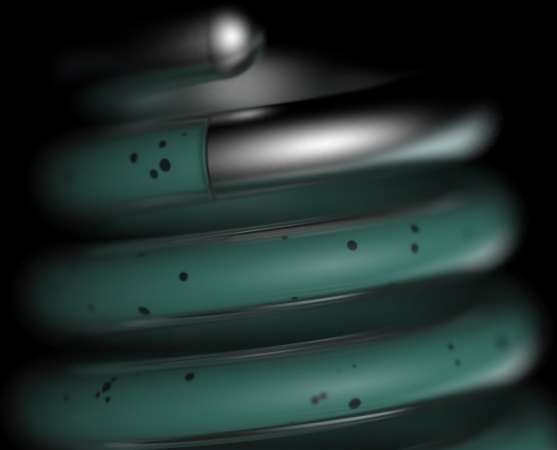# WHAT IF

A speculative design study examining our relationship
to technology and the built environment.

Martin Ljungman

Bachelor of Fine Arts - Lund University - 2020

LUND
UNIVERSITY

WHAT IF

A speculative design study examining our relationship to technology and the built environment.

Martin Ljungman

Abstract

What If is a conceptual and speculative design project aimed to fuel discussions and physicalise debates regarding our relationship to the world around us.

The environment we have created is characterised by constant growth and an endless stream of information. Our human senses are made for a completely different kind of life and the natural evolution has no chance against the technological. It's time to talk about what we are aiming at, what society we want, and who we want to be.

By approaching the topic of how technology relates to our senses in a futuristic scenario, the project aims to stretch the boundaries of our perception of the world around us and our expectations on technological advancements.

The outcome consists of four personal devices, one for each of the facial senses: hearing, sight, smell and taste. Together, they create a series of multi-sensorial devices. Each device has the common main goal: to accompany and to enhance its host sense. Each topic relates to sustainability, what type of future we are building, and how the senses need to be improved to suit the environment we have created.

TABLE OF CONTENTS

INTRODUCTION

We live in a world where we constantly get overfed by information. Luckily, our brains are smart enough to deal with this information in an efficient way. But according to neuroscientists, the brain receives vastly more sensory information per second than it can process, so it has to filter information out and organise the remaining sensations into patterns and categories (Lipari, 2016). This process is very energy consuming for our brains, energy that could have been used towards what we actually care about.

In a modern and technology-driven world, our senses become less important and loose their original use. Throughout human history, we have relied on our senses for survival and well-being. Today, technology does this for us. In the western world, we do not rely on our sense of taste or smell to tell if the food is poisonous or not and we do not need to look at the sun to tell the time. I am not against this technological evolution, after all, our current world system offers a far safer environment than previous ones. The question I am concerned about is if this has to come with the price of our brain being overfed by information, numbing our senses?

The device we use the most, the smartphone, does so many things for us and acts as the main filter between the user and the outside world. Yet, this device lacks any type of sensorial communication. We use our delicately programmed fingertips to scroll and navigate on a friction-free glass surface and get notifications through simplified tones and vibrations in our pocket. The information that appears on the screen, whether it is a funny video, a weather forecast, or an interesting article, we interact with it in the same way. I don't believe that it has to be this way. Instead of letting technology limit our senses, it can improve us and adapt us to the world we live in. We are not the ones who should adapt to technology.

This paper documents the development of a series of speculative and conceptual devices that are aimed to accompany and enhance our senses in a world characterised by non-human-centred solutions. If we want to thrive in our environment and live in symbiosis with technology, we have to start designing for us and our senses.

Goal

The main goal of this study is to question the possibilities of our senses in relationship to technology and raise discussions regarding our perception of the world around us. Focusing on overpopulation and topics within the field of sustainability, I want to raise questions and start discussions rather than solely solving problems. Using a speculative design approach, I want to show a glimpse of what we potentially could expect from the future of human-centred technology. The main goal is to use design as a tool to *physicalise* debates regarding our place on this planet and how we relate to the built environment.

Motivation

As an aspiring industrial designer, I see it as one of my main responsibilities to question the set rules and restrictions of the perceived world. My core motivation lies within sustainability and conscious design. I believe that a speculative design approach that questions the foundation of how we perceive the world around us is one way to raise the important questions, start debates, and create a ground for the viewer to stand on when approaching an unknown world. In the end, nobody knows what the future will hold, so we might just create it.

I believe that I possess the knowledge and the tools to elaborate on, and creatively question, what kind of future we are creating. One of my main purposes, as a designer, is to bridge the gap between people and technology. This approach is a way for me to provide ideas about a future where personal technological devices are designed to strengthen the user instead of providing yet another distraction. I want to use design as a tool to physicalise debates.

METHODOLOGY

Being used to a problem-solution based design approach I wanted to expand my knowledge and understanding of the design practice by completely adapting a speculative design approach. Inspired by the book Speculative Everything by Anthony Dunne and Fiona Raby, I took on the challenge to let go of my preconceptions as a solution-driven designer and to put on the glasses of a speculative designer.

I decided to put most of my focus on the story-building around each product concept. To gain a profound and deep understanding of the future scenario, I wanted to focus on depicting a scenario highly inspired by our current one. But with the possibilities of using non-existing technology - keeping the project conceptual and inspiring rather than problem-solving.

Initial Brief

Use design as a tool to raise discussions and to physicalise debates about our place on this planet and how we relate to the built environment.

Speculative Design

Speculative design is a design approach that is useful for various reasons. It is a way for designers to address big societal problems, the ones that normally are too big to tackle. By applying this method, no problem is too big, simply due to the fact that the answer isn't based on reality but speculations. It's a way to fuel creativity, raise questions, start debates and nonetheless - accelerate change (Dunne and Raby, 2013).

At many times, speculative design is applied for futuristic scenarios but it could also be used to provide alternative realities to the world we live in right now or even altering history (Dunne and Raby, 2013).

A way to grasp the mindset of speculative design is to create a statement that starts with the words "what if". For example; "what if we could talk to animals?" or "what if fossil fuels didn't exist?".

By adapting this methodology, I was able to widen my perspectives and stretch my creativity to the maximum. I see speculative design as a powerful tool for everyone who has a certain desire to question reality and our perception of the world, something my thesis came to be all about.

Figure 1 *Speculative Everything, Dunne and Raby, 2013, book cover.*

FOUNDATIONAL RESEARCH

Product Attachment

When a person feels attached to a product, he/she is more likely to handle the product with care, to repair it when it breaks down, and to postpone its replacement (Page, 2014).

To deal with overconsumption, we need to regain the emotional bond to tools. The question is how I, as a designer, can enhance this and bridge the gap between human and technology. Tools we use today are thrown away and replaced long before their expiration date, something that characterises our modern technological era. Since we live in a world where it many times is cheaper and more convenient to replace the tool with a new one, we can not blame the user, but the whole economical structure.

Historically, personal tools and devices have had stronger bonds to the users, the further we go back in time, the closer the bond. Before the revolution of mass production, tools were made to have a long life-time and to sustain its original function. The more options we have and the easier it becomes to mass-produce products, the more shallow our relationship with them becomes. This is especially problematic when it comes to electric devices, since our satisfaction with them quickly runs out, to make room for improvements. Technological advancements are not inherently bad, but something has to change, because our relationship with technology is currently not sustainable.

Ways To Achieve Product Attachment

Product attachment can be achieved in multiple ways and the designer has a key role in creating this attachment. Two of the ways to strengthen the bond between user and product is through surprise and/or self-expression.

Surprise: this is an effective way to achieve immediate product attachment, although it often can be short-lived (Figure 1). Research shows that products that create a form of surprise for the user, in the end, are perceived as more enjoyable. The feeling of surprise awakes certain physiological and behavioural changes, like raised heart rate or a change in the facial expression (Ludden et al., 2008). This fact makes it more exciting for the user to engage in the product and to in the long run - form a stronger emotional bond with it. The user also gets certain benefits from the feeling of surprise, since it makes the product more interesting to interact with. When a product stands out from the ordinary, it forces the user to leave their comfort zone for a moment and be more open for new experiences. The application of surprise in product can be actively thought through in the design process, for example by the use of contrast, various design styles, material variations, and unexpected use of humour (Mugge et al., 2008).
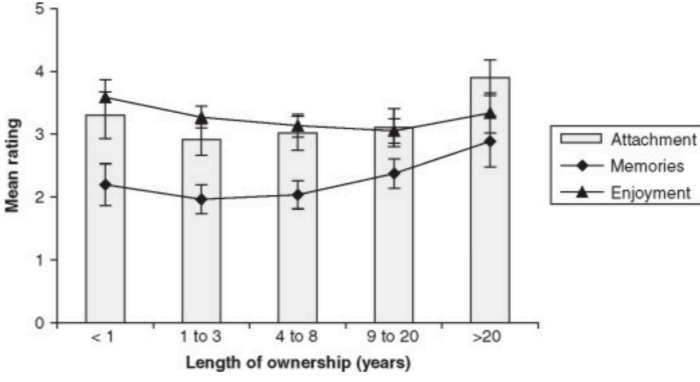

Figure 2 *Attachment, memories, and enjoyment as a function of length of ownership.* (Mugge et al., 2004).

Self-expression: if a product is used to define and maintain the user's identity, it can be seen as a shortcut to a stronger connection between the user and the product.

For the product to express and retain the personality of the user it can be customisable, but it can also express its own personality. A product can for example be experienced as cute, fun, outgoing, or sophisticated. If there is a match between the personality of the product and the one the user want to

express, it can work as an extension for the user and help to strengthen the confidence and feeling of connection between the two (Mugge et al., 2004).

There is an obvious dark side to this product-user relationship, and that is the implications of changes in style and fashion. If the product instead is customisable and can change its appearance back and forth it can stay up to date with the user for a longer period of time and therefore prolong the life of the product.

If the user is actively involved in the design process of the product, the process itself strengthens the relationship and the emotional bond. For these products, the designer has to find a delicate balance between the core design and the amount of customisation. Too much design freedom for the user can reduce the value of the product and the quality, as well as creating an unclear connection to the brand in question.

A Futurist's Perspective

When thinking about the future, a lot of interesting thoughts and speculations appear, but the most interesting one to me, is not what type of devices that will emerge, but how we will interact with them.

Today, we are constantly connected with the world around us and the world around us is constantly connected with us. Imagine that you lived in the '80s and were dropped down in our current society. How would you react to things like "Alexa, what's the weather in Sydney?"? The latest technology lets us interact directly with our gadgets by talking and getting verbal responses. We have found a way to incorporate more senses to communicate with technology. This is where I want to embark, and raise a discussion about how to improve upon how we use our senses in a technologically driven environment.

If you suddenly were dropped into the year of 2035, what would catch your attention in terms of our interaction with technology?

It is arguably safe to assume that technology will be more and more seamlessly integrated into our daily lives, more influential but less visible. So how will we interact with the latest technology 15 or 30 years from now? Will the interaction be non-existing and completely integrated in our bodies? Will we miss the era where physical interaction was still the norm? Will electronic devices involve all our senses and create stronger emotional bonds between the user and the technology? If I were to decide, that is what the world would look like, and in this project, I'm the decision-maker. My task is to convince my audience that this could be a wise step to take or simply to raise a question that creates a ripple effect of interesting discussions regarding overconsumption and our somewhat oblivious attitude towards electronic waste.

I believe that to create a society built on lasting solutions rather than short term satisfaction, a world where overconsumption is the exception and not the norm, we need to raise the emotional values connected to products. Simply put, we need to care.

A Cross-Disciplinary Approach

To reach a nuanced and inspiring result, I have to involve several disciplines in my study. Since everything revolves around the brain, its possibilities and its boundaries, I knew that neuroscience needed to play an important role. Even if my project is highly conceptual, I want to ground the thoughts in science, existing knowledge and existing expectations of the future of technology.

It all comes down to how we as humans interact with the world around us and especially how we perceive it. Therefore, psychology was a "no-brainer". It will therefore be the bridge between neuroscience and design.

Finally, the main focus in this project is, not so surprisingly, design, since this is my main subject. I want to take inspiration and knowledge from the other disciplines to in the end come up with design solutions with a stable ground to stand on. This will hopefully ensure nuanced solutions that are easier for a larger audience to grasp.
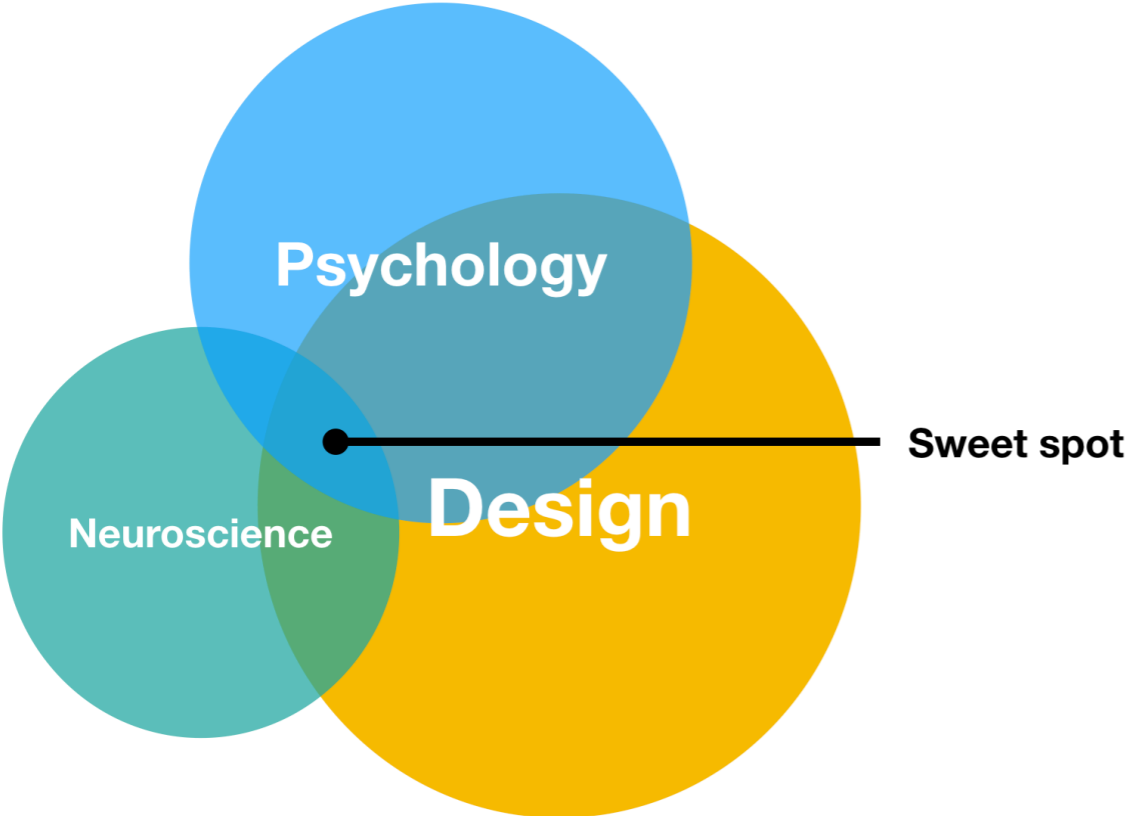
The Futures Cone

The futures cone displays a point of view one can adopt when approaching topics regarding the future. The middle cone, the probable outcome, is seen as the "business as usual" approach. It shows a mindset that allows minimal fluctuations and a more or less linear development. The meaning of this cone is to display in which area one can act to widen the perspective of future possibilities. A linear and fixed mindset might be comfortable but is not very adaptable or open for change. The desirable cone intersects the probable, plausible, and possible (Dunne and Raby, 2013).
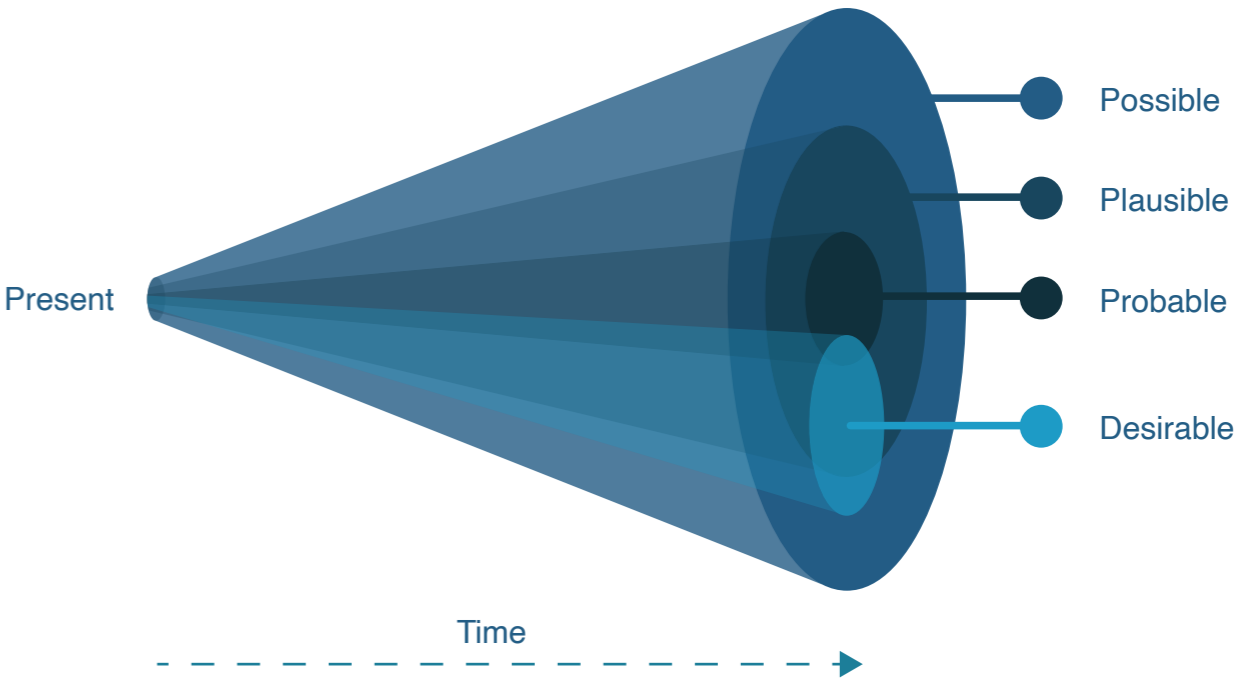
Futuristic Design Inspiration

There is an ocean of design projects to show alternative or probable futures, some more grounded in reality than others.

Here is a list of inspiration I found within the field. The variation is large and the only connecting thread (that is obvious) is that they all take a speculative standpoint while being inspired by technology and research from various disciplines.
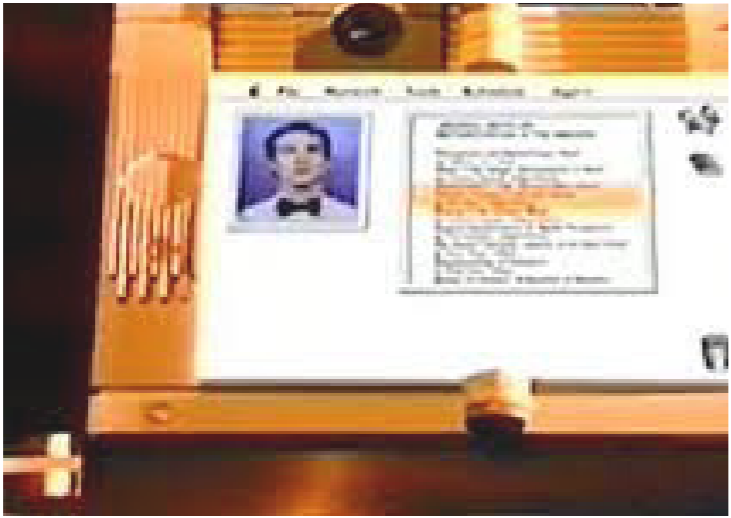

Figure 3 Apple Knowledge Navigator (Apple, 1987).

Above is an example of when speculative design followed the previously defined *probable* cone. It shows a conceptual device that, although created in 1987, has many similarities with the systems integrated in our modern smartphones.

An example of a similar relationship between speculation and future is the book 1984 by George Orwell. The author predicts a surveillance-society more accurate than anyone would have expected and even though that society was far away in 1984, we are definitely heading in that direction.

Figure 4 Synthetic Kingdom (Alexandra Daisy Ginsberg, 2009).

This project shows an opposite side of genetically modified and artificially modified DNA than the one by Agi Haines. It displays a type of enginered life or *Biotech* and raises a debate regarding what is natural and not.
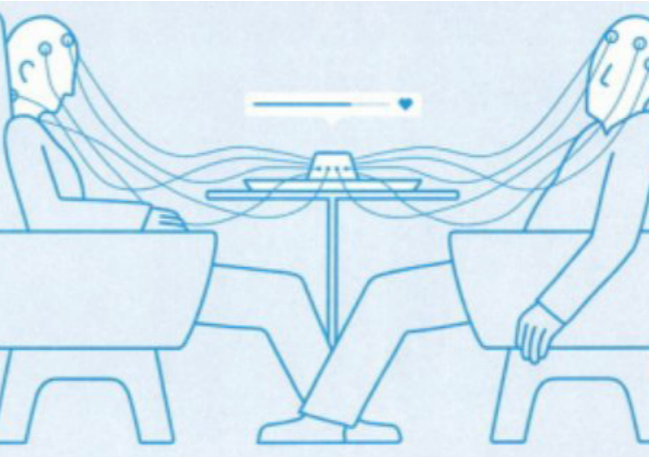

Figure 5 Neuralign - Love, Optimized (Studio Malagon).

This project investigates the power of love and displays what can be perceived as a dystopian future where feelings are optimised and digitalised.

Figure 6 Transfigurations (Agi Haines).

Haines discusses our relationship to the human body and how easily it could be enginered. I see this project as a way of taking stance in a debate - by physicalising it.

Figure 7 Museum of the Future - Gaming Obesity (Tellart, Dubai).

This is a series of futuristic and conceptual projects examining the future of gaming, VR, etc. The resuts are more real than conceptual and portrays a powerful and inspiring view of technology.

Nature is the Backbone

In basically all utopian depictions of the future, nature is a recurring element. Flourishing forests and parks in the middle of the city, walls covered with plants and bees, sea-water, and exotic birds are constants in posters and videos of the future of urban environments (Figure 9). In a dystopian world view, nature is the first thing we take out (Figure 8). It is not a crazy assumption, rather stating a fact when considering that nature has a positive connotation when thinking about and depicting preferable future scenarios. It's directly related to well-being, relaxation and happiness. We all know that nature flourishes when the environment is clean and healthy.

To continue this discussion, we must first have a clear distinction of what we mean by the word "nature". Nature is, to say the least, a word infected by itself and due to its positive connotations, it has been widely over-used. One can claim that everything is nature, since all materials in some way or another originates from natural resources but for this discussion to be graspable, I have to draw a line somewhere.

Nature is anything that is a product of our planet rather than man-made. An obvious grey-zone is artificially breaded plants and animals but let us not get stuck in this never-ending discussion…

In this paper, I will refer to nature as defined by Fleming and Roberts (see below), as something that would be the same without the interference of the human race.

Nature is: "The phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations." (Fleming and Roberts, 2019).

Figure 8 A dystopian view, shown in the movie *Blade Runner 2049* (Colin Newton, 2018).

The snapshot above displays a truly dystopian world. This is often characterised by the lack of life and anything we define as nature. It is a world that has been taken over and completely transformed by humans, leaving nature as the main victim.


Figure 9 A utopian view of future urban environments (Anika Dačić).

When browsing through architecture magazines, images like the one above are not rare. This might not be the dream for any city dweller but it is definitely a utopian view. It is characterised by the interplay between nature and man-built environments. Ane could argue that it isn't nature anymore, since it is so carefully controlled and cultivated by humans. A forest is devastated to make room for a new city, where trees are re-planted later on in the process.

