



DESIGN PORTFOLIO




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Welcome to my portfolio. My name is Timon Staal and I am a young and driven industrial design student who likes to be challenged. I'm energetic and enjoy looking for the best solution in creative problem solving, product development, concept design, innovation and engineering. My approach has a balanced mix of functional, aesthetical and technical focus.

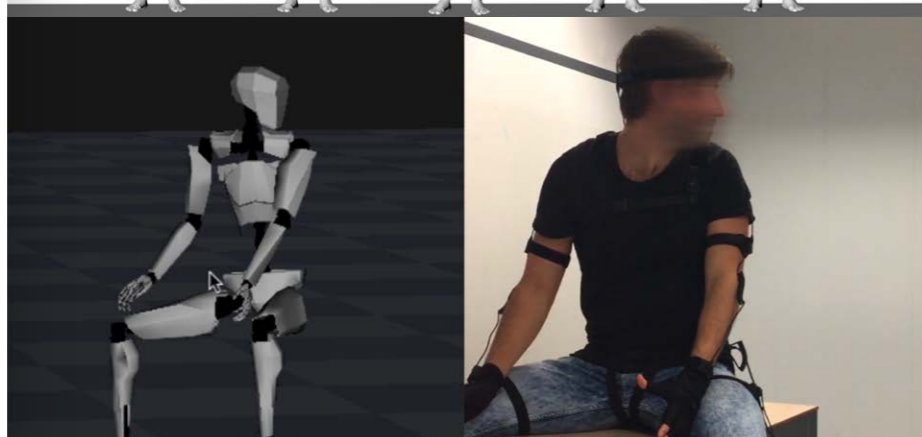
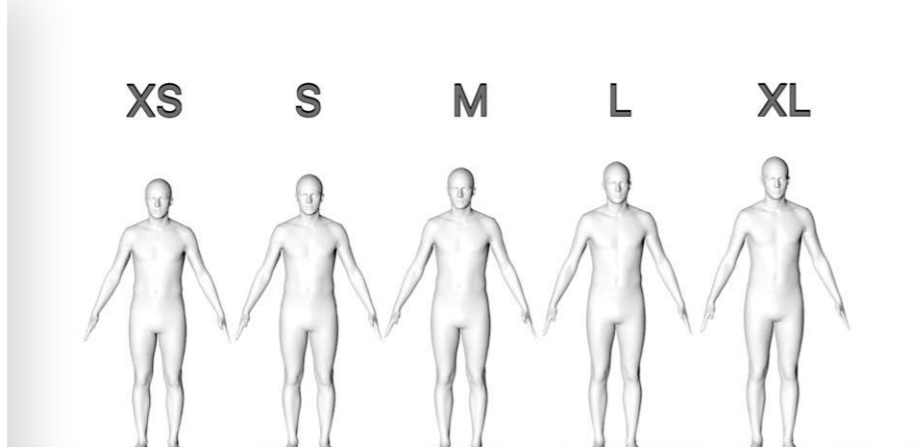
This portfolio contains work from the projects I have performed over the past few years. I hope you enjoy.

Photoshop	Rhino
Illustrator	Cinema 4D
Indesign	Clo 3D
Muse	Keyshot
After Effects	Corel Painter
Premiere Pro	Axure RP
Solidworks	

01.

SRFACE Wetsuit

This project resulted in a new methodology for the design of wetsuits. It incorporates a new approach in designing for a population using 3D anthropometric data. It enables designers to assess the fit and performance of their product digitally with stress and strain simulations. This will reduce the time and money spent on physical prototypes. The methodology is validated through the creation of a physical prototype



Mannequin Creation

The scans of more than 1800 European individuals have been filtered and classified into sizing groups. This resulted in the creation of digital mannequins that represent average body types for specific wetsuit sizes. These mannequins could then be used as basis for the creation of wetsuit patterns and digitally assessing the fit without the use of a physical prototype.

