Lily Pointon

Product Design Portfolio

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Hi! I’m Lily

a fourth year MEng Product Design engineering student based in Nottingham.

I am a unique, bubbly individual who loves meeting new people, and working with others to create incredible design solutions.

I got married at the end of my second year to my amazing husband Joel, and together we do a lot of volunteering with the youth at our church. I sing and play the guitar, but also love creating physical art in the form of glass etched products and crocheted gifts. I’ll try my hand at anything DIY and am always looking for new craft ideas.

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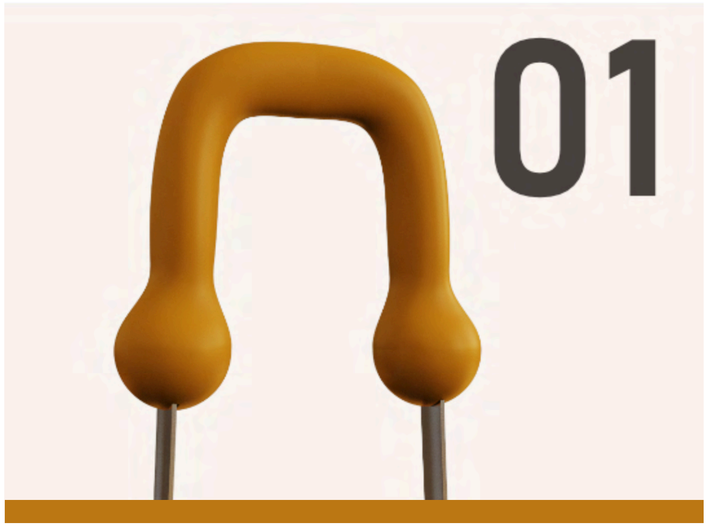
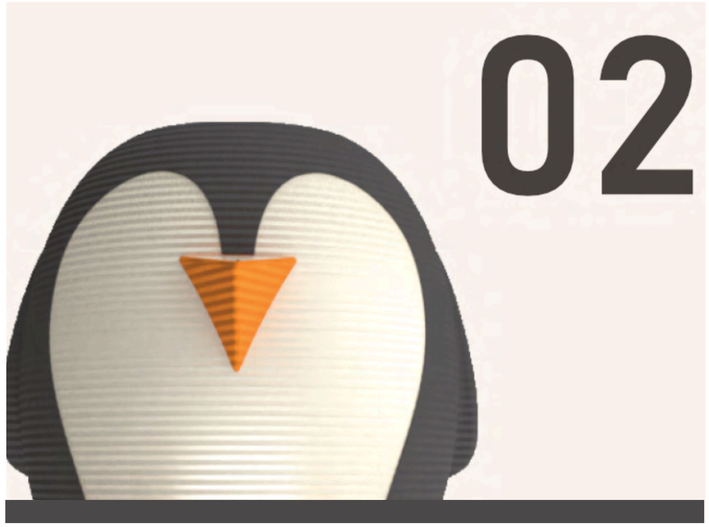
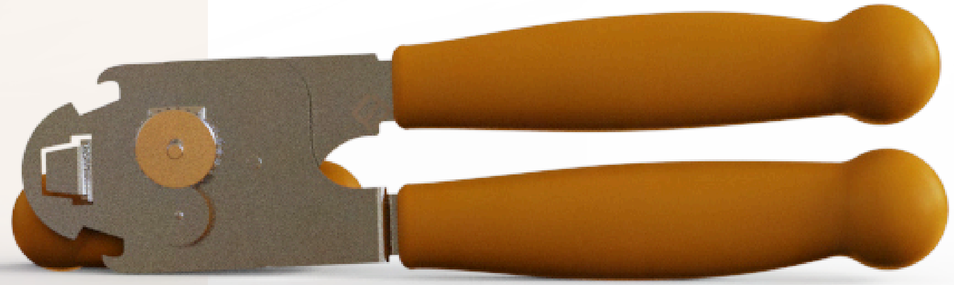




01 Assistive Kitchen Utensils

6 week individual project
Final 3rd year project

- Design a potato masher and can opener for retirees
- Common design language
- Manually operated

