Portfolio 2023

Pepijn Huis in ‘t Veld

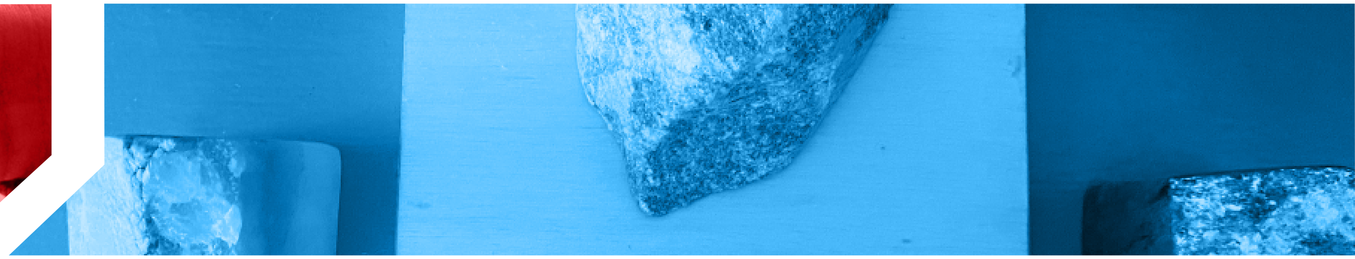
Introduction

Graduation

Mechanical & System

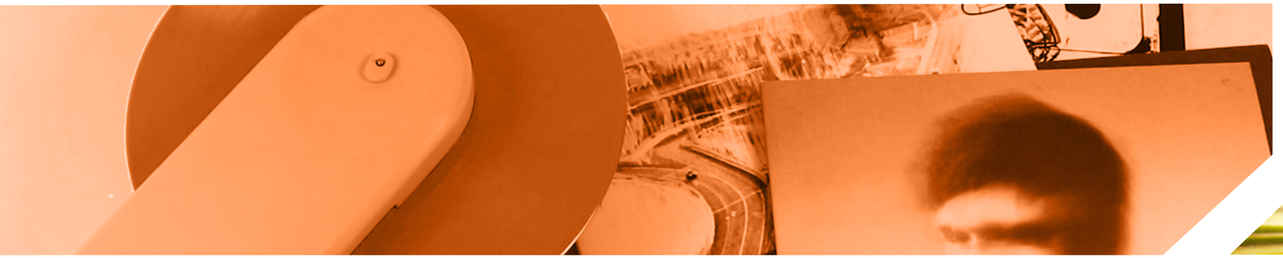
Design Competition

Design & Software



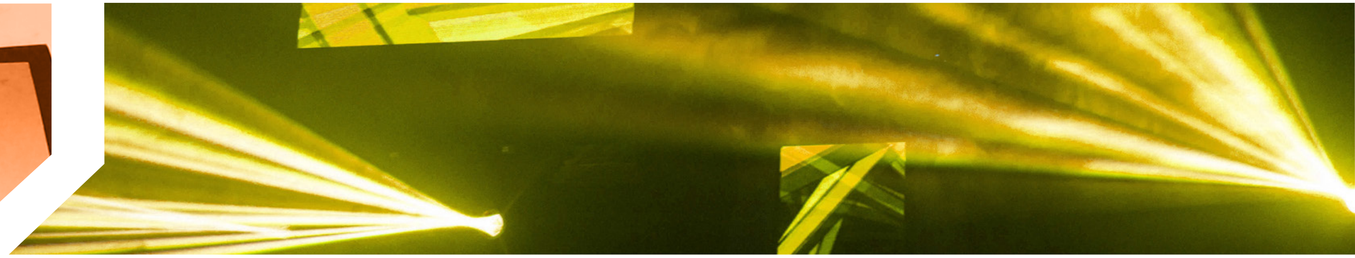
Record Cleaner

Embodiment & Electronics



IO Festival

Event light & stage design



Introduction

As a designer I strive to make the abstract physical, as rapid as possible. I do this by building prototypes from an early stage on. I'm convinced that this will benefit the design.

After finishing my masters, an internship at Spark Design & Innovation and Quooker B.V., it is time for a next challenge. In which I can show my skills as industrial designer which tackles complex mechanical problems and possibly

Graduation

Quooker®

Mechanical & System

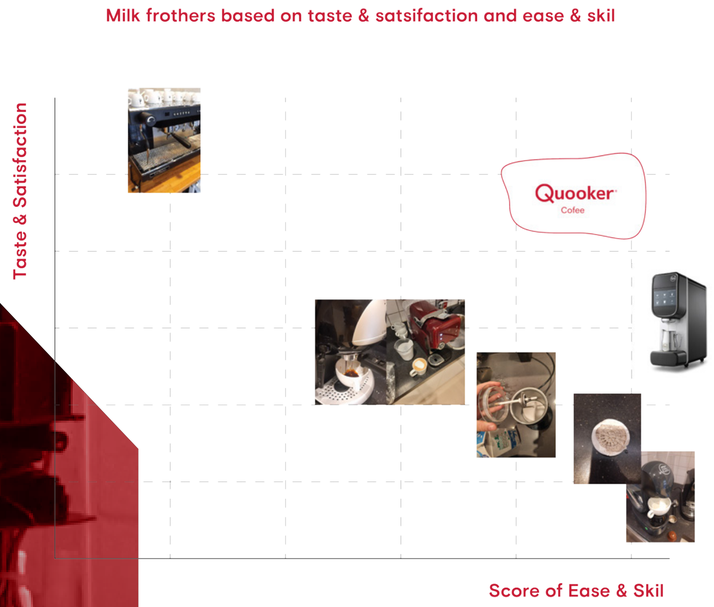
Graduation Project

20 weeks

Fall 2022

My final project at the TU Delft, was to develop a new type of milkfrother for Quooker. This company is famous for its, famous for its boiling water taps. As a sidetrack of their coffee machine project, I created a first proof of concept that fits Quookers design and continuous aim to create innovative products in consumer kitchens. The prototype could successfully make frothed milk without any skill, while making use of the kettles hot water.