Motion Tracking

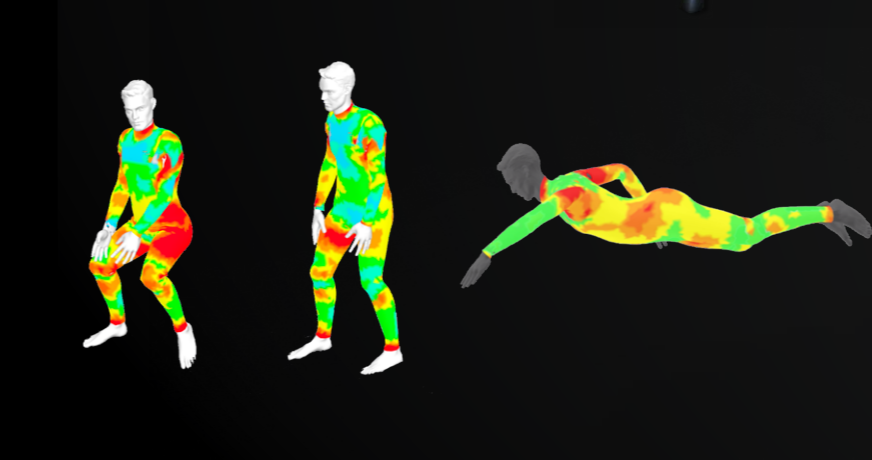
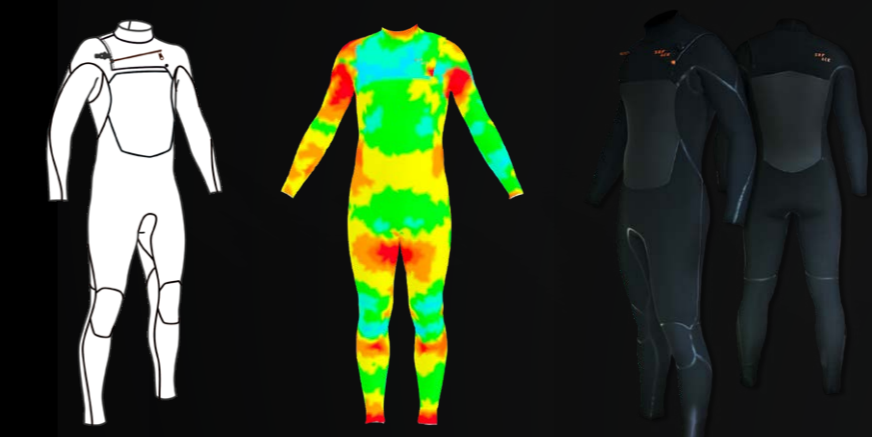
Motion tracking has been used with the purpose of digitizing the surfmotions. This experiment has been performed with the MoCap motion track suit. This suit is able to capture motions as a digital animated rig. The resulting rig animation can be applied to any human model regardless of the size. This makes it perfect to incorporate into a mannequin based design method.

Rigging & Animation

Rigging is the process of creating a bone structure for a 3D model. This structure can then be used to manipulate a 3D model and create animations. For the design of a wetsuit it will enable the designer to manipulate the positioning of the limbs to digitally test the performance of the panels inside a garment.

The Prototype

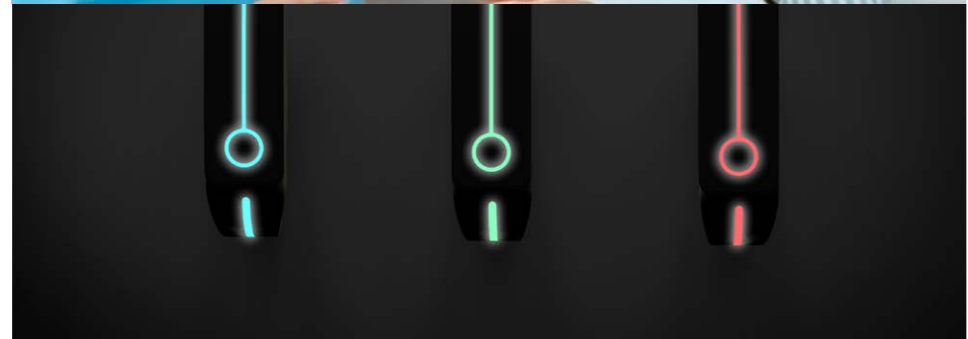
A physical prototype has been created of a M50 wetsuit pattern using the 3D mannequins. The pattern created for this project is created by a master student with no prior knowledge and experience in pattern creation. The dynamic and static fit of the pattern is fully optimized using the surfing animations of the mannequins. The physical comfort of the result shows the potential of the 3D design workflow and its ability to generate accurate patterns.



