

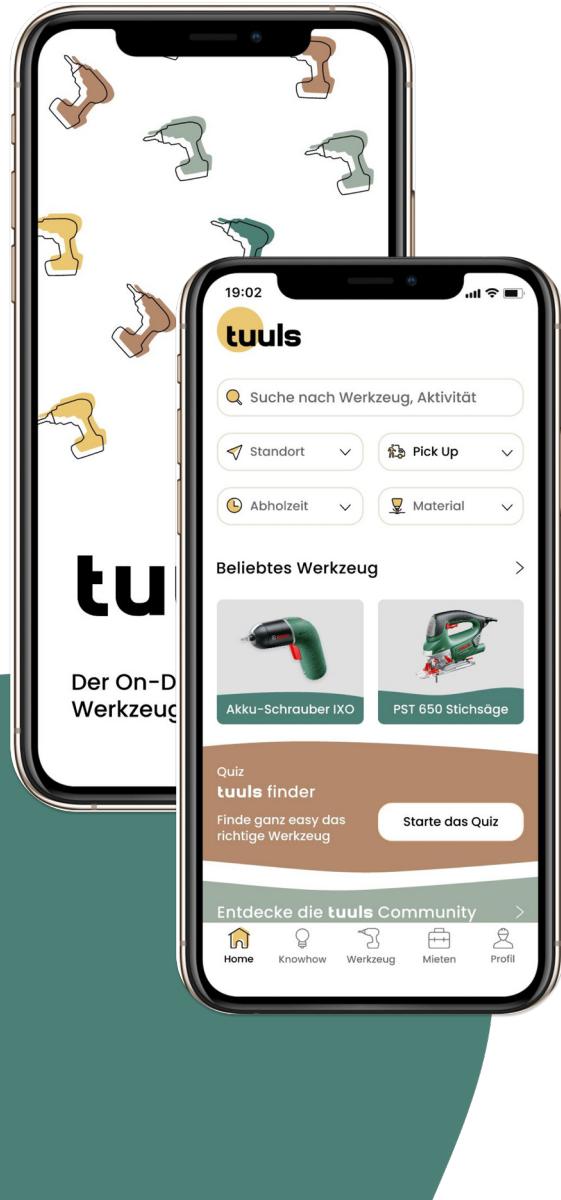
# Portfolio

Paméla Schmidinger  
2021



**Browse through a few projects  
which inspired, challenged,  
and surprised me.**



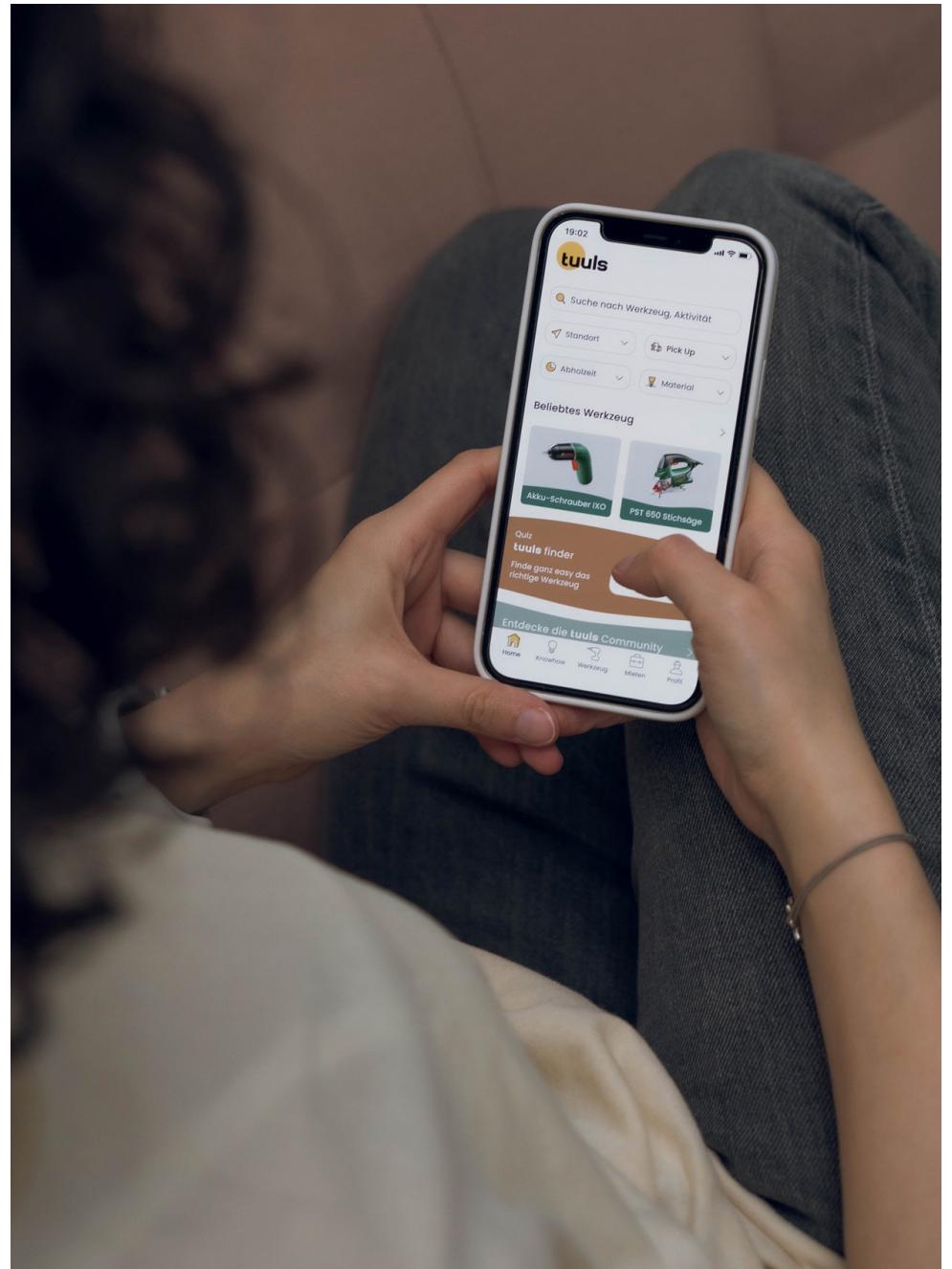


# tuuls

On-demand tool rental  
concept proposition for  
Bosch

## In Short

Currently, there is no convenient alternative to get professionally serviced power tools for people in the city except to purchase them. Bosch is working towards addressing this problem by proposing an on-demand renting service of power tools. This project explores a novel user experience and further possibilities to build upon this concept. Our hypothesis is that people want resources that support them in the selection and usage of tools. By following a human-centered approach and involving our user groups in the process, we confirmed the need for support through community and tutorials. Our intention was to increase inclusivity for people from different gender identities as well as to challenge dated stereotypical notions in the area of tool usage.

