INSTANTLY

scent the moment - encourage activity

M.A. Industrial Design degree project
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scent the moment - encourage activity

by Sophie-Catherine Ohlsen 2016
Degree Project for Master of Fine Arts in Design
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Supervisor: Professor Claus-Christian Eckhardt

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ABSTRACT

Introduction

This project looks at the potential of integrating the human perception and specifically our own perception of scent into the design process. To create something unique, valuable and potentially tangible with a powerful perception that is the exact opposite, intangible.

In my Thesis I explored different uses cases, went on a sensual experiences myself to encounter the enriching potential, that scents can have in our daily routines. My work has researched and validated the powerful experiences we can create, when using scent as a medium to interact with.

In a world that is overstimulated by the visual, digital and audible, I created „Instantly". A product that breaks with routines, a product, that triggers chains of beneficial reactions through scent. A way to play with your daily autopilot to establish healhier routines for yourself.

INTRODUCTION

Instantly

In the intricate interplay of our senses, scent emerges as an evolutionary messenger, instantly influencing our emotional cortex and guiding behavior. Simultaneously, time has evolved, becoming less linear and more elusive in our routines.

„Instantly“ is a groundbreaking living service that weaves subtle scent sequences into the fabric of your day, akin to learning the clock as a child. Rather than fixating on time, „Instantly“ prompts a more considerate response by associating moments with distinctive scents, encouraging anticipation for change.

Crucially, in the realm of habitual conditions, „Instantly“ highlights the importance of time. By breaking free from persistent conditions through scent-induced awareness, it sparks a proactive approach to change. Embrace the transformative potential in every moment with „Instantly.“

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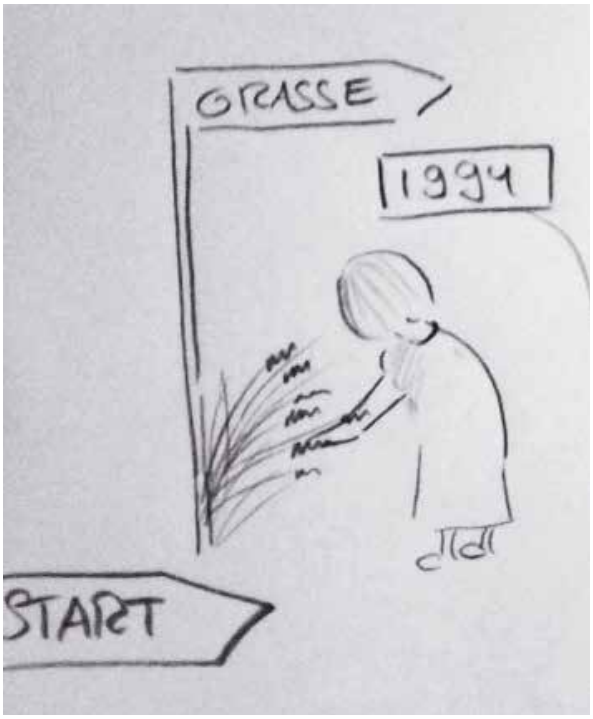
BACKGROUND

SCENT, SOPHIE AND DESIGN

personal motivation



Already as a child I was fascinated and often highly influenced by the scent of my surrounding environment. Growing up in the countryside I came across a diversity of scents. I remember creating own perfumes with my best friend picking rose leaves and grass, which eventually would mould in our basement, since we obviously weren`t experts.

One of my strongest childhood memories goes back to family trips to the south of France. Visiting Grasse, the major perfume capital in the world sustained and intensified my relation to scents. I am very sensitive to perceiving scents in my daily environment. As inspiring and broadening experiences, it can also be a burden and great distraction, which obviously controls me subconsciously most of the times.

As a designer I have an affinity and high motivation to work within the area of the the human perception. Having explored the world of sound in my B.A. Thesis and tactile exploration in my NASA project, I want to spend my M.A. within the world of scent.

Scent as it is highly pesonal, highly scientific and yet very nostalgic, I want to look at it from a designers point of view. As our world is mostly visually dominated, I intend to investigate the great potential of scent to influence peoples mindsets and motivate behaviour.

http://killeenna.com/the-story/

http://killeenna.com/quality/

INTRODUCTION

INITIAL THOUGHTS

personal approach

The human perception and cognitive science spark a lot of inspiration and motivation in me. From the scientific background and throughout history, scent as an immaterial influences our lives on a daily basis.
I believe that design and scent have interesting relations, similarities and differences, that are worth exploring.

There is no scentless space or place on earth and we are constantly under the ambient influence of it. In relation to the omnipresence and subtle, but strong impact on humans, we neglect the benefits for people and the potential of scent in design, to enter an experience.

INTRODUCTION

„Scent happens both before and behind all other senses.
Scents hit us directly through the limbic system;
they are more pre-cognitive and emotional.“

Eva Wisten

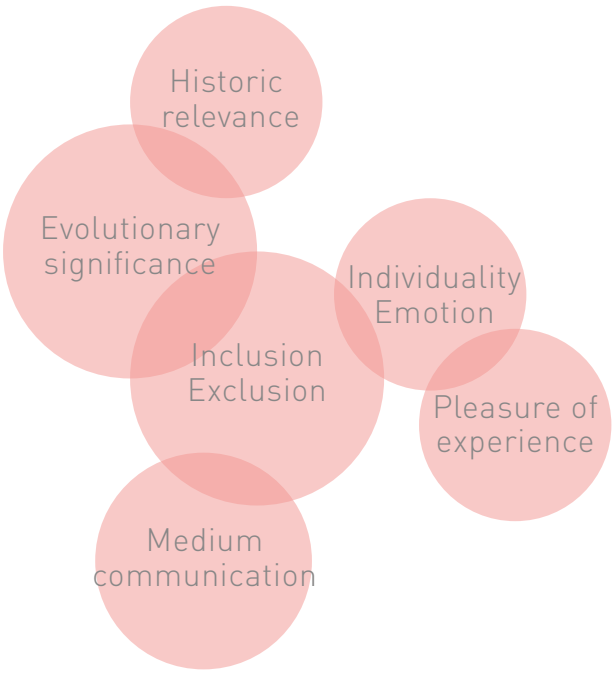
EXCLUSION AND INCLUSION

scent and society

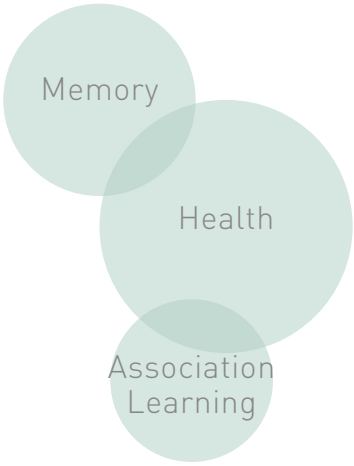
Knowledge, culture and intelligence is dominated by our visual abilities. Scent has been eliminated over history and is still excluded in our modern society. Over time it has been associated with poverty, dirt and bodily fluids. Today, odours are banned with clean surfaces, air control systems and antiseptic materials. (Wisten E.,2016)

Nowadays scent is re-integrated in society. Scent is used in branding, home appliances and hygiene articles. If one takes a closer look at the actual biological and psychological effects and importance of scent and it`s relation to mental and physical health, scent has the potential to go beyond known territories in design.

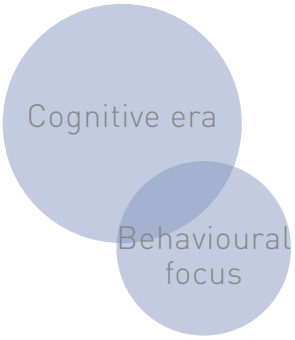
BACKGROUND



POTENTIALS



ROLE AS A DESIGNER



POTENTIALS

scent and design

„Visual, screenbased design will retain a central role, but designers will have to engage more with human senses ...“

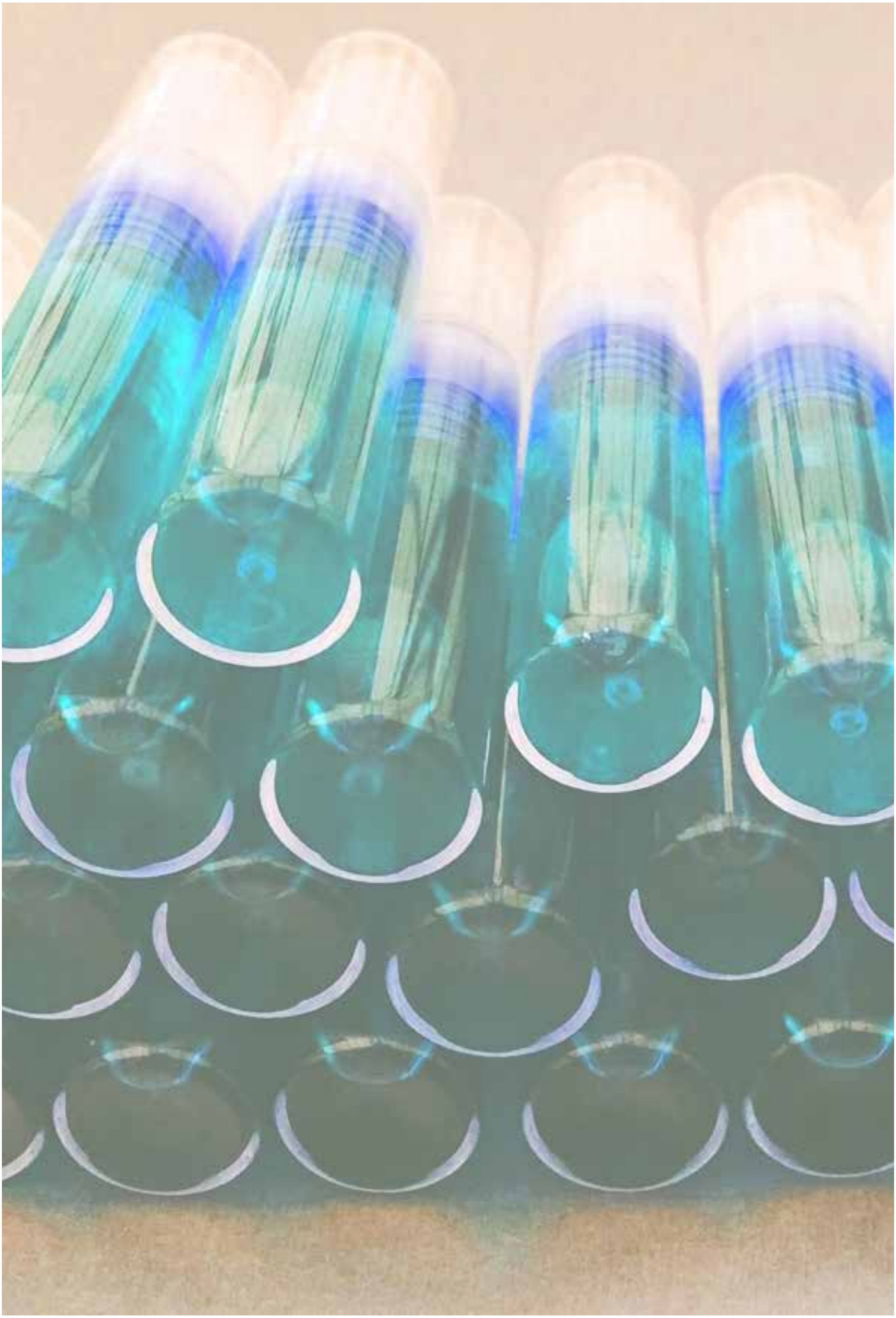
Fjord

Scents spatial and perceptive potential in creating experiences, shows various touchpoints for designers to incorporate our strongest sense. Especially in regard to contemporary design, emphasizing on the the creation of human-centered and experienceable products and services.

The direct pathway to our limbic system everytime we perceive a scent, changes our mindset instantly, wether we notice it or not. The incoming chemical information is always the same, but our personal experience is highly individual due to upbringing, cultural background and memory.

Furthermore we are missing the language to convey our olfactory experiences. (Wisten E.,2016) A connection of scientific and chemical process, that can yet be so intimate. Linking this to the ability of a designer to observe, analyse and empathize with a persons behaviour and environment reveals interesting touchpoints in the area of health, detection of diseases, memory, learning, warning systems and signaling information. Furthermore scent builds associations and can enrich experiences in texture and depth and possibly create patterns. Nevertheless to identify and analyse scent we have to re-learn to consciously perceive and communicate it. (Wisten E.,2016)

RESEARCH



OLFACTION

instant moments

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HISTORIC RELEVANCE

scent and society

„From incense for spiritual ceremonies to perfumes for fighting illness to products for enhancing sex appeal—they've all emphasized a connection between good smells and good health, whether in the context of religious salvation or physical hygiene."

Hunter Oatman-Stanford

Throughout history humans had an intense relationship to scents. The Egyptians used natural ingredients in wax to apply a scent to different body parts, like parts of the neck and wrist. Furthermore scents were burned in religious ceremonies or carried in jewelry. Mainly to improve their own well being or for cultural applications.

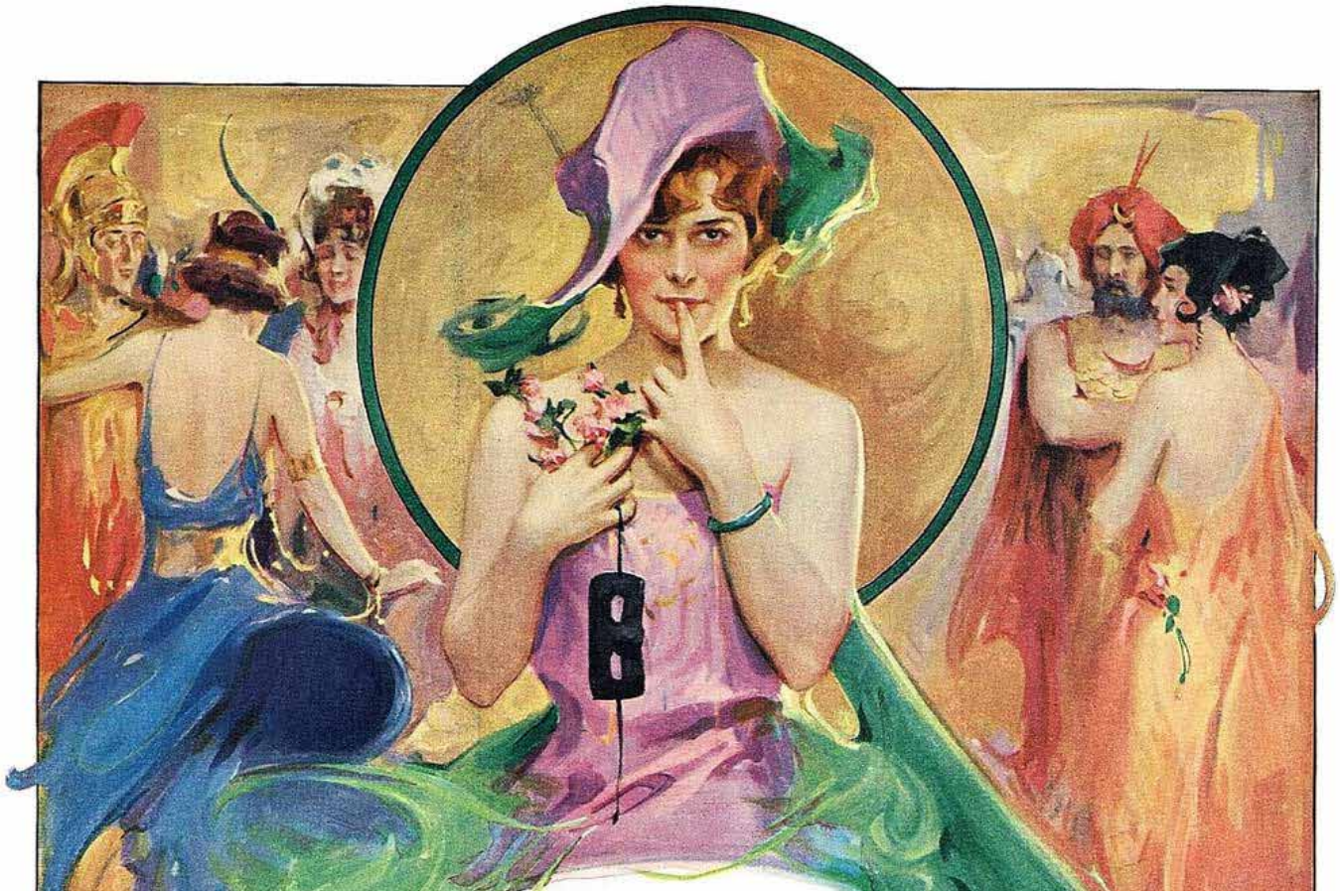
On the other hand smells or bad odors were always related to bodily fluids, poverty and diseases. The knowledge about the origin of bacteria, infections and odors was poor. Since hygiene standars were very low and to avoid bad odors, scents were applied to skin, jewelry and in the environment.
With hygiene standards rising, smells were now more related to a woman`s world and becoming more of a luxury product.
Nevertheless bad odours still existed, rather related to industrial areas, human waste and industrial byproducts, that were banished to rural areas. Trading and traveling introduced new aromas and exotic scents to society, that also influenced the image and perception of scent in society positively. Stories from foreign places were always beautified with details about exotics scents and new perceptions. (Oatman-Stanford H.,2016)
The history of scent, the individual perception, that goes beyond understanding and the intellectual neglect supports the unawareness and intolerance about scent in our modern society.

SCENT AND INTELLECT
individual and emotional

Sigmund Freund entitled our sense of smell to be the most primitive and least intellectual, because it was closely linked to sexuality and emotion. According to Plato and Aristotle olfaction was less noble than vision and audition. Due to the subjective perception of scent and the close link to our emotion, scent has been neglected in research. (Olofsson J.K. 2008). Scent being such an emotionally linked perception is hard to compute and understand. Furthermore we are missing the education and the language to converse about such an abstract and intimite perception. (Wisten E.,2016)

LANGUAGE
expressing scent

The chemical input given, when perceiving an odour is highly intimite and individual. Being a homogene perception, humans have difficulties describing odours accurately. We are missing the understanding and language to identify, classify and describe odours. Smelling a familiar odour or partially knowing the odour will give partial access to relevant or irrelevant knowlegde, but people have difficulties naming and identifying the odour and or the source. As one would smell something familiar, that reminds one of gin, one would possibly picture a berry or a tree, but will not come to the point to be able to identify juniper as the source of scent. (Zucco. M, R.S. Herz and Schaal B., 2012)



http://cf.collectorsweekly.com/uploads/2016/03/03143544/mum-crop-edited.jpg

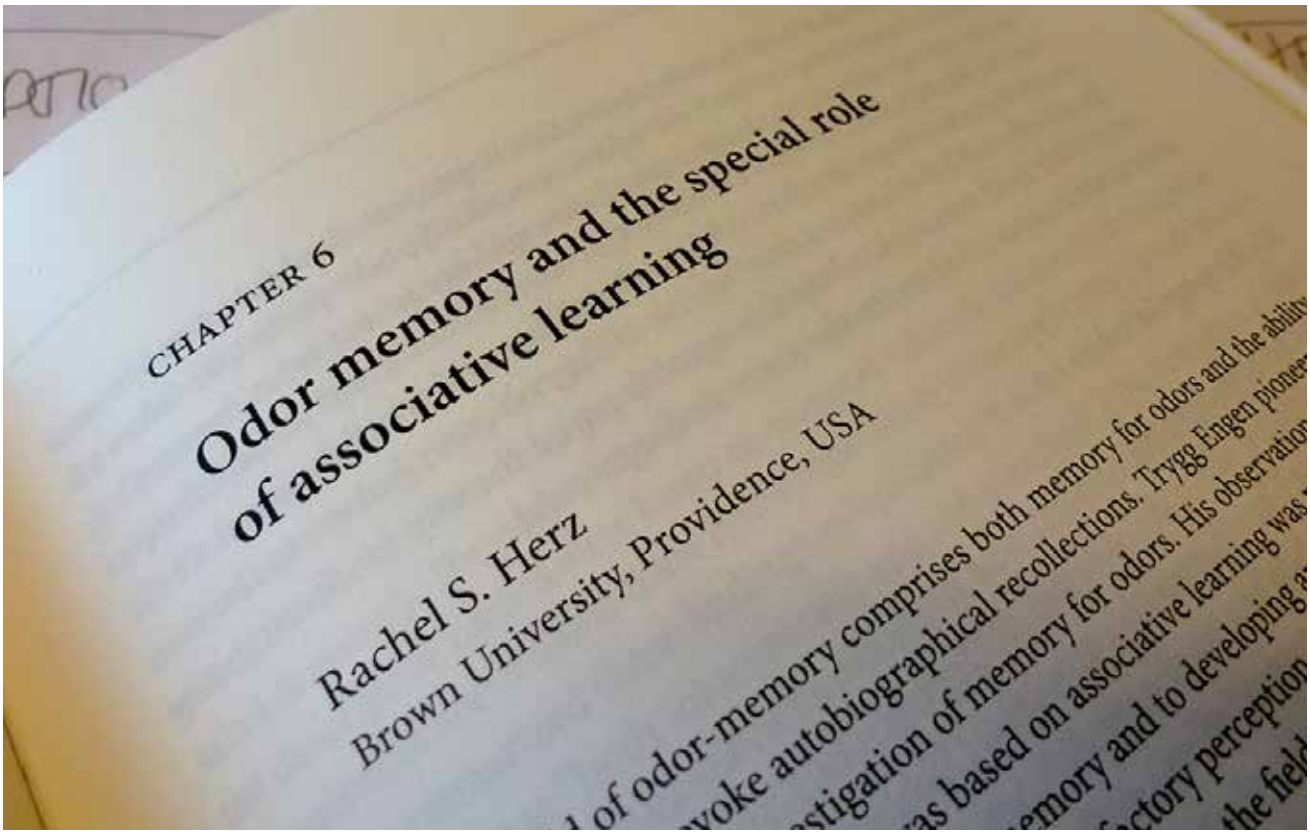
"...a complete, comprehensive understanding of odor (...) may not seem a profound enough problem to dominate all the life sciences, but it contains, piece by piece, all the mysteries." Lewis Thomas

SIGNIFICANCE

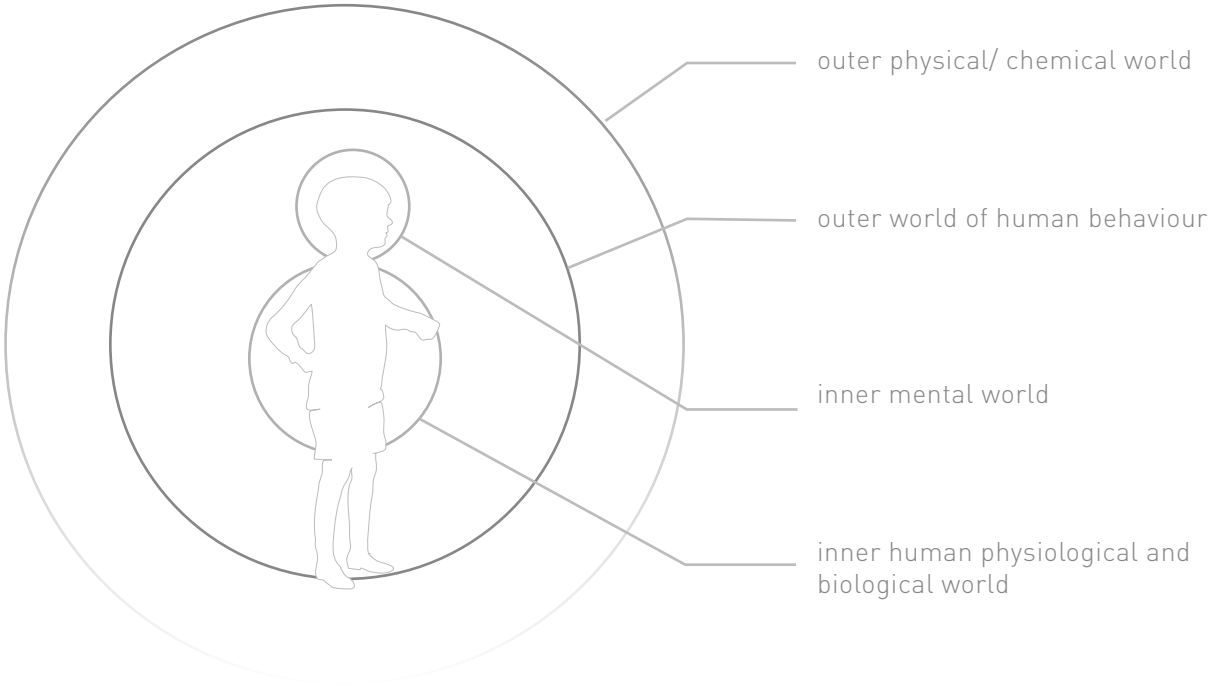
olfactory perception in humans

The ability to detect chemical information in the environment is known to be the oldest perception of living organisms. Scent is life sustaining in several ways. First of all it is essential in the role of mating, secondly odors give living organisms information and signals to evaluate and guide our responses to the environment. (Olofsson J.K. 2008). Our olfactory perception protects us from dangerous environments, foul nutrition, but mainly gives us signals to avoid or approach situations. It therefor motivates our behaviour.
(Zucco. M, R.S. Herz and Schaal B., 2012)

Olfactoric input is stronger and more direct than our auditive, visual and tactile perception. An odour directly evokes an emotion, a feeling, that is then related to a memory, that connects to a visual image. With all other senses, the perception triggers a recall of content, that is afterwards related to an emotion. (Zucco. M, R.S. Herz and Schaal B., 2012)
This ability to directly influence our emotional, physical state, makes olfaction the most powerful to motivate or change our behaviour.