02.

The Companion

The companion is a monitoring system for elderly people within a health care facility (from hospital to carehomes). It monitors the vital functions of the clients and is able to detect a fall or stumble. When an irregularity is detected, the bracelet will automatically notify the nurse with the location of the patient. The pulsating lights on the bracelet are designed to calm the patient and let them know that help is on the way.



The Problem

Elderly are afraid of hurting themselves when unsupervised by hospital personnel. This fear causes the patient to become less mobile, which has a negative impact on their mental and physical health and can further extend their hospital stay. Furthermore, nurses have a huge workload and little time for interaction with the patient.

The Solution

The bracelet will contact the nurse when the patient falls, stumbles or has any vitals which exceed normal levels. In case the Companion did not sense the need for assistance the patient can manually press the button to call for help.

Encouragement

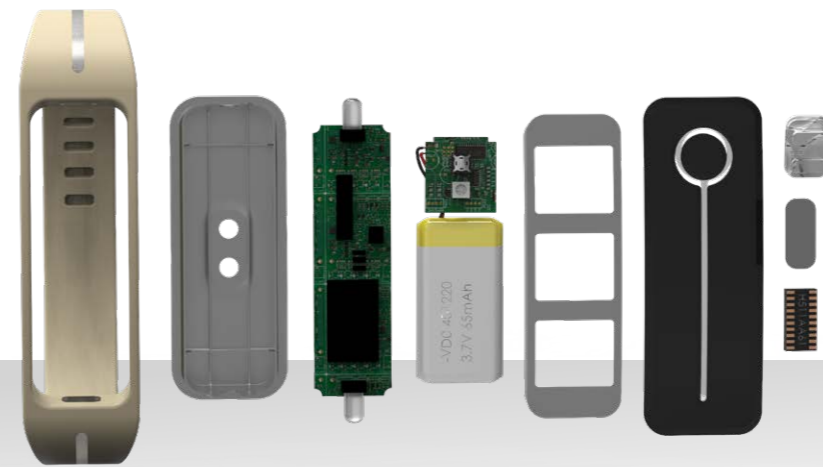
With a direct connection to a nurse every hour of the day the patients will become encouraged to walk around. A nurse will always be a couple of minutes away when something happens.

The Feedback

The system can distinguish between different levels of emergency. The different light colors serve as indication on the status of the nurse. Having direct feedback on the assistive action of the nurse the patient can feel reassured that the nurse is on her way.

The Design

The Companion bracelet is a modular system consisting of both a strap and a monitoring unit. This opens up personalization options for the users. The Straps are available in different colors. This also makes it easier to replace the strap when it wears down after long usage.



03.

