PORTFOLIO

Patrick Bauke

Industrial Design

Hi, I'm

Patrick Bauke

For me, good design is solving problems through the interplay of aesthetics, functionality and sustainability. With my work, I strive to make people's everyday lives a little better every single day.

CONTACT

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INTERESTS

Graphic and Design

Sports

Traveling

Music

Video Editing

Animation

LANGUAGES

German (native)

English (fluent)

SKILLS

Research

Market- and User Analysis

Sketching

Concept Development

Design Development

Digital Modeling

Prototyping

SolidWorks

Rhino 3D

Keyshot

Davinci Resolve

Miro

Figma

Unity

Affinity Designer

Affinity Photo

Affinity Publisher

Adobe Photoshop

Adobe Illustrator

Adobe Indesign

Microsoft 365 Suites

EDUCATION

University of Wuppertal
Class of 2025 | Industrial Design, Bachelor of Arts (BA) | Wuppertal, Germany

St. Angela Gymnasium
Class of 2019 | Graduate: „Abitur" | Wipperfürth, Germany

WORK EXPERIENCE

Kurz Kurz Design
Solingen | 2023-2024 | 6 months internship
First insights into working in a team in an Industrial Design office. Working on projects for different brands in the areas of interior design, lifestyle and technology from research to realisation.

University of Wuppertal
Wuppertal | 2023 | Kettler Home and Garden university cooperation
First Industrial Design project for a brand. Design of a furniture system for Kettler Home and garden. Research and Concept Development with focus on mobility.

University of Wuppertal
Wuppertal | 2022-2023 | Project ZEIT university cooperation
Research, concept development and design of a system to strengthen social connectedness between different generations of our society using virtual reality as part of the research project ZEIT.

Klartext Jahn GmbH
Hückeswagen | 2019-2020 | 4 months internship and freelance work
First insights into working in a design office for graphic design, marketing as well as printing, foiling and ad technology. Learning to take responsibility while working on projects for different brands and private customers.

Northcomp GmbH
Hückeswagen | 2016 | 1 month internship
First insights into working in a marketing department with focus on photography as well as product and brand presentation.

PORTFOLIO OVERVIEW

Design Projects

01

SOCIAL CONNECTEDNESS

02

FURNITURE SYSTEM

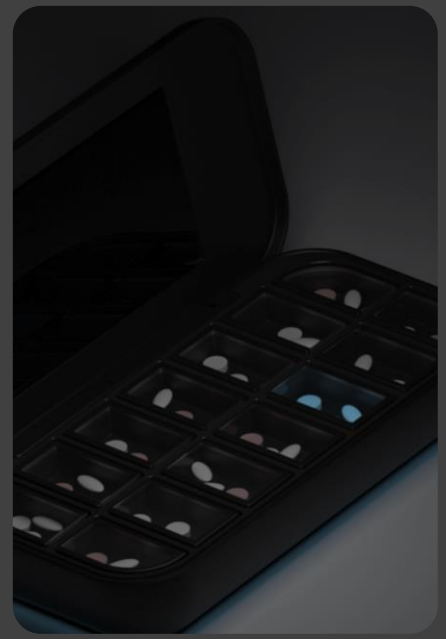
03

AUTOMATIC SEPARATION

04

SPARKLING WATER MAKER

05



MEDICATION SYSTEM

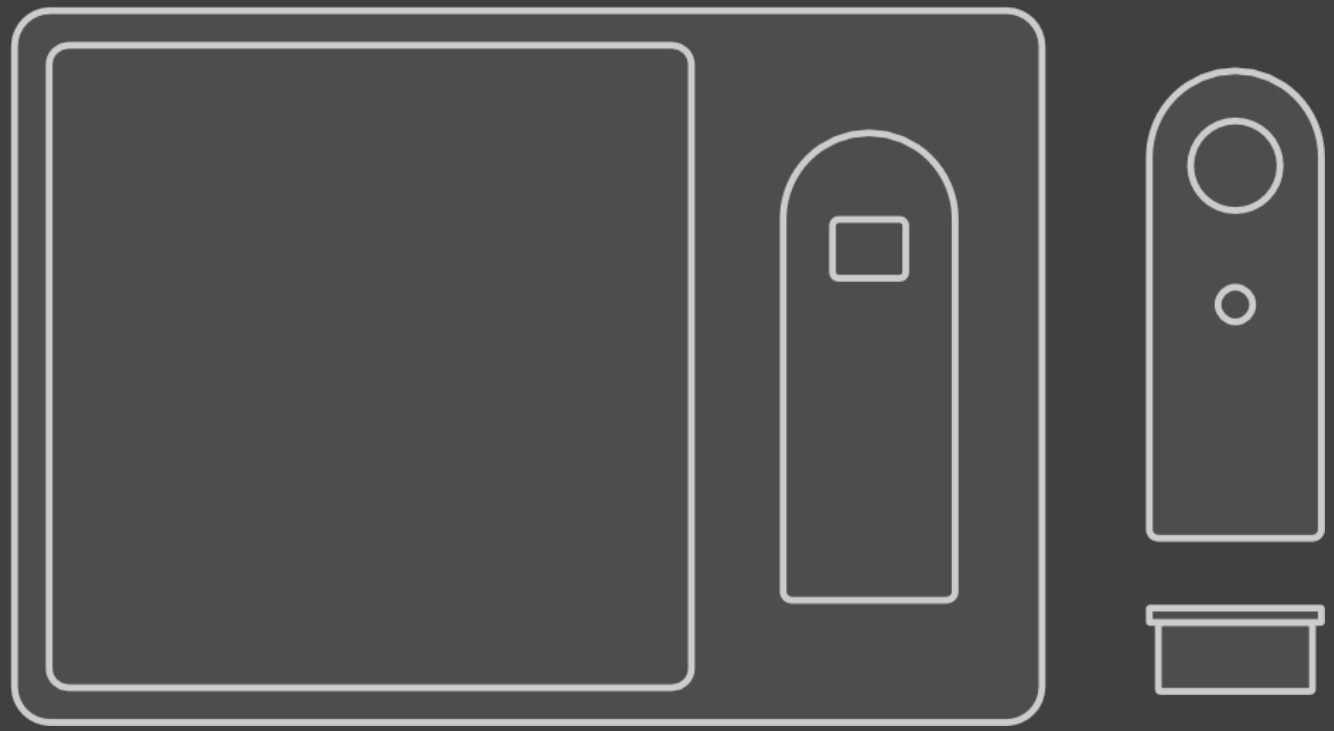
01

SOCIAL CONNECTEDNESS

5. SEMESTER

Design of a VR-System through which seniors can strengthen their social connectedness with younger generations in a playful way.

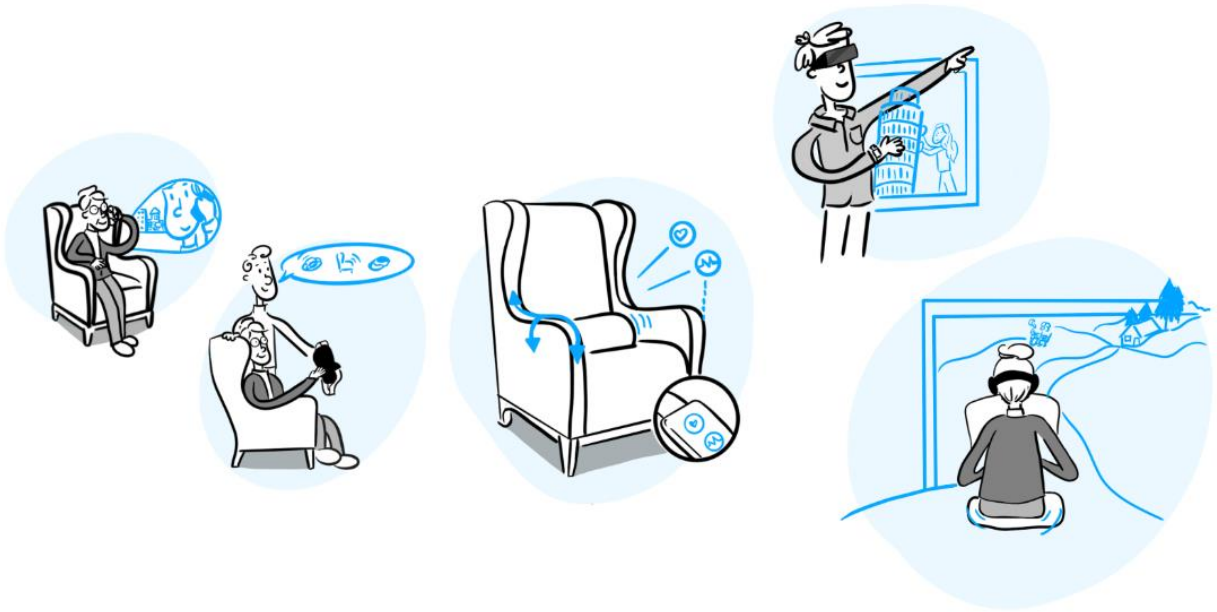
This project was developed in cooperation with research project ZEIT.



Project ZEIT

With the goal of bridging the gap between elderly people and their relatives, **Project ZEIT** cooperates with the university of Wuppertal to research and develop new multimodal, target group centered technologies to answer the following question:

“How can immersive tactile stimuli in a VR environment be used to communicate interpersonal emotions over a distance?“



ZEIT

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

Research and Concept

Initially, the first potentials were gathered through interviews with the target group. Many problems and desires came up that were further analyzed in a broad group research.

After that, various ideas were created and further pursued through storyboards.

“We already tried it with Zoom Calls but failed because of bad internet and bad camera.“

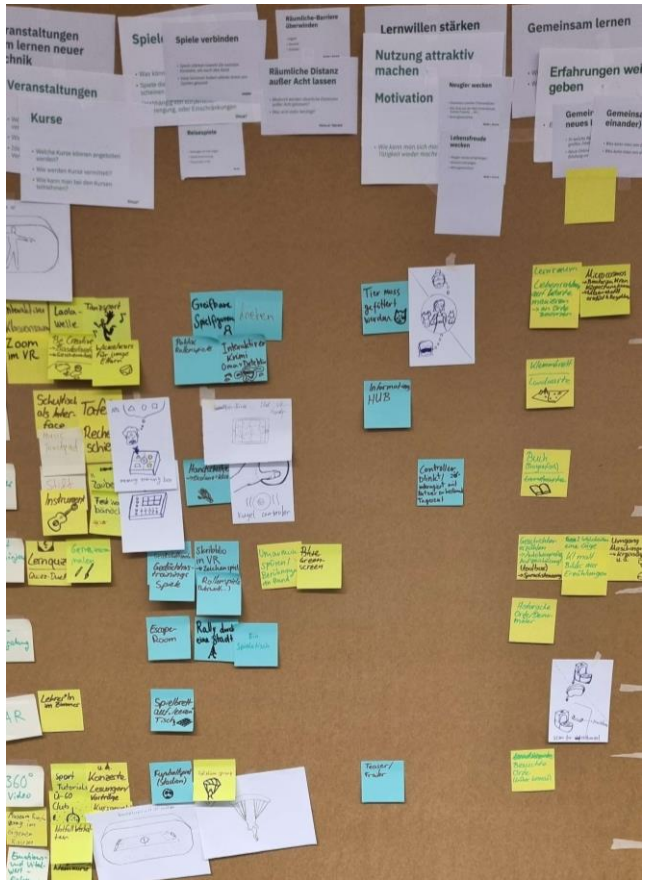
Marie, 76

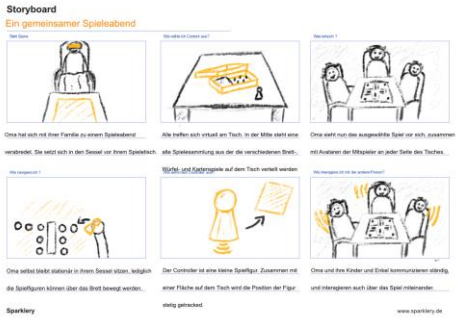
“My grandparents are not very interested in technology, they have lived all their life without it.“

Jonas, 16

“I dont know which of my children and grandchildren I‘ve never played with before.“