ODOUR PERCEPTION
in humans



As we perceive a scent, we perceive a massive amount of odour qualities, that gives us information about our environment and possibly the source of odour. There is four principles of odour;

CLASSIFICATION, in which we sort, look for resemblance, differences and similiarities, we manage to define an odour quality.

NAMES & ATTRIBUTES, in wich we name the source as for example „wood“ and assign an attribute „earthy“.

ODOUR QUALITY CONTEXT, in which we refer to other sources.

ODOUR QUALITS MIXTURES, which afford measurement.

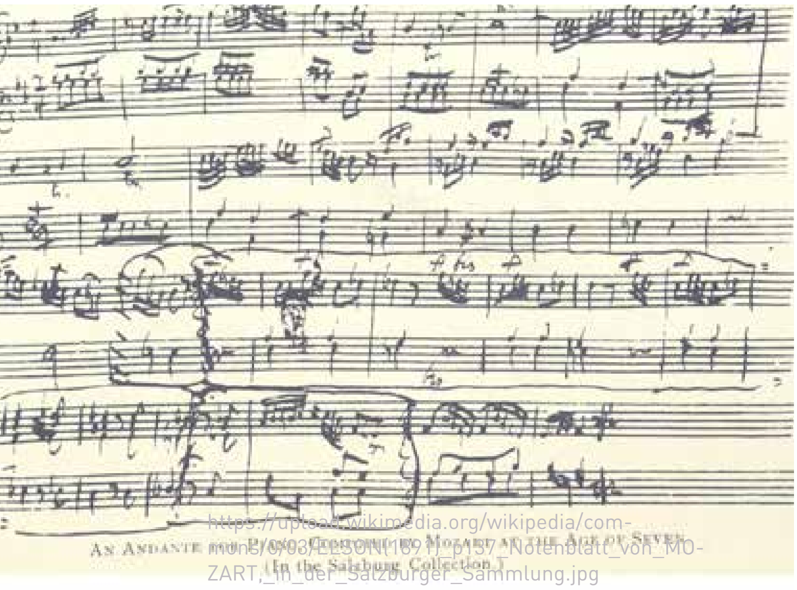
Odours vary in their INTENSITY and therefor become more or less pleasant/ unpleasant. The intensity is linked to the density and volume.

OLFACTORIC PERCEPTION describes the aesthetic perception of odours, therefor pleasant.

TRIGEMINAL ODOUR PERCEPTION is linked to our warning system and describes unpleasant or unknown odours. If an odour is perceived pleasant or unpleasant is highly individual.

ODOUR QUALITIES are impossible to recall on a component level, but linked to an experience, easily recognisable.

(Zucco. M, R.S. Herz and Schaal B., 2012)



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HETEROGENE PERCEPTION

Visual, auditive

Heterogene perceptions are the perceptions, that are being perceived distinctively together as a combination and composition of distinct details to create a whole.
As a music composition is composed in various parts or chair is visually analysable to be constructed out of different parts, the perceptions are so called heterogene.
(Zucco. M, R.S. Herz and Schaal B., 2012)

HOMEGENE PERCEPTION

Scent, colors and emotional states

When humans perceive an odour, they perceive it without knowing the distinct details. An odour is perceived as „one coherent thing“. Odours, as well as colours and emotions are perceived as homogene perceptions. An odour triggers a sensory pattern, that is then interpreted , which is highly influenced by the context, knowledge of source and past experience.
(Zucco. M, R.S. Herz and Schaal B., 2012)

EXPERIENCE AND INDIVIDUALITY

in odour perception

Perceiving odours gives us significant implications for our responses to the environment. The anticipation of perceiving and odour, the emotional state and situational cues and experiences highly influence our perception of an odour as well as the response expectancy. Emotions, associations and memories are closely linked to the smelling an odour.

The stimulus is influenced by frequency, duration and hedonicc tone. The perception is influenced by attitudes, experience and personality. (Zucco. M, R.S. Herz and Schaal B., 2012)

Experience, familiarity, expectations and personality shape the way we perceive our world around us, scent has the most powerful effect on our emotional state and therefor well-being. Although lavender is generally perceived as pleasant. Smelling the blossom of a field of lavender in the warmth of a moist summer day might bring comfort and pleasure to one person, but it could arouse fear and cruel memories in another person, depending on their experience.

OLFACTORY COGNITION

PRIMING
association and patterns

If we assign a certain scent to a special task, later exposure to that scent will raise the motivation. If we get exposed to an unknown scent during a special situation, the association, that has been made will be hard to reassociate to another experience. (Zucco. M, R.S. Herz and Schaal B., 2012)
Almost everyone can relate to the scent of sunscreen and has probably good memories related to that scent, that will immeadiately appear in the mind, when the scent of sunscreen reaches one`s nose.

OLFACTORY FATIQUE
longterm exposure

If one is exposed to the presence of an odour for a longer period of time, the ability to distinguish the presence of this odour decreases.(Zucco. M, R.S. Herz and Schaal B., 2012) Due to our sensory adaption to the environment our ability to detect smells is weakening. The signal value of an odour is only present, when we first get exposed to it. Loosing the ability to detect odours in an environment due to fatique can be harmful in terms of gases in the air.

http://i3.mirror.co.uk/incoming/article3935992.ece/ALTERNATES/s615b/Woman-applying-sunscreen-lotion-to-leg.jpg

MEMORY AND LEARNING

emotional and vivid

Odours are recognized via a pattern matching system to latter memory. A representation of an odour object is generated. If an input is identified and corresponds with a stored input, a pattern is recognized. Similarities help us encode combinations of odours. We recognize odours by their complexity through a combination of single information.
In our brain odours are linked to autobiographical recollections. Odour memory is distinct from other memory systems. They evoke memory of past episodic events.

Odours aquire meaning through experience and trigger motivational responses. They triggers chains of associations, semantically, perceptual and emotionally.

Odours memories are emotional, highly evocative in relation to time and place and excell our other senses memory capacity in vividness. They enable us to recall and even more re-experience a certain emotion and event.

(Zucco. M, R.S. Herz and Schaal B., 2012)

OLFACTION & BEHAVIOUR

„....olfaction plays a crucial role in social behaviour that has been overlooked in humans partly because behaviours are so private, and partly because olfaction has not received as much attention as the other senses.“

Donald H. Mc Burney, Olfactory cognition

An olfactory object in the environment stands as a representation for an aspect in our environment. As one of the most important environmental cues we get through odour is related to our safety in terms of fire or faul noutrition. Olfaction is a medium of communication within humans and their surrounding environment. As humans derive comfort only from the mere presence of another person, or the opposite, similar appears within reactions to the environment. Zucco. M, R.S. Herz and Schaal B., 2012)

Even though we are not always considerate and aware about our motivations for our actions in relation to scent, scent is the strongest sensory perception, that guides and navigates us silently through our routines. Even more our emotional and therefor physical constitution is highly influenced by the odour information around us.

SCENT AND HEALTH

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SCENT & HEALTH

pain, well-being and t

> "Scents can have positive effects on mood, stress reduction, sleep enhancement, self-confidence, and physical and cognitive performance,"
>
> Theresa Molnar, Sense of Smell Institute

Throughout history scents have had a close relation to health and well-being. Odours, pleasant and unpleasant, influence our health. (Zucco. M, R.S. Herz and Schaal B., 2012) Therefor it is also known, that losing the ability to smell, has negative effects on well-being (Hedén Blomqvist, Brämerson, Stjärne, & Nordin, 2004) and often leads to depression. (PT Staff, 2007) Scent is closely related to our emotions, behaviour and our mindset and therefor has significant physiological and psychological effects. It is known, that the scent of a loved one is comforting and supports well-being, but even the mere presence of another human being is sufficient enough to improve emotional states. (Zucco. M, R.S. Herz and Schaal B., 2012) Furthermore olfaction is closely linked to pain. Besides the fact, that pain and olfaction are both necessary for survival, they have many similarities, as they both are hedonic feelings and motivate behaviour. To be able to understand and communicate pain, behaviour needs to be analysed, brain imagery created and psychophysical behaviour needs to be rated. As pain can be described as burning and throbbing, so can scent and shows parallels in the way we express these feelings with our language. Evidently there is potential in the mechanisms, how to evaluate pain as well as scent. (Zucco. M, R.S. Herz and Schaal B., 2012) Besides the similarities, scents can and are used to decrease pain. Smells, especially sweet smells, are mood lifting, distracting and activate opioid systems in the brain. (PT Staff, 2007)

APPLICATIONS OF SCENT IN HEALTH CARE

using scent in health care

Therapeutic methods, that involve scent have been long known and are rooted in human history. (HOSEY L. OCT. 25, 2013)

With the effects on mental and physical health there is a number of applications in modern medicine, that go beyond treatment with essential oils.

ALZHEIMER: At Tottori University in Japan, Alzheimer patients were exposed to rosemary and lemon in the mornings and lavender and orange in the evening, which improved their cognitive functions.

PAIN CONTROL: Postoperative patients were treated with lavender and showed a higher satisfaction with the pain control.

ANXIETY: Cancer patients, who received massages with oils showed significant improvement in depression and anxiety.

ANOSMIC: Losing the ability to smell leads to insecurity and a high risk of depression

STROKE PATIENTS: Scent to trigger chain of actions in behaviour.

Besides targeted applications scent is known to be beneficial for the treatment of pain, headaches and inflammation. Improving sleep, digestion and blood circulation.
(HOSEY L. OCT. 25, 2013)

"From a conscious point of view, our perception of scent is secondary [to light and sound, but from a emotive point of view, it is primary. In particular, in relation to wellness, scent is far more powerful than light or sound."

David Edwards, Cyrano Harvard

OLFACTORIC KEY ELEMENTS

EVOLUTIONARY CONTEMPORARY SIGNIFICANCE

information to evaluate and guide our responses to the environment

DISEASE AND CURE

historic as well as contemporary connections and applications in health care

HOMOGENOUS PERCEPTION

like the perception of colors or emotional states -
coherent without distinct details

OLFACTORY & TRIGEMINAL

Pleasant and unpleasant

MOTIVATIONAL RESPONSES

Approach and avoid situations

BELIEFS & EXPECTATIONS

with the perception of odors

MENTAL TAGGING

odor unlocks memory where the only tag is scent

IDENTIFY AND CATEGORIZE

we miss the language to identify odors

CHEMICAL INPUT PERSONAL EXPERIENCE

perception of scent is highly individual

OLFACTORIC KEY ELEMENTS

SIGNAL VALUE

scent is life sustaining for humans

PAIN AND ODORS

are hedonic feelings that motivate behaviour

AMPLIFYING ODORS

scents intensity is measured in density and volune

OLFACTORY COMFORT

trough presence of others reduces anxiety and increases comfort

ODORS EVOKE MEMORY

more vividly than any other stimuli

ODORS EVOKE EMOTION

before memory and content - non analytical

PRIMING

connect a task with a pleasant odor will raise motivation in performance

OLFACTORY FATIQUE

increases recognition - Affords diversity in exposure

WELL BEING AND HEALTH

scents highly influence our well being and are used in health applications

RELATIONS AND POTENTIAL

instantly change a mindset

As scents have the power to influence our mindset immeadiately, affect our emotions, our phyisical condition and motivate behaviour, they can be beneficial in a health related context, in which the mindset of a patient plays an important role for cure.
Furthermore the associations, experiences and memories we have, when we perceive a scent, can enhance the well being in a monotonous environment, such as the hospital.
Perceiving scent is the most intimite and personal perception we have. Being able to experience intimite moments, in an environment that is highly sterile and often crosses the boundaries of intimacy, can humanize the hospital for patients.

The perception of scent is closely linked to our cognitive functions.
The creation of patterns, associations and the link to our memory can not only enrich our thoughts with emotional texture and visual content, but it can also mentally transport us to another place, which could be beneficial in a disease related context.

Learning, building associations and patterns shows great potential for patients with cognitive disabilities.

Generally speaking, our olfactory perception shows many applications and perspectives in the area of future health care.

INITIAL BRIEF

Reintegration of scent through design and its abilities to instantly change a mindset and evoke memories in our daily conditions. Enable stimulating / relaxing emotions as an intervention in a monotonous environment.

Facilitate to mentally change the experience without being able to move.Support cure, ease and well being in a disease related context.

POTENTIAL

THE INSTANT POWER OF SCENTS

to change a mindset in a monotonous environment

Odors - Disease / health context

Sterility in Hospitals

Unpleasant odors in hospitals

Monotony in hospitals

Mental health and physical health

Intimacy and vulnerability

Missing context and relation to environment

Constant mindset in a chronic condition

Scents related to disease, body and cure

Exclusion of scents with clean surfaces

Scents to ease and scents to avoid

The creation of patterns and associations

Influence behaviour - break habituation

The intimacy of our own world of scents

Evoke or stimulate a situation or conditi-on

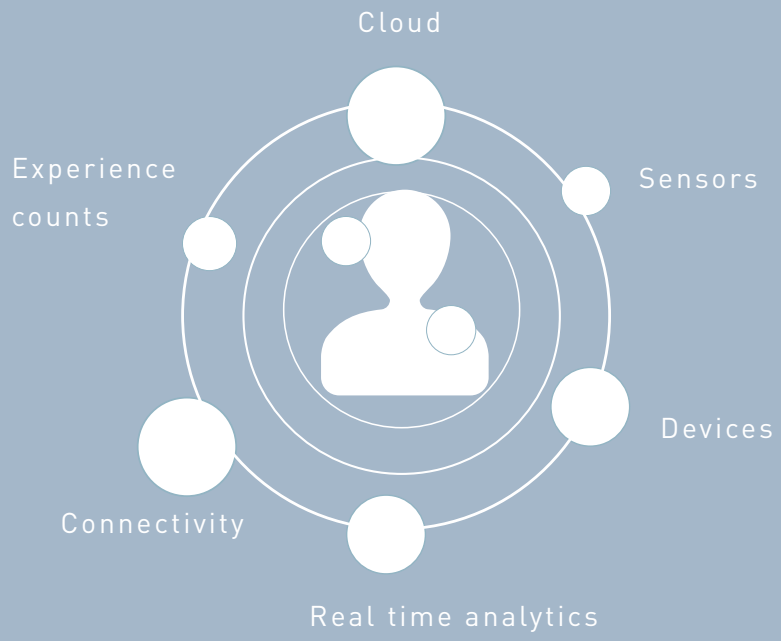
The direct pathway to our limbic system

https://www.artefactgroup.com/work/chronicle-health-data-devices-insights-decisions/

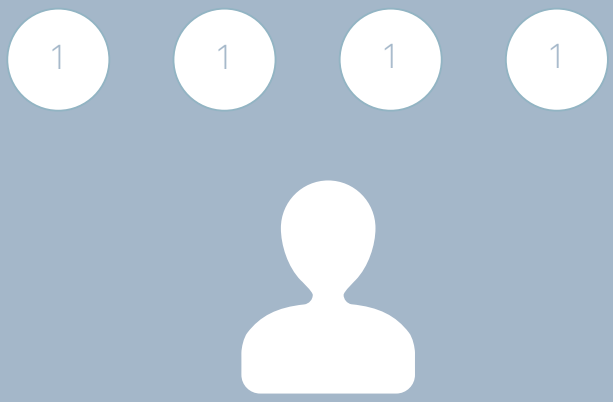
LIVING SERVICES

„surprise, delight and wonder“

DIGITIZATION OF EVERYTHING



LIQUID CONSUMER EXPECTATIONS



We demand an ever updated
best service across sectors

„Visual, screenbased design will retain a central role, but designers will have to engage more with human senses including voice, gesture and sensors on the body, and recognize ambient circumstances such as temperature and location inputs. The role of design will become more important than ever.“ Fjord

LIVING SERVICES IN THE COGNITIVE ERA

knowing and adapting

With the era of living services, expectations and services become more fluid and transformed. Sensors, devices, the cloud and smart technologies answer and analyse our needs and preferences in real time. Services, that know our needs, are experienceable and responsive. Constantly evolving and alive, the consumer will always request the easiest, intuitive and pleasureable service across sectors. Within the constant connection of devices, services will be aware of the surrounding context and will act accordingly to the current situation. They will learn our behavioural patterns, our habits and preferences. The collection of long term data will open new opportunities for analytics across many sectors. (Fjord, Accenture 2015)

https://www.artefactgroup.com/work/chronicle-health-data-devices-insights-decisions/

„SURPRISE, DELIGHT AND WONDER“

physical closeness and emotions

Within in the evolving and future services, the human and it`s senses will play an important role. (Fjord, Accenture 2015) Emotion, intuition and an unconscious usability will fuse our daily interactions with technology.

Future services will be physical close, intuitively operated and tailored to the individual. The user will feel unique in the experience, because the service will be specifically tailored to one`s preferences. (Fjord, Accenture 2015)

„The best designed of these will have the potential to enhance our lives by injecting elements of surprise, delight and wonder into our daily routines.“

Fjord

HUMAN FACTORS

Human senses

Ability to surprise and delight

Preferences & needs

Unconscious usability

Physical closeness

Intuitive act & feel

Emotional & physical focus

Individual, not mass product

Support human interaction

SYSTEM FACTORS

Long term data collection

Context awareness

Tailored and flexible

Knowing preferences

Connected devices

Constantly learning

Behavioural patterns

Learning habits

MICROMOMENTS
delight the user

Micromoments, the intent-driven momentes, in which we make our everyday decisions. (Ramaswamy S., April 2015) They are the powerful moments that urge a user to immeadiately act upon. These moments play with the expectations of the user. If one service will not deliver a micromoment, another one will be just another tap away.

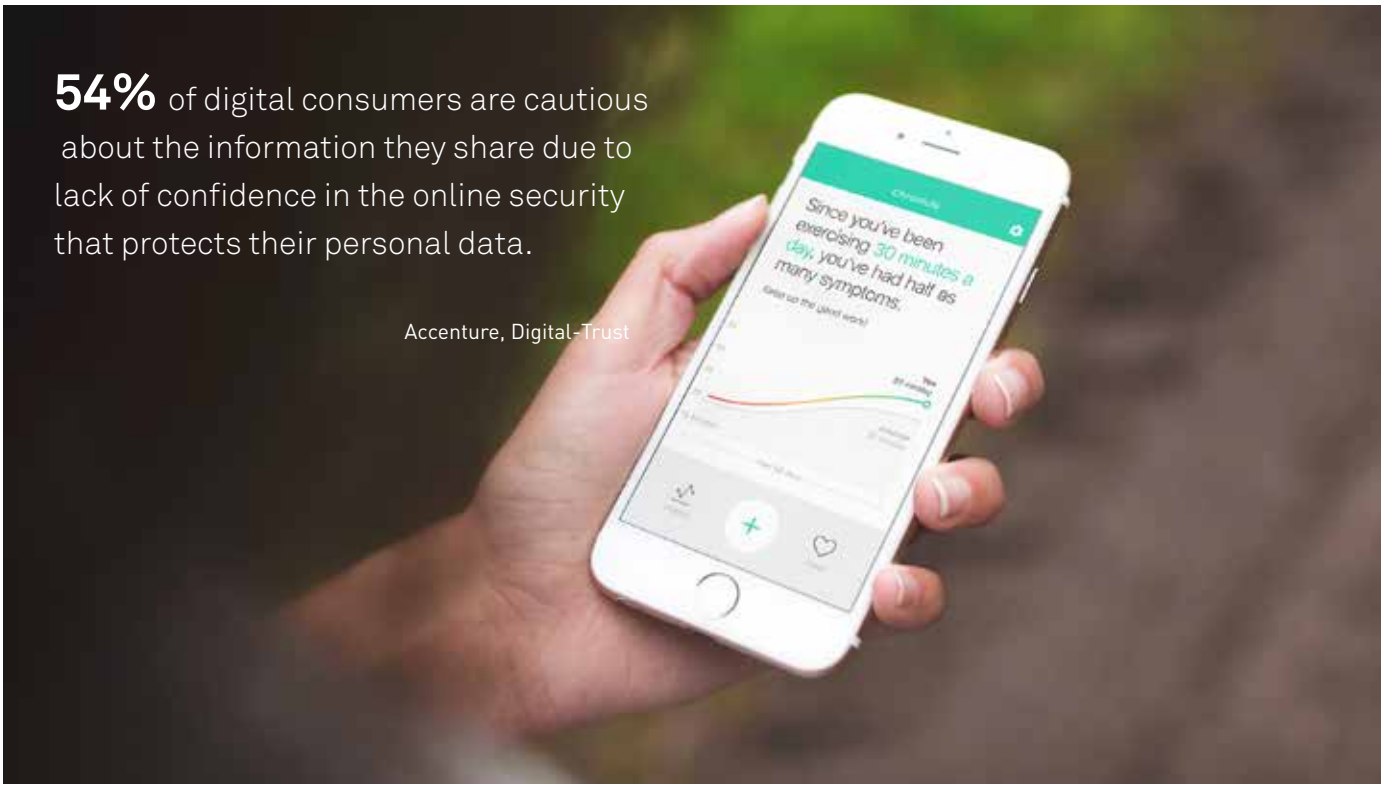
„Wearable technology that ignores emotional needs is a „major error“

