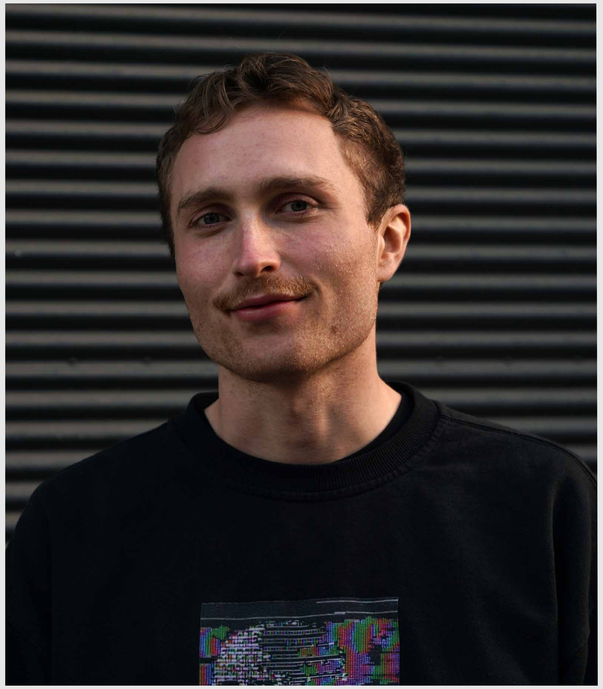
Portfolio

Jakob Volkmer

favourite projects, march 25



What excites me

From a young age, I enjoyed designing and building things — whether it was wood, mechanics or electronic devices. After my stay abroad in New Zealand and Vanuatu, where I worked as an intern in a shipyard, two souls beat in my chest: technology and design. Since I had to choose one of the two disciplines, I started mechanical engineering at the TU Dresden three years ago with a focus on product design. In the future, I would like to work in a field that involves meaningful activities and would therefore like to improve my drafting and design skills in a sustainable context.

Software skills

Affinity Designer	———	Fusion 360	———	Arduino / C++	———
Gravity Sketch	—	Rhino	—	Davinci Resolve	—
Photoshop	—	Solidworks	—	Blender	—
InDesign	———	Creo	—	MS Office	—
Figma	—	KiCAD	———		

Interests

- build and design stuff
- repair, repurpose things
- sketching
- public interventions
- organzing social activities
- climate and social activism
- basketball
- snowboarding
- bikepacking

Contact

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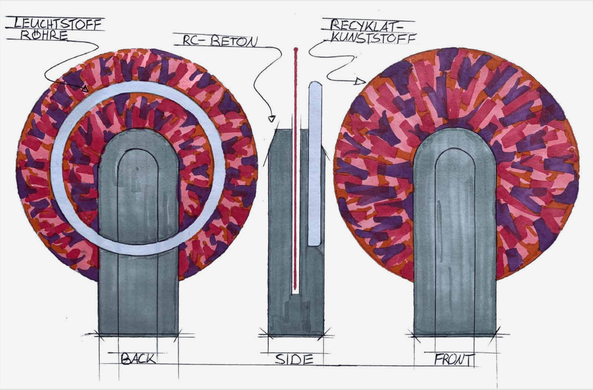
PS-F5
Lamp

A multy modal Lamp made out of recycled plastic and concrete

DURATION	6 Month
YEAR	2022 / 2023
CONTEXT	university
DIMENSIONS	35 × 26 × 7 cm^3
MATERIALS	recycled polypropylen recycled concrete
SOFTWARE	Fusion 360 Affinity Designer Kicad Arduino

Concept

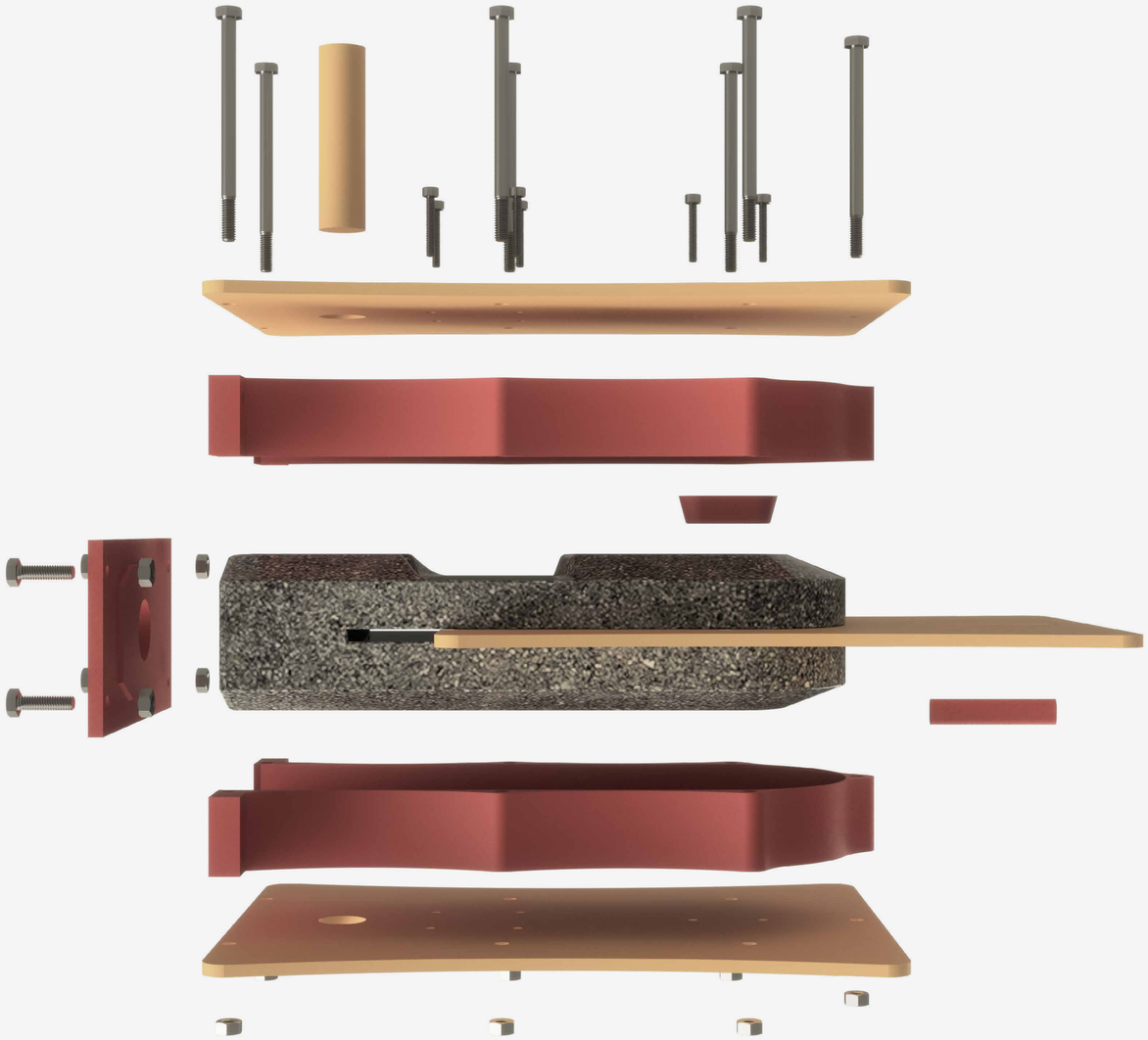
Can a 40-year-old idea be turned into a modern lamp? To find out, I took the iconic “Sony PS-F5” record player as an inspiration. Besides the formal design, I have adopted the principle that the lamp can be operated in three ways: lying down, standing up and hanging on the wall, just like the original record player. Primarily recycled materials had been used. Most parts of the lamp are modular, so they can be recycled when lifespan has passed.



First sketch of basic geometry

Development – mold

I designed the concrete mold in three iterations with Fusion 360. The red parts were 3D printed, the yellow one's lasercut. Finally the base is casted with recycled concrete.



Development – disk

As a lampshade, one can choose between conventional vinyl records and panels pressed from recycled polypropylene scraps. The control element can also be replaced depending on the design of the lampshade. To press the plates, I used machines invented by the „Precious Plastic“ movement.

Finished PS-F5 lamp ready to use

Product

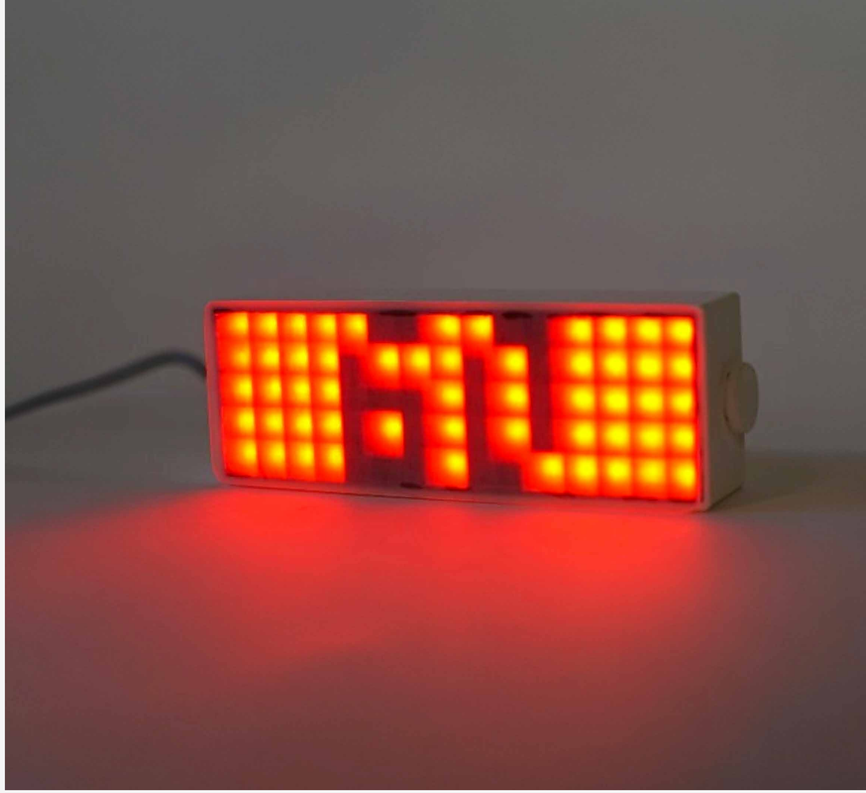
People not having a record player anymore can use their favorite vinyl to stage the lamp. In this way, the emotional value can be transferred from the record to the lamp. The recycled plates are particularly suitable for bringing color into the room.

