



**MEANDER VAN DER WEIJST  
PORTFOLIO 2019**





*Inventive, pragmatic, critical*

## **CONTEXT**

This portfolio showcases some of the things I've made in the past few years. It includes some things I worked on during my bachelor. The majority however, are things I made at home, either for myself or for friends and family.

As a designer, I am inventive yet pragmatic. Due to my background in Engineering Physics, I have a wide grasp on technology, and thus a good sense of feasibility. I don't think this stands in the way of being creative and innovative, since doing things differently requires knowing how things are done already.

I am also critical, of my ideas, usability and realisation, no first version of a product is ever a final version and I hold aesthetics in high regard. What I aim for mostly however, is designing products that help people in their daily life on whatever scale that may be.







*Making life a little easier*

## **DESIGNING SOLUTIONS**

When I was twelve years old, I was diagnosed with ADHD. What effect this has on someone's daily life varies from person to person. For me it means, amongst other things, that I sometimes lose sight of the bigger picture when it comes to planning, but also that I'm spontaneous, have grown to be resourceful and have a good eye for detail.

Ever since I was diagnosed, I have, consciously and subconsciously, been thinking of methods or things to help me deal with the challenges I experience daily, to make life just a little easier for myself. Like this laundry basket, that lets you sort your clothes immediately after you've worn them. This may look like a small simplification of an already simple task to most people. However, for people with ADHD something as seemingly simple as doing laundry can feel overwhelming, because it



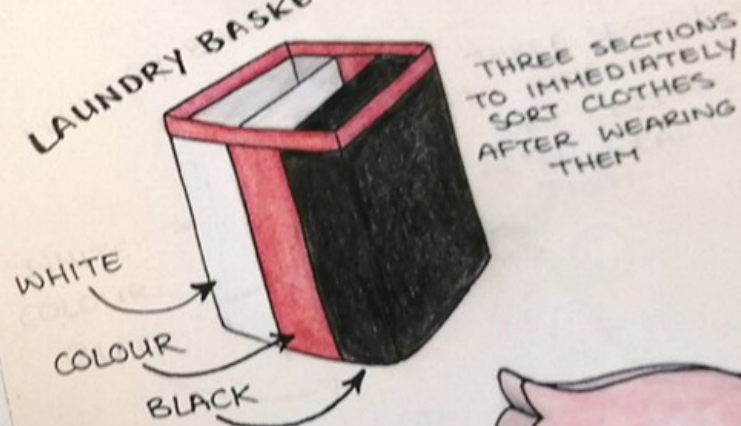
involves quite a few steps. So, eliminating one of these steps can have a large impact.

My approach to coming up with solutions in the form of products is very practical, whether it's a simple solution like this laundry basket or a more intricate product. Besides the usability, I look at the feasibility, because ultimately the *how* is as important as the *what*. Having established *what* the solution will be and *how* I can realise it, I focus on the aesthetics.

The products on the following pages all focus on making life just a little easier, not just for people with ADHD, but for everyone who sometimes needs a reminder or some help planning.

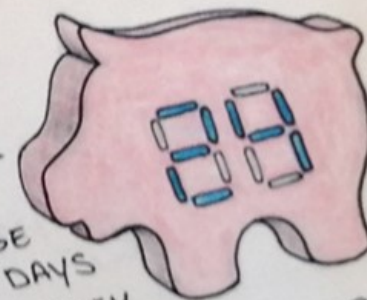


### LAUNDRY BASKET



### COUNT DOWN PIGGYBANK

HOLDS MONEY HOSTAGE FOR 7, 15 OR 30 DAYS TO OVERTHINK NECESSITY OF PURCHASE



→ CONTROLLING IMPULSE SPENDING

WEEKLY PLAN  
BREAKFAST,  
LUNCH AND  
DINNER FOR  
EVERY DAY ON  
MEAL PLANNER  
WHITEBOARD

- LIMIT IMPULSE SPENDING AT THE SUPERMARKET
- LESS FOODWASTE
- WASTING LESS TIME ON GROCERY SHOPPING
- EATING HEALTHIER





*Smoothly guiding you through  
your day*

## **DESK LIGHT**

For people with ADHD it is harder to regulate their attention, this does not just mean that it is hard to focus on tasks. On the contrary, it can feel impossible to pull away from something. At times, this means I'm able to get a lot of stuff done, but it is not very sustainable to work on something for eight hours straight without having any food or bathroom breaks. Additionally, appointments tend to be forgotten.

Of course, I could set alarms or notifications on my phone, but having my phone around means more possible distractions and I don't like how alarms crassly interrupt my workflow. To still be reminded to take breaks or leave for appointments without the disruptiveness of an audio signal, I made a desk light that lights up and changes colour depending on the events in your Google calendar and their colour code.



The desk light turns on when an event is scheduled, the colour of the light matches the colour you chose for your event in Google calendar. I always indicate breaks with blue, so when a break is scheduled, the desk light will turn blue.

To be alarmed of events beforehand, you can set a notification in your calendar. When a notification is added to an event, the desk light turns on a white light when that notification is set. If, for example, a dentist appointment is scheduled at 11:00 with a notification 30 minutes before the event, a white light is turned on at 10:30 to remind you to get ready and then turns to the colour chosen for the event at the time the appointment starts.