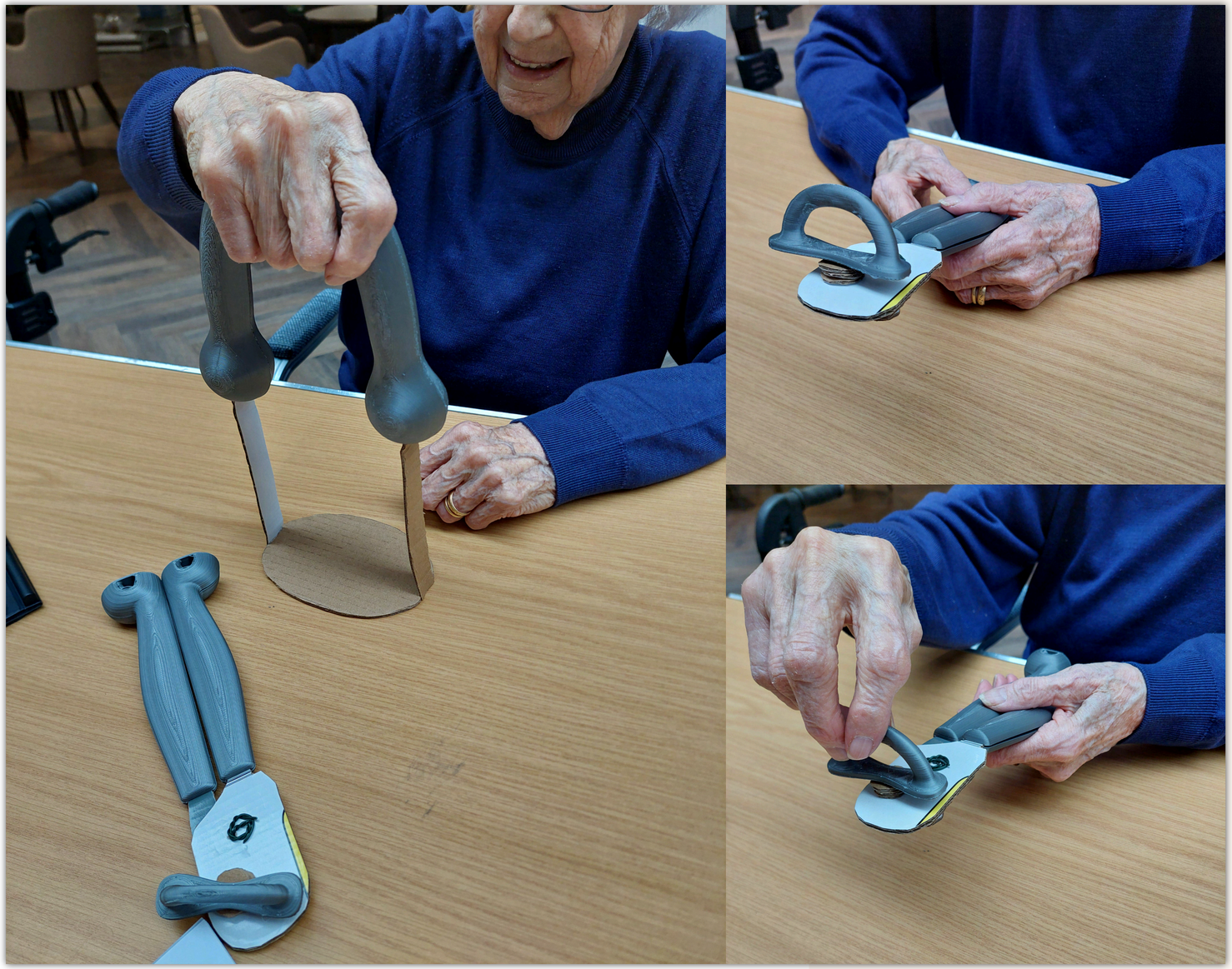


User research

with residents from Larkhill Village

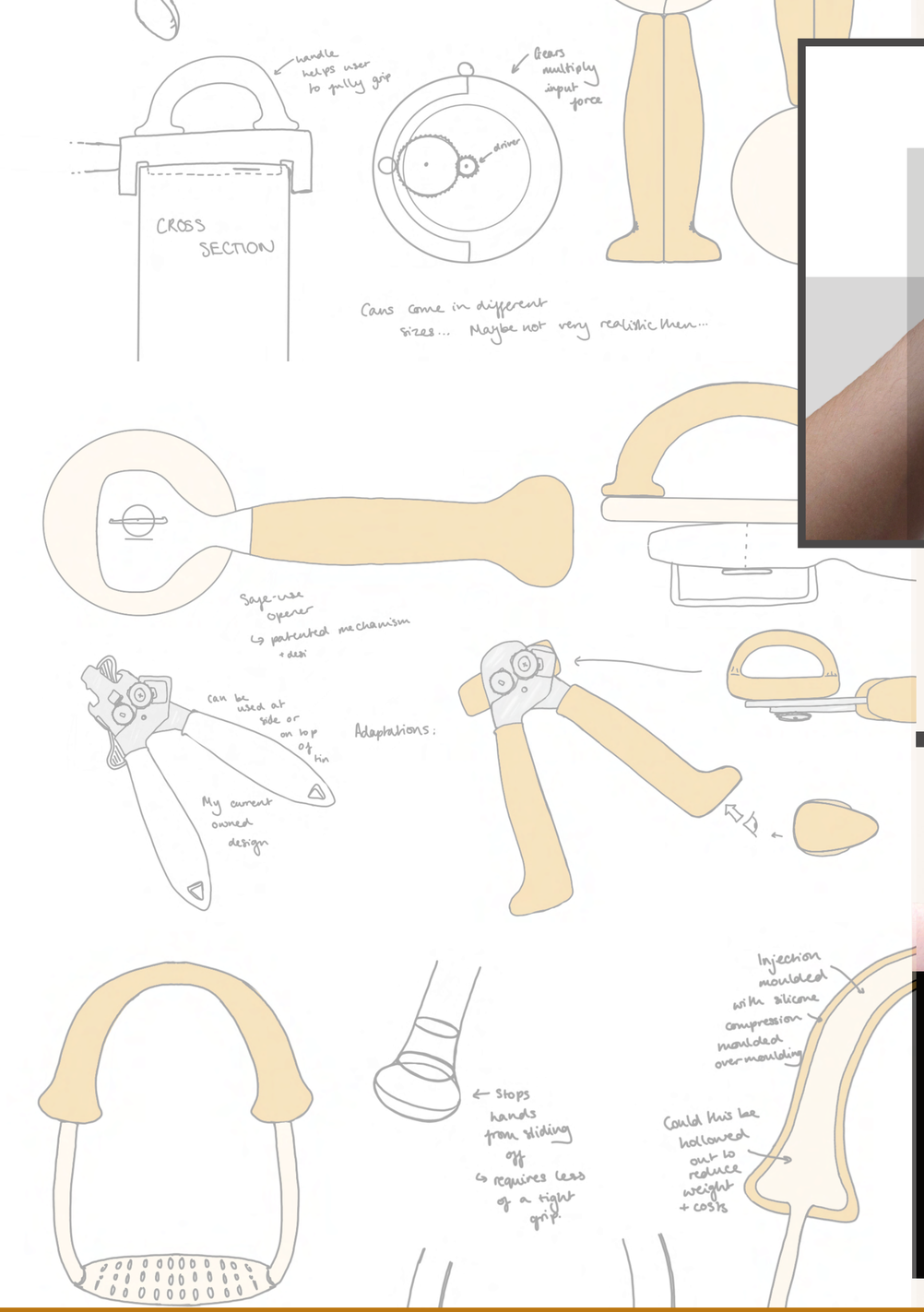
Empathy Study

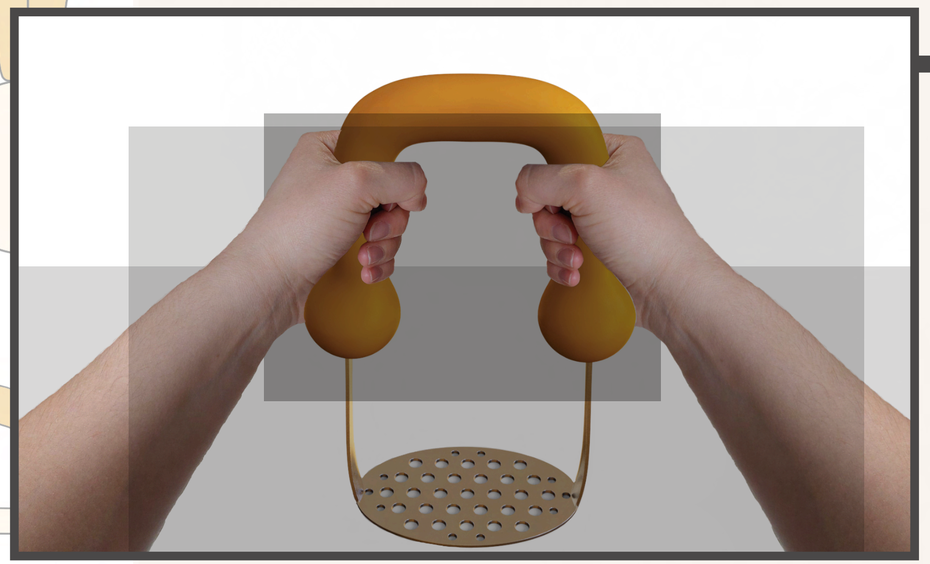
I taped up my hands to understand
the experience of having arthiritis



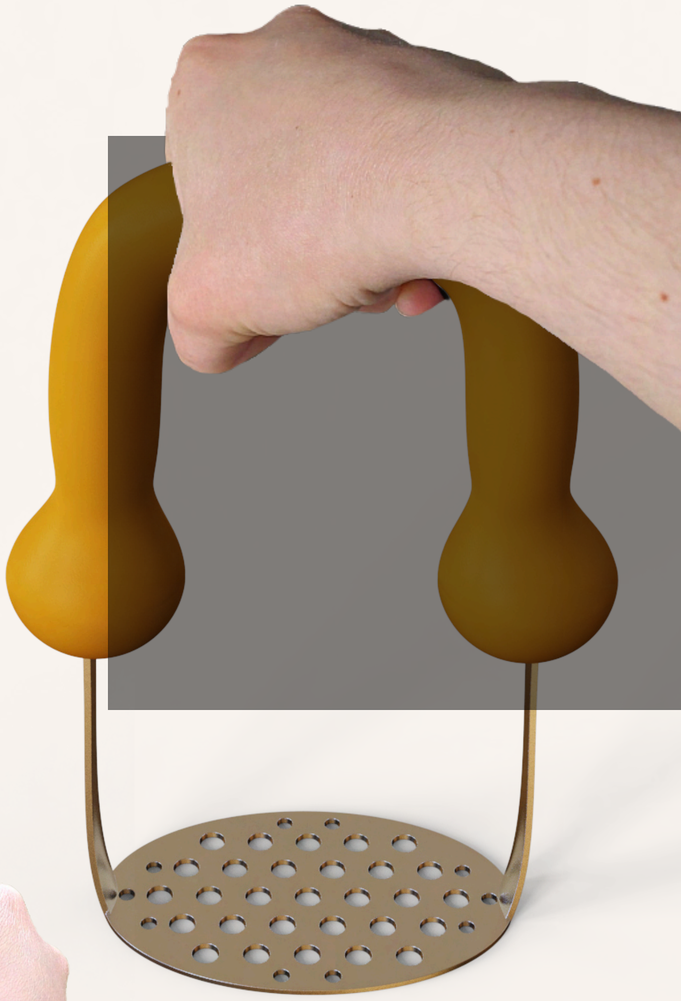
Prototyping the utensils

I used a combination of 3D printing and cardboard modelling to work through the details of my design.



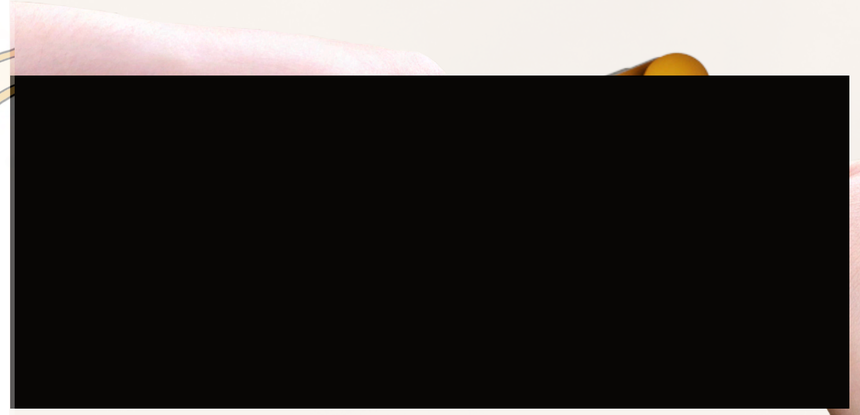


One or two handed use



Comfortable grip

Silicone gives grip
Handles large and ergonomic



Pin made of 1.5mm diameter rod - 17mm length

Compression moulded P66

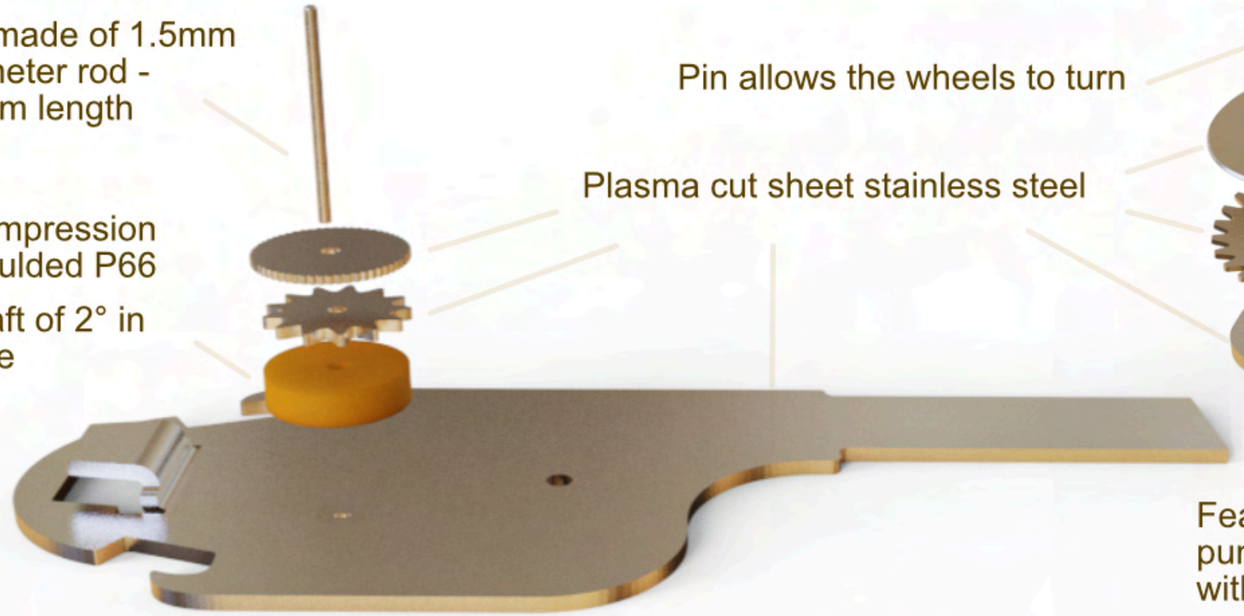
Draft of 2° in hole

Plasma cut sheet stainless steel

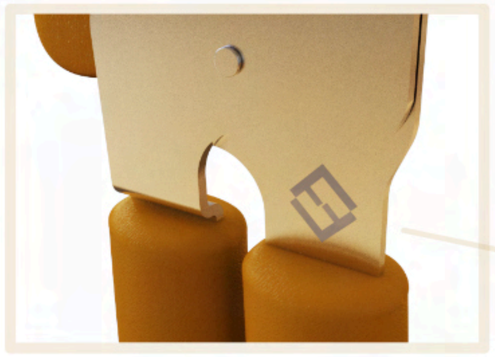
Pin allows the wheels to turn

Edges sharpened with chamfering machine

Punched to create the curve:



Feature punched out with die



Laser etched logo possible

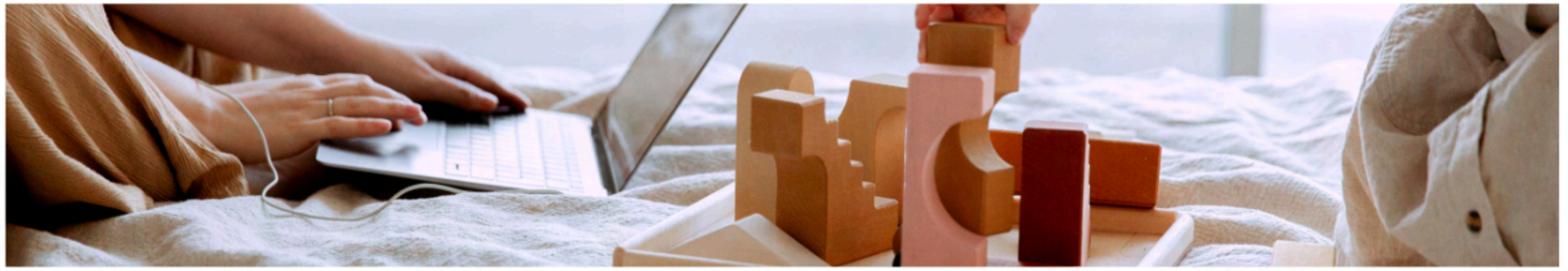
Compression moulded P66 around metal plates