Urban
Air Indicator

Displays nitrogen dioxide and particulate pollution in your neighbourhood

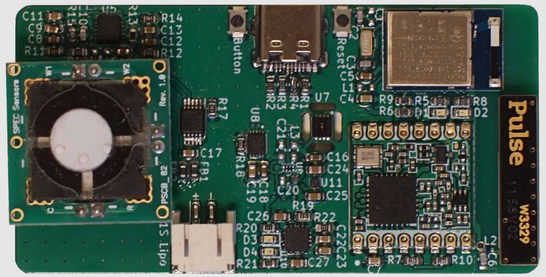
DURATION	2 Years
YEAR	2019–2021
CONTEXT	employment
DIMENSIONS	12 × 9 × 2 cm³
MATERIALS	beech plywood oak veneer
SOFTWARE	Fusion 360 Affinity Designer Kicad Arduino

Postcard with integrated USB and analogue display

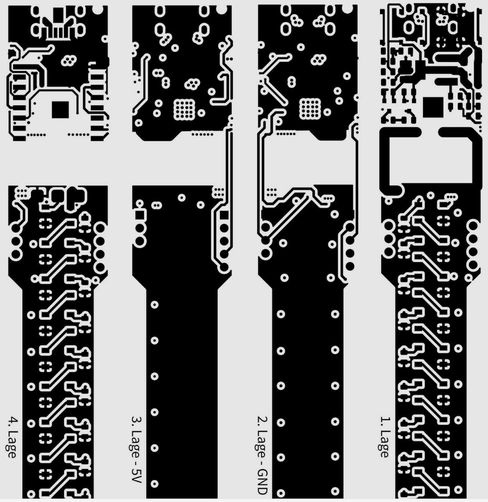


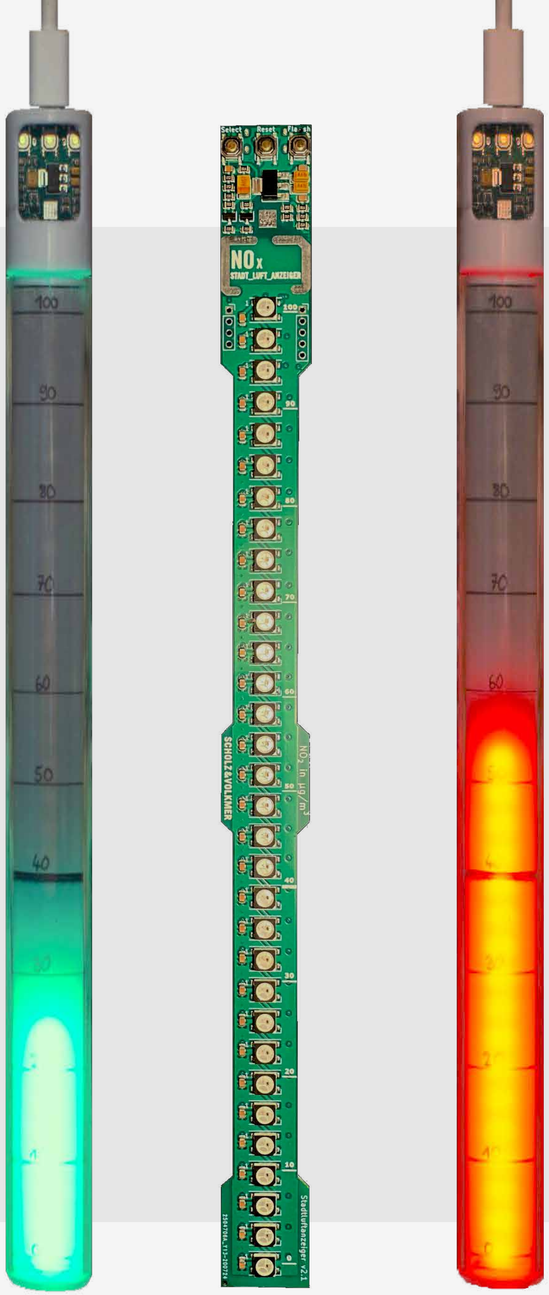
Display variations

How can air pollution be visualized? How can attention and interest be generated? These were some questions that I investigated with the help of many prototypes. I learnt, for example, that a bright light attracts attention but is annoying in everyday life, so in the end it became an unobtrusive e-paper display. It also saves energy.



NO_2 measurement with own circuit board



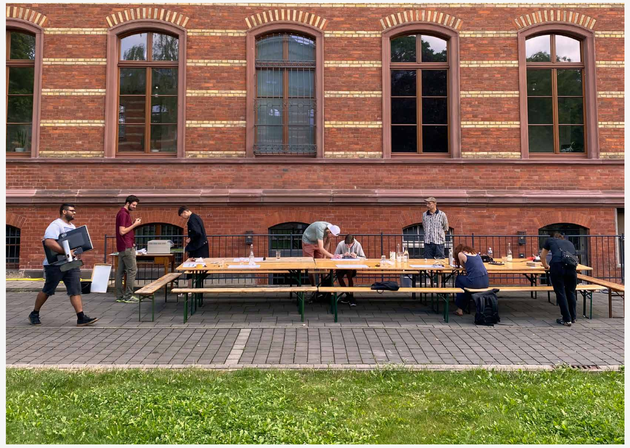


Tech

The city air indicator connects to the wifi router and receives the current values recorded by official measuring stations. I also had developed another device for a citizen science project that allows user to measure the nitrogen dioxide concentration themselves. This portable device connects to your smartphone and the measurement data is then linked to geotags. With this project I have dived into circuit board development.

Awareness

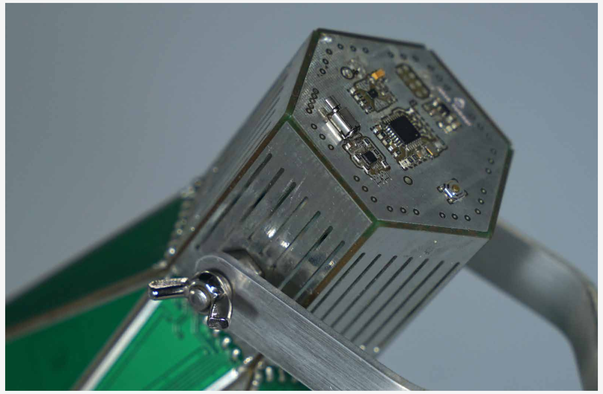
You can‘t see, smell or feel air pollution, but it still has a major impact on our health. What‘s more, the EU limit value for nitrogen dioxide of 40 micrograms on an annual average is often exceeded in Germany by far. To draw attention to this problem, I was asked to develop this device and held a workshop at the see-Conference where we built it together.



PCB
Desk Lamp

A lampshade that is entirely made out of printed circuit boards

DURATION	7 Month
YEAR	2020
CONTEXT	private
DIMENSIONS	70 × 50 × 20 cm³
MATERIALS	printed circuit boards (PCB) Alumnium
SOFTWARE	Kicad Fusion 360 Arduino Affinity Designer



Electronics located directly on the lampshade

Inside out

We are constantly in contact with technology and electronics in our daily life. However big effort is being done to minimize our exposure to it. Many people are afraid of it, which even more makes technology and electronics a nerdy thing. With this project I tried to turn this around and instead prove that technology can have an aesthetic function too. The interface works via touch sensors directly on the lampshade.

Tiny house

Built almost entirely from pre-used materials

DURATION	4 Month
YEAR	2018
CONETXT	private
DIMENSIONS	380 × 200 × 240 cm³
MATERIALS	Trailer destroyed by a tree Larch wood from a demolition 100 year old Windows from renovation everything else from “Kleinanzeigen”
THANKS	to family and friends

Re-use 100 year old windows

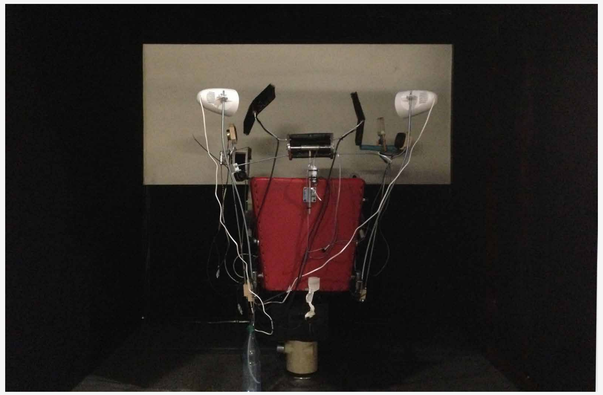
Hideaway

I started this project by pulling out over 2000 nails of used wood planks, collecting old windows from neighbors and buying an old trailer frame for cheap money. It feels good to build a house yourself, even if it‘s only a very small one. The only problem was and still is that it unfortunately turned out to be to big to move from our backyard to a new place.