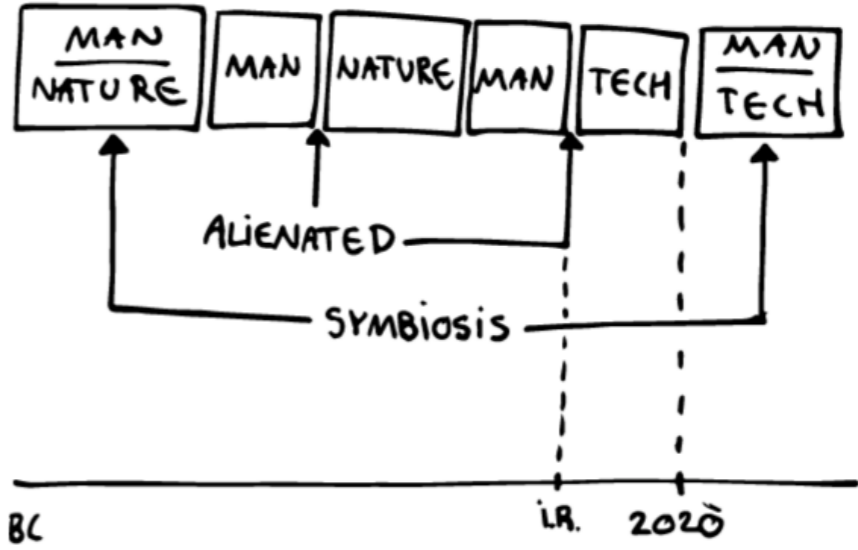# NATURE VS. TECHNOLOGY

Initial Problem Defenition

Early in the process I got interested in the relationship between human and technology. Human and nature had a similar relationship throughout history. After the technical revolution in the second half of the 18th century, human and technology have been gradually more intertwined with technology. The diagram below (Figure 10) shows a hypothetical and simplified explanation of the relationship between mankind, technology, and nature.
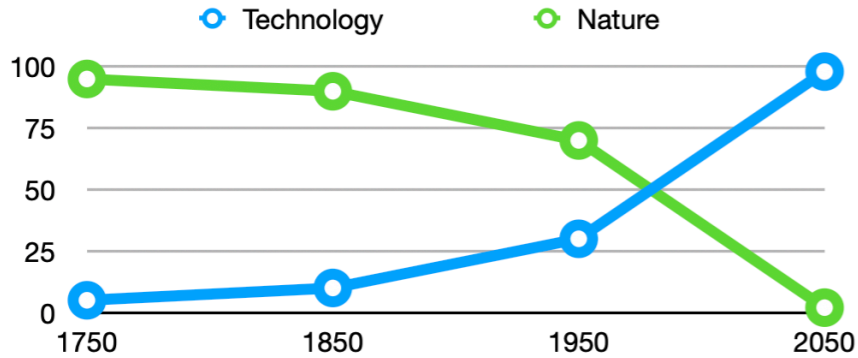
The diagram above displays the amount of involvement of nature and technology for humanity as a whole. It has no connection to existing data but simply shows how our connection to nature gradually is being replaced by technology.

Two major world phenomena are completely remapping and reshaping our human existence: the destruction of nature and the unprecedented technological development (Kahn et al., 2009). In order to reach the environmental goals from the Paris agreement we have to completely change and rethink the way we live. Bio-based plastics and solar panels are great, but is it really enough? I believe that we need to change our whole way of thinking and nonetheless our relationship to consumption.

We can find inspiration from how humans lived in close relation to nature before, then nature and humanity got alienated. When the industrial revolution entered society, we saw technology as this separate entity that could help us with certain tasks. Today, technology is fully incorporated in our everyday lives and we're approaching an era where technology is just as natural as nature itself. It's time to accept that technology is here to stay, so let's bring it closer to us. It's a big part of our lives and yet we don't seem to care about it, as long as it does the job, we're happy. It's starting to feel and sound like an unhealthy relationship. A relationship we need to work on.

The illustration above aims to display how our relationship to nature throughout history has evolved in a similar way as we can expect from technology. After living in complete symbiosis with nature, we gradually got more alienated with it. When the industrial revolution ("I.R") introduced technology to our everyday lives, we firstly saw it as a separate entity, today, the gap between humans and technology is fading away.

I foresee a future where the relationship between humanity and technology is similar to the one we once had with nature. It is now up to us to decide what this relationship should look like. Should we allow technology to evolve into its own superior entity, while we and the environment are paying the price? Or should we aim to create a relationship where technology, rather than paralysing the users, embraces their qualities and presents a helping hand in the constant struggle to feel comfort in a world characterised by information flow?

History

Throughout history, we have relied on nature for the creation of tools. By sharpening rocks, bending wood and extracting iron, we were able to create tools that we then used to hunt animals and build houses. We made bows and arrows, knives and axes to suit our current needs for survival.

Our lives are now getting more and more dependent on connected products and we are living lives that heavily rely on the emergence of new technology. The close relationship to tools and objects is nothing new. Throughout history, people have used tools to simplify their everyday lives and without certain tools, our history and reality would look fundamentally different. The development of the fish hook thousands of years ago made it easier to survive and even thrive in connection to the water. The innovation of the mariner's compass, dated back to the 11th century in China, resulted in an explosion of European maritime trade and the growth of merchant capitalism (Beschizza, 2008). There is no question that human innovations have changed the course of evolution and one might even say that the ability to develop tools is one of the key factors that make us human and has enabled us to shape the world for our perceived benefit.

Maslow's hierarchy of needs (Figure 12) shows us the evolvement from basic human needs to self-fulfilment. As far as we know, most tools used by humans throughout history have been made to fulfil our basic needs, such as finding food and construct shelters. We created knives for hunting and protection and axes to cut down trees and build settlements. The more we've developed as a species and the further we worked our way through a technical revolution, the more we rely on tools to also fulfil our psychological and self-fulfilment needs. If this is a good or a bad thing is very hard for me to distinguish since it is a widely discussed topic in today's society with many contradicting arguments. The question that interests me is rather how this human-tool relationship will evolve from now. What we will expect from our everyday tools and how we will interact with them. Will we depend on tools to fulfil our psychological needs or will we come to believe that tools never could replace human interaction?
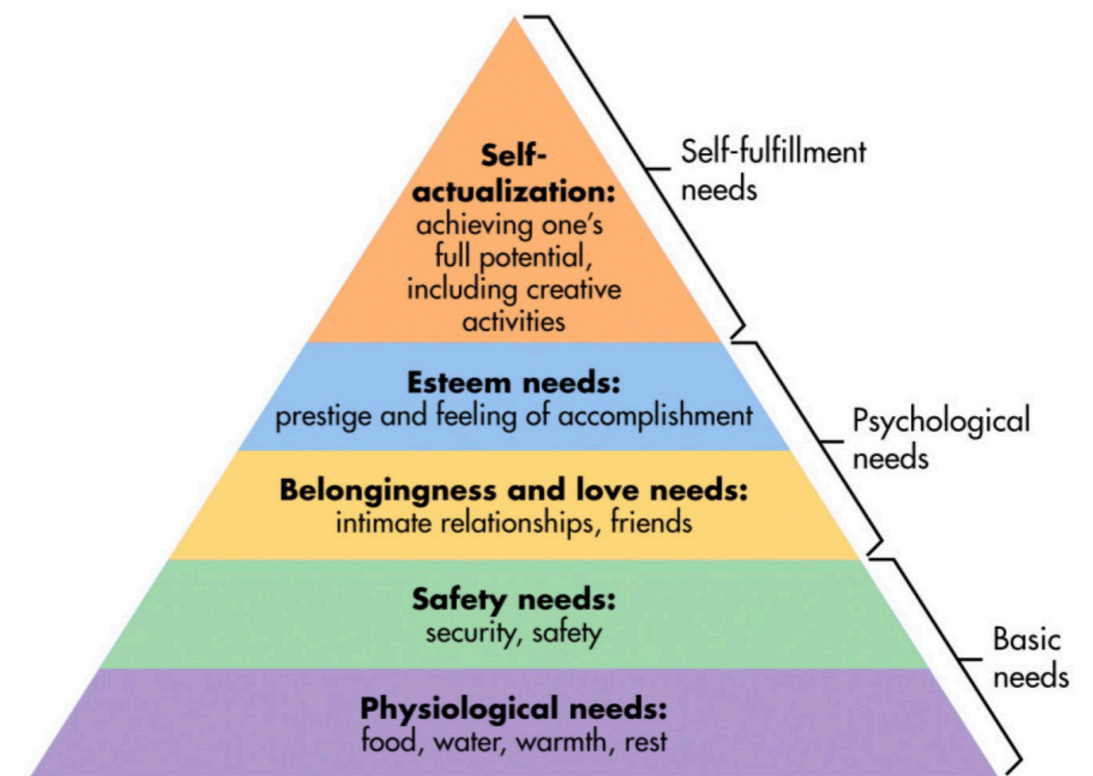

Figure 10 Maslow's Hierarchy of Needs (Saul McLeod, 2020).

The triangular diagram above displays the amount of involvement of nature and technology for humanity as a whole. It has no connection to existing data but simply shows how our connection to nature is gradually being replaced by technology.

Idea Generation

Early on in the process, I knew that I wanted to find a connection between human and technology, since I saw that there was an existing gap between the two that needed to be filled.
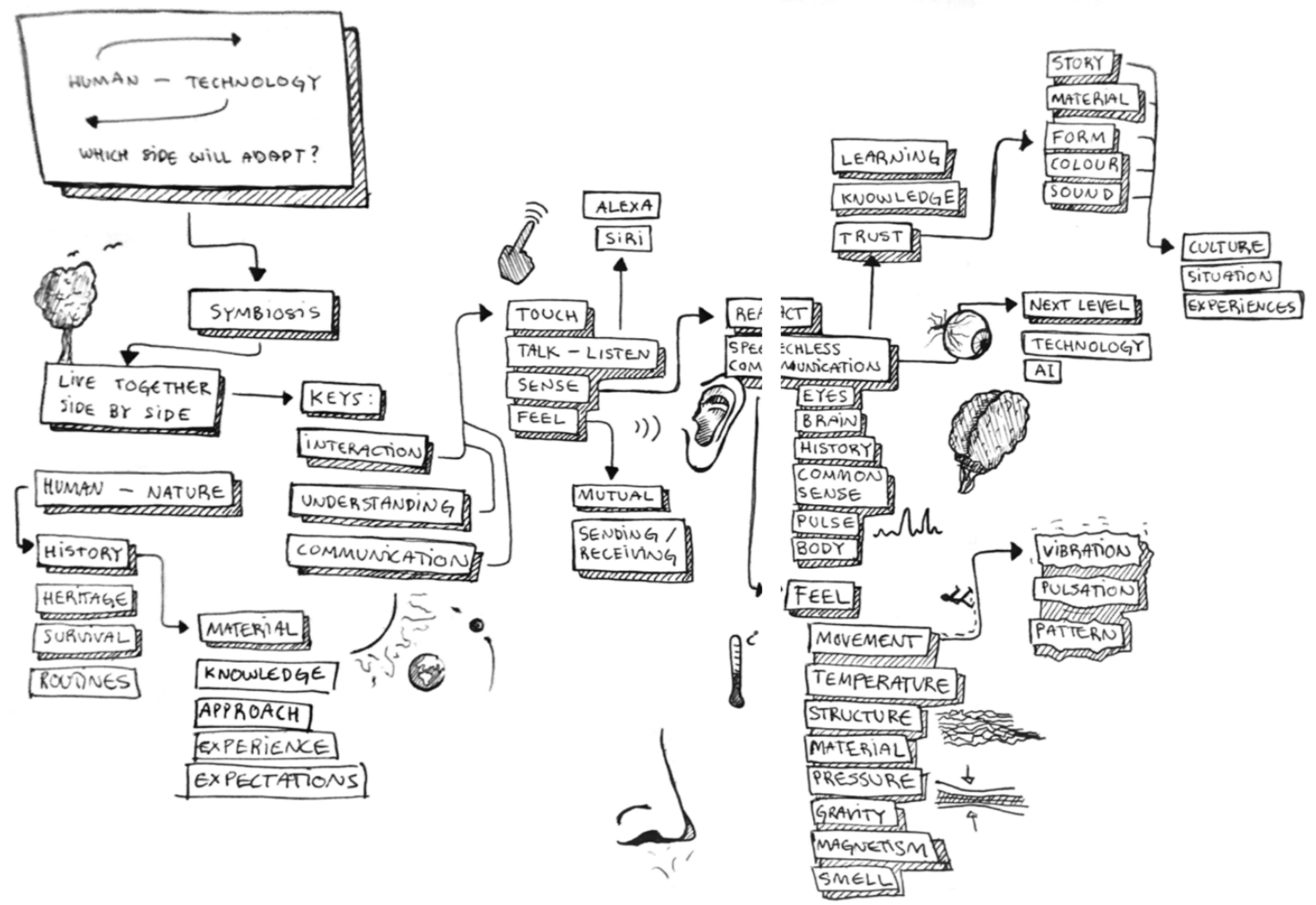
ENGAGING THE SENSES

The average human brain has about 86 billion neurons. Each neuron may be connected to up to 10,000 other neurons, passing signals to each other via as many as 1,000 trillion synaptic connections, equivalent by some estimates to a computer with a 1 trillion bit per second processor (Brenner and Sejnowski, 2011).

Our brains crave stimulation and stimulation is achieved by engaging our senses, whether it is through smell, taste, touch, vision or hearing. Our senses all have one thing in common, they send information to our brains. The brain interprets the electrical impulses and creates a story around it. This is what we commonly refer to as consciousness.

This means that we can learn to improve our senses, for example, we can see without eyes, hear without ears and smell without a nose, as long as we understand how to create these electrical impulses that the brain need to form an image of the outside world. Unfortunately, this is easier said than done. The complexity of the brain is often compared to the universe, at least that is how much we understand of it, if not less. To this day, we have no idea what goes on in our brains and what consciousness even is. If we knew, we would be uncertain of so many other things, like our existence for example.

To make this project more realistic and graspable, I will assume that we will not find out how the brain functions any time soon. I want to take off in the world of senses and touch-points we know today and improve upon the in- and outputs.

The human brain can be seen as an information centre, where data is categorised, stored and portioned out. The brain itself doesn't understand much about the world, it simply creates an image from the input it gets from our senses. We could look at the senses as the brains little helpers, constantly collecting information about the outside world.

Our brains constantly receive a vast amount of sensorial information, enough to form a complex understanding of the world. It is very hard to say why we have the senses we have and why they function just like they do, but evolution is a qualitative guess, we simply developed senses that would keep us alive as long as possible. Some of the senses are easier to grasp than others, for example, sight and hearing. Someone with insufficient hearing had a harder time staying alive and therefore was a subject of survival of the fittest. Our sense of taste or smell also has a direct connection to survival, the difference is that their function is far less needed in our modern society. We no longer rely on taste to know if the food is healthy or not.

What caught my attention is how the use of our senses has switched from when we lived in a more primitive society. I argue that our senses are far less useful today than they have been historically. I believe that our technologically driven society has forgotten about how profound and beautiful our senses are. We are simply not making use of their full potential. They are still designed for a life in nature where large mammals and natural catastrophes are the main threats.
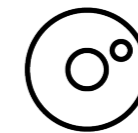
DEFINING THE SETTING

The city environment numbs our senses and personal technology puts fuel on the fire. We strive to create as much information as possible and it results in a world characterised by a constant information flow. Our minds and our bodies are not made for this environment. Technology has grown way quicker than the evolution - leading to a planet in complete imbalance.

Our senses has to adapt to the new environment and our brain has to filter out vastly more information than it is made for. Ever since technology took over the human ecosystem, evolution has no chance of keeping up with the speed. Our senses are therefore not adapted for the environment we live in. I find it hard to believe that we will regress as a species, so the future will most likely be even more driven by technology and therefore grow at an even faster pace. I want technology to enable an update of the human senses, simply to adapt them for the environment.

How can I use technology to work for us and our senses instead of against them? The life in a megacity is undoubtedly overfed by information, causing our senses to shut down and lose their actual purpose. Although in this blur of information there is a lot we love to take part of, we just need to filter it out a bit.

Year: 2035

Space: Future mega city (10M+), undefined geographical area.

Domain: Personal

Theme: Relationship between people and technology.

Focus: The senses, why we have them in the first place and how to adapt them to a suit the environment we have created.

FINAL BRIEF

Challenge the way we perceive the world around us by designing a series of conceptual personal devices aimed to accompany and enhance our senses.

GOAL

Develop a series of products aimed to enhance our senses. They should embrace debates regarding sustainability, technology and our relationship to the environment in a futuristic scenario.

I wish to create a visually appealing story that captivates the viewer and embraces questions, creativity, and a critical mindset towards what we today take for granted.

I want to start a debate regarding us as humans and how we continue to adapt to technological advances and not the other way around.

I want the result to reflect a personal and unique design language that highlights my knowledge and creativity within the field of industrial design.

The designs should be iconic, easy to understand, and somewhat provocative, with the end goal to spark discussions and debates.

DESIGN FOR THE FUTURE

To gain a deeper understanding of the trends of futuristic design, I did extensive research on the topic. It is hard to distinguish these trends, since it involves a wide time-frame and many different areas of application.

From the trend patterns I could find I decided to divide the trends into two divisions: "Technological futurism" and "Biological futurism". Mood-boards for each direction follows on the upcoming pages.
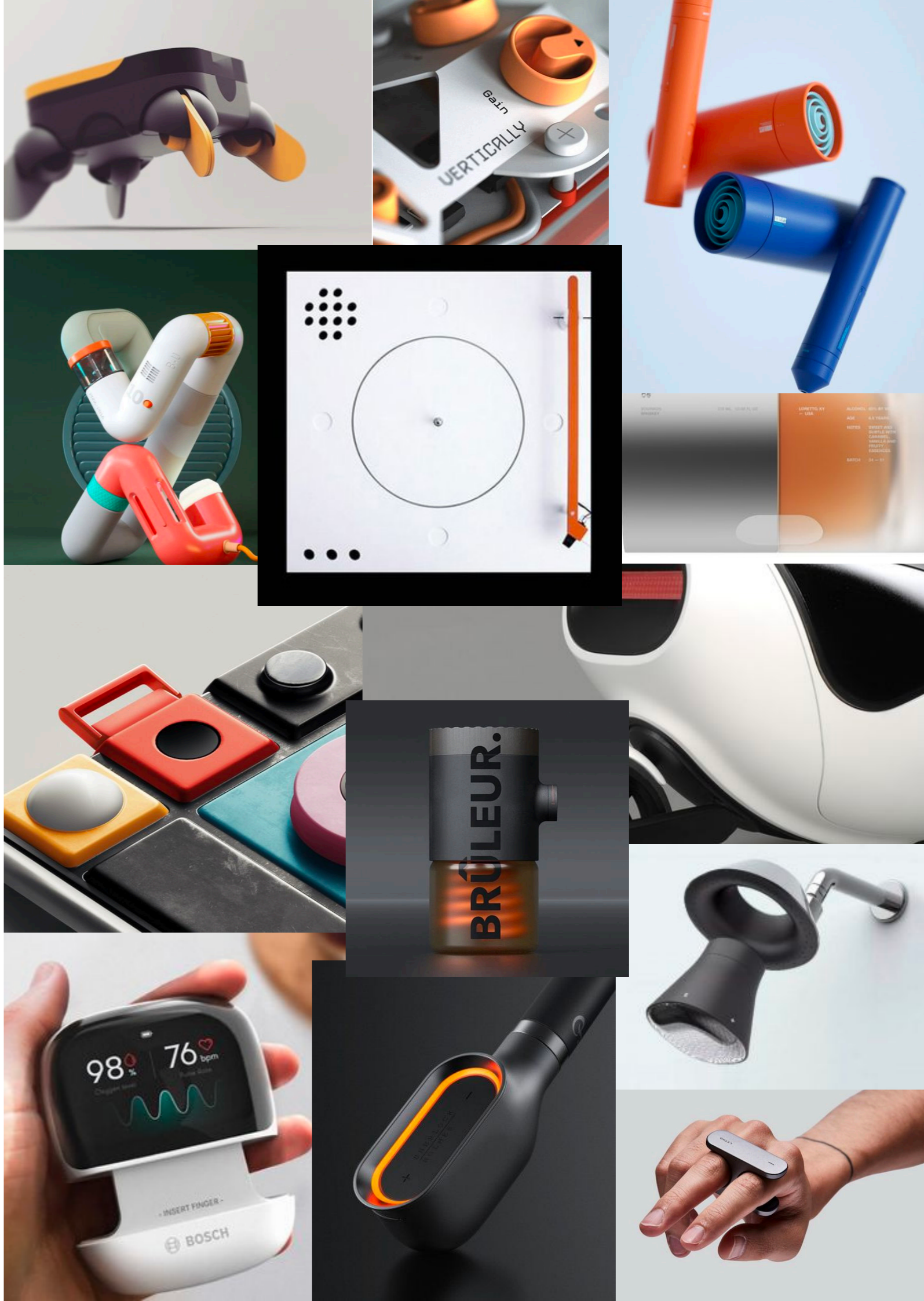
Technological Futurism

Appearance - science fiction, space-travel, high-tech, and fluent.

CMFG - high contrast, glossy finish, minimal typography, brightness, and transparency.

Key-words - future, tech, inspiring, balance, surprise, and provocative.

Biological Futurism

Appearance - organic, inspiring, natural, unexpected, randomness, soft edges, and organic patterns.

CMFG - pastel colours, matte finish, bio-based materials, contrast materials, and calm colours.

Key-words - inviting, playful, charismatic, alive, and natural.
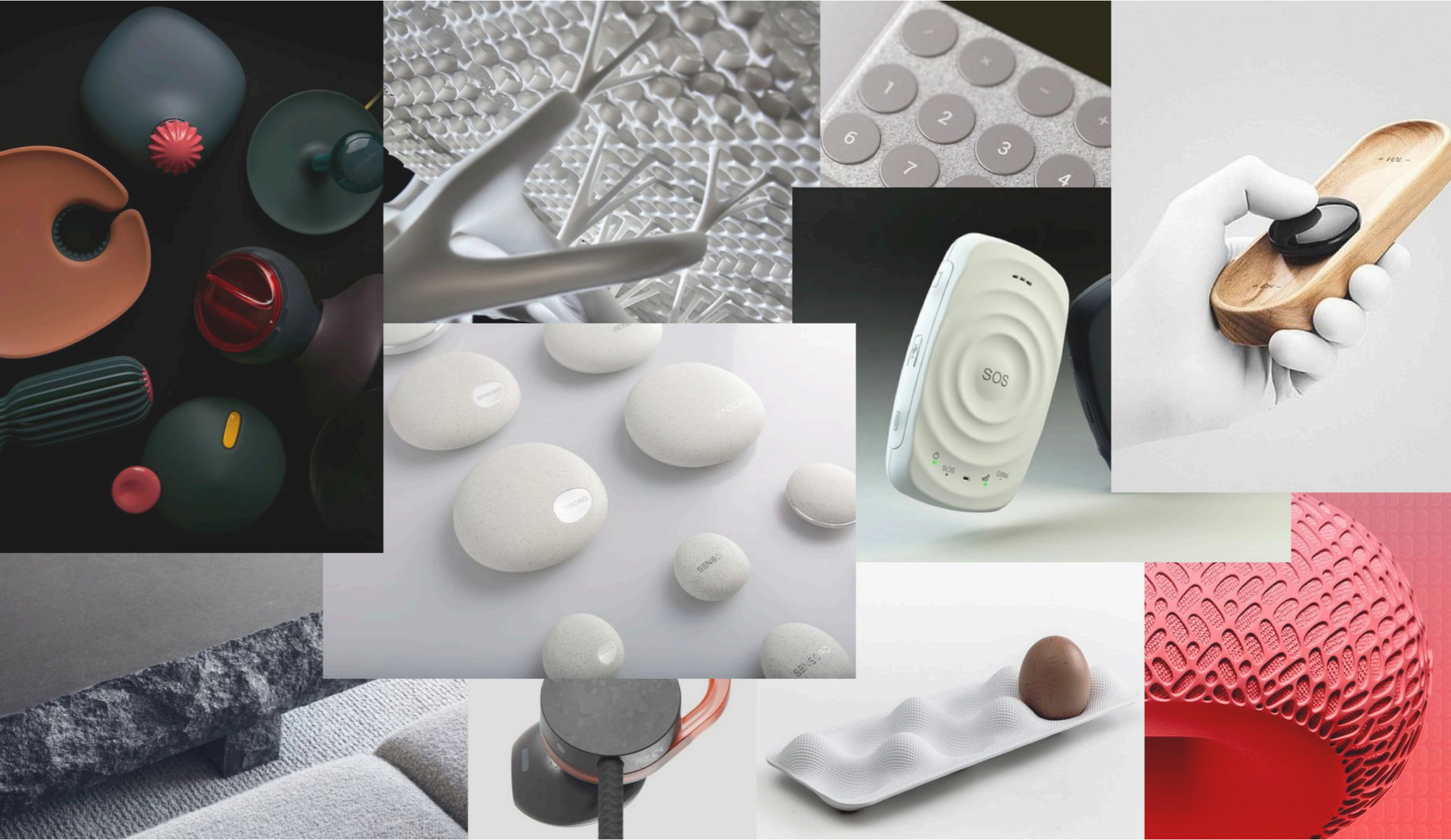
Finding a Balance

My goal is to find a balance between *Technological-* and *Biological Futurism,* where a sense of technology marries a visual style highly inspired by nature. It should show inspiration from organic shapes and a natural softness while exploring futuristic material combinations, fluent transitions, and a slightly evocative form language.

Key-words - inviting, fluent, provocative, alive, surprising, charismatic, and playful.

Design Language

To start generating ideas and getting away from my preconceptions regarding design for the future, I started sketching amorphous blobs with various functions. This was the start of the design phase, where I focused on getting a wide range of ideas in terms of form language, product ideas and an overall aesthetic style for the project.