Gadi Amit, fitbit

CONNECTED SENSORS
integrated, physical and connected

Connected to these moments and experiences are a variety of sensors, that are related to documenting physical processes, such as heart rate, breathing, but they also interact and collect, share data about the environment, like air quality or just connecting one`s home to be smart and responsive to the users needs. In the future there will be a body area network connecting a variety of different sensors. This requires designers to take into consideration, what is essential and curate the moments of interaction. Ambient services, which will only respond, when they are needed and otherwise are invisible .(Marcus Fairs, 2014)

http://www.dezeen.com/2015/11/23/fever-scout-child-thermometer-new-deal-design-monitor-temperature-remotely-smartphone-app/



https://www.artefactgroup.com/work/chronicle-health-data-devices-insights-decisions/

IMPACT
across sectors

Our homes have already become smarter and more knowledgeable about our needs and preferences. The connectivity of sensors, services and systems will have huge effect on the car industry, smart home and especially the digitalisation of health care will play an important role in the future. (Fjord, Accenture 2015)

DIGITAL TRUST
data collection

Along with services, constant connectivity and the immeadiate response to personal needs comes the collection and sharing of data, that used to be kept private. User will expose more and more details about how they live, how they feel and what they desire and need. This knowledge about individuals affords new standards of handling data with trust and care. (Murdoch R., 2016)

DESIGN AFFORDANCE

https://www.artefactgroup.com/resources/artefact-report-personal-analytics-are-becoming-automatic/

EMOTIONAL

emotional focus in technologies and interactions

PHYSICAL & SENSUAL

close to the user and experienceable on various sensory levels

TAILORED

to the individual

RESPONSIVE

to the users needs, preferences and context

ADAPT QUICKLY

flexible to changes and environment

PEOPLE FIRST DIGITAL IDENTITY

in the digital and cognitive era

STATE OF MIND

being one step ahead of the users mind

PERSONAL AGENTS

service and sensors acting as our agents

AMBIENT SERVICES

invisible and visible services

SURPRISE AND DESIRES

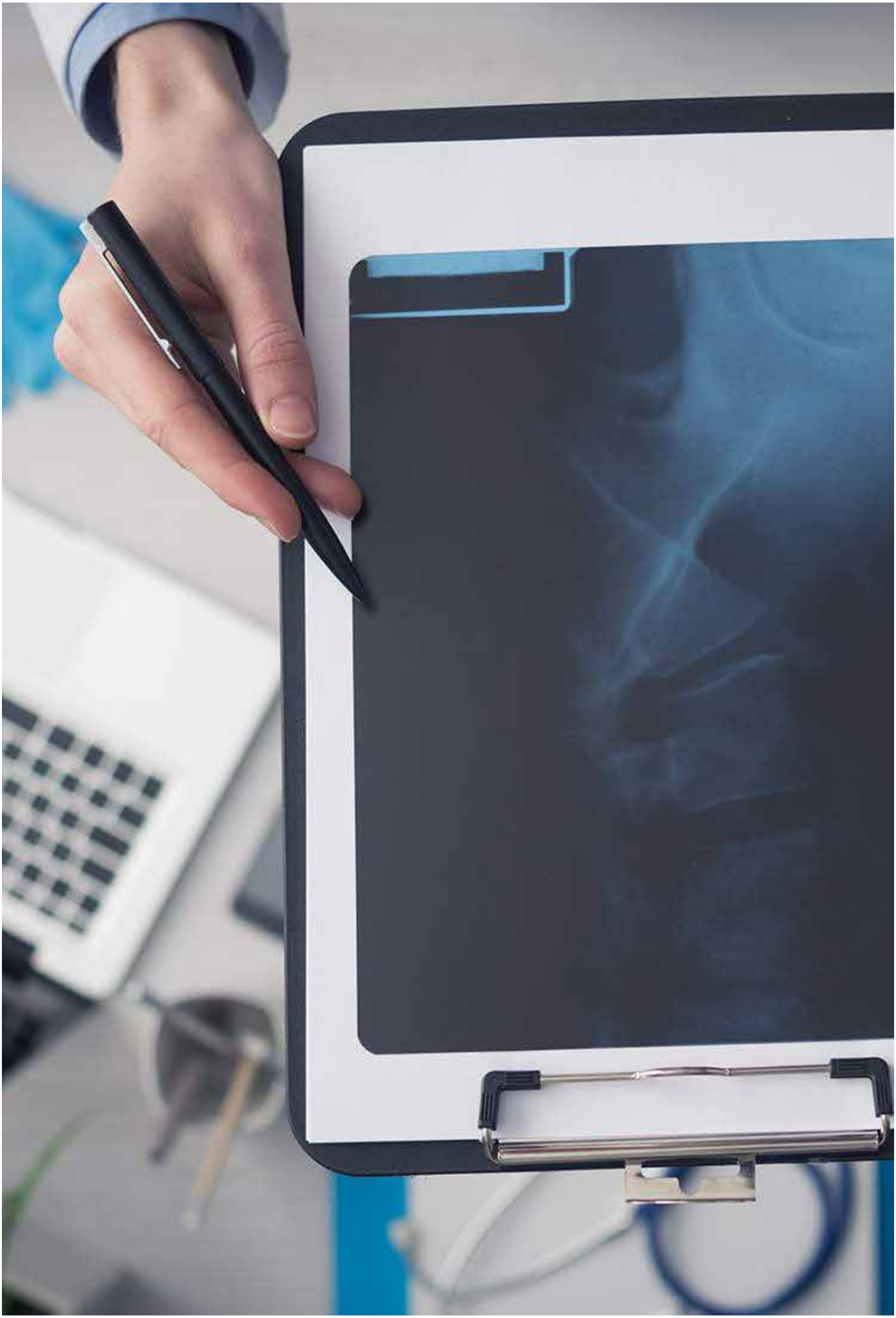
enhance the service experience through elements of surprise

INTERACTION

focusing on sensual experiences

EXPECTATIONS & MICROMOMENTS

answering and delighting the user



FUTURE HEALTH CARE

personlised and adapted

FUSION OF DIGITAL, PERSONAL AND PHYSICAL

personal, preventive and digital

„49% globally wear or would be willing to wear technology that measures and tracks both fitness/lifestyle and vital signs."

Accenture-Healthcare-Technology-Vision

Connectivity of devices and sensors, tracking of vital signs or simply just changing ones daily life routines to improve well being, are signs of how the digitization is revolutionzing the health care system and the perception and execution of health care for the consumer. A general awareness and willingness to invest into personal health will open a whole new field for design to service the body and the mind. (Fjord, Accenture 2015)

Individuals, keeping track on their health and being aware about changes, create a better platform for experts to acurate diagnoses. (Fjord, Accenture 2015)

Sensor and real-time analytics enable us, to intervene immeadiately on symptoms or share them with an expert to gain better insights and therefor make better decisions.

„Wearable technology that ignores emotional needs is a „major error"

Gadi Amit, fitbit

HUMAN FACTORS

Personalised care

High physical awareness

Share data that was kept private

Prevention trend

Higher healthcare IQ

Becoming unphysical

Do-it-yourself

SYSTEM FACTORS

Becoming unphysical

Home health care

Connected devices

Digital doctors

Data collection

Connected care

Data transfer

Revolutionized health insurance

Share data that was kept private

Smart medicine

CHRONIC DISEASES

personal, preventive and digital

Chronice conditions are a major health problem and result in even more severe conditions. As chronic, means something being constant and continous, it is crucial to have knowledge and data about changes and predictions for the future, as well as the possibility to change the situation instantly.

With technology evolving in the health sector, chronic conditions become more transparent and understandable, as longterm data gives a deeper and more holistic approach to understanding and treating them. (Artefact , Mar 9, 2016)
For a chronically sick person, everyday decisions can make a big difference in their health condition. To decide upon current state and symptoms can be crucial for the further process of the condition. Analysing different factors on personal and contextual level can bring a huge benefit to the user and majorily increase the condition and well being. In a chronic condition the balance between knowing enough to act upon and as little as possible to not interfere with the quality of life, is a crucial aspect. (Artefact , Mar 9, 2016)

FUTURE BENEFITS OF DATA

personal, preventive, digital

Not only with chronic conditions, but collecting data already at a stage in one`s life being completely healthy, can bring great benefits for more severe conditions that could appear in the future.

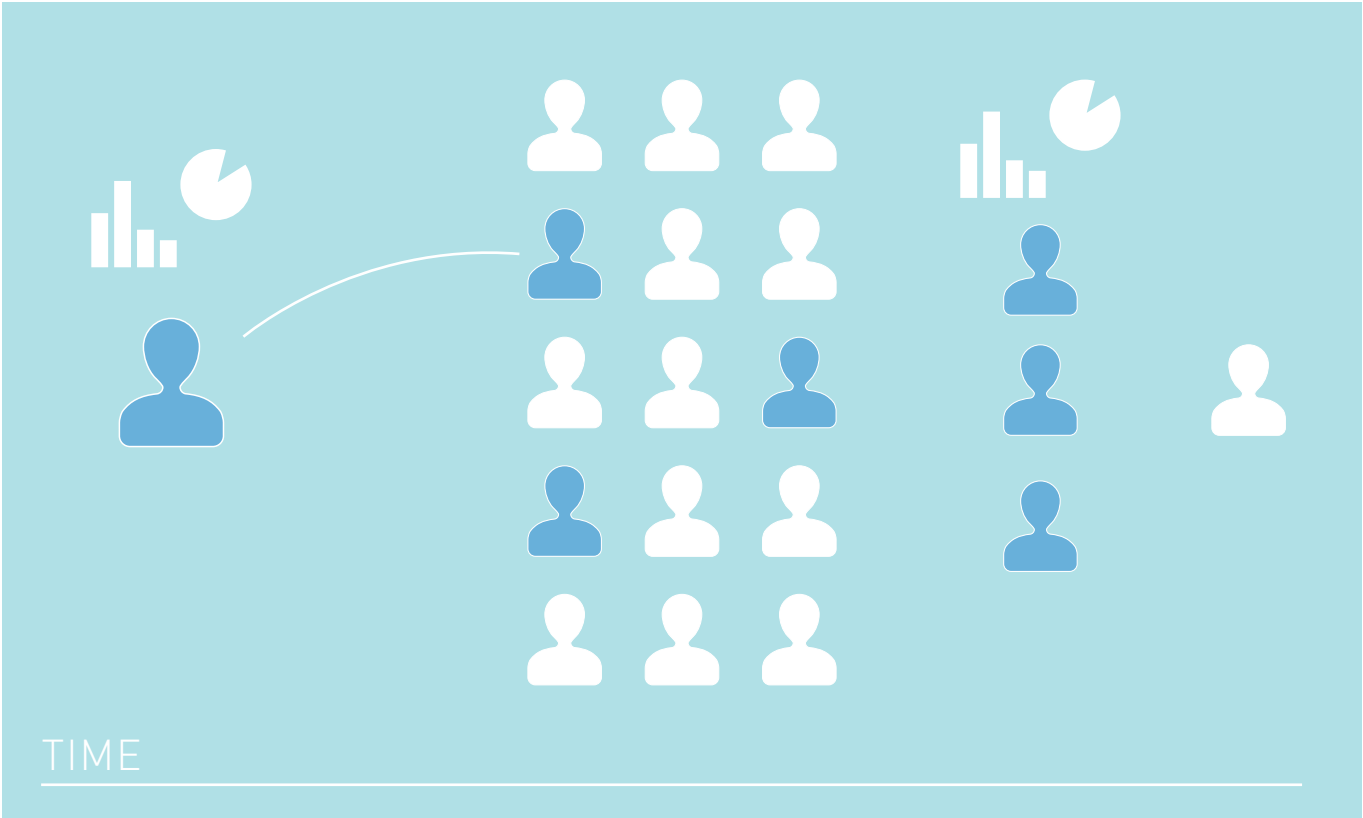
The initial reasons for chronic conditions can be aspects of our daily routines, that are not harmful in the present, but will be in the long run, such as malnoutrition and inactivity which are major reasons for chronic diseases. Analyzing behaviour and routines, knowing about habits, good and bad, not only helps people to understand and be knowledgeable about their lifes, but could also bring knowledge to latter analysis of collected data for professionals.
Nevertheless to encourage and give incentives to people to be aware about future consequences and benefits, is a challenge.

„PEOPLE LIKE ME“

real time analytics, compared to others

Being a person with a chronic condition means that there is not only one, but depending on the disease, this person is one out of a number of others in their city, country and the world.

With the collection of data related to personal condition, context, environemental aspects and biometric measurements the overlayering of data from various users will open new opportunities for prevention, diagnose and therapy. Depending on different parameters there will be similarities and differences showing and opening a whole new field of real-time diagnostics and prevention. (Artefact , Mar 9, 2016)



FUTURE HEALTH CARE KEY ELEMENTS

LONG TERM DATA

data to analyse and bring benefit

HIGHER HEALTH IQ

high awareness and knowledge about health

PERSONALISED

individual services for body and mind

PREVENTIVE

prevention is the new luxury

DIGITAL

digitalised health care

RESPONSIVE

adapting and flexible

REAL TIME ANALYTICS

constantly aware on changes, behaviour and context

SMART MEDICINE

CONNECTED CARE

sensors, services, systems

FUTURE HEALTH CARE KEY ELEMENTS

HOME & HOSPITAL

lifestyle and health care fusion

HOLISTIC APPROACH

considering every aspect in relation to health care

WILLINGNESS TO PAY

people are willing to invest in their health

COGNITIVE SYSTEMS

AI in systems

WELL BEING AND LIFE STYLE

high focus on well being

CHRONIC CONDITIONS

major reason for deaths and cost in health care

FUTURE BENEFITS

planning ahead

PEOPLE LIKE ME

one out of 100

FUSION OF HEALTH AND LIFESTYLE

EVALUATION AND BRAINSTORM

personal, preventive and digital

After exploring the field of chronic conditions and the potential scent might have on health it was evident that I needed to narrow down my extensive and complex research to a scenario level. In order to break down complexity and make the potential applicable and tangibble to be be further validated I needed to zoom out, cluster and apply my so far gained knowledge to more concrete contexts of use and behavior.

With the gathered knowledge up to this point it crystalized that my further research and focus should circle around service, product, that is personal, preventive and has some digital component to it to adapt to the every day life style.

POTENTIALS

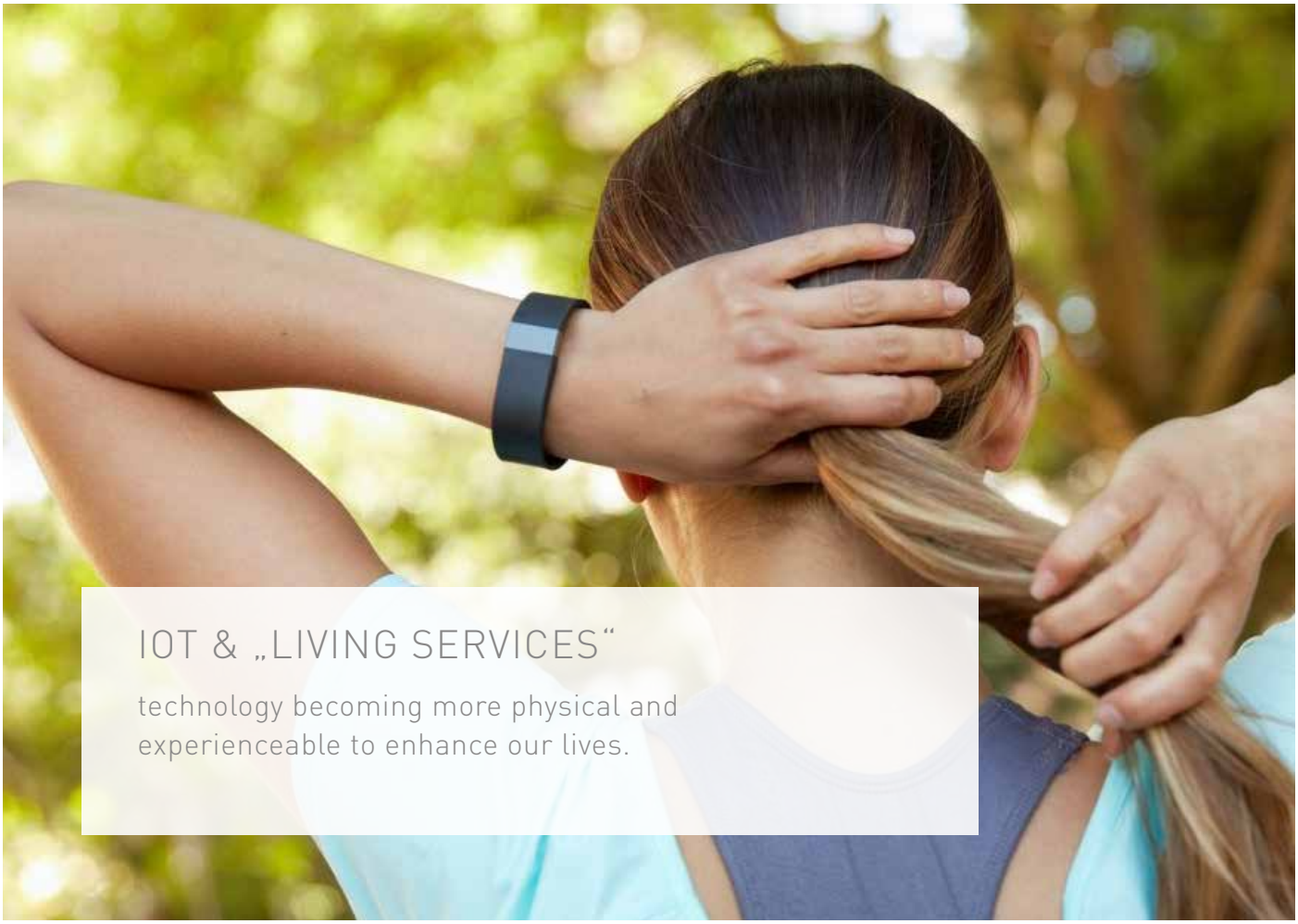
across sectors

CROSSFERTILISE SECTORS

OLFACTION

Scent enriches, evokes memory and can stimulate a situation or condition.

Scent breaks habituation and motivates behaviour.



IOT & „LIVING SERVICES“

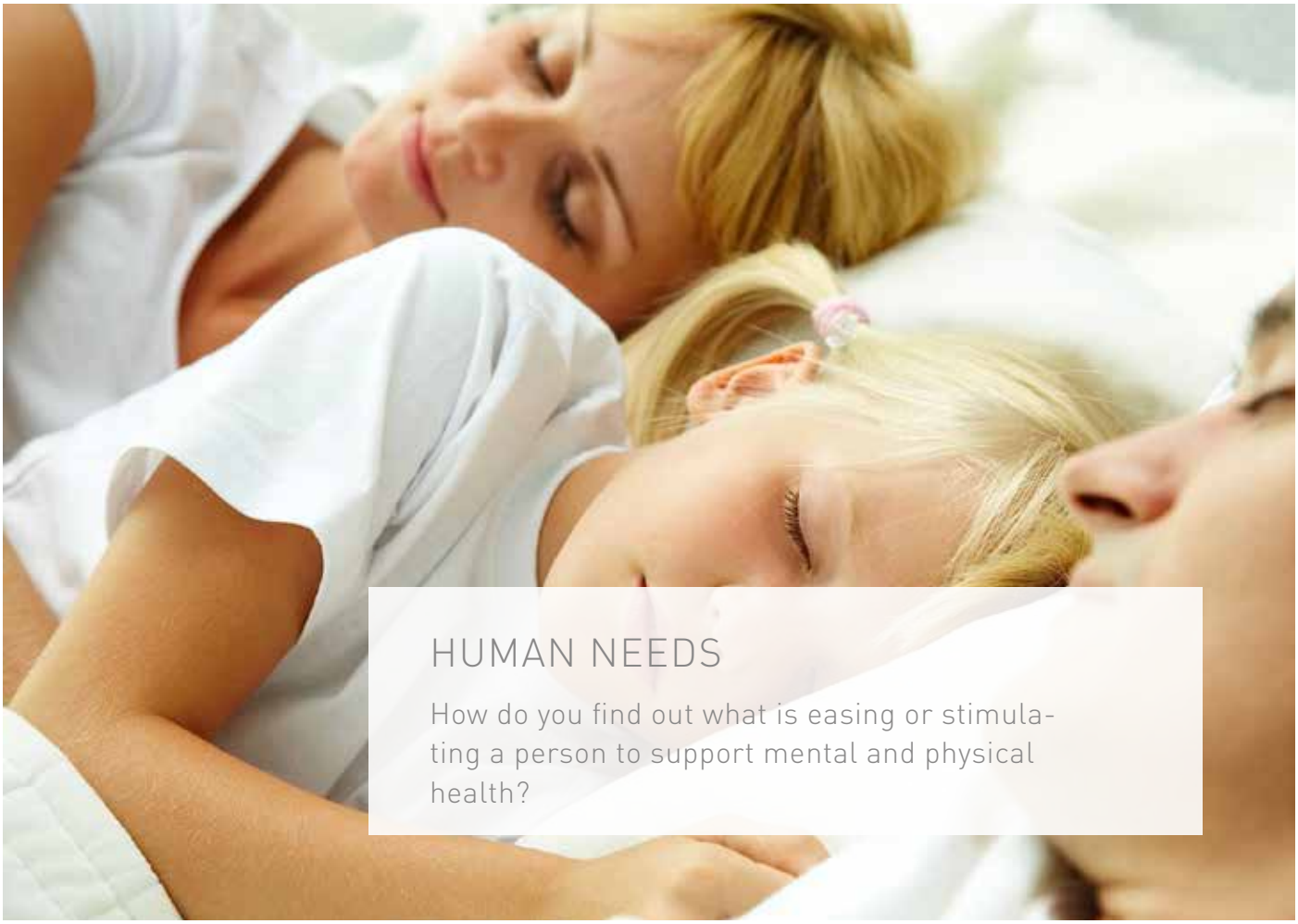
technology becoming more physical and experienceable to enhance our lives.

HOSPITAL EXPERIENCE

Monotony and a mindset on bad condition. The impact of your perception in relation to wellbeing. Holistic approach to hospital experience.

FUTURE HEALTH CARE

Personalised and adaptive.
Preventive care.
Long term data collection.
Fusion of home and health.



HUMAN NEEDS

How do you find out what is easing or stimulating a person to support mental and physical health?

FIRST BRIEF

Utilise the instant power of scent to change a mindset and evoke memories.
Enable positive emotions as an intervention in a monotnous environment.
Facilitate to mentally change the environment without being able to move.

Subtleness and intimacy is essential. The ability to reflect, share and communicate memories is desireable, but dependant on the context and personal condition.

Support cure, ease and well being in a disease related context.

FOR WHOM?

CHILDREN AND SCENT

CHILDREN AND SCENTS

personal, preventive, digital

Considering the aspects of living services, the potentials in olfaction and the aspect of collecting data to bring a benefit in the future lead to taking a deeper look into the hospital experience for children.

In relation to scent, children are very responsive and explorative to olfactory perceptions. In contrast to adults they do not have prejudices. Children take a playful approach to experiences. Furthermore the ability to smell is better in children than in adults. Secondly there is more associations to build in relation to new scents as it is with adults.
Thirdly their approach to new products, possibly in relation to technology is very nonbiased and the generation of digital natives enables a lot of opportunities for experience based interactions.

Thinking of how data and future health care services start in the now and will bring us benefit in the future, the perspectives for preventive care from a young age on are endless.

Generally the hospital experience for children is far more disruptive and can be traumatic, as it is for adults.