Minecraft 4D

Experience the computer game
“Minecraft” with all senses

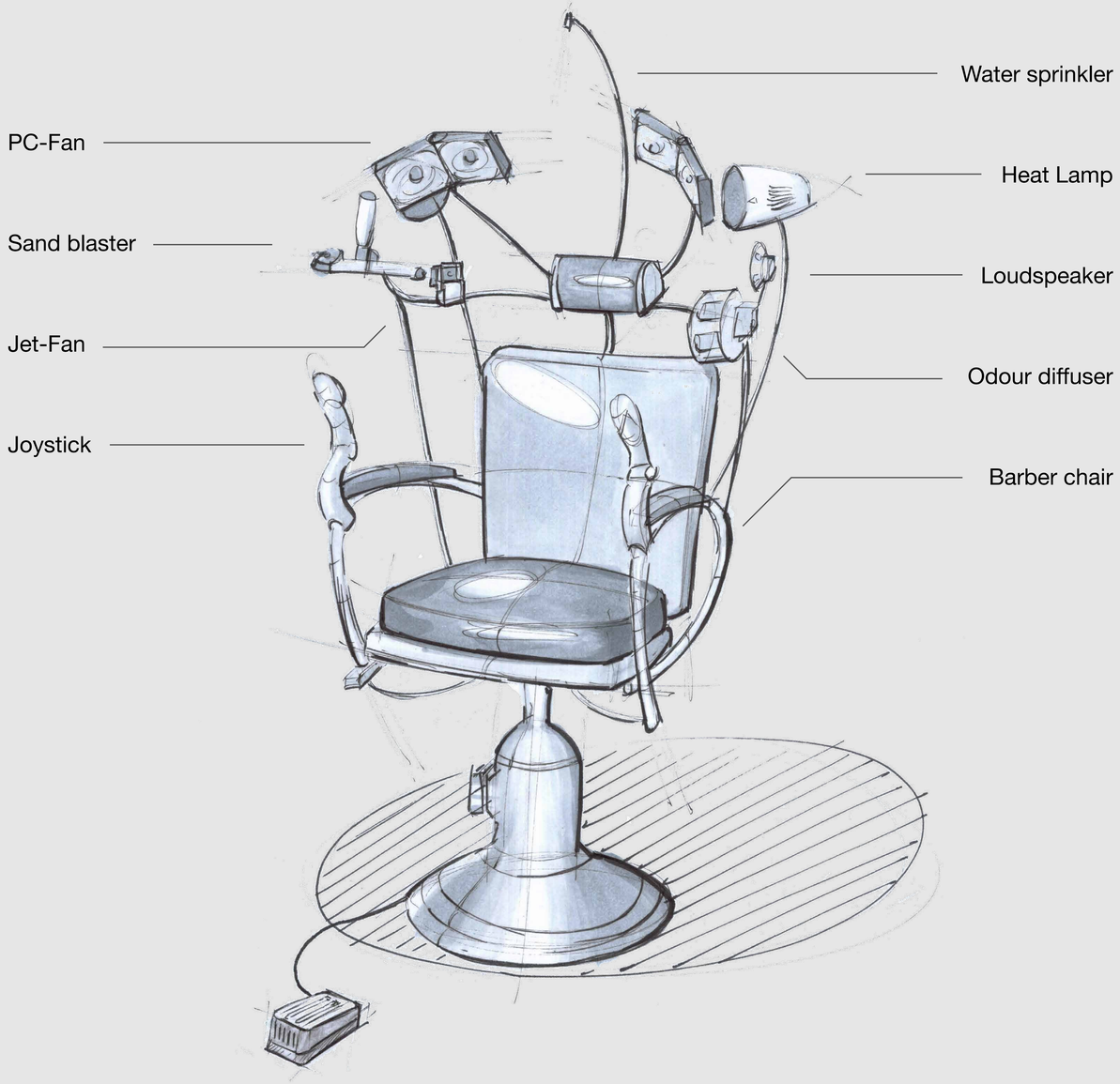
DURATION	1 Year
YEAR	2016
CONETXT	private
AWARDS	1st place German Multimedia Award “MB21” (2017) 1st place cross-media Award (2017)
EXHIBITIONS	ARS Electronica, Linz (2016) MB21, Dresden (2017) See Conference, Wiesbaden (2017) Tincon, Berlin (2018)
DIMENSIONS	220 × 220 × 220 cm³
MATERIALS	old barber chair used electronic components molton fabric



Modified barber chair inside the Minecraft block

Augmented virtuality

I loved to play Minecraft a lot. That's why I asked myself how the game could be extended closer to real life. A friend and I started to chat about this and finally we decided to realize it as „Minecraft 4D“. The game is being played with two joysticks and a foot pedal. When you‘re in the desert, for example, you get real sand blown in your face and you feel the heat. In the mountains there is a strong wind and it smells like fresh flowers. When it rains, of course you might get a bit wet.



Children waiting to play at ARS Electronica

Game on

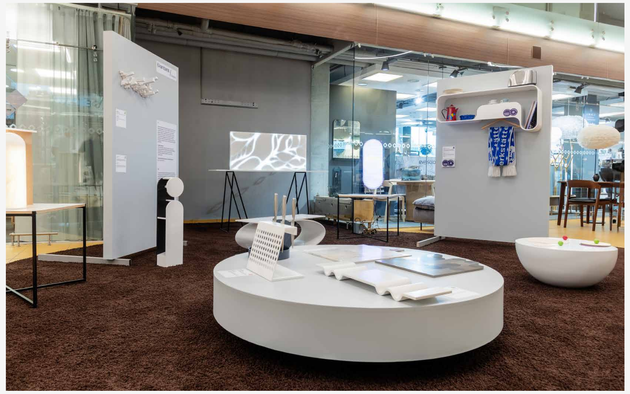
To enhance the experience, the old barber chair was placed in a walk-in Minecraft cube. Fortunately, we had the chance showing the project at Ars Electronica Festival (Linz), see-Conference (Wiesbaden), mb21 (Dresden) and Tincon (Berlin). After all, we even won the German Multimedia Award and the Crossmedia Award with Minecraft 4D.

SwapSpot shelf

Designed to encourage sharing in neighborhoods

DURATION	3 Month
YEAR	2024
CONTEXT	Vilnius Academy of Arts
EXHIBITIONS	6 kambariai - DIZAINO SAVAITÉ '25
DIMENSIONS	1130 × 490 × 250 mm³
MATERIALS	12mm Corian
SOFTWARE	Fusion 360 InDesign