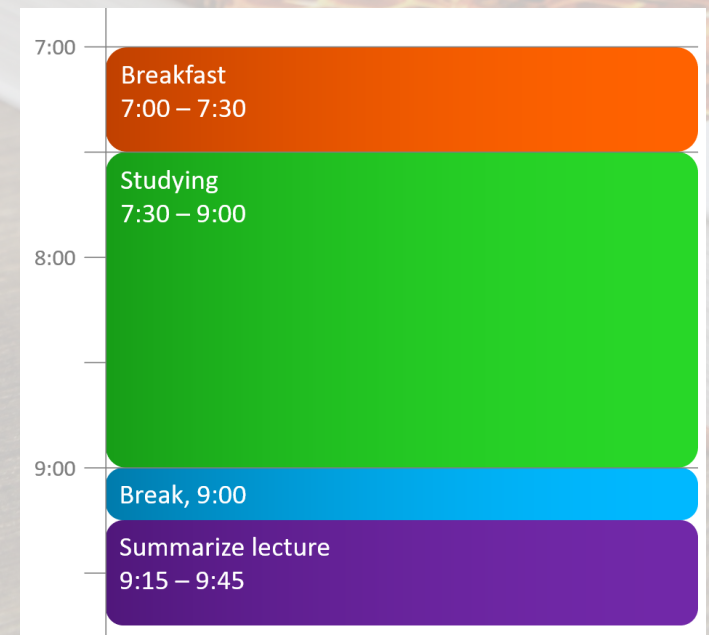






The desk light can also be used for a more detailed planning as a visual reminder to smoothly guide you through all your scheduled tasks for the day. For example, you plan half a hour to eat your breakfast, after that, a hour and a half of studying, followed by a short break and a half hour to summarize a lecture. By giving all these tasks a different colour in your Google calendar, the desk light will indicate the beginning of a new task.

The desk light enables you to stick to your planning without constantly having to check your calendar or have your workflow disrupted by an alarm.











*Remember to take your  
medication*

## **MEDICINE BOTTLE**

I tend to be a forgetful person, as are many other people with ADHD. Luckily there is medication to manage this, which of course only works if you take it. Forgetful as I am, I do not always remember whether I've already taken my meds or not.

This is why I've made a medicine bottle that indicates if it was recently opened. When the bottle is opened, the light on the cap turns on and stays on for a set time (adjustable anywhere from 10 minutes to 24 hours). This way, just by glancing at it, you'll know whether you've taken your pills or not.

The working principle of the medicine bottle can also be reversed, meaning a light is on until the bottle is opened. This way it acts more as a reminder to take your medication rather than to indicate that you've already taken it.



The most commonly used medication for ADHD needs to be taken every four hours. By setting the relay time at four hours, you are reminded four hours after you last opened the medicine bottle to take a new dose. The downside to this is after you've taken your last dose of the day, the light on the cap stays on the entire night. Currently this drains the battery too much, it would require replacing it every few weeks. Fixing this battery issue, with different electronics perhaps, could improve the usability of the medicine bottle.

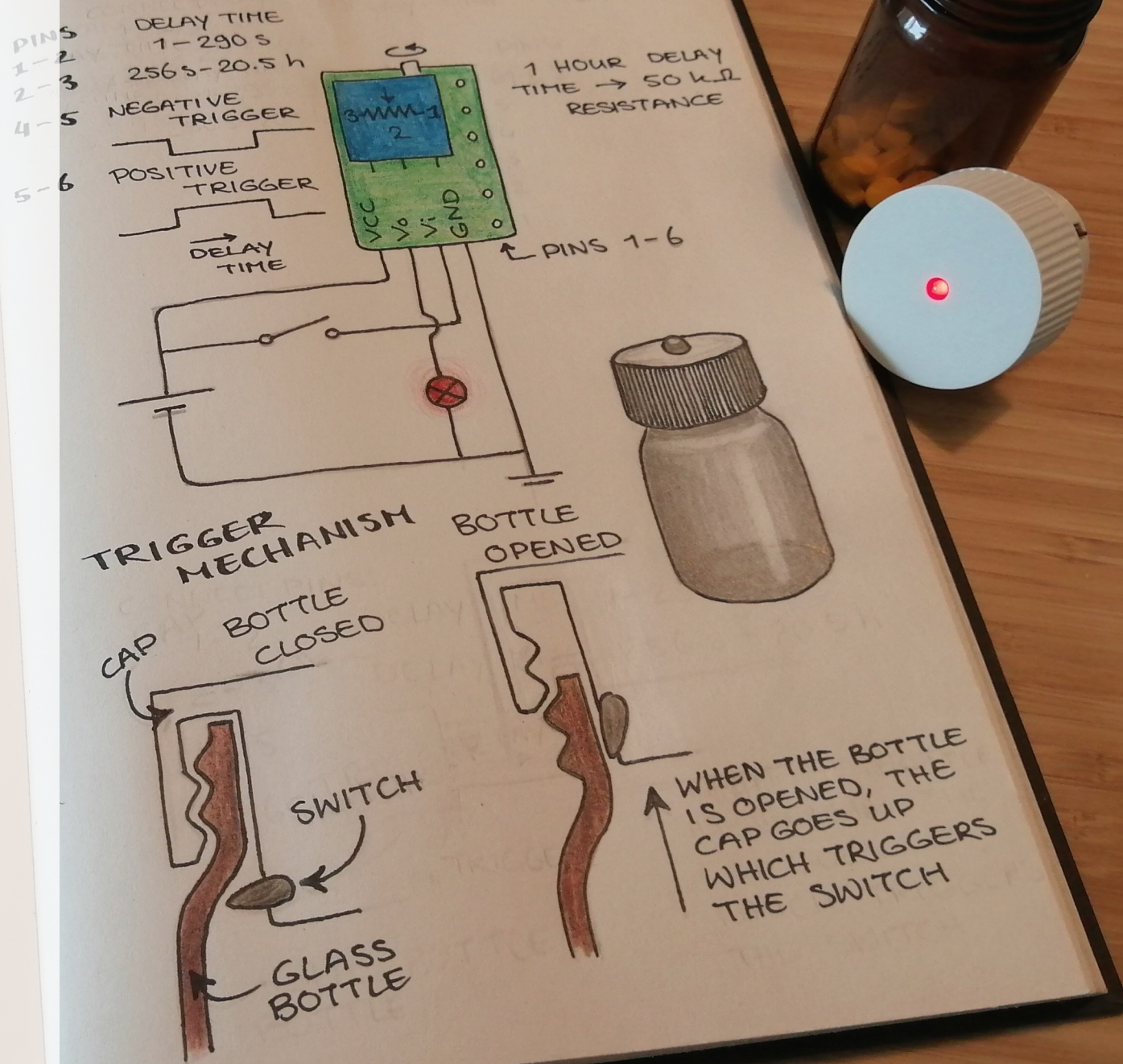
I asked people from the ADHD community on Reddit whether they would find it helpful to use this medicine bottle. These are some of the responses I got:

*This could be really helpful. My system with a pill bottle is to set it upside down after a morning dose.*

- u/Voc1Vic2

*That's a really good idea, I would use it. Can't remember the times I was confused and didn't remember if I already took my meds or not.*

- u/LoneLona





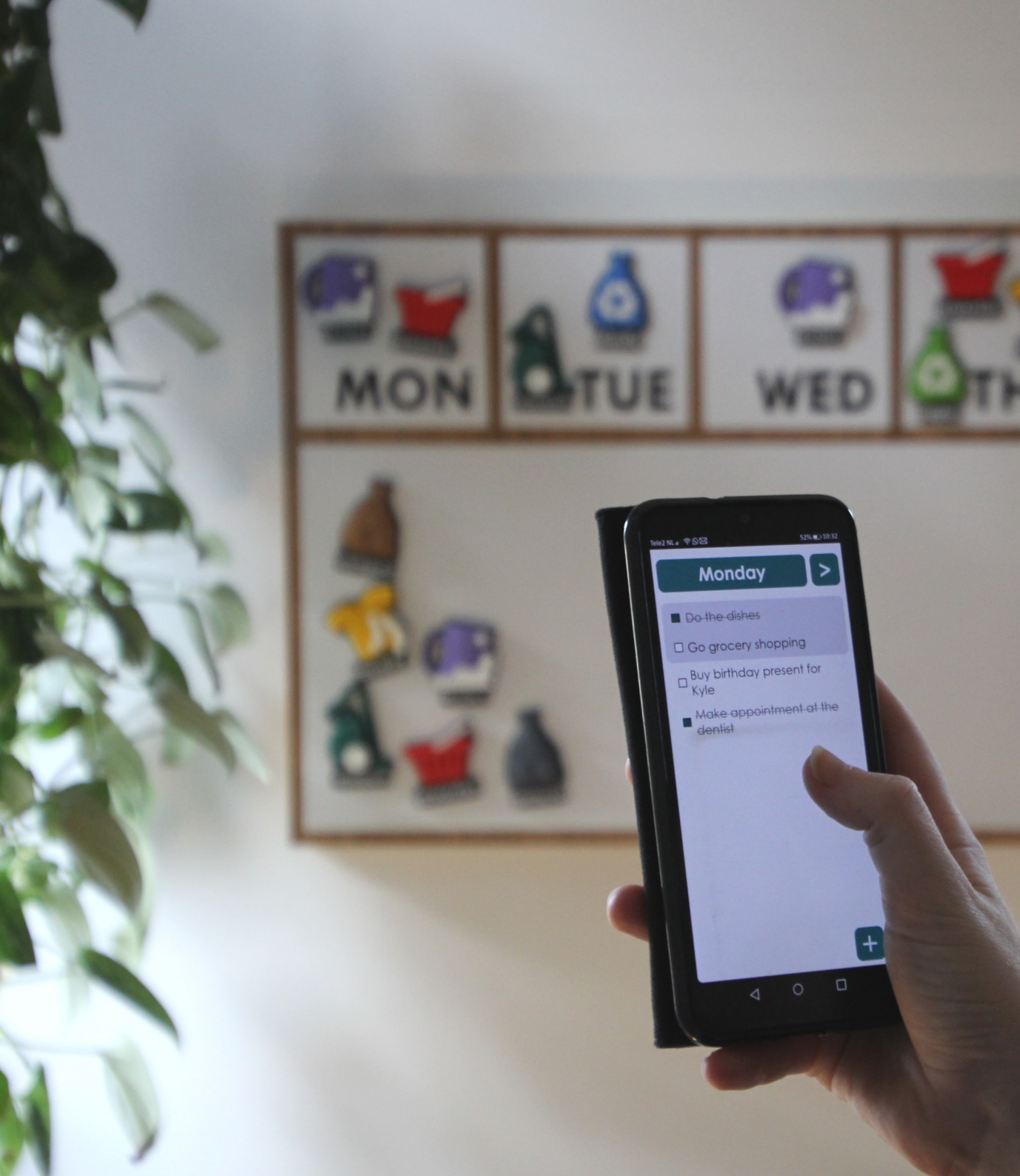
## *Combining analogue and digital planning for household chores*

### **HOUSEHOLD PLANNING**

Whenever I have a lot on my plate, am stressed or feel overwhelmed, household chores are always the first things to be neglected. Ultimately this will only worsen the situation, because not having an organised home to return to after a long day, results in more stress.

When it comes to planning, I prefer large tangible overviews and schedules. Downside to those, is that they're not very portable. Contrary to digital planning, because when I'm not at home, I usually got my smartphone with me. To get the best of both worlds, I came up with a way to combine analogue and digital planning to schedule my household chores.

To plan household tasks, a planning board is used. This board consists of eight separate whiteboard fields. One large area to write down notes and seven small squares, one for





each day of the week. With magnets, all representing a specific chore, tasks are scheduled. There are eleven different magnets for the following tasks; doing laundry, grocery shopping, cleaning dishes, vacuum cleaning, cleaning the kitchen and the bathroom, water the plants, and taking out the trash (general waste, compost, plastic and paper).







When you put a magnet on one of the day-squares it is detected and automatically added to a to do-list in an application on your smartphone. The application shows the to do-items from the planning board at the top of the list in a grey box. Other to do-items can be added in the application as well, giving you a complete overview of what needs to be done during the week.