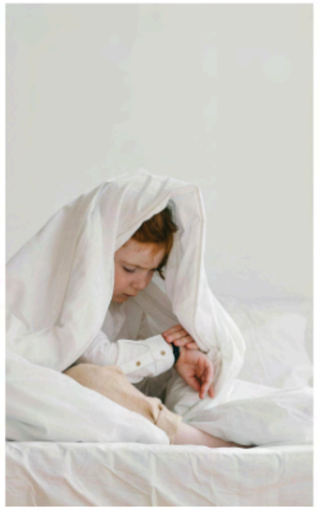
Compression moulded P66

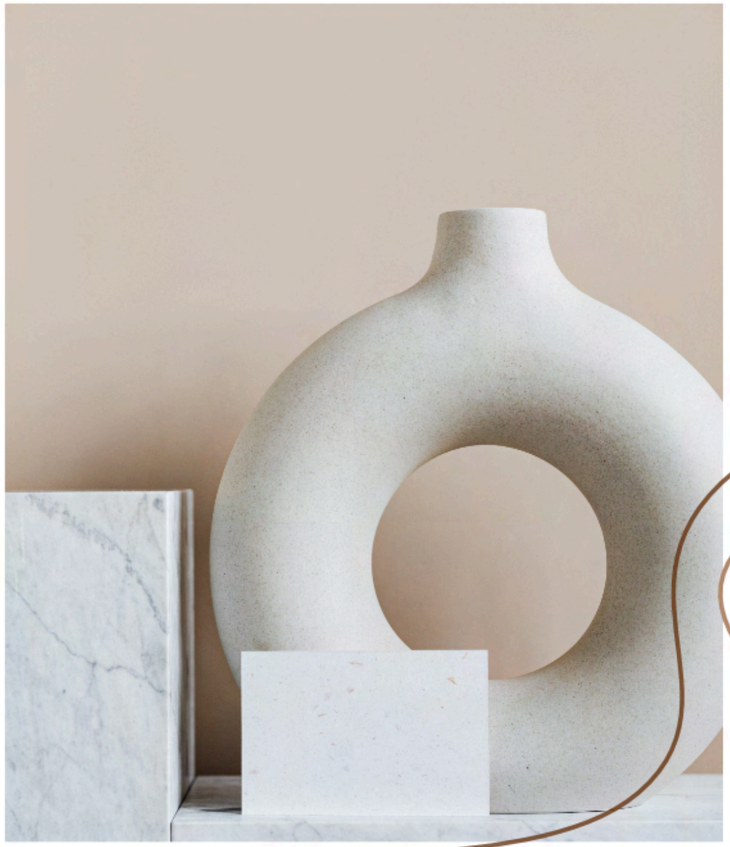
02 Cooling Desk Humidifier

6 week individual project
Third 3rd year project

- Design for child’s bedroom
- Electric fan must be used
- Hold 600ml of water
- 3D printed with ceramic







Gabriel Tanner

Male

3 ½ years old

European

Gabriel’s parents want a cooling desk fan that will create a cooler atmosphere in their son’s bedroom. They want it to be aesthetic and in-keeping with the design of his room whilst being something Gabriel won’t feel frightened of.

They want it to be easy to fill up and hard to topple over to avoid accidents - potentially the product would even have a lid!

They want it to be a simple and sweet design.

Favourite things

His toys

Playing in his room

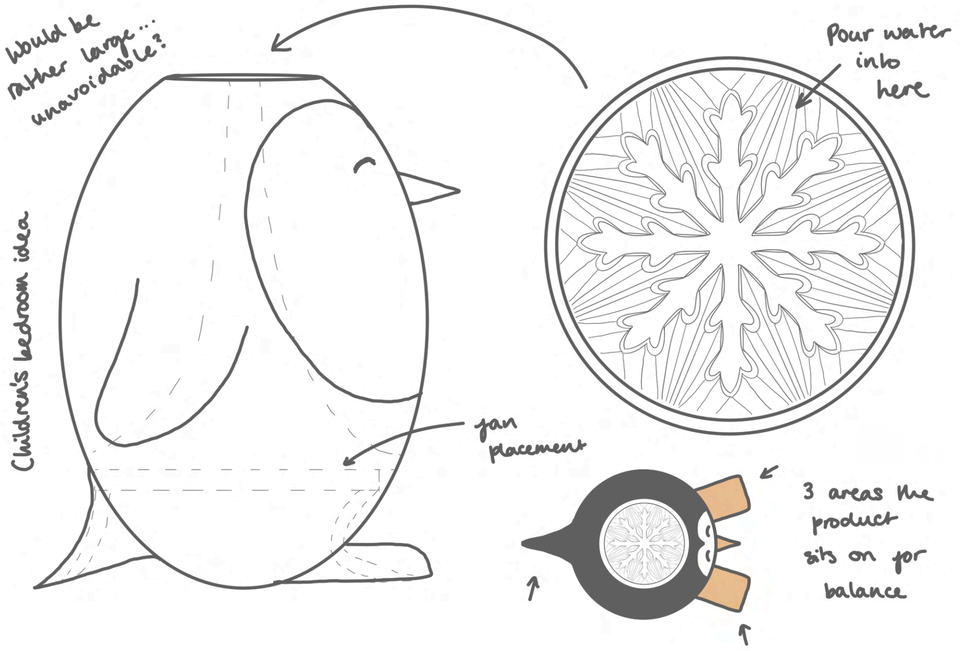
His family looking after him

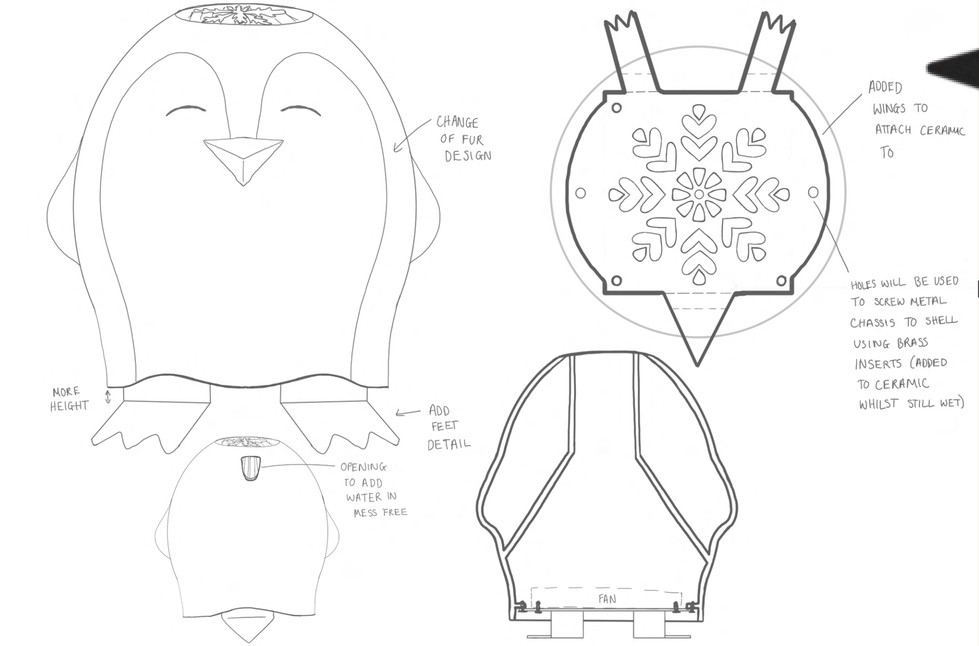
Wants

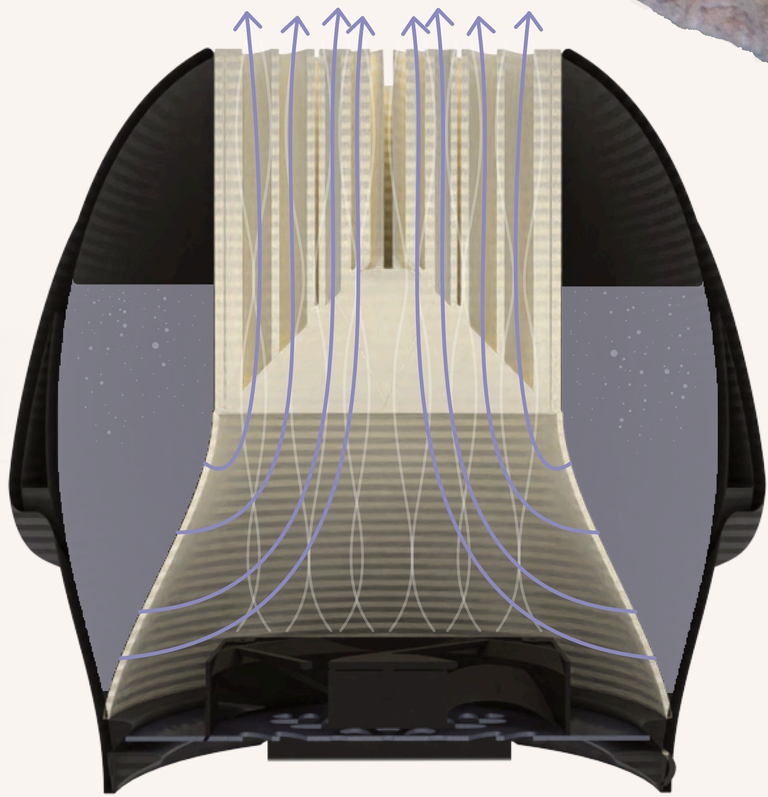
To sleep well during hot nights in summer

To have a calmer atmosphere to play in during the day in his bedroom especially after running around

