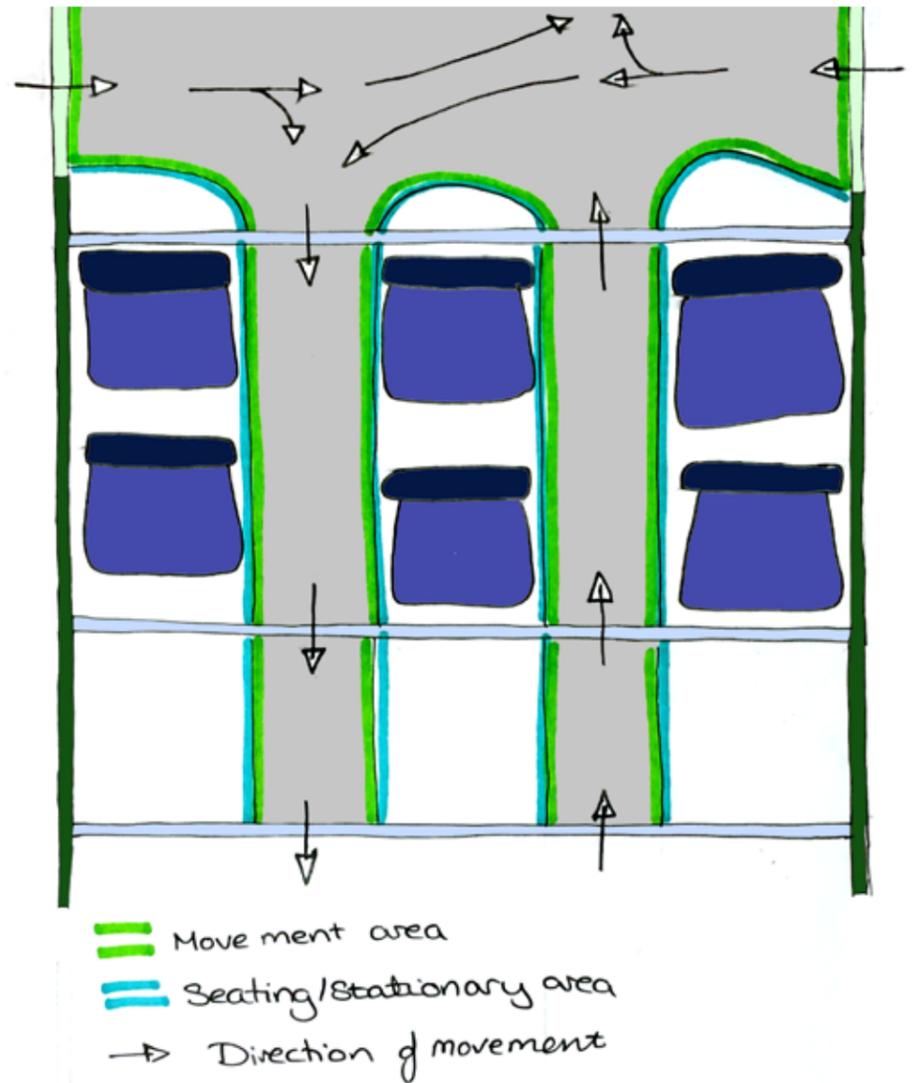


Wearable UV Surface Sanitizer

- > Uses UV light to kill off pathogens on surface before and after touching.
- > Have proximity and Surface sensors to prevent damage to users or those around them.
- > Wiring integrated into fabric.
- > Reduced use of chemicals.
- > Very quick sanitation. A whole room can be sanitized in 10 minutes using high powered UV lights.