By combining analogue and digital planning you have a clear overview when planning household chores, you are visually reminded when you're at home and you can check your planning whenever you're on the road.





**MON**



**TUE**



**WED**



**THU**

**FRI**



**SAT**



**SUN**





*Wide range education*

## **ENGINEERING PHYSICS**

I did my bachelor in Engineering Physics at Fontys University in Eindhoven. I chose physics because frankly, I didn't know what I wanted to do, it had always been quite easy for me in school, and because it covers a wide range of subjects, I would be deployable in various fields. Especially for this last reason I'm glad I've got this degree, even though I now choose to not continue in the physics field, having a broad technical knowledge is very beneficial when working with people of different engineering backgrounds.

Engineering physics mostly focusses on research as opposed to development. This does not mean there was no need for inventivity, I could put my creative skills to use when designing the experiments and measurement set-ups.

The picture on the left, I took during my graduation internship at Philips Research, they



show a colour filter, it transmits red light but reflects blue light. Hence, the reflection of my face is blue and the letters on the keyboard are red. The following page discusses my graduation internship further.

The page after that shows two projects I've worked on, one of them is a second year project and the other a project I worked on during a minor in Health and Technology.

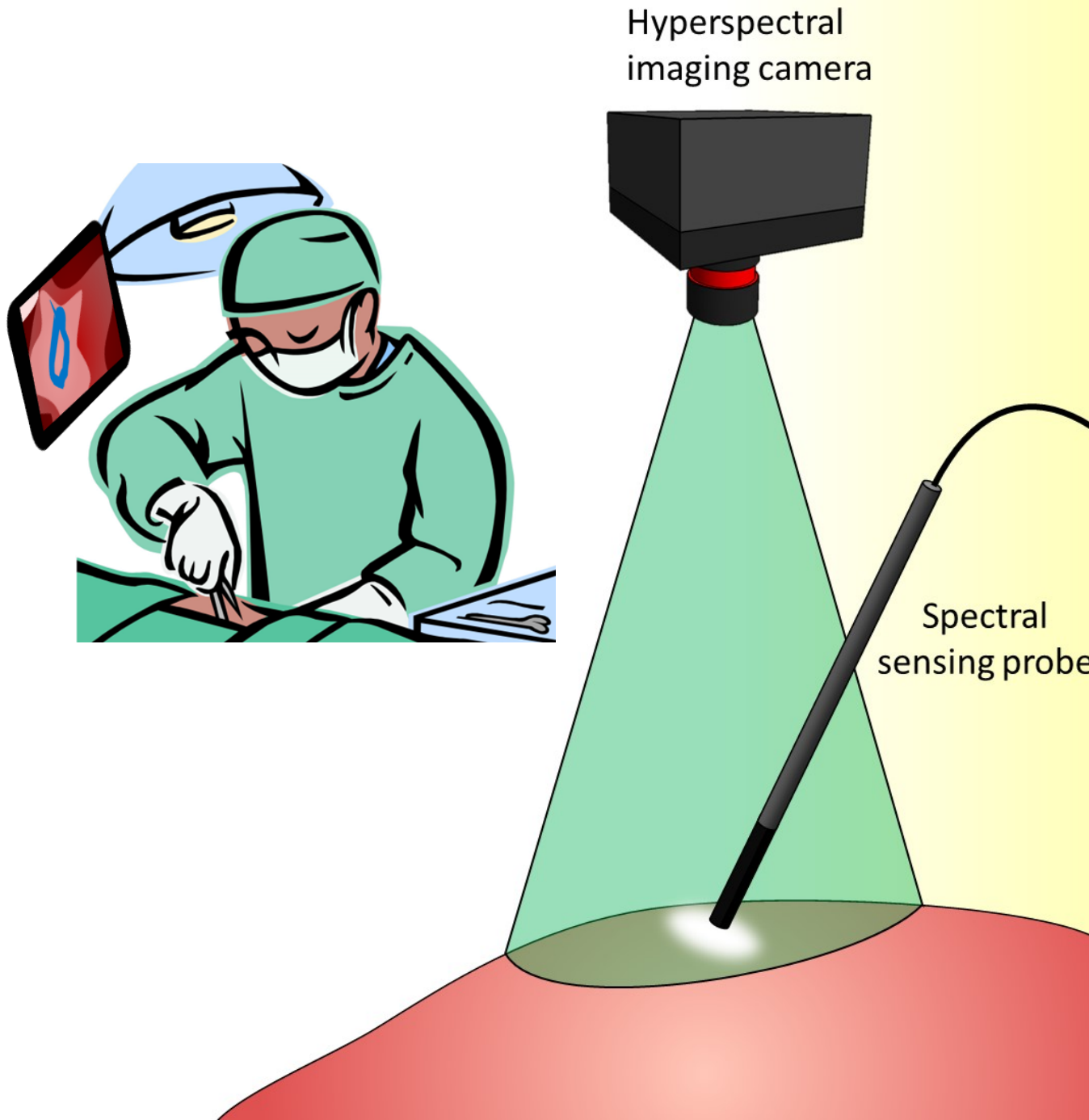




## **HYPERSPECTRAL IMAGING**

Philips strives to improve healthcare, in the forms of personal health and health systems. The latter are products made for hospitals and other healthcare facilities, oncology is one of the branches health systems focusses on.