Research

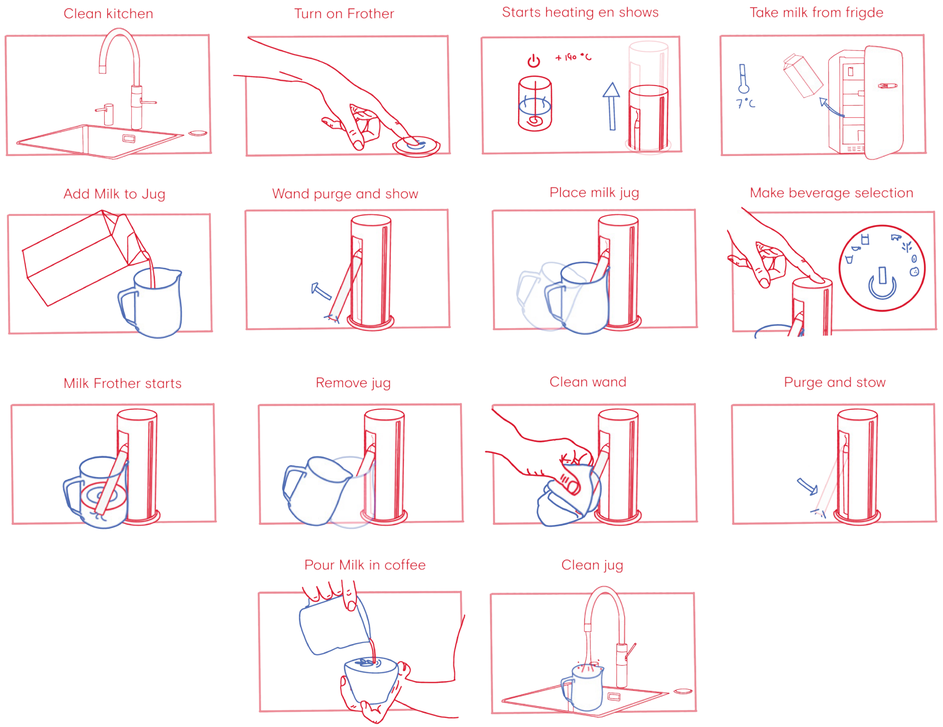


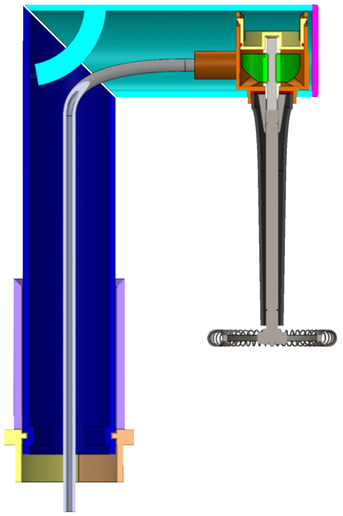
Before I started designing, I briefly dove into the well-established coffee milk frothing market. A wide range of solutions in different price levels were assed based on their quality and convenience. In the end, a market position for Quookers frother was determined.

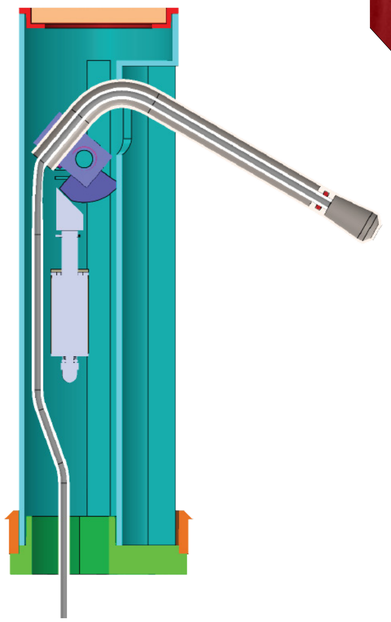
In the design process I evaluated the design multiple times with company employees and potential users, to improve the design and assure that the choices made are the correct ones. Within the company the brand and innovative working principle was confirmed. The user tests helped to improve the interaction by changing the behavior of the LED's so the products actions are more predictable and better to understand.

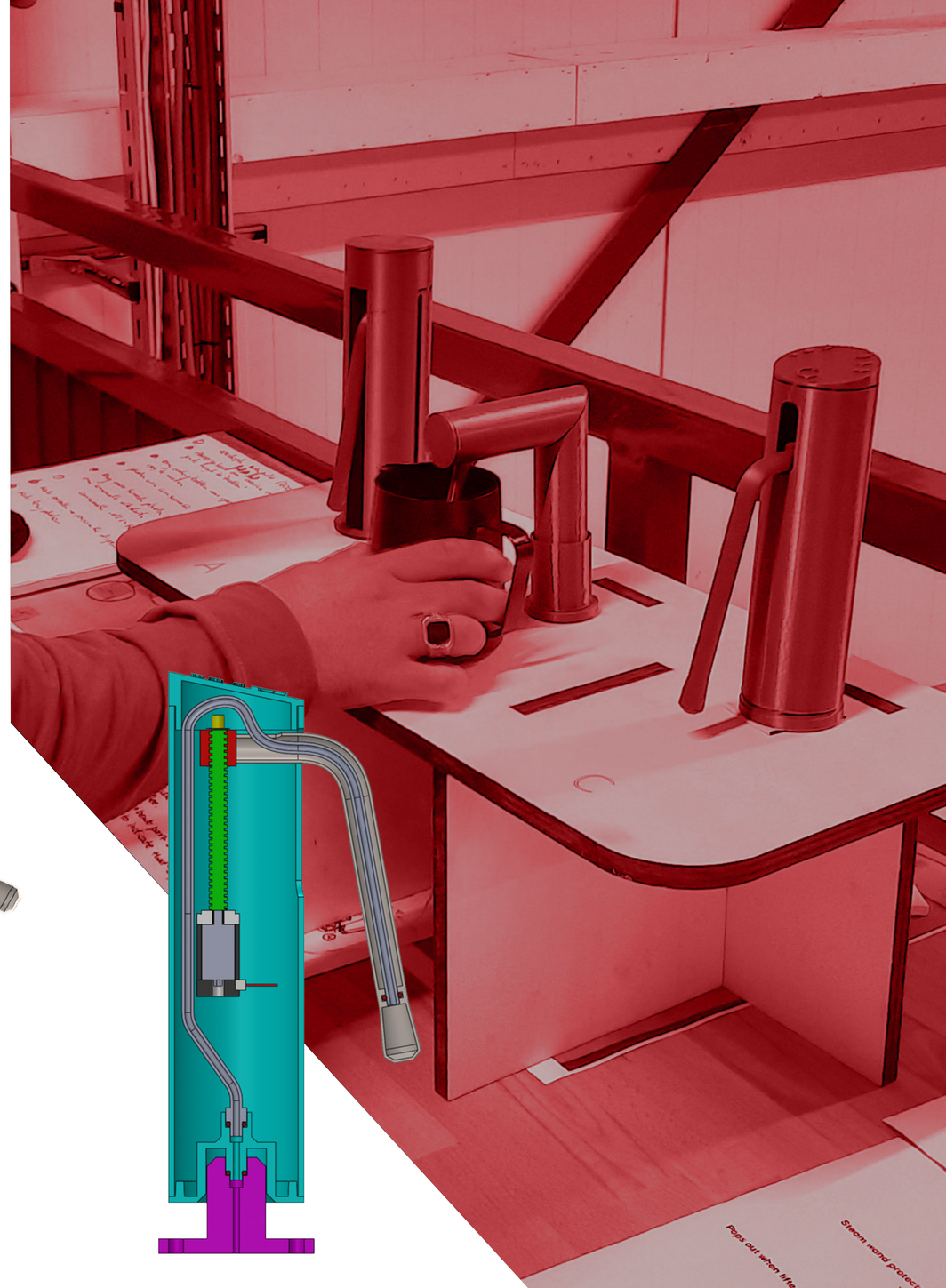
Concepting

Three product concepts were created to show possible future Quooker milk frothers. The concepts are based on working principles that can make a milk froth with steam, not requiring too much skills. Mulitple interaction options were explored and tested.