Anne, 72



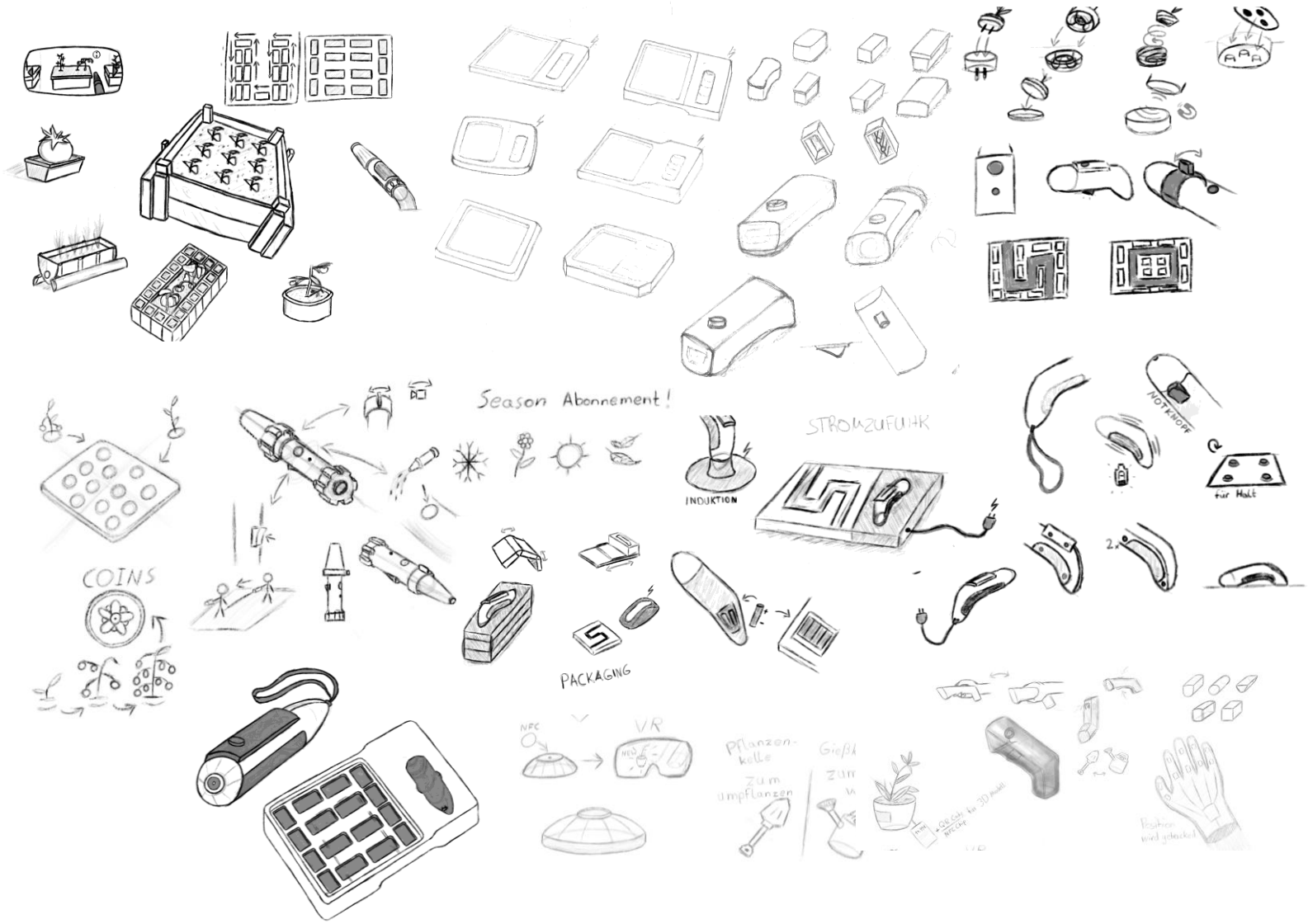


Concept Development

In the end the selected approach was a playful one. Everyone likes to play games and the coordinative and cognitive challenges can not only keep the brain fit, but also social contacts.

To further solidify the concept, a common interest, that most of the target group shares, has been implemented in the form of a visual garden that can be designed and maintained together.

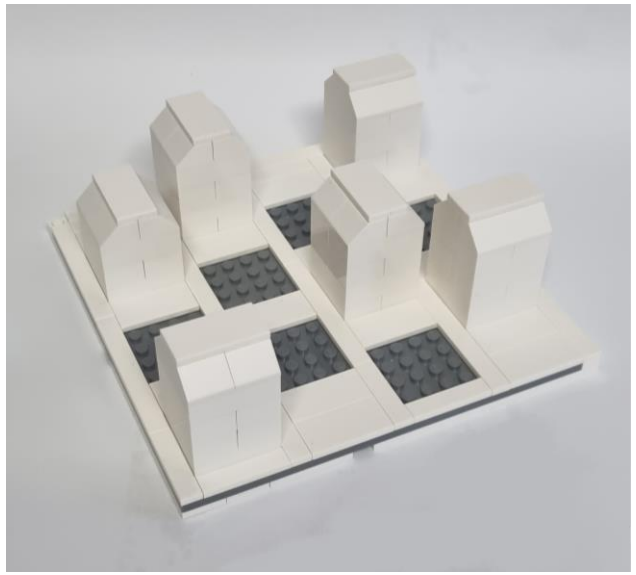
To offer a great variety in designing the garden, the user should be able to arrange the plants as they like, using terminal blocks on a board. The controls are then done via a remote controller by means of teleportation by pressing the trigger.



Model Making

After further consolidation and visualization of the formal design using sketches and terminal blocks, I continued my work in solidworks and the build a real model of the final product in a workshop. Each component was either 3D printed or milled and then sanded and painted.






Video Shoot

The group set up a few props for a voluntary actress to test our products while also shooting a presentation video. I directed, cut and edited the video afterwards while also making product photos with my model.

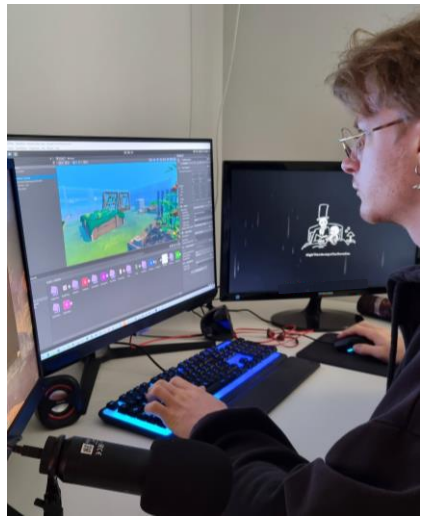


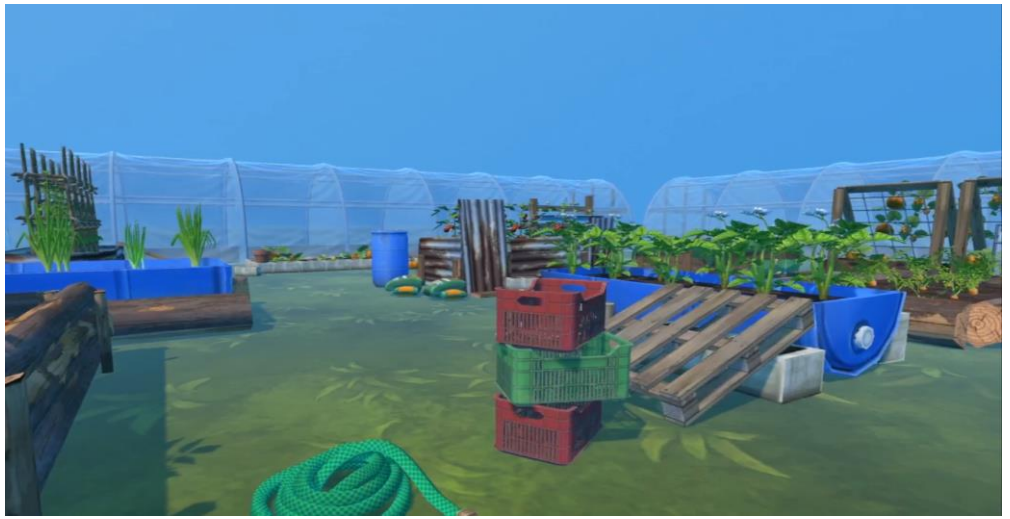



Building a VR Space

With the Unity Engine, I started to design a digital space and programmed a movable character.

So I had a functioning prototype through which I could simulate the maintenance of the user‘s own garden to further test my product with the target group. Seven voluntary seniors were ready to test my project and gave me great insight into what went well and where there was still potential.





The Product

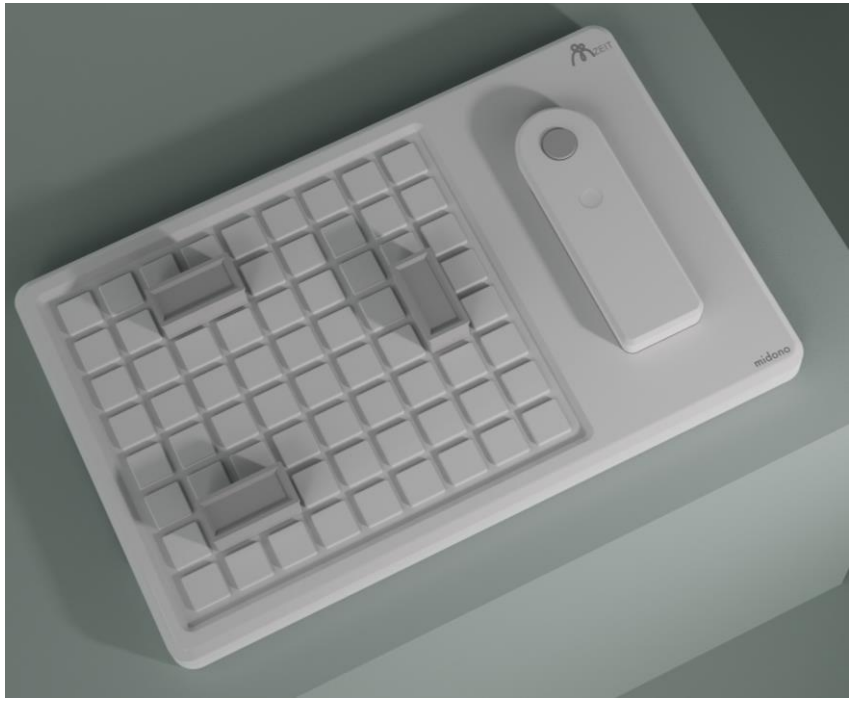
With “midono“ the user is able to get into contact with a relative or a friend to design and maintain a garden together. First the little figures can be placed on the physical board which are then scanned through an NFC Chip Reader. After putting on the VR-glasses, the digital garden is arranged in the same way the figures were put on the board.

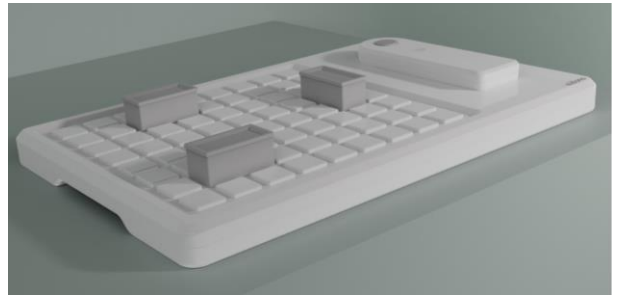
With the remote controller, the user is able to navigate through the garden, water their plants, obtain information and make purchases for new plants once the season changes.

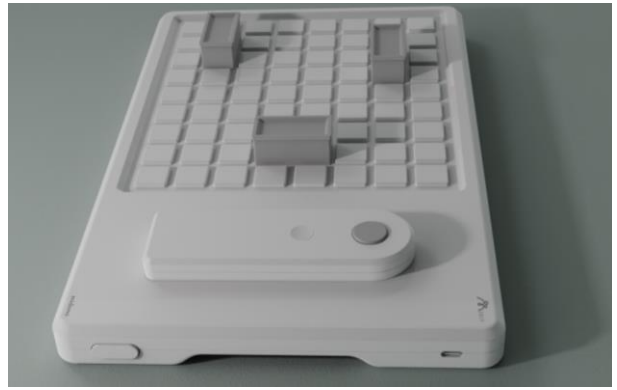
The final product presentation was held in a Zoom meeting in front of various members of project ZEIT.

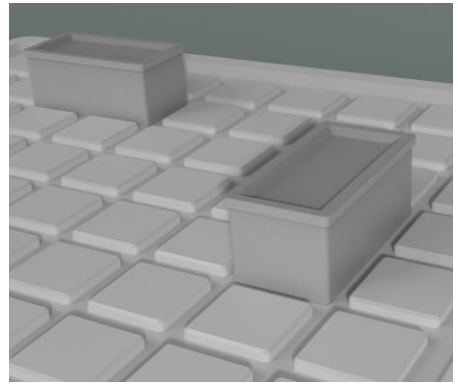
midono

Midori + Dono
(jap. “green”) (jap. “master”)









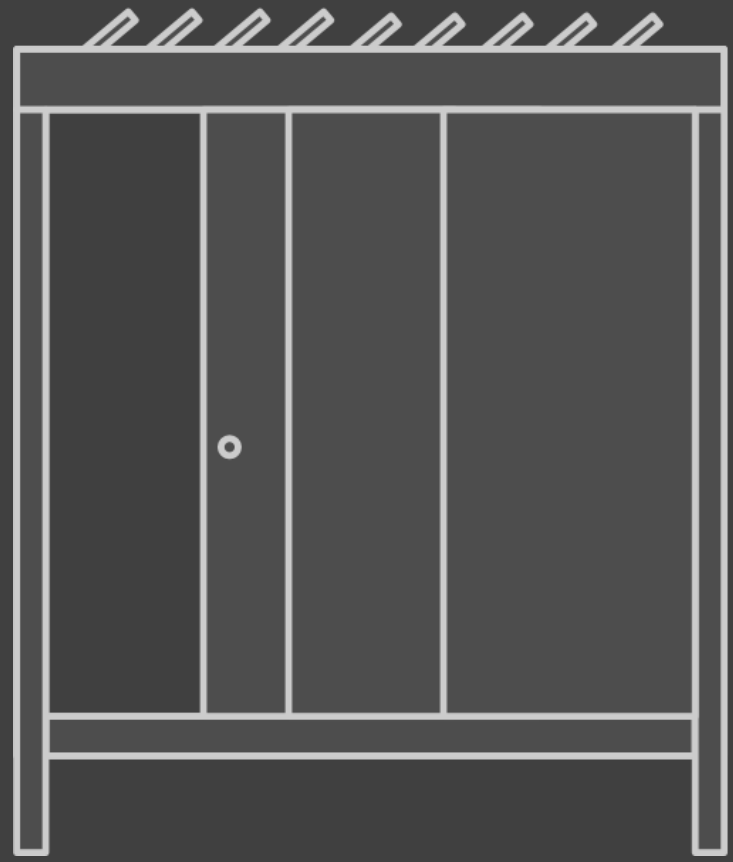

midono
ZEIT

02 FURNITURE SYSTEM

6. SEMESTER

Concept development of a furniture system for with focus on different aspects of mobilty.