Looking back at what I discover during my research phase with the mood-board outcomes, I wanted to strike a visual balance between the two futuristic design trends. In the beginning, I wanted to keep it as simple as possible, keeping an open mind and being available for exciting new ideas.
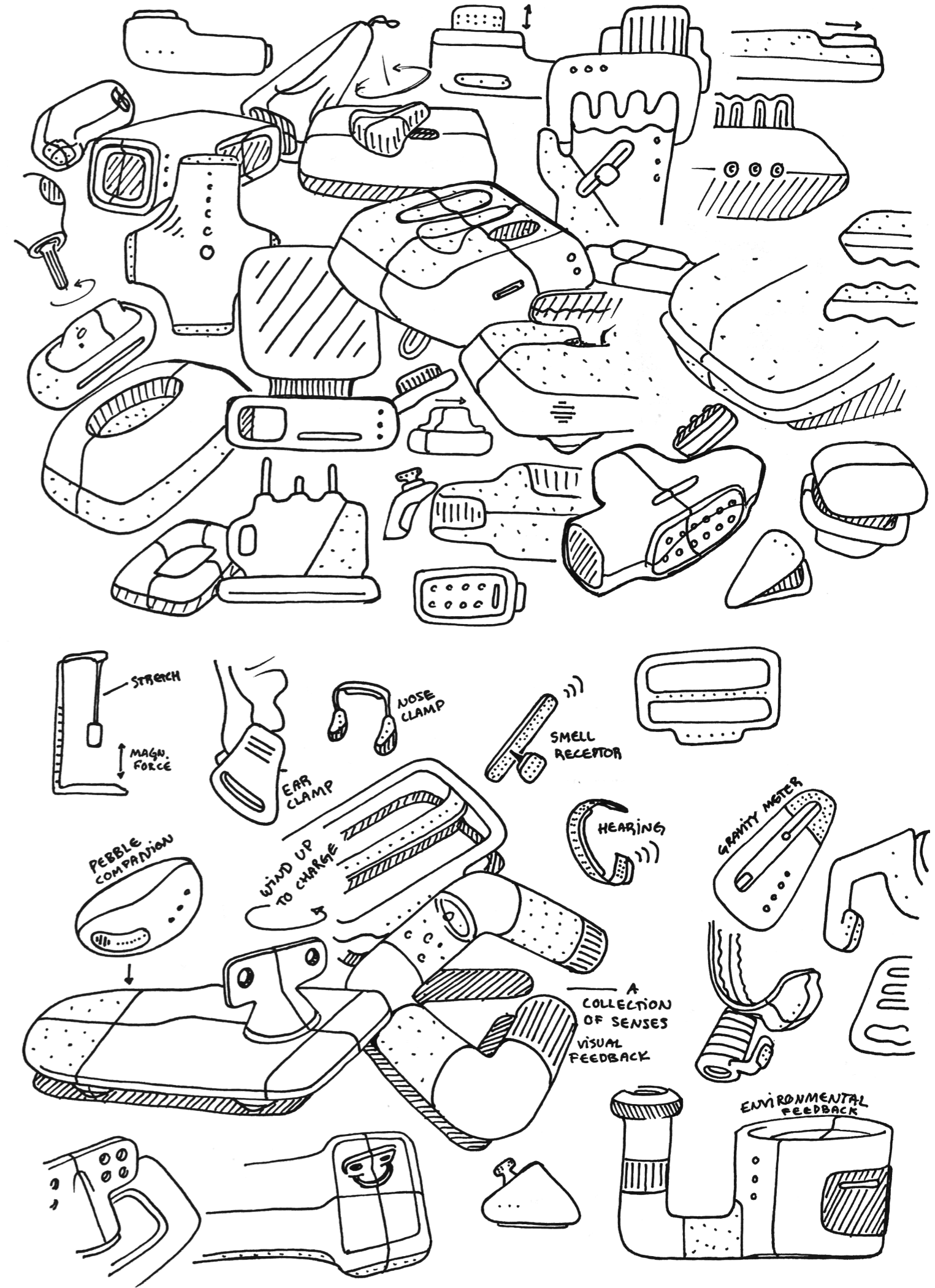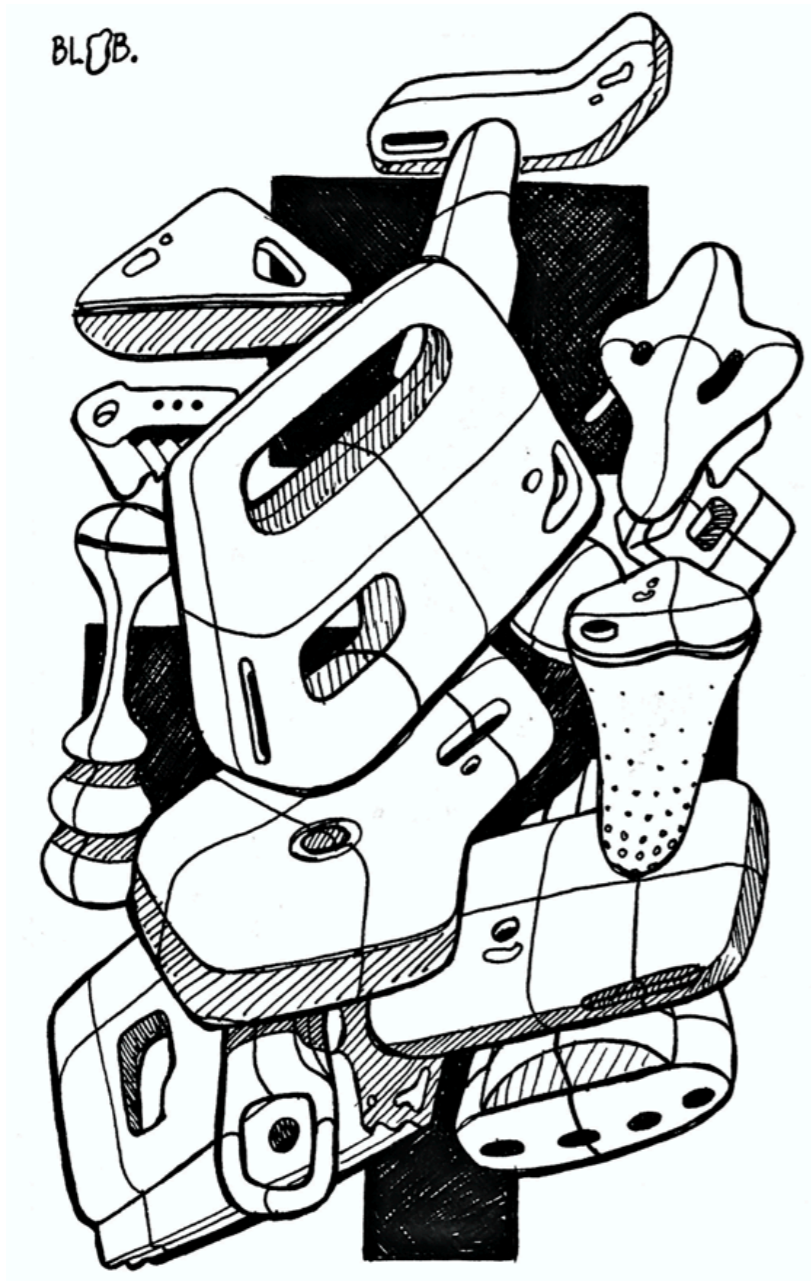
CONCEPT DEVELOPMENT

This section is divided into four parts, one for each of the chosen senses: hearing, smell, sight, and taste. I will explain how I went from inspiration and research towards a finished concept. The final result is presented later on in the paper.

HEARING

HEARING

Hearing can be seen as one of the most important senses. It is the sense that is mainly responsible for connecting with the outside world and communicating with other people. But, as important as communication, hearing also provides us with the ability to experience surrounding sounds, from music and radio to birds and cars. Historically it has also been a key for personal safety and the ability to react to approaching threats.

Environmental noise pollution is the 2nd biggest environmental health threat in Europe, after air pollution. 110 million Europeans, around 25 per cent, are daily subjects of noises louder than the 55-decibel limit established by the European Environment Agency (EEA) is acceptable. Despite WHO pointing out that it is a public health issue that has grown exponentially in recent years, noise pollution is a problem that gets little attention (Eriksson et al., 2013).

Moreover, we only perceive it with our ears, it does not leave any waste and it does not accumulate in the environment, which means we underestimate its effects. But some effects accumulate in the human body.

Inspiration

"When noise reaches a certain level, you can no longer perceive important stimuli in your environment, like people talking to you, or your attention is drawn away from these important stimuli by other acoustic signals," says Jenny Saffran, a developmental psychologist at the University of Wisconsin Madison. It doesn't stop there, countless studies have found a link between noise pollution and anxiety, depression, high blood pressure, heart disease, and stroke (Sheikh, 2018).

One European study shows that people who live in areas with extensive traffic noise were 25 per cent more likely to show symptoms of depression than those living in more quiet areas (Sheikh, 2018).

"When you experience noise in the middle of the night, you have an awakening reaction. You can close your eyes but you cannot close your ears," says Thomas Münzel, cardiologist at the Johannes Gutenberg University in Mainz, Germany (Sheikh, 2018). People who live in major cities with a constant buzz from traffic have no way out. They can sleep with earplugs but this does not seem like a long-term solution.

Approach

Today we are living in a world, constantly bombarded by conflicting sounds. Everything from noisy traffic to screaming children and unwanted commercials catches our attention daily. It is harder now than ever to keep our focus on one thing. The constant information flow dampens our hearing, physically harms its function and tires our brains out. This makes it harder for us to focus on the important things.

With this being said, not all sounds are bad, we still want the possibility to hear the person in front of us or the sound of birds singing in a park. This is why a noise-blocking solution is not preferable, rather one where the user can choose where they want to direct their focus or what to filter out.

What if

What if we could choose what we want to listen to? I am not talking about different songs or podcasts but the sounds around us. Imagine that you could isolate one sound source in the same way as you choose radiofrequency. You would be able to have a fluent conversation in a crowded bar or hearing the wind blow while walking down the streets of Tokyo.
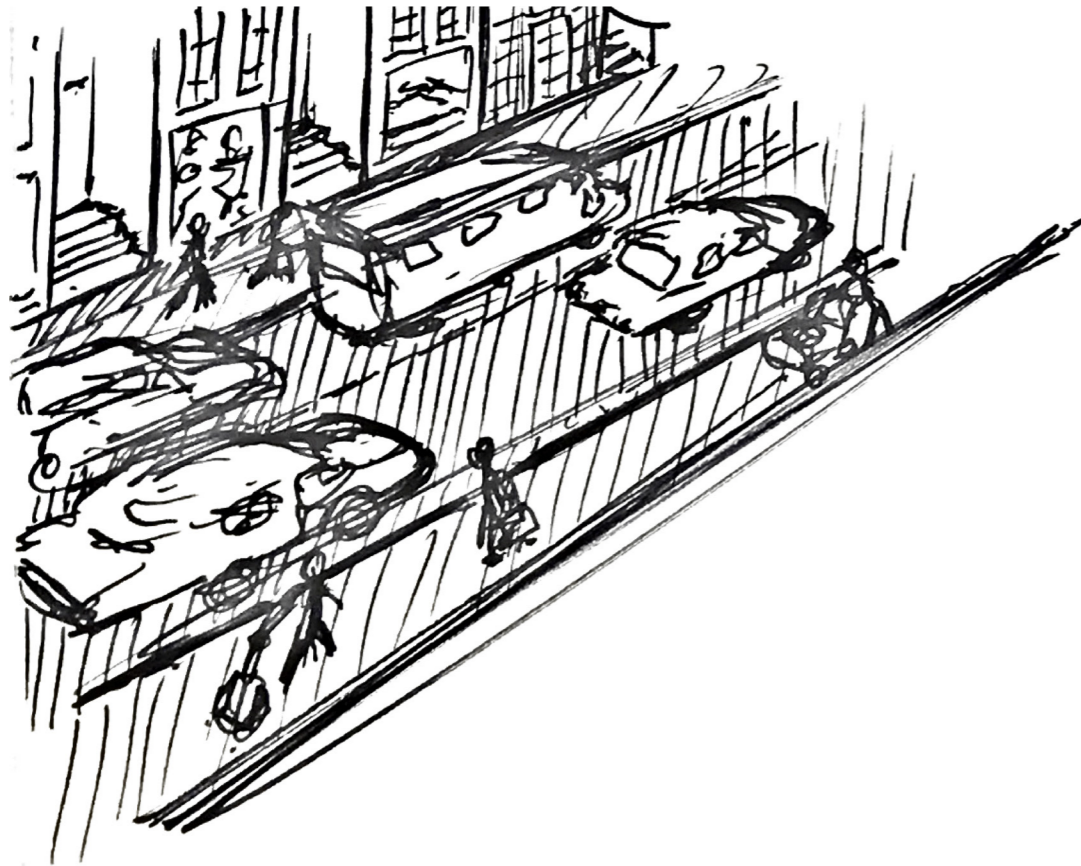
Existing Solutions

How are we currently tackling noise pollution? Arguably the most socially oriented solution is the one that focuses on behaviour change. It can be achieved through nudging techniques or more defined rules and legislations, either by monitoring the noise levels and giving feedback or by conveying a message through text, like the image to the left.

The positive effects of these solutions are that they can have a long term effect and change peoples behaviour for the better. The downside is that they're rather inefficient and can take a long time before actually showing results. They are also highly dependant on culture and setting, since it solely is focusing on communication.

Another widely used solution, both in- and outdoors, are noise absorbing walls/structures. It varies from textured wall panels and felt lamps to road barriers and city planning. These solutions mostly focuses on reducing the noise for a greater area by understanding sound waves and how to minimise noise spread.

The obvious drawback is that they are static and space-consuming. The lack of implemented technology also makes these solutions rather lo-fi and not adaptable to environmental changes etc.

When focusing on solutions that act on a personal level, it varies from simple foam plugs to advanced noise-cancelling headphones. They all have drawbacks; that the noise either is replaced by music, radio or complete silence. What I want to focus on is the opportunity to sort out the current noise image and listen to a desired part of it while unwanted noise is cancelled.

Due to my chosen scope, there aren't any existing functional solutions. This fact makes it compulsory to communicate the new technology through design, something I explore on the upcoming pages.
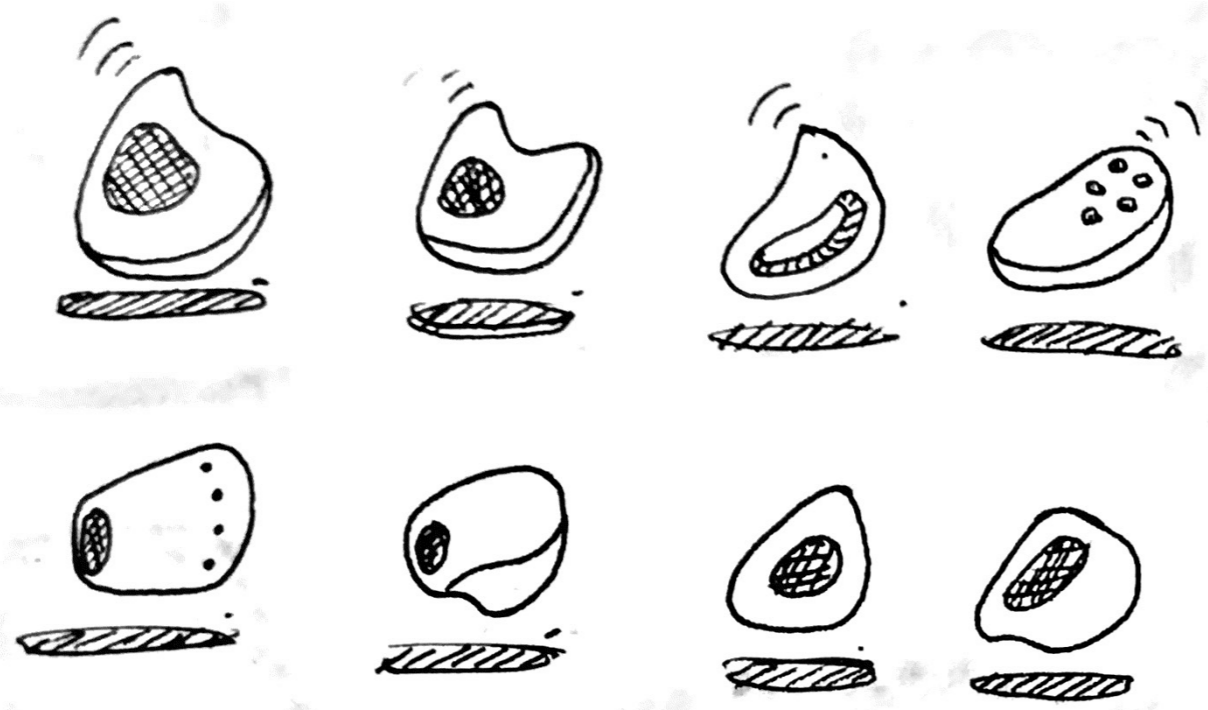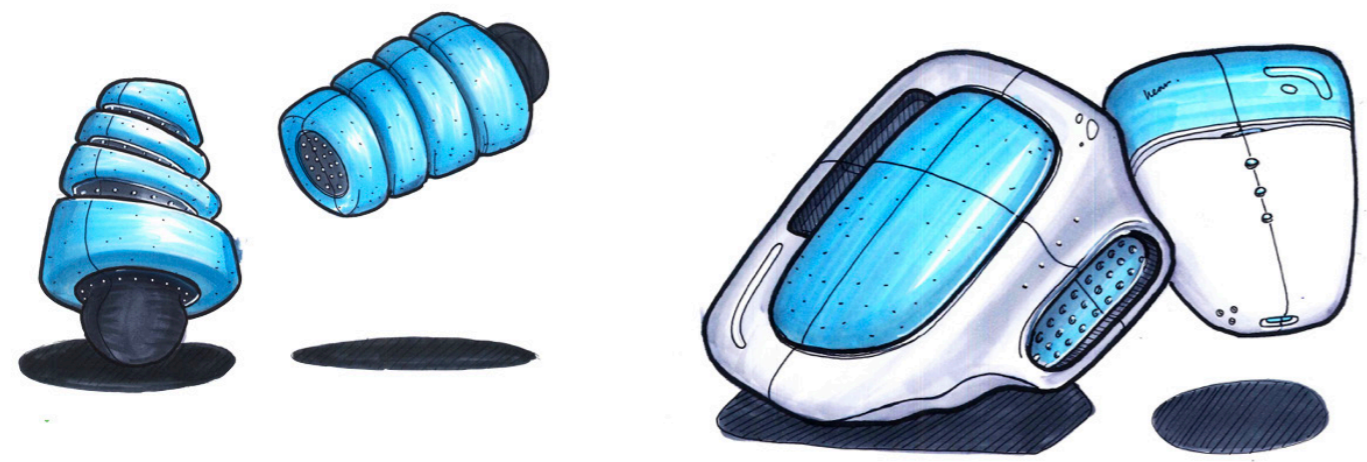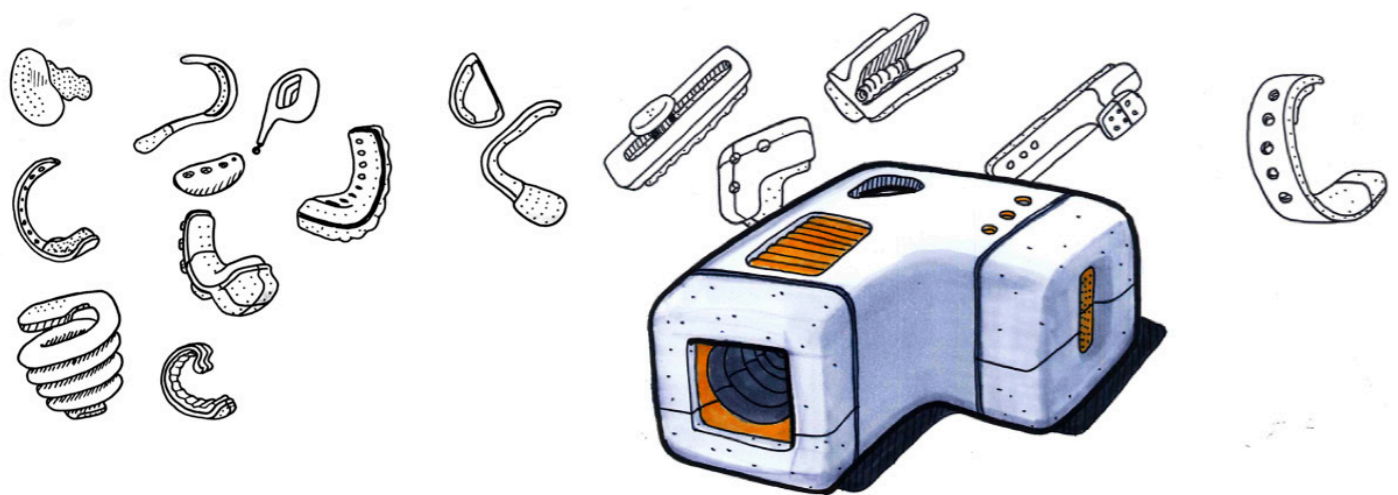
3D Exlporations

Relatively early on in the sketching phase, I felt the urge to explore my ideas in 3D. Due to the limits of COVID-19 and the lack of workshop availability, I took the chance to continue working on my 3D-modelling skills.

I had a relatively open scope for the design and form language which left me with such a wide variety of designs that I couldn't see straight anymore. I knew I needed to narrow it down in some way.

In the bottom of this page, you can see an exploration that was highly inspired by the shape of a garlic, as a first step towards nature-inspired design. I knew I wanted to maintain the technological expression but at the same time not fall for the conventional geometric shapes that often take over nowadays.
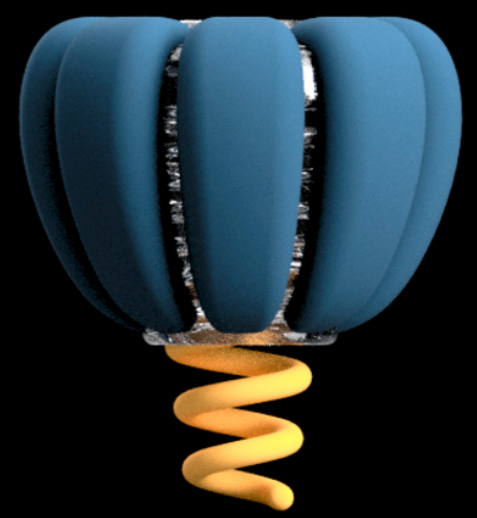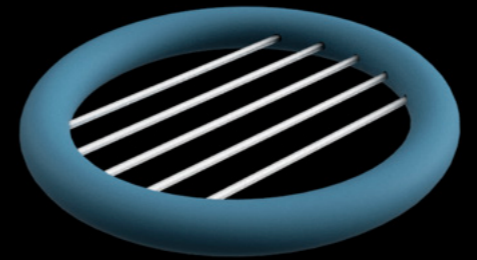
Nature Inspiration

After losing myself in the wide variation and possibilities of form exploration, I went back to look at what nature has to offer. I went down to the beach in Malmö and did what I've done so many times before. I studied the rocks, their shapes and their sizes, and last but not least, how it feels to hold them.