To make an emotional connection with the product







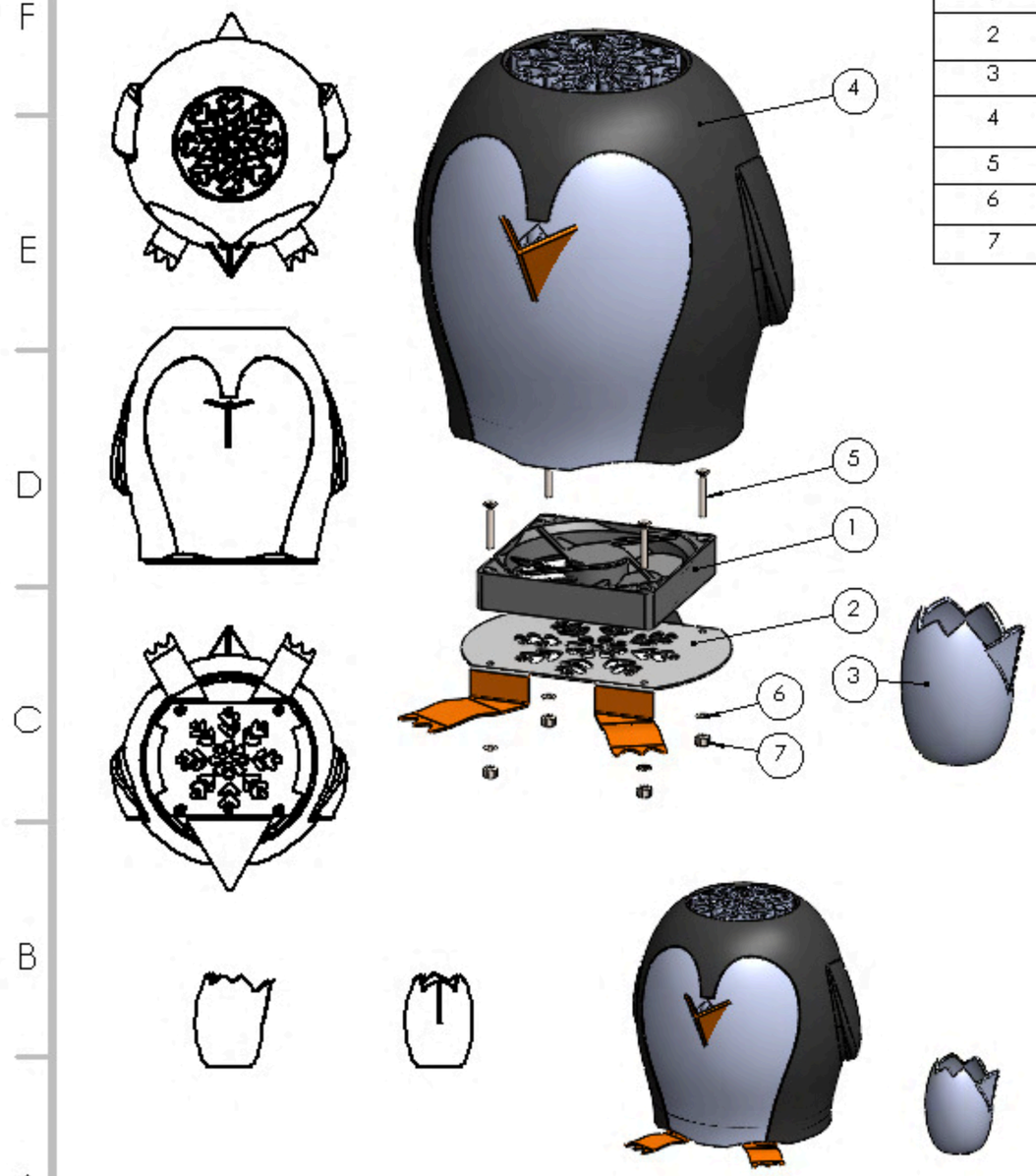
Water system

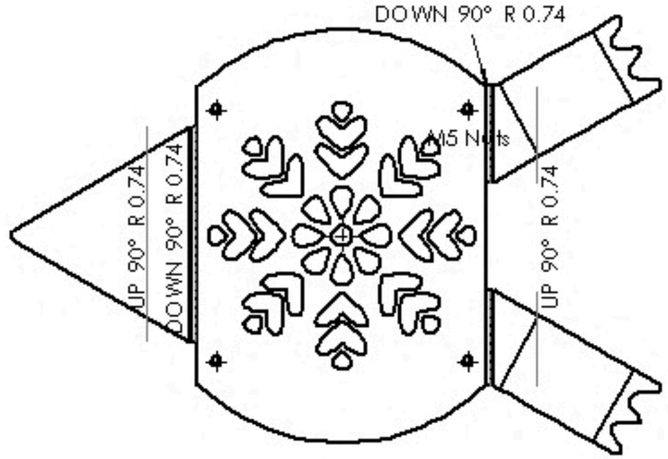
Pour water into beak
Water penetrates the ceramic and water droplets are blown up and out by fan at the base

Engineering drawing

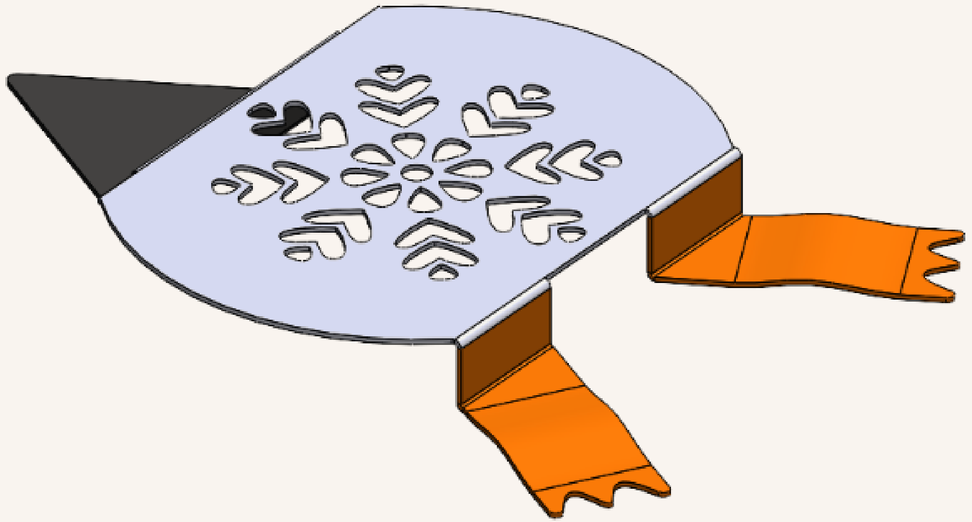
For the manufacture of the metal chassis

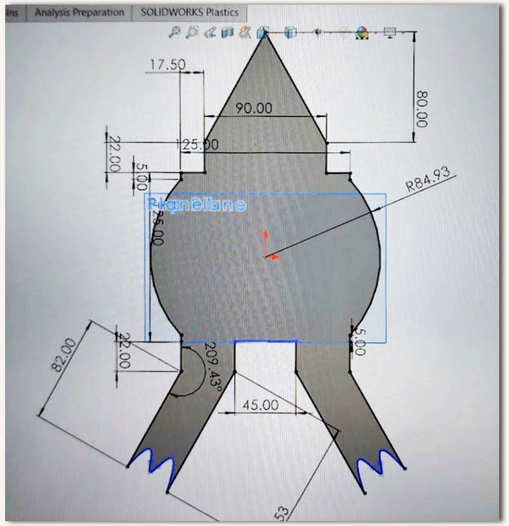
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Fan Assembly	Standard part	1
2	Metal Chassis v2	Plasma cut and bent	1
3	Egg Jug v2	3D printed ceramic	1
4	Ceramic Casing	3D printed ceramic in 3 colours	1
5	BS EN ISO 7046-1 - M4 x 30 - Z - 30N	M4 flat head 30mm bolts	4
6	Bright washer BS 4320 - M4 (Form A)	M5 Washers	4
7	BS EN 24034 - M5 - N	M5 Nuts	4





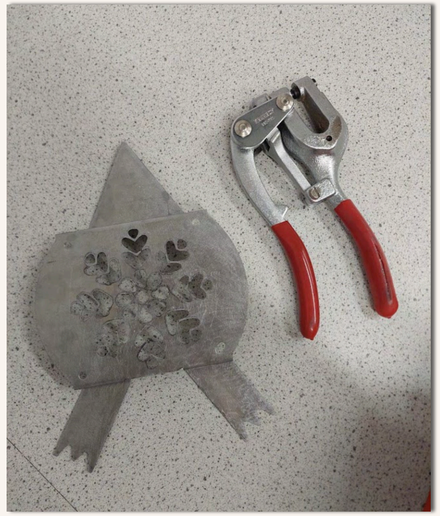
Cooling Fan Assemly V2A

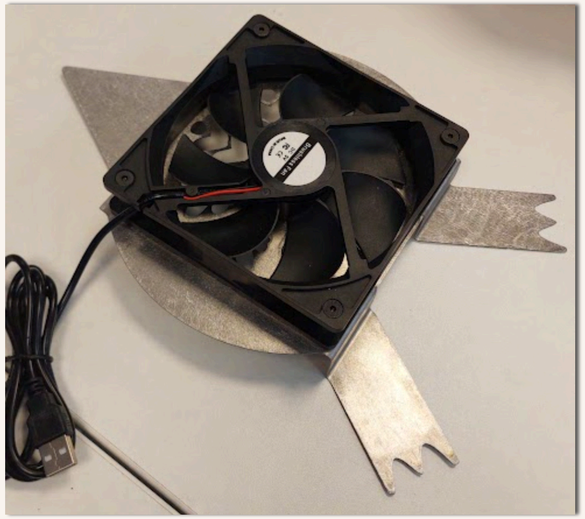




Prototyping the chassis

Plasma cut the net shape
Used the press brake to bend the part
Punched out the holes for the bolts