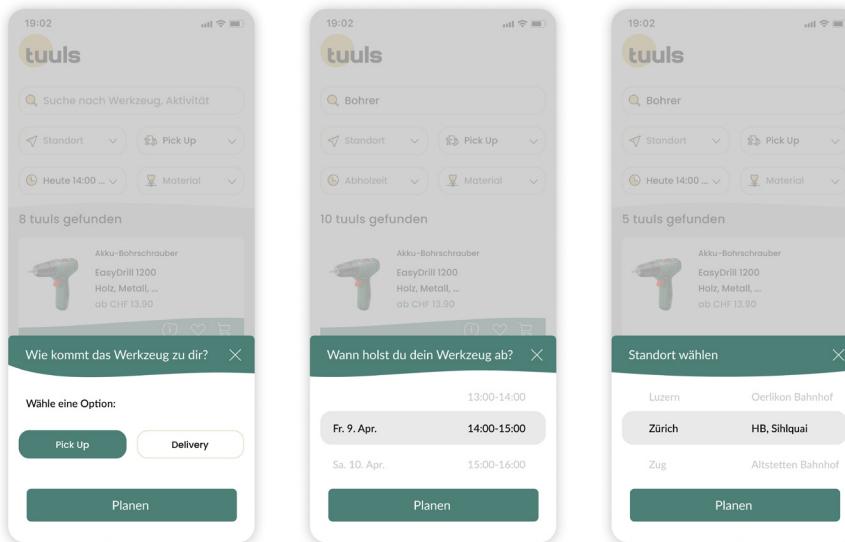




## Challenge

People who do not use tools daily tend to be reliant on other people who have them. If this is not an option, they need to buy them, which can be inconvenient. Through an on-demand renting service of power tools, Bosch investigated the viability of their concept targeting DIYers. They did this via a working prototype of a station containing the tools in highly-frequented locations in cities, complemented by a website on which to make reservations. However, there is potential in expanding the target group the service is currently catering to, since offering easy accessibility to tools combined with knowledge of how to handle them can transform the service from being a fringe to a mainstream offering. Therefore, through a collaboration with Bosch, we worked on improving their concept by exploring how to expand it. Providing not only the tools but also information on how to use them seemed a promising prospect that would get more people interested in Bosch tools.

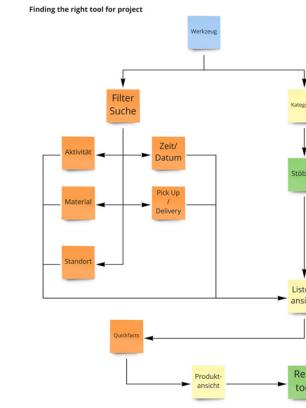
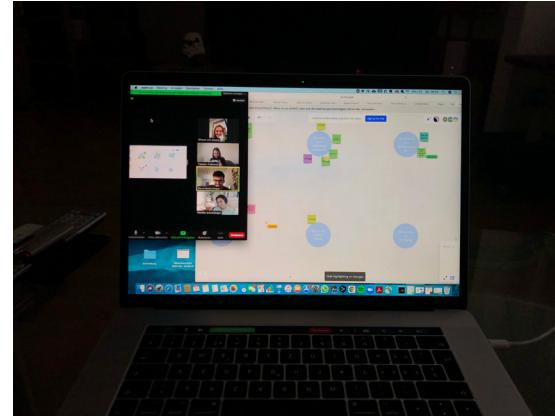
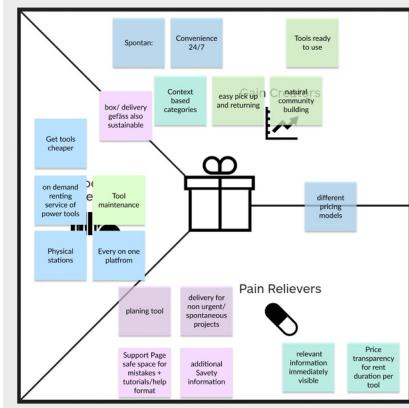
## Concept Video: tuuls



## Concept

The goal was to bring a more inclusive angle of empathy into this world of people who were accustomed to handling tools, in regards to differing knowledge degrees and gender identities. We aimed to meet users at varying degrees of tool knowledge at eye-level by offering support and the ability to acquire and use tools independently.

Our intention in our research was to approach this project in as unbiased a manner as possible, having the user in mind first and foremost. Our research indicated that the use of power tools was not widespread and that stereotypes were perpetuated in this field, which could be demotivating for some. Key features we found in our research were a need for an inspiring platform that offered knowledge through articles or a community in a gender-neutral way. The offering a mix of planning possibilities and spontaneity would ensure that the platform remained flexible enough to be used in relation to a variety of contexts or circumstances. Our concept proposal therefore entailed restructuring the renting process while also adding new features to the service.