Therefor there is potential to develop ideas to enhance the hospital experience for children on a playful and experienceable base.

Relating back to scent, there is potential in changing their mindset, by distracting them with playful interactions, including scents. Furthermore it could give them contextual comfort with known scents or scents from home. It could also involve the interaction with their families on a playful basis.

Nevertheless there is also constraints appearing when working with children, as they are naturally protected by their parents. Especially in the hospital context this affords a great amount of empathy and respect.

SECOND BRIEF

Utilise the instant power of low intense / targeted scents as a tool to humanize the hospital experience for children/ young adults to escape reality (pain, mental state, monotony), stimulate inner imagery, memory, support relational interaction and playfulness.

How do you find out what is easing, stimulating or delighting a person?

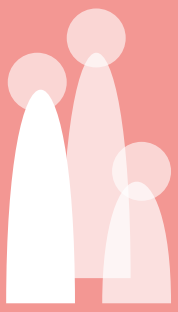
Using living services and long term data collection at smart homes, previous to the hospital stay to assure a personlised treatment support tailored to the patient, that references to the home context and avoids emotionally unpleasant reactions to scent.

THE CHILD IN THE HOSPITAL

focused research

THE CHILD IN THE HOSPITAL

FAMILY & RELATIVES

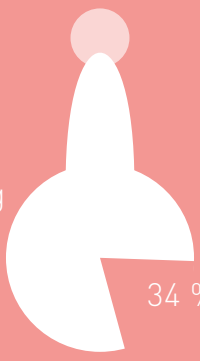


ENVIRONMENT

CHILD - PATIENT

INTERACTION IS...

65 % Relational to people and surrounding



34 % Clinical

STAFF

OTHER CHILDREN

„...The release of a frangrance permits the child to develop an experimental context. It allows to escape from reality.. be part of another experience..."

Naja, Bree, Zaichowsky, 2011

THE CHILD IN THE HOSPITAL

personal, preventive, digital

In relation to childrens experience in hospitals, one has to observe the current status quo and the importance of different aspects that affect their experience.

A childrens perception of the hospital environment and experience is highly influenced by the relational context and the interaction with the surrounding people. Most important is the presence of the family and known people. Furthermore the interactions between the staff and doctors and eventually the possible interactions with other children. The clinical aspect plays a secondary role in their perception.

On the one hand there is atmospheric tangible object, that influence the childs experience, such as fixtures, carpentry, furniture and the building. On the other hand there is intangible aspects like colors, sound, temperature and scent.

Hihgly important is the social and playful dimension. Group forming, sharing, activities and interaction with family members, staff and other children is crucial for a curing process.

Exposing the child to a slightly scented hospital environment proved to make the general perception of the hospital experience warmer, nicer, more comfortable and gave them a feeling of safety.

(Naja, Bree, Zaichowsky, 2011)

MARIENKRANKENHAUS

TRIGGER BEHAVIOURAL PATTERNS AND CHAIN OF ACTIONS IN BEHAVIOUR

STIMULATING A GOOD MINDSET BEFORE SURGERY

FAMILIAR SCENTS TO ENCOURAGE WELL BEING

INTERVIEW MARIE-CLAIRE, NURSE, MARIENKRANKENHAUS

scent treatment in hospitals

Talking to Marie-Claire, a nurse at the Marienkankenhaus, gave some interesting insights on possible applications, where scent could be used to treat patients, stimulate a different mindset before surgery, especially with children, because it is crucial for their breathing to be calm. Currently this is done with story telling and music. Scent nevertheless shows great potential to directly influence the emotional state of the patient. The different effects of scent on humans, due to individual perception, is a fact, that needs to be considered.

Another application, which aims at the cognitive functions of patients is already used in the therapy of stroke patients. To train their patterns of associations and enable a communication, when major parts of the cognitive cortex are damaged, scent has the power to trigger a reaction in patients and develop a new code for undestanding. Scent is therefor used to trigger chains of actions in behaviour, after they have lost the ability to speak.

For the alleviation of pain, anxiety or to relieve the process of deceasing, scent is used as therapy.

SCENT TREATMENT - STROKE PATIENTS

It depends on the part of the brain that is affected

Scent is used to trigger behaviour - training of chain of actions / thoughts.

A certain scent is used to trigger a reaction like lifting the hand to indicate sth.

STORYTELLING AND MINDSET BEFORE SURGERY

If bad dreams are ocurring during anästhesia, bad breathing increases the risk of a failure in surgery

Especially children need to be in „good mind/mood set“ to be in surgery.

Therapy in terms of storytelling is already used

WELL BEING AND MOTIVATION IN HOSPITALS

Familiar odors encourage well being and alleviation of pain

> „Nurses constantly have to be aware how patients react to certain incoming stimuli. You have to know, what triggers a reaction in patients. Either good or bad.“
>
> Marie-Claire, Marienkrankenhaus, Hamburg

INTERVIEW JOHAN BERG, PEDIATRICIAN BARNAKUTEN

scopes for application of scent and trends in health care

At Barnakuten in Malmö I had the chance to talk to Johan Berg, a pediatrician working in the emergency room for children.
The main outcome of the interview that lead my process forward, was the potential he saw in applying sent for longterm and patients with chronic conditions.

Furthermore one of the most crucial points for cure and well being, even in the hospital context is to enhance and encourage patients to be „active“, alternate their situations and move as much as possible. Enhance Activity.

As we talked about the general hospital experience and the perception of space and routines, he expanded on the trend to make the hospital a more pleasant experience in a holistic approach. Looking at different aspects, that influence the „choreography of coming to the hospital“.

In relation to that, he mentioned potentials to prime patients with scent to enhance their return or stay in the hospital and to create a stimulating environment.

LONG TERM / CHRONICALLY ILL - SHORT TERM PATIENTS

Understanding and self awareness / No language

Teaching and learning tasks to create activities

„The return“ to the hospital environment and the emotions linked to that experience.

SAFETY AND PLAYFULNESS

Impersonalising objects
No language to explain their condition
Play & Practice
Well being & safety of the whole family

HOLISTIC APPROACH TO HOSPITAL ENVIRONMENTS

Encouraging/ stimulating environment
Effects of perceiving space support cure or suffering

PRIMING

„You could prime an environment to be safe.“

Trigger behavioural patterns.
Create a more pleasant experience.

LEKTERAPI LUND

DAY CYCLES AND NATURE

BALANCE OF TRUST THE OTHERS
AND FREEDOM SELF REGULATION (SCENT)

NATURE AS THE BIGGEST COMFORT

THE CLOSE CONNECTION BETWEEN
PLAY & SECURITY (PREPARE & PRACTICE)

„NATURE AND ANIMALS ARE A UNIVERSAL
„TOOL" FOR SAFETY AND COMFORT"

INTERVIEW ANN ELMQVIST FRIDH, LEKTERAPI ENHETSCHEF

scopes for application of scent and trends in health care

„Oversensibility to stimuli is an issue and a risk."

„People are encouraged to spend less time in the hospital. Home care is getting more advanced. Doctors possibly come home to people insead of people being in the hospital. Your behaviour as a doctor should always be as if you would enter their home, even if it is only theirs for 2 nights."

„We need a universal language of play and communication across the age groups"

Ann Elmqvist Fridh

PREPARATION, PLAY AND SECURITY

Procedures with children are acted out, need to be prepared and tested. Without „play and prepare“ there is no security.

WHAT TRIGGERS CHILDRENS ATTENTION:

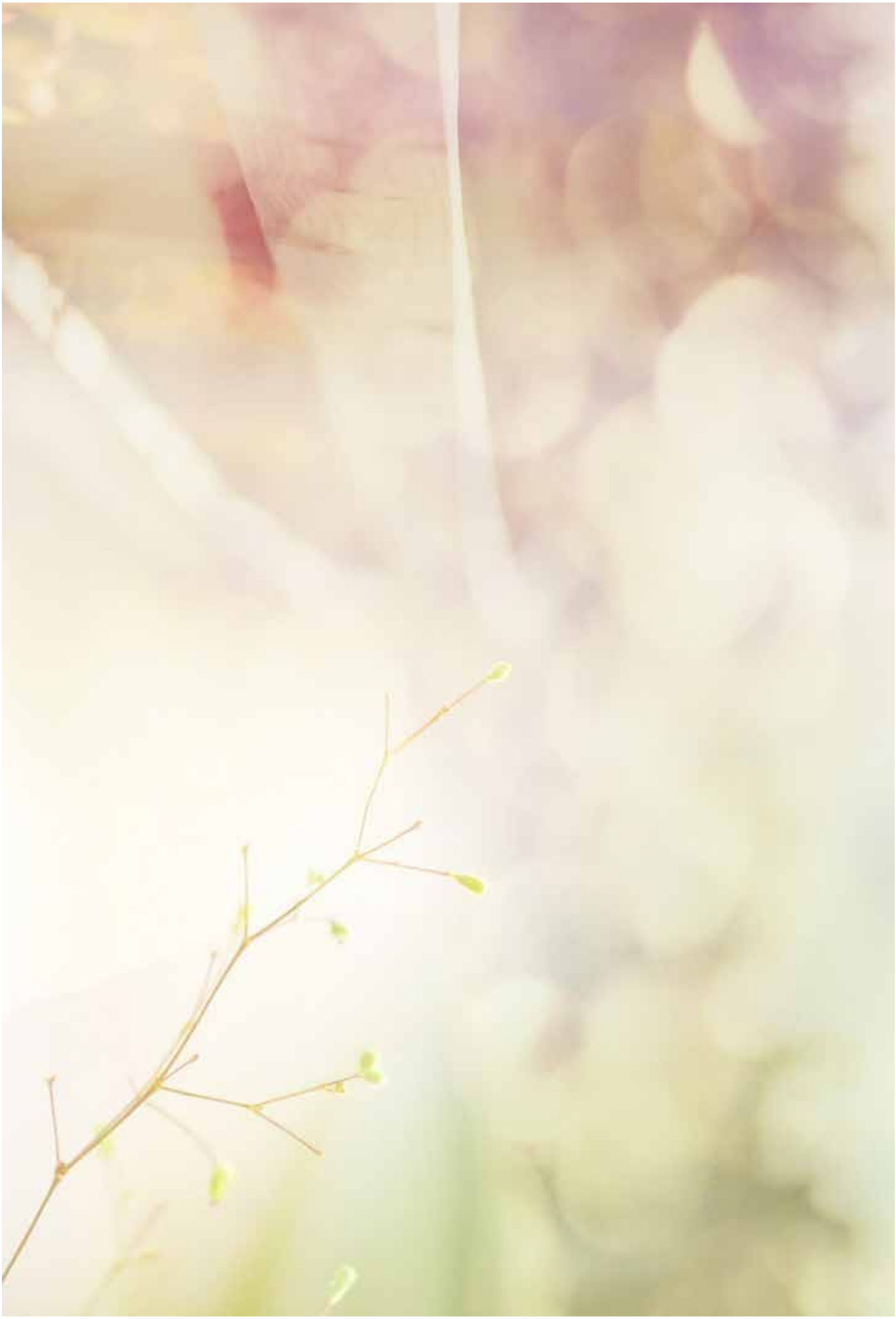
things, that signal „play“
nature and animals

TO IMPROVE A CHILDS HOSPITAL EXPERIENCE :

playfulness
friendly environment
music
cultural activities
meeting points
clowns

TO DISTRACT CHILDREN:

Garden to enhance activity
and sensual experiences



https://wallpaperscraft.com/image/lights_macro_nature_fence_73834_3840x2160.jpg

WHY IS SCENT NOT USED:

no awareness
regulations of safety
bad connotation with odors
not enough knowledge
unpredictable

OVERSENSIBILITY TO STIMULI IS A RISK

LIGHT / TIME

natural day cycle
nature has a good influence

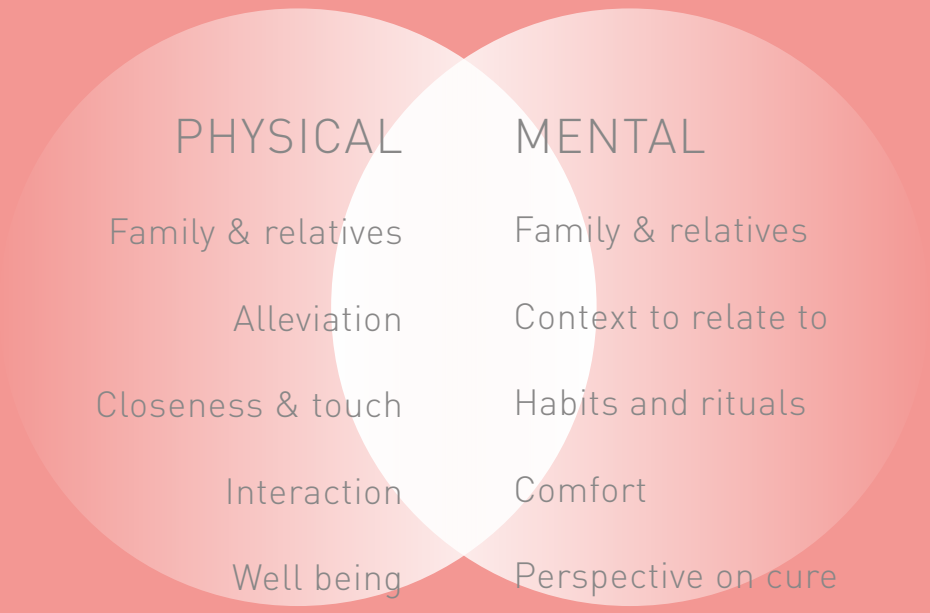
THE VERY THIN LINE BETWEEN TRUST AND REGULATION

the patient needs to have a certain trust to the caretaker that the best is being done
the patient needs freedom to of self regulation
If blue light is supposed to be good for you in the morning, but it just does not feel good you need to have the freedom to adjust it yourself

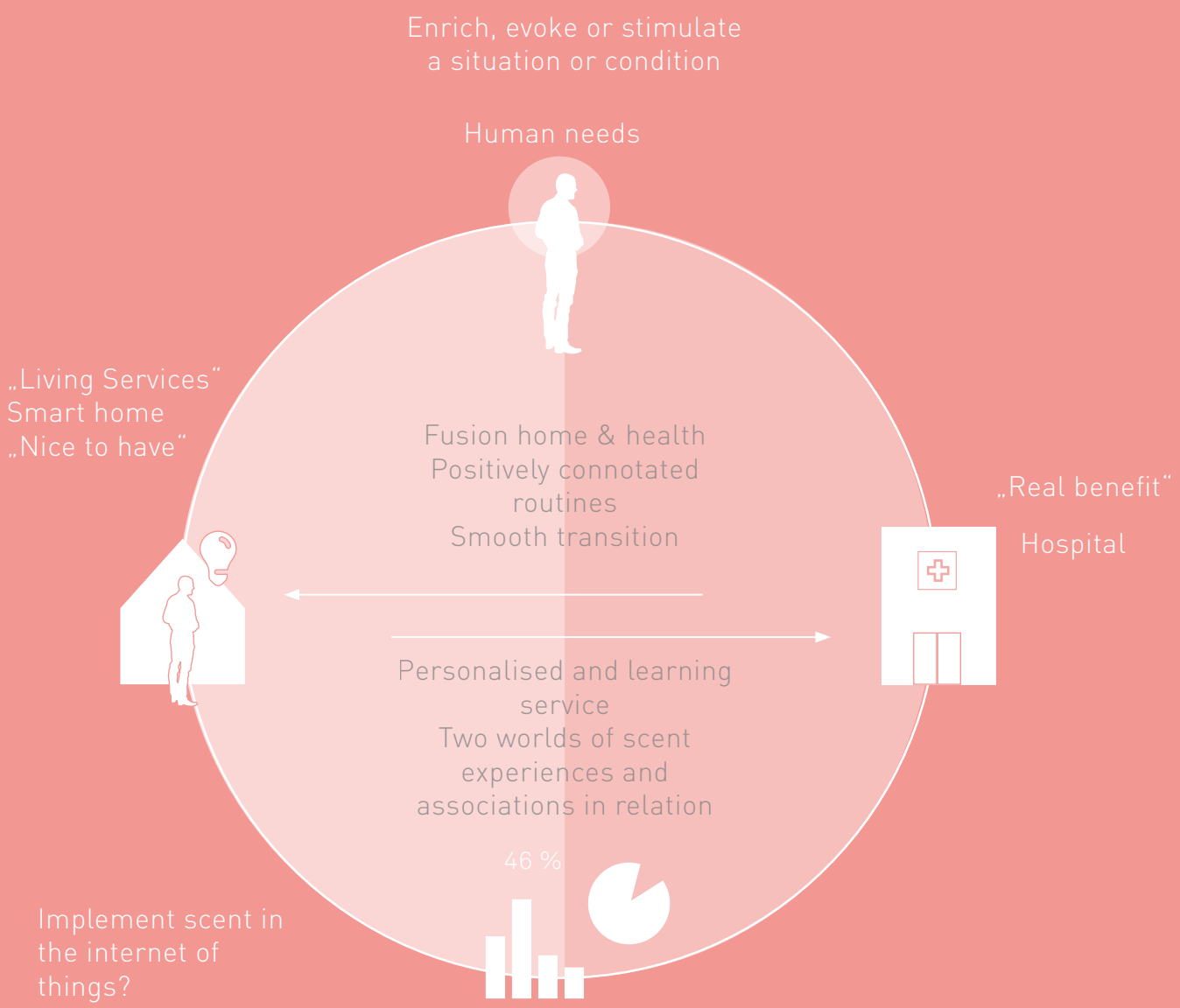
„I would like to smell some lemon to stimulate and feel fresh so I can adjust it myself“

MATERIALS AND STERILITY

everything in the hospital needs to be sterile and white
everything needs to be antiseptic
sterile materials at every level
only personal objects can be unsterile


PHYSICAL
Family & relatives
Alleviation
Closeness & touch
Interaction
Well being
Warmth
Softness
MENTAL
Family & relatives
Context to relate to
Habits and rituals
Comfort
Perspective on cure
Alternation
Activties

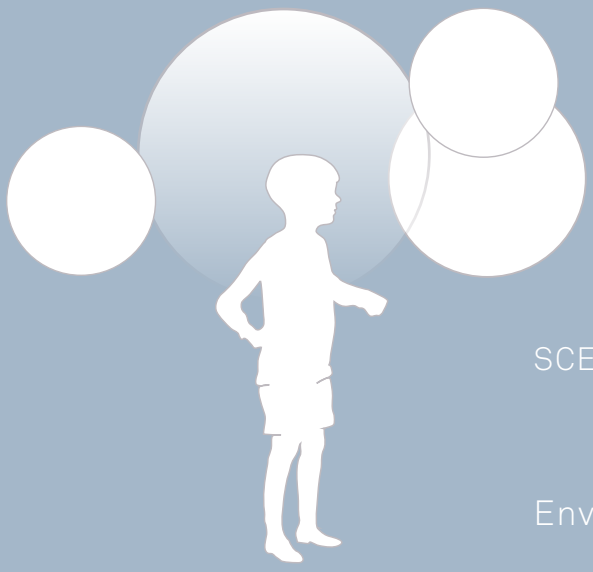
FUTURE HEALTH CARE KEY ELEMENTS



Using „living services“ and long term data collection at smart homes, previous to the hospital stay to assure a personlised treatment support tailored to the patient, that references to the home context and avoids emotionally unpleasant reactions to scent.

Utilise the instant power of low intense / targeted scents as a tool to huminise the hospital experience for children/ young adults to escape reality (pain, mental state, monotony), stimulate inner imagery, memory, support relational interaction and playfulness.

EVALUATION OF INSIGHTS, RESEARCH



SCENT SCAPES IN THE ENVIRONMENT

Environmental perception

Choreography of coming to the hospital

Negatively connotated routine

Priming the return positively

Involves unknown people

PERIPERSONAL SPACE BASED - OBJECT

Physical closeness

Personal experience

Intimacy

Objects - textiles

Involves close peole

REFLECTING FIRST APPROACHES

humanice hospital experience for children

OBJECTS, PLAY & SAFETY

Considering the different aspects from the research and the focused research in the hospital lead to possibilities connecting scent, children and the aspect of play to change their mindset and distract them from a disease related context. The aspect of nature and relatives bringing the most comfort to children should be considered in this approach. Furthermore there is an opportunity to involve scent to assign it to different task of learning, possibly practicing medical routines, to enable a safe procedure. This could also be prepracticed in the home environment to enable the children to develop understanding and lose their fear.

A HOLISTIC EXPERIENCE

Another approach is the tackle the general experience and perception of space, routines and the processes a patient, child has to go through. With this comes the aspect of long term patients and their ability to cope with a return to the hospital. Scent could be a tool to fuse comfort environments and hospital environment to avoid fear and anxiety. Processes could be practiced and mentally tagged with comforting scent to erase some of the perceptional pressure moments, when changing environments.

FUTURE BENEFIT OF KNOWING WHAT STIMULATES WELL BEING

A crucial insight and potential showed, that care is becoming more personalised and tailored to the patients need.
Therefor knowing beforehand, what stimulates well being or fear in a patient, collecting data in advance to a hospital stay could bring great benefits to the general hospital experience and the process of cure.

ANALOGUES

Working with scent, considering the aspect of comforting scents from the home environment and the aspect of family members being present, also in terms of habitual and comforting scents, encouraged me to taker closer look at analogues, such as textiles transportig scent from one environment to the other.

RESTRICTIONS

scent treatment in hospitals

Through focused research and interviews I discovered , that the reputation of scent in relation to a hospital environment still carries a lot of negative associations. Especially the lack of research and the unpredictability of what scents could trigger in a patient , especially when there is the possibility of over sensibility to various stimuli showed a lot of risk potential and affords long term on field research to develop a very focused application on a certain condition, that will bring a valid benfit.

CONCLUSION

Without a doubt I see great potential and many scopes of application for scent in the hospital environment. Especially because scent influences our mindset and therefor physical condition like no other sense.
On the other hand I also acknowledge the restrictions mentioned above. Also considering the sterility in hospitals.

In relation to analogues and the comfort of family members I do not see my role as a designer to replace analogues like the „teddy bear“, which is a perfect symbol for comfort, the scent of home and intimacy with a playful edge to it, bringing the most possible comfort and sth. to hold on to for a young patient, being replaced by something newly invented, possibly incorporating technology.

At this point of the research I therefor decide to approach the potential of scent in another environment, taking some major findings in the next ideation phase.