Cancer is the leading cause of death in the Netherlands. Surgery is an important part in the treatment of cancer. An operation is successful when all cancerous tissue is removed. This depends on the surgeon's ability to distinguish tumours from healthy tissue and histological research of samples that are taken during surgery. Unfortunately, the surgeon's judgement is not always accurate and the taken samples are not always representative, additionally histological research takes a lot of time. Therefore, Philips aims to make a hyperspectral imaging tool that gives a surgeon real time feedback during

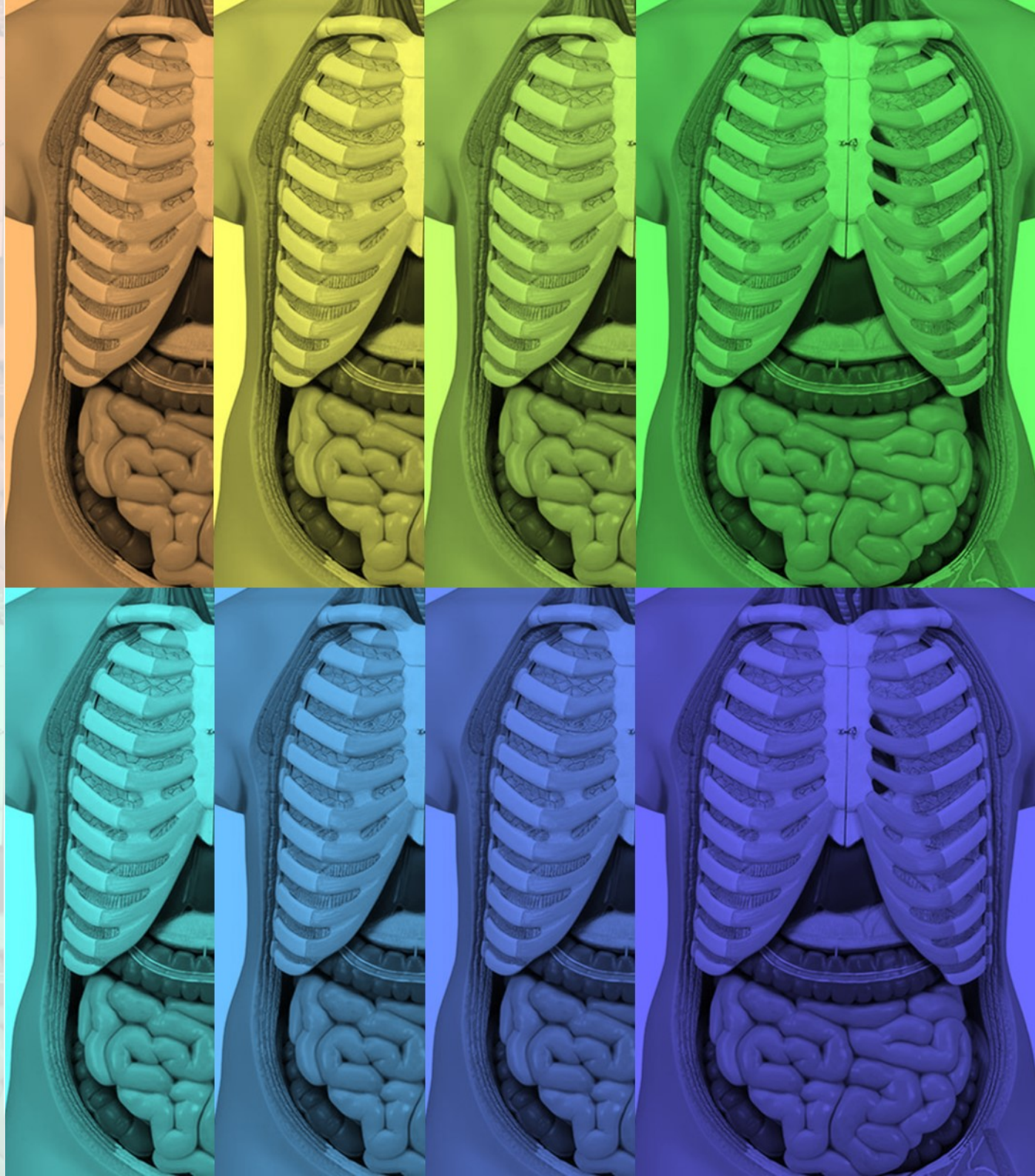




surgery to better discriminate between cancerous and healthy tissue.

To do this a better understanding of hyperspectral imaging is needed. My assignment was to design and build a measurement set-up to compare hyperspectral imaging to diffuse reflectance spectroscopy (a spectroscopy technique that is already used in hospitals), and performing various measurements to test the concept and effectiveness of the set-up, to determine whether hyperspectral imaging can be used as a tool to support oncological surgeons.

I did this by performing four sets of experiments, comparing the hyperspectral camera (an imaging device, measuring a large area at once) to the spectral sensing probe (a single point measuring device). The measurements were performed on various tissue samples (chicken, bovine and pork meat), to determine whether a distinguishing could be made between the different tissue compositions (proteins, lipids and haemoglobin e.g.).