## Process highlights

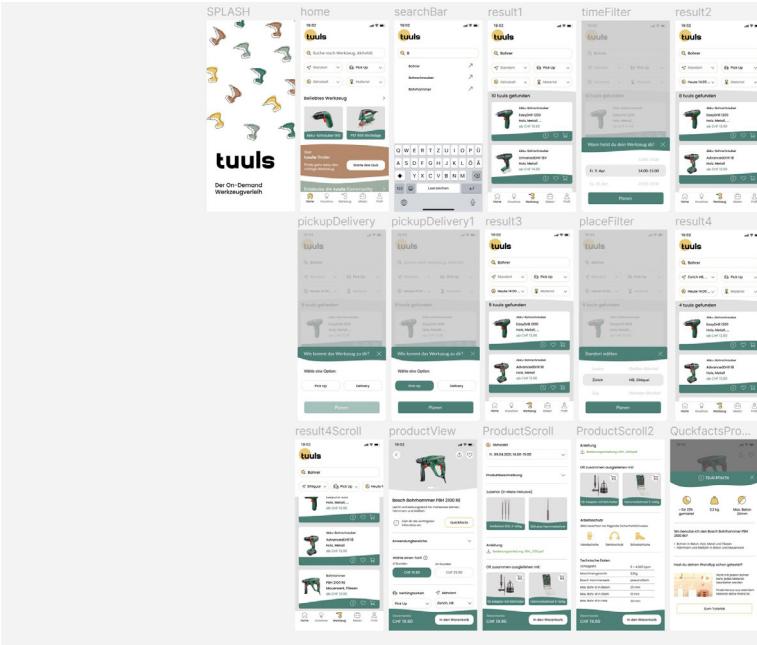
During the field research we prioritised the user's perspective on the service, which is why we continued to follow a human-centric approach. We wanted to examine and identify the differing perceptions and emotional responses of our user groups. Through interaction with the user through surveys, interviews, workshops and user tests, we formulated possible solutions iteratively based on their feedback. Due to Covid19 restrictions, the majority of our interactions with our users were online.

From insights gained through lengthy interviews with our users, we attempted to address their needs in form of gain creators and relievers. We saw most potential in focusing on pain relievers such as being able to plan.

By conducting an online workshop on Miro and Zoom, we aimed to involve our users in the ideation process, while also focusing on more subliminal information. We wanted to test if and to what extent the areas of our potential solution, were of interest to our users or if

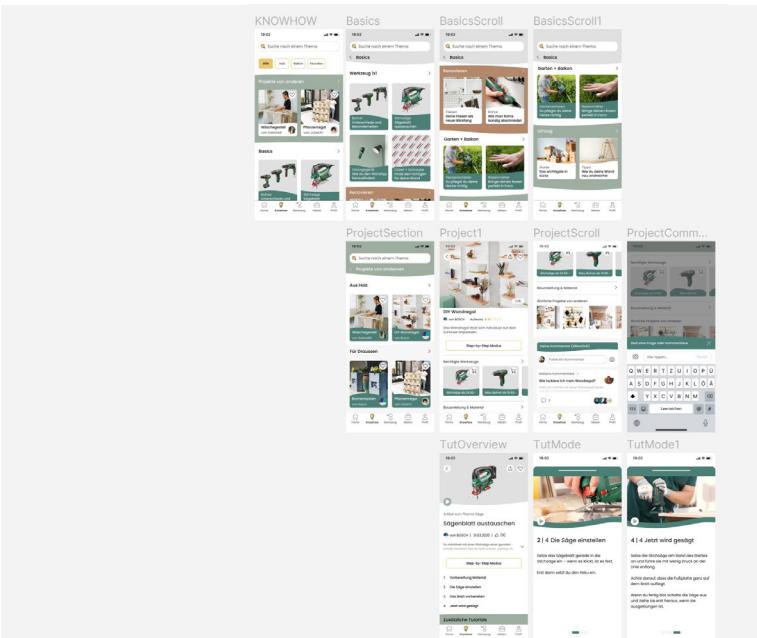
they prioritised other aspects.

The outline of our most important functions was both, a tool as well as to gain an overview of the interconnections.

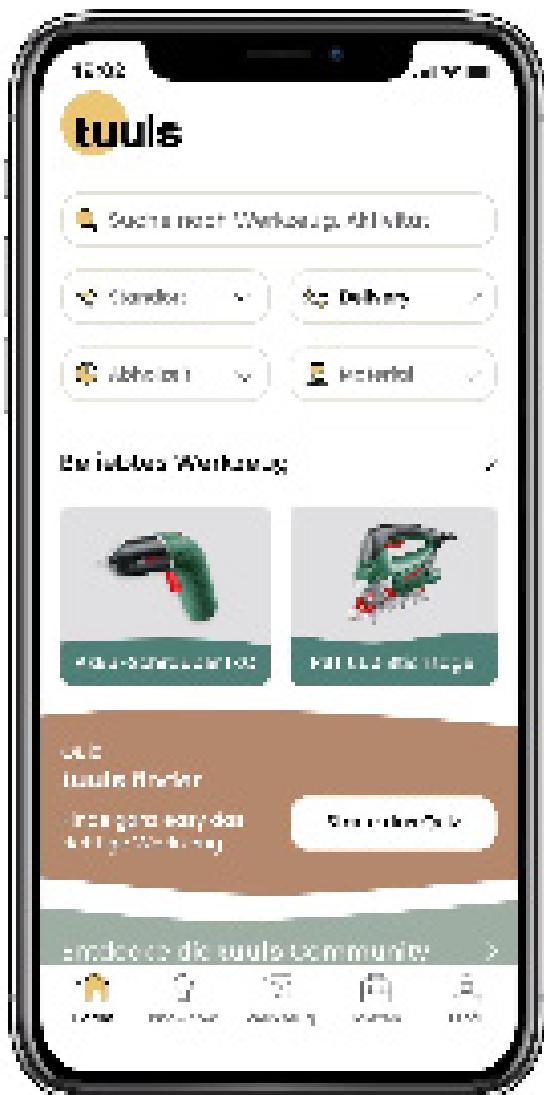


## Wireframes & Visual Identity

We developed all our wireframes on Figma, and used the prototype function to create microinteractions. In addition, we also conducted user tests on this platform.



As for our visual identity, we decided on more muted tones of greens and browns. They are used to create a visual separation between the content, since they are neutral enough to fill larger areas without being obtrusive. Also, they evoke associations of different context where tools could be used. We found that these colours harmonised with Bosch's green and red colour scheme. They are neutral enough to accommodate the tools in Bosch's portfolio or third party products. We decided to use curved elements as an additional element for separation. Through this, we wanted to create a recognition value that conveyed creativity and the process of learning lending from the principles of Wabi-sabi. We see the process of acquiring knowledge as continuous, because learning goes hand in hand with making mistakes. By using imperfect shapes, we wanted to invite people to learn and experiment.