GATHERED INSIGHTS TAKEN INTO NEXT IDEATION PHASE

EFFECTS OF SCENT ON WELL BEING

EFFECTS OF SCENT ON MINDSET

NATURE AS COMFORT

THE NEED FOR ENHANCED ACTIVITY

THE LINK BETWEEN MENTAL AND PHYSICAL HEALTH

PERSONAL REACTIONS TO SCENT

HOW DO YOU KNOW WHAT SUPPORTS THE WELL BEING OF PATIENT
LONG TERM DATA

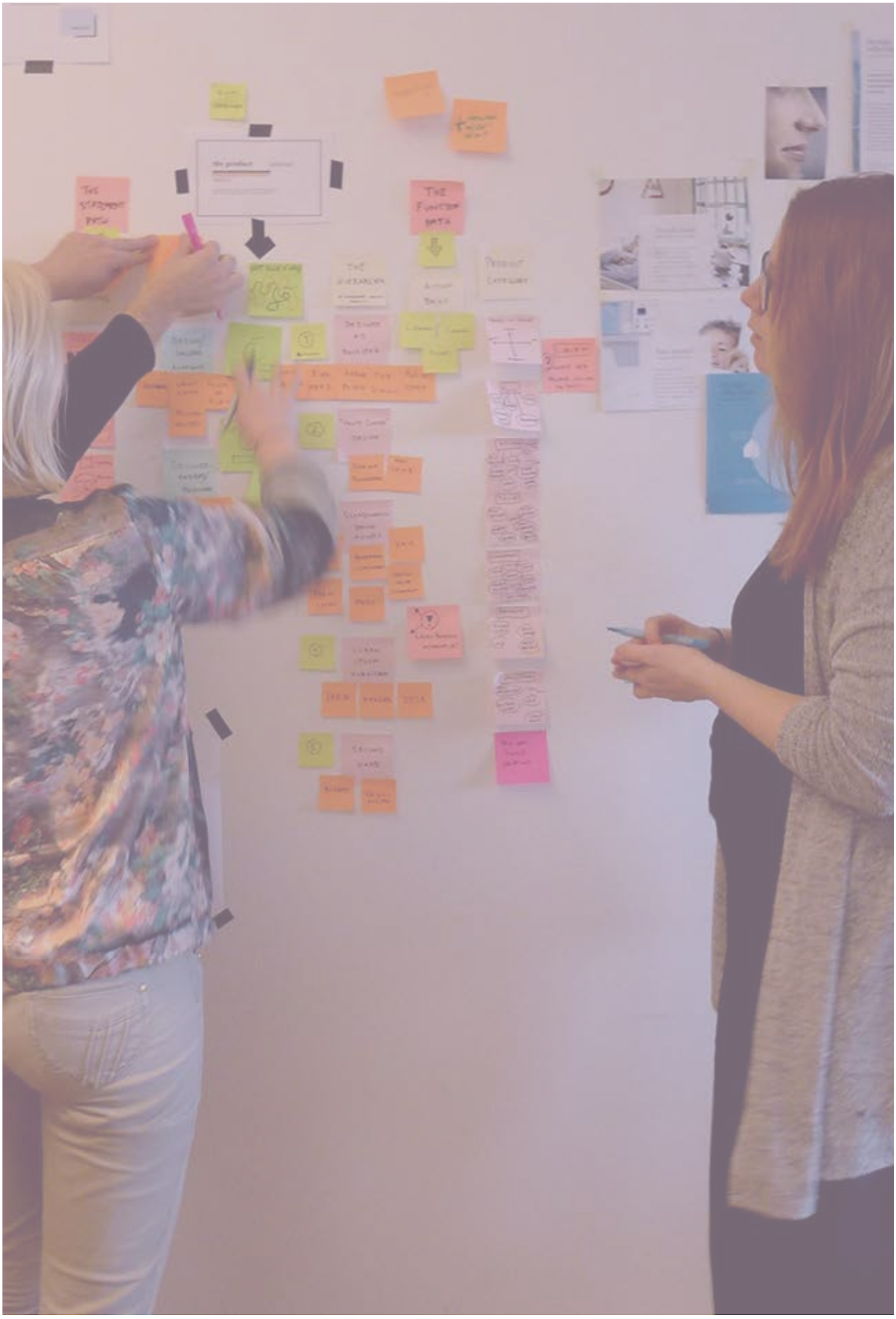
PERSONALISED CARE

HOME AND HEALTH FUSION

PRIME AN EXPERIENCE TO BE PLEASANT

SELF REGULATION OF SCENT

APPLY ON CHRONIC SITUATIONS



ANALYSIS

research and data

PEOPLE AND SCENTS

insights

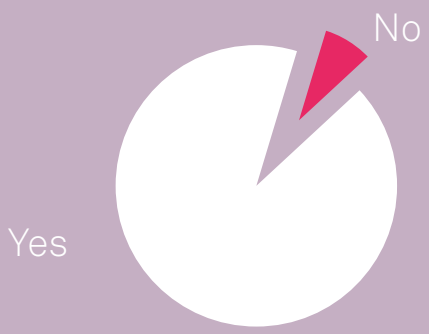
One thing to mention before explaining the main insights about this survey was, that almost everyone taking part in this survey had an extremely hard time describing their experiences with scent. This proves the missing of language and understanding for the perception of scent.

Nevertheless the main insights showed, that people do get affected by scents and that they act upon that. Obviously not always consciously, but it triggers behaviour.

Secondly there is a high majority of scents, places and objects overlapping in relation to scents. Nature and places connected to nature play an essential role in the pleasant perception and recollection of scents.

In assigning scents to activities the associations and activities are mainly positively connotated.

DO YOUR MOODS GET AFFECTED BY SCENTS OR RATHER DO YOU CONSCIOUSLY PERCEIVE YOUR MOODS TO GET AFFECTED BY SCENTS?



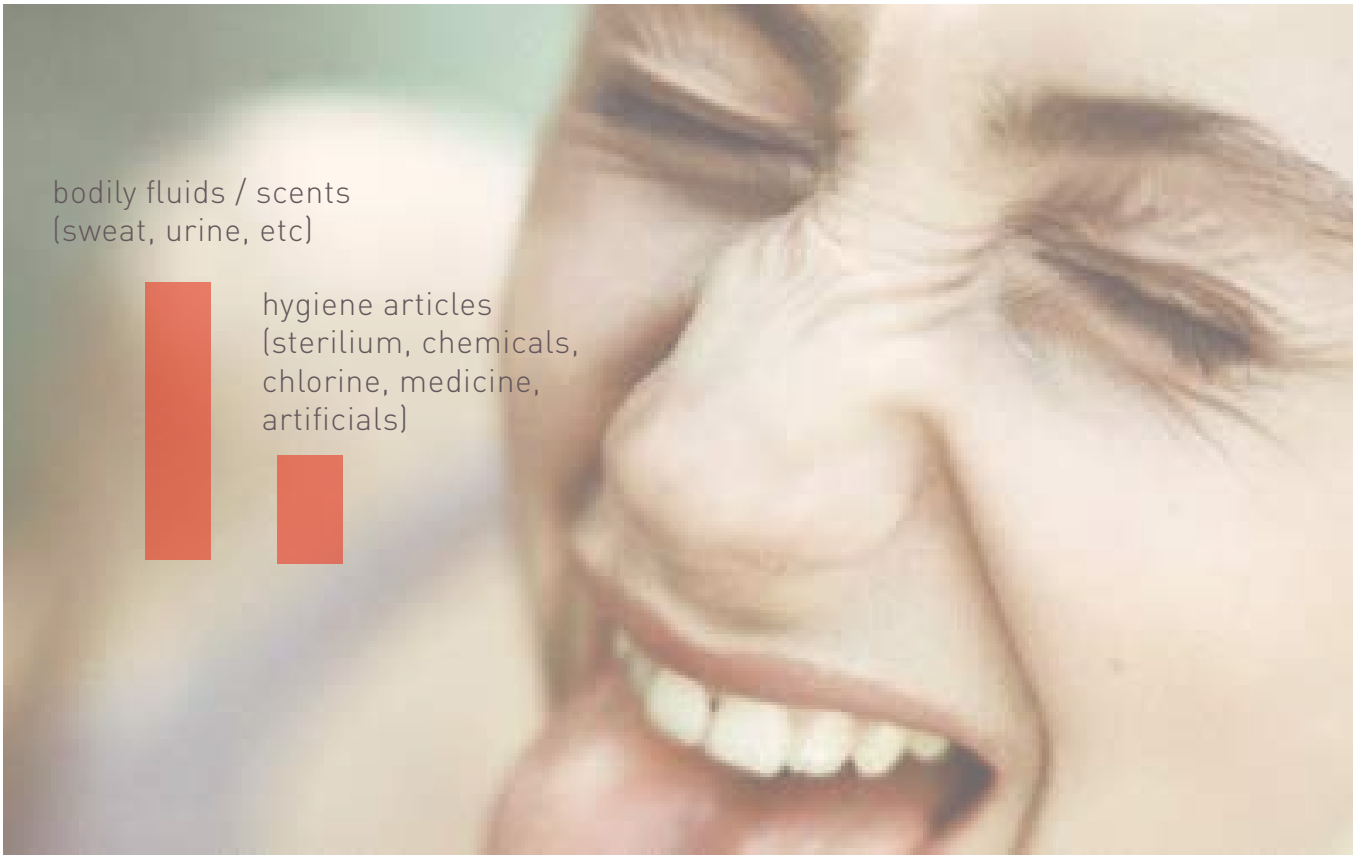
Mainly positive, motivating, relaxing, feeling good / better

CAN YOU THINK OF ONE SCENT THAT IS TRIGGERING AN EXTREMELY POSITIVE REACTION IN YOU?

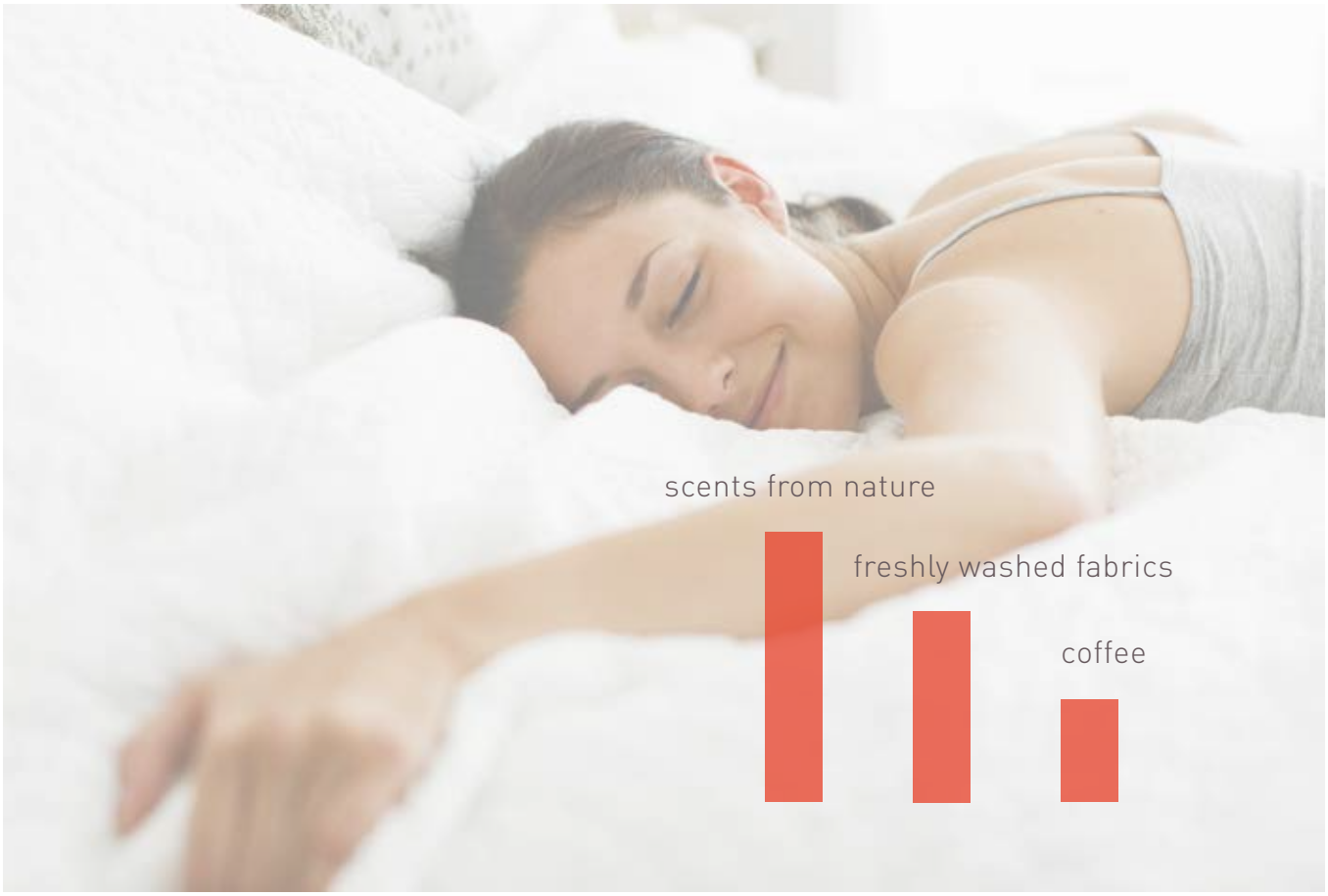
DO YOU ACTIVELY NOTICE WHEN YOU AVOID OR APPROACH A SITUATION/PLACE, BECAUSE OF THE SCENT? IF YES, DESCRIBE.

Escape bad smells.
Approach good smells.

WHAT KIND OF SMELLS/ SCENTS ARE DISCOMFORTING FOR YOU?



WHAT KIND OF SMELLS/ SCENTS ARE COMFORTING FOR YOU?



PLEASE LIST SCENTS, THAT YOU RELATE TO 3 ACTIVITIES

CITRUS	COFFEE	RAIN/ FRESH AIR	GARLIC	SWEAT
waking up	mornings	sports	cooking	sports
cleaning	breakfast	being outside	eating	sex-(smell)
(freshness)	work mode			

IMAGINE 3 PLACES IN YOUR MEMORY, THAT YOU LIKE TO SMELL

CONCEPTS

first ideas and directions

MEMORABLE

remember, evaluate, prefer, decide

Memorable is a service guiding your decisions on a very personal and very sensual level.

In relation to activities and moments, the user is encourage to remember, evaluate, prefer and decide to gain more insights and knowledge upon preferences in relation to activity, mental state, location and other aspects.

The main outcome for the user is to gain an understanding of what makes one happy, productive, active and what are the key parameters influencing this state.

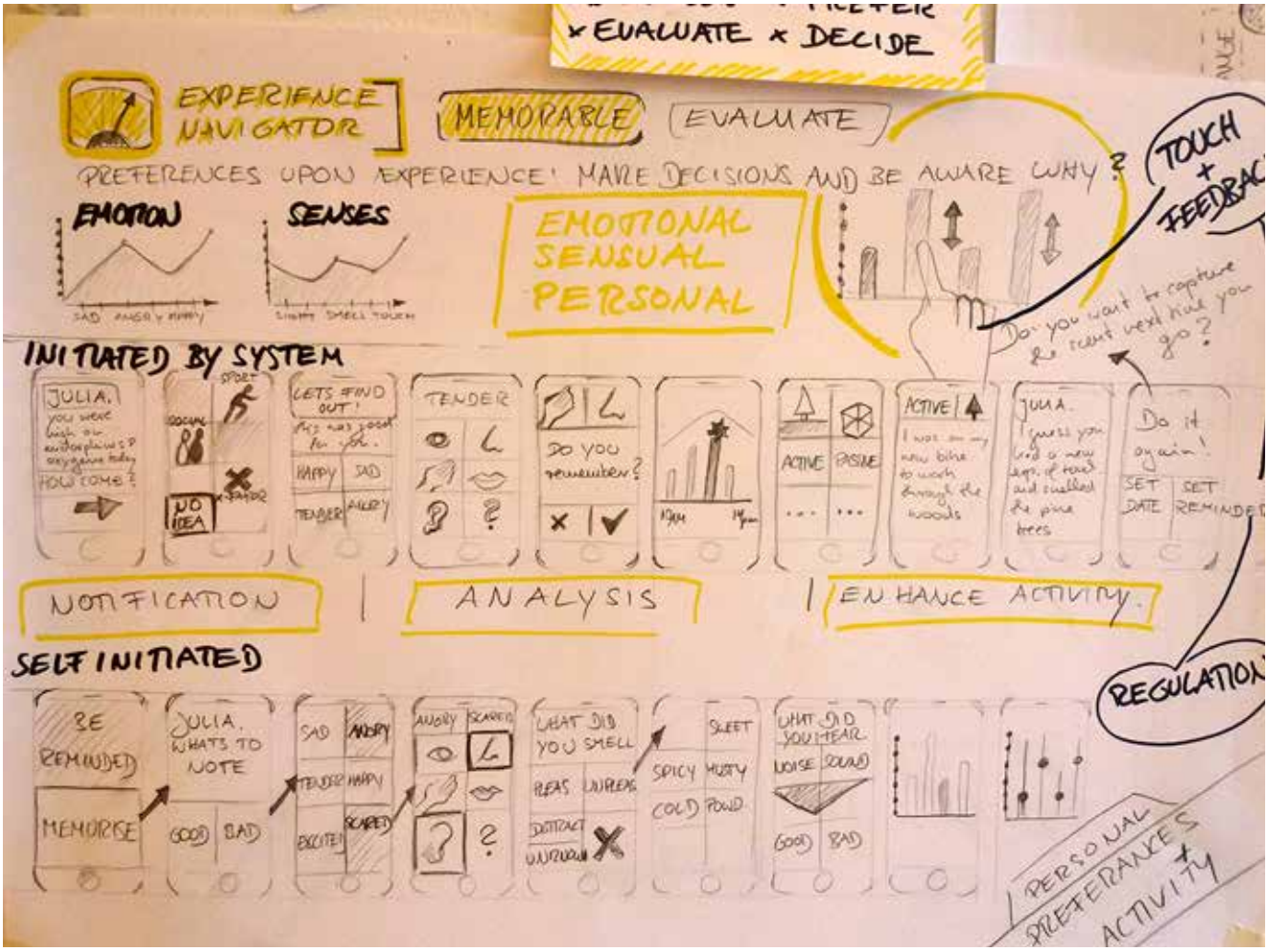
DESIGN WITH ALL THE SENSES

senses make moments worth while

Memorable is based upon a sensual and emotional focus. The more senses are involved in activities, the more extrem they become. Either in a good way or in a negative way.

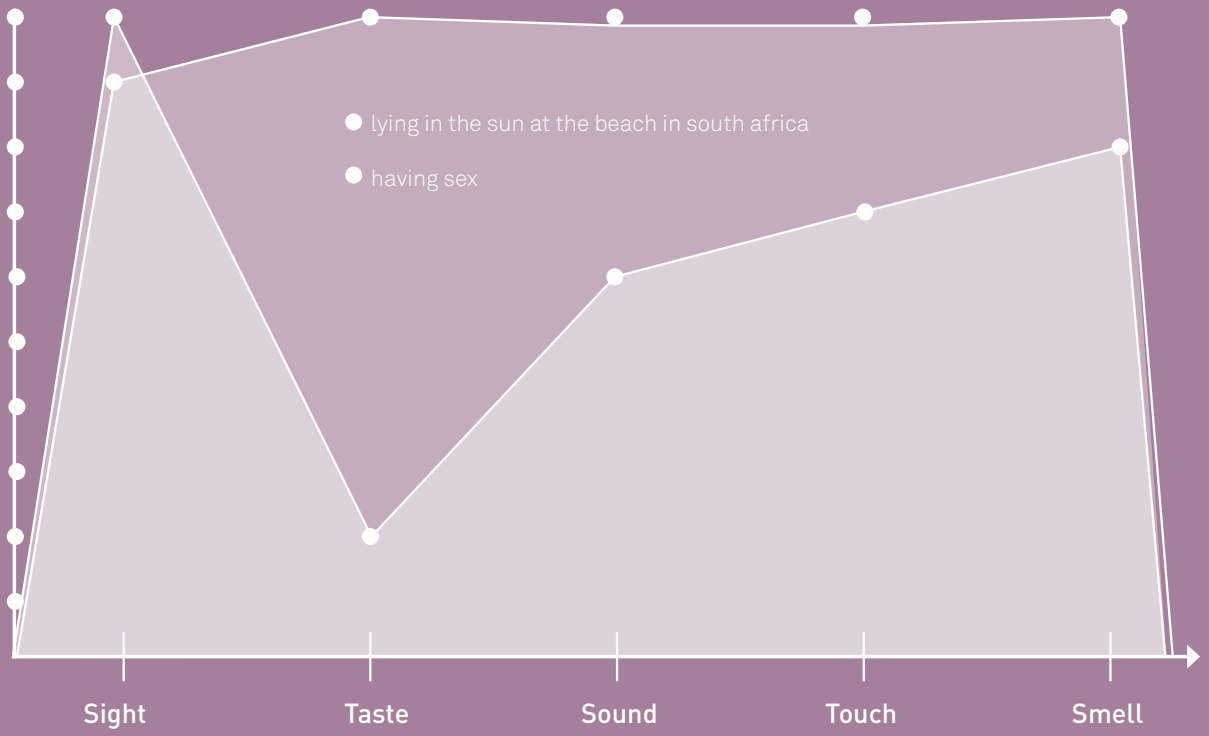
Memorable incorporates an notification system, involving all the senses and the major emotions and relates them to your actions and decisions. The service will be linked to tracking vital signs and respond accordingly.

Memorable makes it visible and experienceable which senses and emotions lead us to make or change our decisions. It supports you to repeat activities that increased your well being.



