HARDCOPY 03 N



A Publication by the industrial design department of the Muthesius University of Fine Arts and Design





followers, students, alumni and future students, colleagues and associates, I would like to introduce to you the third edition of Hard Copy, the annual collection of works, stories and insights of the Industrial Design Department of the Muthesius University of Fine Arts and Design in Kiel. Life at MUID has returned to pre-pandemic levels with travel, exhibitions, competitions at home and abroad. We welcomed two new generations of MUID students while saying goodbye to another two generations of young designers who have entered the professional world. This edition of Hard Copy is very special to us since it is not only about showing what we have been working on during the past 12 months but also about our transformation from a classic design school to a real-world laboratory. From autonomous ferry systems to inflatable consumer products our students did not just conceptualise their ideas but realised them in a real-world setting, an approach that takes both courage and discipline and requires a whole new set of skills to develop, engineer and design for a real-life setting. We will keep going on this journey of becoming an active participant and agent of change in a world where change is crucial for a better future.

Prof. Martin Postler

Industrial Design Department of the Muthesius University of Fine Arts and Design Kiel.

We are MuID \searrow Dear friends and collaborators.

ABOUT US SINFOR TIBO > PROJECT MODU » PROJECT BUZZELLE S PROJE VISUAL EXPERIE JAPAN S COURSE TRIP ARCHES S PROJECT A/D STRUCTUR BRICK N MORT READYMADE .P SHOESHORT . OUTBLACK SPRC IMPULSE S PROJEC SYSTEM 400 SP VERSO S PROJECT UNROLL & WRA NEW BEACH TO PARENTPASS , WARLEBERG FU W.TAXI > PROJECT PEN PROJECT INCUBE / MORG DOLGO > PROJECT TECHNOMORP ROOTMAP , PROJ MILAN SEXHIBITION ALLIKE STORE FACES ID NINFORM FACTS & FIGUR

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Design, we work on designing for a better future. We embrace sociocultural and technological change by actively proposing ways of how to lead in the field of industrial and product design. We encourage our students to think laterally, to experiment, to be bold and radical, to try new ways to understand the design process with every new task while focusing on professionalism and discipline to bring each project to its maximum potential. As a relatively small school, we are able to work together in small and dynamic teams on course briefs as well as commercial partnerships and personal projects. A Muthesius graduate is both skillful and motivated, critical and daring. We educate our students to lead in their respective fields.

2023

Bachelor's

At the Muthesius University of Fine Arts and

Medical Design

Master's

Designing future perspectives and sustainable living environments is crucial for designers. Medical design is seen as a fundamental principle of design action, aligned with the concept of "One Health". Through project work, students explore processes, systems, and interfaces that promote healthy and appealing living conditions, while also emphasising product structure, details, and quality. The connection with the Master's degree programme in "Interface Design" is significant, given the increasing complexity of products as information carriers and interaction mediators. The research activities in Kiel, including the Initiative and Precision Medicine in the Chronic Inflammation Cluster of Excellence, provide valuable access to knowledge in health and life sciences. The interdisciplinary project formats encourage students to embrace experimental openness, risk-taking, and radical thinking as future designers.

Interface Design

Interface Design at the Muthesius represents the essential overlap of Industrial Design and Interface Design. It unites human-centred processes in both hard- and software to one holistic discipline. We design relationships between humans and machines in a variety of contexts such as product UX, software applications, social networks, service service-related or media installations. During the course of the two-year studies we actively encourage our students to leave the classic path of design education to explore and experience new fields of interest. From exploring new digital narratives to the use of film and animation we frequently enter new areas of art and science to stimulate the outcome and quality of our work. We aim to lead with empathy to enable a new generation of digital designers to meet the growing needs of our society.

Master's

Pet transport box: TIBO

TIBO offers a comfortable and safe transport environment for pets with its special modular design. The camera and special feeding device allow owners to enjoy the journey with their pets with peace of mind.

> DESIGNER Yang Yang

PROJECT Bachelor's Thesis

COUNTRY China





> Open hatch← Design overview

DESCRIPTION

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Pets are now a very important member of the family; leaving the pet to travel is always difficult for the owner to remain assured. Pet carriers available on the market are too simple and not suitable for long-distance travel, so I have made a new design for this problem.

"TIBO" is designed specifically for the airline field of animal transport box, with a modular structure adapted to the habits of animals (living area and toilet). The independent toilet makes cleaning easier, the double-layer protective shell cannot only isolate the noise can also increase the service life of the transport box. Specially designed feeding tanks not only make it easy for owners to add food and water, but also serve as doors for entrances and exits. The entire transport box is semi-enclosed to increase safety during transport. With the addition of built-in cameras and lighting, owners can keep an eye on their pets and enjoy a worry-free ride with their animals. In terms of mobility, the transport box adds two pulleys for easy movement.

Refilling pet food





Putting cat inside of the box

Detail with wheels and pictograms

017



PROJECT

2022

018

My design was inspired by my two cats and the difficulties I encounter every time I take them out. I wanted to design a transport box that is really suitable for cats to go out, rather than a simple cage. At first I tried to design a transport box that would work for most pets, however it was very difficult. I then focused on designing an airplane-friendly transport box for cats. I realised that as a designer I needed to focus on a more granular area rather than catering to all requirements to the point of being incoherent. I made several adjustments to the shape and size of the transport box during the modelling process with the cardboard box. There is not much information to refer to in the field of pet transport boxes, so I made the finished product based on my own experience with a little modification. Pets cannot make a sound, as a designer should take into account all the details, small defects can create a big problem. It was a very memorable experience, and I'm glad my cat was involved in the process.

Explosion part overview

> Inside video with feeder



problem. It v I'm glad my

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YANG YANG Country of origin · China Contact · yangyang_hz@foxmail.com Instagram · _yang.yang_

MODU: rethink the car

MODU is an efficient, environmentally friendly multi-purpose vehicle intended as a tool for a sustainable mobility transformation. The fully modular design adapts optimally to the usage scenario and is particularly space-saving. The interior can be fully adapted and personalised to the respective application through rail-mounted modules.

All modules can be moved and exchanged in a few simple steps and optimally adapt the vehicle to its intended use. The modular design and the simplest possible body shape enable decentralised and regional production, facilitate repairs and promote the circular economy.

> DESIGNER Julius Bahl

PROJECT Bachelor's Thesis

COUNTRY Germany



Workbench module for the construction site



2022

PROJECT

DESCRIPTION

The basis is a flat platform in which all components of the chassis and the electric drive train are integrated. This allows the entire vehicle surface to be used for the passenger cell and enables an extremely small footprint in public spaces. The platform is bolted to the space-frame body, which consists of hollow steel sections welded at right angles. The cladding, particularly lightweight body parts are made of 100 percent recycled thermoplastic and insulate the vehicle interior with their energy-absorbing support structure.

Integrated sensors and cameras also enable autonomous driving. Large window areas ensure good all-round visibility and a bright, light-flooded interior. [\rightarrow]



Electrical Drivetrain





MODU Space Frame
 MODU drive platform

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024



PROJECT

2022

026



MODU with open sliding doors

 $[\rightarrow]$ Thanks to rail-mounted modules, the interior can be fully adapted to the intended use and individually designed. All modules, such as seats, steering wheel, dashboard, but also boxes, solar roof or camping kitchen, can be moved and exchanged in a few simple steps.

Each module is provided with an individual QR code, which provides further information on assembly, repair, sustainability and production. The modular design and the simplest possible body shape enable an optimal use of space. Thus Modu is smaller than a VW Up, but has a larger interior than a VW T6 bus. (MODU dimensions: 3205 mm length, 1800 mm width, 1990 mm height)

The modular design and the simplest possible body shape also facilitate decentralised and regional production, make repairs easier and promote the circular economy. The robust, angular shape in combination with the round headlights makes the autonomous vehicle look inviting, spacious, comfortable and safe.

I have always been interested in sustainability and transportation design and how we can shape the future with new mobility concepts. In my bachelor's thesis, I had the opportunity to fully focus on these topics and design a vision of what a sustainable alternative to our motorised individual mobility could look like with the technologies already available today. The entire design process was driven by intensive research and rapid prototyping. All under the principle of "form follows function" and radical choices in the appearance of the vehicle and its technology. This process resulted in a true multi-purpose vehicle that really adjusts to the specific operational scenario through the individual modules. Without the interior modules, the MPV is just a drivable space that can be expanded and used as needed. The result is a radical approach to areas where public transport cannot be a solution and where we will continue to rely on the car in the future. However, we need to focus on sustainable mobility solutions and it is clear that public transport is an enabler we need to focus on.

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JULIUS BAHL Country of origin · Germany Contact · julius_bahl@web.de Instagram · @julius_bahl

BUZZelle Garden System: A New Gardening Set

Buzzelle Garden System is a new gardening set to motivate people to care more about the urban city's biodiversity and plant more pollinator-friendly vegetation in their gardens instead of lawns and gravel. With the Buzzelle digital platform, people can quickly learn about pollinators and related plants.

Then the Buzzelle analogue tools can provide an easy-to-understand and easy-to-do gardening experience. The whole system offers people the opportunity to move from knowledge to action.