Last fixes before the exhibition starts



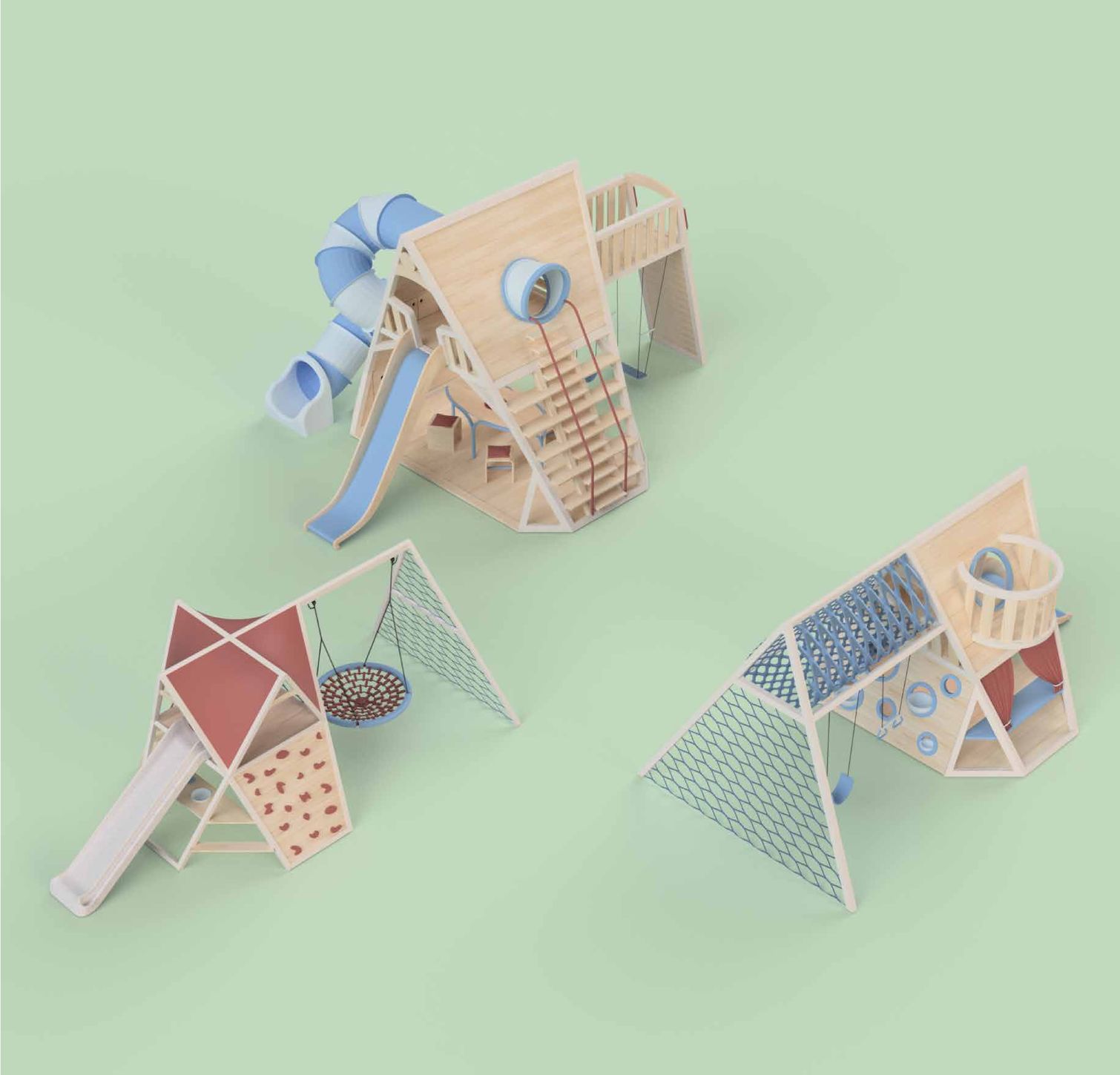
Extends the life cycle

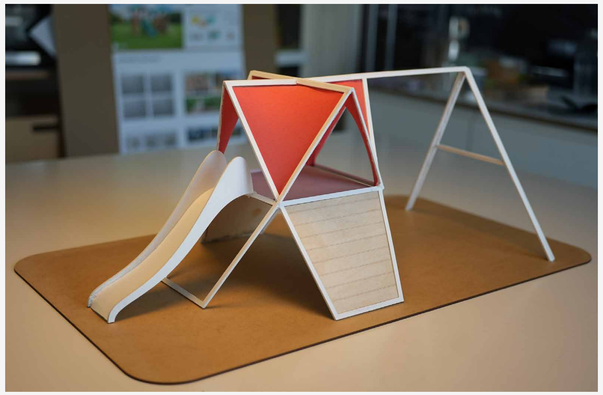
Unused items often end up in storage instead of being reused. My Idea with SwapSpot offers an easy alternative: Place a sticker on a shared shelf to create a swap space for books, clothes and household items. It reduces waste and encourages small connections between neighbours. To support this idea, I designed a dedicated SwapSpot shelf. Its open compartments showcase items like a shop window, while hangers create a boutique-like feel. Designed for communal spaces, the shelf was presented at the 6 kambariai exhibition in Vilnius.

Tipi playset

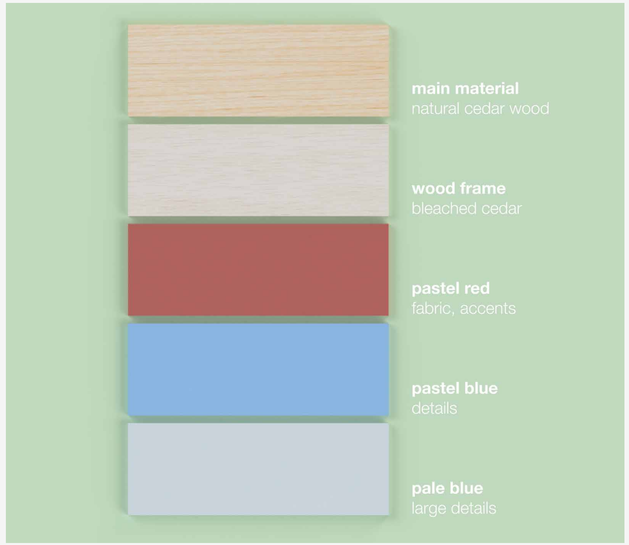
A new collection of wooden climbing frames for the company "Woodlit"

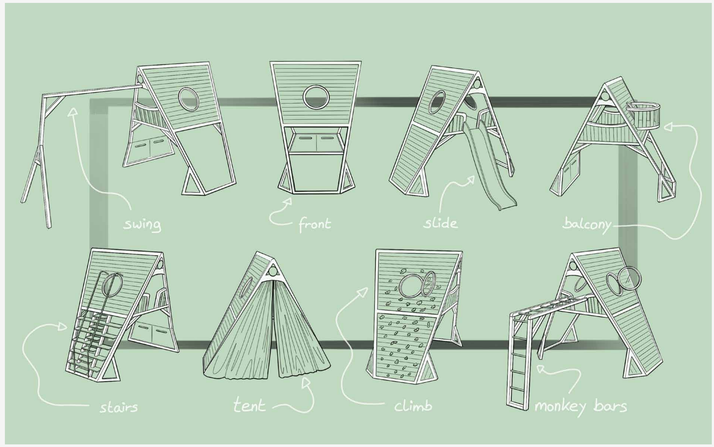
DURATION	1 Year
YEAR	2024/2025
CONTEXT	Vilnius Academy of Arts, Freelance work
DIMENSIONS	630 × 290 × 250 cm³
MATERIALS	Cedar Wood Plastic recyclate
SOFTWARE	Fusion 360 Procreate Gravity Sketch

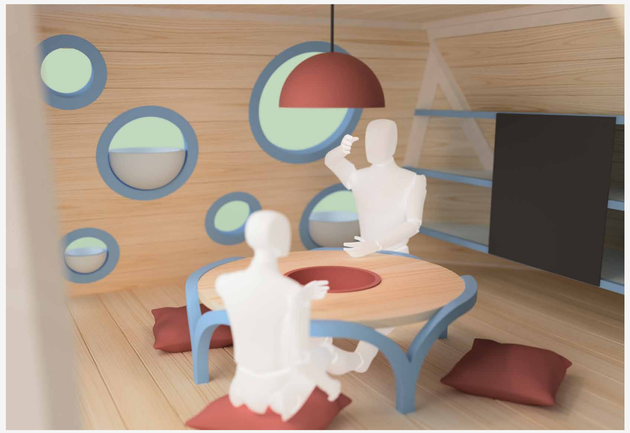




For a better evaluation: A model of a Tipi Tent

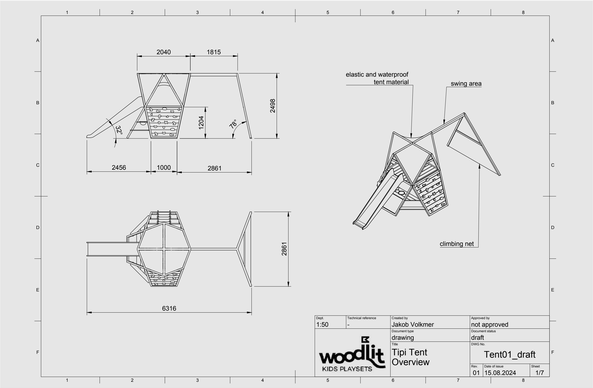






Exploring play concepts

During my semester abroad at the "Vilnius Academy of Arts", my task in the Spatial Design course was to develop a new climbing frame concept for a company. My main focus was to develop a durable swing set that is constructed from natural materials such as cedar wood and recyclates. Three matching scaffolds were to be designed with given dimensions, which would integrate well into modern European architecture when placed in the front garden.



One of numerous technical drawings

Tipi Tent becomes reality

After winning the university's internal design award, the company "Woodlit" expressed interest in bringing my concept to life. Over the past year I have worked closely with the manufacturers to refine every detail of the smallest climbing structure, the "Tipi Tent". The aim was to make production as efficient as possible while maintaining high standards of aesthetics and sustainability. This proved to be a challenging task, but seeing the project progress step by step has been incredibly motivating.

Tetra-Cycle

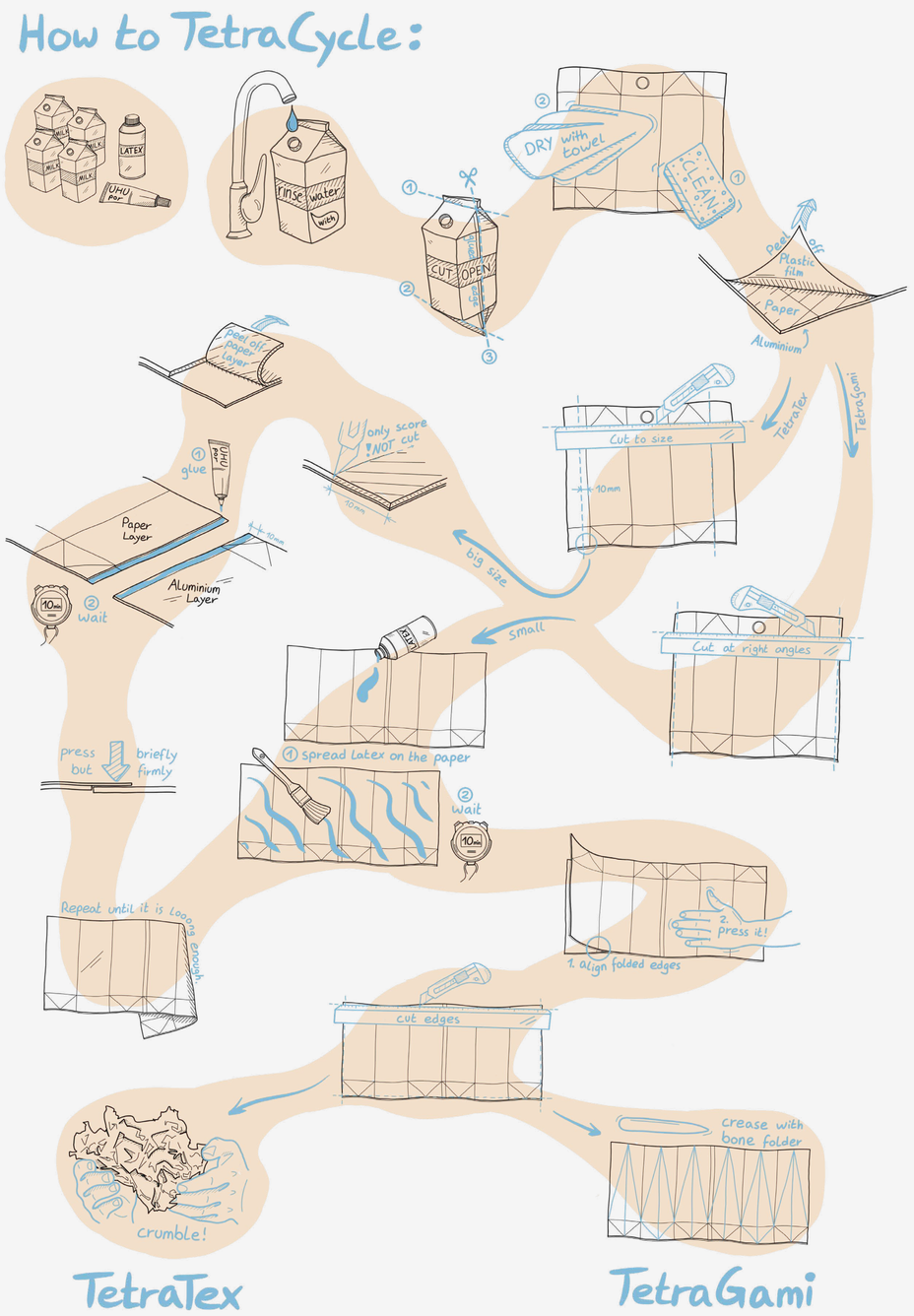
Approach to reusing the poorly recyclable material TetraPak