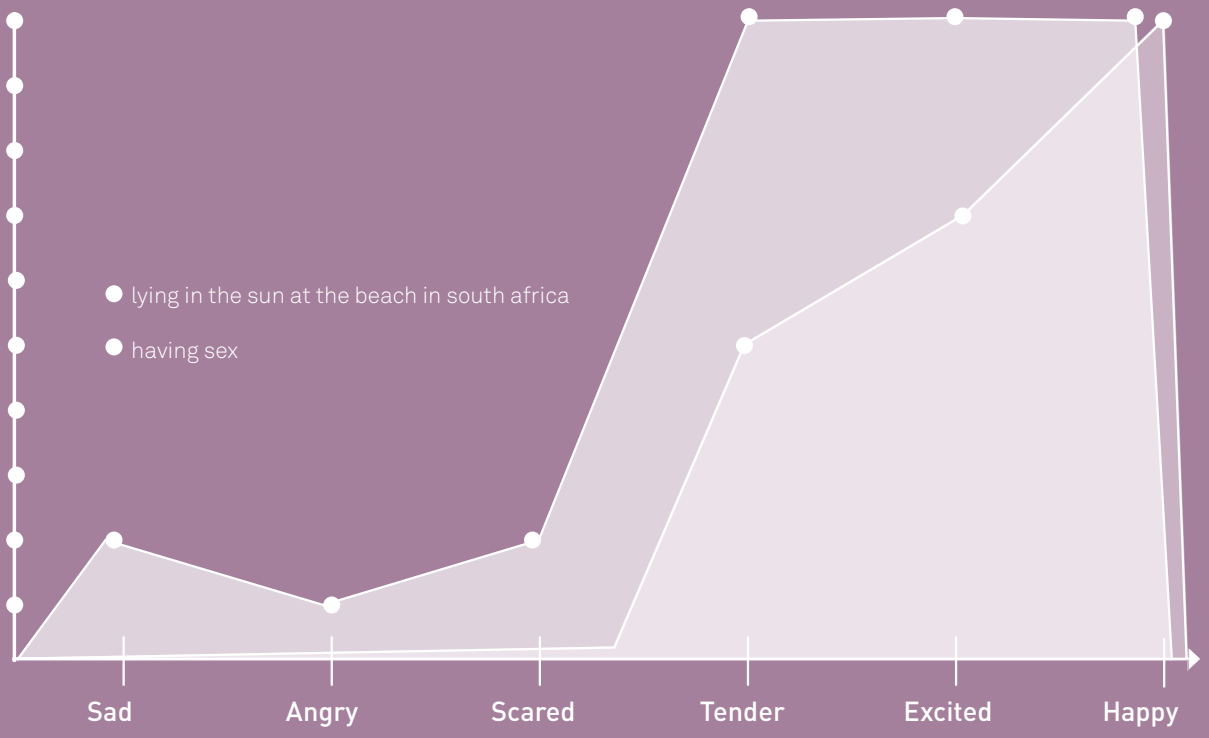
Evaluate in the 5 - senses diagramm

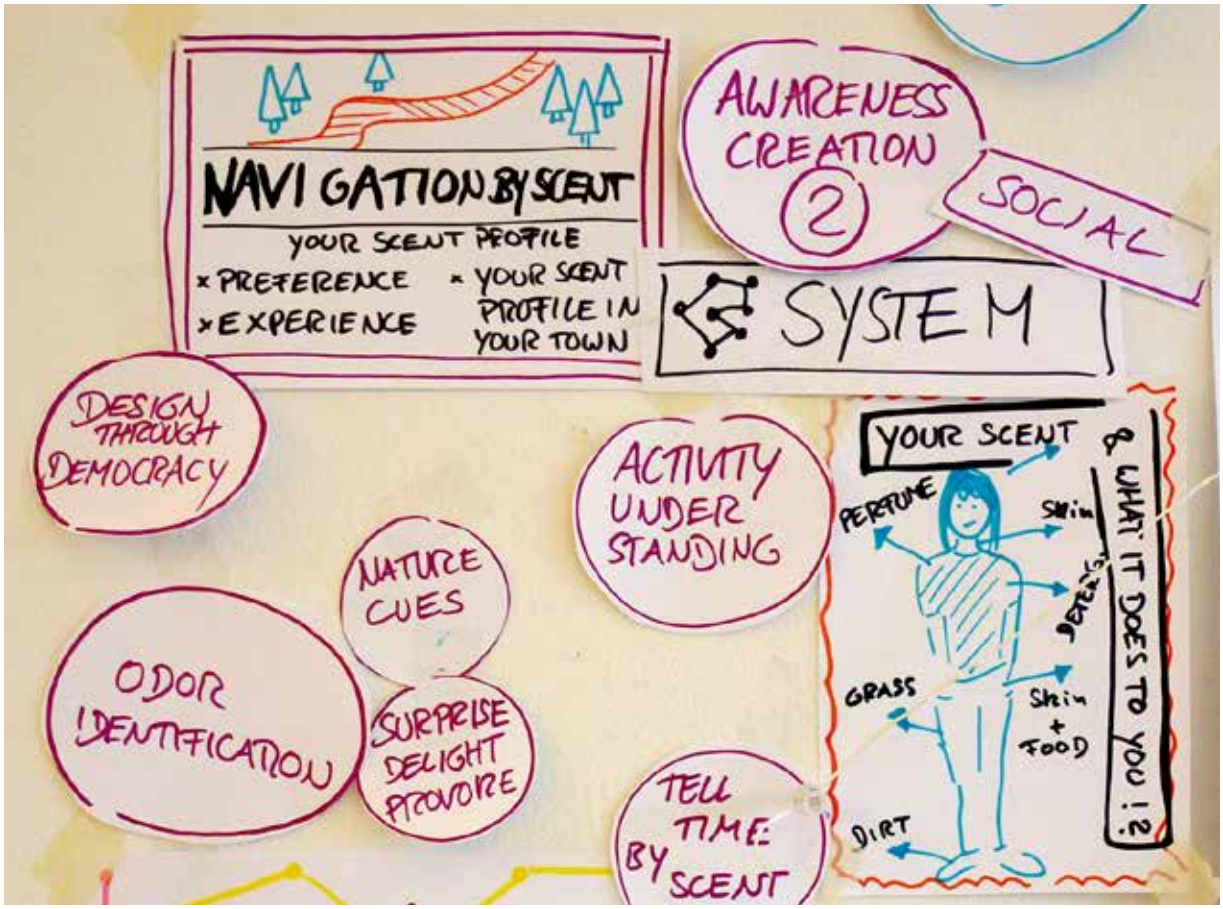
evaluate, prefer, learn and improve awareness in decision making

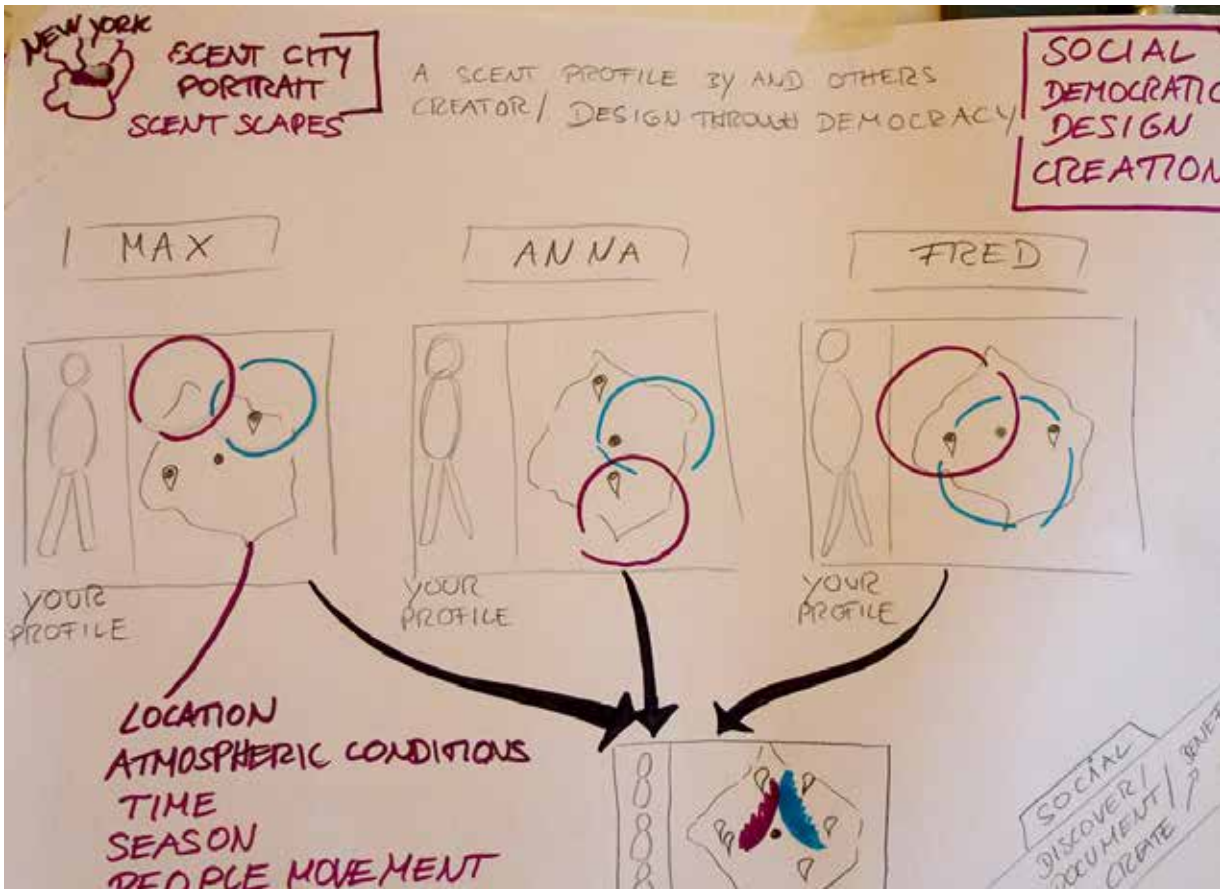


Evaluate your emotions accordingly

evaluate, prefer, learn and improve awareness in decision making




NAVIGATION BY SCENT
YOUR SCENT PROFILE
× PREFERENCE
× EXPERIENCE
× YOUR SCENT PROFILE IN YOUR TOWN
AWARENESS CREATION 2
SOCIAL
SYSTEM
DESIGN THROUGH DEMOCRACY
ACTIVITY UNDER STANDING
NATURE CUES
ODOR IDENTIFICATION
SURPRISE DELIGHT PROVOKE
TELL TIME BY SCENT
YOUR SCENT & WHAT IT DOES TO YOU !?
PERFUME
Skin
GRASS
Skin + FOOD
DIRT


NEW YORK
SCENT CITY PORTRAIT
SCENT SCAPES
A SCENT PROFILE BY AND OTHERS
CREATOR/ DESIGN THROUGH DEMOCRACY
SOCIAL DEMOCRATIC DESIGN CREATION
MAX
ANNA
FRED
YOUR PROFILE
YOUR PROFILE
YOUR PROFILE
LOCATION
ATMOSPHERIC CONDITIONS
TIME
SEASON
PEOPLE MOVEMENT
SOCIAL
DISCOVER/
CREATE

HOW ARE PREFERENCES NOTICED AND DOCUMENTED IN RELATION TO PLACES AND ACTIONS?

Preferences and places in relation to scent, but connected to your health status/ well being can be analysed.

Is there approximate types of scent that can be listed as preferences? (like your playlist of the week due to tracked activity)

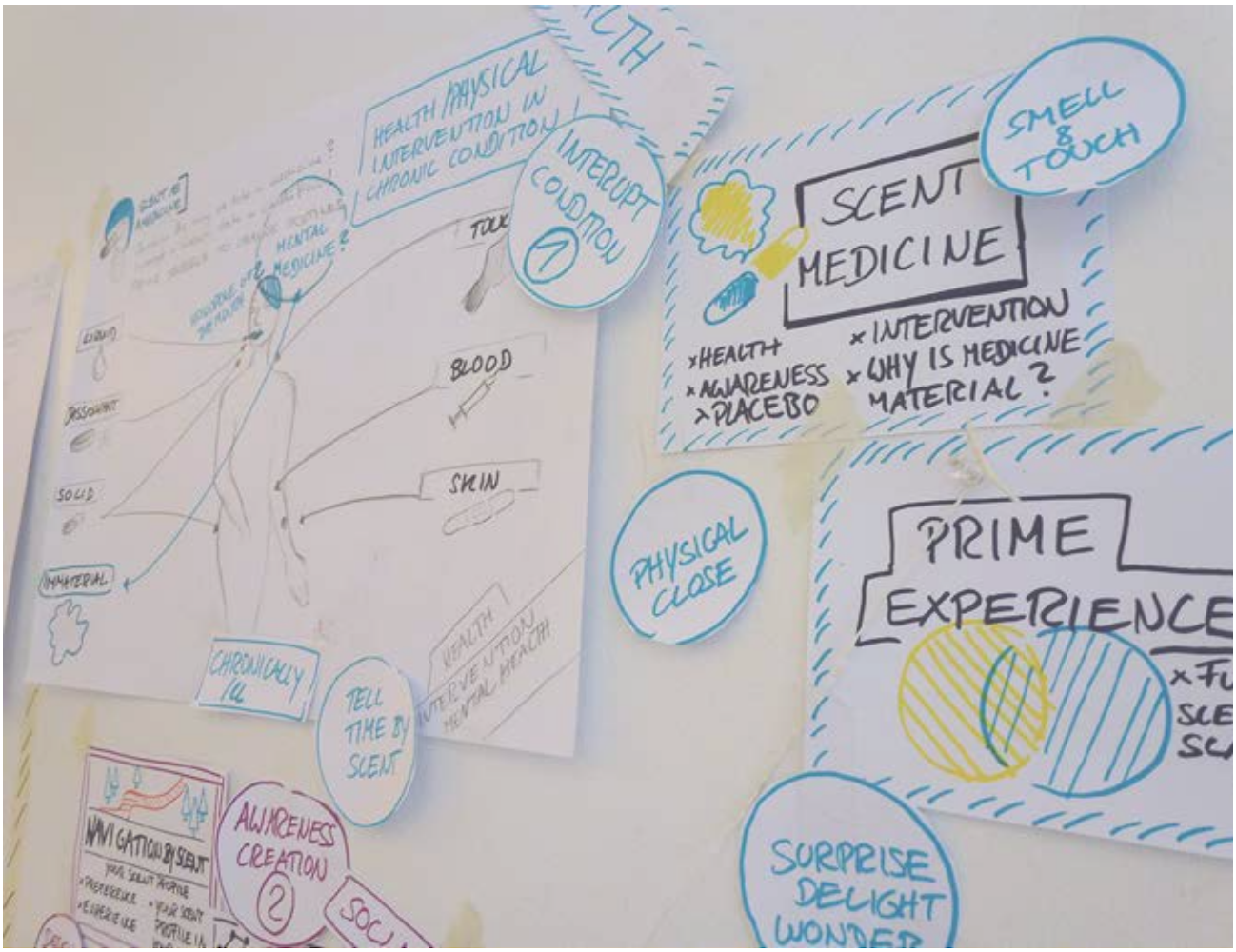
Is there even personal taste in the pure notes of scents?

IMMATERIAL MEDICINE

change the mindset

Medicine is taken in various different consistancies. Tablets, liquids, cremes, pulvered or injected. It can be applied on skin, digested, via blood or mucous membrane.
After the intensive research on how scent influences the human body and mind one could ask the question why scent is not used as medicine in an immaterial way.
Before actually taking medicine orally, injected, aplied, scent can be used to interrupt a certain condition that tends to become unhealthy and therefor intervene before actual medicine is needed.

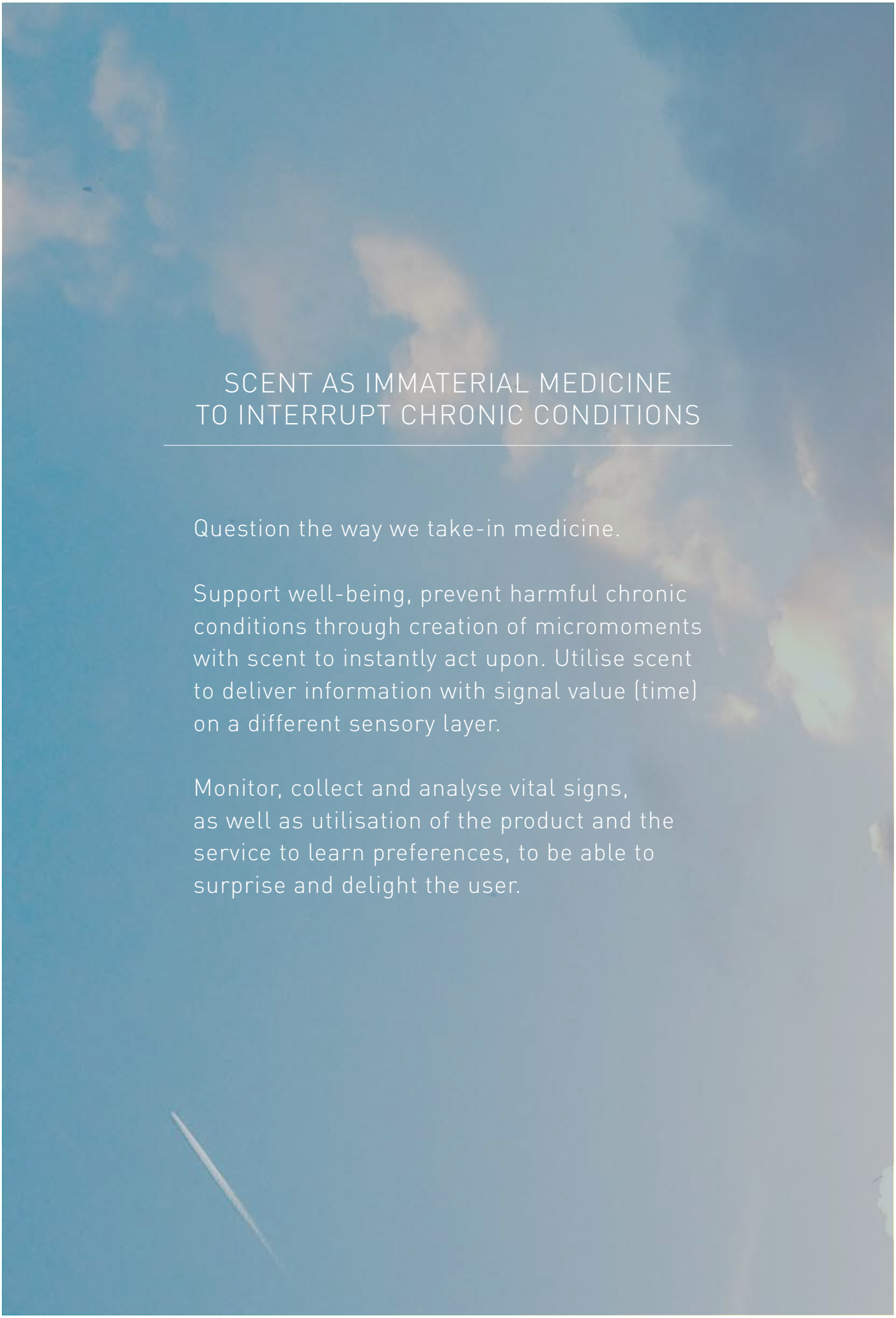
Referring back to the historical research done in relation to scent, the application of scented rooms, oils and balms has proven its calming, comforting and curing affect on the human body and mind over centuries.



SCENT AS MEDICINE

question the way we take medicine


help
I can't sleep
help
I have allergies
help
I have a stuffy nose
help
I've cut myself
help
I have a headache
help
I have an aching body



SCENT AS IMMATERIAL MEDICINE TO INTERRUPT CHRONIC CONDITIONS

Question the way we take-in medicine.

Support well-being, prevent harmful chronic conditions through creation of micromoments with scent to instantly act upon. Utilise scent to deliver information with signal value (time) on a different sensory layer.

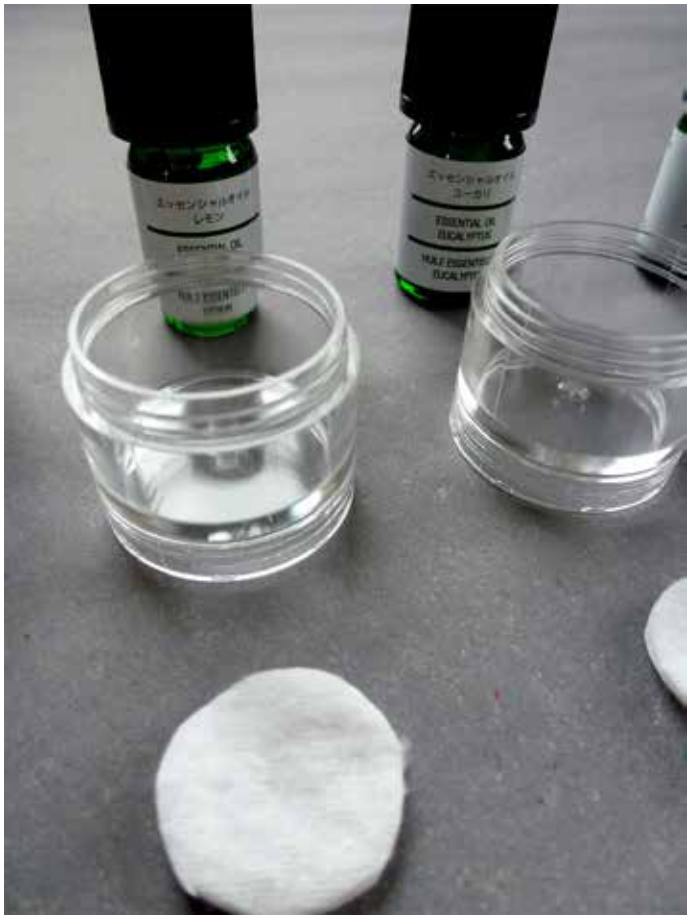
Monitor, collect and analyse vital signs, as well as utilisation of the product and the service to learn preferences, to be able to surprise and delight the user.

EXPERIMENTS / TESTING

with scents

PORTABLE SAMPLES

testing with scented prototypes



open and closeable
various scents

needs to be carried
convenient to use

PORTABLE SAMPLES
testing with scented prototypes

VARIETY AND CONSCIOUSNESS

One of the first scented prototypes combines five different essential oils. The different scents were assigned to different times during the day. Times assigned to certain scents I exposed myself to the same scent for 2 weeks.

Morning: Grapefruit

Mid morning: Bergamotte

After Lunch: Eucalyptus

Afternoon: Orange

Evening: Tea tree oil

LEARNINGS

One of the first conclusions I made, was that scents coming from another source other than the food one is preparing or eating are a strong distraction and evoke feelings of disgust or aversion against food.
Secondly, after the passing of only three days I awaited a certain scent at a special time of the day.
Some scents had a stronger affect in relation to the time of the day and their characteristics. Being exposed to eucalyptus in the afternoon had a very positive and awakening affect. A scent that I looked forward to already after lunch whereas grapefruit in the morning was less effectful and just passed subconsciously. Important to say is that I had to actively set a reminder and open and close my samlpes which invalidates the aspect of random exposure and therefor takes away the surprise effect of noticing a scent in the environment. Generally speaking the exposure to scent at certain moments during the day changed my perception of time and how time flies by without noticing. It structures the day in perceptable episodes linked to memory and actions.

CONSTANT EXPOSURE

flexible, but exposed

The second scented prototype for various testings was a wearable necklace, which enables the user to experience a scented peripersonal space.
Secondly the user could actively enhance the effect by lifting the scented piece towards the nose.

This protoype characterizes through constant exposure to scent, the unconscious perception of scent during the day and the convenience to wear this piece, without the need to actively interact with the object to have a olfactoric experience.

LEARNINGS

exposure time and intuitive interaction

The main outcome of testing this prototype was that a constant and passive exposure to scent defeats the whole purpose of noticing a scent in the environment. As known from the research, the constant exposure to scents leads to ignorance of perceiving this specific scent. Therefor moments of realisation only occur if exposure to scents is random and the time of perception limited.
Nevertheless the convenience of carry scent in a wearable close to the body showed various potential use cases and the possibility of intuitive interaction with the object, if the aspect of exposure time is considered.

WEARABLE & CLOSEABLE

SELECTED EXPOSURE
flexible and closeable

This scented prototype combines some learnings from previous prototypes and combines them in a new testing object.
It distinguishes itself through its wearability and easy usability.
Even though the user still needs to actively anticipate the moment, when scent is released through revealing the scented patch below the wearable, this prototype creates a single moment when scent is perceived, yet it is still worn close to the body and can be carried unconsciously until the moment the user decides to interact with the object.

LEARNINGS
gestures and short moments of interaction

Working, wearing and testing this prototype revealed that scent and touch are closely related and enhance the experience of perceiving scent. Furthermore the gesture of lifting the wrist, the source of scent towards the nose, supports the intimate moment of this scented experience.
While testing the different prototypes with various people, the feedback was mainly positive in relation to the worn objects. The majorty of users requested an object for their own to use, to enhance focus and take a short sensual moment for them to enjoy and reset.

CHARACTERISTICS

known gesture in relation to scent
convenient to wear
easy to reach the nose
revealing moment
open and closeable

CONCLUSION

SCENT, TIME AND CHRONIC CONDITIONS

change a mindset instantly

The most harmful to our bodies are chronic conditions.

As we smell , we enter an experience and change our mindset. Hence, we act andbehave differently.

Scent should be used as non-invasive, immaterial medicine with a direct pathway to our emotional cortex to influence well being and interrupt a harmful chronic condition to ease, stimulate or warn. Real-time sensors as well as analytics document and adapt the treatment accordingly.

WHAT CAN SCENT DO NOW?