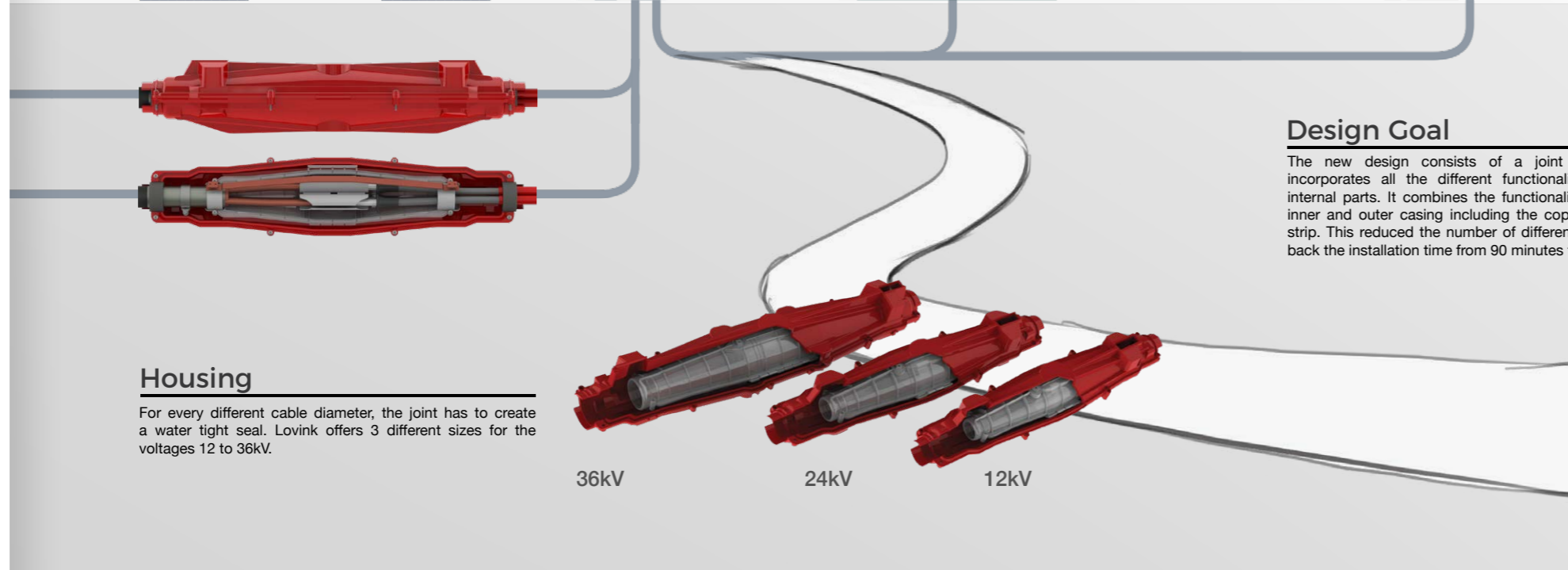
Next Gen Cable Joint

This project concerns a new cable joint design that protects the underground energy transfers up till 36kV. The joint incorporates many functionalities to ensure that it can withstand water, chemicals, heat and voltage peaks. Due to the confidentiality agreement the new cable joint is not shown on these pages. The design shown here is the current Lovink cable joint.



The Proces

The process consisted of 5 steps. First a thorough research has been performed into the current product, the market, and the functionality of all the different components. With this information new ideas emerged that contributed to the different design challenges. In the conceptualization phase these ideas were then combined to form different concepts. The next step was to design and model the new final concept. The last step performed in this project is the build of a prototype through 3D printing.