Assembly

Placement of the casing
on the chassis

Lower case onto chassis at a 90 degree angle

Twist to the front to lock in place

03 Sustainable Standing Lamp

6 week individual project
Second 3rd year project

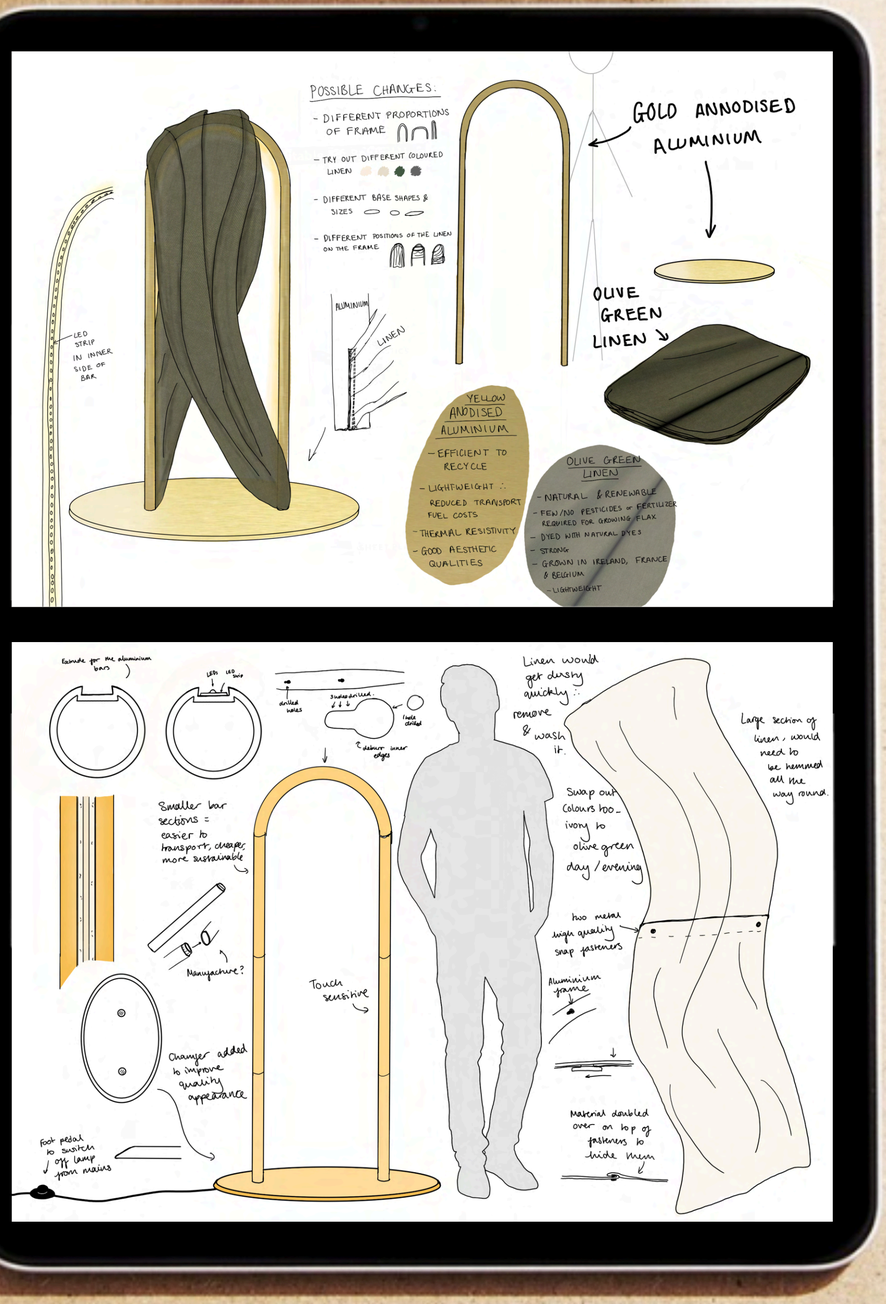
- Sustainable choices
- For a modern home
- LED lamp - no budget

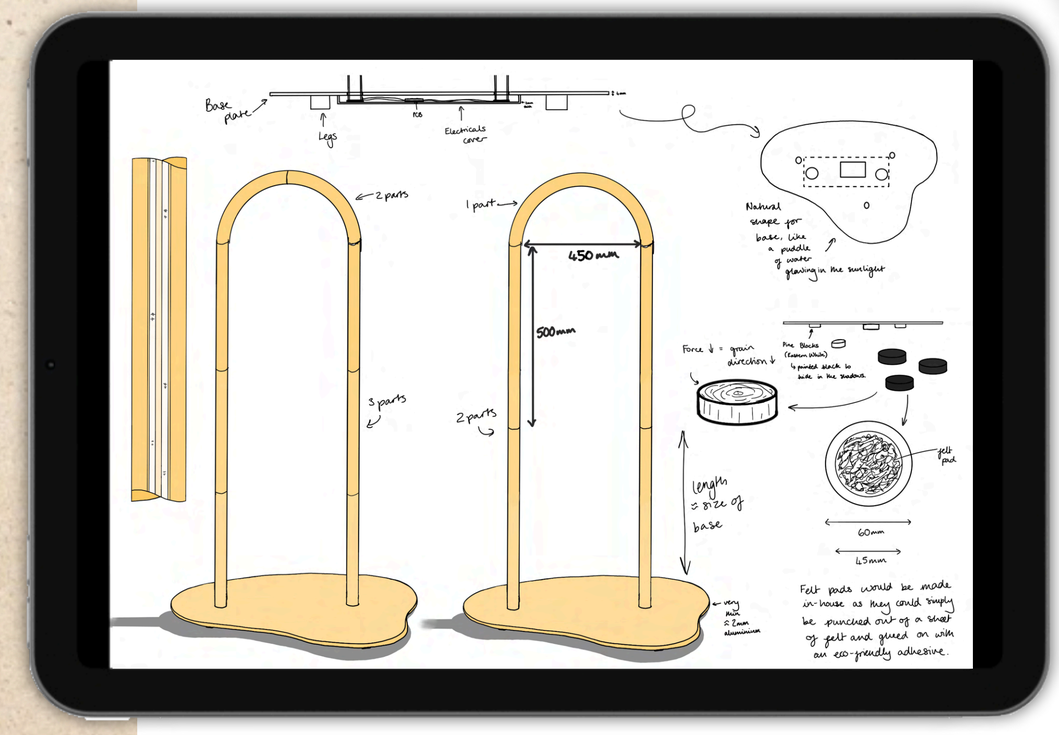
Mood boards

Sustainable materials
Use of texture and finish
Modern and light aesthetic

Sketching the design

I worked through the techical details of the design through sketchwork





Rendering

I created realistic images of the product which to help show the design's inspiration and use

Exploded view

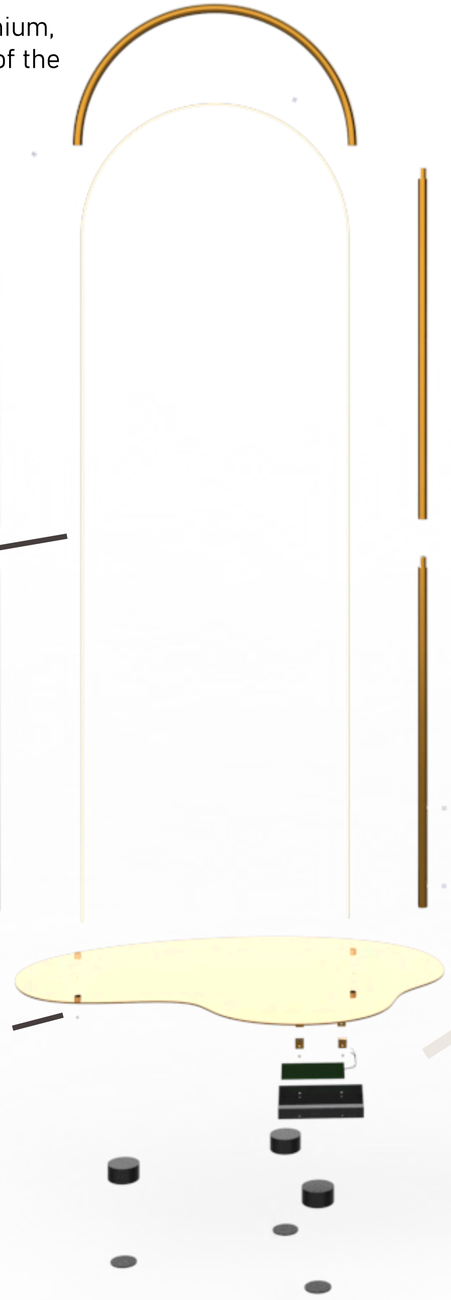
This step was important in analysing the product's ecological impact

Organic linen, pleated then semi-permanent steel fasteners are used to attach this to aluminium frame

Yellow coloured anodised aluminium, welded inserts of the same to aid assembly

High quality seamless LED strip

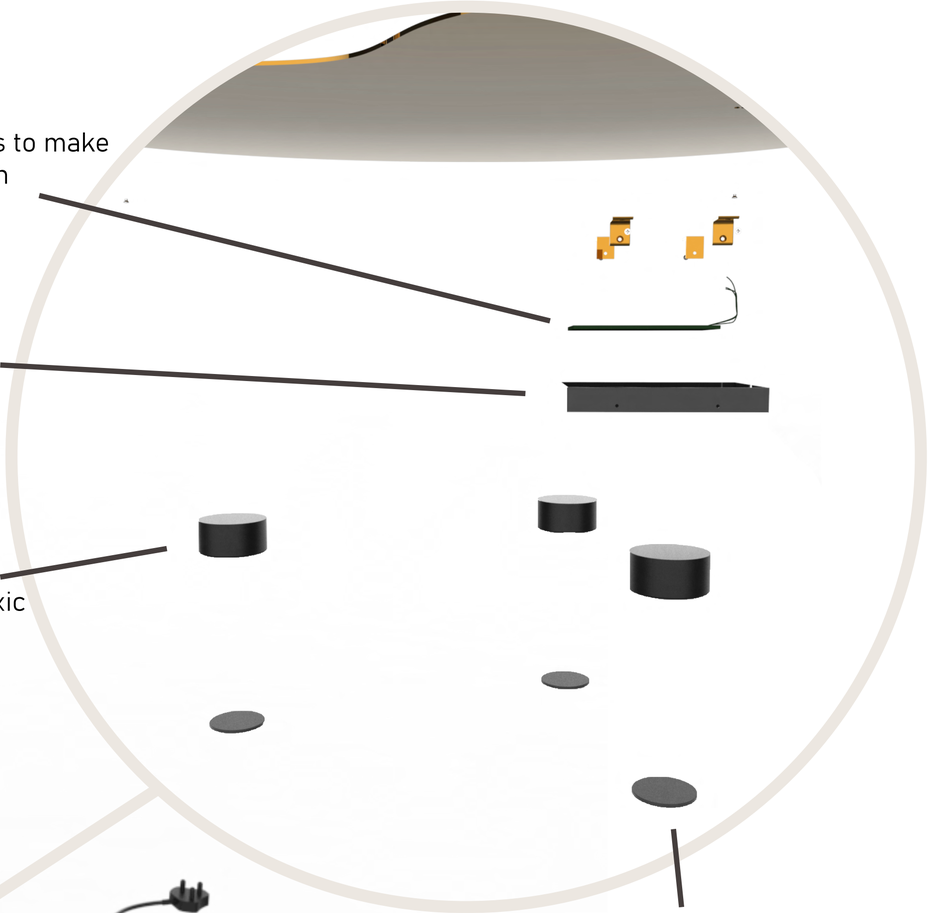
Yellow coloured anodised 2mm aluminium plate