This project was developed in cooperation with KETTLER Home and Garden.



Research Study

As part of a cooperation with Kettler Home and Garden, our course prepared a Research Presentation on the area of Garden Furniture with a focus on differents aspects of mobility. It contained a wide market overview with results of a user survey and different potentials for possible extensions to the portfolio in fields like:

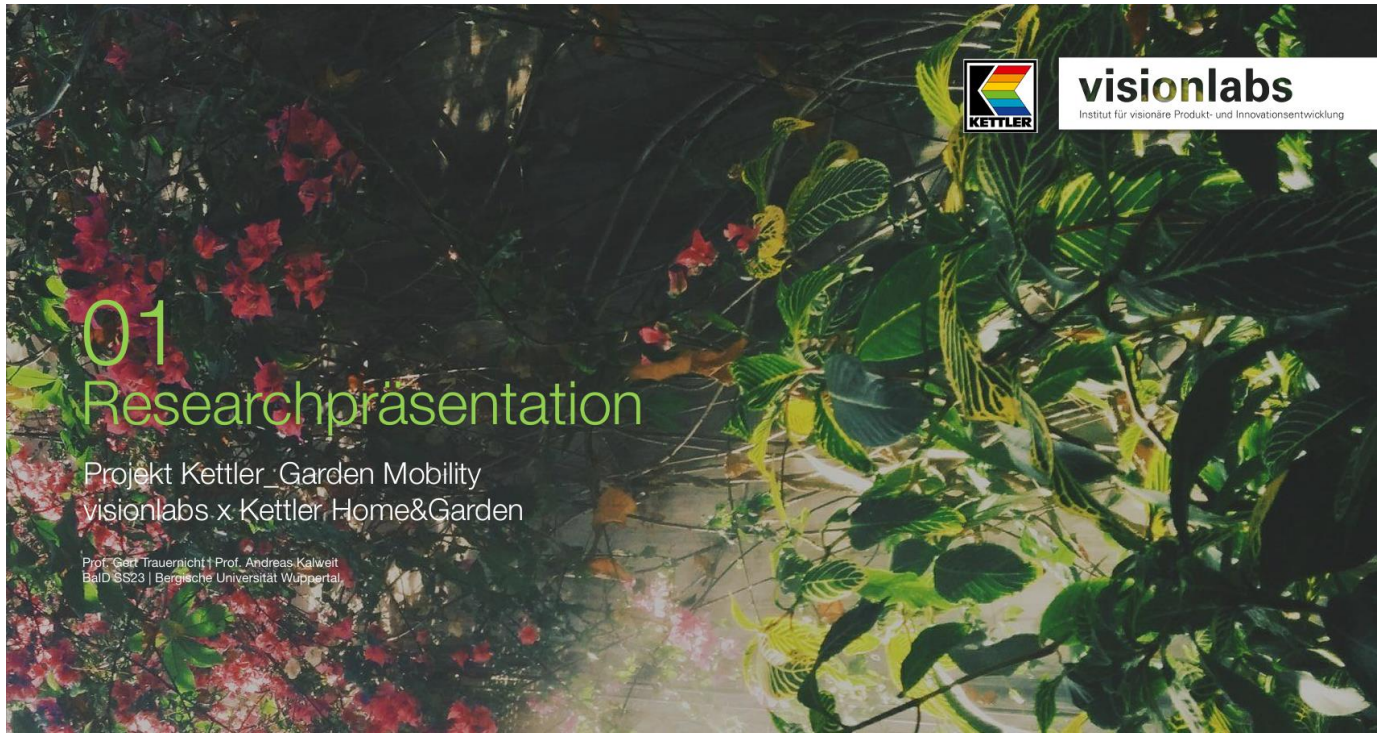
Usability & Ergonomics

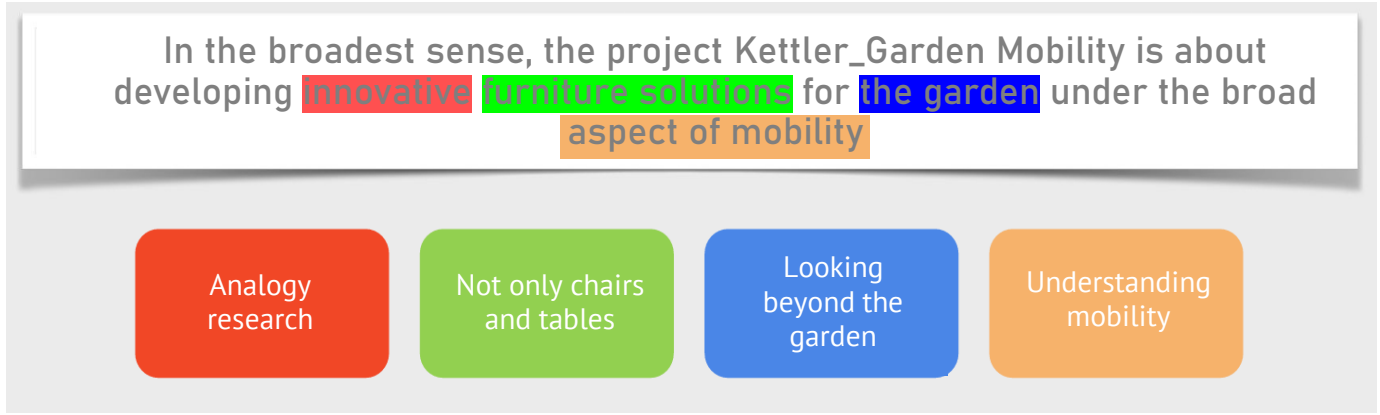
Furniture Trends

Safety Requirements

Sustainability

Packaging & Storage



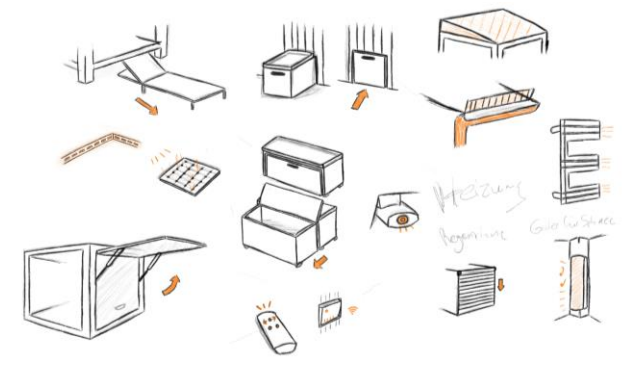


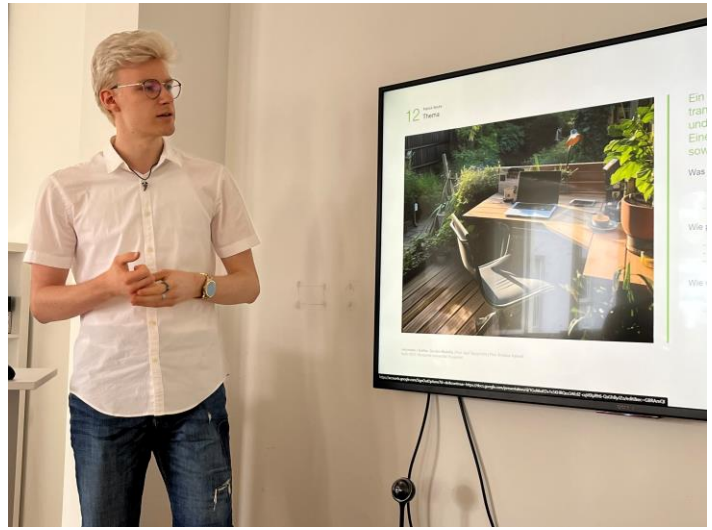
AI-Assisted Conception

To turn our potentials into conceptual ideas, we used AI image generators as an assistance for early visualisations.

My chosen concept was a furniture system designed to provide a comfortable place to work and relax in the garden. Thanks to various features, the system can be adapted to weather conditions and the user's needs.

All our concepts were pitched. Different variations of them were then rated based on their relevance. A more open and flexible variation of my concept was requested so I decided to continue with that direction.





Extended Research

To continue with the extended conception and design, I needed to get more input on different fields of features that would benefit the product in its safety and flexibility for all environmental conditions.

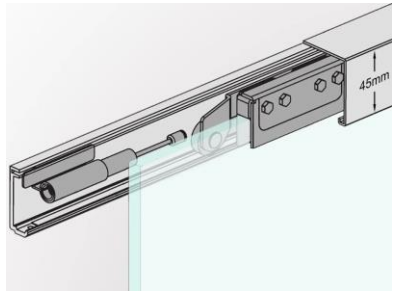
Floor and Frame Construction

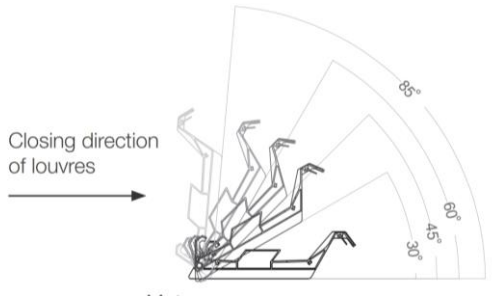
Sliding Walls

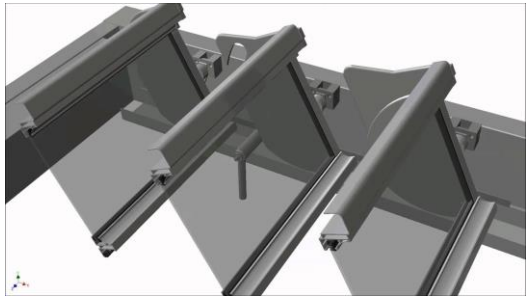
Heating and Lighting

Ceiling Coverage

Power Supply & Control

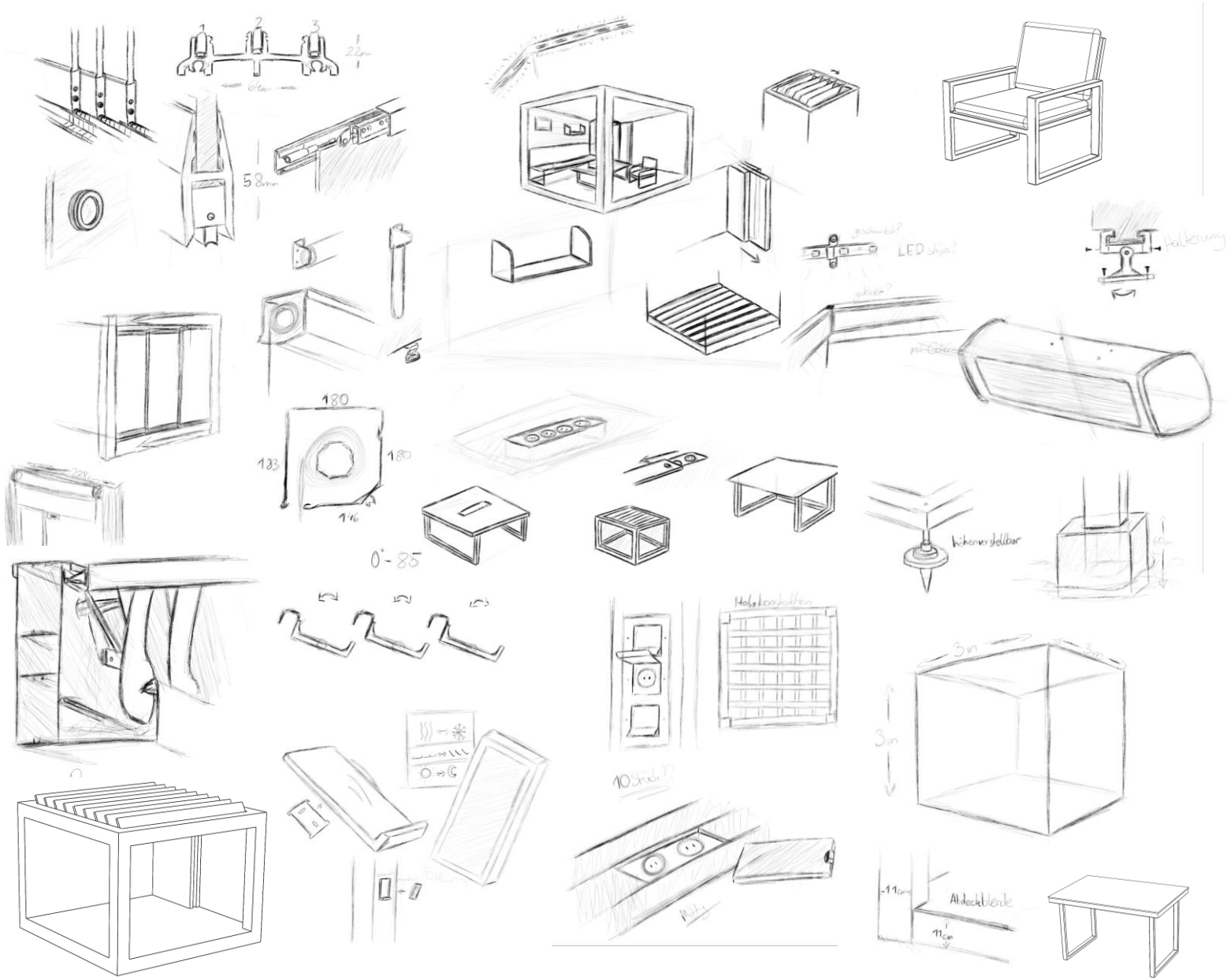






Sketching

Sketching of ideas and details for features based on the results of the extended research.