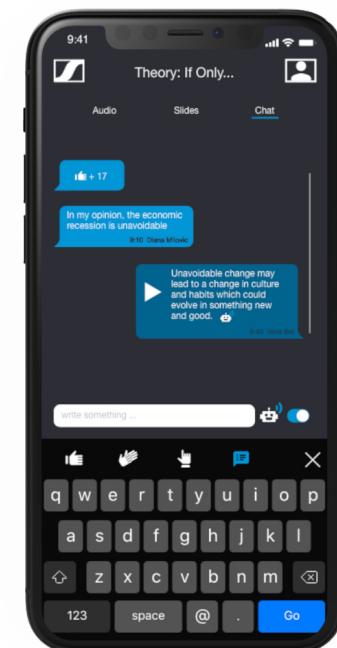


A screencast of the clickable prototype



# MobileConnect Plus

Service proposition for  
Sennheiser



## In Short

Our aim with MobileConnect Plus consists of making education accessible from anywhere whilst improving the remote learning experience.

While MobileConnect addresses the unique needs for hearing impaired students, MobileConnect Plus provides an expansion to the existing service, adding new aspects to enhance communication and auditive interactions for remote students as well as for speech impaired students. The integrated Text-to-Speech function helps these students to gain confidence in giving their input during class. Specific “audio hints” allow students to actively give feedback in a non-intrusive way, whilst giving them the choice of their study space.