DURATION	4 Month
YEAR	2024
CONETXT	Vilnius Academy of Arts
EXHIBITIONS	see-Conference 2024
DIMENSIONS	30 × 30 × 20 cm³
MATERIAL	old TetraPak, collected from coffee shops

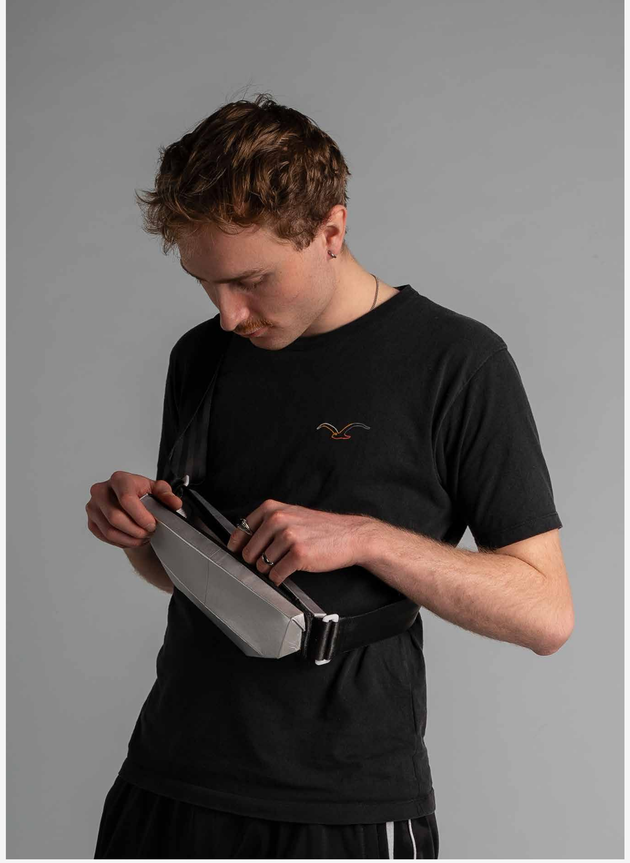
Upcycling workshop at see-Conference 2024

Developing new materials

TetraPak promotes environmentally friendly packaging that is almost completely recyclable. However, according to Deutsche Umwelthilfe, the actual recycling rate is only around 30%. This discrepancy motivated me to develop a more effective way of reusing these materials. I developed two different materials from TetraPak, illustrated an instruction and gave a workshop to encourage others to make new things out of them.



Hanging lamp made from six TetraPaks



Designed out of waste

The importance of upcycling lies not only in giving waste a second life, but also in creating products that serve a real purpose and can replace items made from primary materials. Here is my attempt: With TetraGami, I folded a hanging lamp that uses the layered structure of TetraPak for water resistance, easy cleaning and heat resistance. Its aluminium lining enhances light reflection. I also designed a waterproof sling bag that turns TetraPak waste into a distinctive, practical accessory.

Play gentl

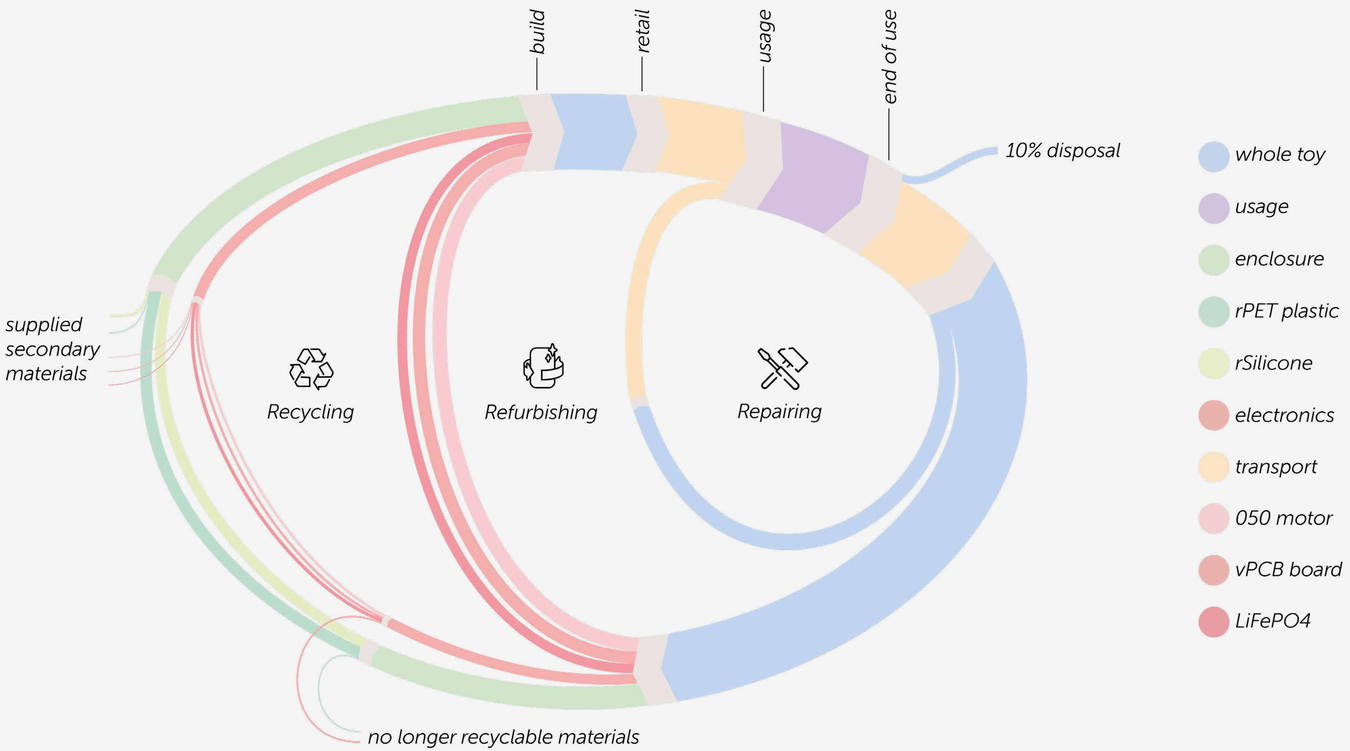
A sustainable toy to encourage and normalize self-love for men

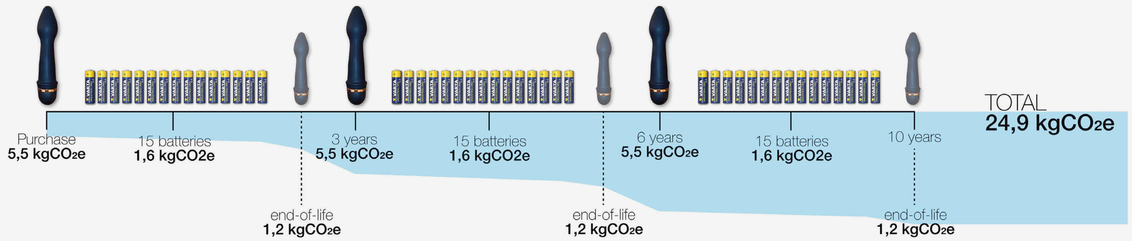
DURATION	5 Month
YEAR	2024/2025
CONTEXT	univeristy
DIMENSIONS	12 × 10 × 8 cm^3
MATERIALS	recycled PET and Silicone, refurbished components
SOFTWARE	Fusion 360 Affinity Designer Excel

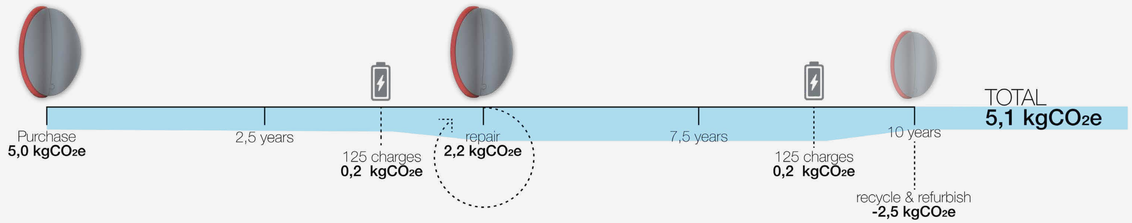
CO_2 emissions by components of a reference product