▶ User is planting seedlings
 ← User carrying kit

DESIGNER Yue Zhao PROJECT Master's Thesis

COUNTRY China



▹ Unboxing



DESCRIPTION

Gardens play a crucial role in enhancing urban biodiversity. They are no longer just decorations for architecture to provide aesthetic enjoyment but a future habitat for human beings and other beings. But today, if we walk around the city, we can still see many gardens planted with large lawns or grey gravel.

The Buzzelle Garden System aims to provide a transformation, an opportunity, and a new tool for everyone to rewild their garden, making the topic of promoting biodiversity tangible. The system includes the digital platform, the seeds and soil pack and the planting tool set. The idea of the digital platform can help people generate interest in protecting insects and have a new understanding of plants and pollinators. It can also help to plan your Buzzelle and guide the planting process. The seeds and soil packs encourage people to grow their seedlings from seed rather than just buying ready-made flowers, which not only makes the planting process easier to follow but can improve the germinating success rate. The planting tool can provide an easy-to-understand and easy-to-do gardening experience with ergonomic and beginner-friendly tools.



↗ BUZZelle





Rendering of gardening tool

PROJECT

2022

032



Instruction interface

▹ Visitors App Page



knowledge to action. for the future.

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YUE ZHAO Country of origin · China Contact · zy.zhao_yue@outlook.com Instagram · @yue_z13

The problem of biodiversity loss and insect mortality has moved into the public and political consciousness. In recent years promoting biodiversity has begun to be incorporated into urban planning in many cities. In addition, municipalities, nature conservation organisations, associations and citizens are active and want to get involved in increasing biodiversity. Based on this background, Buzzelle Garden System provides an opportunity for us to promote biodiversity in urban gardens from knowledge to action.

Now the Buzzelle Garden System is more focused on pollinators. Because compared to other methods of rewilding gardens, the strategy of planting pollinator-friendly plants is a relatively low barrier, easier to achieve and very acceptable to the general public. In the future, the Buzzelle system could incorporate municipalities and nature conservation organisations to create a database of local wildlife and native plants for a broader range of other wildlife, and develop more methods and tools for everyone to contribute to creating co-habitats

Autonomous Ferry Visual Design Experience

As part of the CAPTN initiative, two design concepts for an autonomous ferry were developed in 2019 that show a completely new possibility of environmentally friendly, connected and futureoriented mobility on the fjord. The Autonomous Ferry Visual Design Experience project aims to convey a virtual showcase of a journey across the fjord with all the information conveyed and the visual atmosphere from entering to leaving the ferry, updating the design visions from 2019 with an enhanced user-experience. The focus is on communicating the decisions that the autonomous ferry makes and communicates transparently and simply to the passengers.

Navigation



PROFESSORS Prof. Frank Jacob

PROJECT

Master's in Medical Design

Interface

Project

Prof. Detlef Rhein

Prof. Dr. Dirk Nowotka

DESIGNER Sören Herber Arista Meier Louisa Pankow Meret Oppermann Finn Lassen Joscha Brüning

DESCRIPTION

The focus of the visual design experience is on communicating the decisions made by the autonomous ferry. Large amounts of data have to be processed in a visually and auditorily comprehensible way and the passengers have to be constantly informed about how and on the basis of which information the ferry navigates safely across the water. To ensure that all passengers have an insight into the navigation system, a live view of the ongoing and existing route is displayed under the ceiling.

Deviations from the route, which may be caused by other boats, ships or water sports enthusiasts, for example, are detected directly by the autonomous ferry and displayed on the navigation map for the passengers. In order to guarantee a safe, autonomous crossing, the collection of data via various sensors and tracking methods is of great importance. For this purpose, the autonomous ferry is equipped with GPS/ ECDIS sensors, radar, lidar, cameras and sonar, among other things. The collected data is compared with each other in real time, which allows different objects to be detected. If a detected object affects the route, this is communicated directly to the passengers on the windscreen and the map. [
ightarrow]

PROJECT











 $[\rightarrow]$ Those who want to delve deeper into the complexity of the autonomous ferry have the opportunity to do so on the screen around the central column. Interactive information on topics such as the airflow, the drive or the various sensors of the ferry can be discovered in the so-called Techbox. The new design of the interior also incorporates a concept of targeted airflow design. A structure of slats running around the ceiling ensures a constantly balanced supply of fresh air. The air flow runs along the glass front and is actively taken up again at floor level. In contrast to existing concepts of public transport, this ensures a special air quality.









▹ Airflow detail



This semester we were faced with two big challenges. On the one hand, we had to do justice to the 2019 designs and on the other hand, we had to design something that can normally only be experienced. We quickly realised that such an experience could only be generated through a 360° video with the help of VR glasses. While working out the data, we tried to imagine again and again how it would feel to stand on the ferry and be able to use the individual controls. The main questions we dealt with were how does it feel safe to be on a ship that is autonomously controlled and what does the passenger want to know about the AI in the first place. Our concept is to show the user how the Al thinks and make decisions comprehensible. Nevertheless, the passenger is not affected during the journey if, for example, he or she doesn't want to hear anything about it and just wants to go from A to B. The question of what to show and what not to show, even for safety reasons, so as not to cause discomfort in the passengers, was very much on our minds. With our project, you can see that there are still many more attractive ways to get around in a city with water.

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DESIGNER INFORMATION

Finn Lassen · Germany · finn_lassen@icloud.com Meret Oppermann · Germany · m-op@gmx.de Joscha Brüning · Germany · hello@joschabruening.eu Sören Herber · Germany · sören.herber@gmail.com Arista Meier · Germany · aristameier@t-online.de Louisa Pankow · Germany · pankowlouisa@gmail.de

DESIGNER STATEMENT

In a remarkable cross-cultural exchange, the Muthesius University from Germany had the opportunity to visit Kobe University in Japan for an excursion and workshop. Thanks to the cooperation between the two universities, the students were able to learn from skilled Japanese craftsmen about the intricate art of working with bamboo. Over the course of their stay, the german students gained valuable insights into the traditional techniques and cultural significance of bamboo craftsmanship in Japan. Working in mixed teams, the students of both universities collaborated closely to create unique designs that combined their respective perspectives and ideas. The exchange served not only as an opportunity for cultural exchange, but also as a valuable learning experience for all involved and deepened the partnership and resulting in a new exchange program.

Japan Excursion: Bamboo Craftsmanship

JAPAN EXCURSION JAPAN









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Arches

The project unites several meanings of the word light into a side table: Arches is based on the idea of connecting different meanings of the word light in one product. Light, simple or easy sometimes mean the same and for me all of those definitions and meanings form the outline of a concept. I wanted to extend my first idea of a lightweight object on a broader approach, including the materials, the transportation and the assembley.

> DESIGNER Tjard Tensfeldt

Germany

PROJECT BA 03 Semester project

↗ Simple and minimal use of material

← Arches sidetable ↓ Flatpack











DESCRIPTION

The side table consists of a tabletop from aluminum in which a construction of arches can be snapped. 12 aluminum arches can be connected with snap-fit connectors to build the table. The whole construction can be stored in the tabletop when not in use. The arch refers to the architectural arch of ancient buildings. It is a load-bearing constructional element which conducts the weight into the ground while also being a characteristic of this era of buildings. Those arches enable combining the different meanings of lightness. The aluminum rods of the arches enable the table to be lightweight and also gives visual lightness. The simple and minimal use of materials of PLA and aluminum helps with recycling the product. The side table can be easily transported because of the relatively small single arches that are stored in the tabletop. And because of the snap fit connectors, the product can be assembled with ease without requiring any tools or instructions.

The project developed through early wood and cardboard models and later printing different generations of the connectors. Especially researching for products that successfully use any possible meaning of lightness formed the concept and project.



▹ Easy assembly





The concept of the connected arches and building with them is the most interesting part for me. The table is a way to show the possibilities of the concept rather than the ideal way of constructing a side table. With more time, it would be great to translate this idea into other objects with a different scale and to develop the fasteners to a point where they are more flexible and resist stronger forces.

PROJECT

2022

058



Aluminum tabletop and arches

Snap-fit connectors Snap-fit connectors



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TJARD TENSFELDT Country of origin · Germany Contact · Tjard.t@gmx.de Instagram · @tjardt

A/D Structural Kit: spatial and activity-contextualised design processes

Trees grow in complex 3D structures, which need surprisingly little material to be resistant to forces like wind. Akin to these principles seen in nature, traditional structural building techniques connect single beams and slats using wood joints, which come in many different forms but are limited to similar principles.

The A/D Structural Kit is an experimental design kit, which mimics the behaviour of these wood joints. Beginners get to know the features while experimenting with the design kit. More experienced users create pre-configurations used in an assembly library. Experimenting with complex and irregular structures opens up the possibility of advanced aesthetics, structural performance and material-saving design.

> DESIGNER Max Kersten Boll

Bachelor's Thesis

PROJECT

COUNTRY Germany Strut connection



DESCRIPTION

The project is woven into a larger design project which was developed during my bachelor's studies. The KFVR-system tries to deal with non-transparent value chains by designing a low complex, regional focused production processes. The material is limited to wood for illustration purposes. This supposedly sustainable material needs to be understood in its spatial context for transparent, sustainable and understandable usage.