Technical Structure

With over 500 components, I build the technical structure of this project to the last detail in SolidWorks.

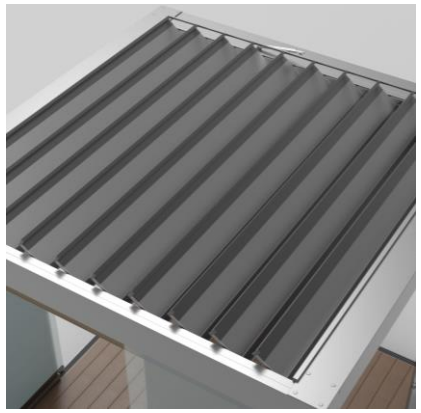
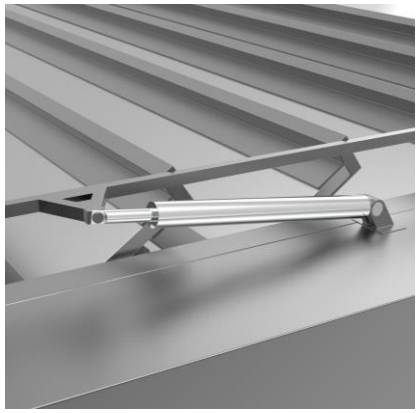
Height adjustable floor construction

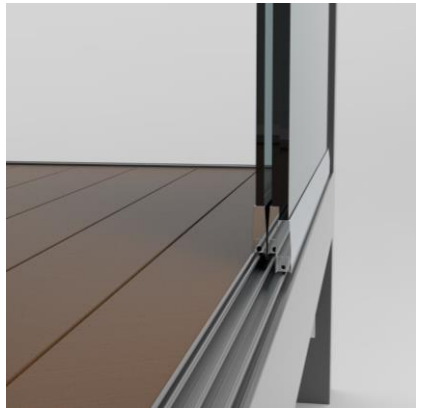
High quality aluminum frame

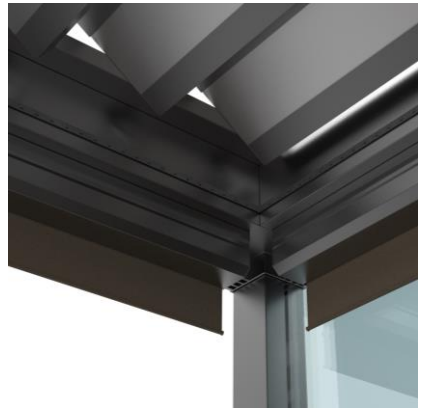
Sliding walls against wind conditions

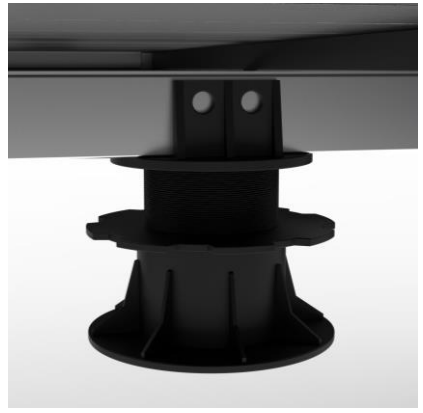
Louvred roof against precipitation

LED Lighting and infrared heaters for usage at any time of the day





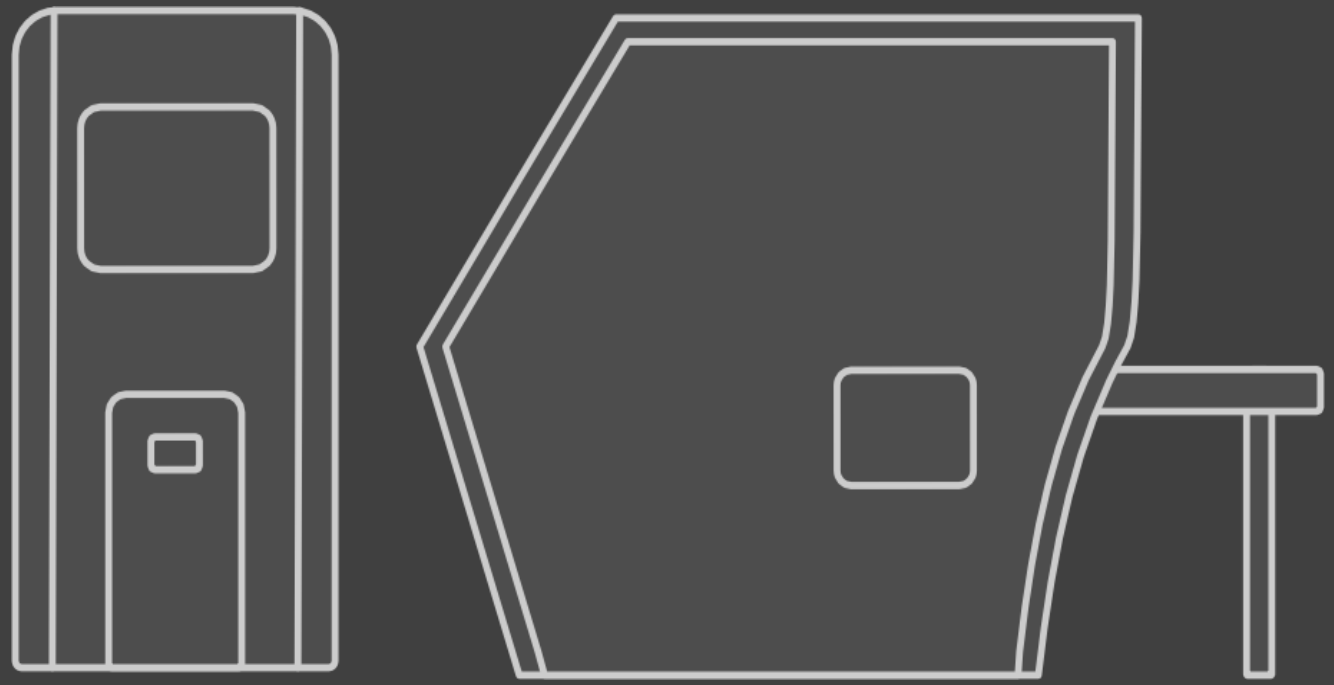
KETTLER

OASIS

03 AUTOMATIC SEPARATION

3. SEMESTER

Creating a prototype for an automatic table tennis ball separating machine.



“Kachelcross“ Competition

As part of the yearly “**id_kachelcross**“ competition, groups of eight students are tasked to design and build a fully functioning prototype for an automatic machine within the span of a month.

Part of the task is building the prototype, as well as creating a visual and corporate design for the final product.

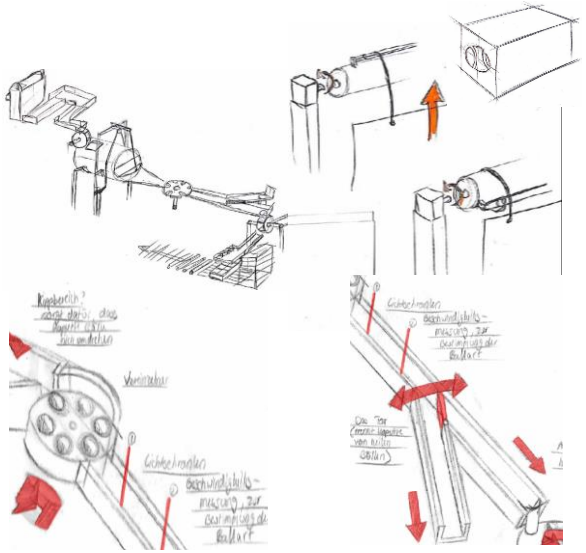
This project is about a sorting machine for defective products. Out of 200 table tennis balls, ten dented and ten other colored balls have to be sorted out while the others have to be distributed into boxes of ten.

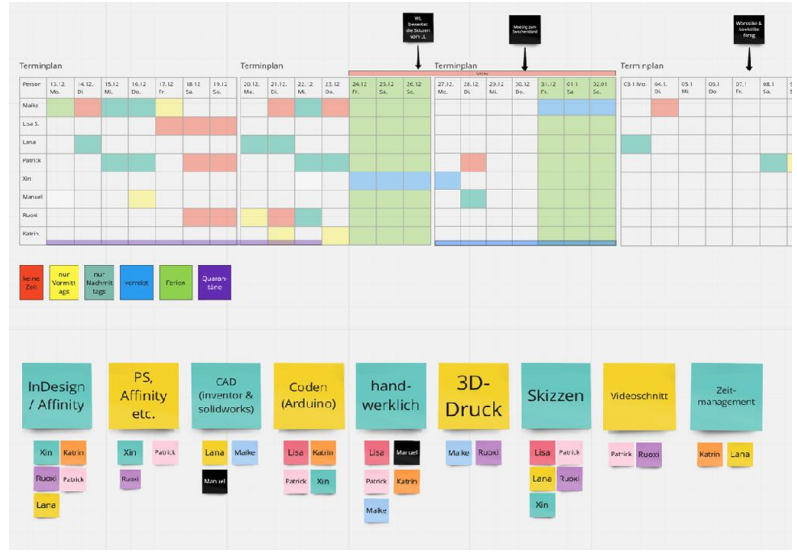
With only the press of a button, the machine has to complete its task automatically and as fast as possible.

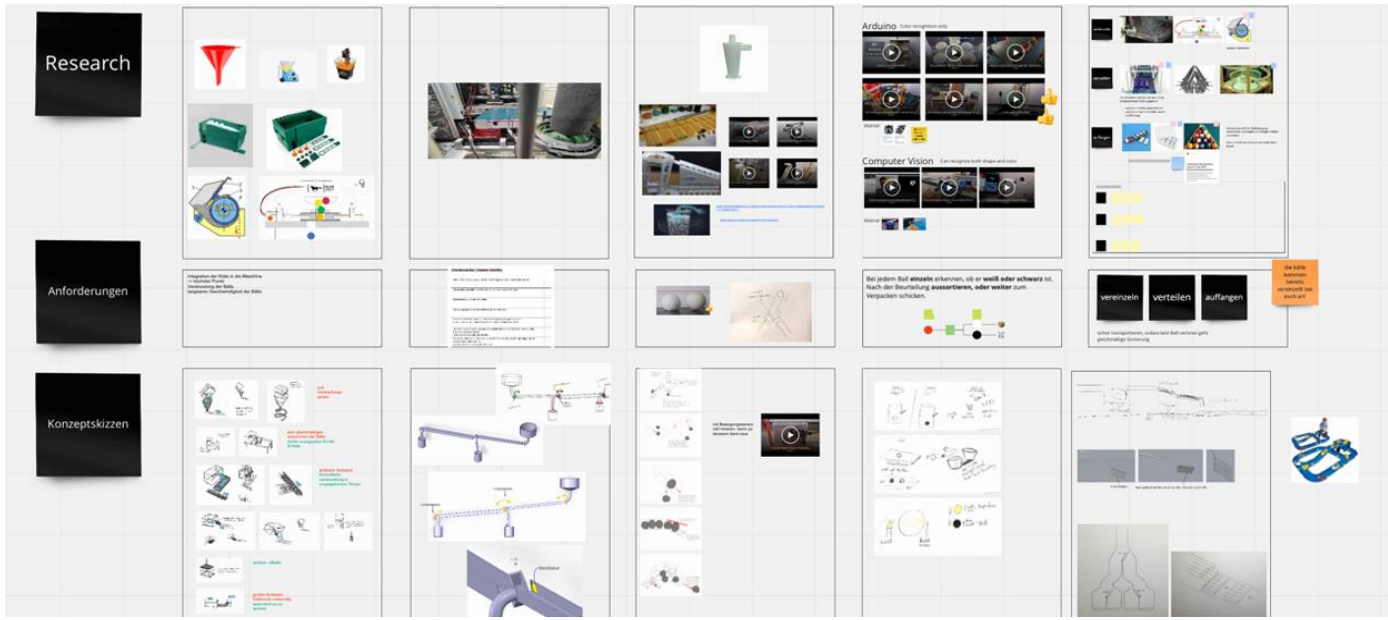
Research and Conception

In the middle of the pandemic, the Miro Board App was necessary to coordinate and distribute task within the group.

Potentials, ideas and solutions were sketched on the board and evaluated with sticky notes.







The prototype

The required mechanical parts and tracks were crafted in a little workshop over the span of the first two weeks. Those were later put together in the university, where certain motors, sensors etc. had to be coded aswell.