audio settings



remote slide show

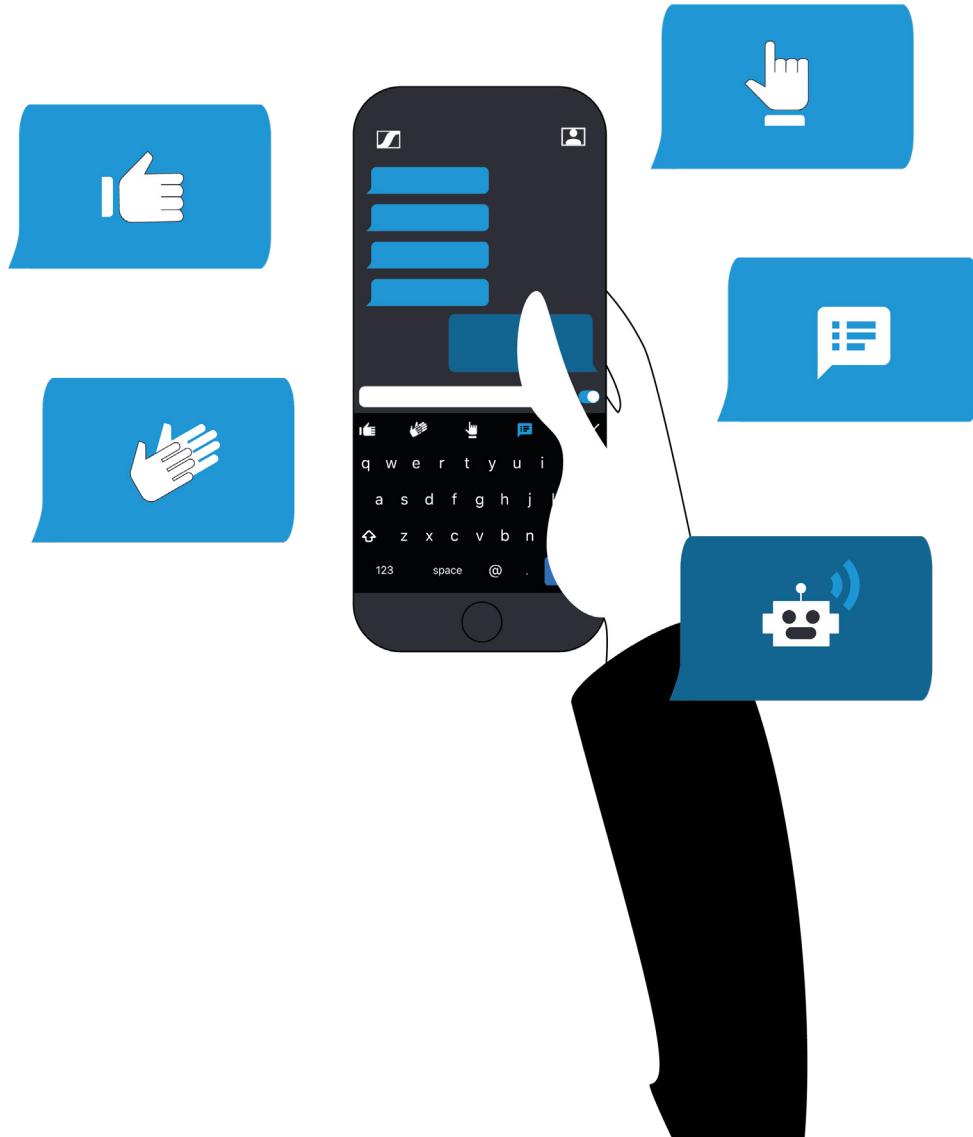


timeline



## Challenge

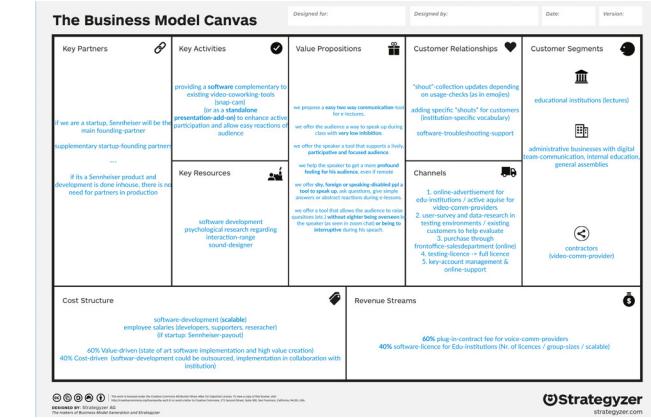
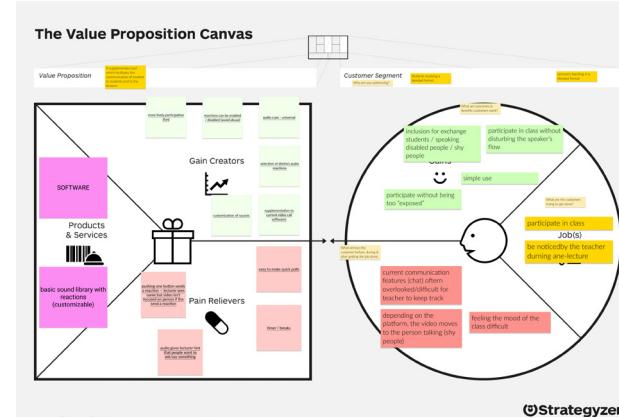
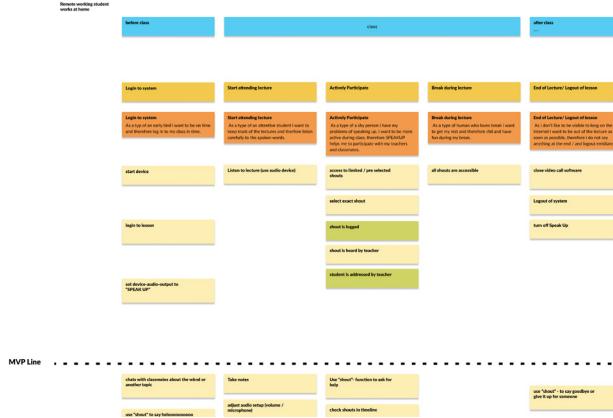
Due to the global pandemic lectures quickly shifted from the physical to the digital space and work chiefly over video call softwares which proved to be an useful tool, however, they weren't intended for educational purposes. Having sent several surveys out (quantitative and qualitative), we concluded that this remote learning setup poses the challenge in regards to participation in class. Non-verbal messages are easily overlooked in a larger sized class. In addition, if students decide to speak up at the same time it usually comes to awkward interruptions, creating an uncomfortable atmosphere. This results in less people to engage in class and choosing a more passive stance. Studying remotely deprives students of an adequate learning experience.



## MobileConnect Plus

Our proposition is to use the existing MobileConnect Infrastructure by Sennheiser and adding more layers upon it. The known MobileConnect interface remains but would additionally include buttons, allowing students to direct the attention of the teacher towards them, in a non disruptive way. We provide 4 distinct audio hints, each with a different purpose.

The use of the audio hints allows remote students to participate more actively whilst not being present in class. Moreover, they can navigate through different tabs where they will find a live stream of the lecture slides as well as a timeline, where the reactions are logged. It is a communication tool to engage otherwise more passive students and inclusive of speech impaired students. According to an interview with a speech therapist, people who are hearing impaired, also tend to have some degree of speech impairment. The Text-to-Speech helps these students keep their stress levels low and thus reduce their symptoms.



## Process highlights

We tried to find out the needs of current students and lecturers in the field of e-learning and then develop a useful tool. Interesting for us were their motivations and problems. We then had to structure this data in order to find a problem to solve for or with Sennheiser. We wanted to apply more digitized interactions to the field of learning, as it should also be possible across barriers such as national borders, spatial distance or distance for health reasons. "How might we make participating as easy and efficient as sending emojis?"

With the help of a metaphor we tried to make the vision more tangible. Naming the main values that frame this goal, help to build a comprehensible strategy and to follow with well directed approaches. With this in mind, we then designed a user journey.

We mapped out the user journey upon our service idea step by step. This helped defining all the touchpoints of where the user is in contact with the service throughout his journey. It helps formulating the most valuable

points (MVP's) of our service. During the process, we held on to our values, but went more in a direction we found sellable.

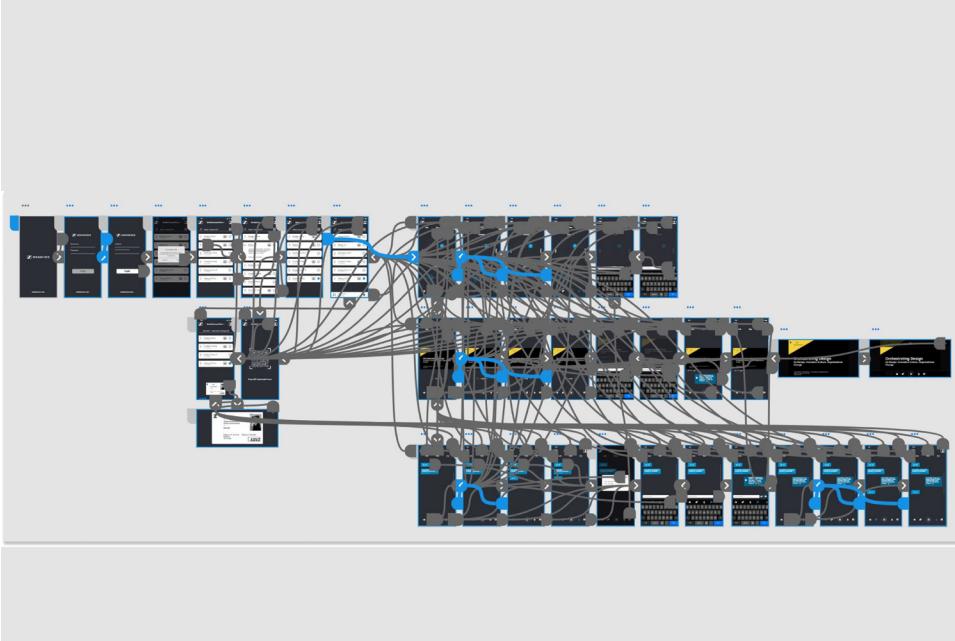
With the Business Model Canvas, we embedded our service in the market and answers the questions: How can the service be created? How will it be distributed? How does the service become a sustainable business?



## Wireframes & Functionalities

We used Adobe Xd for designing and user testing our screens. As our goal was to extend the currently existing version of mobile connect, we wanted to remain close to Sennheiser's corporate identity. New functionalities we've embedded are focused on enabling students to work remotely by streaming the presentation slides of the course. In addition, the new proposition gives a voice to those who have difficulties and/or are not physically present, through the four different audio hints. To prevent abusive behaviour of the shouts, all interactions can be tracked on the chat page.

With the existing GUI, we produced a click-dummy that also included the sound-hints and therefore allowed realistic user-testing. We tested our prototype with laymen to see if the user interface works and to receive there general feedback on the service.