Post-COVID Transport

- > Sub divide carriage with clear perspex, to reduce contamination to whole carriage.
- > Space seats further apart facing the same direction (Reduce risk of air-borne particles)
- > Frequently touched parts copper (Or alternative) plated for anti-viral properties & easy to clean nature.
- > Clear 1 way system. (Arrows on the floor & Sensors on only 1 side of the doors.)
- > Passive air cleaning system (Utilizes movement of the train)



Distributed Design Sprint 2019



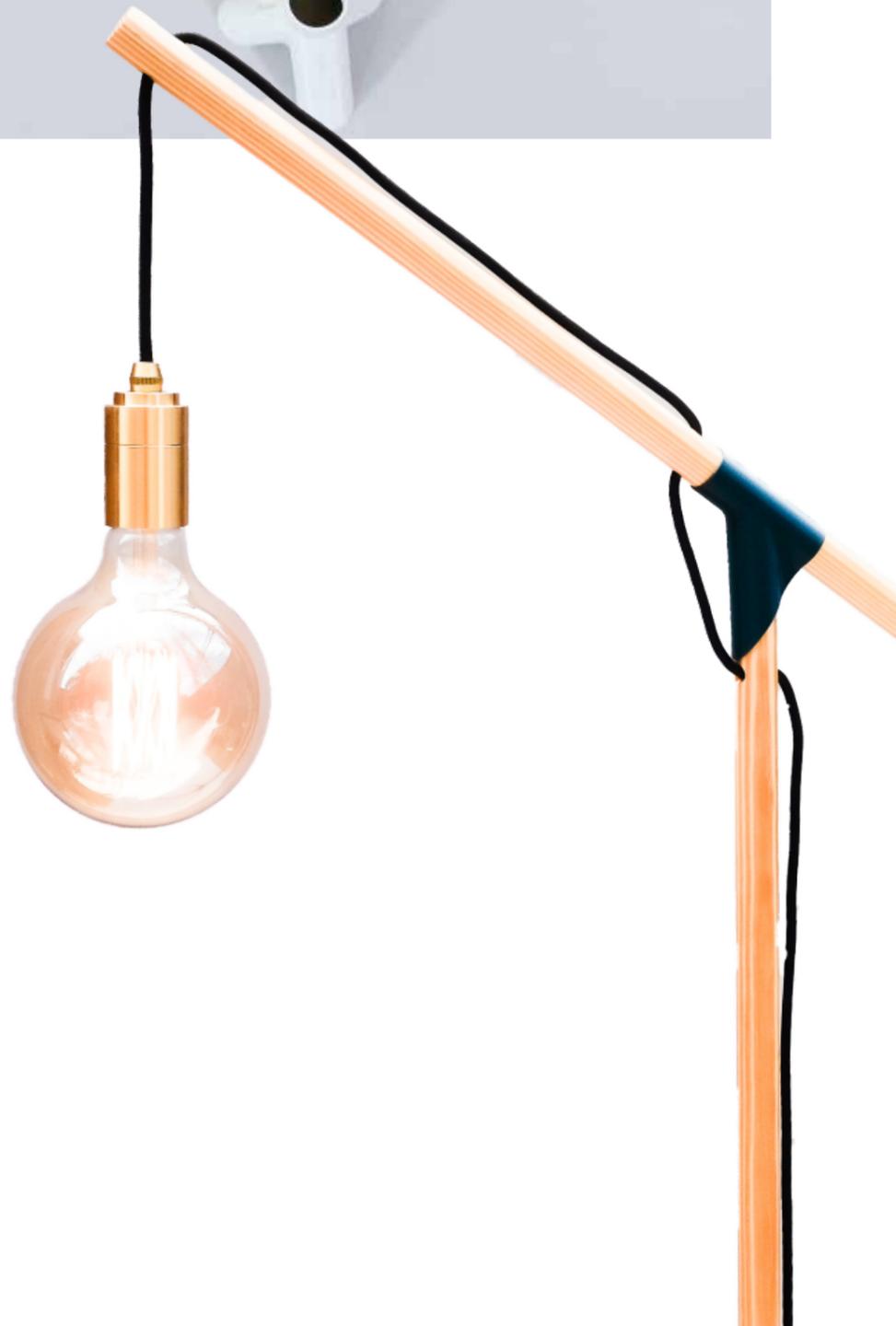
A project to develop a light suitable for a circular economy and open source production.

"Moving bytes not atoms."