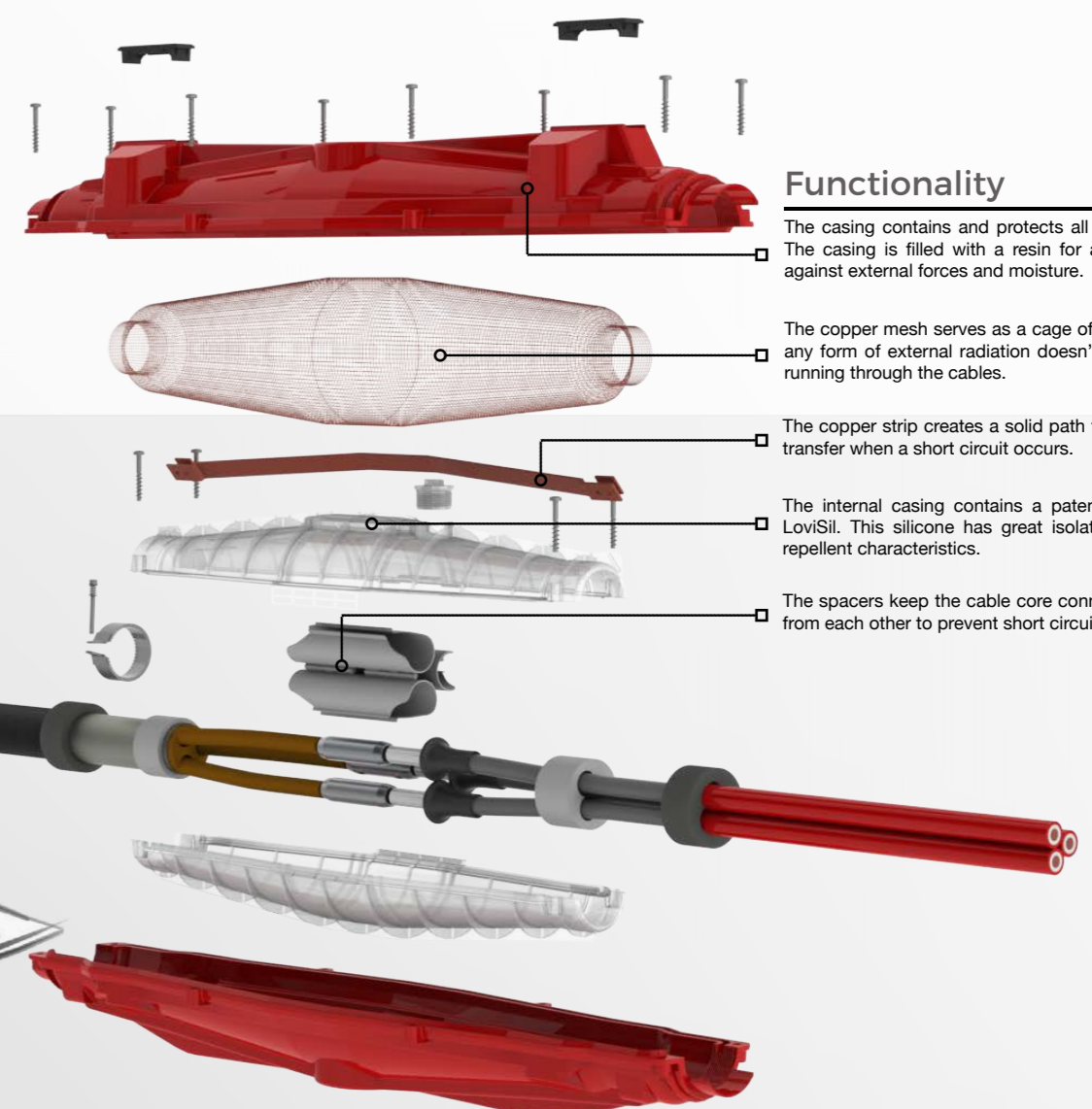


Housing

For every different cable diameter, the joint has to create a water tight seal. Lovink offers 3 different sizes for the voltages 12 to 36kV.

Design Goal

The new design consists of a joint housing that incorporates all the different functionalities from the internal parts. It combines the functionality of both the inner and outer casing including the copper mesh and strip. This reduced the number of different parts cutting back the installation time from 90 minutes to 30 minutes.



Functionality

The casing contains and protects all the internal components. The casing is filled with a resin for a high level of protection against external forces and moisture.

The copper mesh serves as a cage of faraday that ensures that any form of external radiation doesn't interfere with the power running through the cables.

The copper strip creates a solid path that ensures a safe power transfer when a short circuit occurs.

The internal casing contains a patented liquid silicone called LoviSil. This silicone has great isolation properties and water repellent characteristics.

The spacers keep the cable core connectors at a safe distance from each other to prevent short circuit.

04.

Zen Vinyl Stand

Our daily life has become so rapid that people don't stop and appreciate all the steps that add to a daily ritual. This product aims to aid people in appreciating the ritual of listening to vinyl and every step that is involved.

The method behind this design is influenced by the ZEN design method. This method focusses on enhancing the experience of a ritual by looking at missing qualities or useful additions to a ritual. This differs from the regular design thinking approach which revolves around efficiency and ease of use.