The inspiration from nature led me to a fundamentally new way of approaching the design. I combined the inspiration of the small rocks with the anatomy of the ear. Luckily, I had a test person who didn't mind trying out some of my explorations which gave me a better understanding of the possibilities and the limitations.
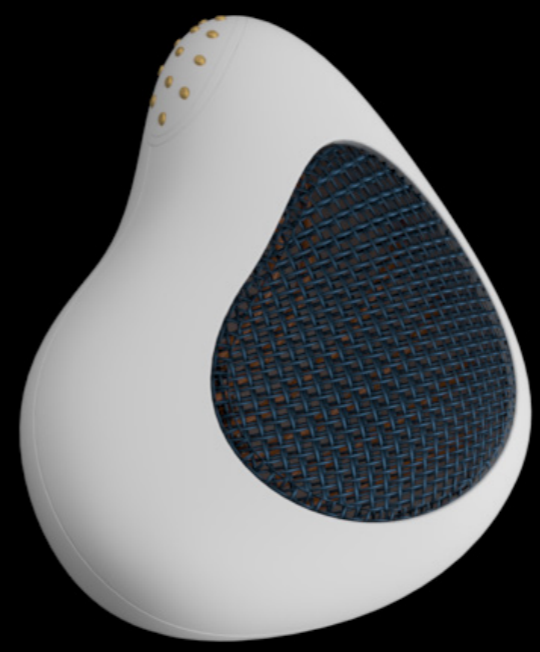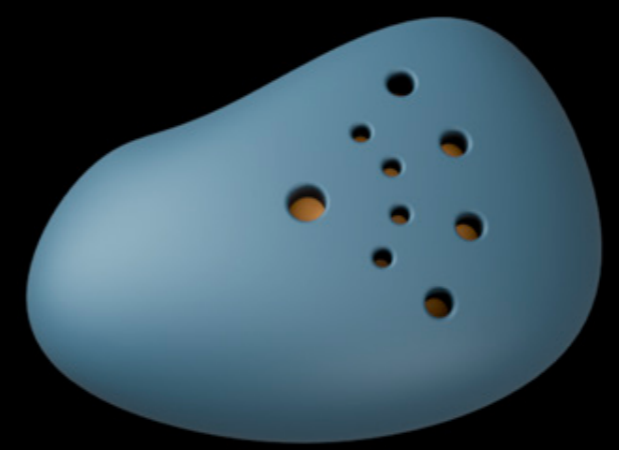
Final Concept

While exploring various 3D-models, I tried to find a healthy balance between organic shapes and futuristic tech, where nature meets technology. Finding inspiration from the soft shape of a pebble, this is what I finally ended up with.
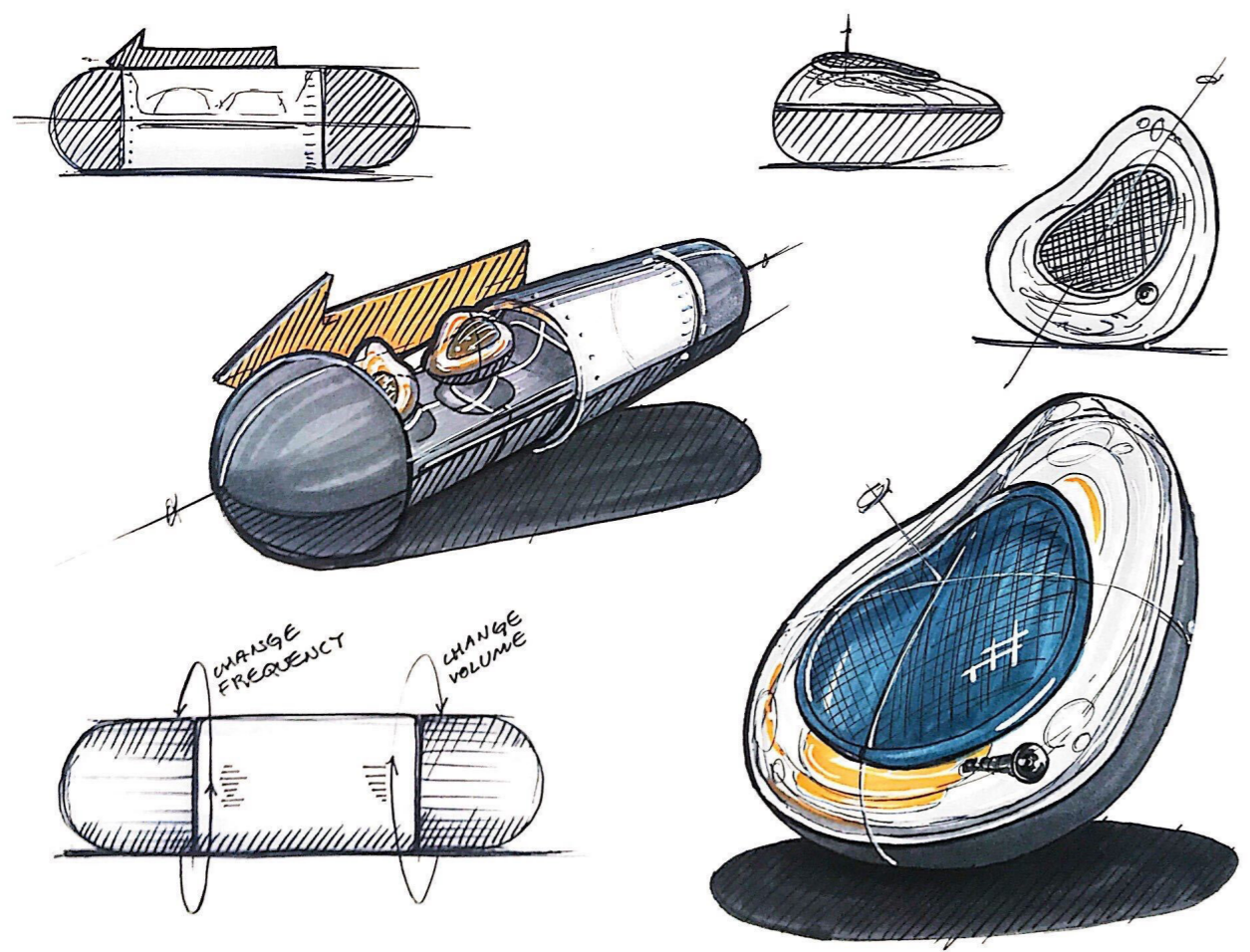
CHANGE FREQUENCY

CHANGE VOLUME

SIGHT

SIGHT

Similarly to hearing, sight is one of the most fundamental senses we have and probably the one many of us would miss the most if it was compromised. Our eyes react to light around us and form a visual picture of the surroundings. Depending on which wavelength the eyes are programmed for, you can experience different colour intensity. All animals experience the visual world differently. Humans are trichromats, which means that we only see a spectrum between three colours; red, green and blue. Birds on the other hand are tetrachromats since they also detect UV-light. Our perceived reality is fundamentally different to the one of other species.
Personally, this makes me interested in what we classify as reality and begs the question: what if we could experience another reality?

According to countless environmentalists, naturalists, and medical researchers, light pollution could be seen as one of the most alarming environmental threats. Scientific research suggests that light pollution not only changes our daily rhythms and perceived reality, it can even have lasting effects on the health of both human and wildlife (Chepesiuk, 2009).

Inspiration

Photographer Thierry Cohen displays an alternative view of nights in cities, a world without the interference of artificial light. He believes that city dwellers are sheltered by manmade environs and "forgets and no longer understands nature.". In his series "Darkened Cities" Cohen combines pictures of night skies taken in rural areas, where the city lights are on enough distance to unveil the magic world up in the sky, with pictures of major world cities on the same. "I'm merging two different realities to create a third one that has become invisible." he said in an interview with the New York Times.

Approach

When talking about light and our perception of the world in a mega-city, one thing that comes to mind is light pollution. If you grow up in a world metropolis, chances are high that you never get the chance to experience a sky full of stars. We are constantly surrounded by artificial light and the natural world is visually disappearing. This is not only harmful for us, but nature as a whole. Global ecosystems are disrupted since the gap between night and day is being blurred out.

What If

What if we were able to experience a world without artificial light? In order to raise the debate about light pollution, I want to focus on the visual experience of a night in the city. What would it look like if we, just for a second, could turn the lights off?
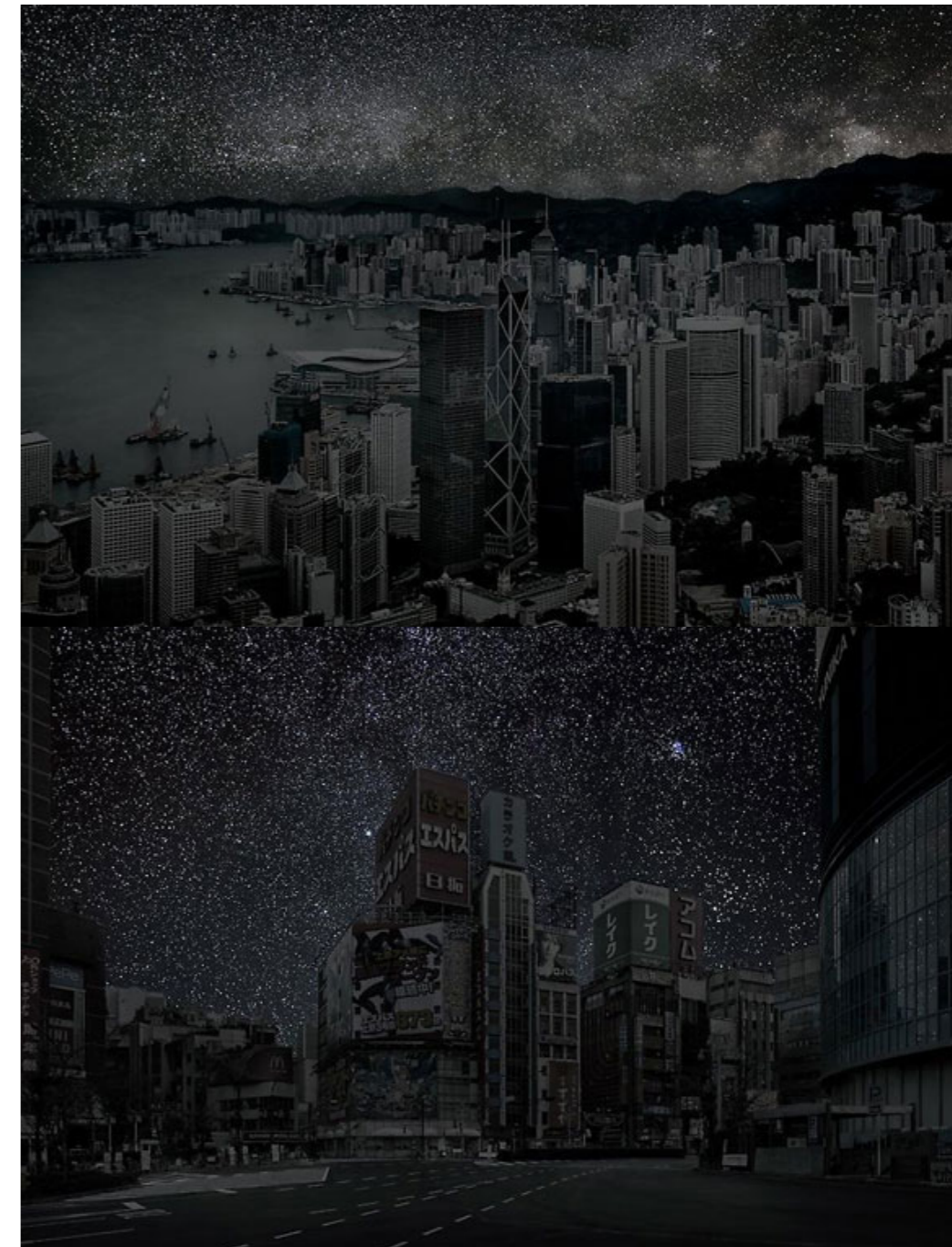
"Darkened Cities" by photographer Thierry Cohen. Hong Kong and Tokyo are two of the cities he chose to transform (Guida, 2014).
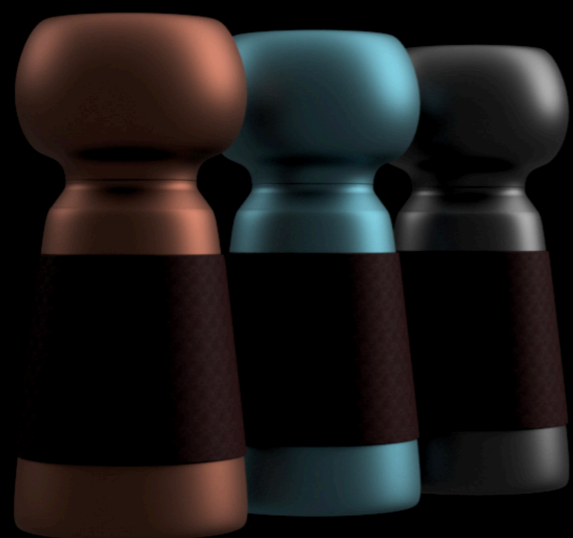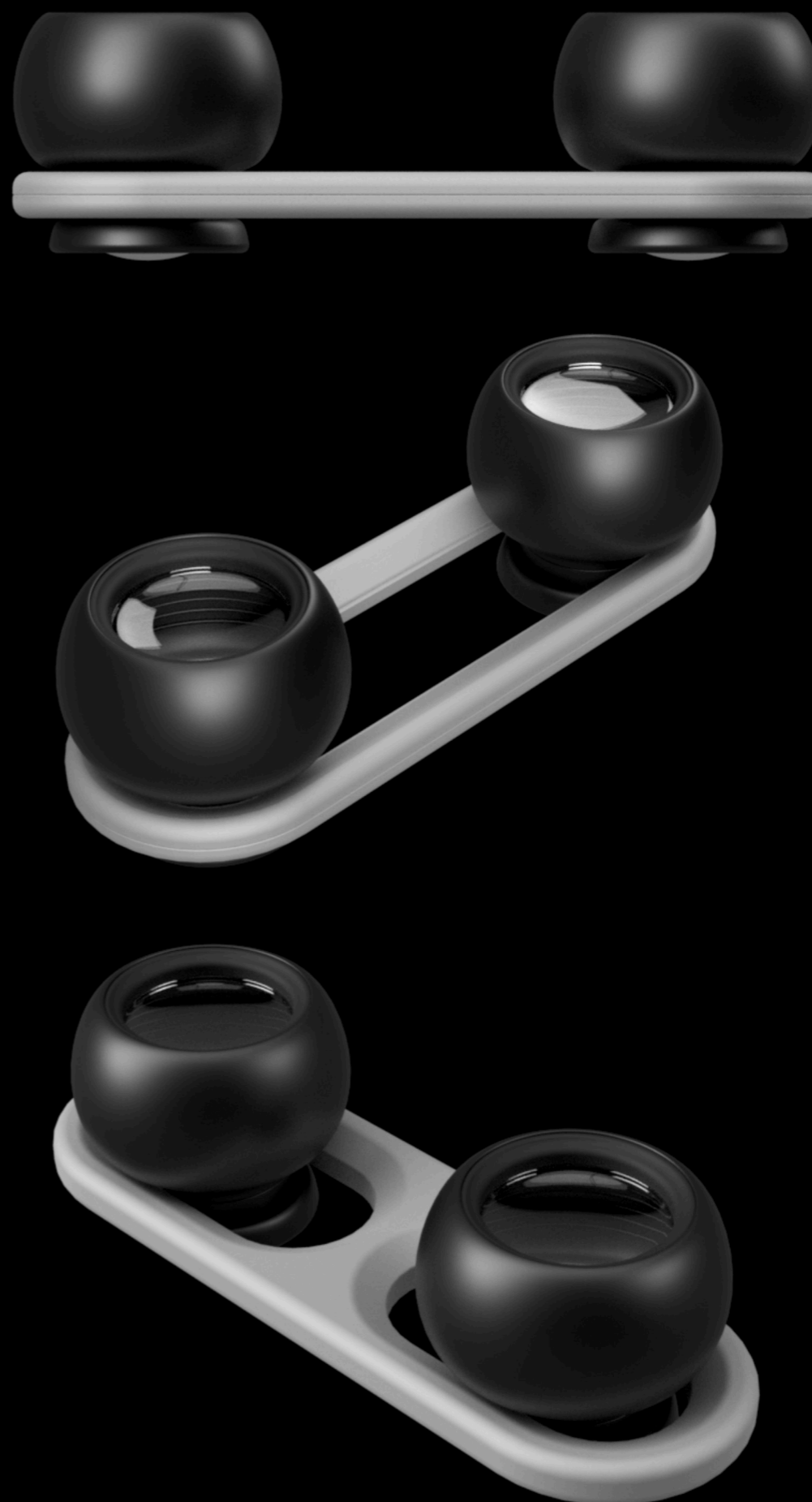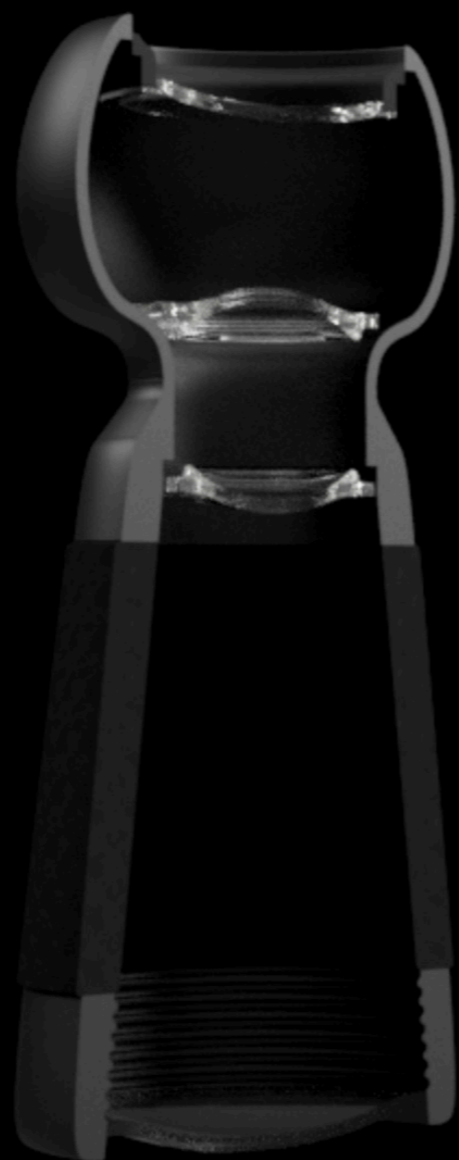
3D Explorations

I knew that I easily could get away with making a high-tech contact lens that magically changes the function of the eyes, as seen in multiple sci-fi movies, but I wanted my design to be relatable and appear feasible. I, therefore, decided to design a handheld device, that contains the possibilities for implemented technologies.

I started by designing this monocular, highly inspired by the appearance of flashlights and existing monoculars. Something didn't feel right, it became something too close to what already exists and didn't appear as something that could exist 15 years from now. I tried to make a compact binocular with a similar form-language, but that also felt a bit forced.

I realised that I had to look further and get out of the conventional form language.

Further Design Explorations

I wanted to embrace the social aspect of the device. In the end, it's not just about looking at stars, it's about raising discussions about the built environment.

I continued sketching and exploring my design possibilities and got interested in the shape of a magnifying glass. I believe it strengthens the story and the function, since it's all about looking at something that appears invisible to the naked eye.

I still had to think carefully about what the user would do with the device when it's not in use, since it isn't something one would use at all times, but rather give a quick reminder about the outside world.

Key-words: Night, darkness, mystery, space, technology, binoculars, lens, light, planet, future, inspiring.
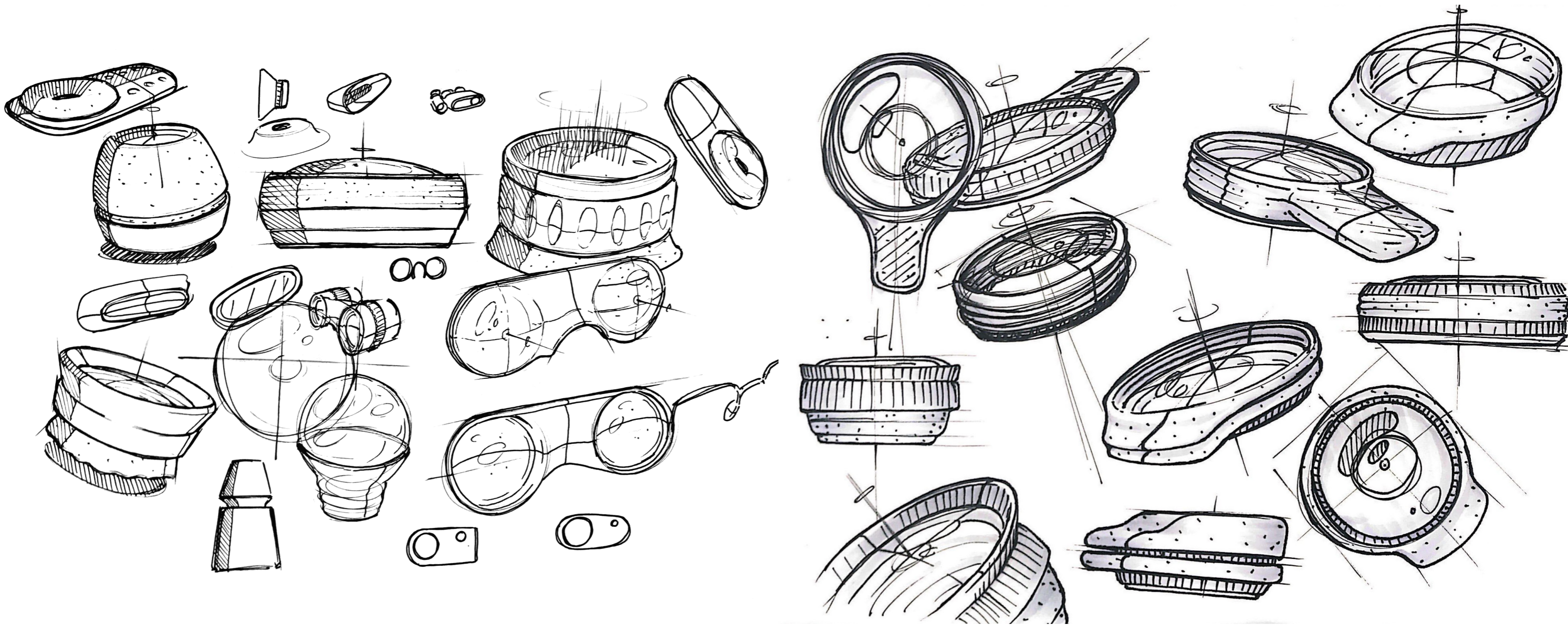
Final Concept

After struggling to find a solution that would be wearable and at the same time possible to store without taking up unnecessary space, I decided to make a clip-on solution. When not in use it acts as a fashionable detail, showing its presence and forcing questions from people around - raising the discussion about light pollution. The user will be able to clip it on to any clothing and simply detach it when they want an escape from the light in the city or simply want to dream away and experience an alternative reality - one that is not compromised by humans.

The design language is different from the rest in this project. It is far more minimalistic and stylised. This is a conscious deception by me - since it is the only piece that would be visible for the outside world. It has to suit a wide range of users and not conflict with the clothing style. Additionally, I wanted to take inspiration from space-design and highlighting the lens, where the magic happens.
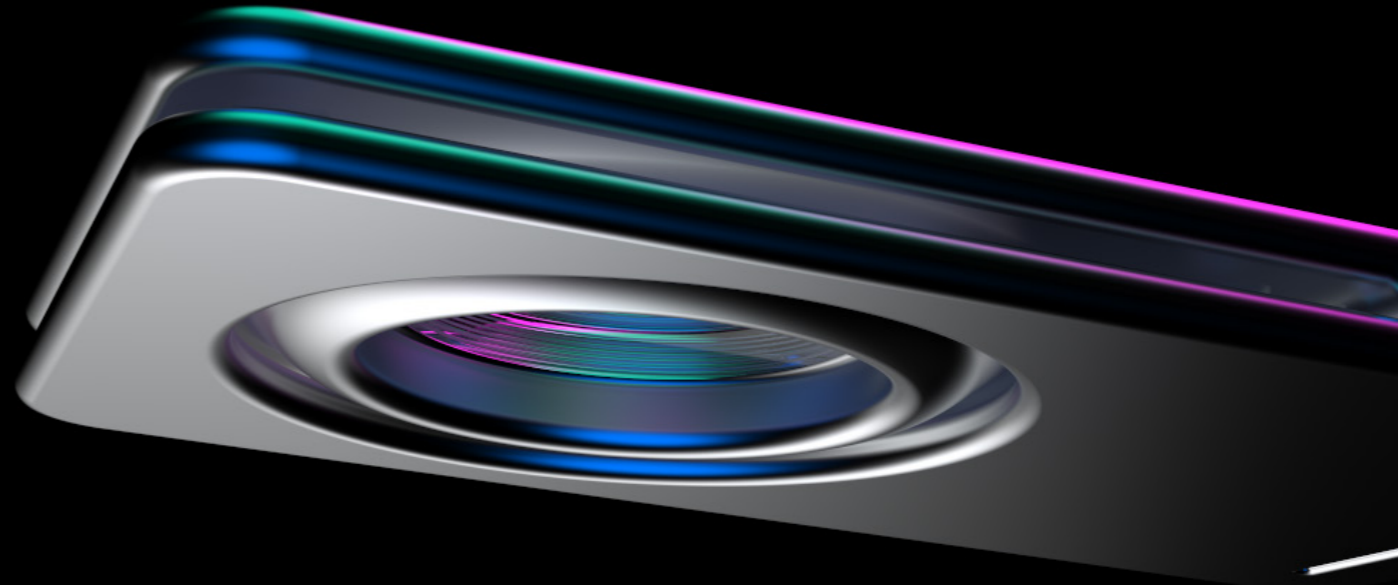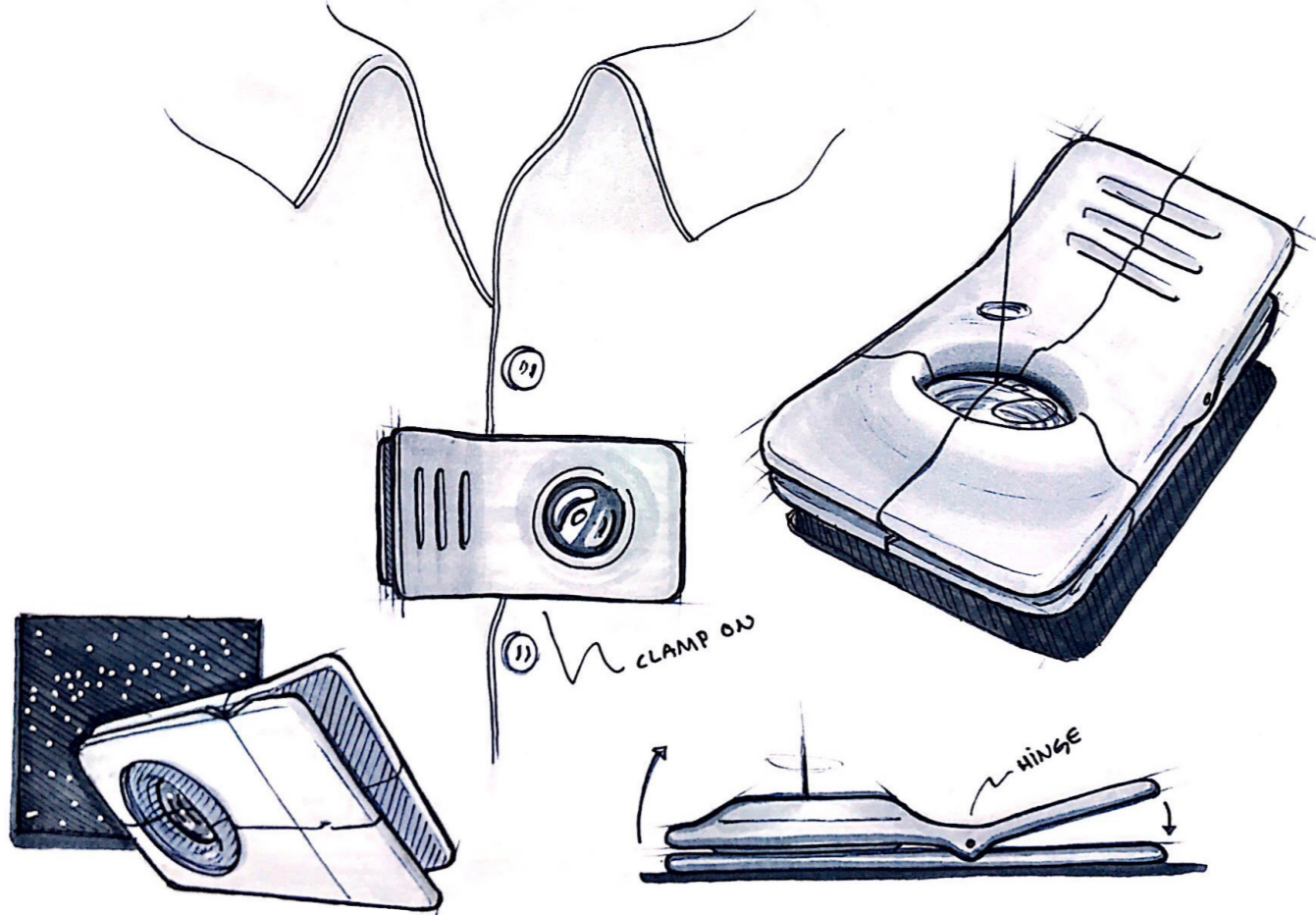
SMELL

SMELL

This is the only sense directly linked to the amygdala, the part of the brain closely involved in our feelings, meaning that scents can be particularly evocative of powerful emotional memories.