The A/D Structural Kit aims at the scope of understanding the properties and the value of the resulting product. The process is made to be interactive and sharable by showing and discussing a design before taking it to the production level. After designing a solution for a specific problem within a structure, the A/D Kit allows simple digitalisation by just taking 20–30 pictures from different angels. The new structural component can be modified and assembled to more complex structures virtually. After designing a structure, the KFVR five-axes milling machine carves the joints into the wood slats. [\rightarrow]



Practical iteration experience

Woodjoint abstraction



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064

The set of the

 $[\rightarrow]$ The hardware and software prototypes for the A/D kit were developed during the thesis to test the possibilities of fairly simple open-source solutions for such use cases. The accompanying project theory is a hypothesis for a spatial and activity contextualised design processes. Iteratively, innovative processes were created in the geographical context of the material, its properties and in the social context of being involved into the value chain by interacting with its participants. This could result in work-like activities and new knowledge sharable in an open system. The vision is that design helps people to create products for self-defined needs. Sustainable, geographically related diversity could be an answer to the challenges we are facing in global contexts by giving the ability to test a broad range of solutions iteratively and facing problems individually in a shared learning process.



▹ KFVR process system



PROJECT

2022

Analog to digital process

Methodologically, I wasn't only focusing on technical innovations, but aiming at a social innovation process design involving technical development. Respecting and appreciating the social role of the production process leads to the design goal of valuable activities and valuable products - a modest and therefore democratic objective. The possibility to elaborate my own design concept during the thesis was a fulfilling and challenging process. It showed me the known fact that we as designers shouldn't claim the idea of changing or solving problems by only designing an object for that purpose. I'm hoping that I laid a foundation for my future work by designing a method or rather a process which allows people to reflect on problems - we as societies are dealing with - by creating strong social connections during the joy of co-creation. Work, as the production of needs, is still a major part of every day people's lives. It should be respected in the design and production process by giving participants the chance to be self-efficient. I'm hoping to continue my work by elaborating the project-complex further and improve the methodology to communicate and discuss it with other people on an understandable foundation of values and perspectives.

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MAX KERSTEN BOLL Country of origin · Germany Contact · max@bollcloud.de, boll@muthesius.de

Brick n Mortar: A Vision for the future of modern E-commerce

Brick n Mortar is a circular shipping project that provides a sustainable and economically viable solution with great user experience. It involves two stackable boxes with interchangeable interiors and sensors for smart data-based circular infrastructure.

> DESIGNER Ben Wesch Nicolai Roscher

PROJECT Semester project B.A. 04

COUNTRY Germany





↗ Final box with wine

← Delivery on street

DESCRIPTION

The challenges posed by COVID-19 forced us to rethink modern shipping and packaging practices. With e-commerce as the only option for many, we recognised the need for a better unboxing experience, improved safety measures for products, and a reduction in packaging waste. Our solution was to create a feasible circular shipping infrastructure that addressed all of these pain points. Our focus was on developing a circular and economically viable system that incorporated great touchpoint UX, premium looks, and modern IT. Through research, ideation, and testing, we arrived at the concept of a shipping container-like circular parcel as the most viable option.

The Brick n Mortar boxes are a hybrid of an e-commerce shipping container and a Peli case, featuring highend looks. Two box sizes, with interchangeable interiors, were created to accommodate different product sizes, cooling or protective needs, and to provide varied unboxing experiences. The boxes are stackable and filled with sensors to enable a smart, databased circular infrastructure. The exterior is optimized to sustain day-to-day wear and tear and is made from a resilient plastic that can be cleanly recycled in a closed loop.



↗ Big box with shoulder strap





→ Hand box interior

→ Ball bath box interior
PROJECT

2021



↗ Delivering package

The project began with a question about the packaging of sneakers, which led us down the rabbit hole of e-commerce and the unsatisfactory customer experience for high-value items. We also became aware of the disastrous environmental impact of current practices. Working on this project required us to navigate complex ecosystems with a variety of stakeholders and touchpoints. While recognizing the daunting challenges, we designers developed a vision for modern e-commerce that prioritises user experience, protection of goods, and sustainability. The solution will be first tested in the premium sector.





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BEN WESCH Country of origin · Germany Contact · tools.studio@gmail.com Instagram · @benw_id

READYMADE: A living room concept

The exhibition showcases the result of a hands-on design approach, driven by the use of ready-made materials, mainly taken from the field of construction. Interconnected through a rather raw aesthetic, this living room concept gains distance to the idea of cozy living. By breaking down the objects, linked to a typical living room furnishing, into their most basic level of construction, the respective use of each object becomes as deliberate as possible. As a result each individal piece refers to the others in a unified manner, creating a stylised vision of what furniture and living could look like.





DESIGNER Paul Meyer Jesse Jacobsen Jannick Steffen Bent Bischoff Karl Sperhake PROJECT Exhibition at Studio Hoop

COUNTRY Germany

DESCRIPTION

READYMADE is a display by five students from the bachelor's Industrial Design department. The exhibition opened on 29.04. and was on show for two days in the way illustrated. Afterwards it was reconstructed as a window exhibition for five more days.

The centerpieces of the exhibition are the armchair and the couch as well as the coffee table. Both pieces of seating furniture use sand-lime bricks for the armrests. For the chair, a galvanised steel grid is used for the backrest and the seat while for the couch four anodised aluminum tubes function as such. In both objects bricks and metal parts are not permanently connected, since tubes and grids are perfectly fitted into the side parts. For the coffee table, drywall profiles were used to form two identical and interconnected frames. A transluscent twin-wall sheet is used for the tabletop while galvanised cylinder-head screws connect the individual components. For entertainment purposes, the table is equipped with a chess game: a board with a steel frame and acrylic glass tiles, topped off with chess pieces from steel and aluminum tubes. [→]

2022



↗ Speaker



▹ Lamp detail





↗ Lamp small

 $[\rightarrow]$ In addition to these objects a coat rack with corresponding vest and bag makes up the second cluster of the exhibition. For the rack, anodised aluminum profiles are connected via plastic connectors. Dangling from one arm is a reversible vest, with ripstop on one side and insulating blanket on the other. Hanging next to the vest is a small bag, made from two brushed aluminum sheets, bent in shape and affixed with pop rivets. A seat belt functions as the strap.

To light the whole installation we created two standing lamps made from chromated aluminum and teal coloured twin-wall sheets with a LED tube used as the light source. Further on a table lamp accompanied the chess board made from bent aluminum sheets and, once more, twin-wall polyvinylchloride. A tubular table lamp from plastic tubes and acrylic glass was used to light the flyers. To round off the exhibition, four chromated aluminum sheets were connected to form a mirror. Music was provided by a cylindrical bluetooth speaker consisting of an acrylic glass housing and the functional electronic parts.









- ∍ Bag & Vest
- ⊿ Mirror

И

DESIGNER INFORMATION

Paul Meyer · Germany · francke.fuenf@gmail.com Jesse Jacobsen · Germany · jesse.jacobsen@gmx.net Jannick Steffen · Germany · jannick.steffen@mkh-mail.de Bent Bischoff · Germany · bent.bischoff@mkh-mail.de Karl Sperhake · Germany · karl.sperhake@mkh-mail.de

2022

N Chair

In the course of this project we took the opportunity to create an exhibition based on materials, objects and aesthetics we found most interesting and pleasing at the time. While developing the exhibitions concept we embraced a hands-on mentality of designing and manufacturing, which can be traced down to the final layout shown in this publication. Heavily influenced by objects and materials of everyday life, we made the most of a small budget and a limited amount of time.

All in all we are glad that we've created on of the first installments in the city of Kiel, based solely in the field of industrial design. Lastly, we would like to thank Felix Gyamfi, Lasse Heidel and everybody at Studio Hoop for the much appreciated opportunity, the pictures and an all around enjoyable cooperation. Another big thank you to Feline Artz for designing the posters and flyer.

Shoe Short Project: Got Kicks?

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In a five-day challenge, participants are tasked with creating at least five prototypes or sample shoes using everyday items like toothbrushes, tubing, tennis balls, and scrap wood. The main focus is on the shoe's shape, not fancy features. Participants gather interesting materials and document them using knolling, explaining why they're suitable for the project. The shoes need to be wearable and able to stand on their own as one-piece creations. This challenge encourages resourcefulness and creativity, pushing participants to think differently. The prototypes showcase how ordinary items can be transformed into unique shoe designs. This hands-on experience emphasises the connection between materials and design. The resulting collection demonstrates the endless creative possibilities of everyday objects. The goal of this project was to enhance the students' rapid prototyping ability.

SHOE SHORT: GOT KICKS

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Supervised by Prof. Martin Postler, Benjamin Unterluggauer & Jonathan Pohl-Hannemann

































PROJECT



















OUTBLACK_00: "outdoor furniture"

Designing with traditional woodworking techniques and transforming them for use in the present and future could offer solutions for sustainable furniture design. With the idea of combining tradition and industry, a lounge chair made of regional wood for the garden was developed. The oak wood was flamed for outdoor use to make it weather-resistant. In combination with traditional wood connections, a durable and high-quality piece of furniture without chemical additives was created.