Functionality

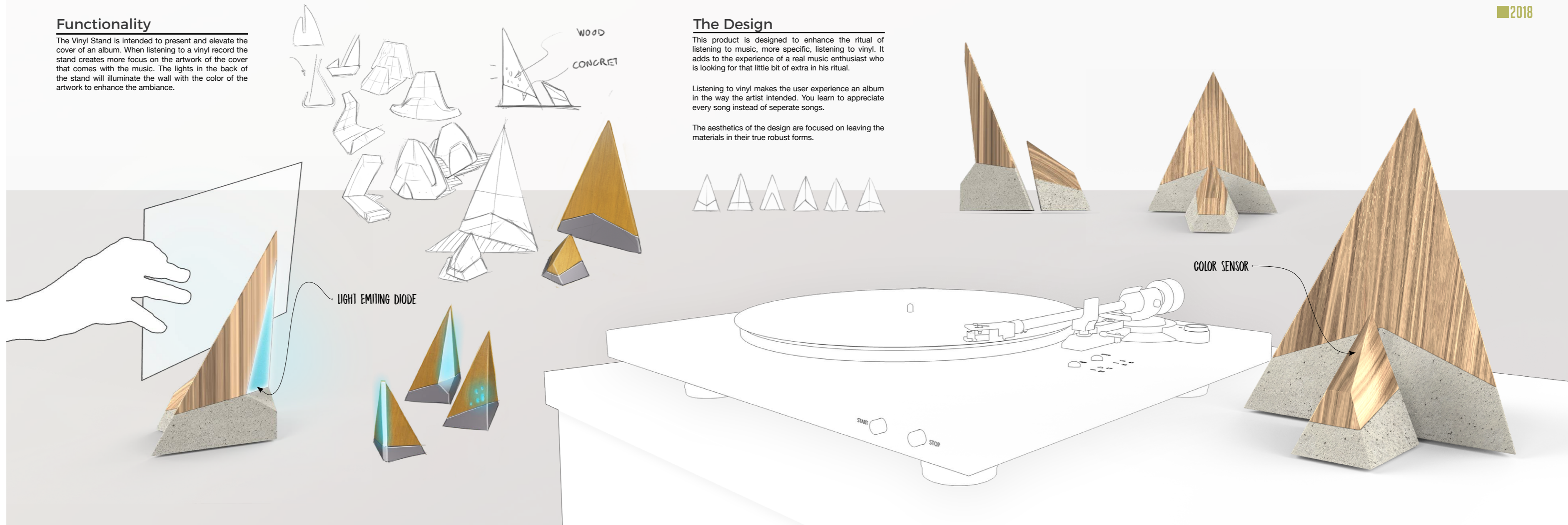
The Vinyl Stand is intended to present and elevate the cover of an album. When listening to a vinyl record the stand creates more focus on the artwork of the cover that comes with the music. The lights in the back of the stand will illuminate the wall with the color of the artwork to enhance the ambiance.

The Design

This product is designed to enhance the ritual of listening to music, more specific, listening to vinyl. It adds to the experience of a real music enthusiast who is looking for that little bit of extra in his ritual.

Listening to vinyl makes the user experience an album in the way the artist intended. You learn to appreciate every song instead of seperate songs.

The aesthetics of the design are focused on leaving the materials in their true robust forms.



05.

The Precision Bass

This Bass guitar prototype gives a new meaning to road-worn design. It is built after the first designs of the famous brand Fender. Since the invention of the bass guitar Fender has been selling their highly popular Precision Bassguitar. Although the market is full of new designs, people still crave for that vintage revolutionary sound from back in the 50s. The same goes for the looks. Guitars and bass guitars are sold with scratches and dents for that old 'Road-worn' look that everybody loves.

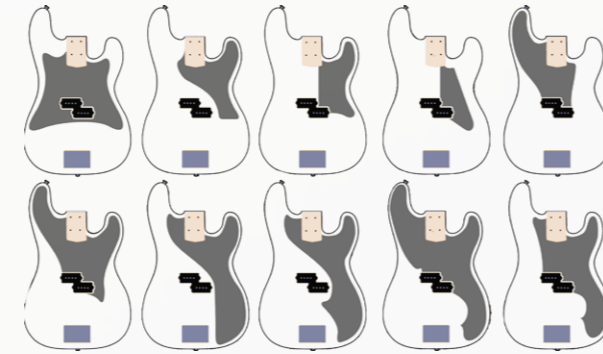
The Design

This new design introduces a new rusty look on a copper scratch plate and vintage bridge cover. The colors that emerge in deteriorating copper are truly stunning and are complimented by a dark blue body finish.

The Neck is made out of Wenge. This special wood has a high stiffness and requires no finish. This creates a dark matte look that is unique in its kind, although still keeping its vintage appearance through its shape.



#B29050 #FFE6C6 #FFDC8B #FFDC8B #FFDC8B



06.

SIMBA Webpage

This project involves the design of an informative website for SIMBA. SIMBA is a non-profit organization, with the goal to support health care facilities in Africa to help them maintain and improve their level of care for the most vulnerable groups. It was founded by former health care volunteers from The Netherlands, who used to live and work in a mission Hospital in Tanzania and is presently still run by volunteers.



07.

Tablet drawing

On these pages you can find some of my drawings created during the drawing courses in my bachelor and master program. The main focus of these courses is creating communicative drawings of complex shapes. Perspective, lighting and material communication has been practiced within these drawings.