Electric smell is currently being researched and some believe it might be a reality of the future. It could lead to the possibility of digitally sharing smells with each other, activating certain memories or enhancing the feeling and effect of VR. Researchers used electrodes in the nostrils to deliver weak electrical currents above and behind the nostrils, where these neurons are found (Hariri et al., 2016).

Approach

Smells trigger strong emotional memories, but we have a hard time imagining them when they are not around, we have to wait until they appear. I want to make use of the extraordinary ability of the sense of smell to create and awake long lost memories as well as strong emotions.

Designing for smell is seen as highly effective when it comes to driving the emotions of a specified target group. This is an example of how the industry is using the sense of smell for their gain, why can't we have a piece of the pie as well, and design to improve the sense of smell?

Historically, smells have functioned as a notification system - giving us useful information about our surroundings. I want to go back to the basics and include smell sensations in the future of wearable technology.

What if

What if we could store smells and use them as signifiers in situations when we need them the most? Whether it is to remember our doctor's appointment or giving us comfort in difficult situations. It could be able to overrule your current state of mind and direct your emotional state. How would this type of device change our behaviour and connection to technology? If done properly, this solution could indicate how technology could awake the hidden knowledge we have within and make us regain the use for our sense of smell.


The Illustration above, by Martina Paukova, shows how smell can evoke long lost memories. This illustration explains something many of us can relate to and it shows how scents not only eevokes memories, but also strong emotions.

Idea Generation

Being in the middle of corona times, I had to get creative with what I had at home to create physical and more tangible design explorations. Keeping the keywords in mind, I explored shapes with wire and whatever I could find in the drawers. I found the spiral shape interesting and somewhat funky, which I felt went hand in hand with the idea around my concepts. The spiral also felt like a perfect mix between organic and man-made, which was the main goal I wanted to achieve. It's seen all around in nature while being a common component in machines. It also offers a feeling of movement, and even more so if it's not linear.

I see the spring as a perfect bridge between nature and technology, since its movement and function is both honest and relatable. Underneath you can see two inspiral images of the spiral shape, one is naturally appearing in nature and the other one provides a core function of a certain machine.
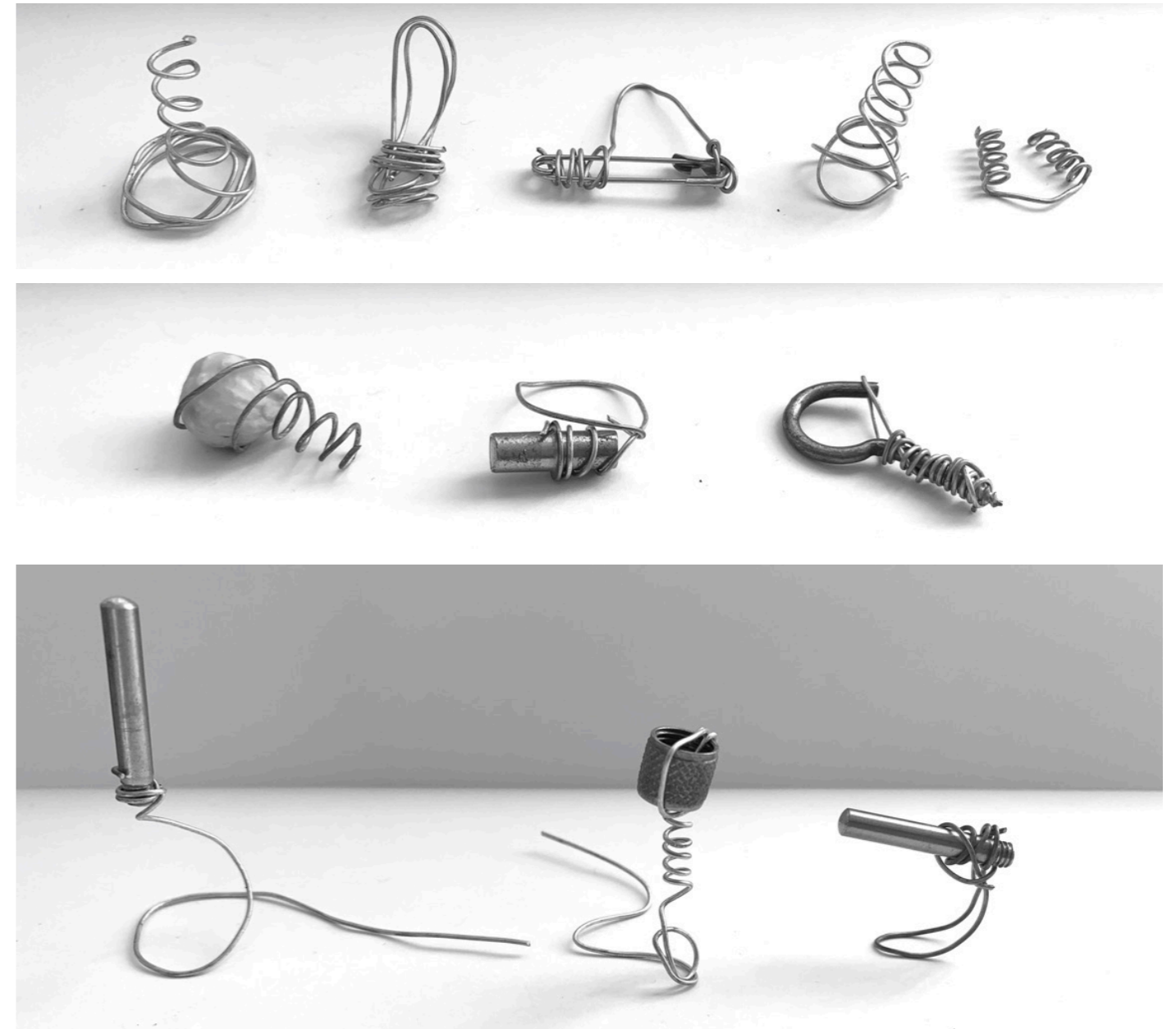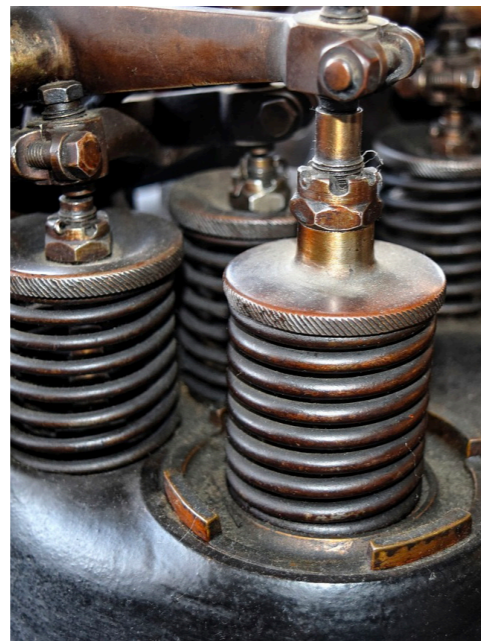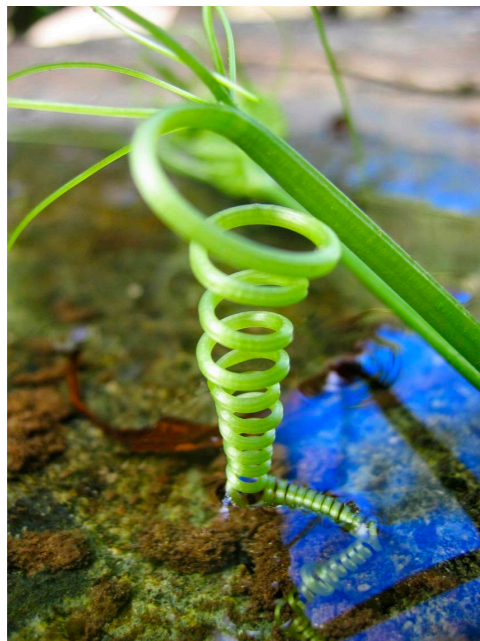
Key-words - playful, balance, inspiring, surprise, social, organic and charismatic.

3D Explorations

Being highly inspired by the *wire-sketches* I went on to recreate the playful feeling, using 3D-modelling.

I wanted to explore the possibilities of using the device as a fashion detail and David was kind enough to act as my model. I was quite happy with the initial septum-looking design but continued my exploration untilk I came back to a playful and inspirign spiral - that later on was transformed into the final concept.

I went back and forth with the deign of the part that is actually visible outside the nose, to maintain a possibility to use it as a fashion detail.

Final Concept

This high-tech spiral brings some movement to the series of concepts. It is meant to resemble the feeling of movement and direction to indicate its function - it collects smells, turns them into digitised data and distributes it on-demand.

This design is mainly focused on conveying a charismatic and playful aura. Since smells, and its effect on us is completely personal and connected to our experiences, I wanted to give the product the aesthetics of a creature rather than something static and impersonal. This would contribute to the users emotional bond towards it, making it a part of the body.
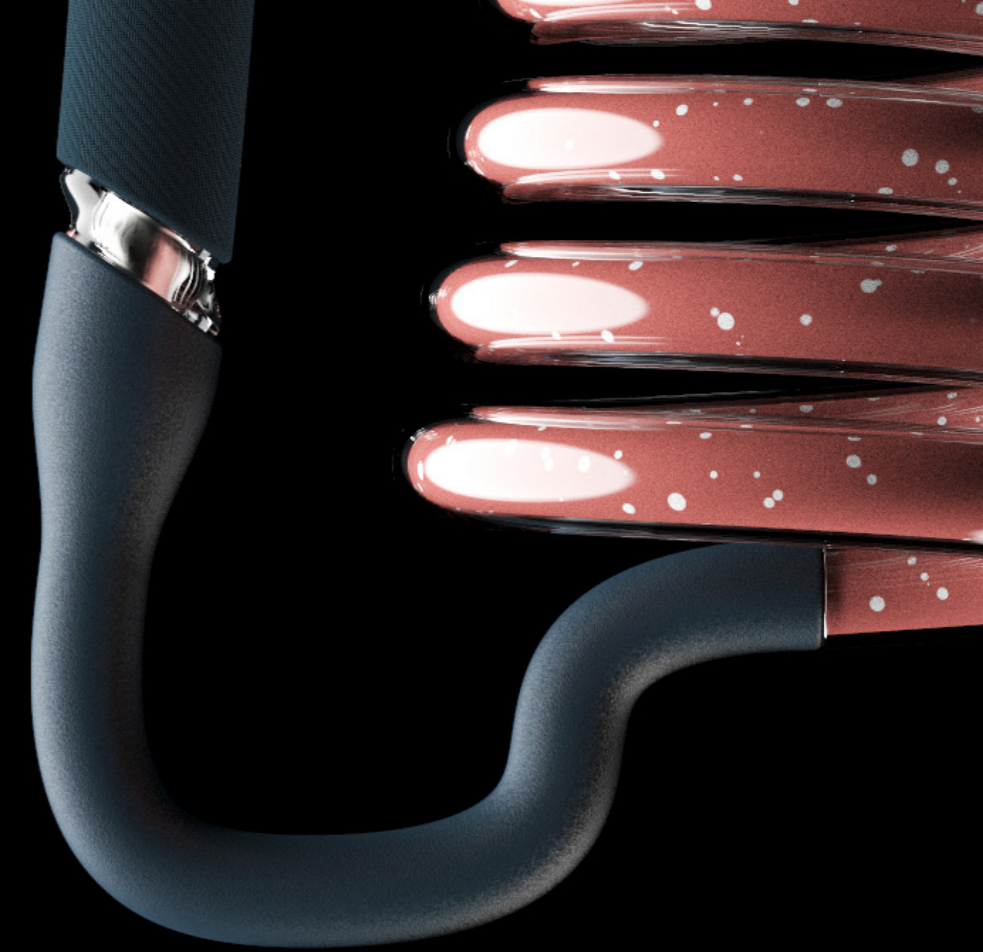
TASTE

TASTE

The sense of taste can be described as a nutritional value control mechanism but in the end, it is a cooperation of all five senses. The sight, smell, and sound of the food prepares our bodies for proper digestion. Saliva begins to flow, hormone levels rise, and the stomach starts to move. When we eat, temperature, taste, and touch receptors decipher the quality and intensity, preparing the mouth and the stomach for customised digestion (Gravina et al., 2013).

Our taste buds are programmed to understand different tastes and then transform that information to our brain. Sweet is one of the most pleasurable tastes and our reaction to it is deeply embedded in our genes, even newborn babies show positive reactions to sweet sensations (Gravina et al., 2013).

Approach

I started by asking the question: why do we have taste in the first place? The answers can be many but the main reason evolves around our eating habits. Historically, taste buds has given us indications on what food to consume and not. Salty or sweet were typical signs of high nutritional value whereas bitter could indicate something old or poisonous (Gravina et al., 2013).

The problem I see here is the obvious miscommunication between the taste buds and the brain. What tastes good is no longer an indication of nutritious content. It has been this way ever since humans left the hunter and gatherer society but has propelled with the emergence of artificial taste enhancers etc.

What if

What if our sense of taste was up to date with our eating habits? How would this change our food intake, and most importantly, how would it change our perception of food? If the nutritional value was reflected in the taste, what would happen to the food industry? Food additives would immediately be questioned and ecological alternatives would see a distinct increase. This update would unquestionably have extreme consequences and turn our relationship to food upside down. It would disrupt the economy, some jobs would be lost and some would emerge but in the end, we are all on the winning side. Our health and well-being always has to come first.

## A Gap Between Nutrition and Taste

Our eating habits are fundamentally different now compared to what they used to be. What is sweet or salty is no longer an indication of highly nutritious food, not rarely it is the opposite. For our taste buds to actively guide us towards a healthy lifestyle, they need to be updated and understand what they are tasting.
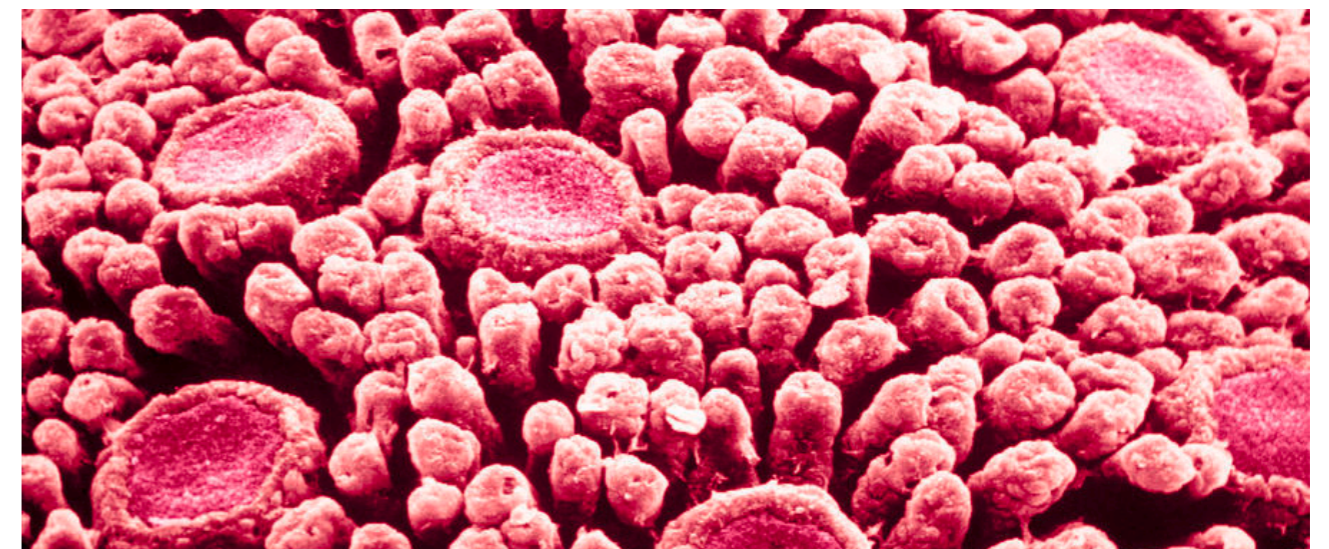
Idea Genereation

When I first started thinking about the concept of inserting a device somewhere in the mouth, I got intrigued by the idea to be bold and somewhat provocative in my design language. The idea itself is very innocent but the application, on the other hand, is something at least I have not seen before and that might seem frightening to a lot of people.

I started exploring different ways to integrate technology in the mouth and concluded that I wanted to make a direct connection to the tongue and the taste buds. To the right, you can see what I initially ended up with, but something felt wrong. Although it's defined by softness and bright colour combinations, it felt too invasive and harsh. I knew I needed to simplify the design and make it more relatable for the user.
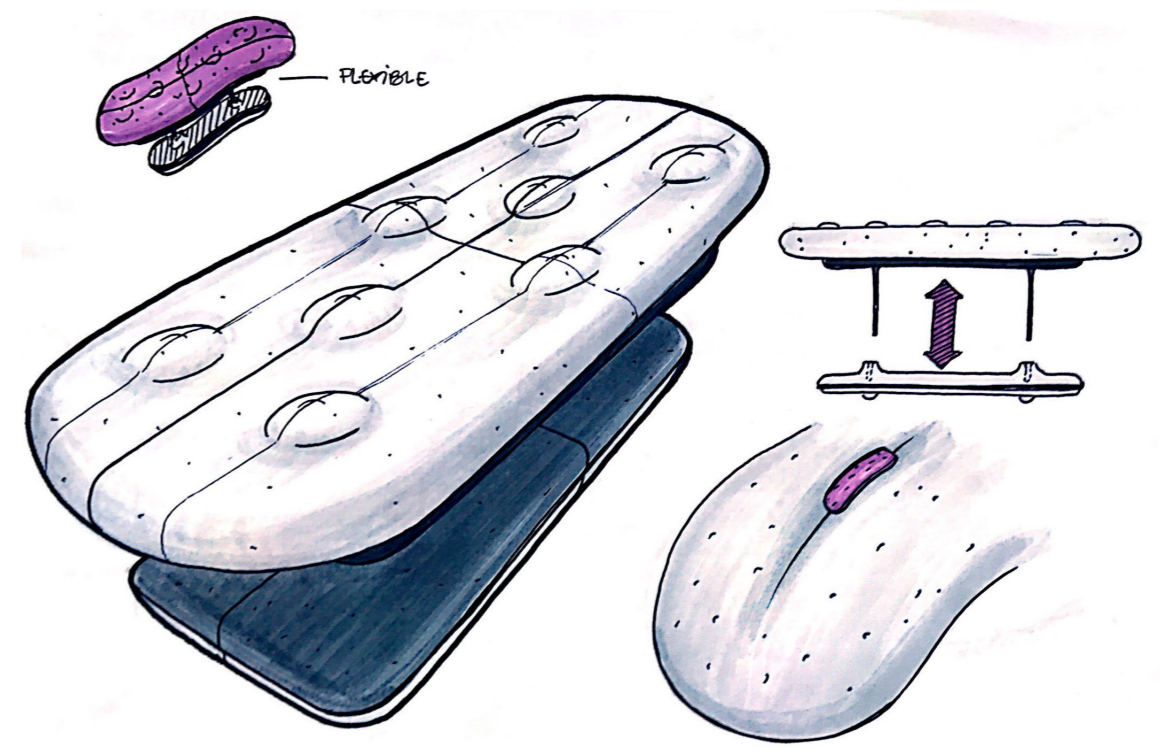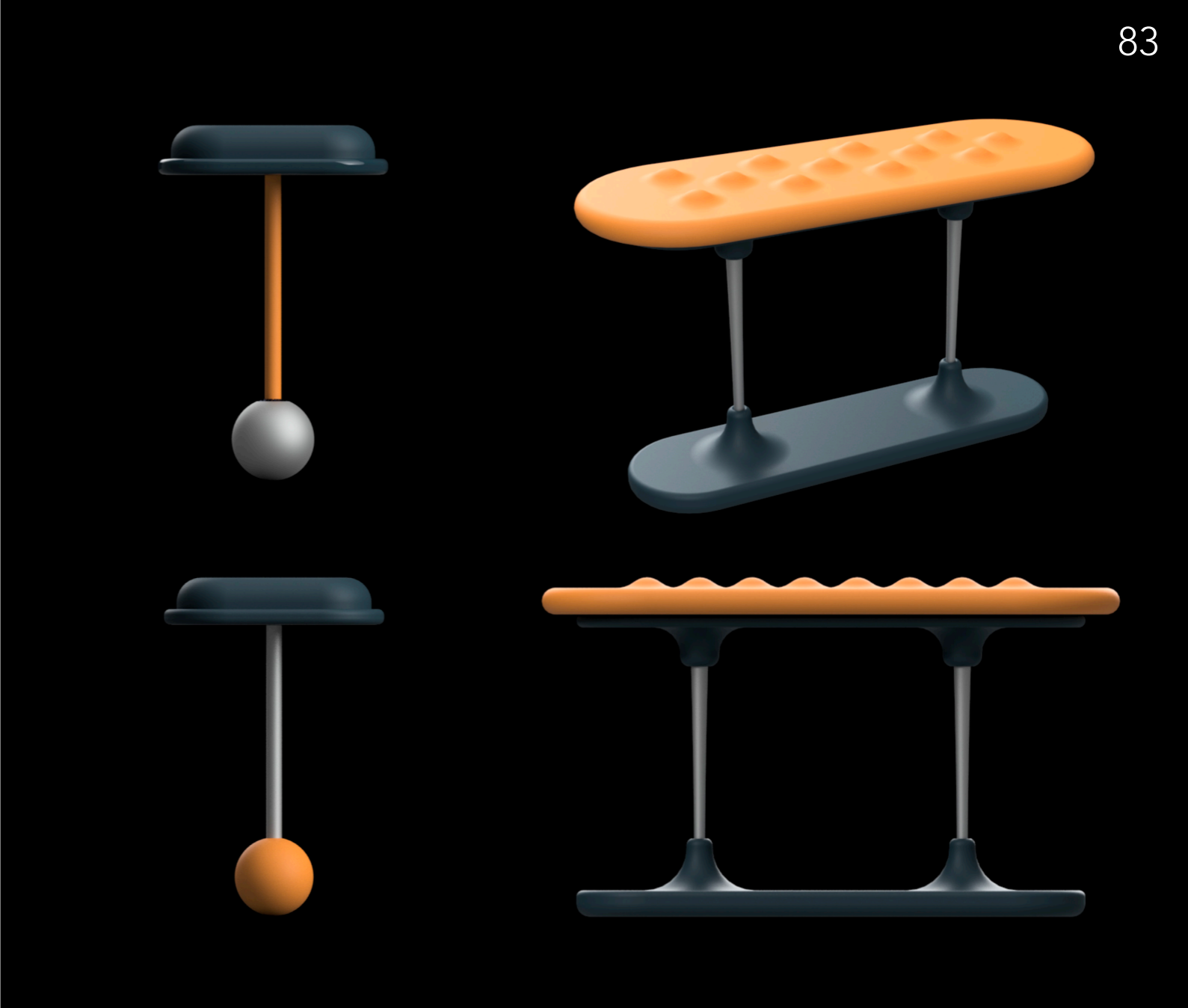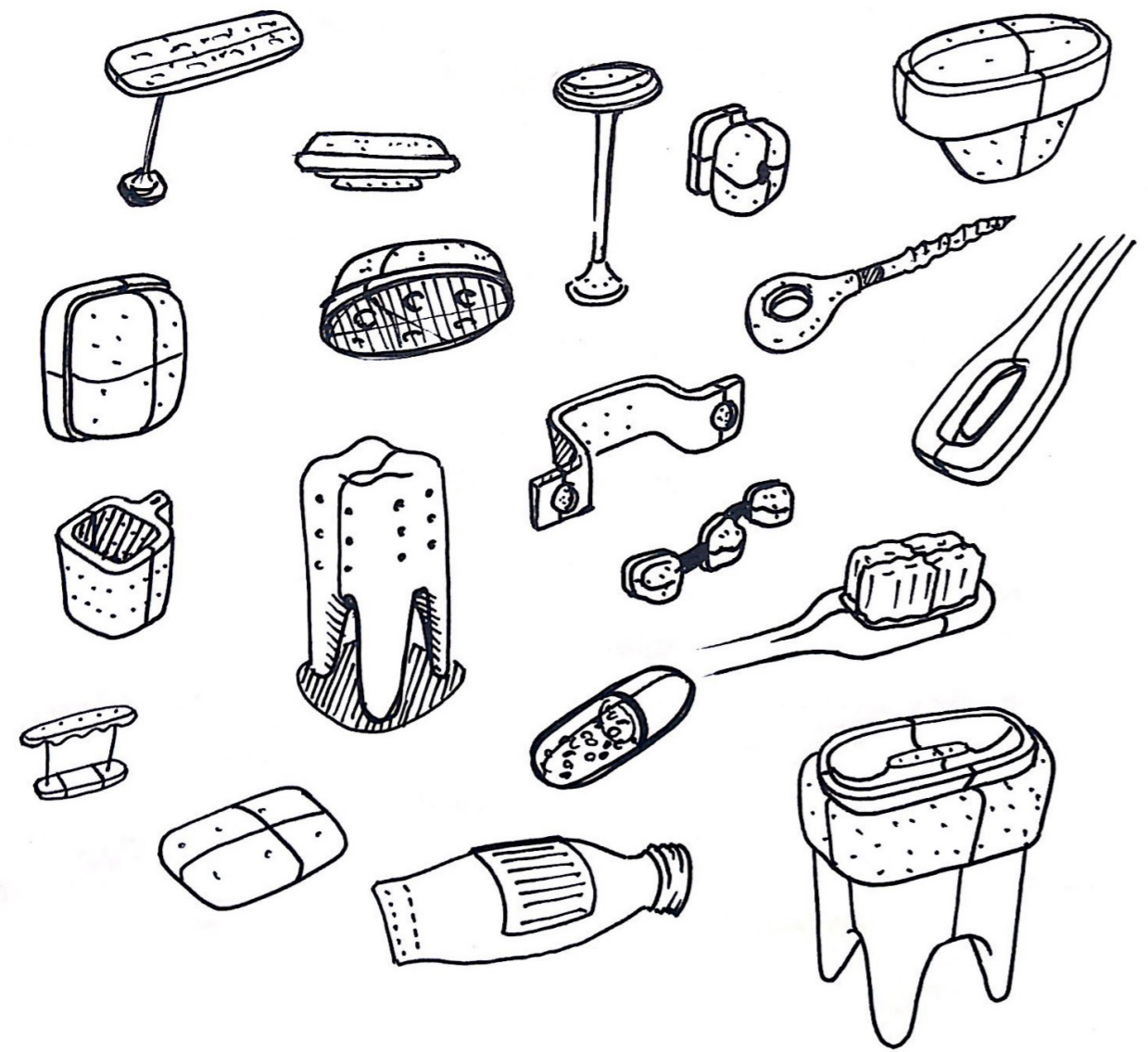
Final Concept