Circular design concept

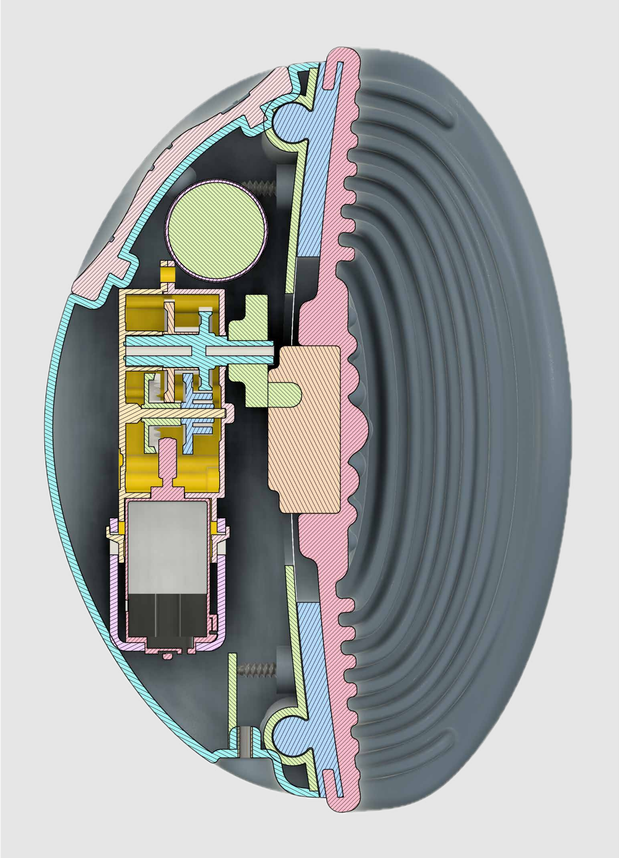
Many lovetoys are designed as disposable items. To address this, I followed three circular principles: Recycling, Refurbishing, and Repairing. - If damaged, the toy can be repaired indefinitely for a small fee instead of being discarded. A deposit system ensures used products are returned to the manufacturer, where they are disassembled and analyzed. High-impact components like circuit boards and motors can be reused for up to 50 years, keeping the cycle efficient. Non-reusable parts are recycled (see material flow graph). The concept was then compared with a reference product. Over ten years, a standard toy typically needs to be replaced three times, while gentl lasts longer thanks to its repairability and durability, significantly improving its environmental footprint.





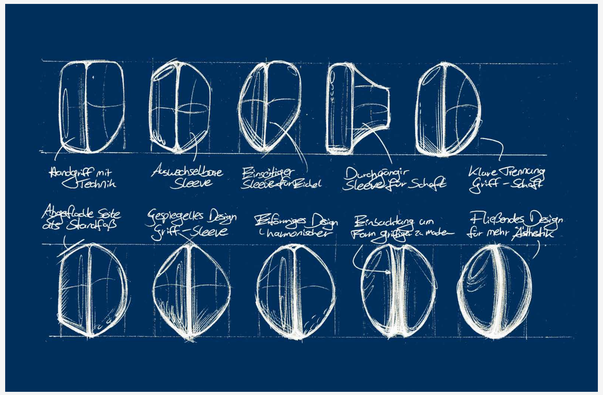


3D-printed mold for casting silicone in a vacuum



Rethinking lovetoys

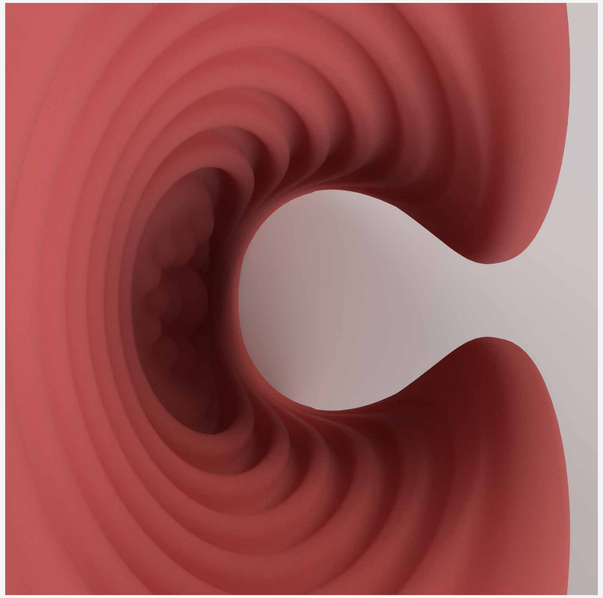
My task was to design an aesthetically appealing love-toys for men that would help break taboos around the subject, while eastablishing a circular design concept for hygnie products. I started with extensive research, discussed the results on large cardboards, sketched ideas, built ergonomic clay models and created 3D models. To improve the circular design, I defined these rules: no adhesives - only screws and snap-fits; a body made entirely from recycled PET and Silicone; and the use of off-the-shelf components for the motor



One of several sketches to iterate the shape

New design language

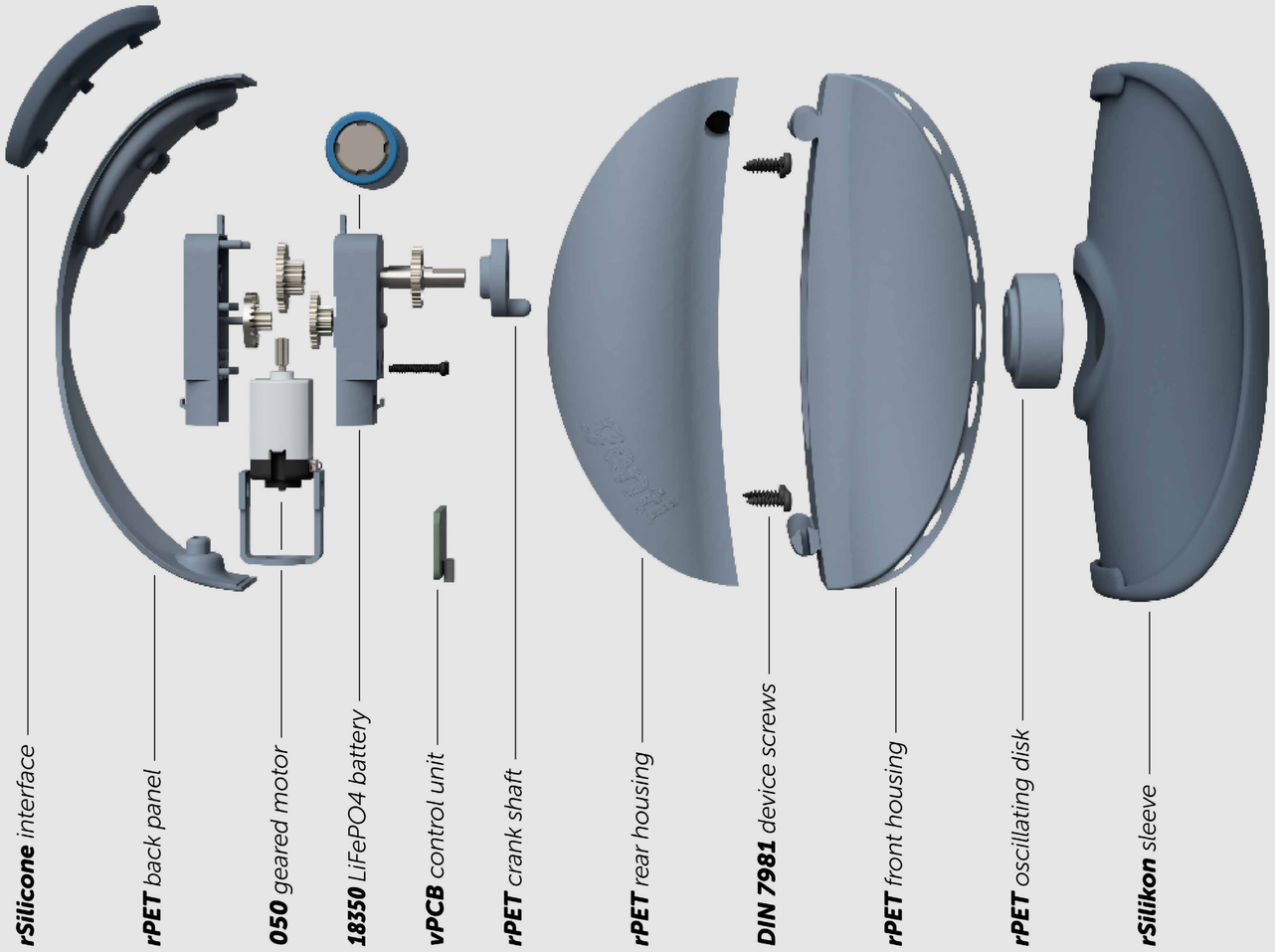
Through many iterations of sketching, modelling, 3D printing and evaluation, I developed a unique, minimalist and ergonomic design language, free of clichés. The gender-neutral design deliberately avoids sexist body references and a stereotypically masculine, technical aesthetic. With this design, I want to bring love toys for men out of a stigmatised corner and into the area of responsible self-care - gentl does not have to be hidden away in a drawer.