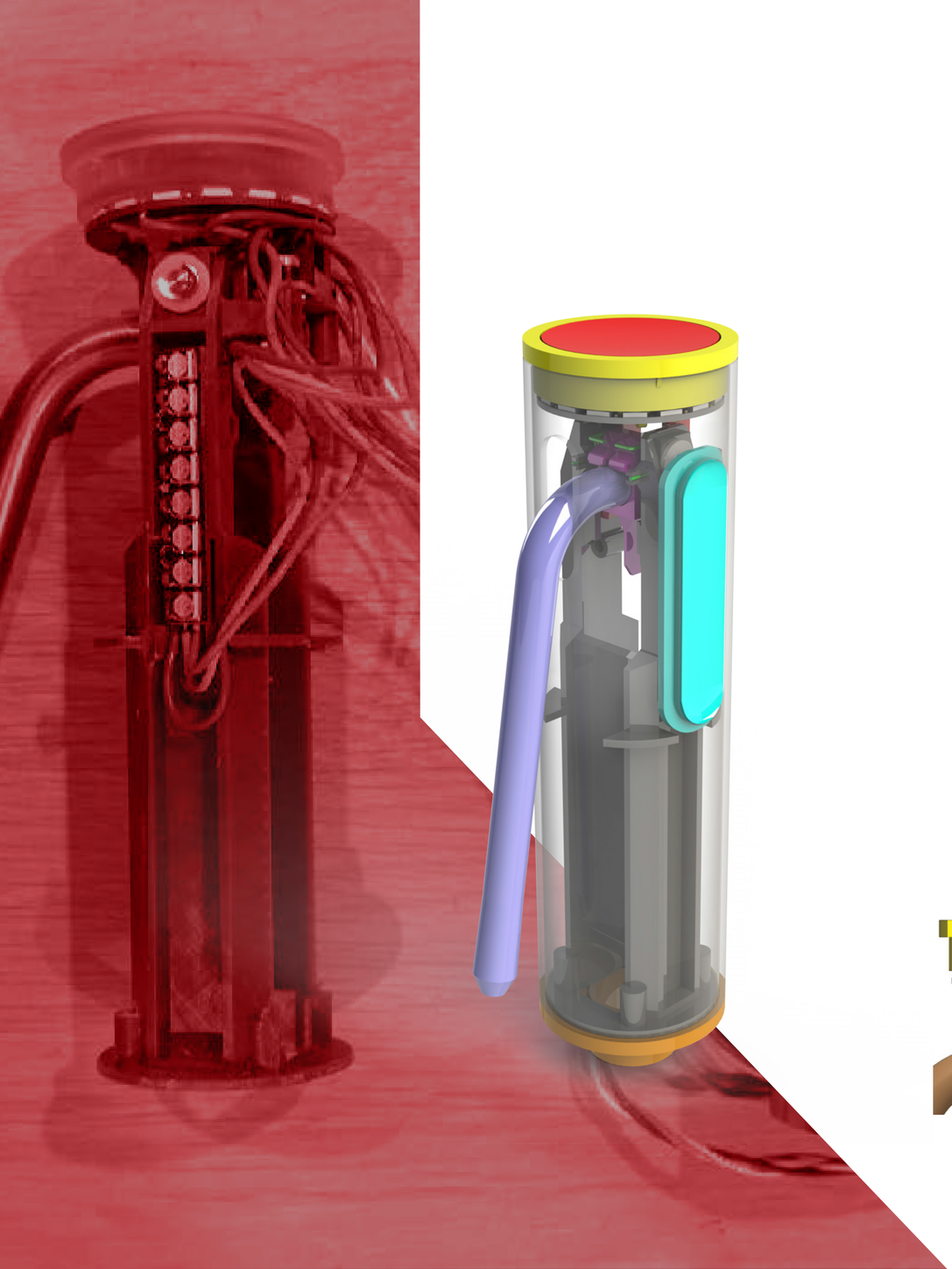


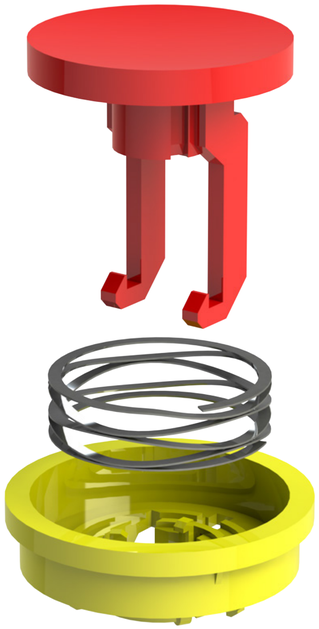




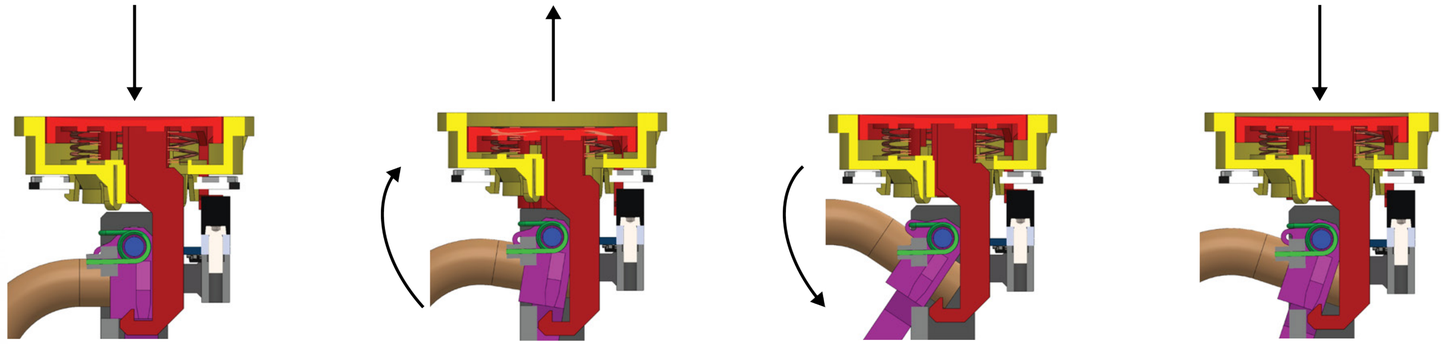


Mechanical



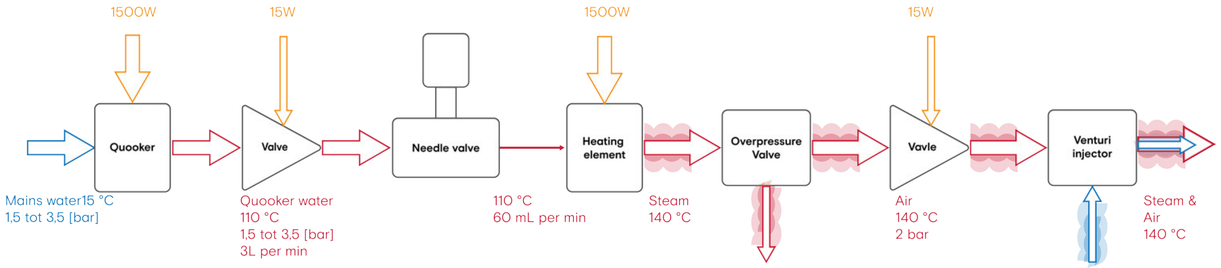


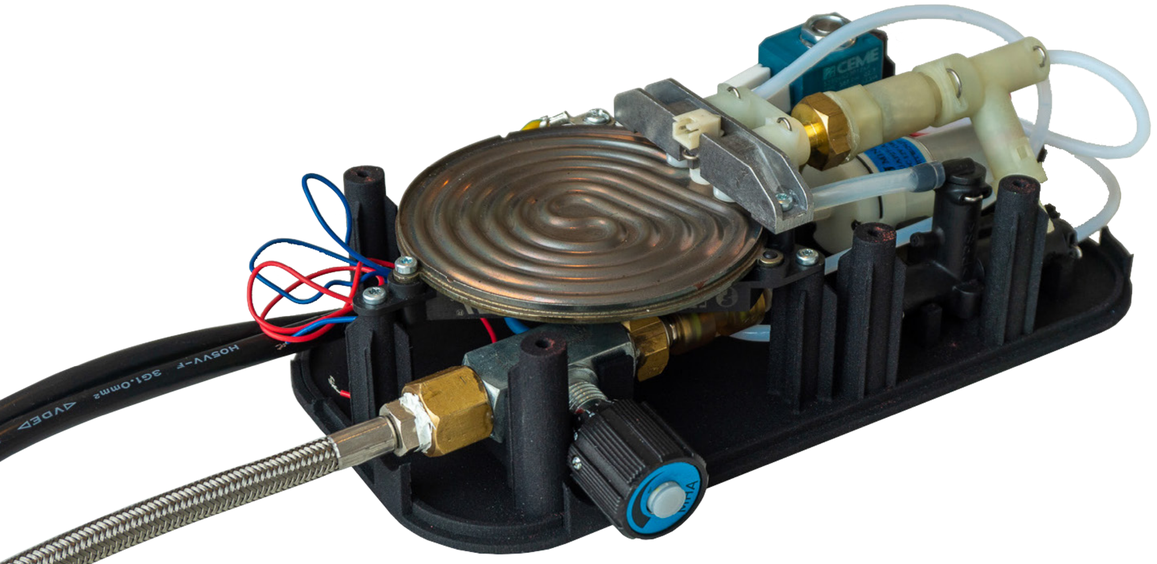
The part of the milkfrother presented to the user above the kitchen counter, had to be a sexy looking and intuitive product. A large button with a light ring fitted with Quookers current interaction. The button also actuates a mechanism to stow and extend the steam wand. The different functions are integrated in the parts. The light guide in yellow keeps the button enclosed while it also mounts the LED's.



System

Not only was the countertop product designed, the part below the counter that produces milk frothing steam was developed. Boiling water from the kettle was regulated and heated. To remove the skill to create quality milk frot air is added to the steam with the use of a venturi. The high voltage AC power was regulated with an electronic control box housing multiple relays and an Arduino. In order