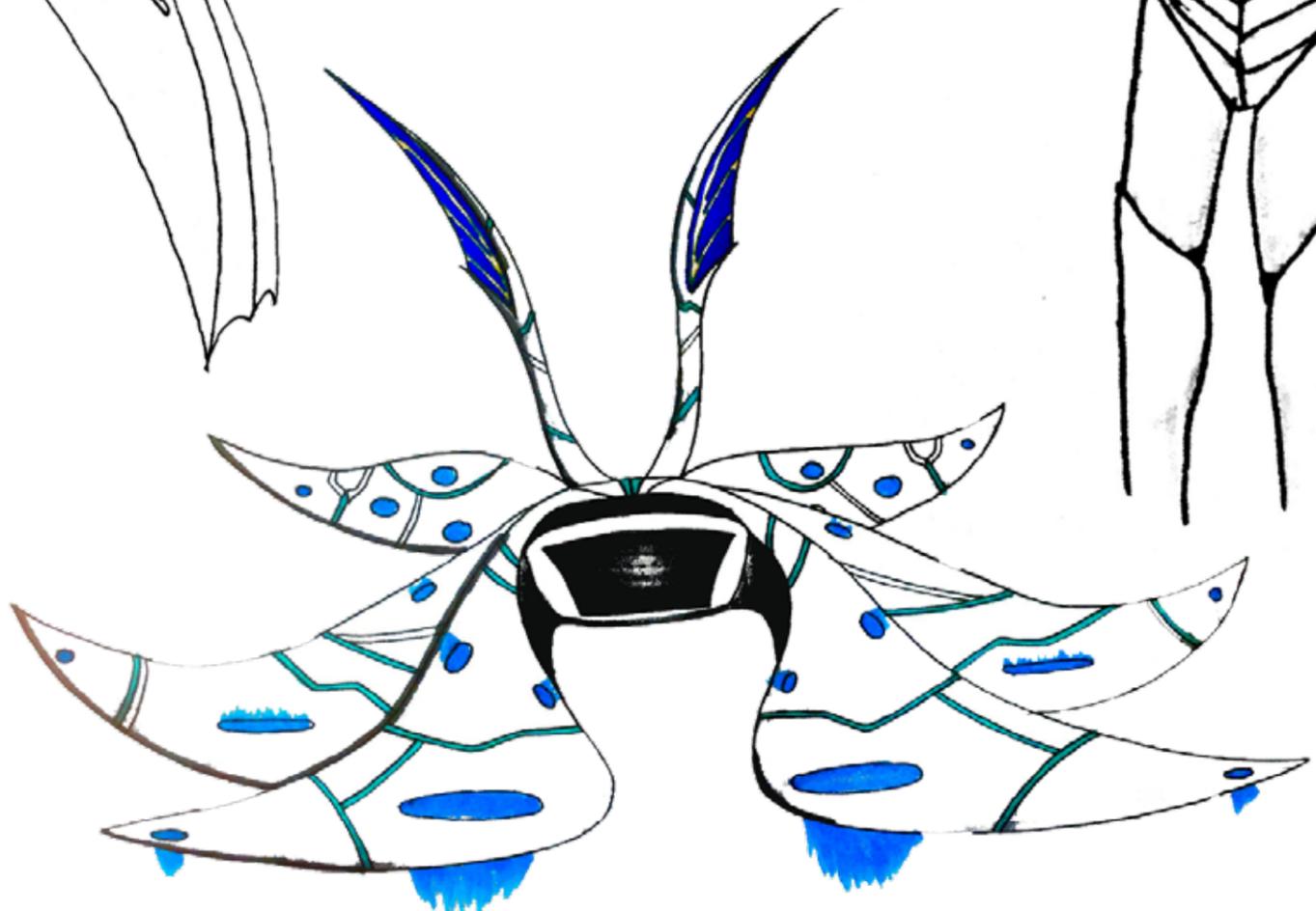
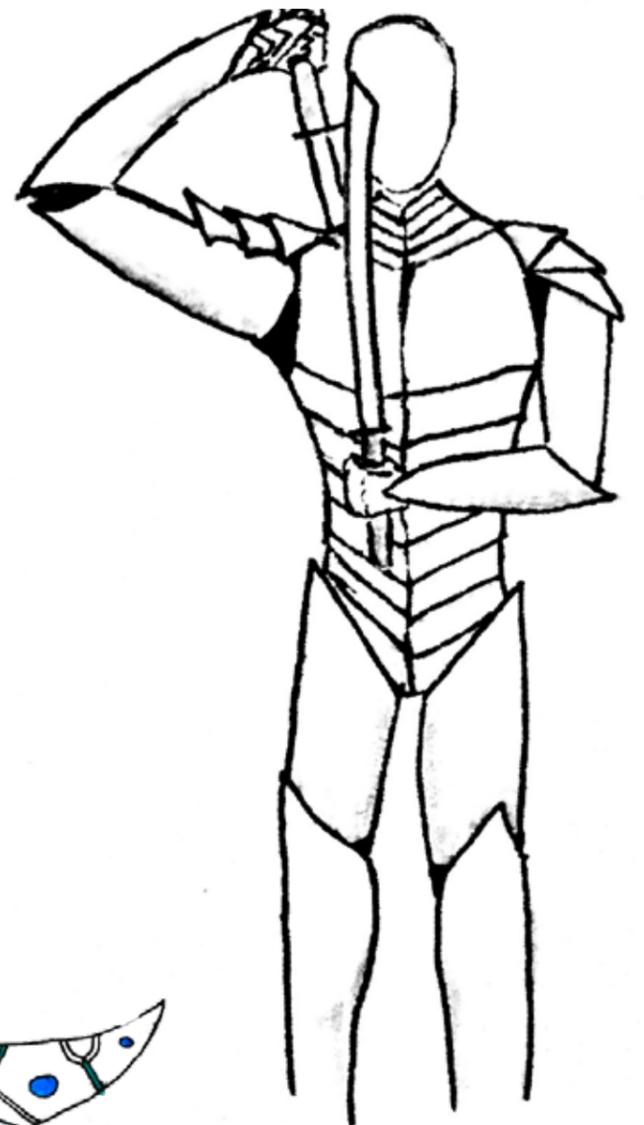
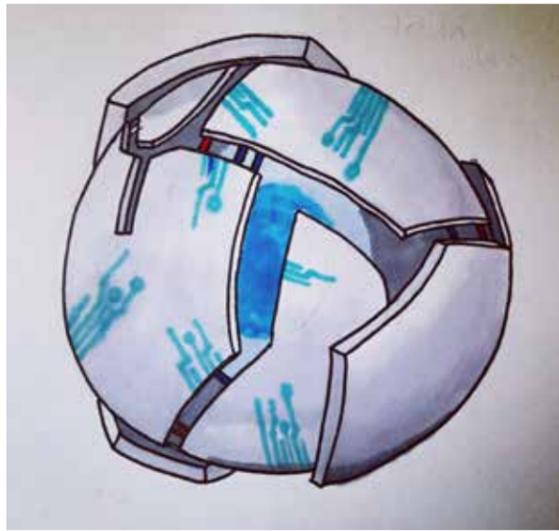
Looking into Fab Labs and Fab Cities and the concept of borrowing not owning.

A key element of circular economies is repair. An issues currently is that many people lack the confidence and basic DIY skills needed to fix common breakages, like rewiring a plug, using a saw, or a drill.

This light comes with comprehensive instructional video which guides novice users in basic DIY skills empowering them to repair more objects around the home.



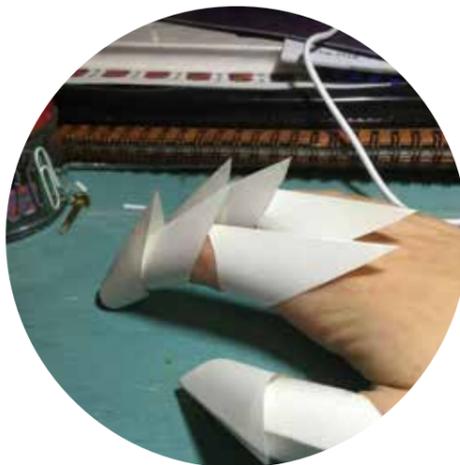
My Drawings



The Gauntlet

A personal favourite of mine, this started as a hobby project but I was able to combine it with my university modules as a chance to experiment with scanning and the ergonomics of the human hand.

Interestingly this entire project was made using waste or recycled materials.



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