The silicone sleeve comes in multiple colors

Play gentl

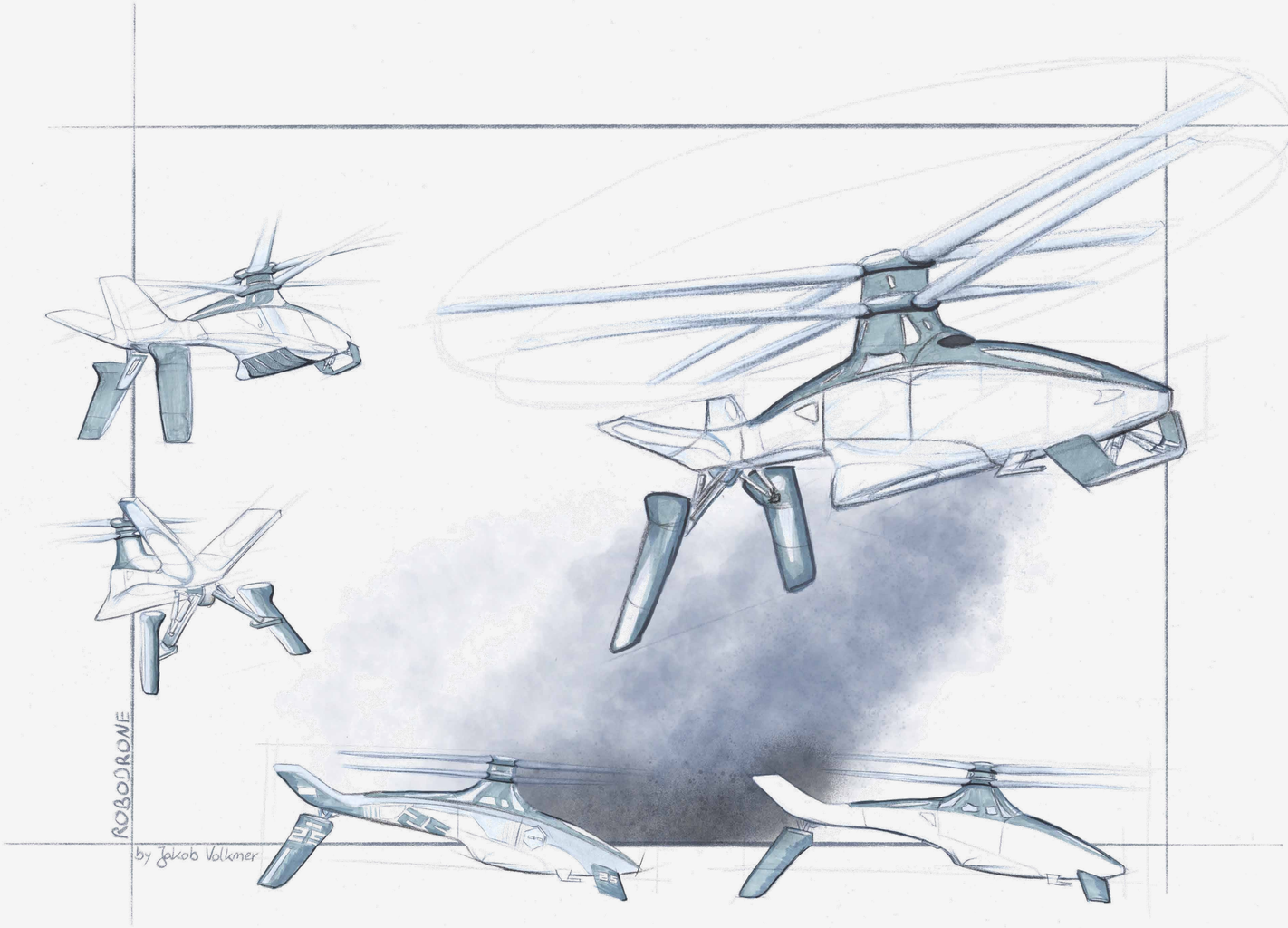
A new type of stimulation technology makes a compact design possible. The front part can be easily removed with a twist mechanism, making cleaning the toy effortless. If you are looking for variety or have individual preferences, you can buy attachments in different sizes and textures - making the toy durable and adaptable.

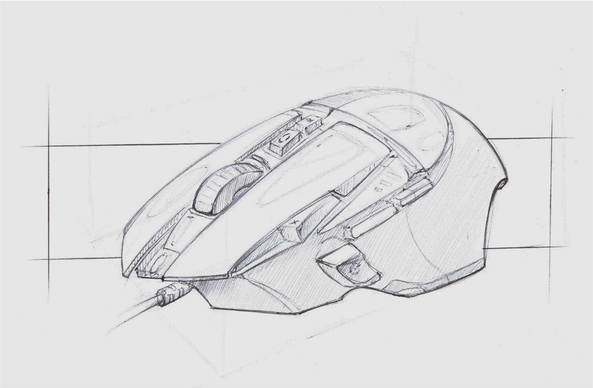


design Studies

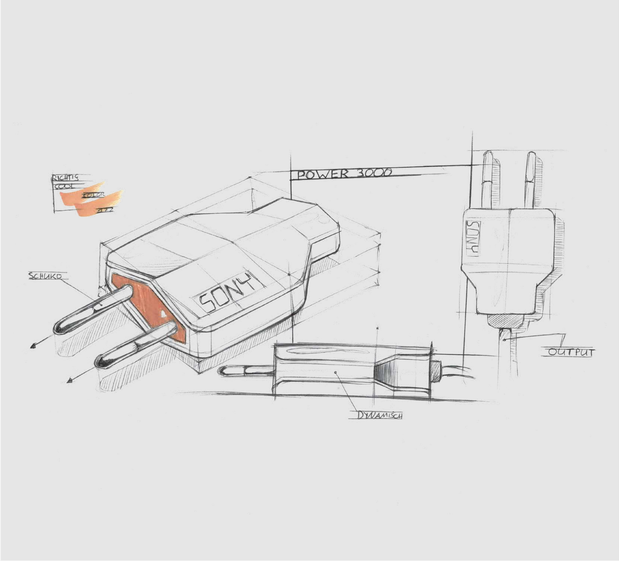
A few minor works that were created during my studies

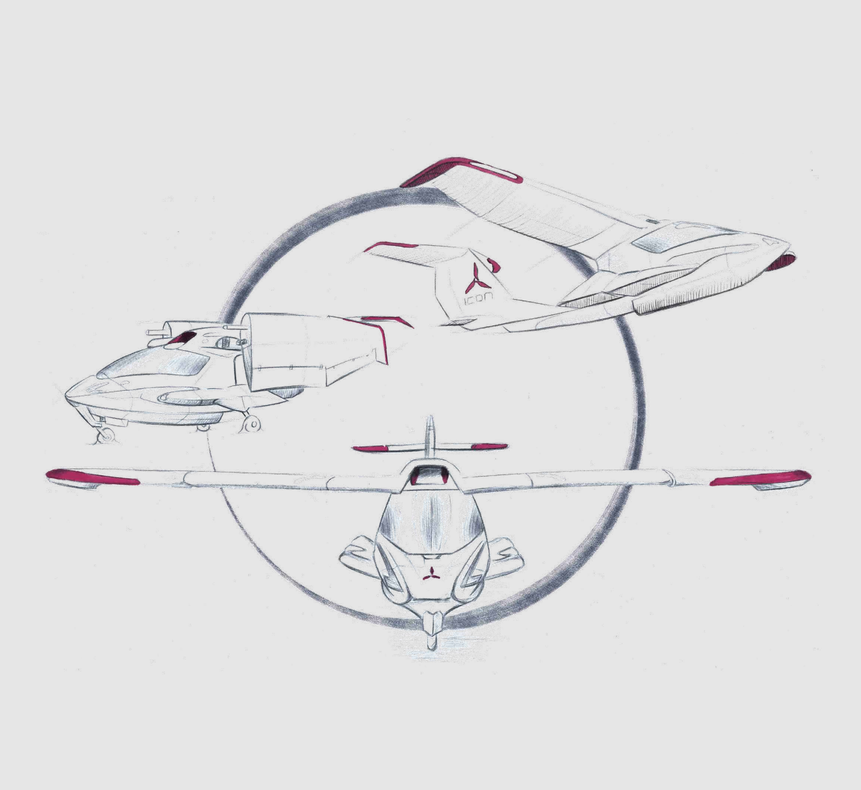
DURATION 4 Years
YEAR 2020–2025

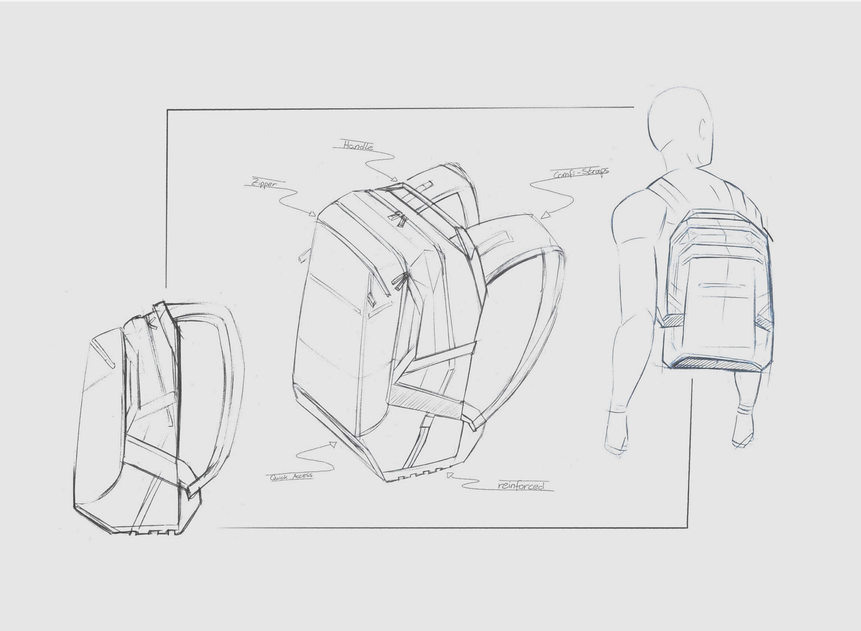




PENCIL sketch of a gaming Mouse

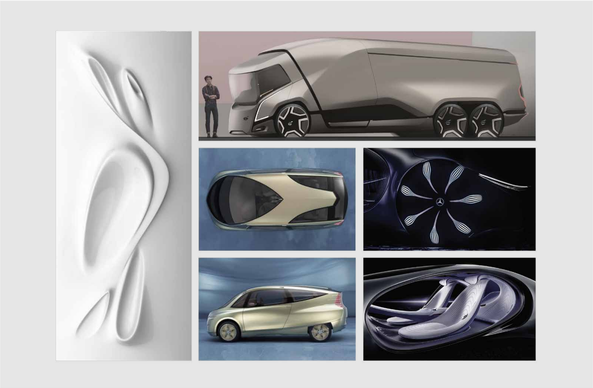






Sketching

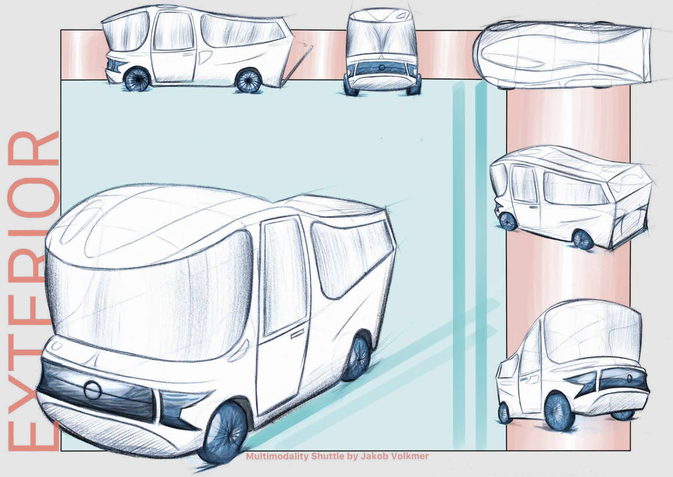
I‘ve been practicing analogue sketching for nine semesters now. Before using the computer we mainly draw on paper to iterate ideas quickly. The drawings are made with pencil, pen, fineliner and markers.