to safely test the steam function a the electronics and heating components I designed a housing in which all the hot parts could be securly screwed, and not accidentally touched.





Design Competition

blue

Software & Electronics

Individual

10 weeks

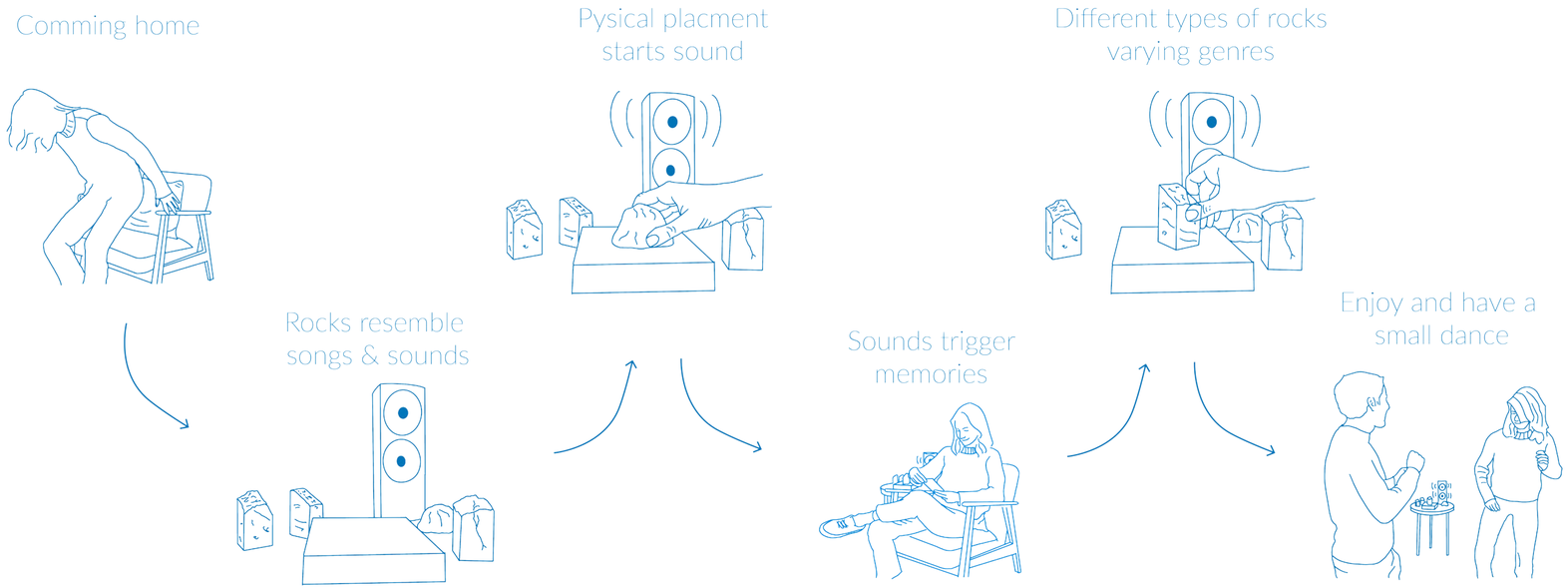
Autum 2022

My submission for the annual Bluedot Design Competition of 2021/2022 was the Quartz Audio. Bluedot is a student run design label that helps fellow students bring their product to makret. A novel design product that changes the way people can listen to audio and music. Bringing back the physical interaction with the music, without purchasing vinyl records or having digital interaction with a smartphone and service like Spotify.

Interaction

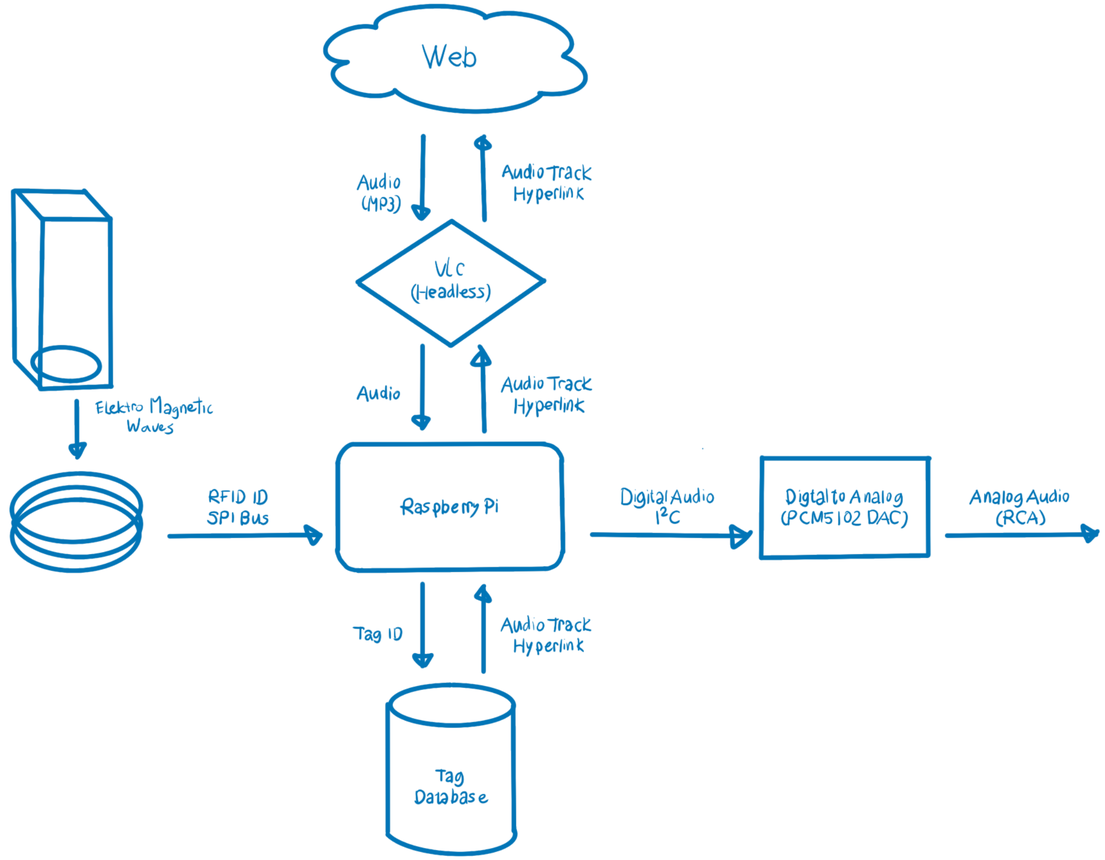
A new interaction with music is created. Within this new interaction, physical objects contain a certain audio piece. For example, sounds provide a strong connection with memories from the past and as an aid to keep dealing with everyday problems.