PCB and wires to make the lamp touch sensitive

ABS electrical box injection moulded and bought in

Beech feet painted black with a non-toxic paint

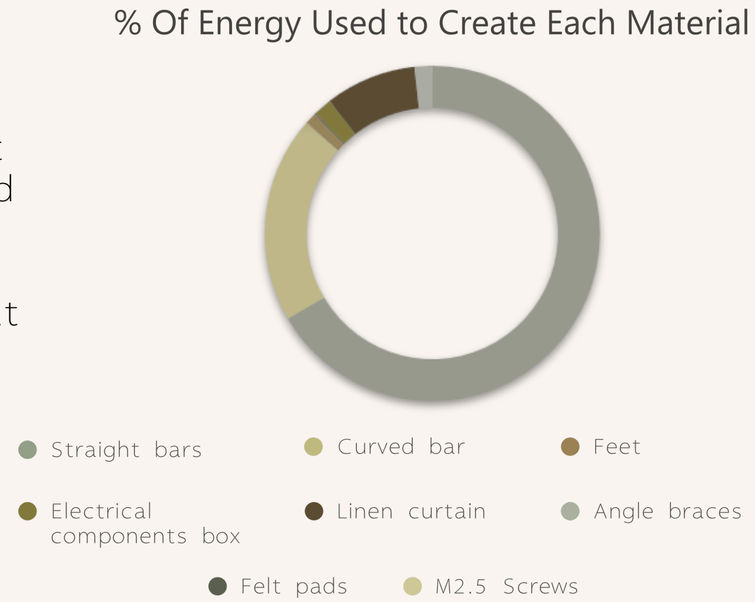


10mm thick felt pads to stop feet scratching the floor, glued on with a reversible adhesive

Standard plug with foot pedal

Component	Material	Recycled content (%)	Part mass (kg)	Qty.	Total mass (kg)	Energy (MJ)	%
Straight Bars	Aluminium, 6061, T4	Typical %	0.21	4	0.82	1.1e+02	66.5
Curved bar	Aluminium, 6061, T4	Typical %	0.25	1	0.25	32	20
Feet	Beech (fagus grandifolia)(t)	Virgin (0%)	0.047	3	0.14	1.7	1.1
Felt pads	Wool fibre	Virgin (0%)	0.0015	3	0.0044	1.21	0.1
Electrical components box	ABS (medium-impact, inject moulding)	Virgin (0%)	0.031	1	0.031	2.8	1.8
Linen curtain	Flax fibre	Virgin (0%)	1.3	1	1.3	14	8.8
Angle braces	Aluminium, 6061, T4	Virgin (0%)	0.0033	4	0.013	2.7	1.7
M2.5 Screws	Coated Steel, steel, galvanised	Virgin (0%)	2.2e-05	6	0.00013	0.0052	0
Total				23	2.5	1.6e+02	100

The table above shows the general statistics regarding the materials used within my product and the energy it would take to create each one. From the pie chart, one can see that the two greatest contributors to energy usage are the two types of bars that make up the frame.



Evaluating the environmental impact

I put together a report about the sustainability of the product. This is one page analysing energy usage.

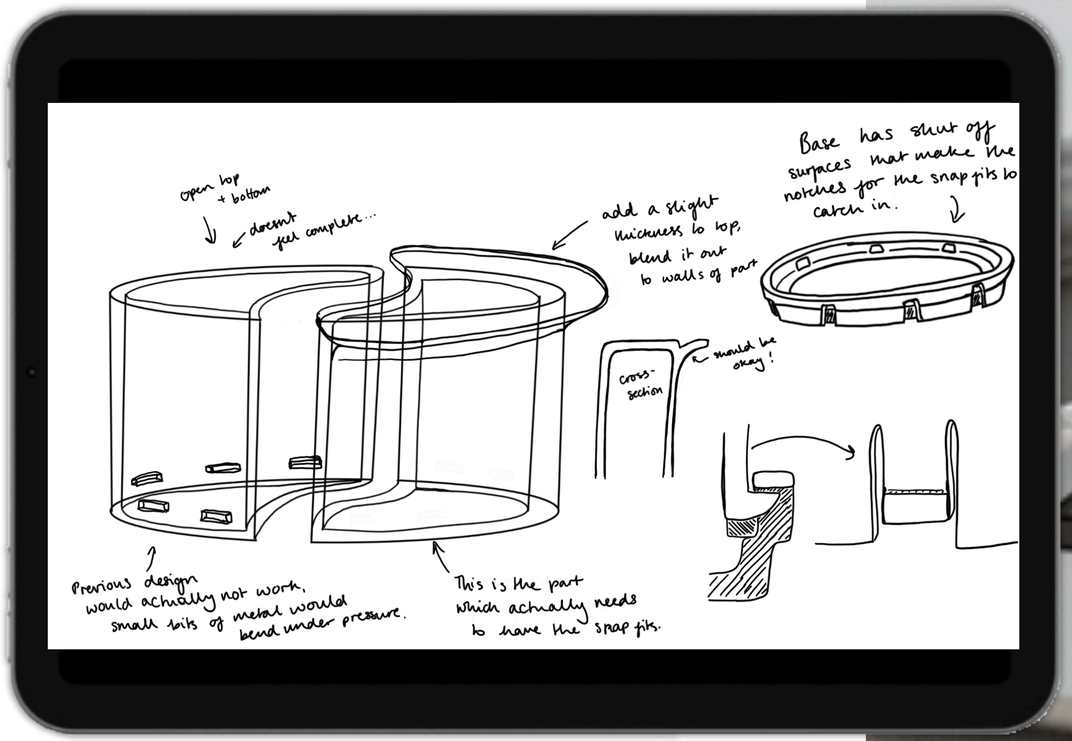
04 HDMI Cable Wrap

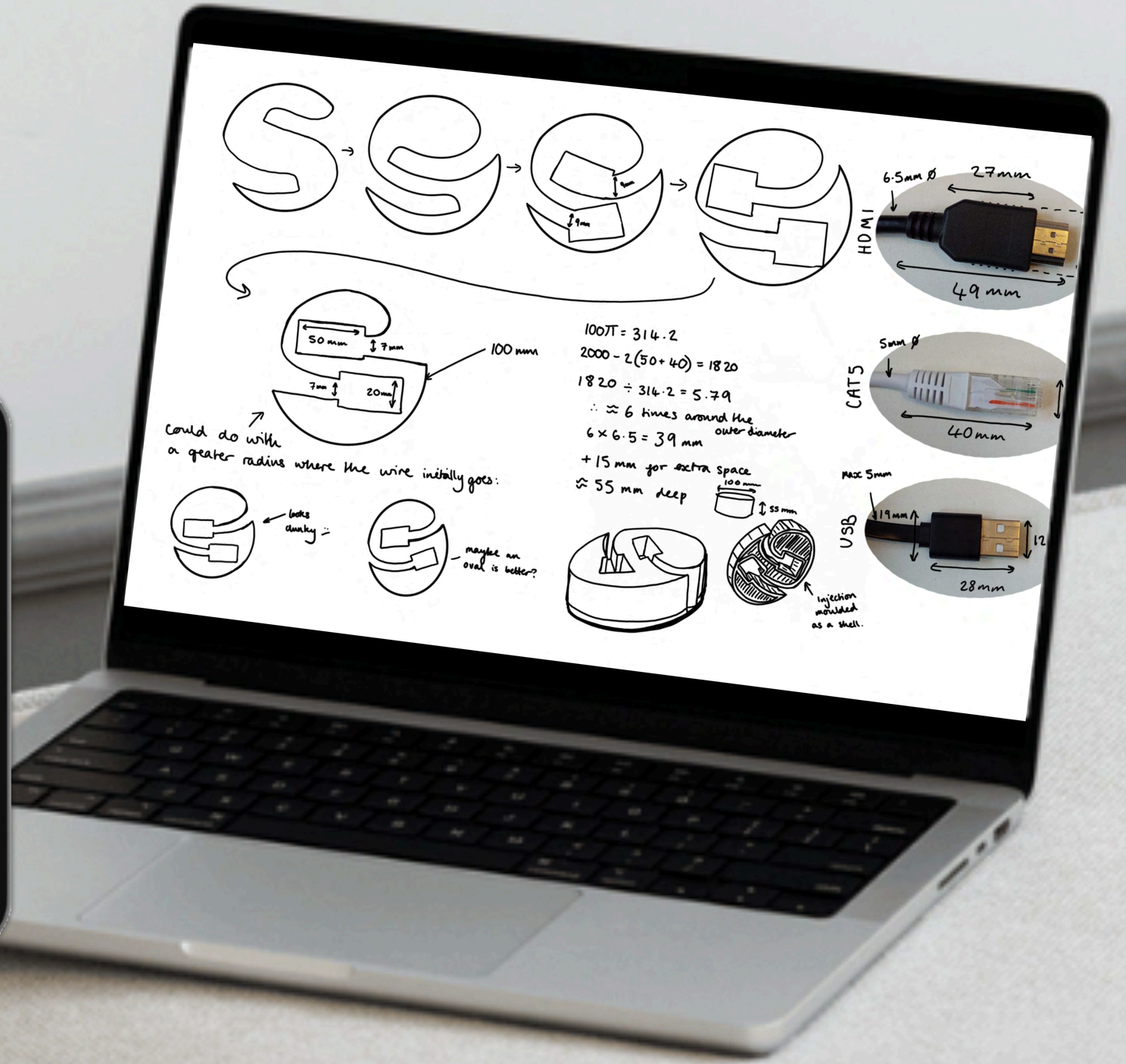
4 week individual project
First 3rd year project

- Injection moulded
- Max 3 different IM tools used
- Must hold 2m HDMI cable

Research and ideation

I considered the sizes of different cables that might be used in this product.