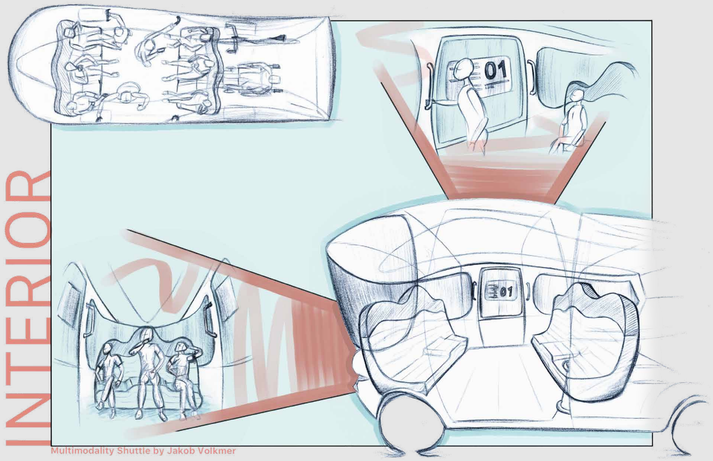


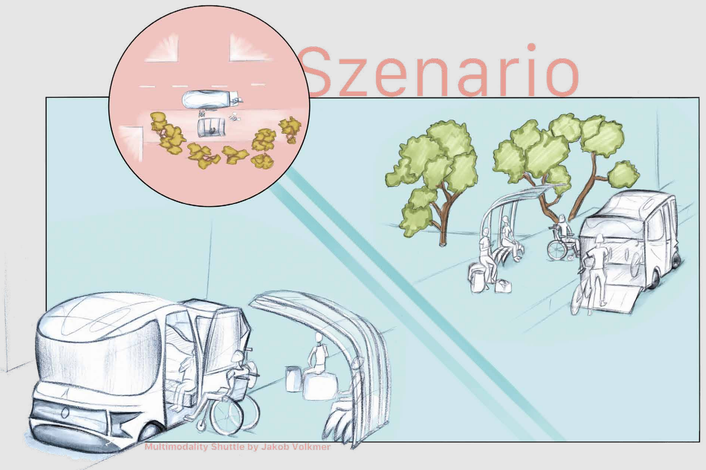
STYLEBOARD to figure out the final appearance

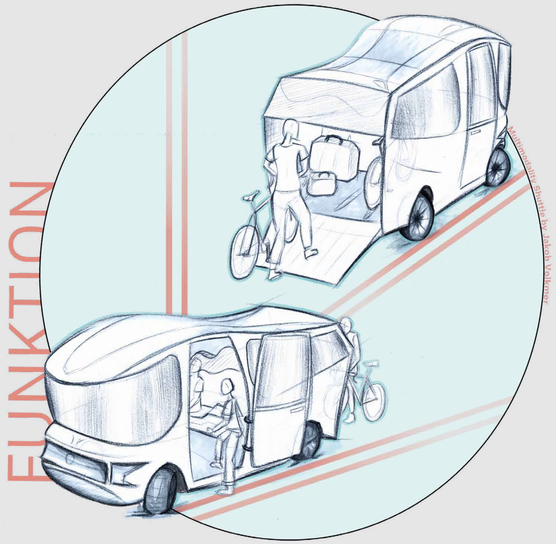
Multi-modality shuttle

As a final exercise in my sketching course, we were asked to design a multi-modality shuttle that drives autonomously in modern city centers and serves as an additional form of public transport.





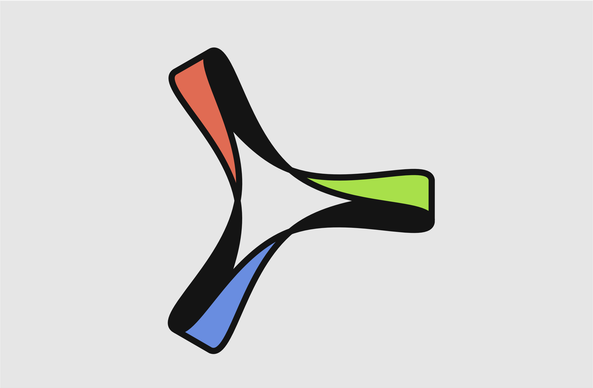




SUBMISSION of six selected tiles

Surface studies

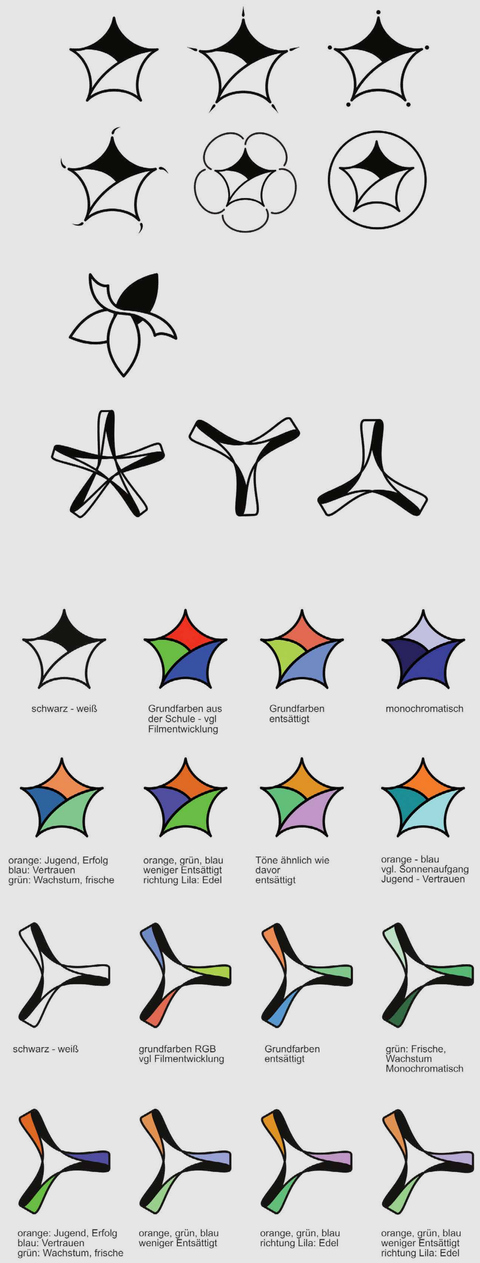
How can you use the same material to create different surfaces, that have a completely varying effect on our perception? I have molded, embossed and fired more then 20 clay tiles.

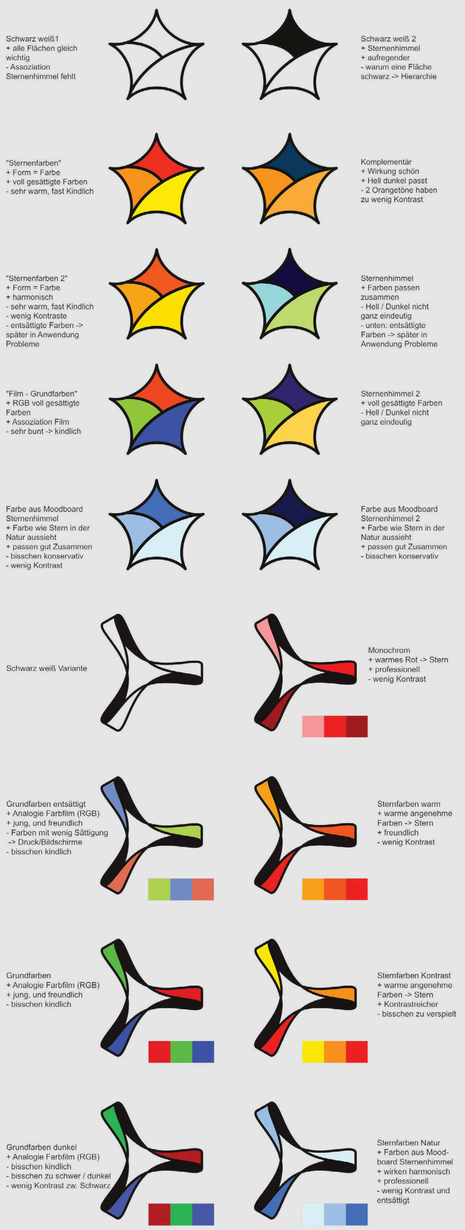


finished Logo in RGB colors

Logo design

My task was to design a logo for the young company “Stellar Studios”. The logo had to feature a star. Also the three founders had to be represented in a way. And it also should look young and dynamic. With these guidelines and endless iterations, I came up with the star-shaped film tape.





Looking forward to talking to you!

Contact

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