The competition's design theme was Wabi Sabi, meaning the embracement of nature's imperfections, and inevitable aging. To follow the theme soapstone rocks were chosen as the 'physical' sound carrier due to their rough exterior in combination with the beautiful patterns that become visible when the rock is cut and polished. Fitting perfectly to the Wabi Sabi theme.



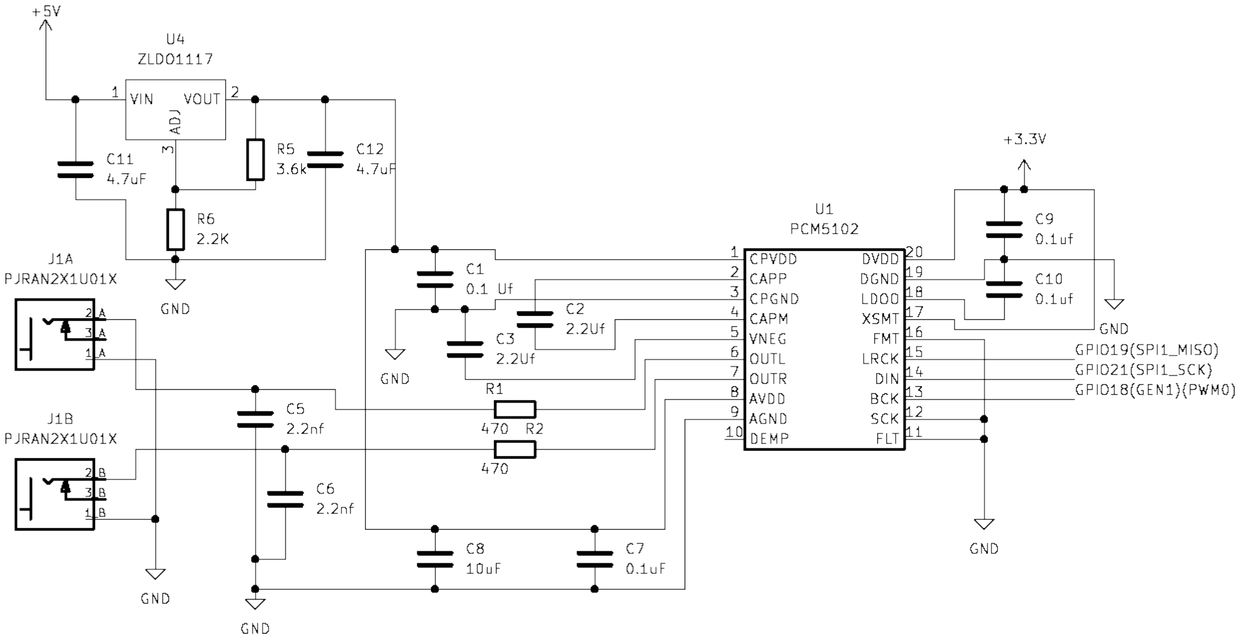
Software

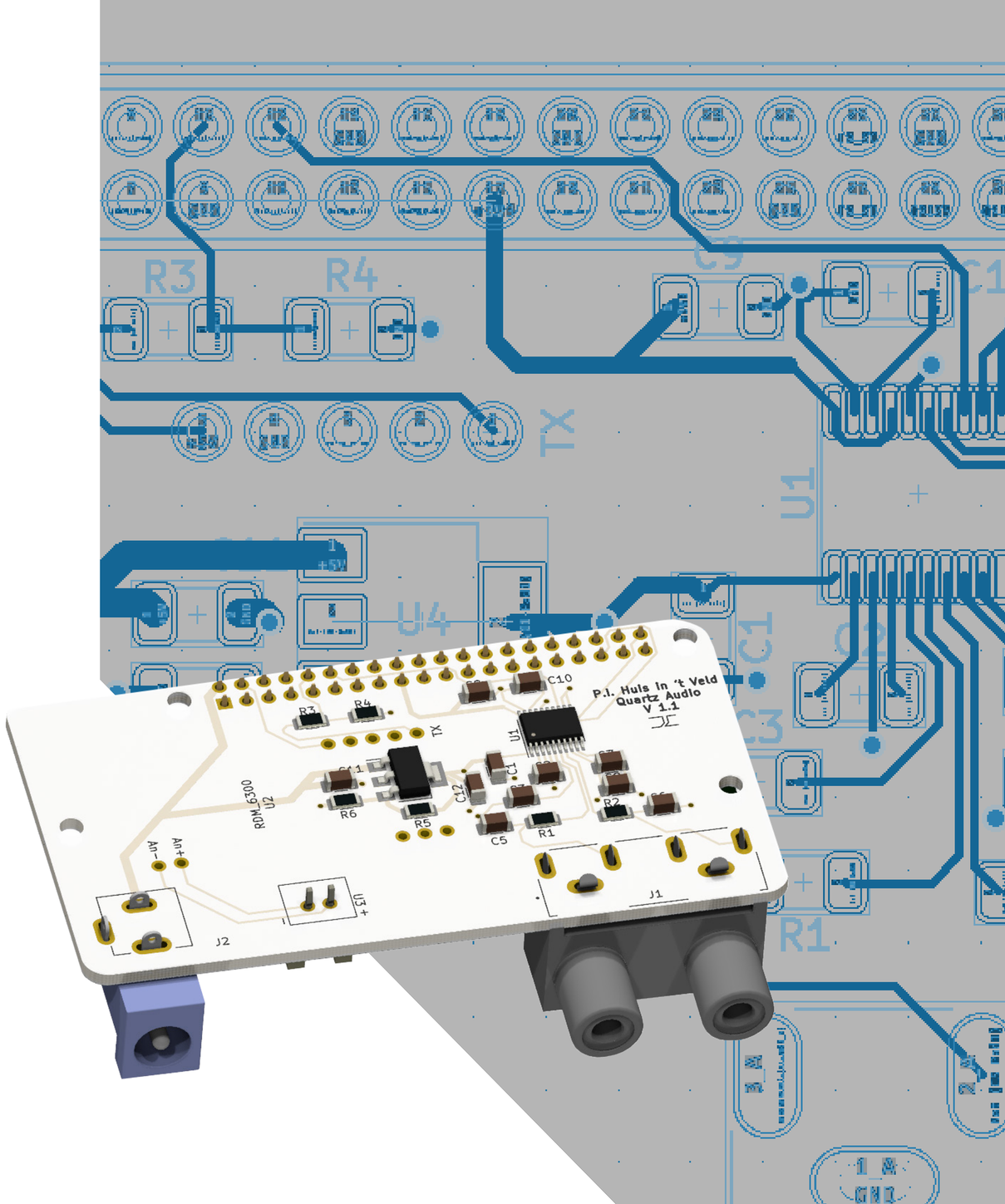
For the first iteration a raspberry pi is used to stream the music from a website hosted on the internet. The soap stone rocks all contain a track ID which belongs to a hyperlink of the audio file. The audio is played through the vlc player running headless. Which sends the digital audio to the converter and is played on an external speaker system. The program to manage this system was written in programming language python.