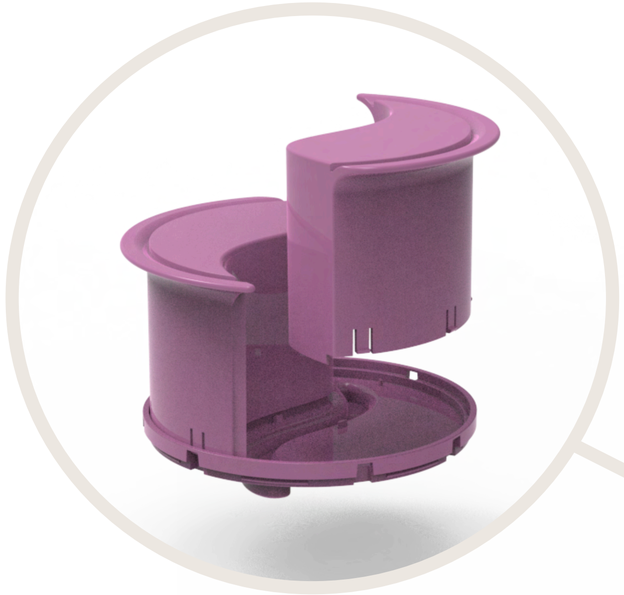




Four colour options

This glossy, modern design would come in four possible colours and would be injection moulded to a high quality

Centre parts snap into base



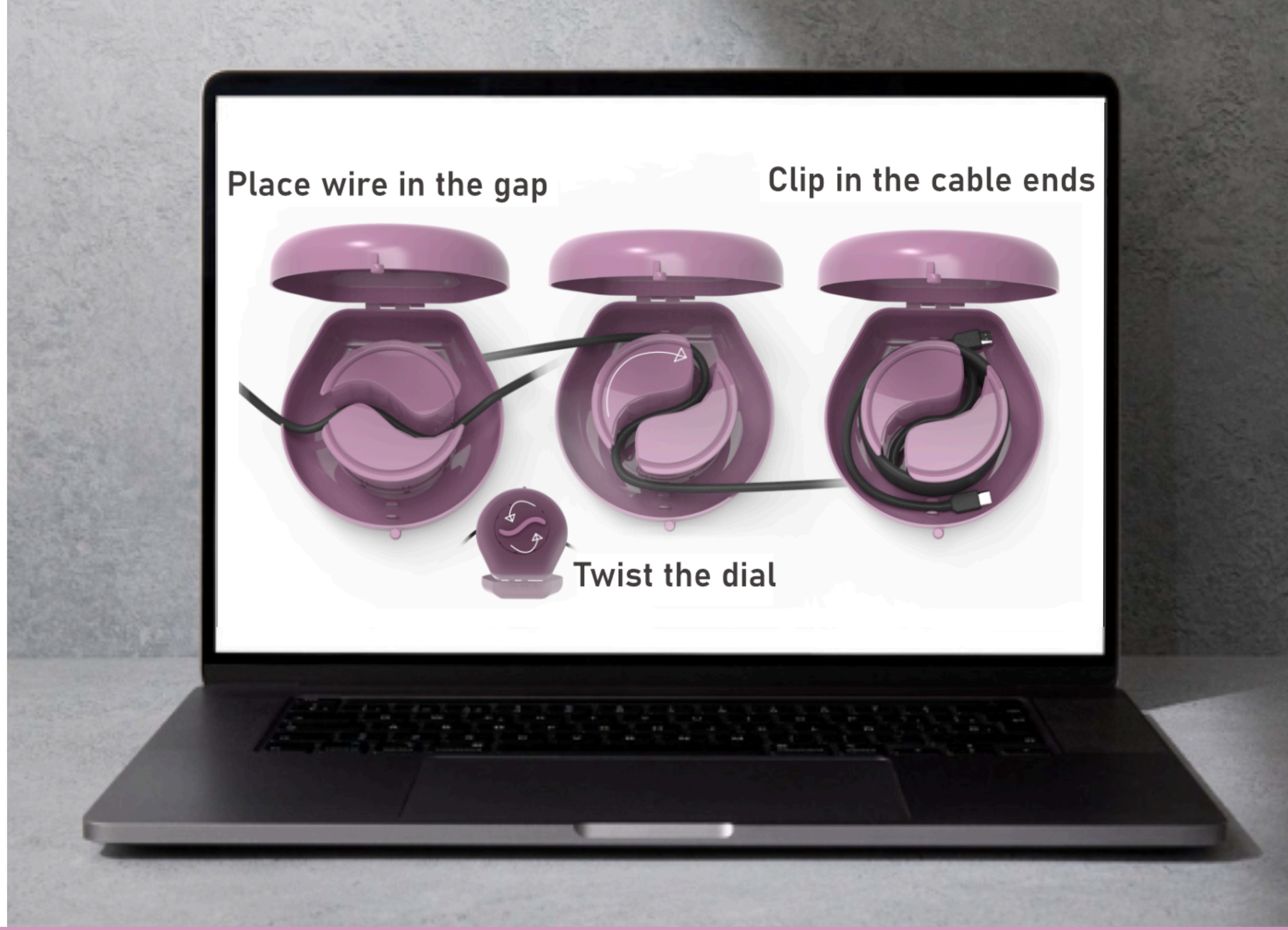
Assembly

Made with only six elements, this design is easy to assemle and disassemble

Case closes and hinge pin is inserted

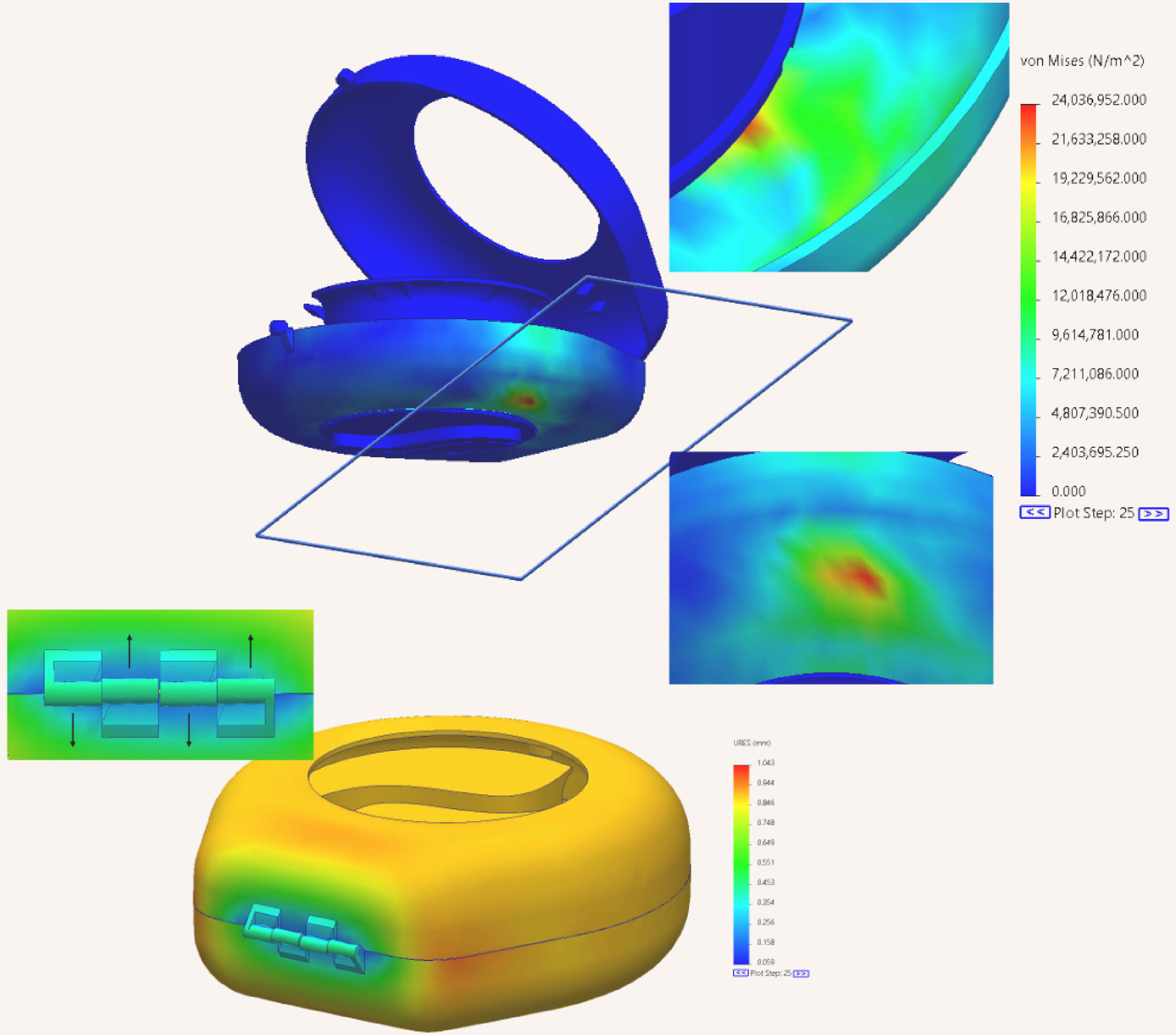
Instructions for use

The product is simple to use and reqires a twisting motion with a dial to coil up the cable



Human interaction

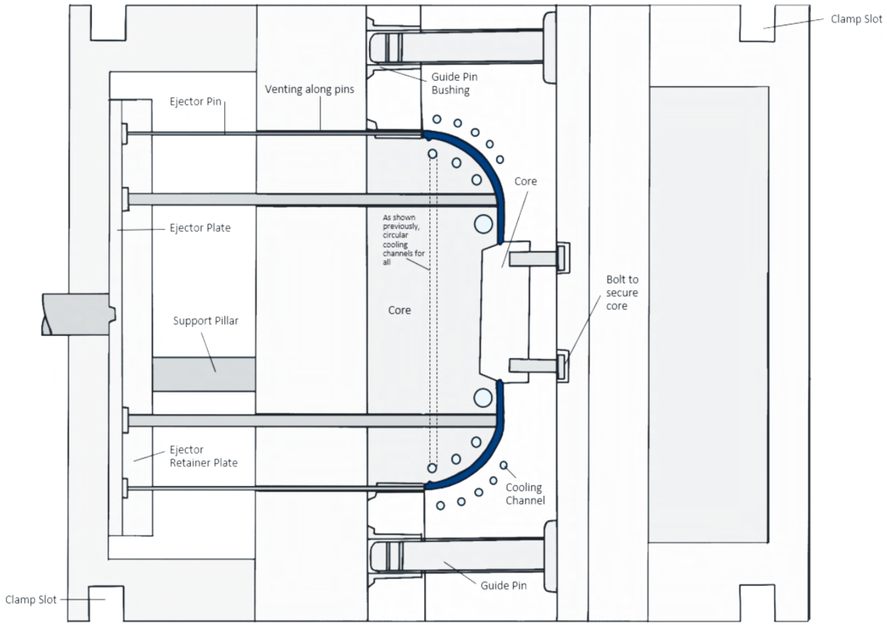
The product is quite large as it is designed for use with a 2m HDMI cable, however it is comfortale to hold and use due to it being very lightweight.