DESIGNER Marei Schippmann PROJECT Bachelor's Thesis

COUNTRY Germany

DESCRIPTION

Although we crave relaxation outdoors, most outdoor furniture is uncomfortable, makeshift or poorly made. The demands in the outdoor area are significantly higher. The furniture is exposed to much greater stress from the weather. Plastic and metal are therefore frequently used materials. Wood is used with a chemically treated surface or it is tropical wood. The furniture is not well made and cannot withstand the special demands of the outdoor area for long. They are often susceptible to mould, moss, pests and UV radiation. The furniture is often not properly cared for and instead quickly disposed of and replaced with new garden furniture.

The appreciation of our resources, the manufacturing processes, the manpower and the expertise, as well as the end product should always play a central role in the design. When these factors are considered throughout the design process, the result is a high-quality product that will last and be valued and cared for by its owners. Every detail is important. That was my goal. [\rightarrow]



↓ Finish product outdoor

Burning process



▹ Burning construction





 $[\rightarrow]$ By combining traditional woodworking techniques with industrial manufacturing using CNC and other machines, the solid wood joints could be made easily and quickly. The good properties that the solid wood joints have made it possible to design a durable and stable chair frame that is perfect for outdoor use.

The surface of the furniture has been weatherproofed using an ancient technique in which the wood is flamed. This technique is called Shou Sugi Ban in Japan and was also used earlier in Europe to protect facades and buildings against the weather, pests and fungi. With this technique, the wood carbonises. The cells under the surface condense, making the surface water-repellent. After flaming the wood, fungi and pests have no breeding ground to attach themselves to the wood. Due to these good properties, this traditional wood processing technique is gaining in importance for the industry, especially since no chemical wood protection is needed.

↗ Mood

↗ Detail of joint







> Finished product with gas burner

オ Waterproof

relinquish control.

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MAREI SCHIPPMANN Country of origin · Germany Contact · schippmann.marei@gmail.com Instagram · @marei.schippmann

2022

As a designer, I see myself in a position where I can think about a product from start to finish. I think that's a responsibility to be aware of. Designing furniture, thinking about the manufacturing processes, the workforce, as well as the user and use, right through to reusing or disposing of it is a nice challenge for me. I like to have everything under control. I had to learn over the last few years, and especially in my thesis, that you also have to

The design process was influenced by the manufacturing techniques. The findings from the tests were applied directly and helped shape the appearance. In order to be able to better control the flame, I looked for methods and made many attempts. Ultimately, however, I had to realise that in order to create something new, I sometimes had to relinquish control.

ImPulse: New Paradigm for Pediatric Cardiac Surgery Training

ImPulse establishes a new paradigm for pediatric cardiac surgery training. Currently, the only way for trainee surgeons to practice pediatric surgery is to operate on actual patients. Unfortunately, this exposes patients to unnecessary risk; thus, senior surgeons hesitate to let trainees participate.

Hence there is a need for simulation training modules that pose no threat to patients. ImPulse offers trainees a high-fidelity simulation training module called Janān, simulating the various steps of pediatric cardiac surgery from start to finish in a safe environment that is consistent, repeatable, and uses the same tools and equipment as actual surgery.

> DESIGNER Bashar Zapen

PROJECT Master's Thesis

COUNTRY Palestine ∍ Janān-XRay



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DESCRIPTION

Congenital heart diseases are the most common form of birth deformities that require surgical intervention. Given the nature of infants, pediatric cardiac surgeons need to master their craft and develop advanced psychomotor skills to save such delicate yet complex organs. However, with its opportunity-based education, the current paradigm of surgical training programmes fails to provide trainees with adequate chances to develop those skills. Furthermore, existing training programmes are not feasible to implement in politically and economically constrained areas, making it impossible to establish highly specialised and well-trained local surgical teams.

ImPulse aims to incorporate an easy-to-implement surgical training module [Janān] into pediatric cardiac surgery training programmes by utilising digital imaging and 3D-printing technologies. Operating on Janān enhances surgical trainees' psychomotor skills in a consistent and meaningful way, thus eliminating the reliance on lowrisk patient cases for hands-on training. Trainees can then develop their skills on demand rather than when the opportunity arises. [→]



↗ Internals model

▹ Internals xray



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→ Janān-Model

 $[\rightarrow]$ This is especially advantageous during times such as a pandemic, where practising on live patients is very difficult. Unlike traditional ways of training, trainees can repeatedly practice congenital heart surgery from start to finish with Janān, giving them familiarity and confidence with all steps of the operation. For instance, trainees can cut open and stitch the chest and breastbone, connect the heart to a heart-lung machine (the basis of all open-heart surgery), and perform corrective surgery on the same module. I 3D-printed printed the heart modules in a flexible material that mimics the haptics of natural tissue, which can be cut and stitched like natural hearts. Additionally, it is possible to 3D-print heart modules based on a specific patient's CT scans, allowing surgeons to practice novel procedures that would otherwise pose a significant risk to live patients.







- Ø 01 Cannulation to heart-lung machine
- ↗ 02 Correcting the heart defect
- ↗ 03 Sternum and chest closure

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PROJECT

2022

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pediatric cardiac surgeons.

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BASHAR ZAPEN Country of origin · Palestine Contact · bashar@zapen.design Instagram · @BasharZapen

The project started from an impulse to act and help after the war on Gaza in 2021. The Gaza Strip has the highest prevalence of congenital heart diseases globally yet doesn't have any local

The devastating number of newborns with heart diseases is attributed to the impossible living conditions, lack of necessary medical devices and equipment, and the frequent military assaults they suffer. For those reasons, I designed Janān to be entirely 3D-printed, making it possible to create high-fidelity and high-resolution simulation training modules in economically and politically constrained areas such as the Gaza Strip. I plan to clinically test Janān with my cardiac surgeon contacts in Germany and Tel-Aviv before sending the 3D files to constrained areas. In addition, all design files will be freely published to help surgical trainees worldwide develop their skills.

I believe that designers can help solve our generation's pressing political, humanitarian, and ecological issues by being empathetic, inventive, collaborative, and resourceful. Personally, I'm using design to help establish the first pediatric cardiac surgery team in Gaza with my project, ImPulse, and Janān is my first step towards that goal.

System 400: a diverse furniture system

System 400 is designed as an open furniture system. Not the furniture itself defines what it is – the user does. Due to the open construction and grid, it is possible to build everything from small objects such as a stool to more complex large objects like a wardrobe. This local produced furniture goes against the trend of "fast furniture" and shows a possible integration of a circular economy. The low complexity of the manufacturing process, as well as the integration of recycled materials, allows the democratisation of the created furniture.

> DESIGNER Fynn Stolt

PROJECT Bachelor's Thesis

COUNTRY Germany





- ↗ Wardrobe
- ← Detail parts
- Composition examples



DESCRIPTION

Our available space for new apartments is getting smaller and smaller, and the need for living space is increasing. Our furniture must adapt to this change. At the same time, the number of available resources is shrinking as well. New solutions must deal with these problems and re-establish a more respectful use of them. This also includes what happens to the materials after the end of a product cycle. Materials must be able to be used several times. To achieve this goal, it is important that materials are not "refined" into hazardous waste through pollution.

The System 400 is a diverse furniture system which makes it possible for consumers to create different sized combinations themselves. With this modularity, the furniture can be adapted to the most diverse conditions of the living space. It is also not designed to be a specific kind of furniture like a coffee table, chair or shelf, users are able to convert their furniture into nearly any piece of furniture. Anything is possible, from individual free-standing pieces to a wall-filling drawer. [\rightarrow]

<text>



↗ Construction

 $[\rightarrow]$ Every composition is based on four simple modules: 1X1, 1X2, 1X3 and 2X2. These basic modules are adapted to the desired use with the various add-ons. All modules are assembled using an Allen key and a Torx screwdriver. The body panels are linked via square construction rails, which are equipped with screw-on wedge connectors. The struts are hooked into the construction rails on the back of the composition.

All materials used for the System 400 are built and treated in such a way that they are completely reusable or recyclable. That enables a possible integration into a circular economy, such as Cradle to Cradle. Oiled ash has been used for most parts of the furniture. In addition to the advantage that ash is a locally growing raw material, it improves the room atmosphere with its warming colour. Because ash is a dense hardwood it is very durable and does not become scratched so fast. To loosen up the furniture system are most of the add-on which defines the furniture manufactured out of aluminium. PROJECT

2022

During my school days, I had already developed a passion for design and little by little I realised that furniture was what interested me the most. They are objects that everyone uses, every day, everywhere in the world. My fascination with furniture continued to grow during my studies. Correspondingly, it was clear to me that, like in the previous semesters, I would also want to do a piece of furniture as a thesis project. Since, especially my generation, moves a lot, I wanted to design sustainable furniture that can adapt to these circumstances and does not cling to a use. From this thought, a free system was created which is like a "Lego kit" for a wide variety of applications. In addition, there should also be an outlook on future production philosophies with alternative economic systems such as Cradle to Cradle.

▹ Detail clothes rack



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FYNN STOLT Country of origin · Kiel, Germany Contact · fynnstolt.id@gmail.com Instagram · @fynnstolt

VERSO.: fashion as a medium

By transforming clothing into a communication medium, VERSO. shows the flip side of fast fashion. With the help of image recognition software and a video installation, the garments are covered with visual material that is intended to create an awareness of its own consumption and use of resources. Through their design and materiality, the outfits represent a trend-independent and durable counter-design to fast fashion products.