# ONE TWO TREE

Data Visualization for Crowther Lab,  
ETH Zurich.

GET INVOLVED!  
DO SOMETHING!  
TAKE ACTION!

We as individuals can  
have an impact on  
climate change. By  
taking action and  
planting specific trees, the  
excess amount of CO<sub>2</sub>  
can be stored and be  
removed from the  
atmosphere.

ACT

NOW

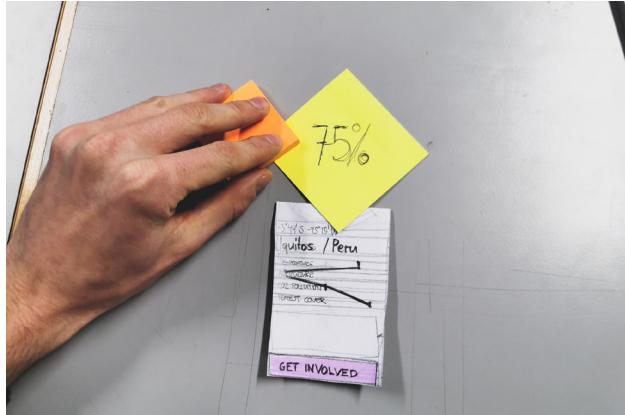
DON'T ACT



## In Short

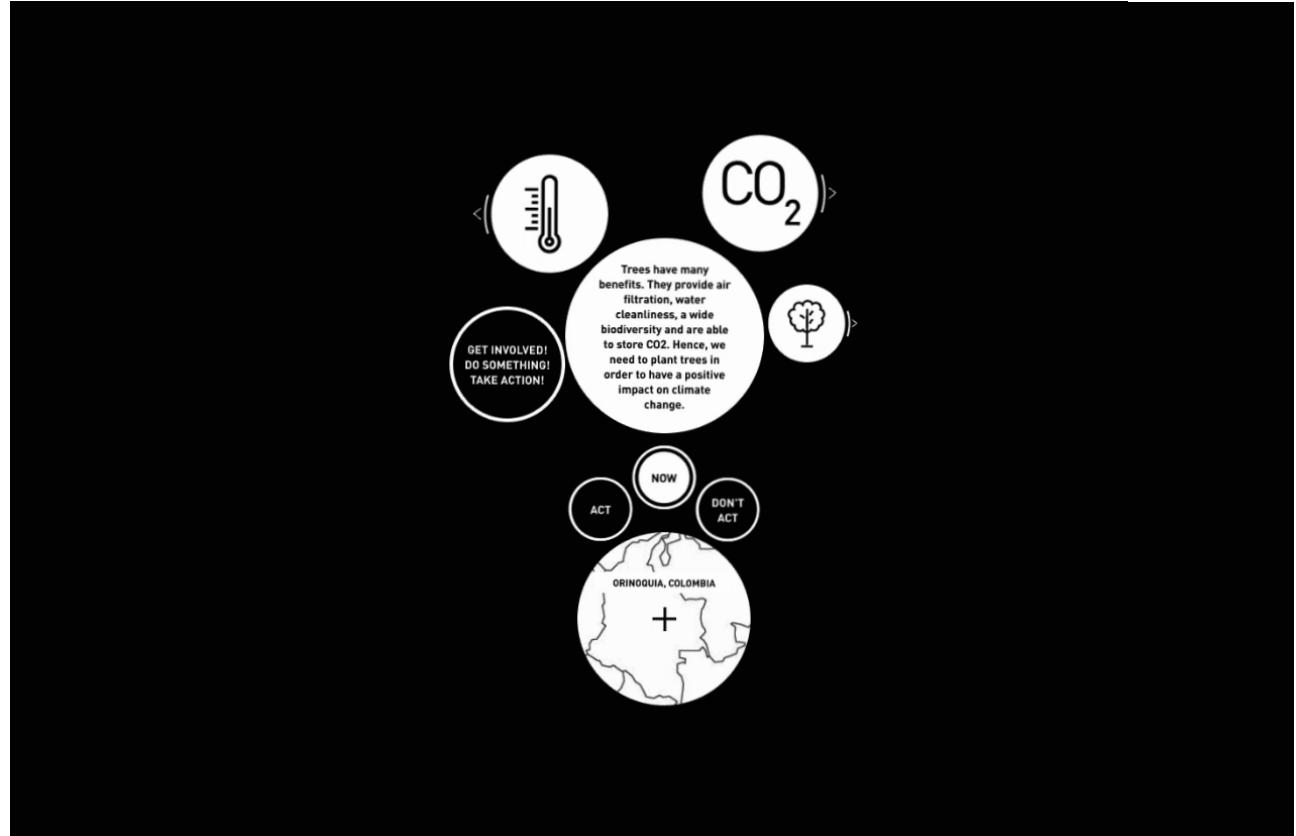
ONE TWO TREE is a interactive interface on a multitouch table where people can learn more about the impact of a forest on climate change. It combines the knowledge from the Crowther LAB at ETH Zurich and our strong visual design language to transmit the information. For this purpose, we transformed the multitouch screen into an explorative world map. People are picked up from the first interaction with the token and the table. On the one hand through the dynamic structure of the interface and on the other hand, they are given specific information at the beginning they are given information about their chosen location. ONE TWO TREE teaches the visitor in a playful but serious way that they can have a positive impact on the world.