Enhance activity - major reason for chronic disease

Enhance appetite - malnutrition in old age / alzheimer

Enhance cognitive functions- alzheimer

Predict onset of alzheimer

Relieve pain - headaches, post operational

Decrease bloodpressure - signal value

Sleeping disorders - calming

Depression - anxiety, insecurity, chronic mindset

WHY?

use scent in health related context

Scents effects on humans is immeadiate

Direct effect on the brain will have a great impact on physical health and hence mental health

Scent motivates behaviour and hence can be used to break habituation

The amount of medication and its harmful impacts on the human body and our environment

OPPORTUNITIES

Tell time by scent - day cycles , habits

Priming through scent / Placebo

Actively relate scents to an action
Avoid / ease unpleasant situations

FUTURE PERSPECTIVE

Personalised and learning service

Knowing on how to stimulate well being

Targeted application of scent

Implement scent in the IOT

FOR WHOM?

People with chronic diseases

Prevent memory loss and train cognitive abilities - predict alzheimer

Patients in the hospital

SCENT / POSSIBLE SCENARIONS

scenarios in the health context

1/ CONECEPT / SZENARIO

Treatment + signal warning when in a harmful chronic condition

„My blood pressure is constantly too high. But in your daily flows, you can`t always keep that in mind. „

Lars, 38 years

Lars primed himself to go running with the scent of lemon.

When smelling it, it urges Lars to go out and be active.

The signals and reminders lars gets through scent work more direct and instant as the alerts we are used to on a sensory level.

„the scent of sage is proven to decrease blood pressure effectively.“

On a new sensory layer, information is provided. It is TIME to act.
This is a SIGNAL WARNING for Lars to instantly change his condition.

Vital signs are documented and scent will intervene when condition becomes harmfully monotone.

HOME / WORK ENVIRONMENT

SCENARIO 1

chronic condition

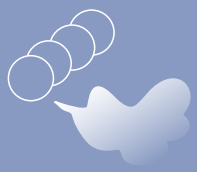
2/ CONECEPT / SZENARIO

Prevention of memory loss and prediction of mental decay

„I am concerned about aging. I want to stay mentally fit and know about the capabilities of my brain.“

Helena , 52 years

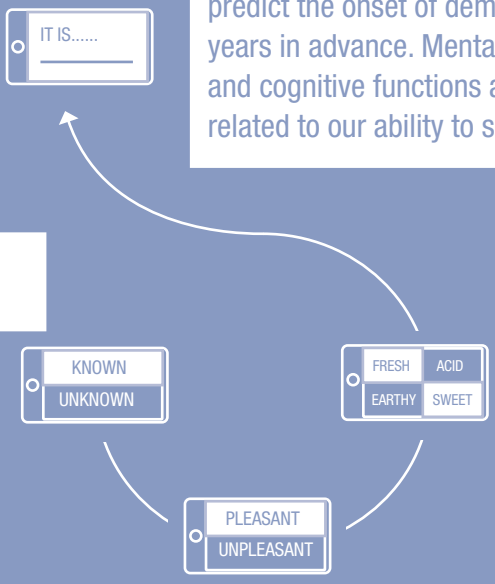
SCENT IDENTIFICATION AND MEMORY TRAINING TOOL



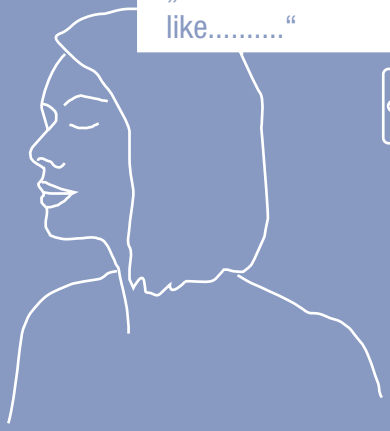
PREVENTION

„Exposing Alzheimer patients to different scent cycles during the day improves their cognitive functions.“

Olfactory dysfunction can predict the onset of dementia years in advance. Mental decay and cognitive functions are closely related to our ability to smell.



„This smells like.....“



HOME / CARE HOME ENVIRONMENT

SCENARIO 2

cognitive functions

3/ CONECEPT / SZENARIO
Short term interventions in acute situations

„I am just recovering from surgery and this monotony and pain is awful. I can not think of anything else.“

„Inactivity, anxiety and depression has a crucial effect on the curing process of the patient.“

Dr. Penn

Marley, 14 years

INACTIVITY and CONSTANTLY in one condition

„Doctors know whats good for me, I hope, but I also do and want to regulate some things independenly.“

„With this little helper I can be an active part of my improvement, but it also reminds me to stay active and change position.
I can escape bad odors for a while.“

„The scent of Lavender is used to reduce anxiety and shows higher satisfaction rate in post-operationalpain control.“

SCENARIO 3

acute pain control

EVALUATION AND BRAINSTORM

focus on chronic conditions

At this stage of the project, with the process in mind and the feedback I decided to focus on chronic conditions, furthermore on conditions that eventually will lead to chronic diseases such as inactivity, bad posture, bad nutrition , just to name a few.

WHAT?

- A product close to the body, diffusing scent as a signal to change a harmful chronic condition.
- Body sensor, that tracks your vital signs and communicates with the product.
- A learning system that tracks your improvement and focuses on

WHO?

- People in a chronic condition, that will be harmful in the long run

WHY?

- They are aware of their condition and want to act / prevent a severe condition
- They need support to intervene / remember
- The physician recommended the service

HOW/WHEN ?

- In your daily routines at home/ work
- As a wearable / patch / jewelry etc.

PREVENT CHRONIC DISEASES

- Enhance activity
- Enhance appetite / reduce
- Relieve pain
- Relieve anxiety
- Reduce blood pressure

WHAT ARE THE MICROMOMENTS?

- The moment when you notice you need change and you act upon it
- The moment it feels better
- The relief, that sth. is reminding you
- The moment you realise, that you are improving over time
- The moment you act without being reminded
- The moment it becomes intuitive
- Scent is silent in delivering information (Intimacy)

DESIGN WITH THE SENSES IN MIND

- Design the sequence, in which scent comes first
- You smell the signal, you touch the object, you see the information, you act accordingly (system initiated)
- You touch the object, you reveal, you smell the scent, you see information, you act accordingly (self initiated)

HOW IS SCENT DIFFUSED?

- Through body heat (applied and constant)
- Through textiles
- Action (open/close/ rotate/ reveal)
- Electricity

BENEFIT NOW?

- You become aware of your chronic condition
- You act and improve activity

FUTURE BENEFIT?

- Long term knowledge and data
- Sustainable improvement
- Knowledge about preferences

MAJOR ASPECTS FOR FINAL CONCEPT

SCENT EVOLUTION SIGNAL

TIME INFLATION OF TIME

CHRONIC CONDITIONS SILENT INFORMATION

SCENT TO CHANGE A MINDSET

SCENT TO BREAK ANY CONSTANT CONDITION

SCENT TO ENCOURAGE ACTIVITY

SCENT TO MOTIVATE BEHAVIOUR

TELL THE TIME BY SCENT

MICROMEMENTS ANTICIPATE CHANGE

MAJOR ASPECTS FOR FINAL CONCEPT

PHYSICALLY CLOSE	DESIGN WITH SCENT AND TOUCH	SENSORS
SURPRISE DELIGHT AND WONDER	LONG TERM DATA	FUTURE BENEFIT
EMOTIONAL AND COGNITIVE DESIGN	AMBIENT SERVICES INTUITION INVISIBLE	INTERACTION AND EXPERIENCE


unp
scent and cognition need deeper research
trend of preventive care
scent trigge strong reacti
freedom of self regulation
chronic conditions / lack of activity
scent influences behaviour, mostly positive memories
cognitive functions


redictable
prime experiences to be pleasant with scent
emotion & ndividuality
trigger behavioural patterns
rs ons
SCENT & HEALTH CONCLUSIONS
from focused research
day cycles & nature
perception highly affects our health and well being
scent motivates activity

OLFACTION

Signal value to guide our responses

Emotional value

Breaks with current mindset

Olfactoric comfort from nature

Information on a new sensory layer

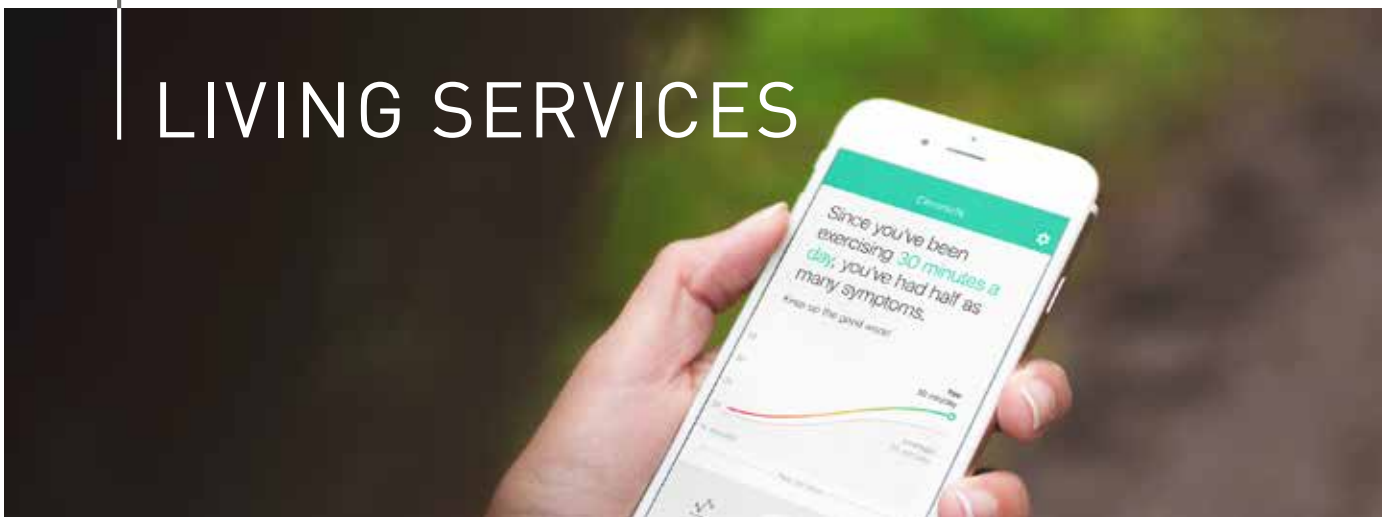
Physically close

Surprise and delight the user

Emotional and cognitive

Design for experience

LIVING SERVICES



FUTURE HEALTH

Activity to prevent chronic conditions

Personalised care

Real time analytics and long term data

Chronic conditions

High health IQ

Need for change and activity in day cycles

Delight

DAY CYCLES / HUMAN NEEDS

FINAL BRIEF

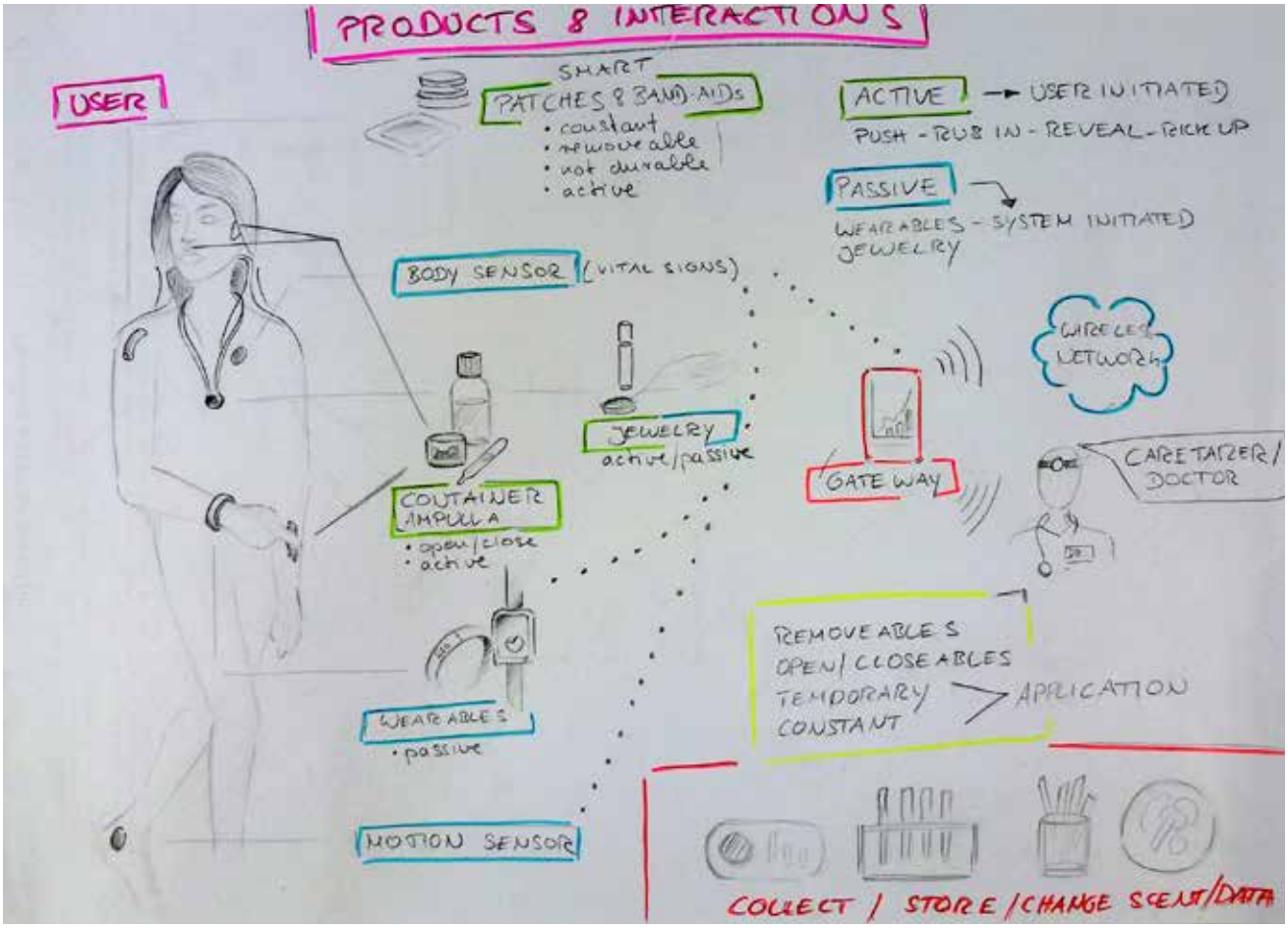
After the extensive research, several iterations of testing and scenarios, I concluded my research with the intent to focus on chronic conditions.

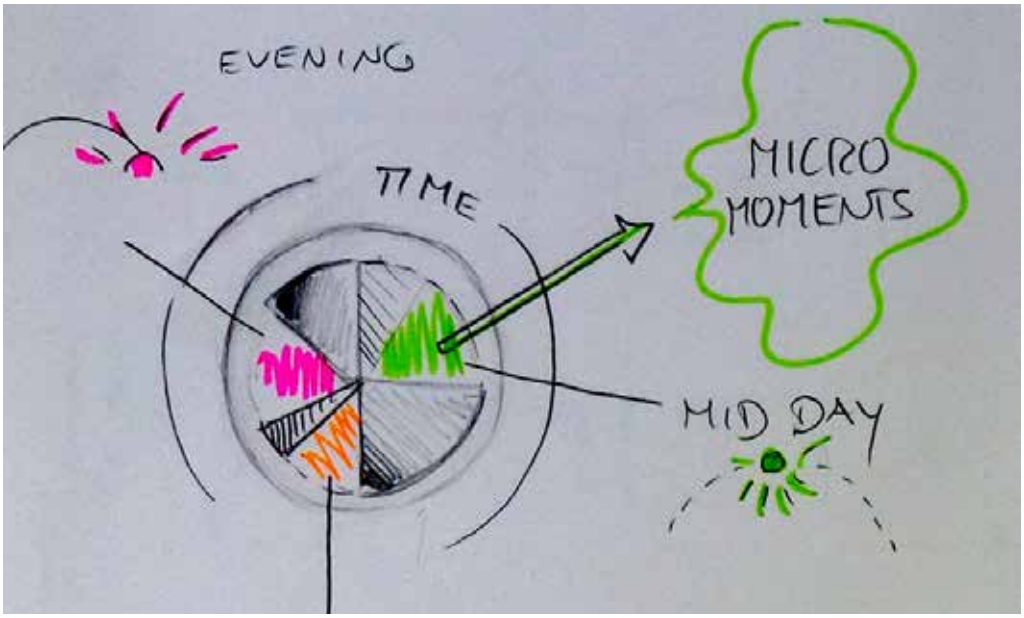
With "chronic" the perception and aspect of time comes into play, which plays an enormous role when dealing with chronic situations/condition. To explore the interplay of time and scent to improve well being and break with harmful patters, will be my focus in the design and realization of my thesis.

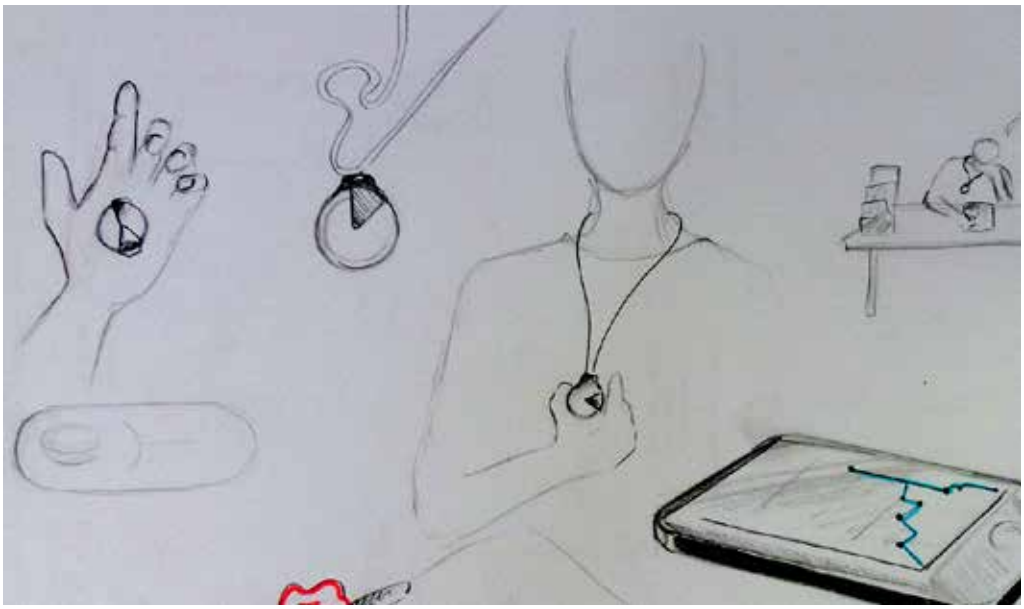

TEXT
2.
Excitement for new tasks
DO
Enjoy to chatt with others
very diligent in work
Enjoy doing things different
Key lose focus
How is he using this?
Boredom !!!
unchallenged
discovered
FEEL
I can't fix this!! I don't know how it happened
not integrated
lonely
unmotivated
eager to find out

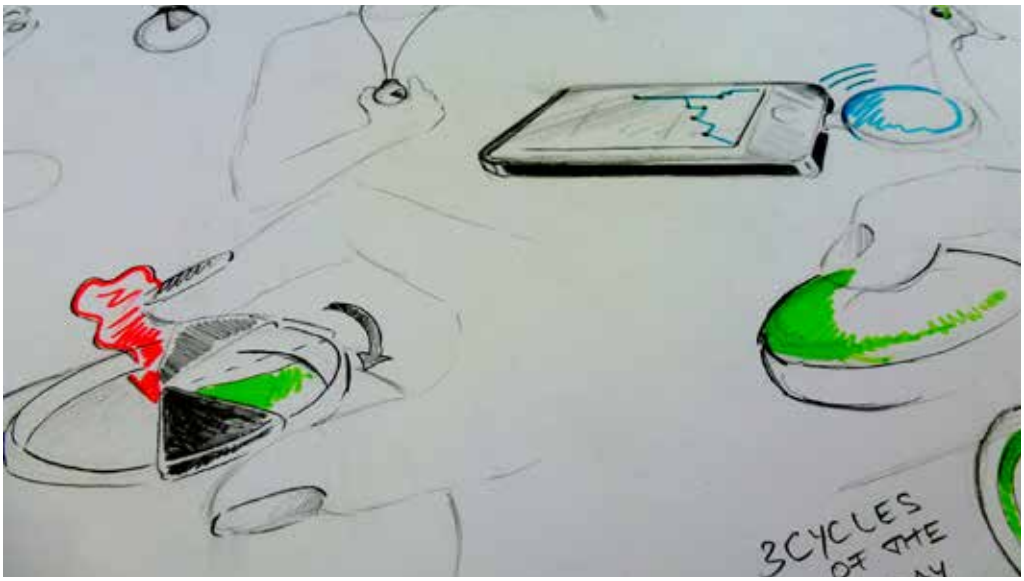
DESIGN PROCESS

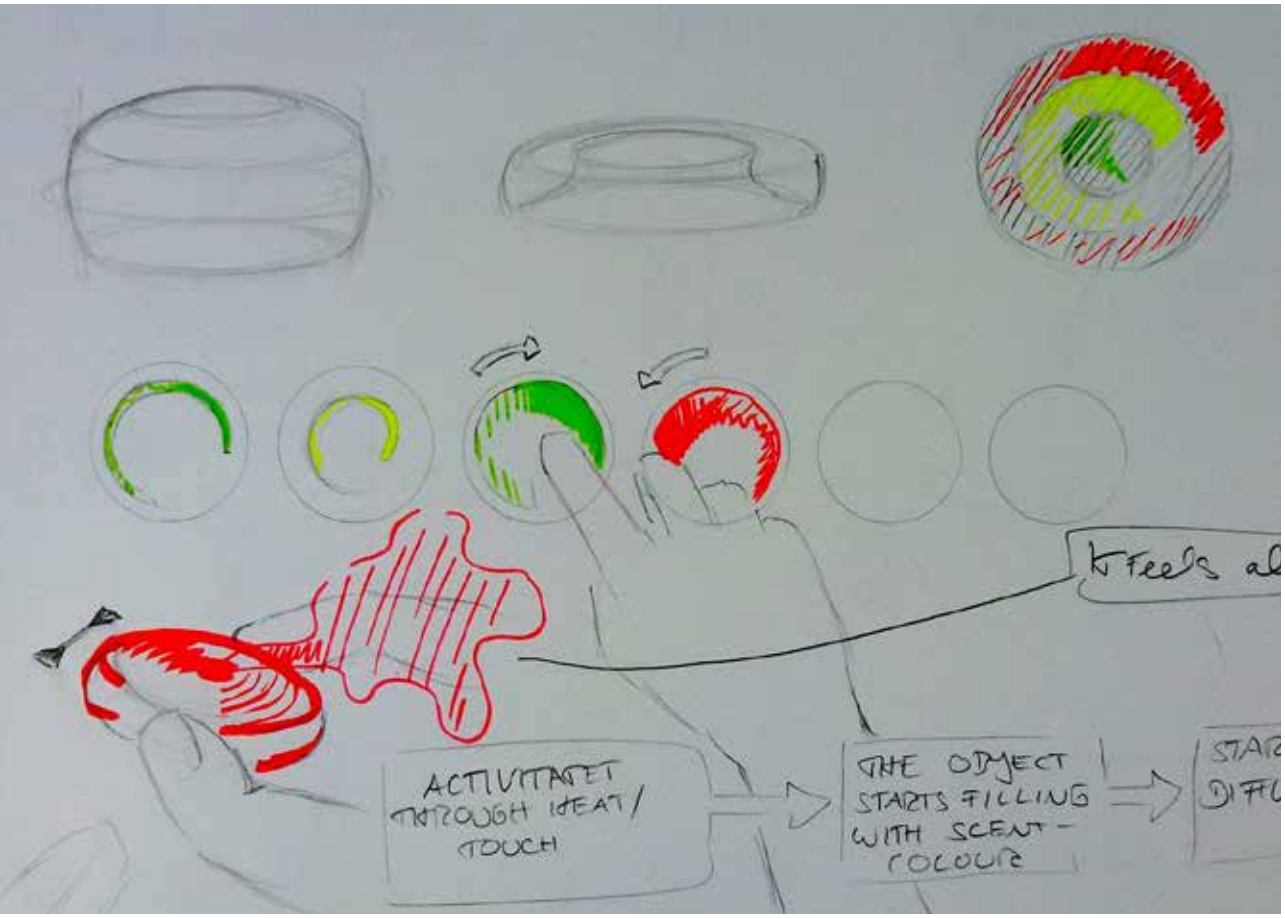
Telling time by scent


PRODUCTS & INTERACTIONS
USER
SMART
PATCHES & BAND-AIDS
• constant
• removeable
• not durable
• active
ACTIVE → USER INITIATED
PUSH - RUB IN - REVEAL - PICK UP
PASSIVE →
WEARABLES - SYSTEM INITIATED
JEWELRY
BODY SENSOR (VITAL SIGNS)
WIRELESS NETWORK
JEWELRY
active/passive
GATE WAY
CARETAKER/ DOCTOR
CONTAINER AMPULLA
• open/close
• active
REMOVEABLES
OPEN/CLOSEABLES
TEMPORARY
CONSTANT
APPLICATION
WEARABLES
• passive
MOTION SENSOR
COLLECT / STORE / CHANGE SCENT/DATA