> DESIGNER Jesse Jacobsen Paul Meyer

PROJECT Regular Interface project

COUNTRY Germany





← Rendering Outfit 02



DESCRIPTION

The VERSO. collection uses garments as a medium to display video material and visuals. Following the project name, these visualisations represent the flip side of the fast fashion industry and its flaws, ranging from dangerously low working conditions to the destruction of the environment.

Through the inseprable relationship between the visualisations shown and the garments transformed into projection surfaces, the connection between the two components is made clear. In this way, the viewer is forced to come to terms with what he sees and reconsiders his own consumer behaviour. In the installation, this is achieved by means of a video projection and a video mapping software.

Outside of the exhibition context preinstalled image recognition software on regular smartphones is used in combination with real-time rendering to map snapshots of the video material onto photos of the the garments. Reflector strips running along the contours serve as tracking markers, which delimit the projection surface and ensure correct three-dimensional mapping.

The individual garments are designed for durability, which is achieved by tear- and abrasion-resistant Cordura fabric and a good processing. Through its simplistic appearance and superior materiality the VERSO. collection represents a trend-independent and long lasting counter-design to fast fashion products.

→ Rendering Outfit 01

PROJECT

2022







↗ Outfit 02 Ground

How can we design clothes and at the same time draw attention to the negative sides of the fashion industry and get people to rethink their consumption? We dealt with this question facing the overarching theme of "Consumption Control" and worked intensively on the design of an alternative and unconventional fashion concept in this project. It was very important to us to produce functional and durable garments, as well as to create an informative, consumer-critical look at the fashionindustry, while at the same time being able to express ourselves creatively.

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PAUL MEYER Country of origin · Germany Contact · francke.fuenf@gmail.com Instagram · @francke.fuenfo

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↗ Outfit 02 Detail

PROJECT

2022



unroll & wrap:

B.A. 01 & 02

During the summer semester in 2022, students of the 1st and 2nd semesters in Industrial Design developed concepts, products and packaging around the topic "unroll & wrap" in cooperation with the company Logo Tape GmbH. The starting point was a new development of a particularly sustainable adhesive tape by the company. For this, a complementary product was sought for the use as well as a new packaging for the adhesive tapes. How is the handling with adhesive tape and what signifies the use of a tape dispenser? Which products, applications and target groups are relevant? What is important for the packaging and the display of tapes? In addition to the conceptual and user-oriented aspects, the focus was on researching sustainable systems and cycles whilst looking at the life cycle of consumer goods. Important key points were the exploration of sustainable product development and production, materiality, packaging and recyclability.

UNROLL & WRAP UNROLL

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PARTICIPANTS

John Feldmann \cdot Richard Worbes \cdot Britta Huck \cdot Hannes Latour \cdot Lena Teuber \cdot Emiel Hutzfeldt \cdot supervised by Meike Beyer & Sebastian Kommer



↗ Foldable tape dispenser open



↗ Tape dispenser

↗ Tape dispenser



PROJECT

2022

↗ Foldable tape dispenser closed

↗ Foldable

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Foldable tape dispenser closing

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↗ ArtTape



↗ Magazine+Dispenser prototypes

Magazine+Dispenser format







↗ Hexagonal dispenser





↗ Final packaging

Packaging prototype

Packaging mockup

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Hexagonal packaging

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Magazine+Dispenser individual parts

ArtTape packing prototypes





New Beach Toys: A beachset rental system in tourist areas

To replace beach toys made of fossil plastic, the work does not want to imitate its conventional shapes, but to look for suitable ones that can be easily repaired. For this purpose, formable parts will be simply connected to a stable element without using glue. The Vulcanfiber material can be moulded after soaking in water and remains in that form when cured.

> DESIGNER Jonas Bendlin

PROJECT

Project

Regular Bachelor's

COUNTRY Germany





- ↗ New Beach Toys detail
- ← New Beach Toys connector > New Beach Toys system



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DESCRIPTION

Tourist consumption is a massive contributor to plastic inputs into oceans. Careless use of beach toys plays a major role in this. The aim of the design is to create a repeatable process that enables the circular use of beach toys in tourist regions. Vacationers should no longer have to purchase beach sets for short-term use. Instead, local kiosks, hotels and restaurants are to become rental stations. A repair station will repair the objects and keep them in circulation.

The completely biodegradable Vulcanfiber is created by pressing cotton and cellulose fibers together. The material becomes mechanically workable when water and heat are added. In the designed process, soaked Vulcanfiber blanks are joined to aluminum tubes by inserting and bending them into moulds and curing them. When worn, the metal elements are to be reused and joined with new blanks in an uncomplicated manner.



New Beach Toys wind chime
New Beach Toys process

» New Beach Toys shovel







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I had great fun encountering this material, which was unknown to me, and learning about the versatile processing possibilities it allows. At the same time, it was very exciting to think about a systematic approach that would contrast with one-time use and contribute to a more conscious approach to beach toys.

PROJECT

2022

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New Beach Toys landing net

▹ New Beach Toys wave



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JONAS BENDLIN Country of origin · Germany Contact · jonas.bendlin@live.de Instagram · @jonas_bendlin

"Parentpass": Reimagining the maternity record in Germany

"Parentpass" is a digital interpretation of the maternity record in Germany, which aims to navigate parents trough prenatal and postpartum care. With a human-centred approach, the solution interprets medical data to provide the users with valuable insights and perspective to the examination results, recommendation during pregnancy, hormonal changes, etc. With the pregnancy progressing, so does the Elternpass.

At first glimpse, the users are presented with the most valuable information, depending on the progress of the pregnancy. This allows for a human approach to difficult situations, such as misscariage, where the app will adapt and provide sources to help parents deal with the difficulty.

Furthermore, the parents will be able to share the experience, as the app provides the ability for partners or other trusted individuals to access the information for the progress and well-being of both the mother and child.



↗ Elternpass Onboarding

DESIGNER Kalina Kondeva Sofia Bulgaria

PROJECT Master's Thesis

COUNTRY Germany





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DESCRIPTION

In the health sector, understanding complex topics and risks is essential for informed decision-making. However, people often struggle to comprehend health-related information presented in a numerical format. This challenge has become more prominent as decision-making in healthcare has shifted towards a shared patient-doctor concept.

The COVID-19 pandemic highlighted the importance of people understanding relevant information to make informed choices. Research conducted during the pandemic demonstrated the impact of risk perception on behaviour and responses. Improving the communication of medical data and risks, particularly for expectant mothers and their partners, requires understanding the elements that affect risk perception and individual interpretations of risk. To enhance the communication of medical data and risks for expectant parents, the concept of the "Mutterpass" (mother's passport) was reimagined as the "Elternpass" (parents' passport) to emphasise inclusivity and shared responsibility.

The logo was redesigned while preserving its emotional attachment and improving its visual elements. The design system of the Elternpass allows for structured information presentation, with consistent patterns and colours that convey the state of an examination while remaining neutral. The system celebrates pregnancy milestones and provides helpful information, sourced from doctors' documentation of examination results and findings. [→]

PROJECT





Design system logo redesign

▹ Design System Illustration





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Header 2 nullam id dolo id nibh ultricies.

Header 3 nullam id d

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Button Label Small

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↗ Design system font

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↗ Elternpass overview

 $[\rightarrow]$ The Elternpass dashboard displays critical medical information such as blood type, pregnancy time, and expected due date. Users can also see upcoming examinations and prepare questions for medical providers. User testing revealed that users perceive prenatal care information chronologically or based on the type of examination, facilitating communication with medical professionals.

The Elternpass includes the NIPT genetic test, which assesses the risk of a genetic condition in the foetus. Information about this test includes helpful questions for discussion before making a decision. Examination results are communicated in person by doctors and then recorded in the Elternpass, ensuring users receive information in the presence of a medical professional. The system provides a perspective on the examination results and offers an overview of subsequent medical procedures to determine the likelihood of a genetic abnormality. Overall, the Elternpass serves as both an informational tool and a pregnancy diary, supporting expectant parents in understanding and navigating their healthcare journey.





▹ Hemoglobin level

PERSONAL STATEMENT

PROJECT

2022



First time pregnancy Target user group 2

User research



designing such strategies.

И

KALINA KONDEVA Website · kalina-kondeva.com Contact · kalinakondeva@gmail.com LinkedIn · Kalina Kondeva

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My master's thesis focuses on the question of how design can translate medical data into human insights, specifically in the context of firsttime pregnancy and prenatal/postpartum care. Understanding the abundance of new and highly medical information during prenatal care can be challenging for individuals. With the digitalisation of healthcare systems, there is an opportunity to design digital solutions that cater to different user perspectives, including patients and doctors. It is crucial to develop risk communication strategies that support active participation, avoiding fear and stress while effectively conveying risks. Considering cognitive risk perception and neurological processes of humans is essential in

My motivation is to utilize research on risk perception as a foundation for reimagining and digitalising the maternity record in Germany. The project approach involved exploring the medical aspects of the topic and delving into the psychology behind risk perception and medical communication. By closely engaging with target users, I could iterate on navigation structures and interface designs, seeking feedback through quick prototypes. The close relationship with users throughout the project played a significant role in shaping key design decisions.