Electronics

To improve my knowledge of electronic circuits, I designed an add-on for the raspberry pi (Hat) that uses a much better performing chip that creates an analog audio signal from digitally streamed music. The chip onboard the raspberry pi has a sample rate of 48kHz, while the new solution has a sample rate up to 384kHz resulting in much better sound quality. In addition to the audio chip the RFID circuitry is also added as well as a DC-jack to power the whole system.





Record Cleaner

OKKI NOKKI

Embodiment & Electronics

Team work

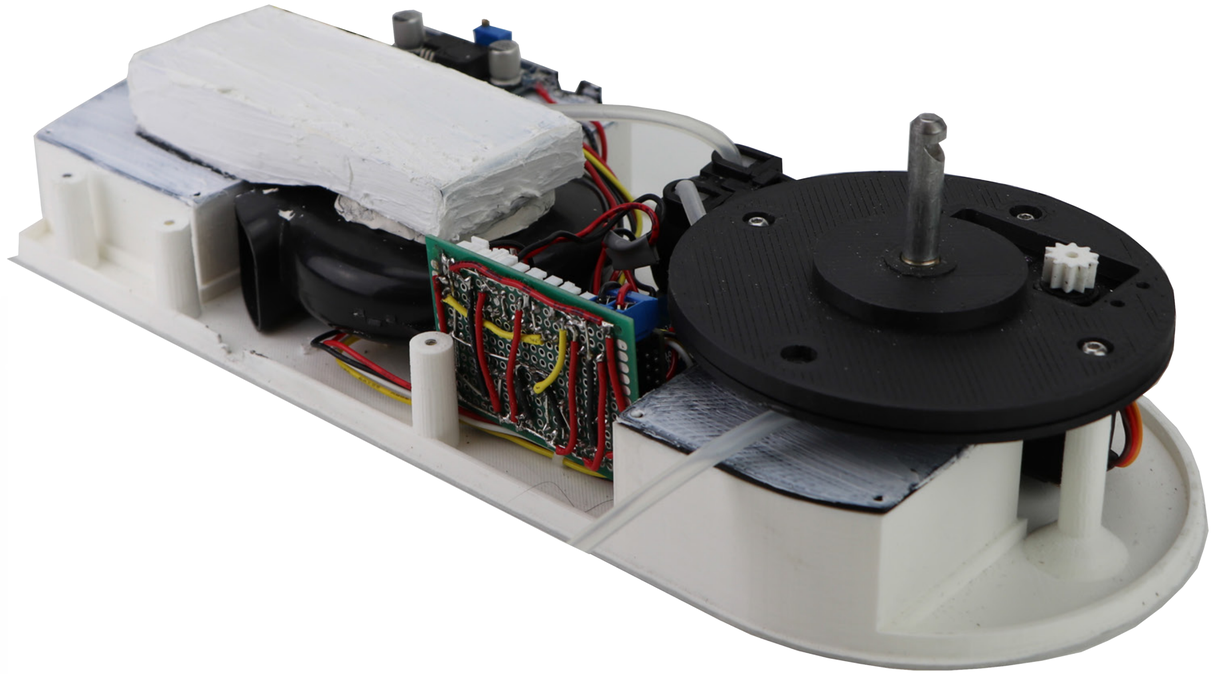
20 weeks

Spring 2020

In 2020 vinyl sales surpassed the CD's, more people are shifting back to the nostalgic and dedicated manner of listening to music. A washed record sounds better, however these washing machines are not affordable for the new average listener. Together with the team we developed a new affordable and automatic concept for the Advanced Embodiment Course. A proof of concept that could fully clean one side of a record was created.

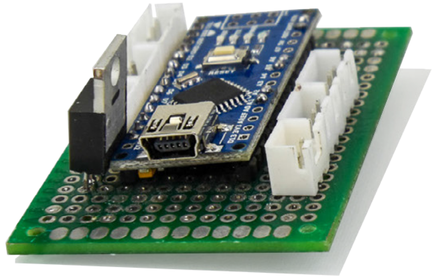
Embodiment

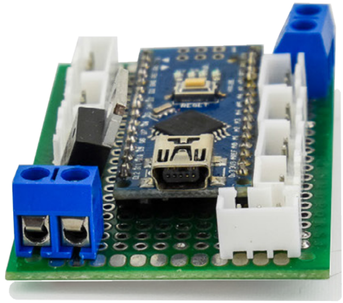
The configuration of the record cleaner posed quite a challenge. Multiple different motors and sensors are working together in a small and efficient design. The placement of the components and manufacturability was iterated extensively using 3D printing. I was responsible for the bottom side of the machine housing the vacuum, spinning motors and fluid pump.