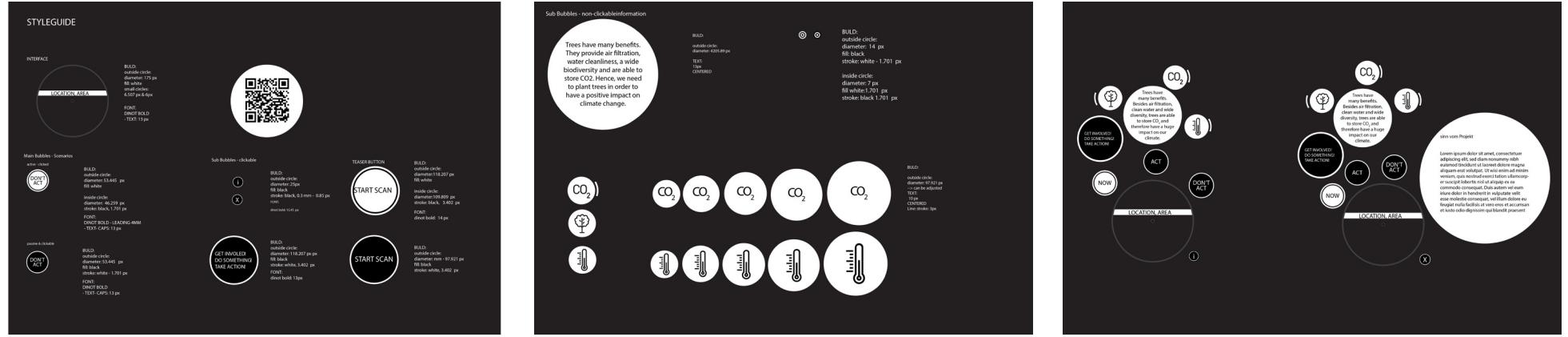


## On Screen

Around the token, the info token provides a menu with further information about the project and the problem of climate change we are facing. One display is always open and can be turned in every direction through the token. So, the visitor can approach the table from any direction. The main data is under the token which shows the forest restoration potential and during the "Get involved" mode a the QR-Code is shown where action can be taken. The "Scenario Buttons" show the impact the action of inaction would have on the area. The other buttons show data of CO<sub>2</sub> pollution, temperature and forest cover in the specific place on the map

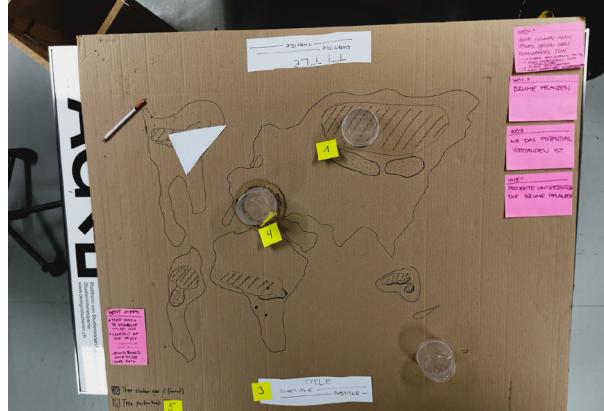


## Concept Video: ONE TWO TREE



## UI

We opted for a clean minimalistic aesthetic together with a dynamic bubble interface. All information is communicated either in the bubble or by its size. The whole structure would also behave dynamically depending where the token is located on the map. In other words, if one bubble gets bigger, the other bubbles are pushed away or get smaller. The visitors can scan a QR code and learn more about how they can take action.



## Process highlights

During our process we focussed our efforts on the 5 key messages from Crowther lab and developed several approaches to each of them.

First, we wrote each of these 5 key statements on a large sheet of paper and each group member wrote or sketched something individually.

The design of the interface was also heavily dependent of the shape of our token, which we declared in an early stage that it would be round. It also followed our rules of simplicity, the visitor should have a lot of information with less clicks. Therefore we created a two layers interface, where we present our information. One for general information and another where people can get active.

# jetpack

A Design Method in collabora-  
tion with Psychiatrie Nord  
St. Gallen

jetpack



## In Short

This game is a method, which supports designers in connecting with the participants during field research, by starting conversations and building trust.

We created this game together with the psychiatric clinic in Wil, Switzerland. There we also used it as a tool to get to know the patients and build a relationship with them. Today, the staff still uses the game to get to know the patients better.





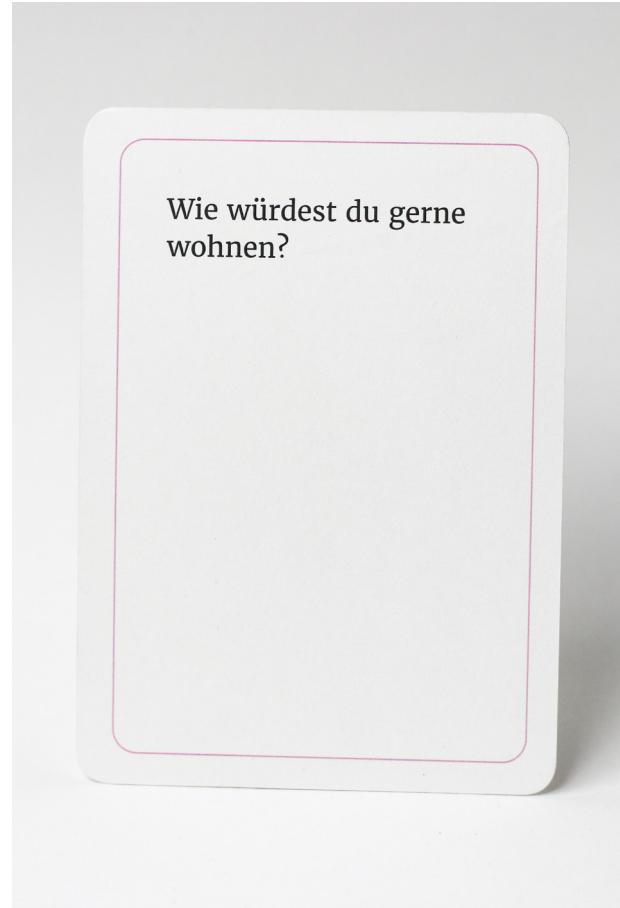
[Download Game: jetpack](#)