Warleberg Furniture: A set of seating furniture for the city's historical museum Warleberger Hof

The furniture series "Warleberg" consists of three different seating elements: a stool, a bench and a bench with backrest. The museum was interested in simple and long-lasting furniture that would work in any given setting of their exhibitions.

In close collaboration with the museum's director and curator, we developed this simple set of wooden furniture that can be combined to create many different seating situations. In total 14 stools and 14 benches were built to furnish the two exhibition floors.

DESIGER Tjard Tensfeldt Gunnar Kähler

PROJECT Regular Bachelor's Project

COUNTRY Germany





> Bench with backrest



DESCRIPTION

The town museum of Kiel is situated in Dänische Straße in the historical city centre. On the ground and upper floor the museum presents alternating exhibitions on Kiel's history and art history. To add more comfort to the exhibition rooms, the museum was in search for durable seating furniture that fits the character of the building as well as a variety of different exhibition displays. The furniture elements should be flexible and modular, in order to work well in groups, platforms or individually. For their different exhibitions, the museum transforms its space many times throughout the year. This required furniture that is easy to handle and as simple as possible.

We developed a stool that provides seating for the different media and information points. Starting from the stool's dimensions, we then designed a bench with a lower backrest to provide comfort for resting areas inside the exhibition. The lower backrest does not obstruct the visual space and makes it easier to stand up. For rooms with wide open areas and big exhibition pieces, we created a bench without a backrest, practically a wide stool, to complement the series. $[\rightarrow]$



→ Arranging the platform Nickel-plated hex screws



 $[\rightarrow]$ Two benches, placed back-to-back, create the smallest version of a seating platform. In combination with stools and flat benches, the platform can be extended further. We decided to use a three-layer pine board for building the series. This material is rather light and able to take loads in any direction. The top surface sits flush on top of the two legs. The two stringers are positioned slightly inside to create a better grip for picking-up and rearranging. To obtain stability, the rear stringer extends and tilts to create the backrest of the bench. Every piece of the series consists of only five rectangular wooden boards. Eight nickel-plated hex screws are the only visible joints.

three-layer board, fir, coated with white varnish stool: 450 × 450 × 450 bench: 900 × 450 × 745 flat bench: 900 × 450 × 450

PROJECT

2022

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The opportunity to develop a small furniture series was a very exciting task. During the design process, it required us to keep the whole production phase of the product in mind. From our first idea to the finished series it took many iterations to match the museum's needs appropriately. Knowing that the furniture had to work well for a very long time was a bit intimidating at first. But it also helped us to gain a wider view on the requirements of furniture in general.

It was also a new experience to manufacture a whole series of furniture in the workshop. This required thorough planning and tracking of our work to make surethat we could meet the client's schedule and budget. It was great going through this process as a team. Starting from the early ideas that we developed remotely, up until long days in the workshop and finally delivering the completed series to the museum.

> Platform of two benches and two stools



И

TJARD TENSFELDT

Instagram · @tjardt

Country of origin · Germany Contact · tjard.t@gmx.de

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↗ Inside the archive

W.Taxi: AR Head-Up Display for Kiel's Clean Autonomous Water-Taxi System

The city of Kiel is living a public transportation transformation era, in which a reliable water taxi system would cover a lot of the mobility needs nowadays and in the future, particularly if the aim is to respect the citys sustainable vision, as well as its interest in improving its citizens life quality.

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Mobility is a crucial topic when we talk about improving life quality, and one of the aspects that will change massively due to technological innovation and behavioral changes. The ownership of private vehicles will decrease; thus, the combination of multiple modes of transportation will become more prominent in cities.

> DESIGNER PROJECT Abril M. Villanueva Master's Thesis

COUNTRY Mexico







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DESCRIPTION

W.Taxi is the design of an augmented reality headup display for a water taxi in the city of Kiel. Mobility is a crucial topic when we talk about improving life quality, and one of the aspects that will change massively due to technological innovation and behavioural changes.

The ownership of private vehicles will decrease; thus the combination of multiple modes of transportation will become more prominent in the city, therefore the need of a water taxi system.

Showing the pathmaking systhem



The project started as a complement of the project CAPTN Kiel, because until now there have been no watertaxis that offer a more direct and faster way to transport than the ferries. It evolved nevertheless in the creation of a complete new User Interface for a water taxis head-up display. I had a very interesting time reducing the interface as much as possible and that at the same time the user could feel himself safe in the taxi although it is an autonomous system. As a designer from Mexico City, I know that transportation design is a crucial topic for the development of cities, and therefore, it was quite intuitive to design the interface for a water taxi for the city of Kiel, which by now, I consider my second home.





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ABRIL M. VILLANUEVA Country of origin · Mexico Contact · avrila915@gmail.com Instagram · @abril_villanueva_id



View and Ui inside of the Taxi

Writing: Pen Project 01 – 04

Collaborative project on the topic of writing utensils and surface refinement. In the winter semester 2021/22, the Industrial Design students in the 2nd semester dealt intensively with the topic of "WRITING". After initial research, they developed strategies, concepts and products dealing with the following questions: Why, when and in which situations do we write? Where do we put and how do we carry writing utensils? What kind of features, other than writing, could a pen offer? What becomes important when choosing a writing untensil or, in other words, what does a pen tell us about it's owner? Is handwriting the future? In addition to design history, product language and formal aspects, the students also dealt with technological trends, "lifestyles" and "user experiences" or "user interfaces" in order to develop coherent concepts from their findings. Our partners provided expertise on manufacturing processes and techniques.

WRITING: WRITING: WRIT

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supervised by Prof. Dr. Bettina Möllring, Meike Beyer & Sebastian Kommer

Pen Project 01: Flower Power Pen

The Flower Power pen is a pen that can be customised with colour accents. Each pen becomes a very personal pen with the individual colour selection.

> DESIGNER Fenja Charlotte Valentien

PROJECT

Semester Project

COUNTRY Germany





- ↗ Possible combination
 ← Showcasing pens
- Promotional image of variations



DESCRIPTION

and yet each pen becomes personal.

mer, autumn and winter.

interchangeable tip, three interchangeable rings and

interchangeable end piece. The basic pen is silver, the interchangeable parts are selectable in different colour

compositions. Four collections are planned: spring, sum-

end piece for yourself in the colours of the chosen collection. For the summer collection, for example, this could look like this: the tip, the end piece and one ring are red and the two other rings are purple. Or only the tip and the end piece are chosen in red and the rest of the pen is silver. There is a limited choice of colours within the collections

Individualisation works by choosing a collection with the basic pen in silver and combining the rings, tip and

The principle of this pencil can be extended with further limited editions by changing the colour of the basic pen and creating further collections. For example, a basic pen in dark blue and the optional rings, end piece and tip in light blue, light green and dark green. This creates the possibility of developing many more add-on editions.

The Flower Power Pen consists of a base pen with

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The pen project was very exciting because it taught me how important the smallest details are and that even the smallest change can make a huge difference. In addition, although we have all designed a ball pen, we have come up with completely different ideas and pens.

▹ Dissembled pen



Ы

FENJA C. VALENTIEN Country of origin · Germany Contact · fenja.valentien@mkh-mail.de Instagram · @fcv_design

Pen Project 02: Wabi-Sabi Pen

Wabi-Sabi Pen tries to rethink traces of use and the ageing of products. But it is not about finding a new way of dealing with those flaws, it is more about rediscovering a different perspective on the marks that a user leaves.

> DESIGNER Tjard Tensfeldt

PROJECT Semester Project

COUNTRY Germany





DESCRIPTION

Why are so many products thrown away even though they are far away from being broken? This question was the starting point of this project. Often a product is disposed of because it no longer meets people's reauirements. I searched for a way to design a product that changes the relationship between the user and the product. In my case, can I design a pen that is going to be used longer through its design?

Western culture places little value on simple everyday products. That's one of the reasons why products are quickly replaced and not sufficiently used. The Japanese culture of wabi-sabi has a different approach and understanding of the value of products, in which traces of use and ageing increase the value of an object. It was developed by Japanese tea masters as a counter position to the extremely perfectionist Chinese porcelain. I wanted to transfer this idea to a modern writing instrument and design a pen that promoted this attitude. $[\rightarrow]$

PROJECT

2022

The Wabi-Sabi pen was particularly interesting for me because it was very interesting to develop a pen that refers to this old philosophy and yet does not look traditional. The special thing about this concept is that there is another level besides the product. The pen should change people's attitude towards their products. I don't really know if the pen really has the potential to convince people of the value an aged and used product. But dealing with this philosophy helped me see traces of use as something beautiful and positive.

> New and after many years



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TJARD TENSFELDT Country of origin · Germany Contact · Tjard.t@gmx.de Instagram · @tjardt

 $[\rightarrow]$ To do so, I started looking for things where this thought already exists in our culture. One example are leather bags. Many people appreciate leather because of the ageing process and the way it looks and feels after being used for many years. I tried to transfer this principal to brass, which was the material I wanted to use for the pen. On bronze statues you can see the effect I imagined for my writing instrument very well. They become darker and develop a patina over time, but then they are polished again in the places where they are touched a lot. Thus, they show the use and give information how and where they were touched. These traces of use have the chance to build a connection between the user and the object.