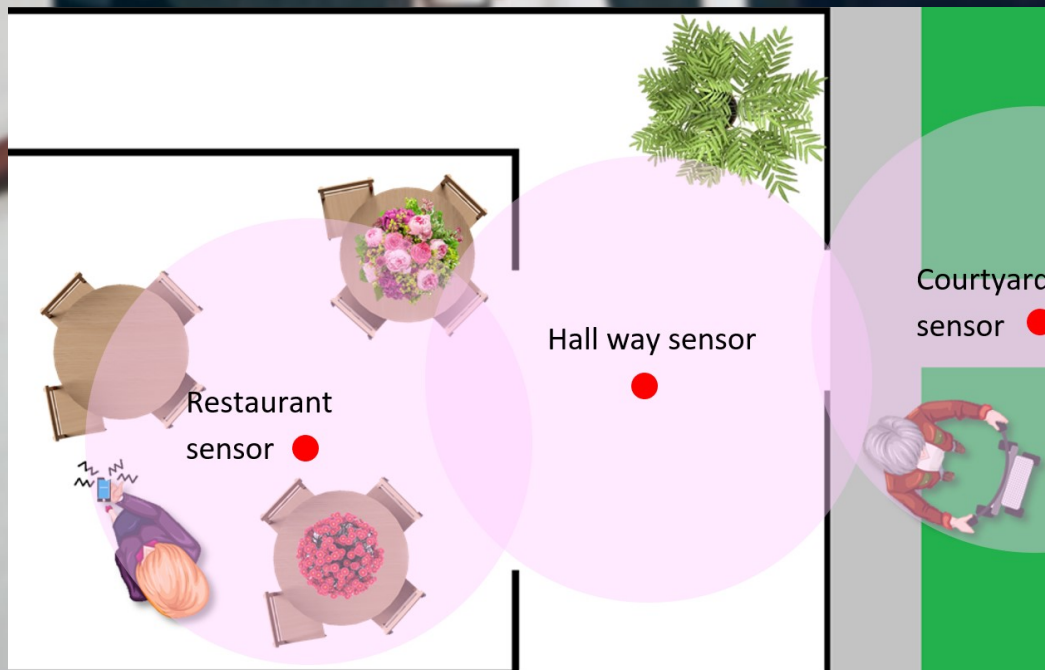


## *Project Minor Health and Technology*

### **TAGLESS TRACKING**

Tagless Tracking was a multidisciplinary project commissioned by Hertek, to develop a system to track people without tags to be used in nursing homes. By tracking the patients in nursing homes they can be given more range to wander without them getting lost.

We started the project by gaining information on the wants and needs of the three stakeholders, who are most directly effected by the system, the patients, their curators and the nursing staff. This was done by interviewing people at a nursing home in Oss. After this a prototype was build, using two depth sensors, proving it is possible to track people without the use of tags. Furthermore, an application was developed, that notified the nursing staff on the whereabouts of the patients and a cost analysis was made based on the nursing home in Oss.



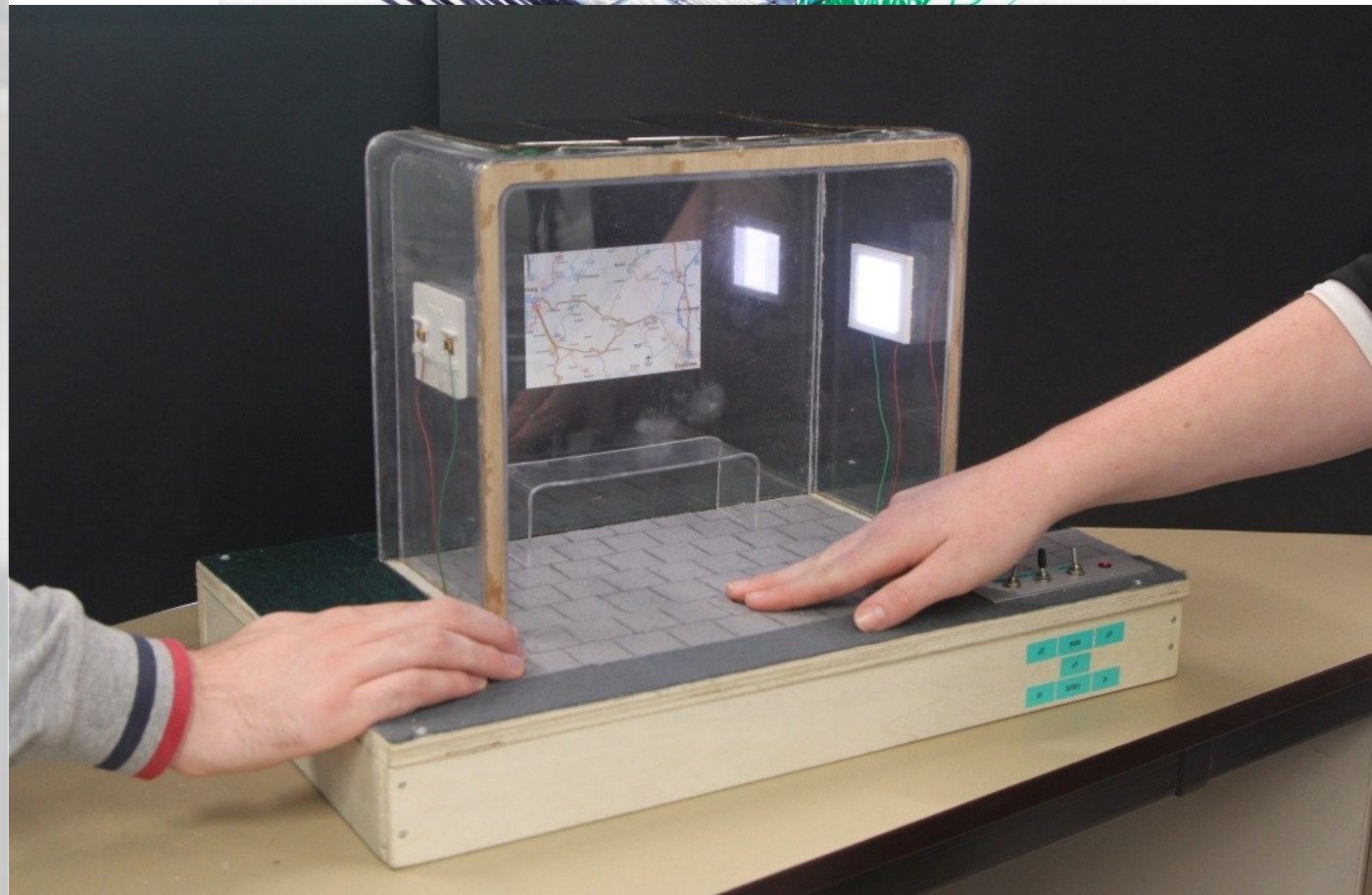
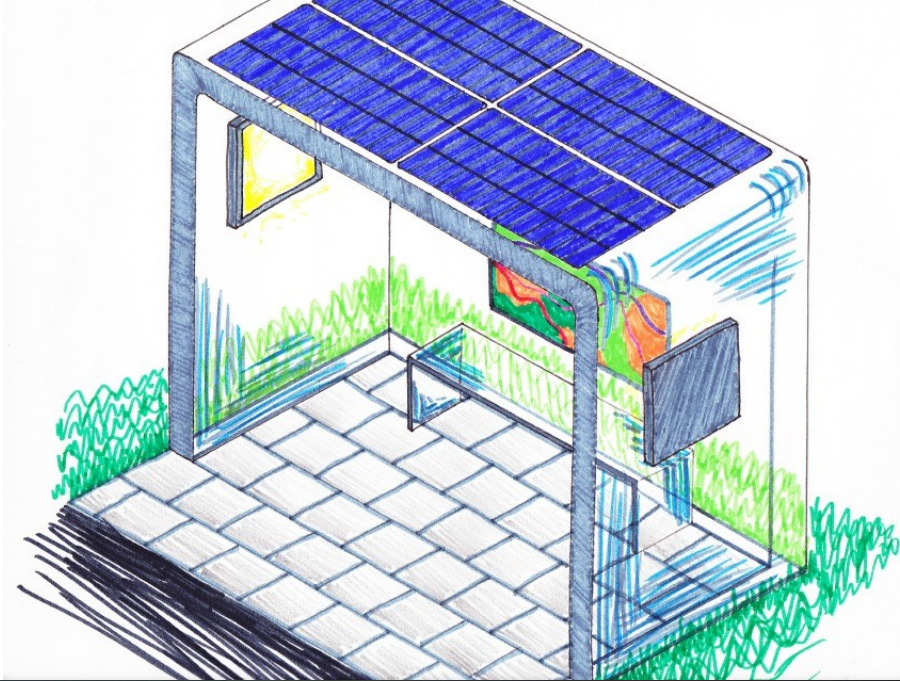