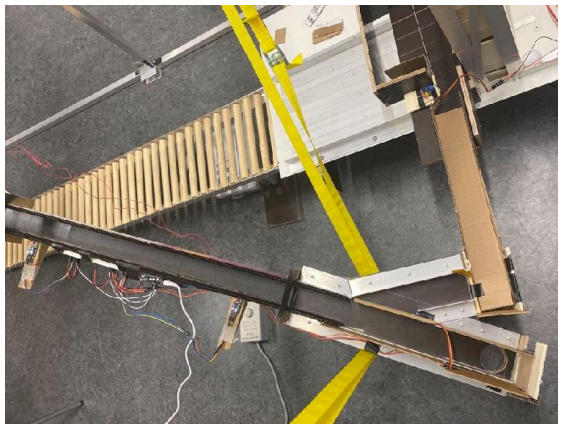
After releasing all 200 balls at once they roll on a little track until they get isolated through a funnel.

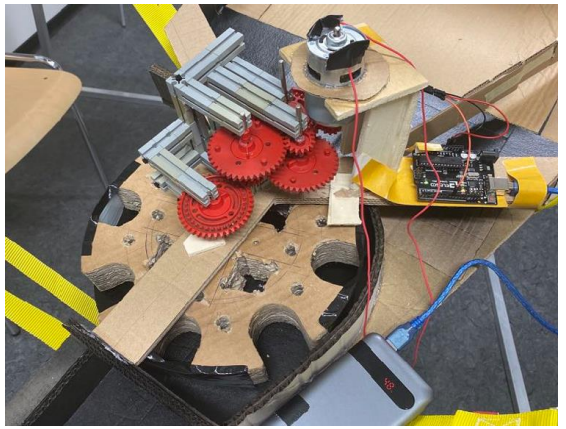
With the help of a servo motor system the defective balls get rotated with their dents on the ground.

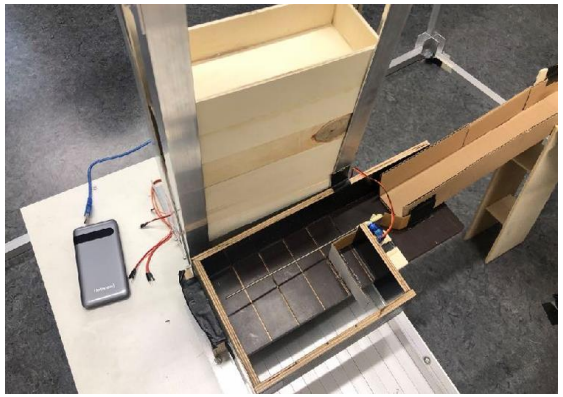
Afterwards the balls roll on a straight, black painted path one by one where their velocity is tracked by sensors.

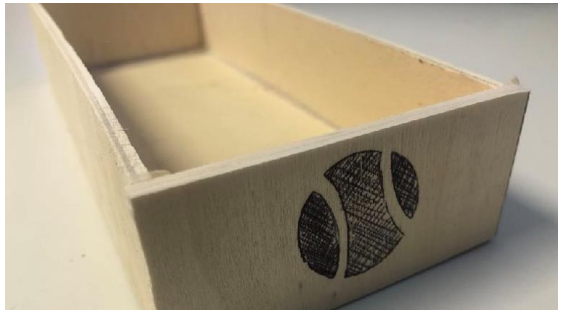
While the unscathed balls with the right velocity get send through an opening to the packaging department, the dented ones roll too slow and get dropped out straight ahead while the other colored balls don‘t get detected at all and also drop out.

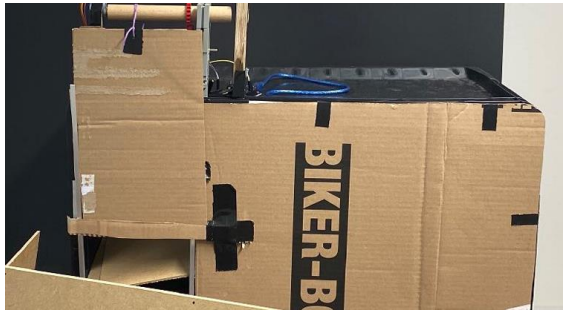
A “walking floor“, normally used in conveyor and vehicle technology, transports the packaging boxes at a calculated speed, so the incoming balls can be rightfully distributed into them.







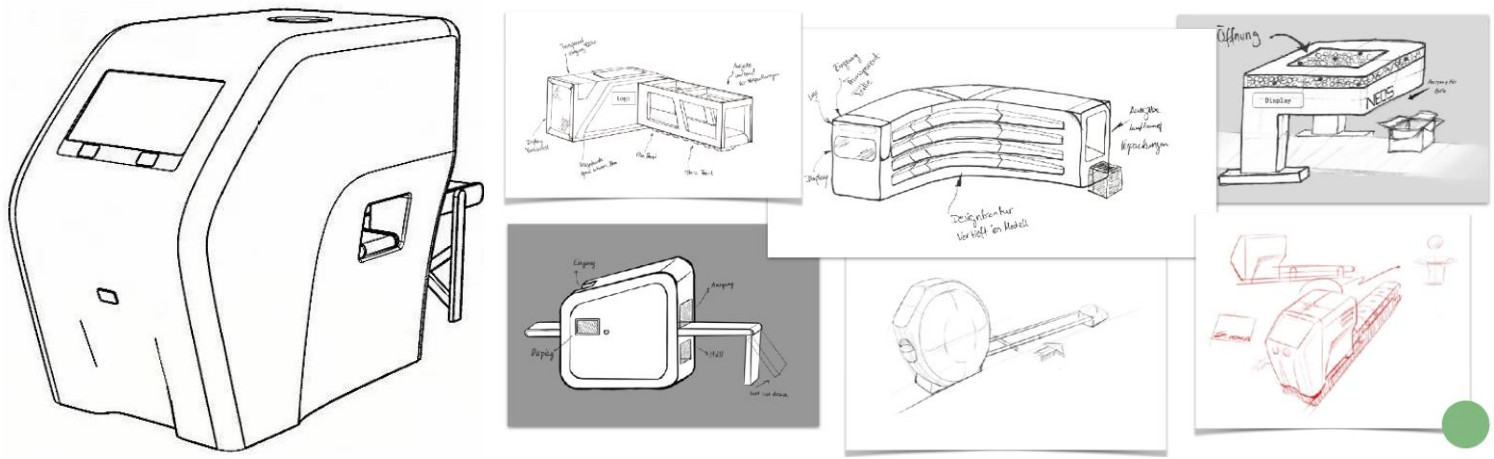




Lookslike

While building the prototype, the team worked on different formal concepts for the visualization of the machine.

ROBUST **DYNAMIC** **TECHNICAL**



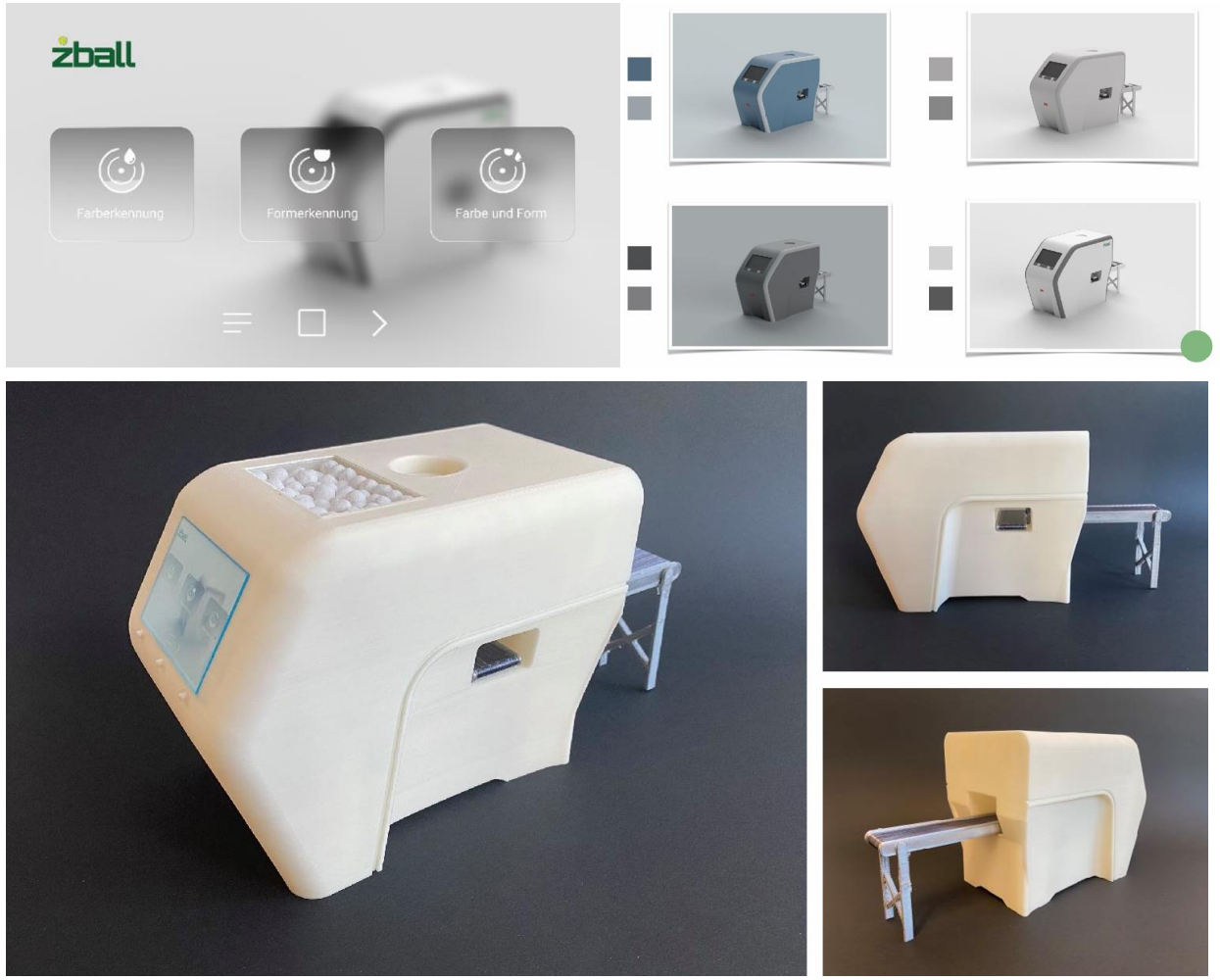
Detailing & Branding

After the final dimensions have been grasped, the team printed a 3D model and worked on different color palettes.

The name “żball“ was chosen, as in maltese it translates to “error“. Adding a tennis ball as the dot to complete the logo.

żball

(maltese „error“)

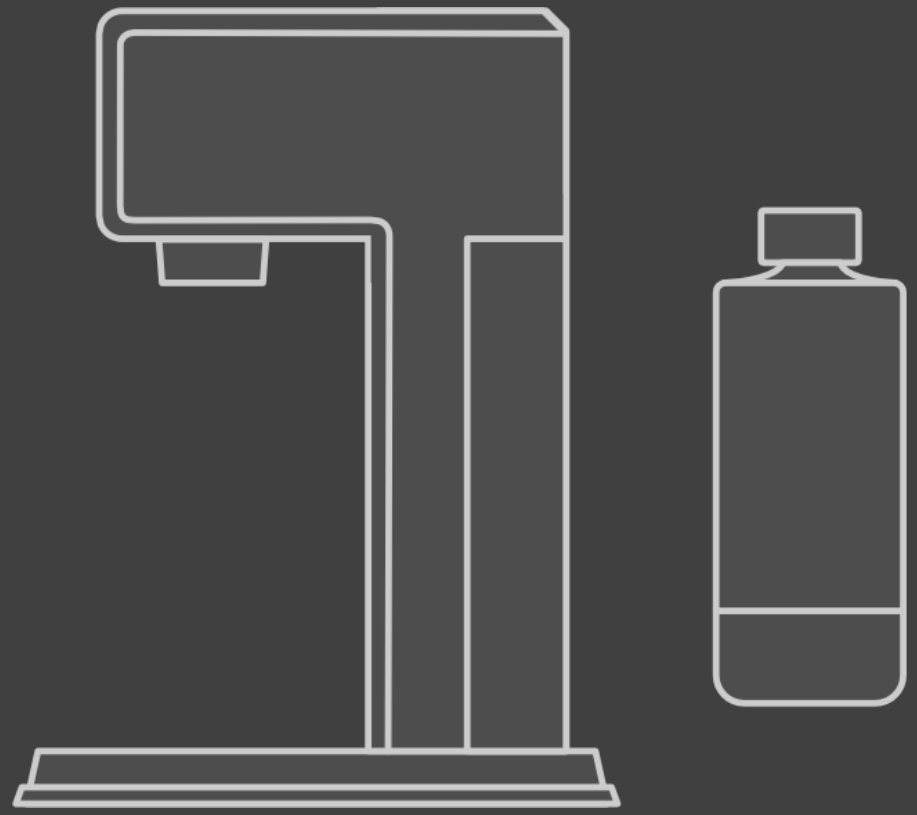


zball

04 SPARKLING WATER MAKER

7. SEMESTER

Design study of a household device to easily make sparkling water at home.



Research and Analysis

The market analysis granted insights into different aspects of sparkling water makers as well as water bottles like material usage, shapes, colors, and user interface.