After further consideration and meaningful discussions with people in my surroundings, I decided to completely change the design as well as the CMF of the product. Going from a colourful and soft "dual-pin" clamp to a stylised and minimalistic pin which draws the attention towards technological futurism.

The reason behind my drastic design change was mainly the physical placement of the device. I understood that, to convince people to put something more or less permanently in their mouth, it needs to convey a feeling of cleanliness. It needs to feel completely sterile. Therefore I took inspiration from dentist equipment and looked into what people usually decide to stick in their tongue - tongue piercings. I now understood that I don't need to reinvent to whole shape and style, since the function itself provides something completely new. The design should not conflict with the power of the innovation.
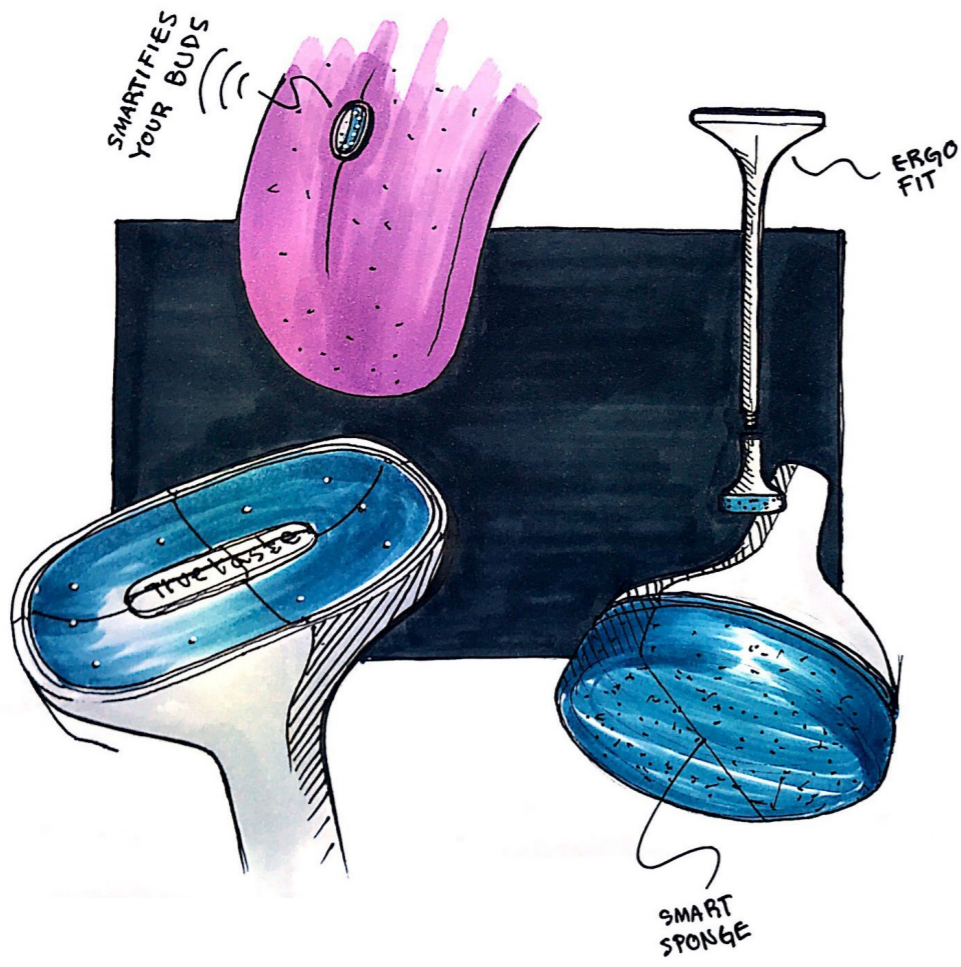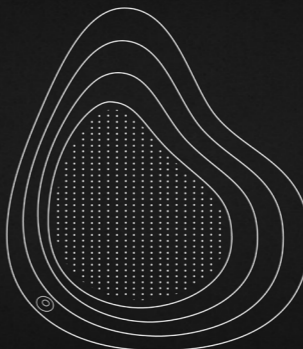
FINAL RESULT

The concept exploration phase resulted in four separate products. I decided not to make a series, where each product relates to one another, but to design and develop them separately. As mentioned earlier in this paper, I followed a set of key-words that acted as a foundation throughout the project. I believe that I managed to implement the key-words differently in each design which creates a red thread. I want to emphasise the core idea behind each product, which is to raise discussions and to raise our expectations on what technology can do for us.

Key-words - inviting, fluent, provocative, alive, surprising, charismatic, and playful.

Host sense - Hearing
Battling noise pollution

H
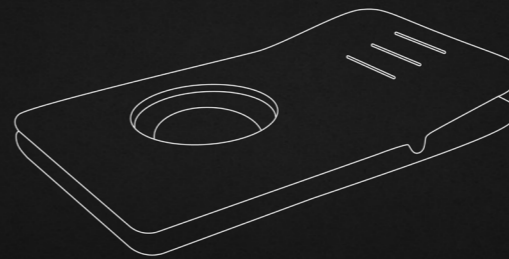
LOVE HERTZ

WHAT IF

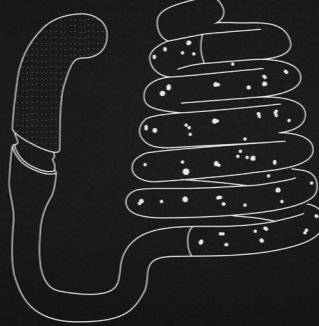Host sense - Sight
Exposing light pollution

Si

NIGHT VISION

WHAT IF

Host sense - Smell
Embracing the strength of smell sensations

Sm

SCENT FROM ABOVE
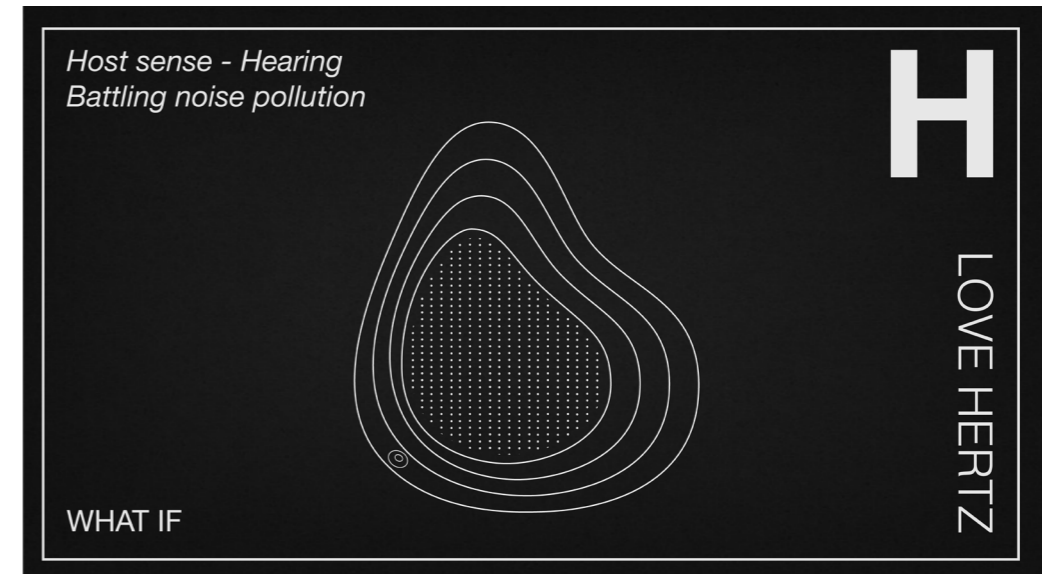
WHAT IF

Host sense - Taste
Smartifying the taste buds

T

TRUE TASTE

WHAT IF

LOVE HERTZ
CUSTOMISE YOUR SOUND INTAKE

What if: we could turn our ears into radio receivers and choose desired channel while filtering out the rest?

Host sense - Hearing
Battling noise pollution

H

LOVE HERTZ

WHAT IF

Love Hertz became the product that is the most grounded in emerging technologies with a clear focus on the ever-improving possibilities of machine learning. The name *Love Hertz* originates from the idea of enjoying the noise instead of being negatively affected by it. The whole concept is about cancelling out the unwanted noise to enable the user to focus on what's important, without the constant noise-distractions a large city provides.

The ear-pods can be used when one wishes to cancel out certain noises, such as the coffee machine in the cafeteria or the construction site next to the office. The pods can also be used to highlight a certain sound, for example the voice of your friend, who's sitting next to you in the bar.

These solutions and possibilities might seem more or less desirable depending on how disturbed one is by unwanted noise but the main reason for this project is not to solve a problem, it's to raise a discussion. Our major cities are in a constant attack of noise-pollution and it's currently considered the second-largest environmental health threat in Europe. Our bodies aren't built to withstand these constant noise-levels and as there isn't much being done to solve the issue, technology might have to step in to save the situation. Noise-pollution might not be a problem in the future, but if it is, we have to design for it.
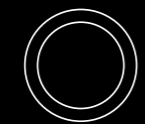
CMF
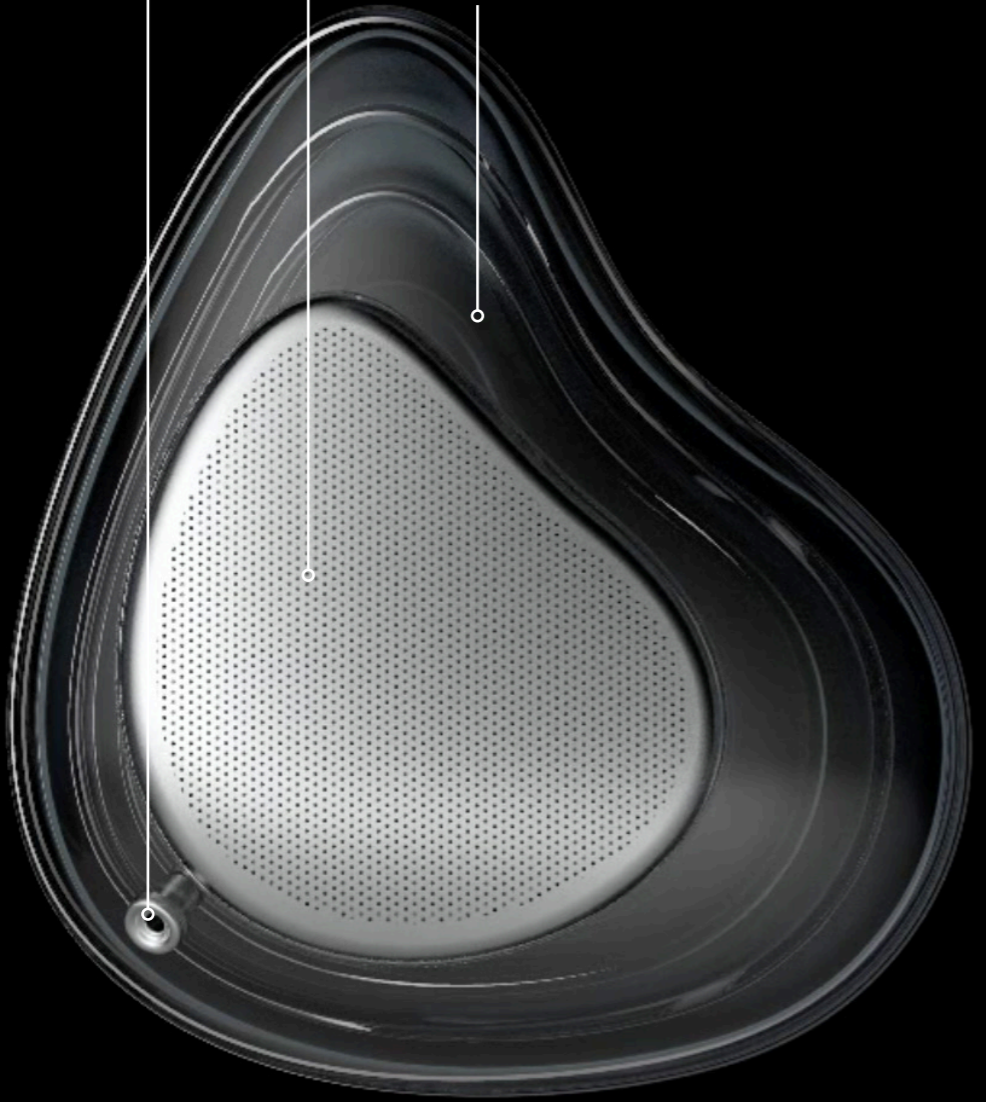
C — Anodised aluminum
M — Recycled Aluminum
F — Matte
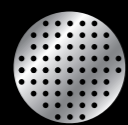
C — Anodised aluminum
M — Hole Punched Recycled Aluminum
F — Matte

C — Transparent
M — Algae-based bio-plastic
F — Glossy

C — Black/Gray
M — Warp Knitted Algae Fabric
F — Matte

C — PANTONE 2965 C
M — Algae-based bio-plastic
F — Matte

Design Desicions

By applying transparency to the front and exposing the layered inside, I aim to create a technological extension of the ear, which has a similar structure.

I believe that the design expresses a feeling of playfulness, surprise, nature, balance and technology. These words is a combination of the two design variations I explained earlier in this paper (Technological- and Biological Futurism).

I chose to create an earpiece that clearly would state its presence in the ear while maintaining a highly technological connotation. Building a bridge between the brain and the environment.
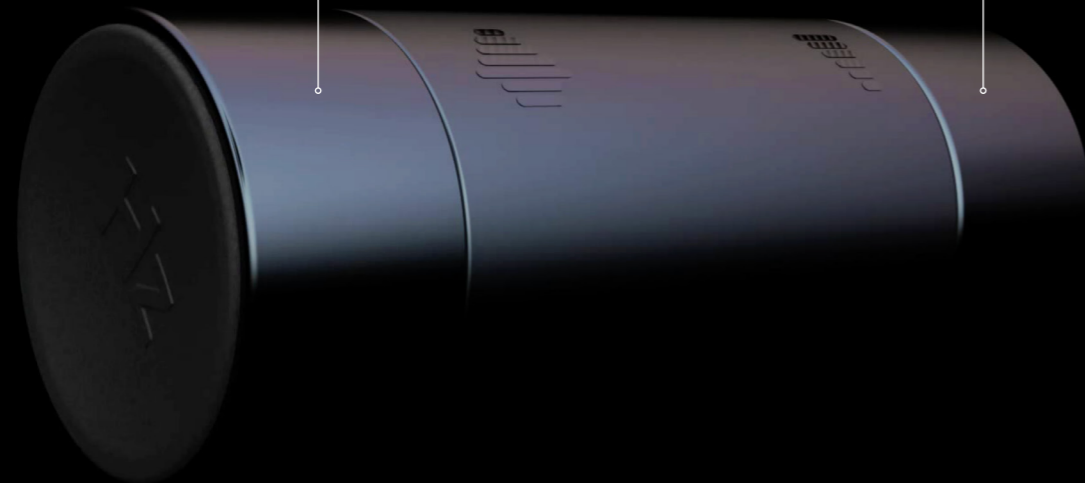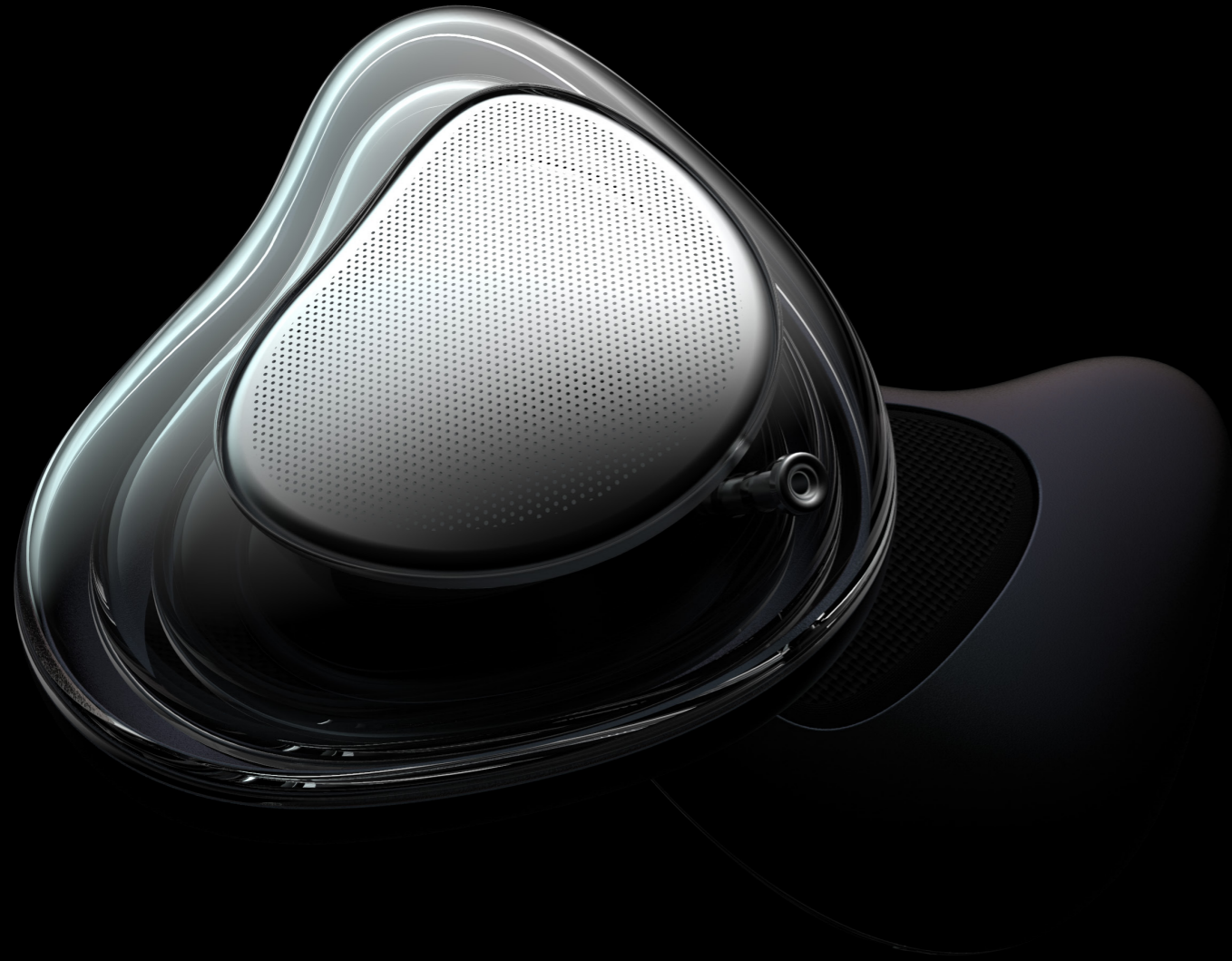
An Interactive Case

The interactive charging case allows the user to navigate through the day and provides a simple interaction. Choose desired frequency (channel) by turning the left wheel and adjust the amount of background noise with the right one, from 0-100%.
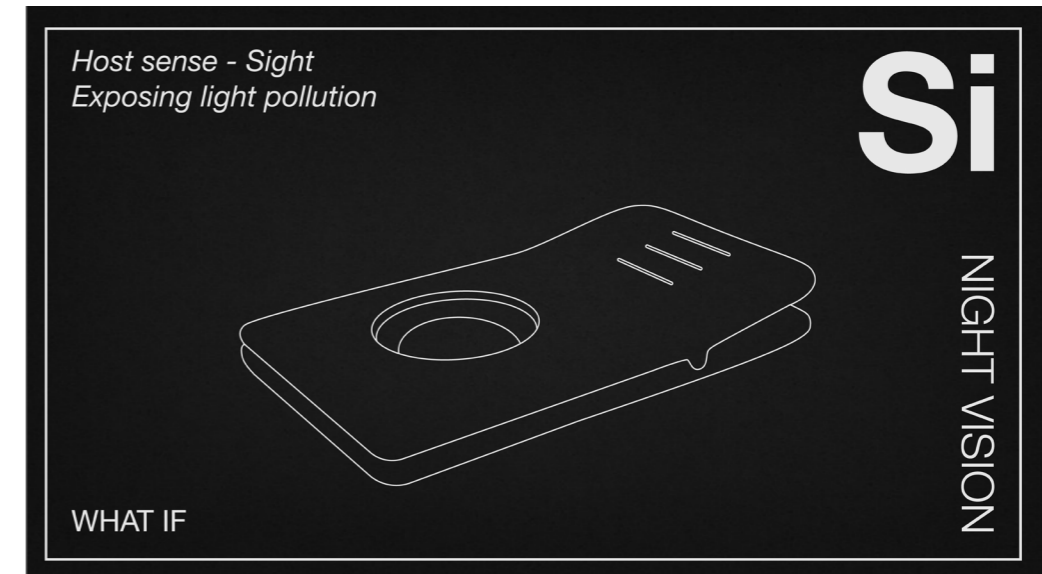
Adjust frequency

Adjust background noise

NIGHT VISION
UNVEIL THE TRUE NIGHT SKY

What if: we could block out all artificial light in a major city?