Product testing

Completing drop tests and displacement tests helped me understand the quality of my design better

I also considered the injection moulding of this product



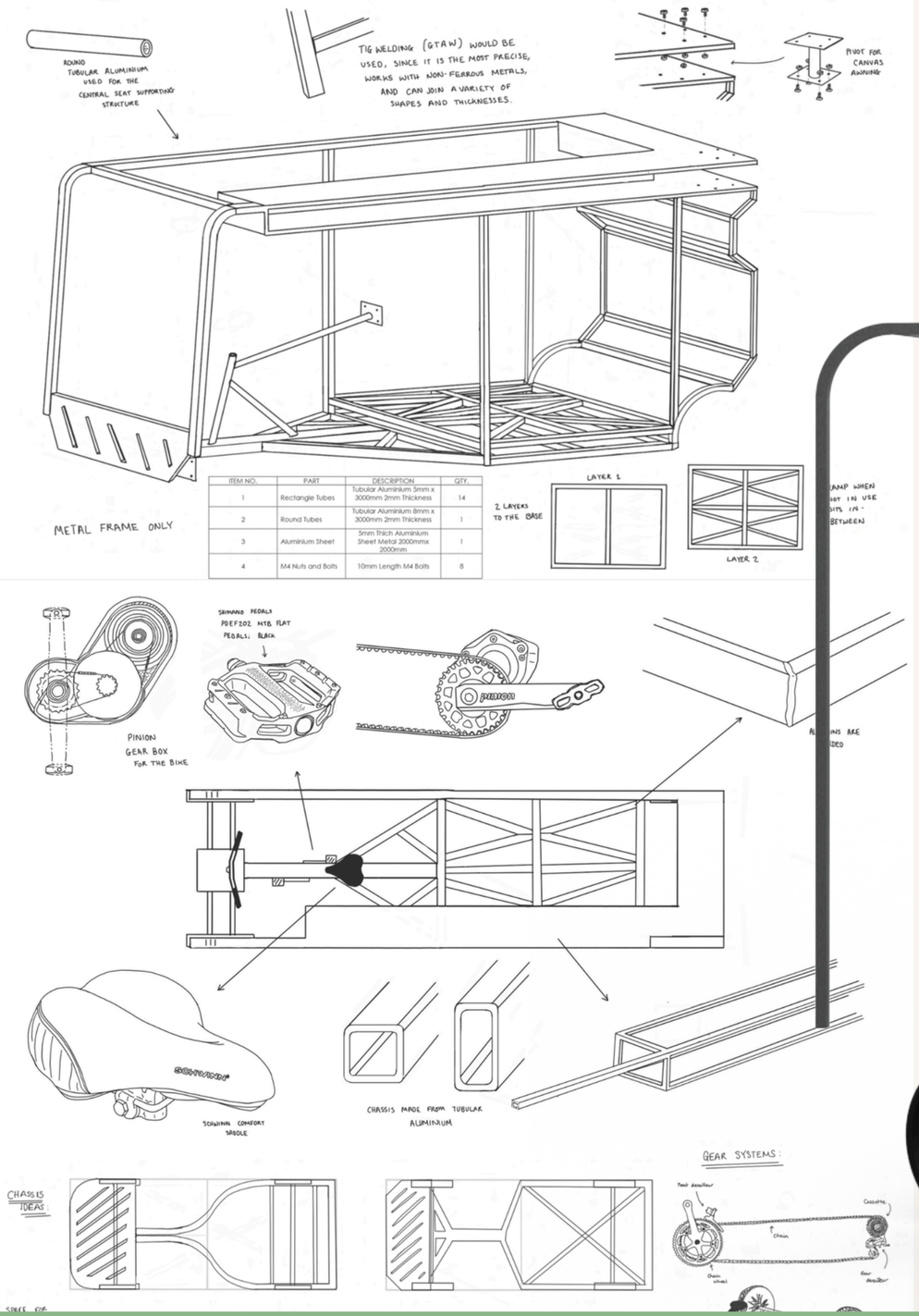
05 Medical EAV Group Project

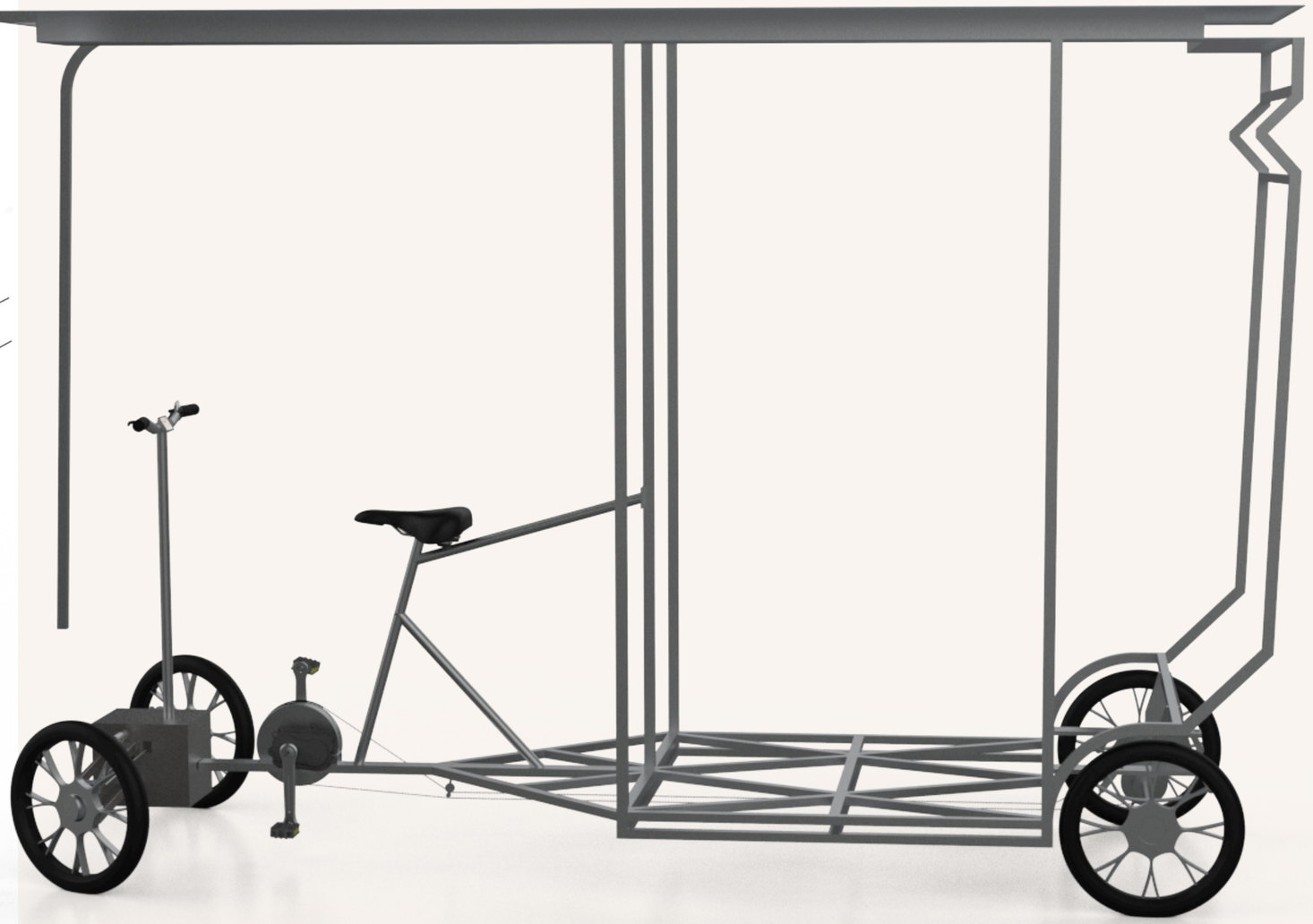
7 week project - completed with 5 others
Final 2nd year project

- Electric Assisted Vehicle
- 3m long x 1m wide x 2m tall
- Delivers audiological testing

Chassis Design

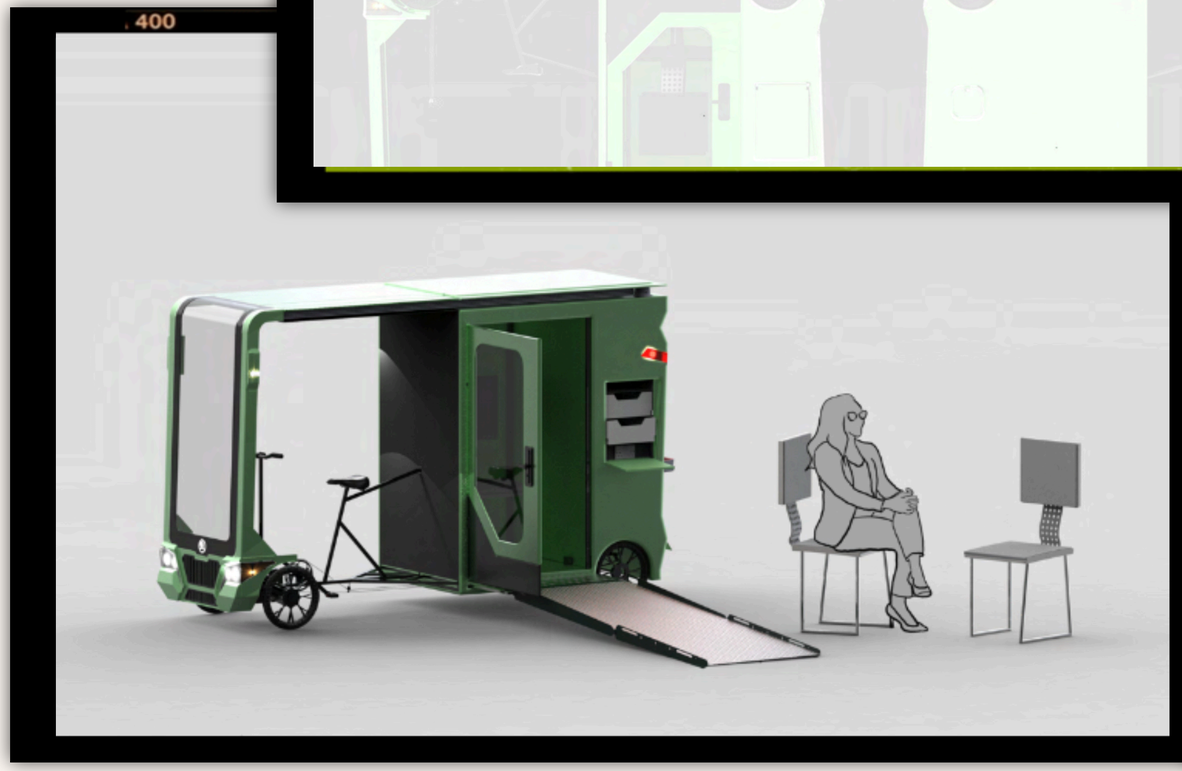
My area of the project was designing the chassis





In context render

This EAV medical service is designed to be used in busy cities where owning a car may be less common. This service comes to the customer.



User interaction

The compartment at the back of the EAV is only for the hearing test

A pull out canopy is used to create a tent-like space for the rest of the audiology consutation

06 Sketchwork & DIY projects

Personal projects I have worked on over during my degree

- I sell glass etched products and often make them as gifts too
- I crochet and enjoy other needle work
- During the summer I worked on restoring a dining table and chairs


HAPPY
21st
birthday
Lizzie

Blender

Over the summer I taught myself how to use blender for realistic rendering and animations.
This image is the result of a tutorial I followed.

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