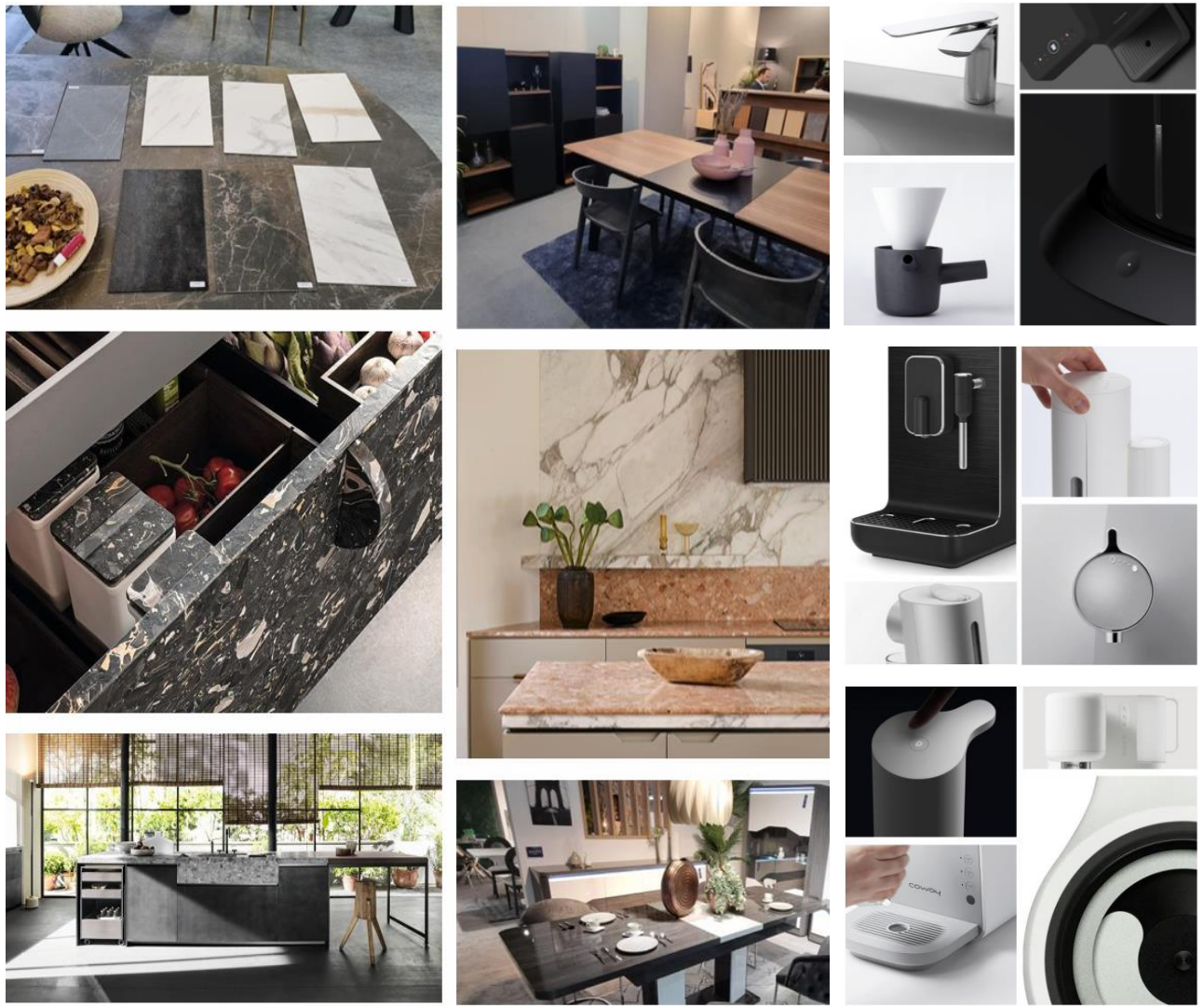
I also gathered information about brands on the market, purchase scenarios online and offline and safety requirements.

Kitchen Trends

A good product should fit inside its environment. The sparkling water maker usually has it‘s place in the kitchen.

So to get a better grasp at modern kitchen trends for this and for other projects, I visited the imm cologne 2024 and started some formal studies.

- Broad spectrum of colors and materials
- Basic shapes with rounding and bevelled edges
- Surfaces are often patterned or broken up by changes in color or material
- Interactable surfaces often contain indentations or elevations
- Slightly prominent components indicate functions that are otherwise subtly build in



In-Use Analysis

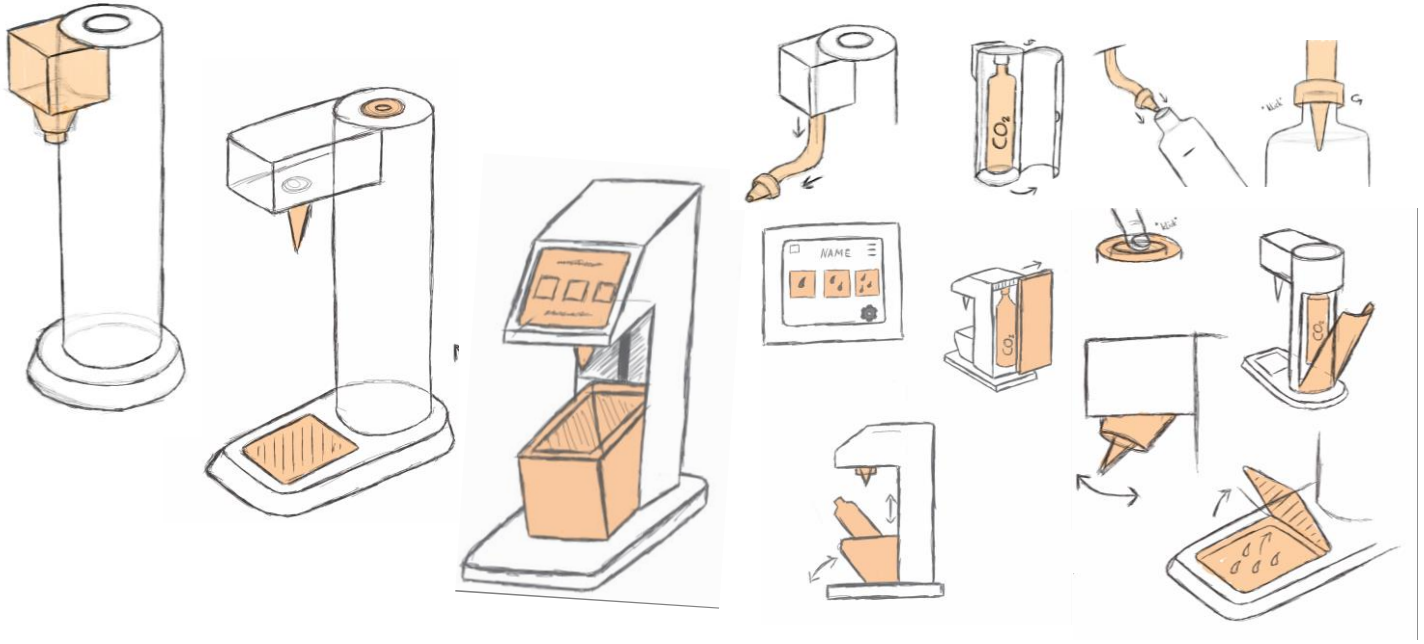
The in-use analysis on a test product granted some flaws and potentials that were worth expanding on.

To conclude the analysis, a requirement catalogue has been created.

Conception

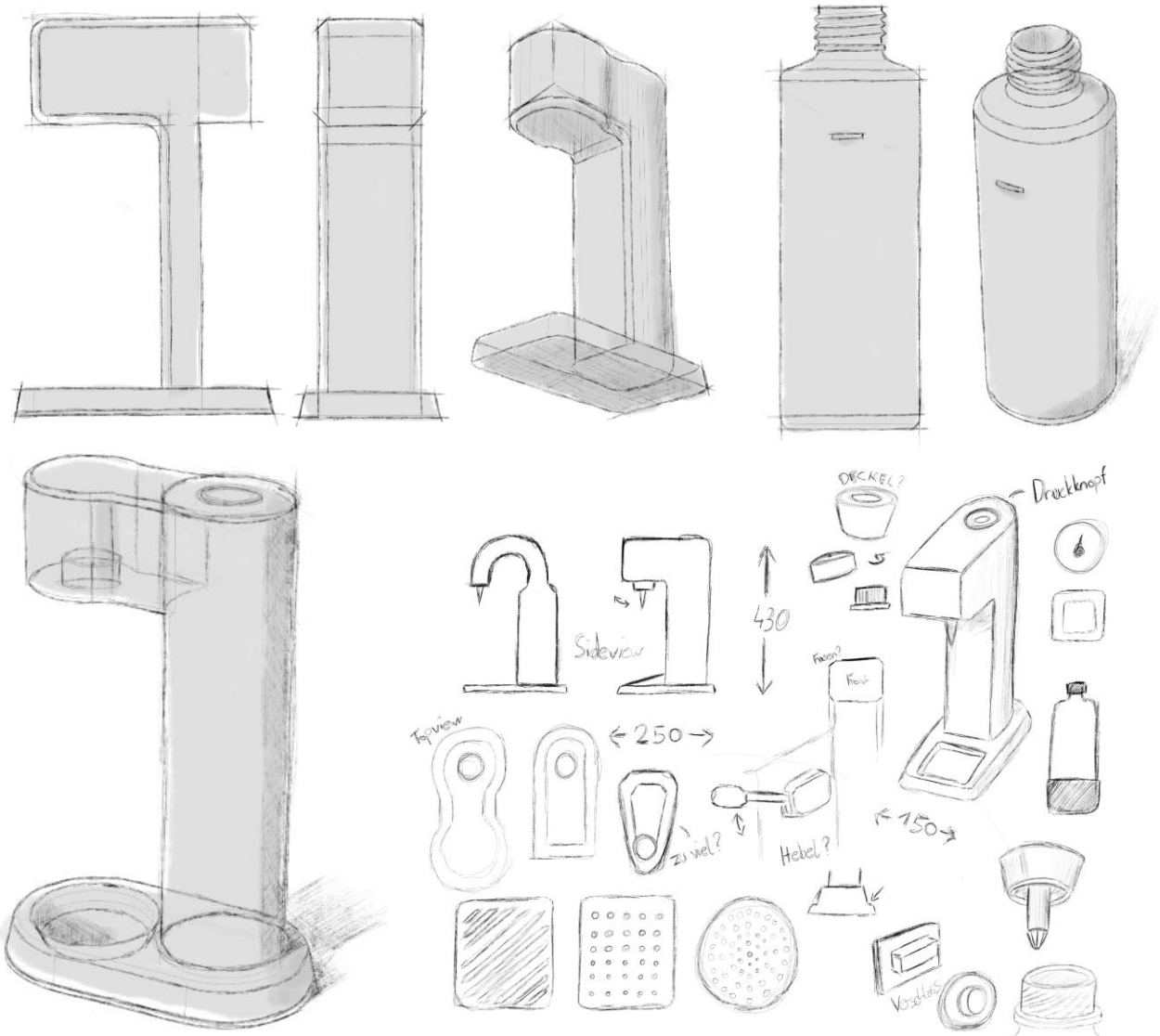
All gathered potentials from the requirement catalogue were split up into five conecpt fields. With those in mind, I created quick first conceptual ideas.

User Interaction	CO2 Management	Durability	Bottle Handling	Safety and Protection
Commissioning	Supply	Stand	Material	Hygiene
Operation	Storage	Weight	Placement	Cover
Dosing	Exchange	Housing	Locking	Locking
Feedback	Security	Material	Bottle Protection	Maintenance



Design Sketches

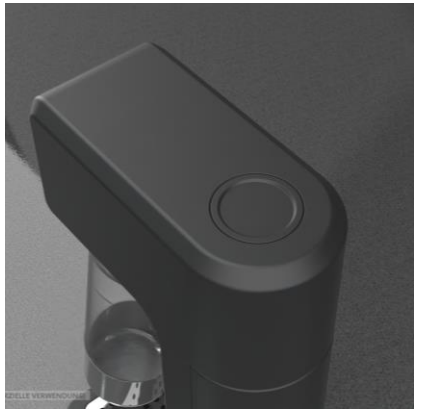
Initially, the first design approaches for sizes, shapes and other solutions were created and collected in the form of sketches and simple Rhino 3D models.

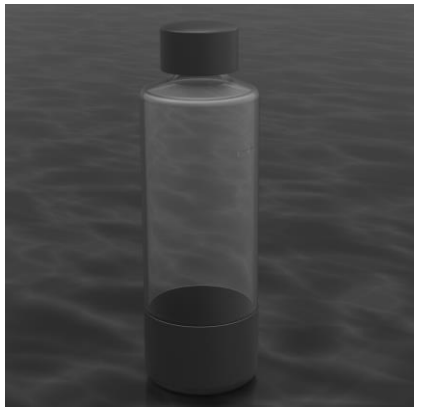


Design Detailling

Individual parts were then constructed in SolidWorks to be able to evaluate the initial design approaches in 3-dimensional space. During this process, I repeatedly switched between 3D and 2D.