## **INNOVATIVE BUS SHELTER**

The innovative bus shelter was a second year project for entry of the OE-A (organic and printed electronics - applications) competition in Munich. This bus shelter is designed to be more energy efficient.

The bus stop is equipped with a pressure sensor to detect whether a passenger is waiting for the bus and a light sensor to detect the surrounding light. When a person is waiting for the bus and it is dark outside, the OLEDs in the bus shelter are turned on. The bus stop is powered by solar cells, making it, in addition to only turning on the lights when needed, extra sustainable.

During this project I was, amongst other things, responsible for designing and making the prototype.









## *Bringing in life*

### **INTERIOR DESIGN**

Design is meant to serve a purpose, other than being eye pleasing. The interior products I design, are not only an addition on their own, but a means to an end, that end being to bring in life. To me, this means adding a certain functionality to an interior or in the literal sense, by bringing in nature through plants. The pictures on the left show three planters I've made, all of different materials; paper, concrete and wood. The picture on the right shows a light I made, combining a wooden part encasing the light source and a 3D printed shell structure that nicely disperses the light.

Though I combine flowing, natural forms with geometric shapes, the designs are all minimalist and do not derive attention from what should be the main focus; either the plant or the functionality of light. I strive for elegance through purity and simplicity, because living itself brings enough chaos into a home.







*Subtly, powerfully, brutally*

## **CONCRETE PLANTER**

Aside from being an elegant addition to any interior, this planter may remind you of brutalist structures built in the cold war. Brutalist architecture embodied both the incredible imagination of mankind, its will to thwart the laws of nature and the spirit of its time.

Construction, and with that regretfully also architecture, is often conservative in its approach. Much of what we see today is modern architecture, not post-modern as our time would suggest. Fortunately, we are free to bring post-modernism into our homes, which we see more often, with people keeping a very eclectic style, typically post-modern. Such a brutalist structure thus fits perfectly in any living space. It allows you to bring in a piece of nature as well as a piece of history and art. It is a friendly reminder that we must not forget our past, our European history, with





its totalitarian regimes and all the brutality they brought. Something our generation, not having lived through this, tends to forget, with the effect of falling for the same extremist ideologies.

This all makes this planter intriguing. It has depth and functionality, fits in any home and tells a story, subtly, powerfully, brutally.









The concrete planters are made using 3D printed moulds. Two halves form the outside mould, these are made of PLA, which is a very stiff material, the most commonly used material for 3D printing.

The inside mould is made with a flexible 3D printer filament. This gives it the ability to be pulled out of the planter once the concrete had dried and the pot shrunk around the inside mould.

Two threaded rods align the inside mould with the two half outside moulds. The rods keep the inside mould fixed in place, while the mould is moved. This is needed because the mould needs to be shaken to get the air bubbles out of the concrete after it's poured.







*Sustainable without compromising  
on aesthetics*

## **CORK LEATHER BAG**

We are getting more and more conscious about our impact on the environment, this shows in what we choose to eat, what cars we drive and what we choose to wear, and are therefore in search of an alternative for leather. Although leather is a by-product of the meat industry, buying it, still means supporting an industry that greatly contributes to environmental changes.

So, what is a good alternative to leather? High quality faux leather can look and feel exactly like real leather, but when it comes to durability, the two couldn't be more different. Another downside to faux leather is the pollution microplastics from synthetic fabrics cause.

Cork leather offers a sustainable alternative to real leather. As the name suggest, the material



is made from the bark of cork oaks, the bark of the tree can be harvested every seven years without the need to cut it down.