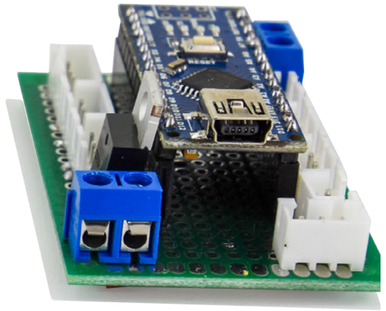


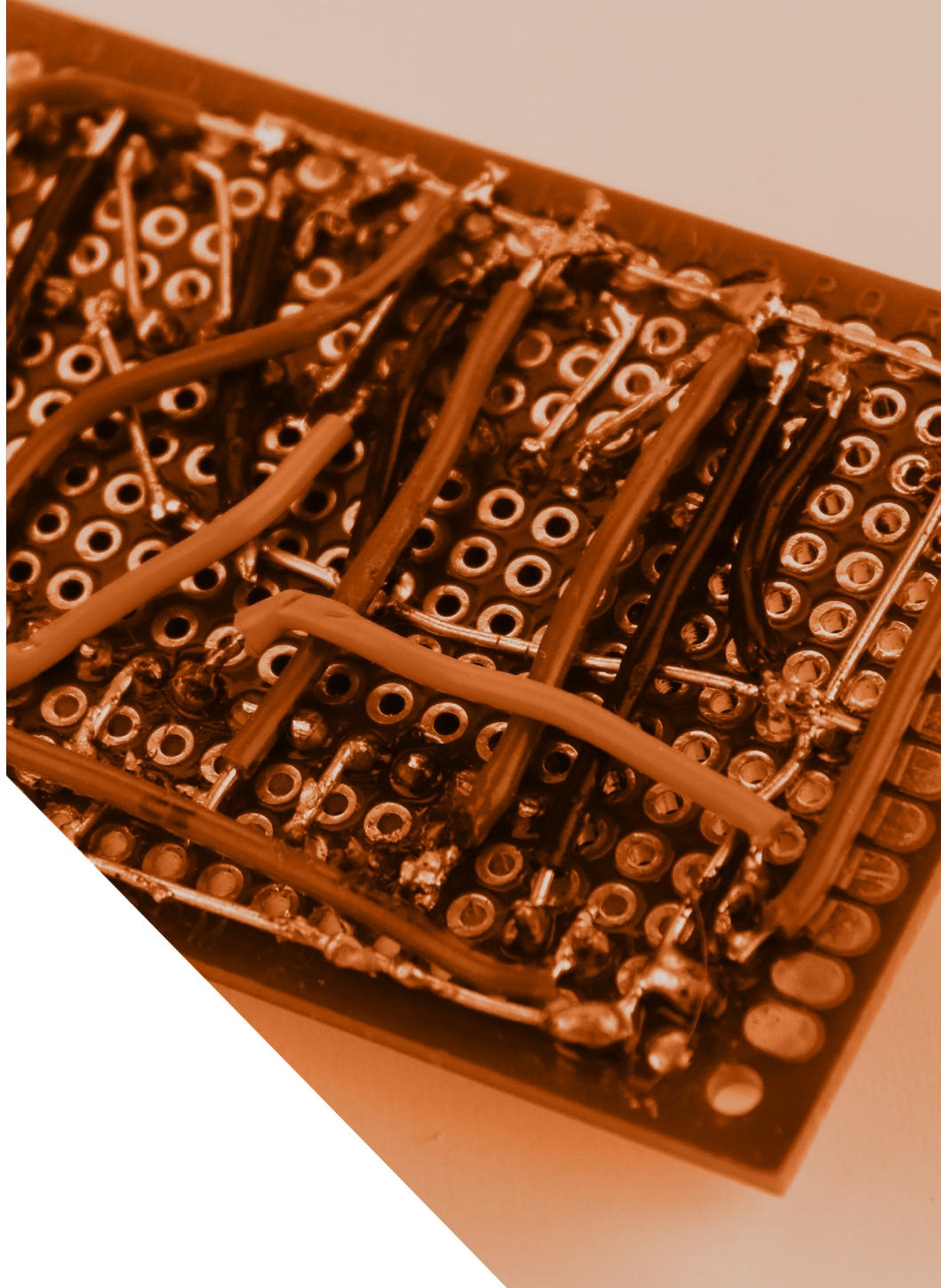
Electronics

The brain of the prototype was a custom soldered circuit board with an Arduino Nano. Three iterations were created due to adding more functions later in the process that were reaching the limit of the Arduinos capabilities. I also wrote the Arduino program to control the actuators shown above based on timing and sensor input.









IO Festival

study association

Stage Design & Production

Organisation of 12

40 weeks

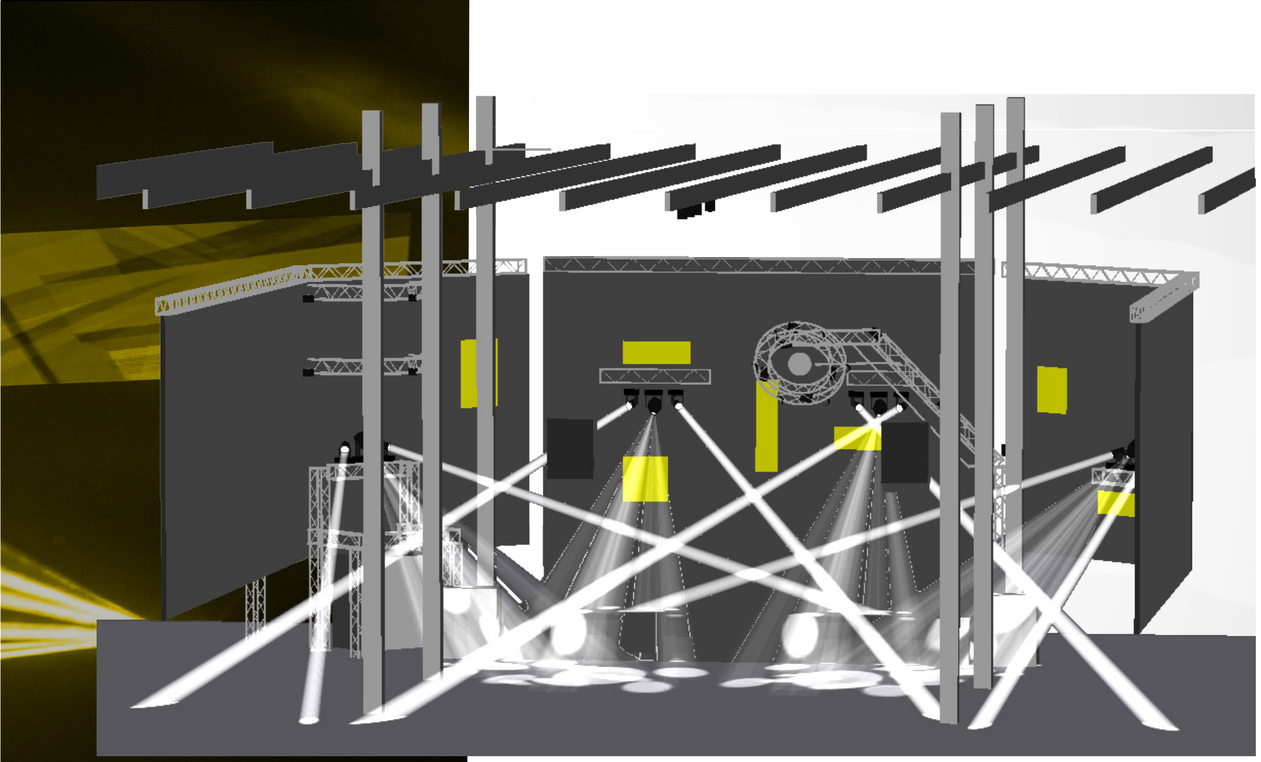
2018-2019

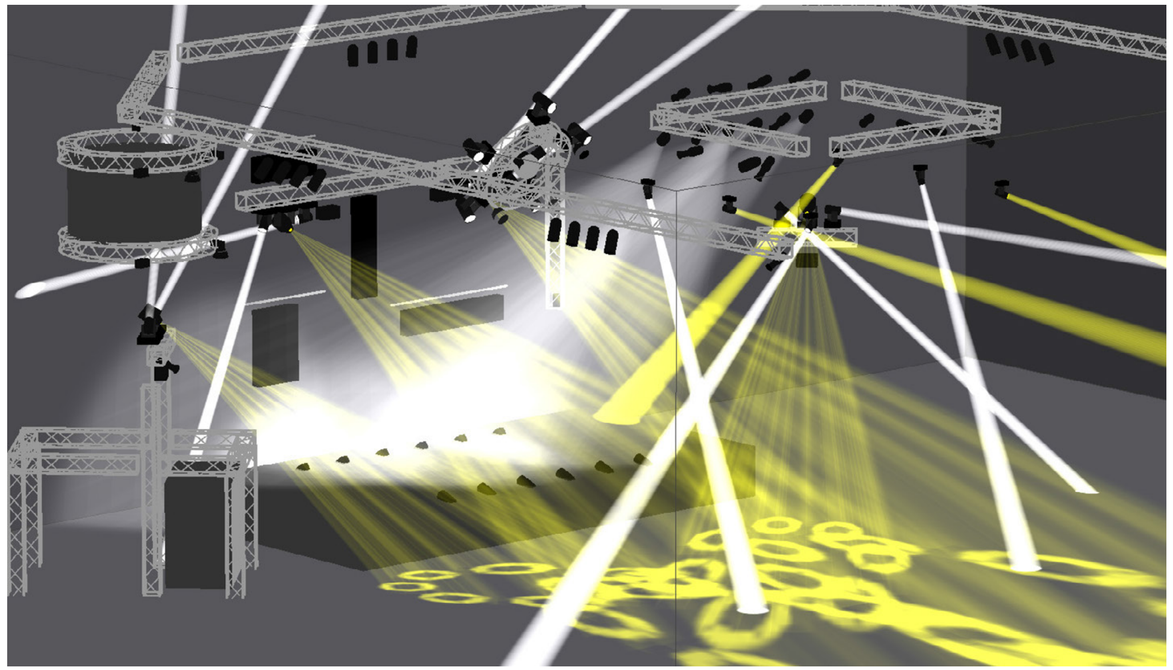
The largest annual faculty festival in the Netherlands is exclusively organized by ID study association and its members. The faculty building is redecorated as a festival ground housing 1500 visitors.