- Automatic dosing at the touch of a button
- Swiveling connection for immediate insertion
- Grid base for easy cleaning
- Outer shell made out of a wood biocomposite
- PET bottle with a stainless-steel base





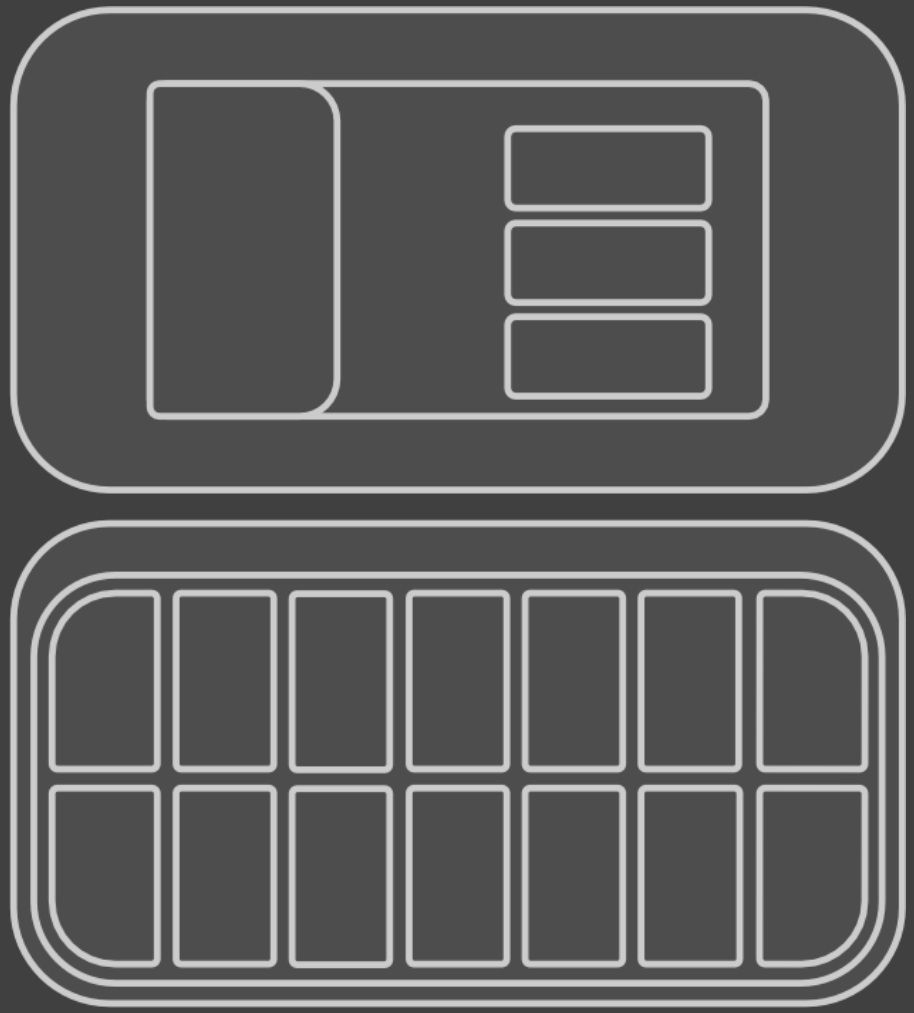
CarbonOne

05

MEDICATION SYSTEM

BACHELOR THESIS

Development of a system for the storage and regulated dispensing of medicines for private individuals.

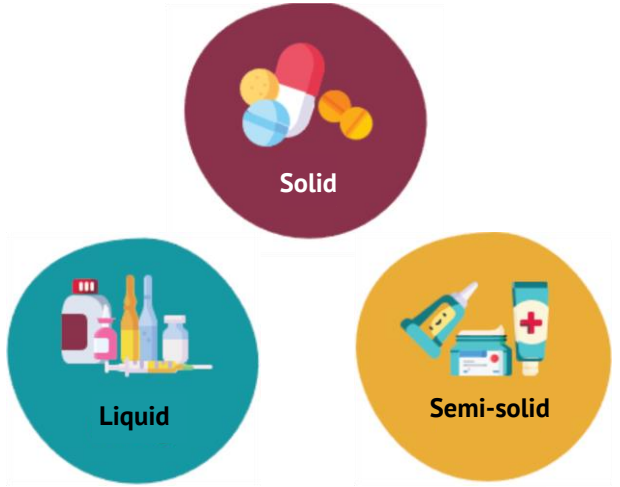


Research

I started with a basic research on different kinds of medicines, their history, and also their required conditions for storage and ingestion.

Going through studies, looking at user groups as well as doing surveys and interviews also helped to identify problems.

- Ingestion of medicines is often forgotten
- A regular ingestion is hard to monitor
- Medicines have to be stored safely
- Its difficult to plan medication when travelling
- Dealing with your own illness can be frustrating



Market Analysis

As part of the market analysis, various storage and ingestion aids available on the market were compared in order to identify the advantages and disadvantages of the individual products.

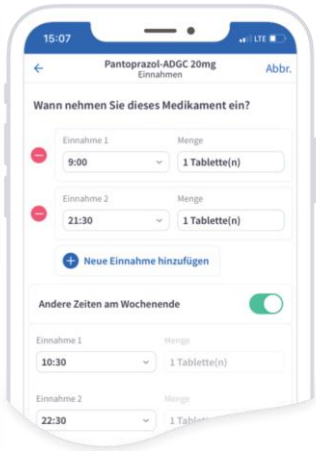
The analysis provided even more gaps and problems, which could then be formed to potentials for the concept development.

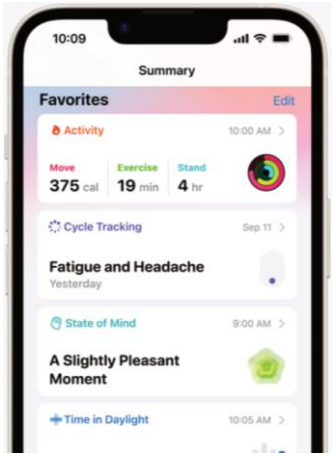
There is no all-in-one solution

Analog and digital products don‘t interact directly

Many products on the market are outdated

Analization of modern apps grants a few helpful potentials

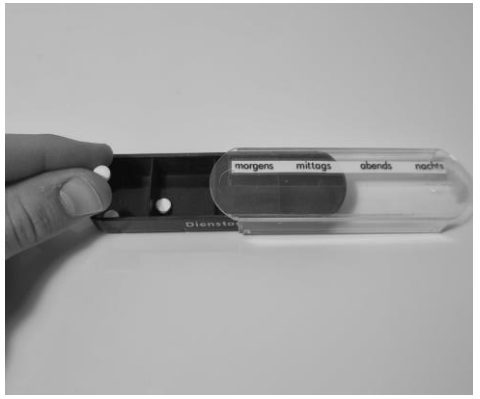


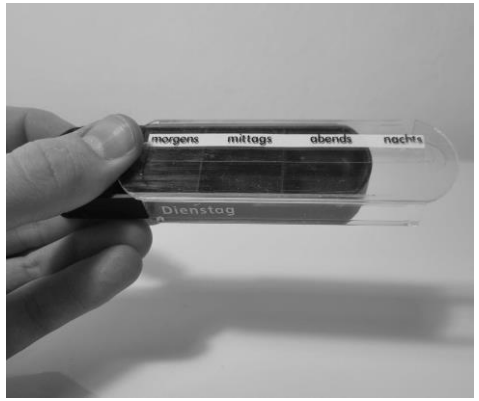


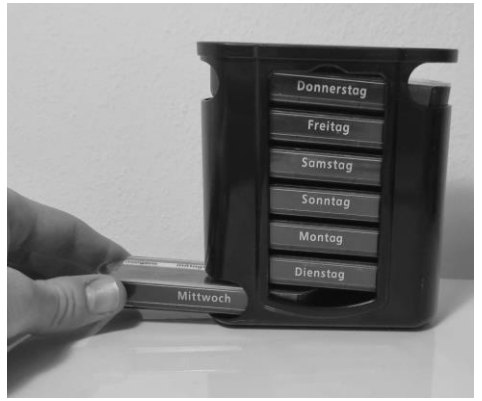
In-Use Analysis

In order to gain a better insight into the various problems involved in removing medicines from their boxes, an in-use analysis of a standard medicine box was carried out.

- Small pills are hard to take out of little boxes
- Past ingestions can be checked if the contents are always visible
- A modular system grants flexibility while traveling
- Many analog products lack a function that reminds the user to take their medication



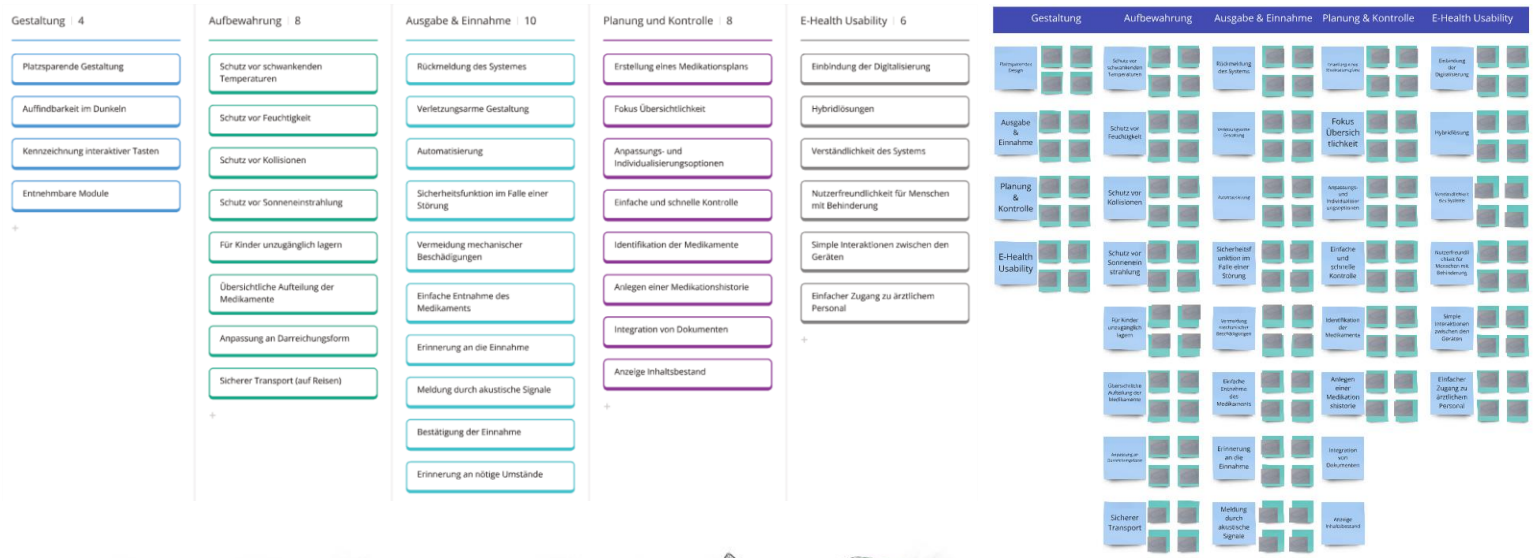


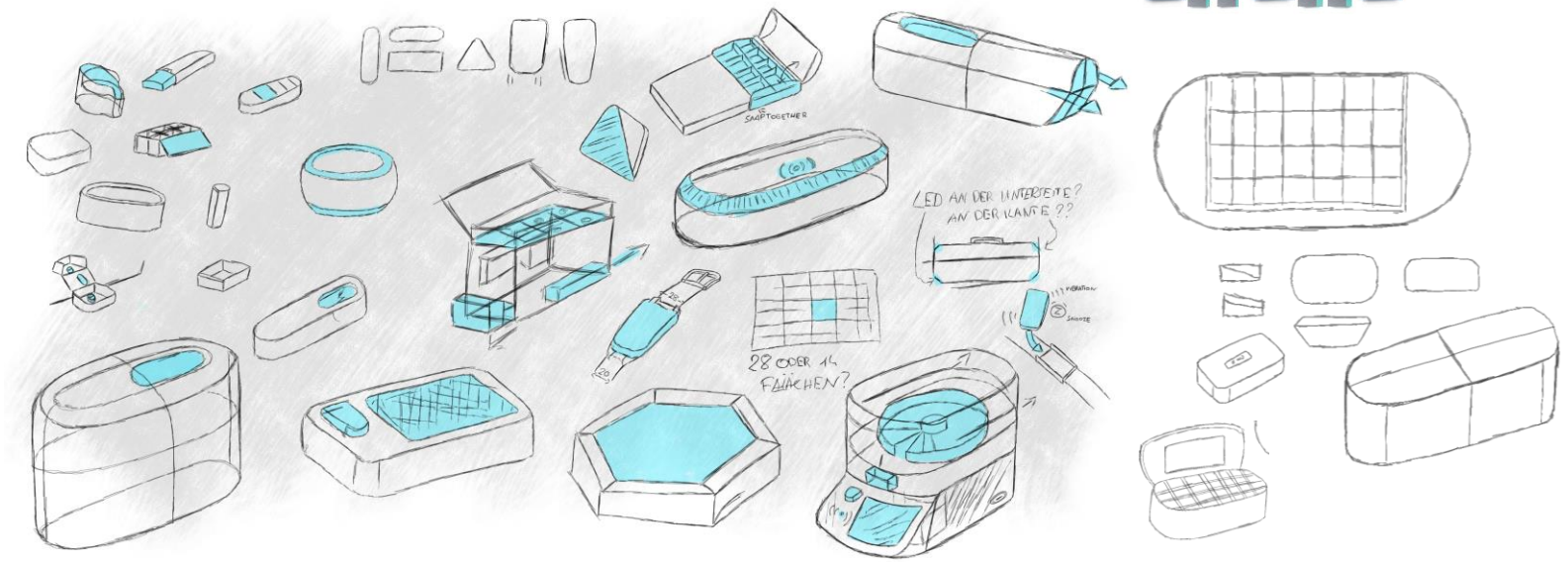


Conceptual Solutions

The collected potentials were divided into five concept fields. Initial conceptual solutions were then outlined and subsequently consolidated.