Pen Project 03: cross-sections

With this idea I wanted to find a new shape; a shape that does not have a round cross-section. The pen should stay in place without a clip and not roll away. The new shape fits comfortably in the hand and attracts attention with its special appearance. The new cross-sections, a drop shape and a flattened shape offer many possibilities to grip the pen.

> DESIGNER Verena Walter

PROJECT Semester Project

COUNTRY Germany



← On table



DESCRIPTION

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A large part of pens that are available on the market have a cylindrical shape and a circular cross-section. Good for writing and certainly easy to produce. But wouldn't it be possible to find a shape that fits just as well in the hand? Maybe even better? And with a more interesting shape? I worked with different materials to try out different shapes. With wax, both the cross-section and the shape were easy to manipulate. In addition to wax, I also worked with wood. I used round wood as a basis to start from a round cross-section and cylindrical shape.

The blanks I used had diameters similar to common pen models (10 to 13 mm). I tried to create as many different shapes as possible. Flattenings, roundings or indentations in different places or even over the entire length. I also experimented with other basic shapes, such as a square cross-section. After testing many different shapes and cross-sections, it was clear which were comfortable to hold and which were not. Concepts that did not rely on a round cross-section were also discarded, as these could not have been produced on a lathe. $[\rightarrow]$

> In hand



During the concept phase it was good to try out a lot of things first, to create many models without having a finished product in mind. It was a good feeling to be able to decide at the end of this phase what I would like to continue working on. Or, what was good to try out, but I could not implement with my means. The next steps were further characterised by many new models, but now in finer steps to work out the details. Unfortunately, there were always ideas that did not work out and had to be changed again. In addition, there were ideas that did work, but where I had to go several steps back to improve the details. In hindsight, though, that's probably what will shape me for future projects. To keep working, to try new things. In addition, the support from the collaboration partner was a very valuable experience. Especially regarding all questions about the manufacturing process and the feasibility of different ideas.

> $[\rightarrow]$ It quickly became clear that it was not necessary to deviate too much from the traditional shape in order to improve aesthetics and comfort. Therefore I settled on a flattened cylindrical cross-section and a drop-shaped cross-section as my choices for the concept. They are very comfortable to hold and there are many different ways to hold the pen. The shape is simple and reduced. The pen rests impressively on the table without rolling away. Another important design challenge was the development of the rotating mechanism. After many iterations, I came up with the idea of splitting the pen in half along its length. To twist out the lead, the pen is rotated 180° within itself. As a result, the model sits well in your hand, especially when writing, as the now twisted shape suits both fingers and hand.

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VERENA WALTER Country of origin · Germany Instagram · @v.renawalter

Pen Project 04: The Glass Pen

The glass pen is a pen that is made of glass. Glass in combination with a brass core. Glass as the main material of the pen is different to usual materials like metal or synthetic substances. I wanted a material that shows a high quality and is good looking. The design of the pen is a mixture of transparency and colour. The handling part is special because of the satined surface.

There are different versions and templates of the handling part. The colored core of brass gets a different effect behind the satined and nonsatined glass. Thin rings of pure brass complete the glass pen.

> DESIGNER Janne Marie Klass

PROJECT Semester Project

COUNTRY Germany

Satined glass pieces





↗ Acrylic model



DESCRIPTION

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The project was a cooperation with a company. The task was to create, design and develop a writing implement. At the beginning of the project I tried to find an interesting material to work with. A material that has a high quality. Glass fixed me because of its transparent appearance. Also because of its connection between the light and the material. I started to work with acrylic glass and combined it with different metallic pipes. I made some experiments with acrylic glass and tried to create different versions and textures. When I finished my experiments with the acrylic glass I tried to work with glass tubes. I worked together with a professional glassblower. The glassblower cut the glass tubes to the correct length. I also worked in close cooperation with the company. [→]

The project was a very nice experience. I learned a lot about a design process. From the beginning of the idea and the development of the design. I learned how important communication is and how to work with frustrations. The process taught me to make small steps to reach the goals. And to return sometimes. But I really liked the development and the result of the project.

[→] They had the professional abilities to colour metallic surfaces. They made the brass core of the glass pen and colored it. Thy also made some thin rings of pure brass as a detail. I made some experiments with the surface of the glass. I sanded the handling parts for the glass pen. I also patterned some of the glass parts. The composition of the glass pen consists of the coloured brass core, of the part of transparent clear glass and the shorter handling part that is satined. Also the detail brass rings belong. There are different versions and combinations of the handling parts with patterned surfaces and the coloured brass cores.





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JANNE MARIE KLASS Country of origin · Germany Contact · janne.klass@mkh-mail.de Instagram · @jmk_idesign

> Glass pen detail
 → Three different combinations

A: Incube / B: Morgenblanks

What if the products and materials were grown by biological organisms? Incube is an innovative incubator adapted to the specific climatic requirements of the fungus. The goal of the project is to allow the user to experimentally explore the diversity of mycelia in order to open up new areas of application for the design.

Morgenblanks: growing organisms open up new use scenarios, while biological production processes replace conventional ones. The mycelium is a versatile fungal material and is similar to rigid polystyrene foam (EPS) in some of its properties and is fully compostable. Morgenblanks is a showcase example to open the view for new application possibilities of the organic material.

DESIGNERPROJECTPeer KohlmorgenBachelor's Thesis

COUNTRY Germany

∧ Material sample

A INCUBE

An incubator to control the growth process and shape of myzelium to create new objects for tomorrow manufacturing.

B MORGENBLANKS

Morgenblanks is a fungi-based (mycelium) hard foam, which is suitable as a substitute material in surfboard manufacturing.



DESCRIPTION

The project related theory work deals with ecology and sustainability within surfboard manufacturing. Thereby a deeper insight into the surf culture and its ambivalence to the surf equipment was illuminated. The competences of new materials were also elaborated as a subject area in which fungal mycelium could play a pioneering role.

Since the post-war period, in the early 1960s, synthetic materials were used as substitute materials in the production of surfboards, replacing wood as the material for surfboards.

Since then, PU foam core and petroleum-based fibreglass surfboards have captured most of the market, accounting for 90% of commercial production. Till now practically nothing has changed in terms of materiality. Nowadays, an average recreational surfer* consumes two to three PU surfboards per year, making the surfboard similar to a disposable item or other mass consumer goods. Highly toxic materials are used in surfboard manufacturing that are not only toxic to nature, but also to those who work with them. The end consumer is not aware of these up-stream problems due to a lack of transparency. [→] PROJECT



→ Incubator





» Flat fibre mycelium rigid foam

PROJECT

2022

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↗ Mycelium Surfboard

 $[\rightarrow]$ The project uses mycelium – the root system of fungi - as product material. The fungal spores, which are added to an organic mixture, for example algae or sawdust, grow together into a stable net within 5 - 10 days. With this, any shapes can be filled and designed.

Since the organic material is sensitive to contamination, it is important to work cleanly and disinfect the working environment. During the process I realised the Incubator - Incube - was designed to understand the growing process and help and ease the manufacturing process.

insight for me.

The task of the product and the material is not only functional, but also communicative and symbolic. Accordingly, an important component of the material revolution is the greatest transparency, which communicate the transformation of production and new materials. On a meta-level, the surfboard here is a carrier of the sacred relic. a symbolic message of the paradigm shift from synthetic back to natural and environmentally friendly materials.

I hope that my continuing work will build on my previous work to find new ways to open up prospects for living organisms in product manufacturing to be used in innovative ways. The goal here is to increasingly use the fungus-based material as a substitute material for synthetic materials and to increase social acceptance.

И

PEER KOHLMORGEN Country of origin · Germany Contact · peer_k@gmx.de Instagram · @peerkohlmorgen @morgenshapes



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Having the chance to choose and deepen my own design theme was very fulfilling and challenging at the same time. It showed me that you can combine hobby and profession and it is motivating to go further than before. This was helpful for working with organic living materials as it requires a lot of trial and error and that can be very frustrating. The perspective of not seeing a failure as a failure, but as partial successes and added value was a helpful

Dolgo: The Circular Economy Simulator

Dolgo is a Circular Economy simulator for testing products to find out if the product will work in sustainable consumption. Through the form of the game, Dolgo enables a collection of diverse approaches from people on Circular Economy.

> DESIGNER Hansol Kim

PROJECT Master's Thesis

COUNTRY Korea





> Circular Economy Simulator Dolgo

← World environments are giving obsctacle for collecting materials

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2022

DESCRIPTION

On the board game, players show their strategy to win in different ways, which comes from their diverse backgrounds and personalities. It's an enjoyable, approachable way to research our consumption. Dolgo is a tool for businesses who want to bring their sustainable products. In the game, players try to make four Product Cards to win. Once a player has travelled through the game world and has attained enough Material Cards to get a Product Card, they need to deliver the product to the city.

Nature elements make obstacles for movement. Product Lifetime causes players to lose their Product Cards after time. To avoid these, different Strategy Cards give opportunities to extend Lifetime or recycle Dump Cards, or lose fewer Material Cards after Lifetime.



» Make an circular economical strategy through a game format



> Travel around the world to collect raw materials for your product



Simulate how your product material effects the market and environment



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HANSOL KIM Country of origin · Korea Contact · hansoriktm@naver.com Instagram · @hansoriktm

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PROJECT

Through my degree project Dolgo, I aimed to make a social interest for the Circular Economy, which opens up a discussion between people about our sustainable consumption, but in an

Technomorph: Modular store fitting system

Liam Statz and Arvid Riemeyer met during their industrial design studies. The idea of a modular small-scale scaffolding system for store fittings emerged from their studies. In essence, they are concerned with the sustainable adaptability of the system to the fast-paced nature of the fashion industry.