As the head of the technical production, I co-hosted a small group that created the design for the stages. I managed the technical production team throughout the event, resulting in a successful evening.

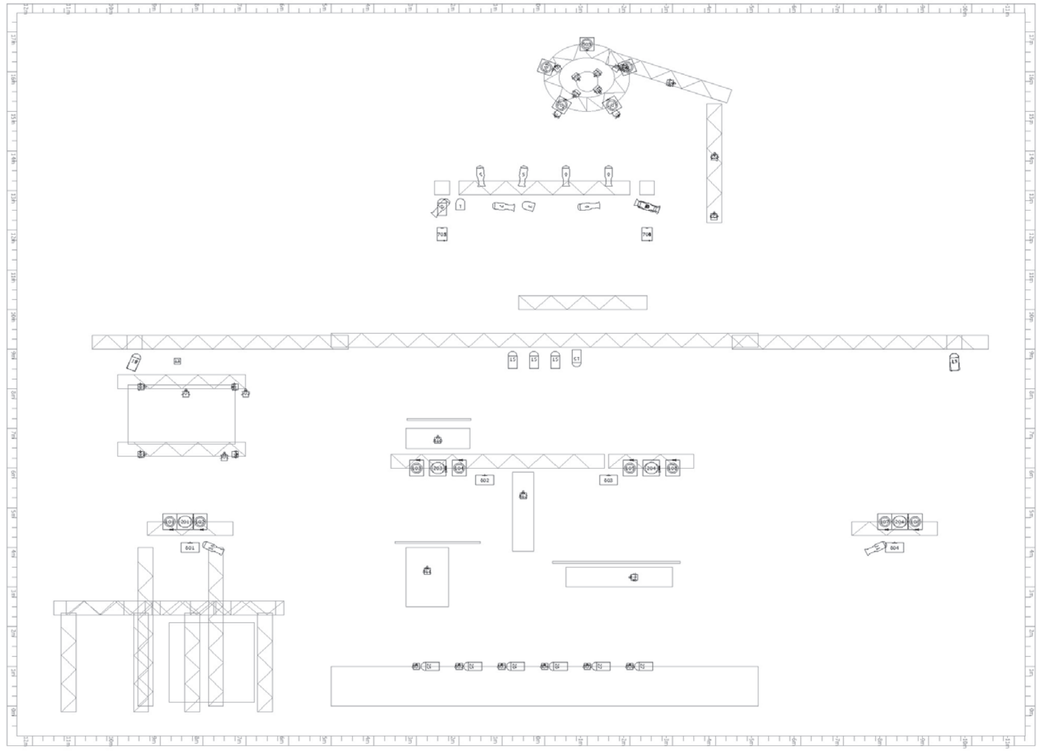
Light Design

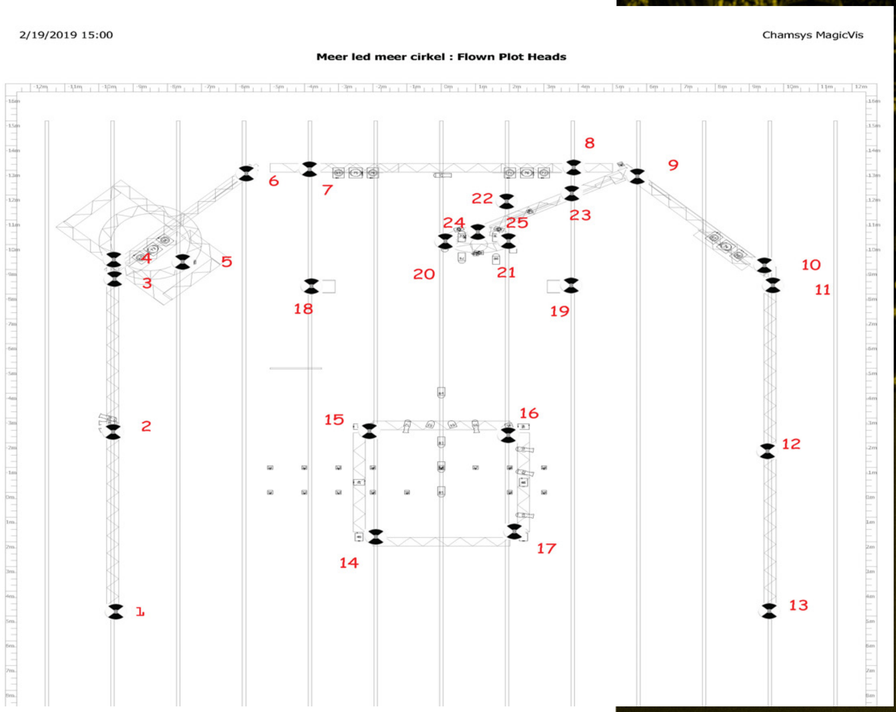
The prominent mainstage houses more than 700 partying visitors. To give the visitors a long lasting memory the mainstage has to blow their minds. As the technical chief I made the concrete designs that were later visualized. The light and led screen fixtures were placed with the decorations in mind. Seamlessly blending them into a main stage that told a story.





Production





As the head of the technical staff, I managed the scheduled tasks and volunteers working on technical matters. The designs were transferred to technical drawings and a script that showed when and where one of the 7 kilometers of total cabling needed to be placed. Necessary calculations regarding electricity and ceiling weight were made.

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Dutch nationality
16-02-1998

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Education

Openbaar Lyceum de Amersfoortse Berg
VWO Natuur en Techniek Diploma *2010-2016*

Delft University of Technology
Bachelor Industrial Design *2016-2020*
Minor: Robotica / Electives: Mechatronics and Software

Master Integrated product Design *2020-2023*
Elective space: Strategic Product Design semester
Graduation Project:
Design of a new type of milkfrother for Quooker B.V.
Grade: 8.5

Extra Curicular Activities

Openbaar Lyceum de Amersfoortse Berg
Member of “Theatertechniek group” *2013-2016*
Light design, technical event production

Junior mentor *2014-2015*
Coaching first year students of high school and organising introduction camp

Studievereniging ID
Member of Technical Support Committee *2017-2019*
Light and sound design, technical event production

Member of Ski Committee *2018*
Organising wintersport trip for 66 students

Work experience

Delft University of Technology *2020*
Teaching Assistant Product Statics
First Year Bachelor Course in Physics, workshop TA and grading projects

Teaching Assistant Integrated Technology *2021 & 2022*
Second Year Bachelor Course in Multi physics, workshop TA and grading projects

Teaching Assistant Design Project 1 *2021 - present*
First Year Bachelor Design Course, coaching TA

Teaching Assistant Exploring Interactions *2021 - present*
Course in Master Progam Design for Interaction, Prototyping support for students (3D printing, Laser cutting, Arduino)

Spark Design & Innovation
Internship Product Design *2022*
20 weeks Fulltime Internship at the Design Agency, Focussing on Integral Product Design

Vacation Work *2022*
After the internship I am extended my time at Spark, by a month. Finishing up two projects and assisting in other’s

Quooker International B.V.
Graduation Internship *2022-2023*
My master graduation project took place at Quooker, Conceptualizing an new type of product, with a integral functioning, fully operational prototype.
Grade: 8.5

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