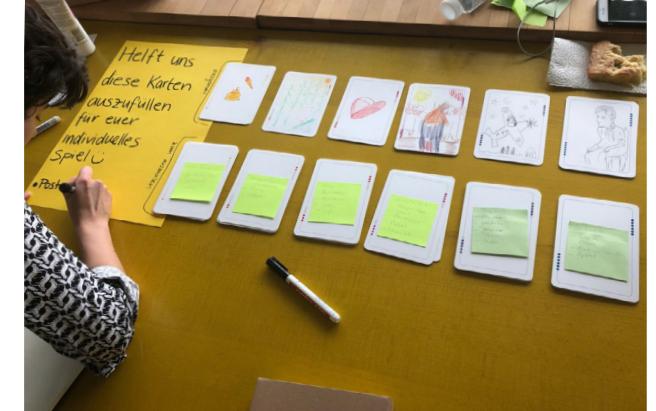
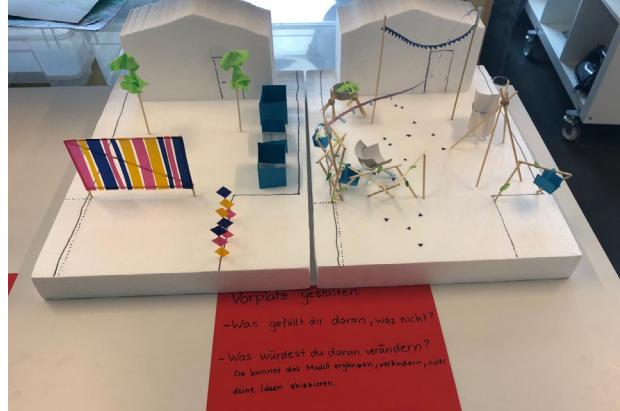
## The core

The game consist of six different question rounds. During play the participants and the designers get to know each other and a meaningful conversation unfolds.

Since the questions don't require any knowledge, it can be played by anyone. With a playing time of 10min it is a very quick and engaging game.

We have created a designer version with our own illustrations, which can be downloaded for free to use as a method, and we have left a version for the Tagesstätte that we have drawn with them on site.





## Process highlights

This participatory design process required mutual respect. When we first started at the Tagesstätte we've encountered a lack of trust to outsiders. The people there felt disturbed by our presence in their "safe-place". Even though we actively participated in their rituals, it didn't result in an immediate willingness to interact closer with us beyond a simple conversation.

To make them as comfortable as possible we prepared a cultural probe kit, containing simple tasks for the visitors. This served the purpose to gain a better understanding on things that are important to them. The cultural probes were a good exercise to manifest our ideas into tangible objects.

We also learned a lot through direct creating and testing using methods such as bodystorming as well as creating simple paper prototypes. It helped us identify

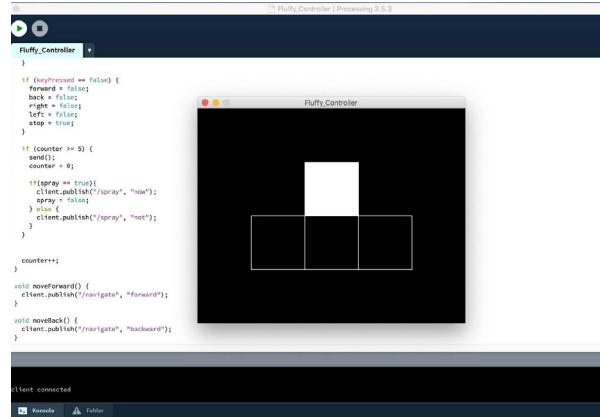
shortcomings we have overlooked thus far. Since we aimed to move beyond the conversation point and try to figure out how to really build a connection / trust that would last, even after the game has finished. We created cards with different "levels" according to the difficulty of the question / activity. The backside of the card would have some illustration, that is related to the question. This way the people playing have some influence over the course of the game, again making it feel less like an interview.



## In Short

This Physical Computing project is drawing inspiration from robotics to physically prototype interactive devices with empathetic qualities and anthropomorphic behaviours. We wanted to create a robot duo (fluffy + fumey) that embody narcissistic behaviour. Fluffy is a rolling robot that is controllable via a computer and fumey sprays perfume once fluffy is close enough. “Fluffy’s” character is the only thing that can activate the perfume so over time it becomes very self-absorbed and smells good.





```

% Fluffy_Controller | Processing 3.5.3

Fluffy_Controller
}

if (keypressed == false) {
    forward = false;
    back = false;
    right = false;
    left = false;
    stop = true;
}

if (counter >= 5) {
    send();
    counter = 0;
}

if (spray == true){
    client.publish("/spray", "now");
    spray = false;
} else {
    client.publish("/spray", "not");
}

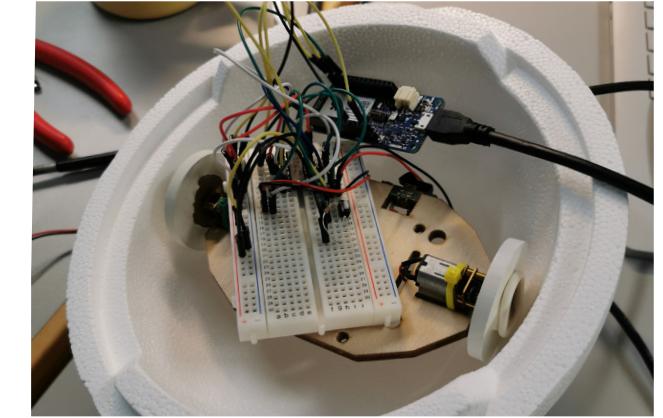
counter++;

void noforward() {
    client.publish("/navigata", "forward");
}

void noback() {
    client.publish("/navigata", "backward");
}

client.connected

```



## Process highlights

We used two DC motors to control the wheels of the main robot and one servo motor for the perfume dispenser. To control the movement of tfluffy remotely we used an Arduino MKR100 since it was able to connect to WIFI and receive the commands sent from processing via shiftr.io, a data broker. With the Arduino, we programmed the different directions in which the motors were spinning. To test whether or not our idea would work, we made some wooden wheels and stuck them around the motor axis. After that, we conducted the

first test inside a styrofoam ball. Which it did move in the desired direction, it seemed to move a little too fast and the wires and everything took up a lot of the very limited space.

During the process, we only had one problem with "Fumey", the spray station. There we had some struggles with the servo motor, but after some adjustments to the case it ended up working. With "Fluffy", the rolling, self-absorbed ball, we had more problems. Mostly

hardware problems, for instance not working batteries or that the inside free rotating construction got stuck at times. Bigger wheels, a smaller battery, and perfectly distributed weight solved the problems. With the processing code, we initially wanted to have object-detection and let the robot find it's own path to where we wanted him to go. But after lots of trying and the continuous problems with "Fluffy", we opted for faking the behavior and have manual control.

**Gracias, for checking out my  
projects! Why not drop me a  
message?**

**pmschmidinger@gmail.com**