Host sense - Sight
Exposing light pollution

Si

NIGHT VISION

WHAT IF

What we see is light. That is all there is. Light is the foundation of any image we perceive. Yet, our large cities are being actively polluted by artificial light - disturbing the natural order and providing us with an artificial understanding of our surroundings. It shields us from reality.

According to Nadia Drake at National Geographic there is one clear example of how light pollution changes our perception of the world around us. During a clear night in 1994, there was a city-wide power outage. Residents started calling emergency agencies, not only because of the power outage itself but because they experienced a mysterious cloud in the sky above them. That object they might have thought was something invasive and unnatural turned out to be the band of the Milky Way (Drake, 2019).

Reality is something subjective. We usually refer to reality as the world we are experiencing, but what we see is not even close to the whole picture. I want to provide an alternative view on reality, reminding people that there is more out there than they experience with the naked eye and to emphasise the fact that light pollution shields us from the beautiful world around us.

Our experiences are completely dependant on the strength of our senses. After all, our senses create our consciousness and perception of the world. This handheld monocle reminds the city dweller that there is a world far greater than the city centre.

Night Vision is a device that is meant to serve as a sign of awareness. Something the user can wear as a fashion accessory while spreading the knowledge about light pollution. The device itself only provides the possibility to experience a world without light pollution, it doesn't intend to solve the problem, but to raise awareness.

CMF

C   -   Transparent
M   -   Meteoric glass
F   -   Glossy
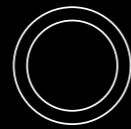
C   -   PANTONE 3242 C
M   -   Recycled aluminum
F   -   Sandblasted
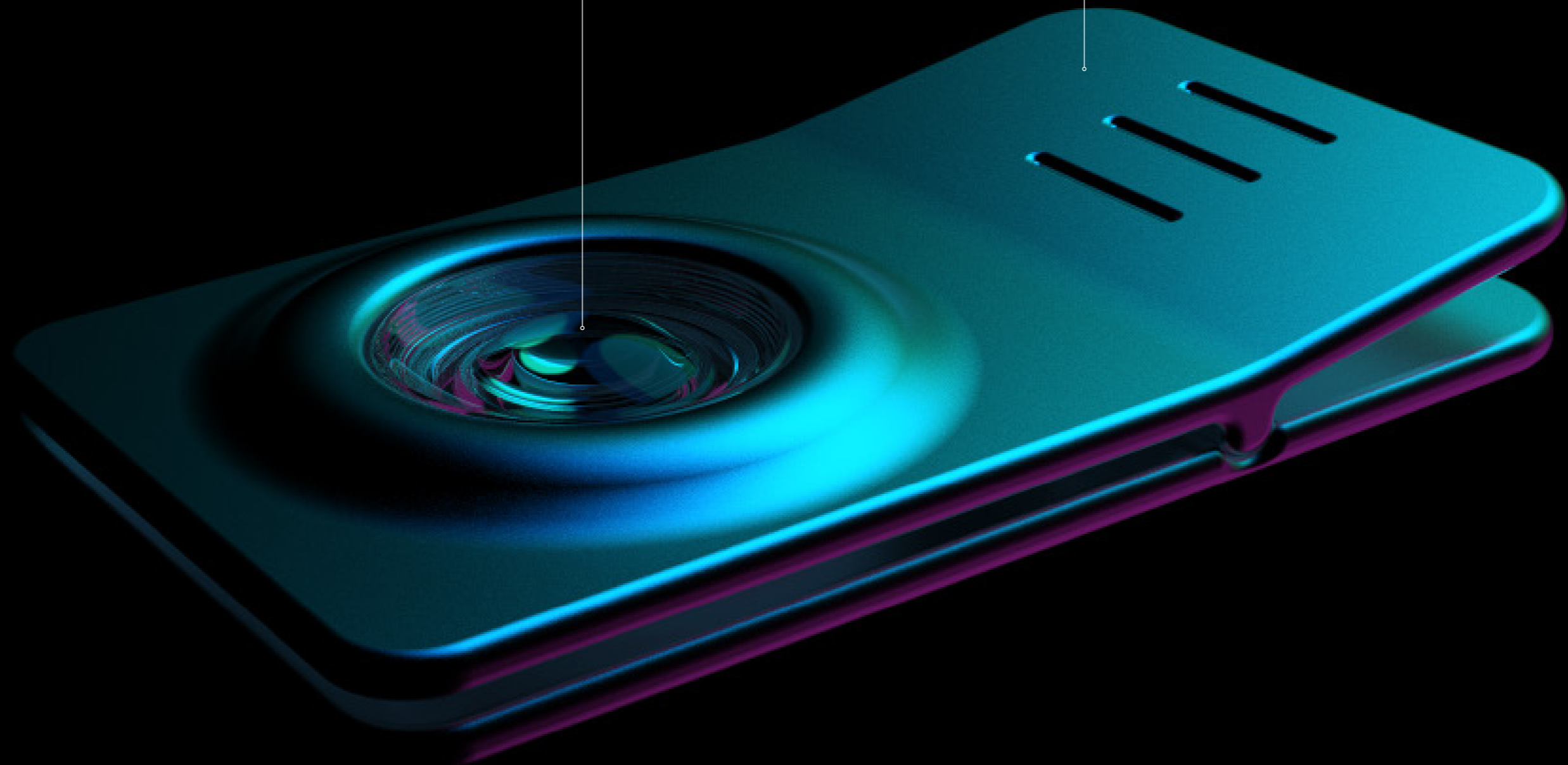
Design Desicions

This handheld monocle is the extrovert in the series. It is the only device, directly exposed to the public. The clamping function you see above is designed to enable the user to wear the device as a design detail on the clothes. In 15 years from now, we will be even more connected than we are today and chances are high that all our personal devices will be wearables. This is a design that aims to build a bridge between jewellery and technology, it is something you are proud of, and it is something you share.
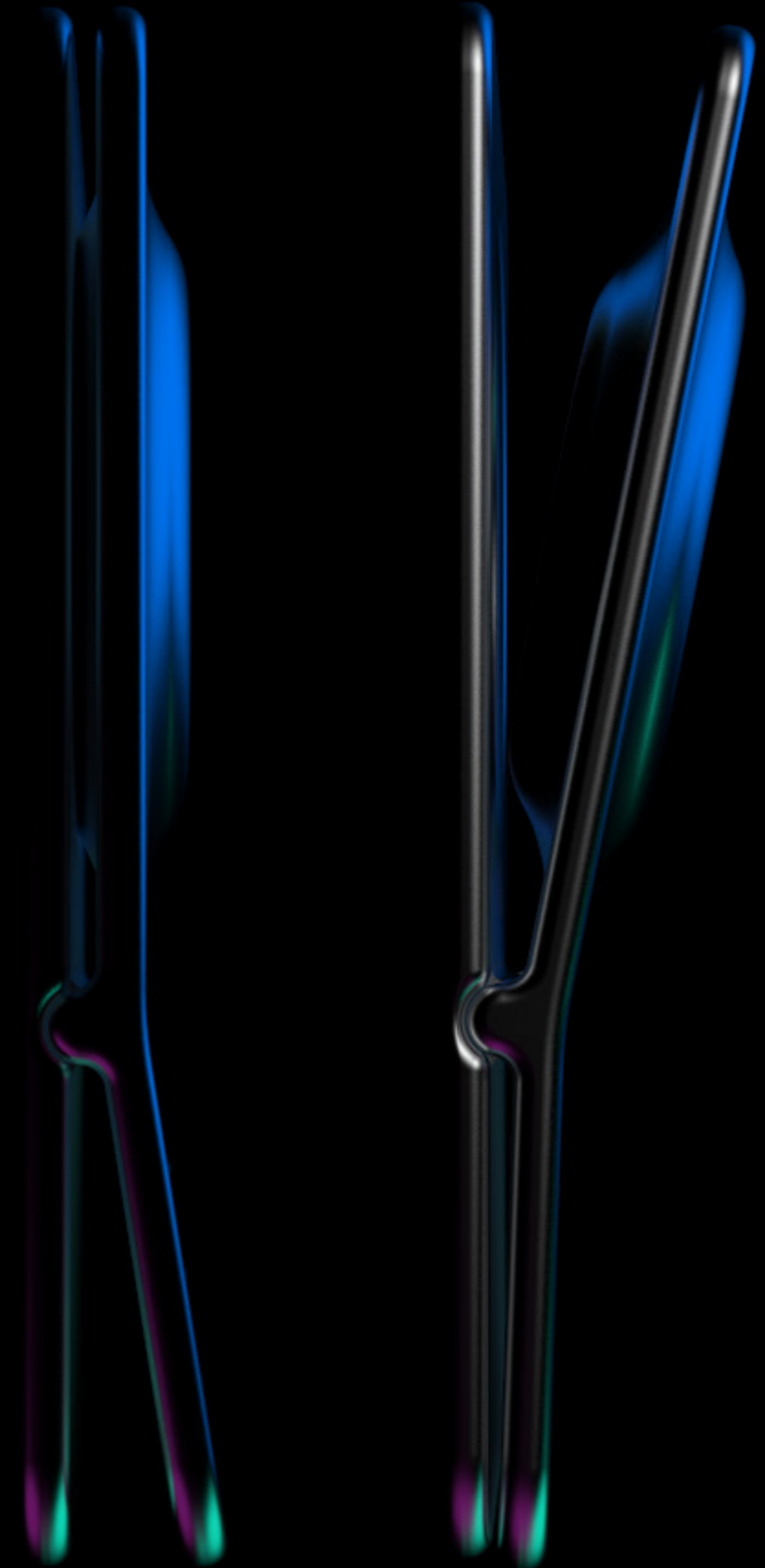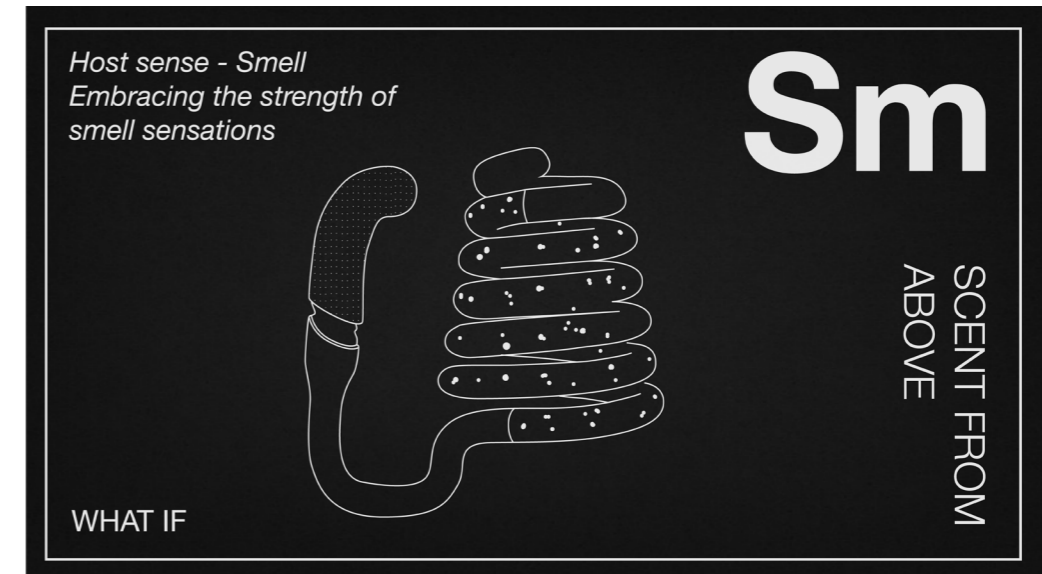
SCENT FROM ABOVE

A MEMORY AND NOTIFICATION SYSTEM

What if: we could make use of our smell's unique ability to form strong memories and emotions?

Host sense - Smell
Embracing the strength of smell sensations

Sm

SCENT FROM ABOVE

WHAT IF

Scent From Above is the future of smell sensations. By sending out electrical currents to the smell receptors in the nostril, it gets direct contact to the amygdala. The applications for this type of device are endless, but, I chose to focus on the connection between device and user, instead of examining the possibilities of, for example, sharing smells with others or incorporating it in virtual reality settings. This doesn't make the other applications less relevant, it's merely an indication that it could evolve further.

The idea to insert a small technological device in the nostril might seem uncomfortable and somewhat frightening, but, when experiencing the power in electronic smell sensations, the pros will overweigh the cons.
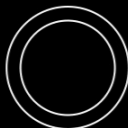
The main driving force for this concept was to raise awareness of the importance and power of smell sensations. We've failed in making use of the strength of our sense of smell and we're slowly minimising its significance. *Scent From Above* provides the user with a possibility to awaken the sense of smell and bring back its importance to everyday life. It acts as a hint to the world of technology, to start focusing on enhancing our senses instead of numbing them.
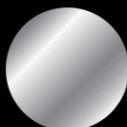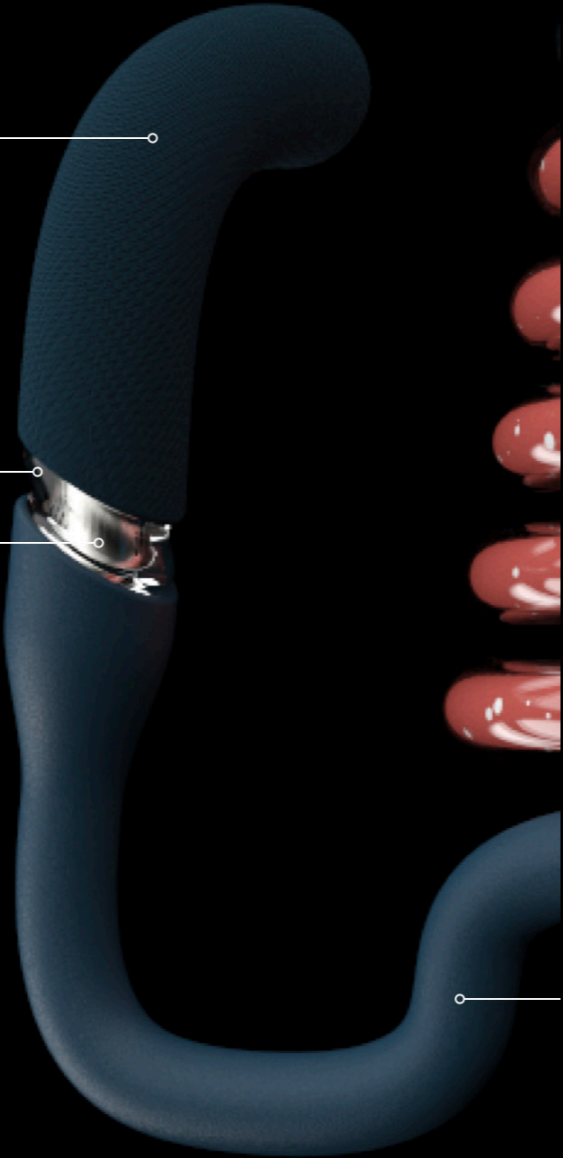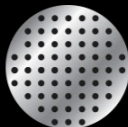
CMF

C - Silver
M - Recycled titanium
F - Rough

C - PANTONE 276 C
M - Algae-based bio-plastic
F - Matte

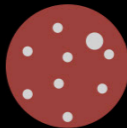C - PANTONE 18-1662 TCX
M - Titanium reinforced rubber
F - Rough

C - Titanium reinforced rubber
F - Rough

C - Cloudy
M - Algae-based silicone
F - Matte

C - Transparent
M - Flexible Algae-based bio-plastic
F - Glossy

C - Grey anodised aluminum
M - Flexible aluminum mesh
F - Rough

C - PANTONE 276 C
M - Algae-based rubber
F - Rough/matte
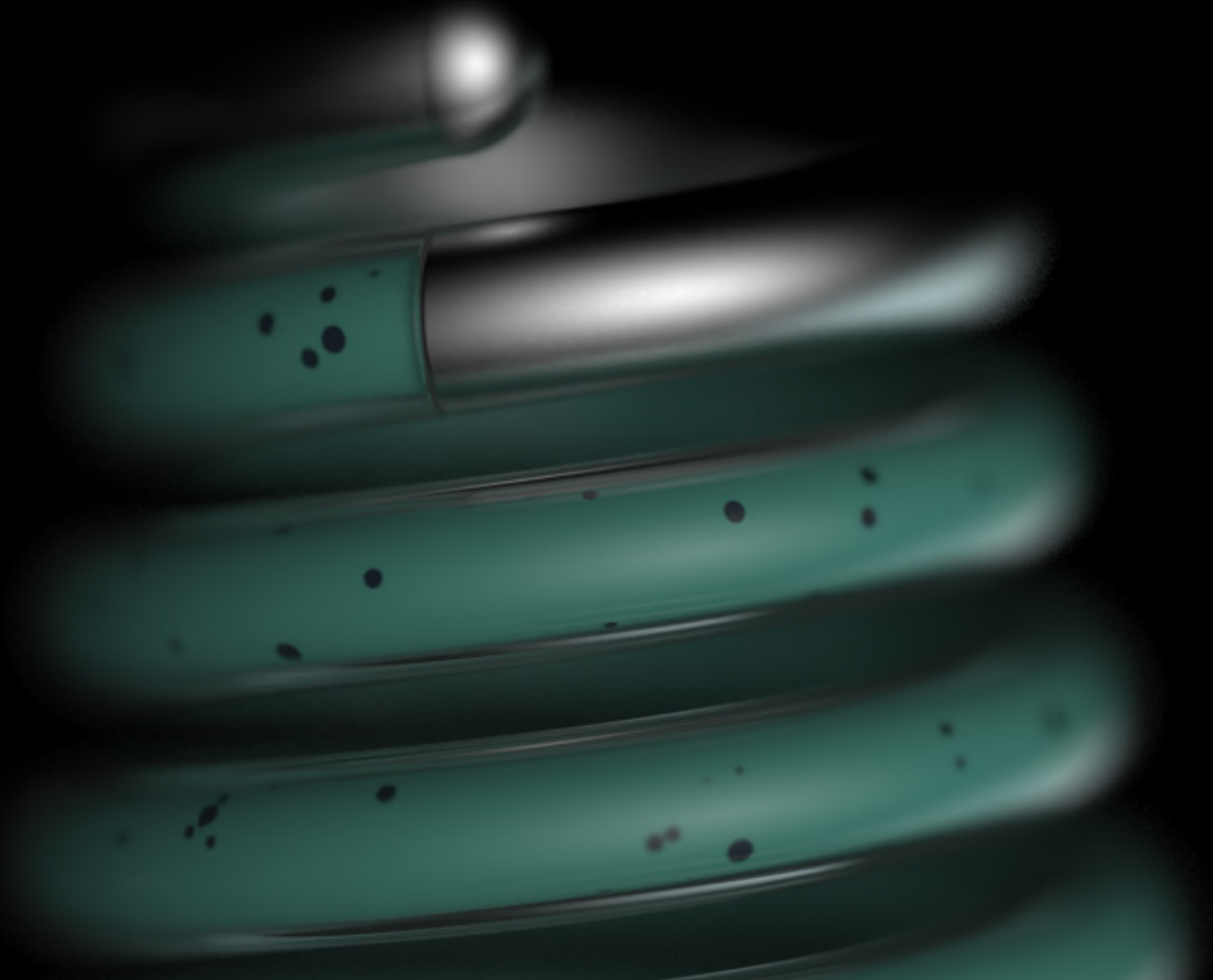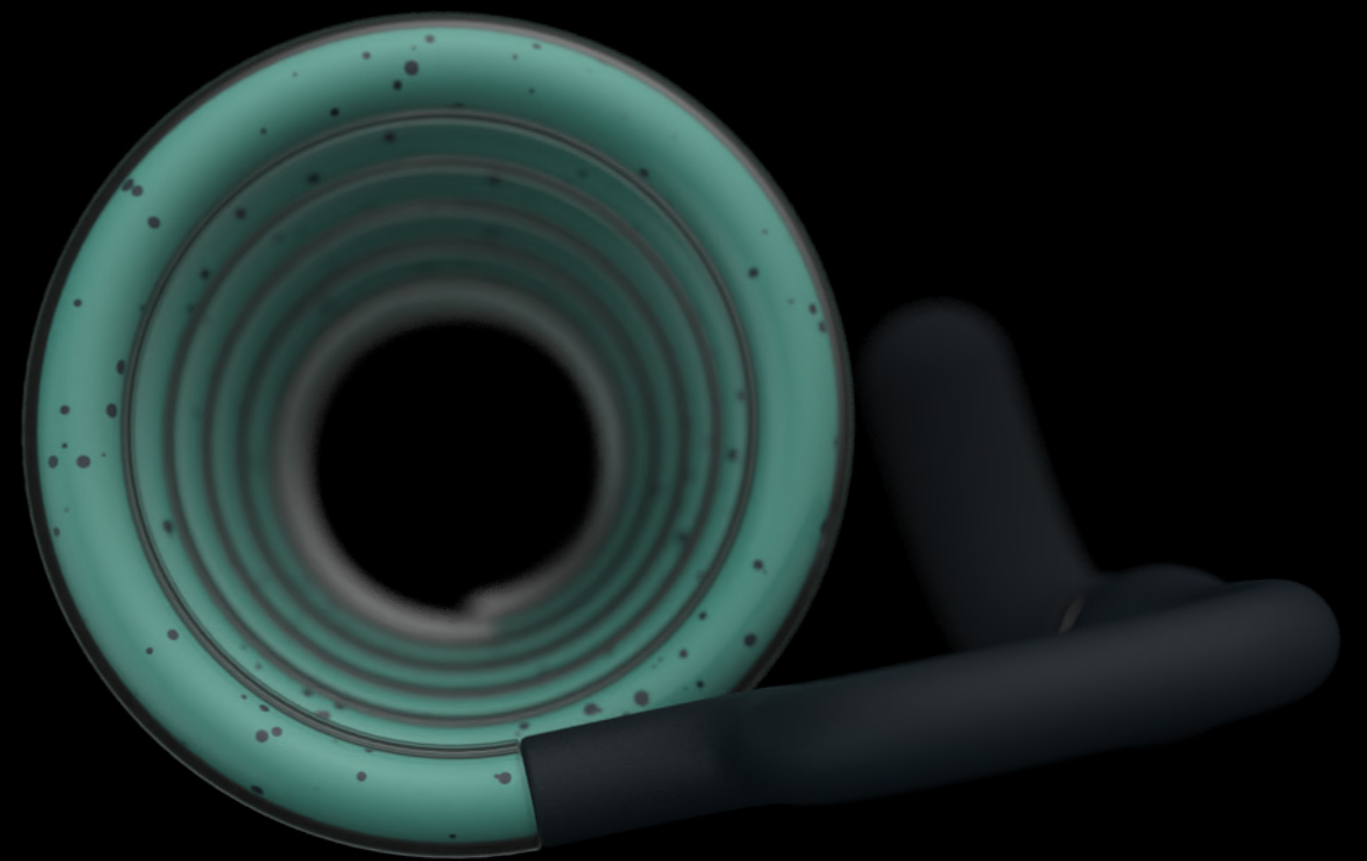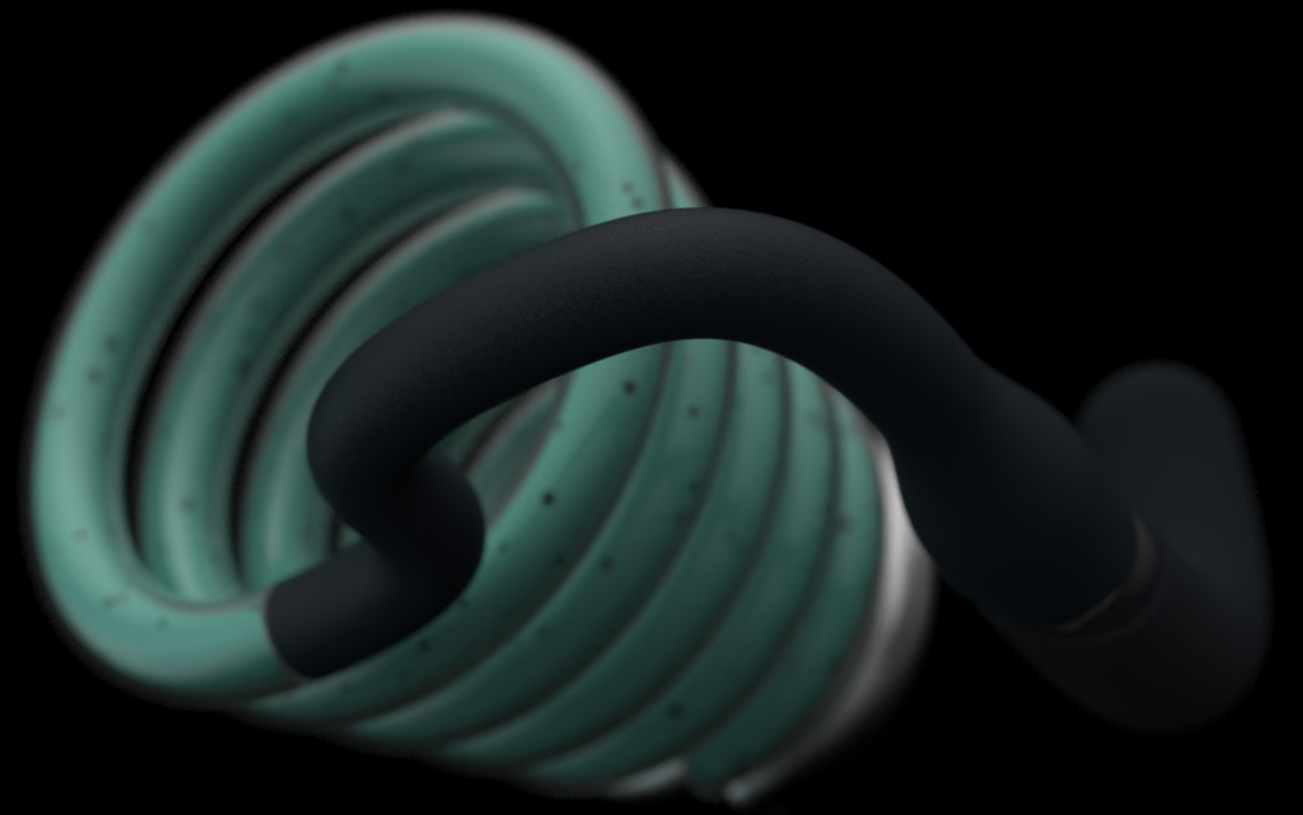
Host sense - Taste
Smartifying the taste buds

T

TRUE TASTE

WHAT IF

TRUE TASTE
SMARTIFY YOUR TASTE BUDS

What if: we could bring back the actual reason we have taste in the first place?