From planning to implementation, Geba.motec provides the basis for a sustainable sales floor with their furnishing system. With the small scale scaffolding system specially developed by Geba.motec, store areas can be equipped perfectly tailored.

With the presence of the system on the sales floor, the store is additionally enriched with the values of Geba.motec: sustainability through adaptability and durability. The system is designed for independent conversion of the store staff and can thus be quickly reconfigured for promotions and seasons.

> DESIGNER Arvid Riemeyer Liam Statz

PROJECT Bachelor's Thesis

COUNTRY Germany



200

DESCRIPTION

Technomorph is a modular framework system that can be understood as a kit. Consisting of standardised profile bars and minimal connector elements, it allows the construction of objects of various sizes: from furniture, to social places, to architectural structures. The assembly can be done with simple tools, allowing a collaborative creation of structures – a process in which the creativity of the users is challenged. The system, as a substructure for different scenarios, offers the possibility to integrate further materials (sheet materials etc.) and, after the need has passed, to reintegrate them into their primal cycle. Design-wise, as well as technically, the project takes its origin from traditional scaffolding.

This impression is intended to stimulate a new understanding of furniture, interiors and places in terms of their lifespan and changeability – and therefore to (re) fuel the question of contemporary design. The project has its origin in the collaboration with the Hamburg sneaker and streetware store "Allike Store". The aim was to design a new sustainable store interior. In the course of the project, our system was extended to other areas, which work independently from an economic context. To understand the applicability and to put it in a specific scenario, we explain the innovation of our bachelor's project based on the implementation with our cooperation partner: in this case, Technomorph becomes a sustainable furnishing system that can adapt to the fast pace of the fashion industry (fast fashion) without always consuming new resources. [→]





> Detail of connection
 ← Showing strengh



Detail photo of connector



PROJECT



↗ Armchair



↗ GebaScreen design

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▹ Large structure in environment



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 $[\rightarrow]$ A system of standardised, perforated profile bars and connector elements guarantees modular adaptation to current trends and easy reconfiguration by store personnel. The system does not push itself into the foreground but forms a frame for the goods to be presented and thus remains timeless. Decorative elements, which a trend needs to charge the goods with a message, can be easily integrated into the system. Ideally, objects from industry are used for these adaptable elements (building materials), which are returned to their original purpose after their relevance on the store floor has expired.

This brings us to the core of the theoretical background of this project: by integrating unfamiliar objects in the consumer space (decontextualisation), the consumer experiences a moment of irritation, which can serve as a source of inspiration. This clearly shows the existing relevance of offline markets compared to online retail. Retail spaces in the fashion industry are no longer places for the largest possible sale of goods, but rather places of inspiration and exchange within subcultures. Online retail cannot cover these factors in the same way.

Larger fashion brands thus focus more on extravagant and resource-consuming appearances in stationary retail. Thus, the interior becomes a part of the collection and is replaced with the next trend. Technomorph manages to meet the needs of the fashion industry in a sustainable way. It builds a bridge between conventional, unchanging store interiors and modern, trend-adapting concept stores and manages to combine sustainability with extravagance.

Our Technomorph project has been an exciting journey of creativity, exploration, and self-reflection. From the outset, we were fascinated by the concept of a modular framework system that empowers users to build objects of various sizes, from furniture to architectural structures. We took great pride in creating a kit that encourages collaboration and sparks creativity. As we worked with our hands, connecting the profile bars and minimal connectors, we were constantly amazed at the diverse forms that emerged. [→] [→] Technomorph challenged our preconceived notions of design, encouraging us to think about furniture, interiors, and places in a more dynamic and adaptable way. The project allowed us to reflect on the impact our designs had on the spaces they occupied, fostering collaboration and transforming ordinary environments into vibrant, interactive spaces. Taking on our first major project as a team, we were pleasantly surprised by its magnitude and scope.

Planning and executing such a comprehensive assignment taught us invaluable lessons and equipped us with a wealth of knowledge for future endeavors or venturing into entrepreneurship within this field. It has opened up exciting possibilities, providing us with a strong foundation to draw upon for upcoming jobs or pursuing independent ventures.

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2022

PROJECT

ARVID RIEMEYER & LIAM STATZ Website · geba-motec.com Mail · hello@geba-motec.com Instagram · @geba.motec

ROOTMAP: A Tool for Tree Root-Friendly Excavation

Rootmap is a tool for construction workers, enabling excavation near a tree without hurting its sensitive roots. The projector-system visualises the roots of a tree by projecting them on the ground. Robust materials and easy-to-use controls make it suitable for work on construction sites.

> DESIGNER Erik Mantz-Hansen

PROJECT Master's Thesis

COUNTRY Germany





Construction workers use the design

← Device in case

> Context of opened street



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DESCRIPTION

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Construction sites pose a great hazard to trees in the city. Especially the underground tree roots are at risk of being accidentally damaged, with fatal consequences for the tree. Rootmap is a projector-system that visualises the roots of a tree on construction sites by projecting them on the ground. The projection is based on a 3D-scan of the root network produced by ground-penetrating radar.

The system detects the depth of the roots and signals when a root is close to the surface by marking it red. The projector consists of a laser projector, depth cameras and GPS-sensors that automatically align the position of the projector with the correct root network 3D model. The projector is attached to the trees through mounting-plates. A quick-release mechanism enables fast relocation of the projector from tree to tree during excavation.





↗ Device in hand

PERSONAL STATEMENT

As nature has been a peripheral topic to most of my projects, I wanted to dedicate my master's thesis to trees in the city. I had the opportunity to witness experts at work, utilising advanced techniques and technology to realise construction in harmony with the adjacent trees. The findings of those excursions were a great inspiration to this project.

PROJECT

2022

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Attaching to the location

→ Explosion of attachment

> Details of attachment mechanism



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ERIK MANTZ-HANSEN Country of origin · Germany Website · www.mantz-hansen.com Instagram · @emhid









Air Supply

Milan Design Week:

An exhibition showcasing the creations of 16 students from MuID, the Industrial Design Department of the Muthesius University of Fine Arts and Design in Kiel, Germany, presents innovative consumer products like luggage, lighting, apparel, and infrastructure, all constructed primarily using air as the main material.

The exhibition challenges conventional expectations regarding materiality, weight, rigidity, and function of products, aiming to strike a balance between daily use, open production processes, and the fine line between mass consumption and individuality. Curated by Martin Poster and Benjamin Unterluggauer, with the students' active participation, the project builds upon the collaboration between Benjamin Unterluggauer and the Museum of Kunst und Gewerbe in Hamburg

AIR SUPPLY AIR SUPPLY A

N

PARTICIPANTS

Jannick Steffen · Tjard Tensfeldt · Ben Wesch
216



Exhibition room in Alcova



> The exhibit is presented inside MOKIT frames











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↗ D

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EXHIBITION







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7 |



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- A Chair with inflatable cushioning
- B Structure of inflated garment
- ↗ C Array of inflated lamps
- ↗ D Inflatable Luggage bag
- ↗ E Welded structure filled with algae
- ↗ F Detail of material combinations
- ↗ G Interconnected structures
- H Inflated structure to hold onto log
- I Individual hanging lights
- ↗ J Pipe controlled by air pressure
- ↗ K Light diffusion using welded patterns



↗ Room for exhibition



▹ Detail of connection







Presentation of information on exhibits
Detail of light inside of lamp

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Allike Store: Modular Store Fittings

Liam Statz and Arvid Riemeyer met during their industrial design studies. The idea of a modular small-scale scaffolding system for store fittings emerged from their studies. In essence, they are concerned with the sustainable adaptability of the system to the fast-paced nature of the fashion industry. From planning to implementation, Geba.motec provides the basis for a sustainable sales floor with their furnishing system. With the small scale scaffolding system specially developed by Geba.motec, store areas can be equipped perfectly tailored. With the presence of the system on the sales floor, the store is additionally enriched with the values of Geba.motec: sustainability through adaptability and durability. The system is designed for independent conversion of the store staff and can thus be quickly reconfigured for promotions and seasons.

ALLIKE STORE ALLIKE STC

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ARVID RIEMEYER & LIAM STATZ Website · geba-motec.com Mail · hello@geba-motec.com Instagram · @geba.motec

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↗ Shelf



↗ Lamp

▹ Side table









- y Hanger in context
- ↑ The Store





↗ Shoe on shelf





→ Hanger in context



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Academic staff Design Studies – Design Research: Prof. Dr. Annika Frye Foundation: Prof. Dr. Bettina Möllring Bachelor's: Prof. Martin Postler Medical Design Master's: Prof. Detlef Rhein Interface Design Master's: Prof. Frank Jacob

Sustainability Lab

Application

Find all relevant information under: studieninfo@muthesius.de

Or contact our office for student affairs under: Bachelor's Affairs Tel 0431 5198-404 Master's Affairs Tel 0431 5198-500

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Coordination Sina Kähler Eliza Rottengatter

Dr. Kerstin Meyer

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