- Handling
- Storage
- Dispensing and Ingestion
- Planning and Control
- E-Health Usability

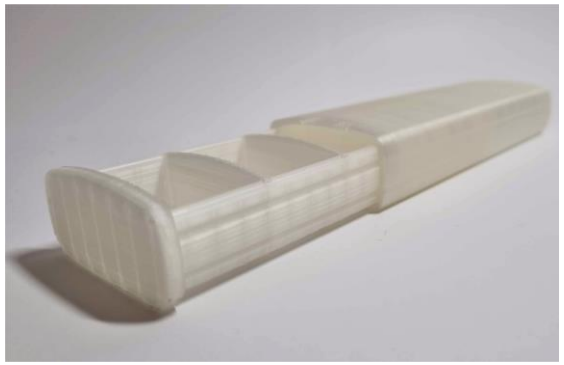




Prototyping

Each concept has been pursued with prototypes using the 3D printing process in combination with cardboard or paper constructions to grasp the necessary dimensions and rate their effectiveness.

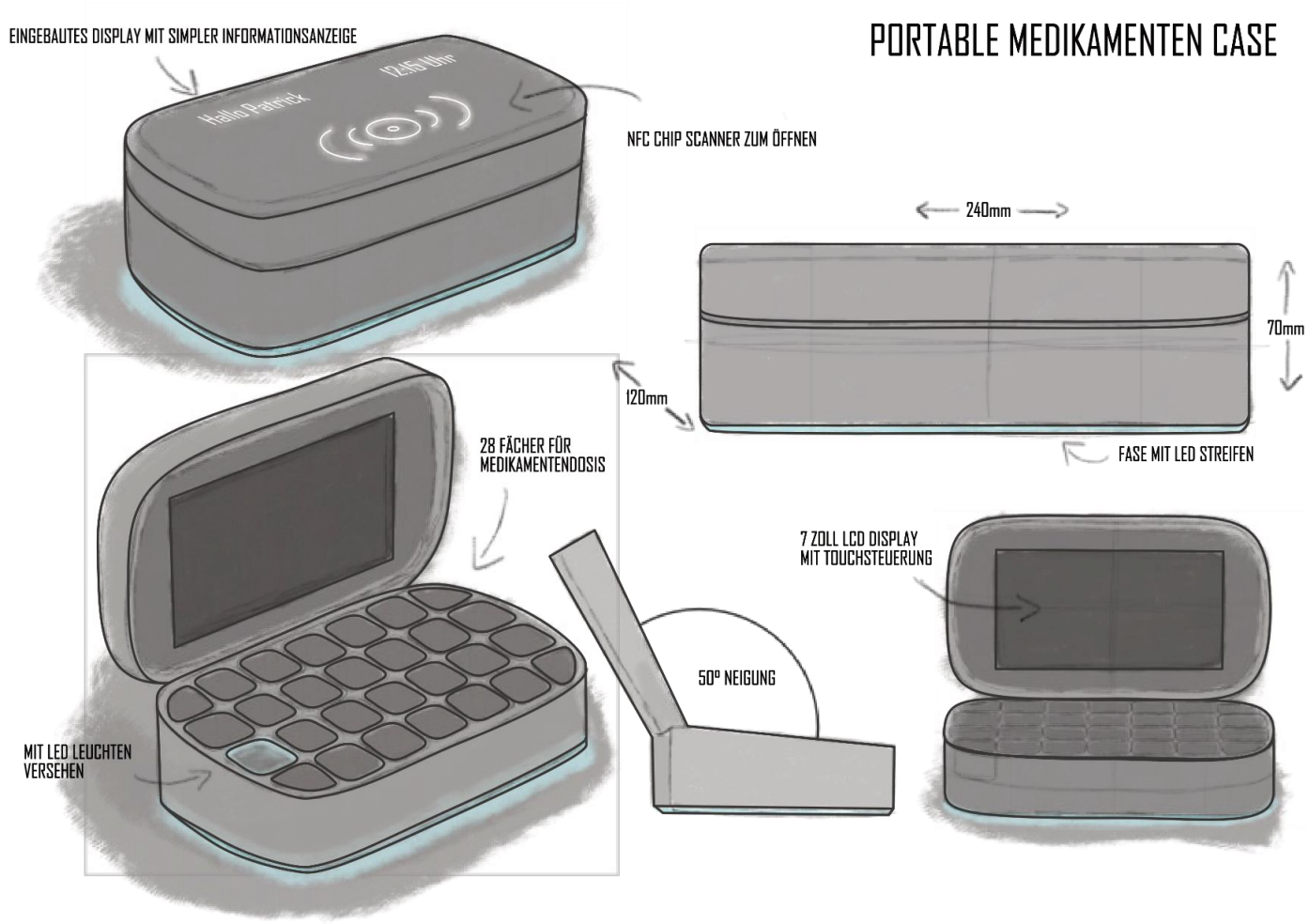
One concept, the medication dispenser, has been developed for quite some time until the requirements set after the research could no longer be met.



The Final Concept

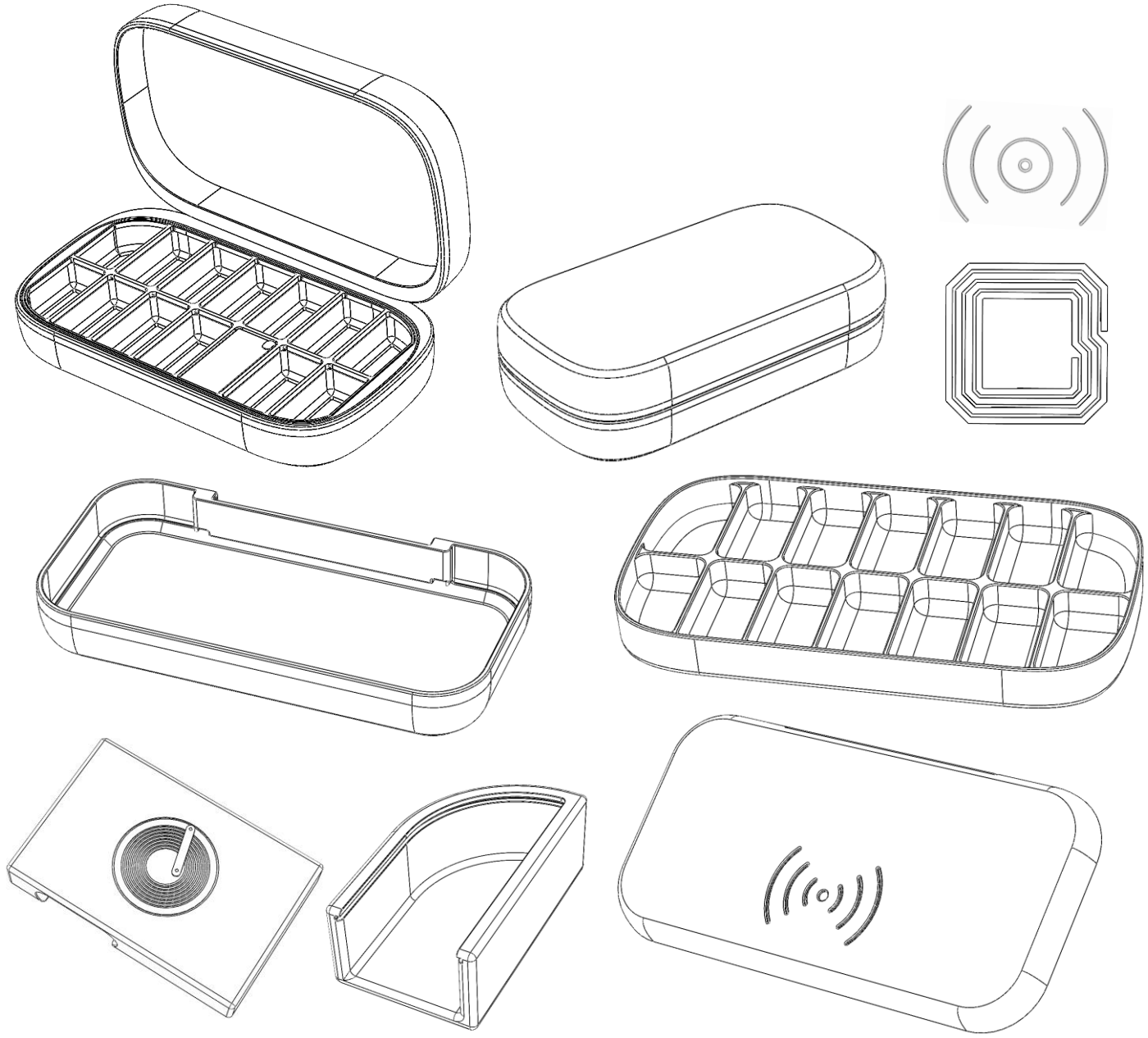
After the last concept has been discarded, the new and final concept is a compromise of the other concepts.

Within the smart case, medication can be safely stored while a program reminds the user to take their pills. The contents of the case and previous intake times can be checked via a display, which runs a program that assists the user in creating a medication plan.



Design and Detailling

Many details like the final dimensions for improved ergonomics, the needed number of compartments for ideal medication planning, or other technical solutions are developed and finalized in CAD.



Model Making

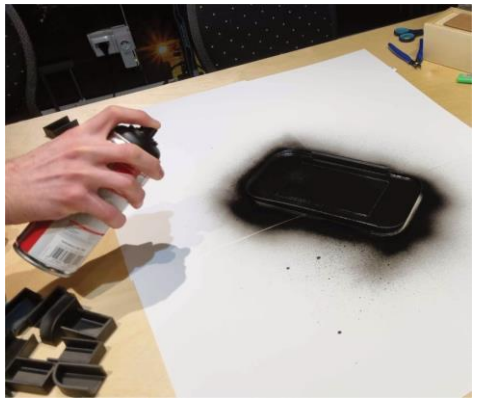
After the design, a 1:1 Model has been created using the 3D printing process. After all parts were glued together, all surfaces have been sanded and painted to resemble the final product.











Logo and Branding

The name is a combination of the words „Med“ for medicine and „Aura“ as the product communicates with the user and radiates a certain charisma, particularly through the LED light. Accordingly, a top view of the LED light is integrated into the logo.

medaura

(Med + Aura)

The Product

A chip, worn on the user's body, reminds them to take their medicines via vibration or an alarm.

Reminder can be suppressed with a push button, the alarm intensity increases with each subsequent reminder.

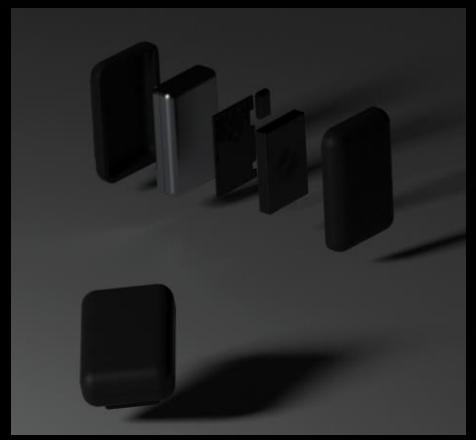
Scanning the chip at the lid of the Medaura case opens it.

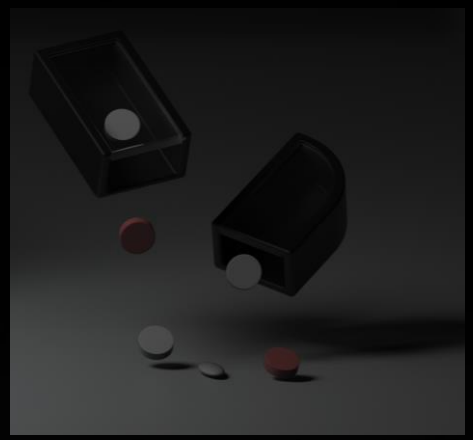
14 compartments for safe storage and protection from external influences.

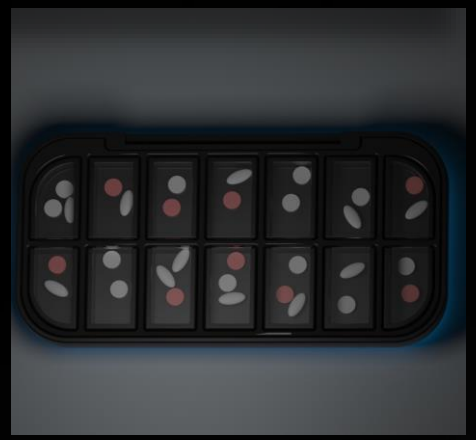
Runs with a program to create a user profile, check and plan medication, add notes to specific pills and share data with specialized staff.

Opened the case after an alarm, highlights the correct compartment with an LED.

Each compartment is removable and easy to clean.







05 Medication System

Portfolio – Patrick Bauke

medaura

A portable and safe storage device for medicines at home and when travelling

THANK YOU!

Let‘s get to know each other

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