True Taste is the tongue piercing that fundamentally changes your diet. It can be seen as a conversion device that decodes the food to calculate its nutritional value. Its main task is to smartify the taste buds to make them up to date with the food industry.

In today's society, more people die as a cause of obesity than starvation. There are many ways to look at and tackle this issue. Examining at our diet is one of them. As explained earlier in this paper, there is a clear misunderstanding between nutrition and taste. What we perceive as tasteful is not an indication of high nutritional value - which once was the main reason for developing the sense of taste. The food industry is making use of this imbalance by using unnatural additives that take more from us than they give. We consume far too much salt and sugar while missing out on essential minerals and vitamins.

True Taste will make our relationship to taste more honest, to create a system that isn't self-destructive, what tastes good should also be good for our bodies.

This technology isn't based on any existing research and is therefore far from being realised, if it ever could be. For now, it acts as a reminder to remember the actual function of taste, why we have it in the first place. This approach might help some people to change their diet for the better, but, to assist the masses, we either need strict legislation for the food industry or unexpected technological advances.

CMF

C - Dark grey
M - Anodised titanium
F - Semi-glossy
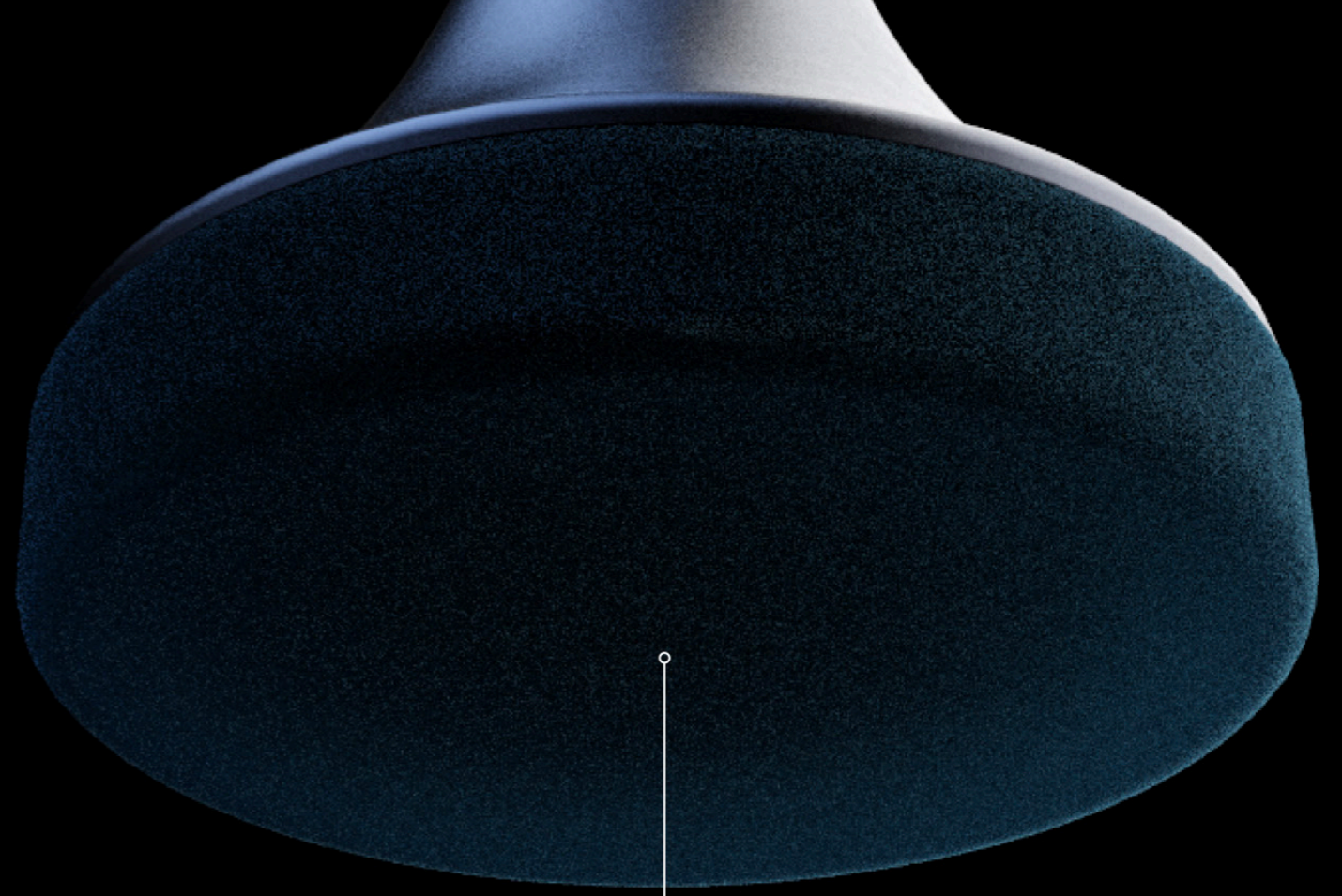
C - PANTONE 19-4540 TCX
M - Smart foam
F - Rough
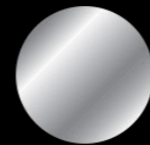
C - Silver
M - Recycled titanium
F - Rough
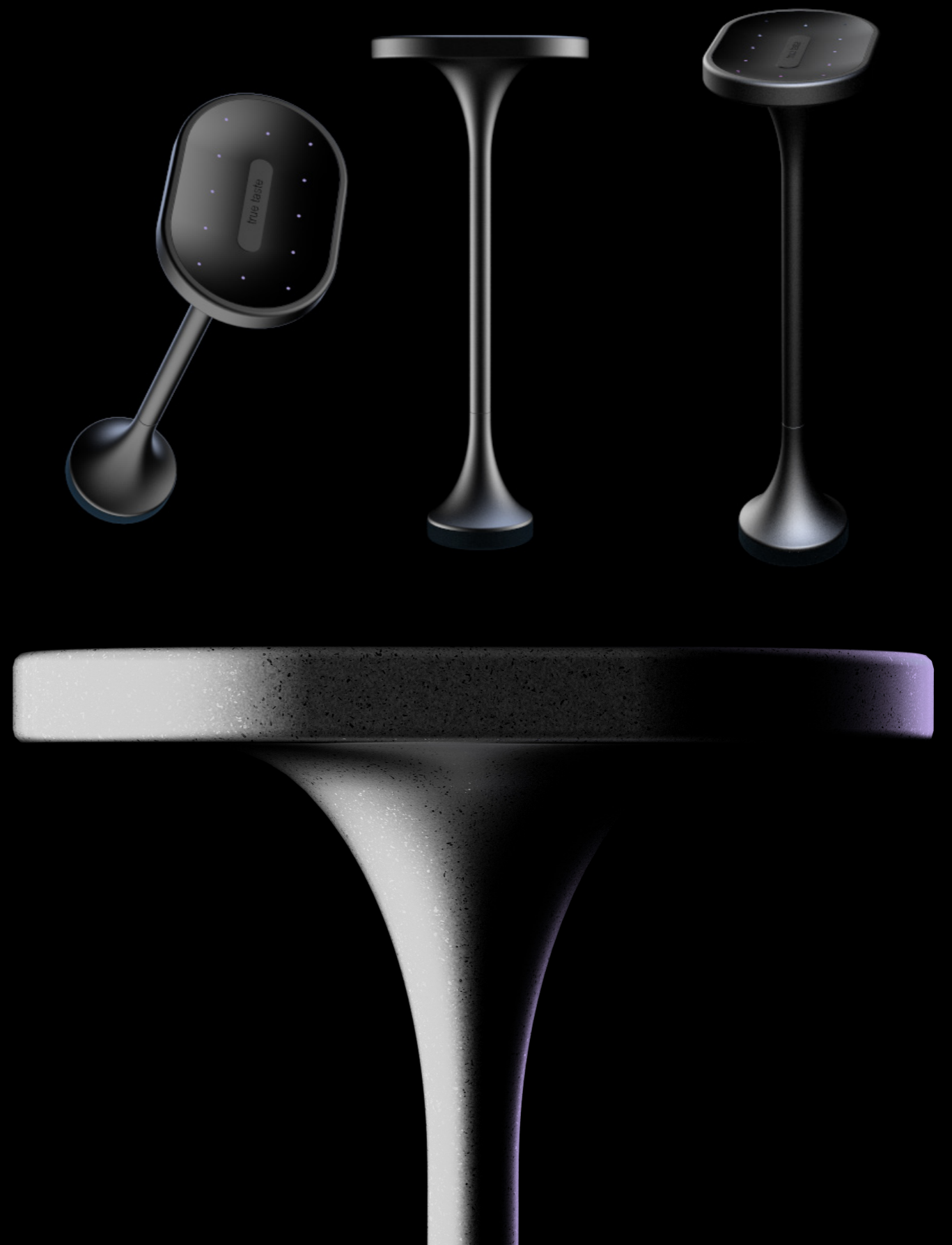
Design Decisions

This is undoubtedly the most intrusive device in the series. It is also the most conceptual and far fetched solution in terms of existing technologies and science. Because of these facts, I tried to communicate a bold and confident design that also looks and feels clean and sterilised, due to its intimate application.
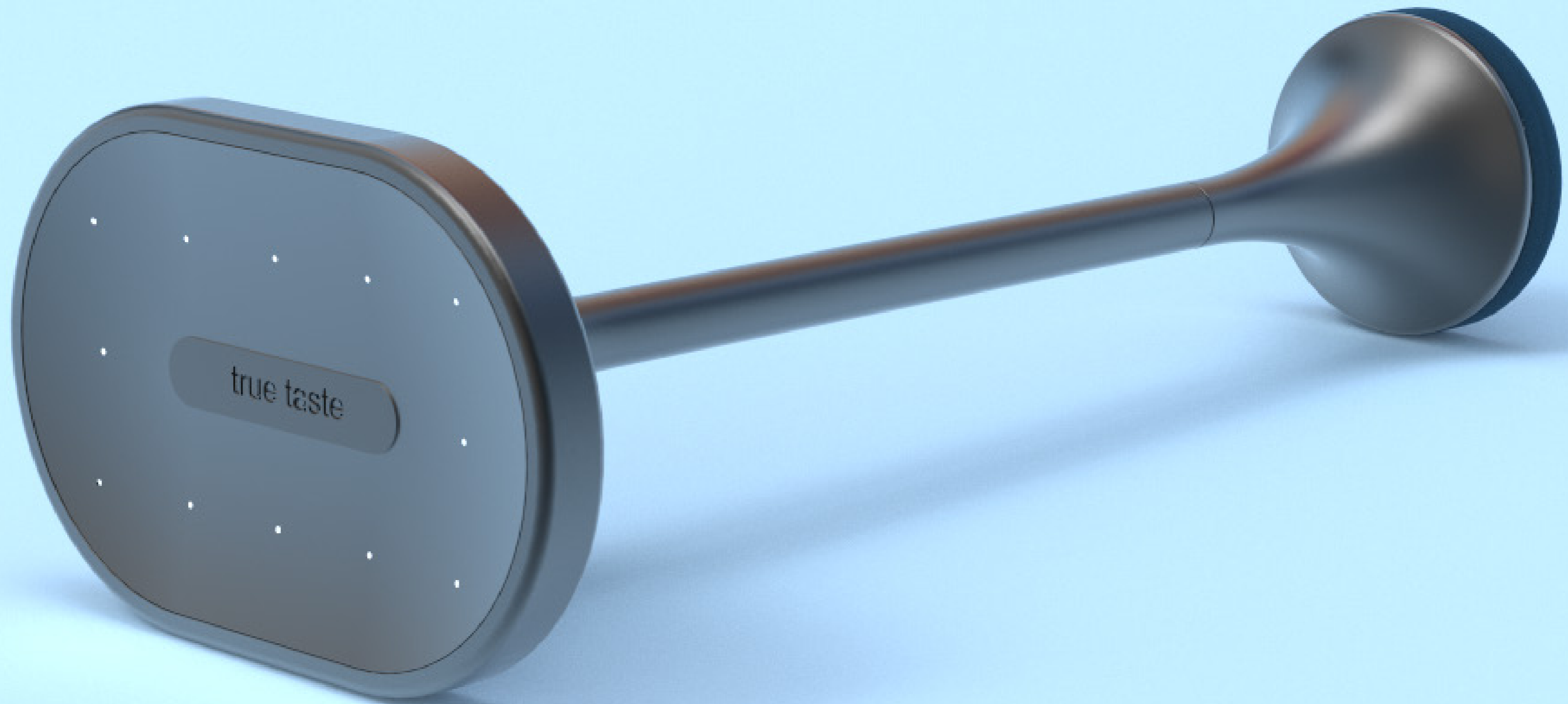
FINAL COLLECTION

The project resulted in four conceptual devices. Each of the devices has its own agenda and focus, but they all have the same goal: to accompany and to enhance its host sense.
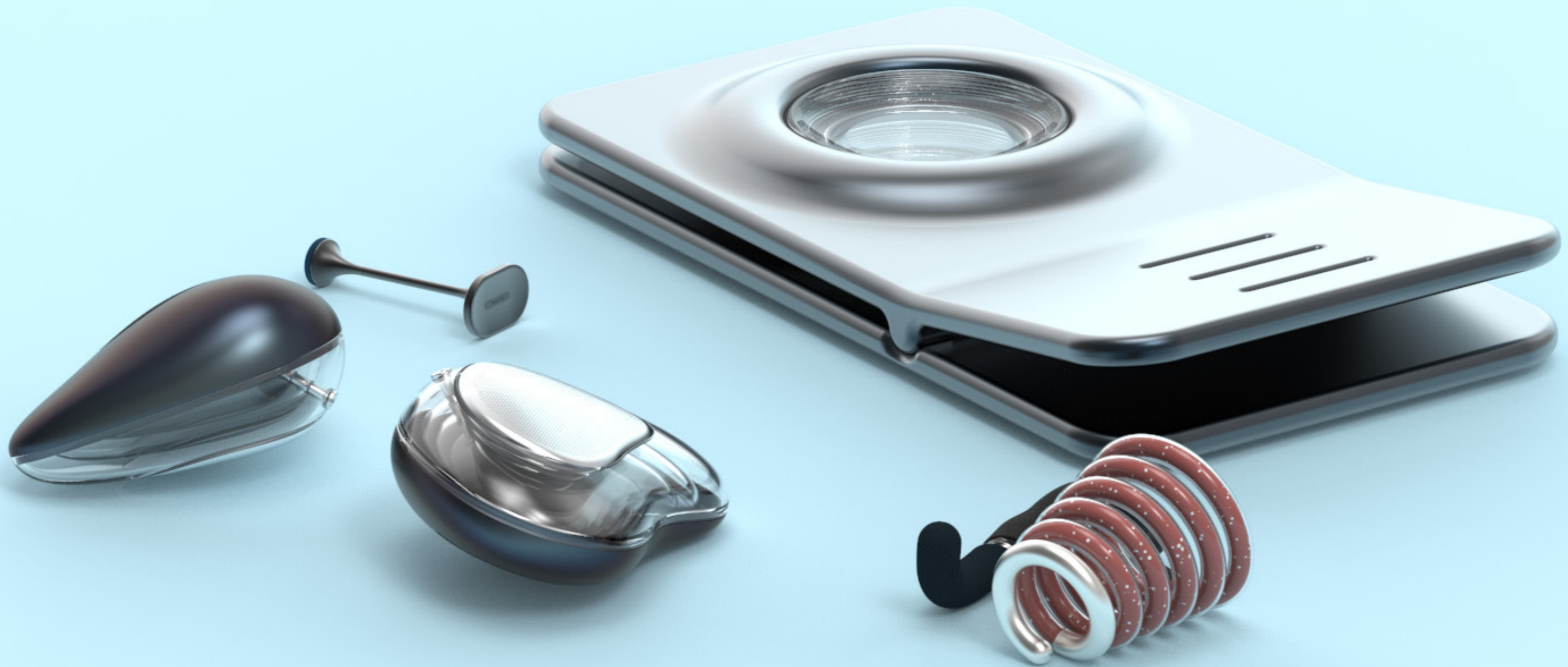
LOVE HERTZ
CUSTOMISE YOUR SOUND INTAKE

What if: we could turn our ears into radio receivers and choose desired channel while filtering out the rest?

SCENT FROM ABOVE
A MEMORY AND NOTIFICATION SYSTEM

What if: we could make use of our smell's unique ability to form strong memories and emotions?

NIGHT VISION
UNVEIL THE TRUE NIGHT SKY

What if: we could block out all artificial light in a major city?

TRUE TASTE
SMARTIFY YOUR TASTE BUDS

What if: we could bring back the actual reason we have taste in the first place?

CONCLUSION

As mentioned at the beginning of this paper, my goal with the project was to physicalise debates regarding our relationship to technology and to raise discussions about what the future could hold.

I believe that I managed to raise interesting discussions that, in some regard, are new to the design field. Most importantly, I managed to stay within the speculative realm and not fall for the temptation of taking too much inspiration from existing solutions. The outcome is something I truly feel is a result of my thoughts and speculations, with a connection to scientific research.

Looking back, I think the story could have been slightly stronger if the devices were part of a more homogenous series, with a clear design language. On the other hand, this result shows a variety of options and feels more feasible. Since each device is designed with the end function in mind rather than its neighbouring devices, it makes the solution feel less conceptual, which I believe could spark a desire for change and technological evolution.

In futuristic and speculative design, I found a completely new interest of study and will keep the learnings with me in future projects. I believe it sparked my creativity and enabled an extended view on the possibilities of design. I see it as fundamental quality to, as a designer, continuously question our preconceptions and heuristics when approaching new design projects. In the end, we possess the multi-disciplinary knowledge to bridge the gap between humans and technology, let us do it in the right way.

COVID-19

In the early weeks of this project, COVID-19 started spreading to Europe and Sweden. The limited availability of workshops and machines made me completely reframe my project to focus on research and CAD rather than model making. It made me evolve my knowledge in as well 3D-modelling as rendering and animation which I feel goes hand in hand with my project scope.

The obvious drawback is the social interaction throughout the process. I find it crucial to get everyday inputs, comments, and inspiration from co-students to make the most of the result. I did my best to interact with people around me but it is simply not the same, when the accidental bump-ins or happenings are limited.

If I were to redo this project in a normal setting, I would have spent much more time and effort in the form and material explorations, but I am not sure if it would have made total sense in the end. Due to the speculative approach of this project, I believe that the project benefited from minimal connection to the physical world - making me more free in my design language and not limited by the available machines and materials.

REFERENCES

Brenner, S. and Sejnowski, T.J., 2011. Understanding the human brain., American Association for the Advancement of Science.

Chepesiuk, R., 2009. Missing the dark: health effects of light pollution., Environmental Health Perspectives.

Cohen, S. and Weinstein, N., 1981. Nonauditory effects of noise on behavior and health. Journal of Social Issues, 37(1), pp.36-70.

Drake, N., Our nights are getting brighter, and earth is paying the price, accessed 13 April 2020, <https://www.nationalgeographic.com/science/2019/04/nights-are-getting-brighter-earth-paying-the-price-light-pollution-dark-skies/>.

Dunne, A. and Raby, F., 2013. Speculative everything: design, fiction, and social dreaming. MIT press.

Eriksson, C., Nilsson, M.E. and Pershagen, G., 2013. Environmental noise and health: current knowledge and research needs (No. 6553).

Fleming, R. and Roberts, S.H., 2019. Sustainable Design for the Built Environment. Routledge.

Gravina, S.A., Yep, G.L. and Khan, M., 2013. Human biology of taste. Annals of Saudi medicine, 33(3), pp.217-222.

Gross, D.M., 2016. Listening, Thinking, Being: Toward an Ethics of Attunement by Lisbeth Lipari. Philosophy & Rhetoric, 49(1).

Hariri, S., Mustafa, N.A., Karunanayaka, K. and Cheok, A.D., 2016, November. Electrical stimulation of olfactory receptors for digitizing smell. In Proceedings of the 2016 workshop on Multimodal Virtual and Augmented Reality (pp. 1-4).

Kahn Jr, P.H., Severson, R.L. and Ruckert, J.H., 2009. The human relation with nature and technological nature. Current Directions in Psychological Science, 18(1), pp.37-42.

Ludden, G.D., Schifferstein, H.N. and Hekkert, P., 2008. Surprise as a design strategy. Design Issues, 24(2), pp.28-38.

Govers, P.C. and Mugge, R., 2004, July. I love my Jeep, because its tough like me: The effect of product-personality congruence on product attachment. In Proceedings of the fourth international conference on design and emotion, Ankara, Turkey (pp. 12-14).

Page, T., 2014. Product attachment and replacement: implications for sustainable design. International Journal of Sustainable Design, 2(3), pp.265-282.

Seltzer, L.J., Prososki, A.R., Ziegler, T.E. and Pollak, S.D., 2012. Instant messages vs. speech: hormones and why we still need to hear each other. Evolution and Human Behavior, 33(1), pp.42-45.

Sheikh, k., 2018, Noise Pollution Isn't Just Annoying — It's Bad for Your Health, accessed 15 April 2020, <https://www.brainfacts.org/Thinking-Sensing-and-Behaving/Diet-and-Lifestyle/2018/Noise-Pollution-Isnt-Just-Annoying-Its-Bad-for-Your-Health-062718>.

Wired, Beschizza, R., 2008, History's Greatest Gadgets, accessed 10 April 2020, <https://www.wired.com/2008/02/historys-great/>.

IMAGE REFERENCES

Agi Haines, Transfigurations, accessed 20 March 2020, <https://www.agihaines.com/transfigurations>.

Alexandra Daisy Ginsberg, 2009, The Synthetic Kingdom: A Natural History of the Synthetic Future, accessed 15 March 2020, <https://www.daisyginsberg.com/work/synthetic-kingdom>.

Apple Inc., 1987, Apple Knowledge Navigator, accessed 20 March 2020, < https://www.mac-history.net/apple-history-tv/2011-08-02/apple-history-tv-knowledge-navigator>.

Schifferstein, H.N., Mugge, R. and Hekkert, P., 2004. Designing consumer-product attachment. In Design and emotion (pp. 327-331). London: Taylor and Francis.

Studio Malagon, 2016, Neuralign, Love-Optimised, accessed 15 March 2020, <https://www.studiomalagon.com/love-optimized>.

Tellart LLC, Museum of the Future: Gaming Obesity, accessed 17 March 2020, <https://www.tellart.com/projects/mofgs-2015/>.

WHAT IF

What If is a conceptual and speculative design project aimed to fuel discussions and physicalise debates regarding our relationship to the world around us.

The environment we have created is characterised by constant growtch and an endless stream of information. Our human senses are made for a completely different kind of life and the natural evolution has no chance against the technological. It's time to talk about what we are aiming at, what society we want, and who we want to be.

The project consists of four personal devices, one for each of the facial senses: hearing, sight, smell and taste. Together, they create a series of multi-sensorial devices. Each device has the common main goal: to accompany and to enhance its host sense. Each topic relates to sustainability, what type of future we are building, and how the senses need to be improved to suit the environment we have created.

LUND
UNIVERSITY

Martin Ljungman
+46 727 21 27 22
mh.ljungman@gmail.com