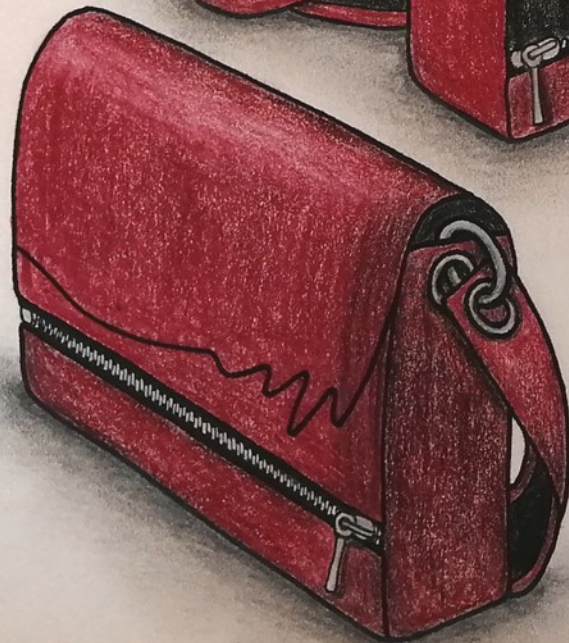
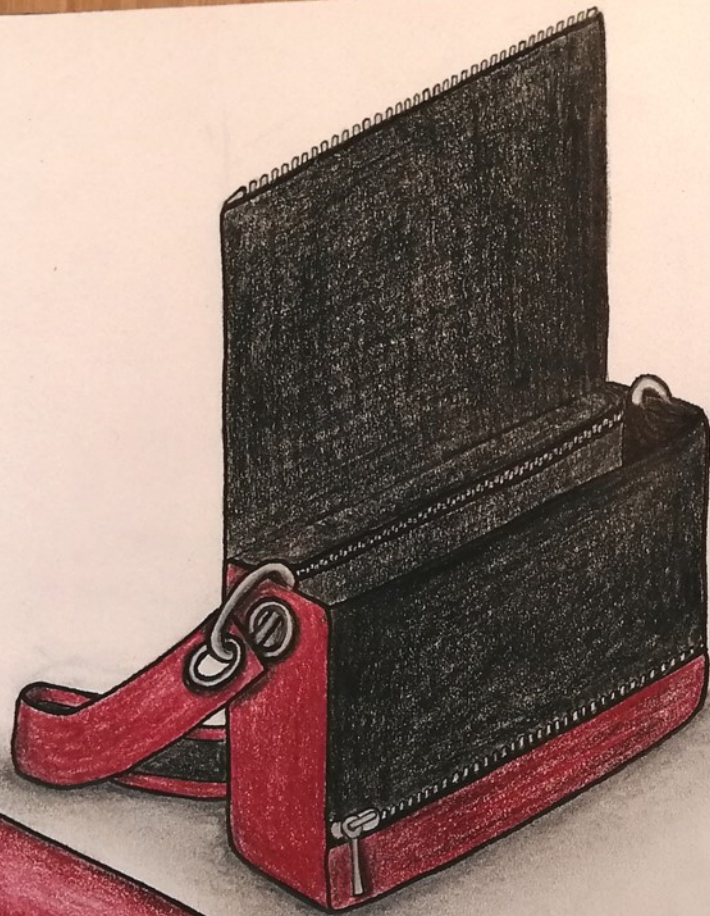
Cork leather is durable and ages well like leather and it has the same uniqueness to it. Much like no two animal hides are the same, no two pieces of cork leather are the same either.

Other benefits to cork leather are that it's water resistant and it is a very light weighted material, thus making it well suited for a laptop bag.





CORK



12"/13" LAPTOP  
COMPARTMENT

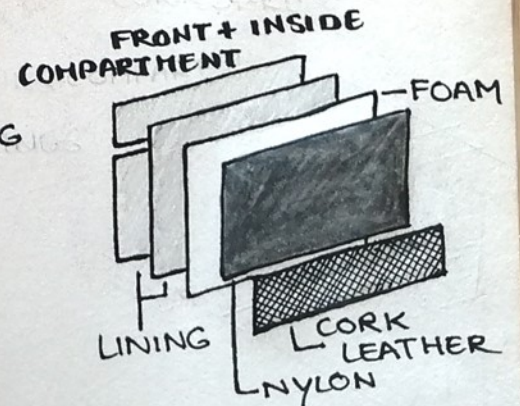
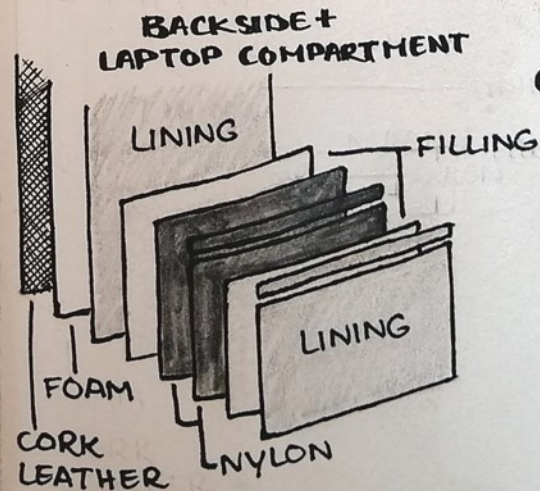
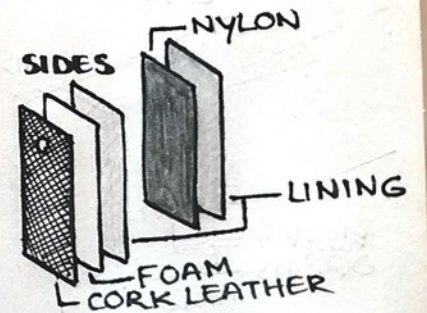
INSIDE  
COMPARTMENT

BACKSIDE  
COMPARTMENT

SIZE BAG:  
24 x 31.5 x 9

MATERIALS:

- CORK LEATHER
- LINING FABRIC
- NYLON LINING  
↳ WATER RESISTANT
- FOAM  
↳ SHAPING
- FILLING  
↳ PROTECTION





The laptop bag has a main compartment, which is closed off by the zipper on the front of the bag and three other compartments, all closed off by zippers as well. Two of these compartments are inside the bag, the one on the backside is lined with an extra layer of stuffing, making it suitable for a 12 to 13 inch laptop.

There is a third compartment on the backside of the bag. This compartment is also closed off with a zipper and it's carried against your body, thus making it a secure place to keep, for example, travel documents in.