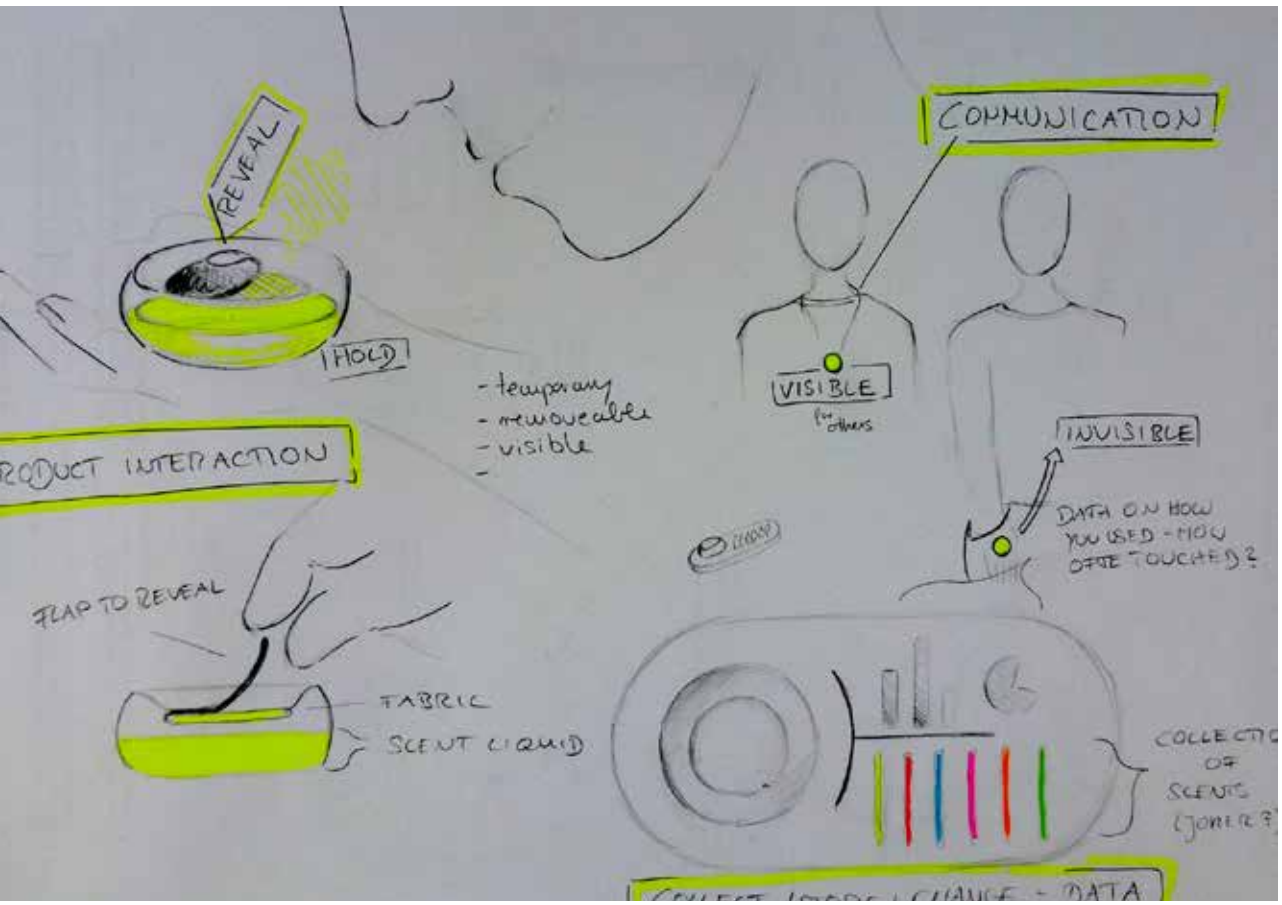

EVENING
TIME
MICRO MOMENTS
MID DAY



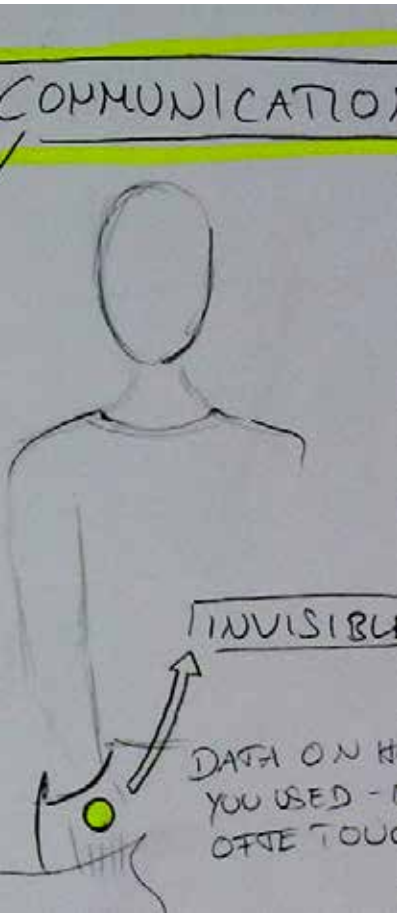

3CYCLES


ACTIVITATET THROUGH HEAT / TOUCH
THE OBJECT STARTS FILLING WITH SCENT - COLOUR


VISIBLE
for others

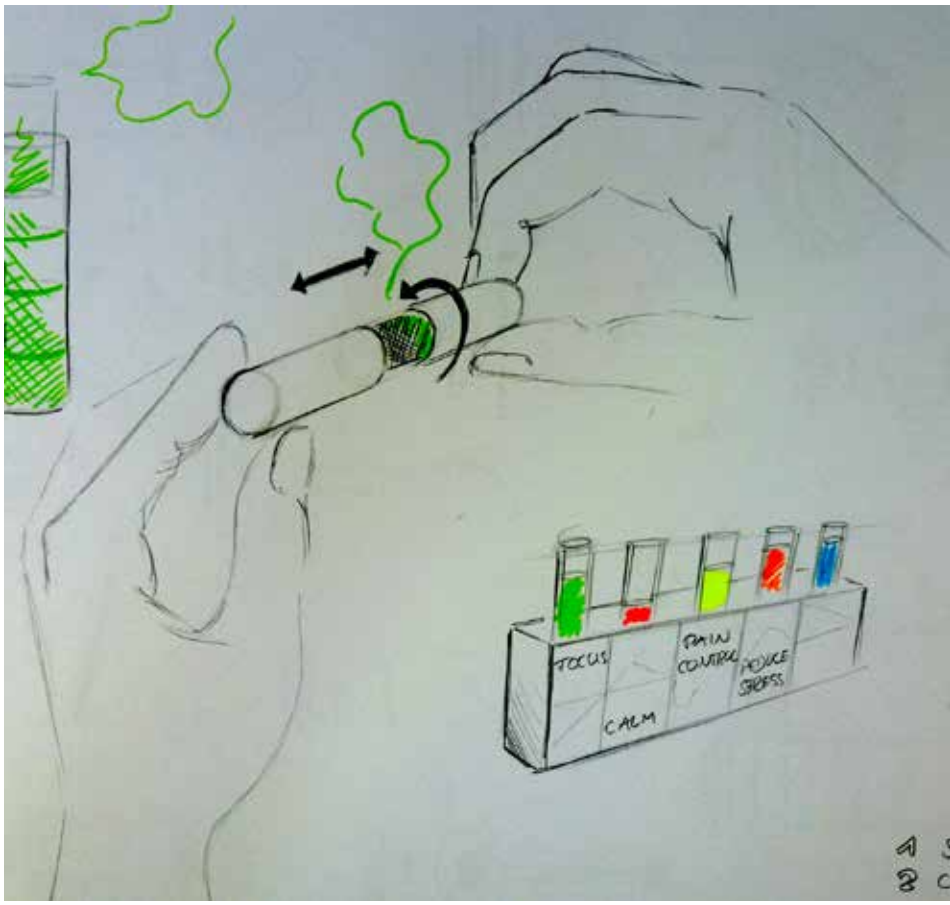

REVEAL
HOLD
- temporary
- removeable
- visible
COMMUNICATION
VISIBLE
for others
INVISIBLE
DATA ON HOW YOU USED - HOW OFTE TOUCHED?
FLAP TO REVEAL
FABRIC
SCENT LIQUID
COLLECTIO OF SCENTS

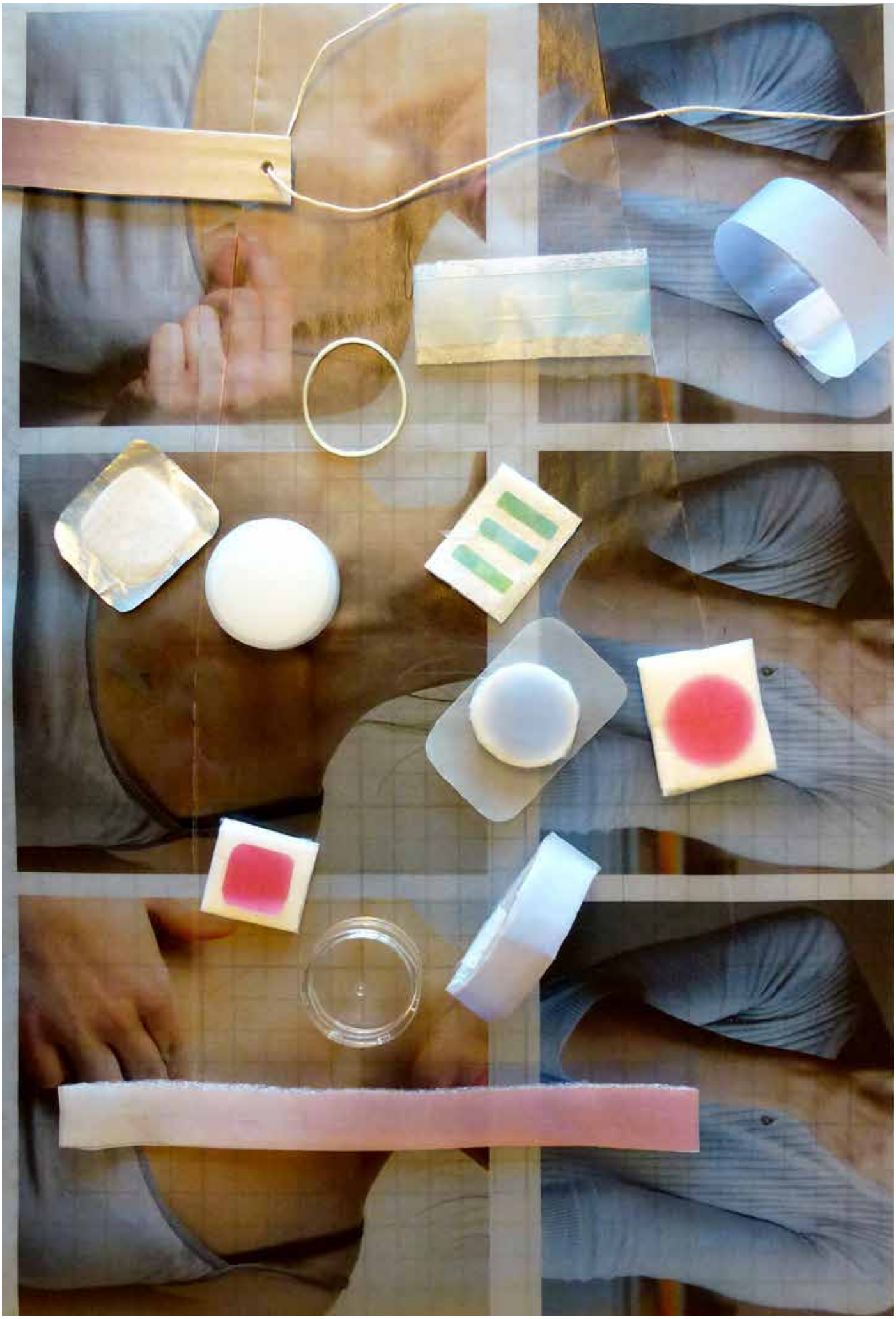

PRODUCT


COMMUNICATIO
INVISIBL


ACTIVITANET
TATROUGH IDEAT
TOUCH


REVEAL
HOLD
INTERACTION
TO REVEAL

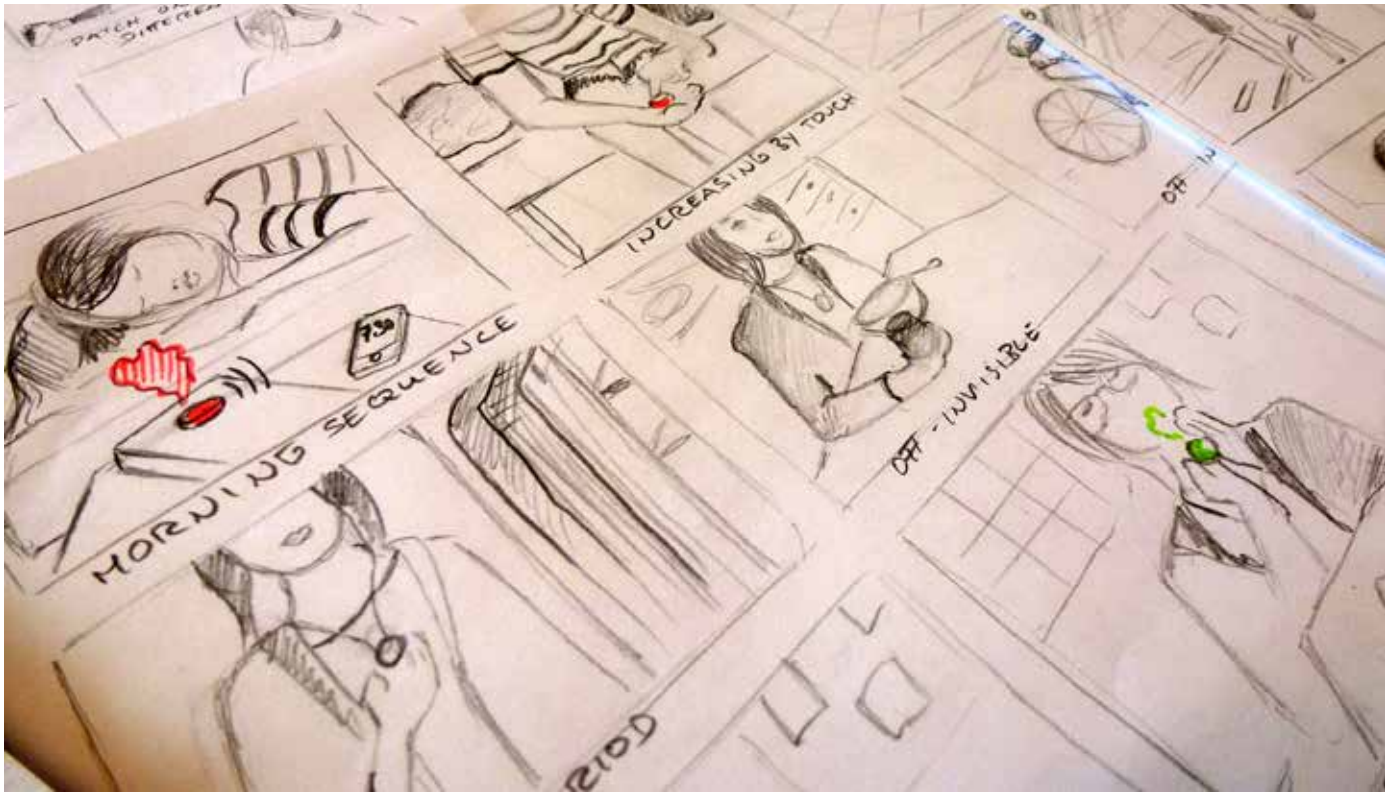

FOCUS
CALM
PAIN CONTROL
REDUCE STRESS

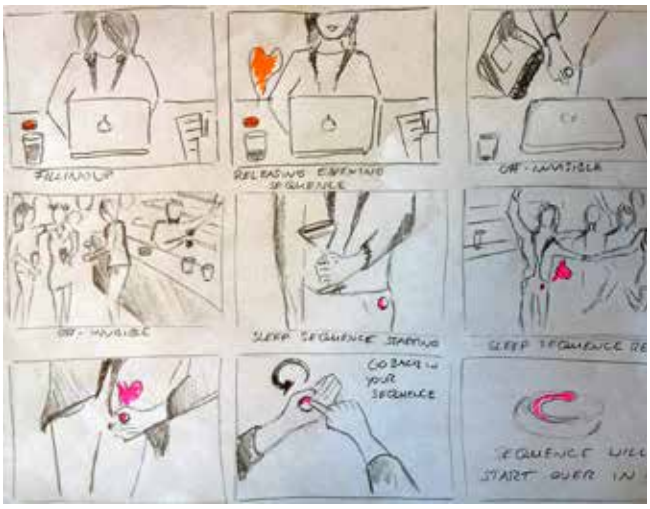


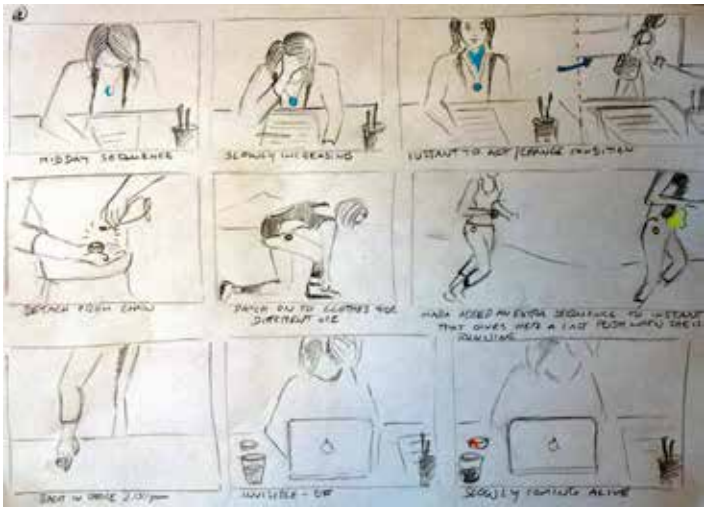
PROTOTYPING / MOCKUPS

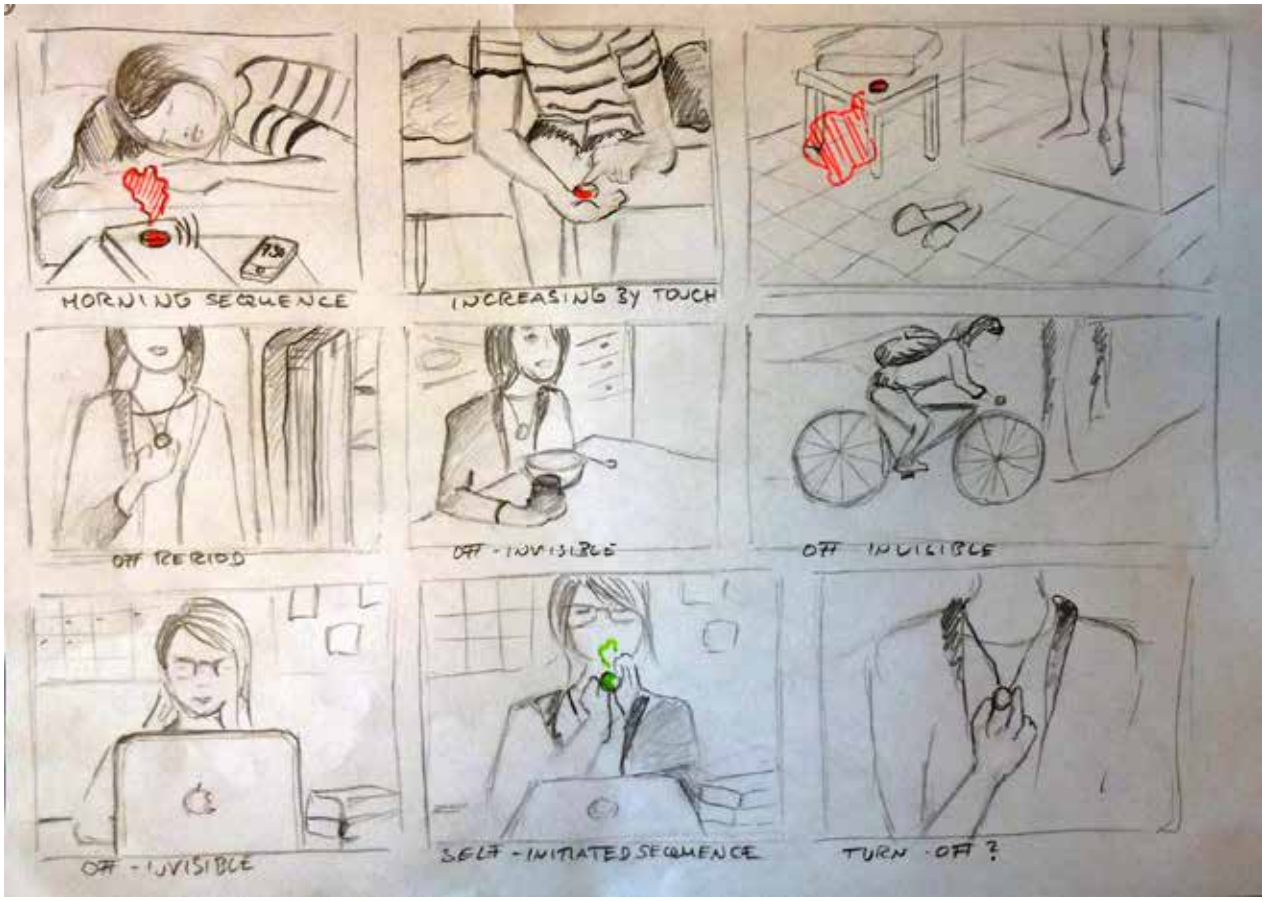
with scents

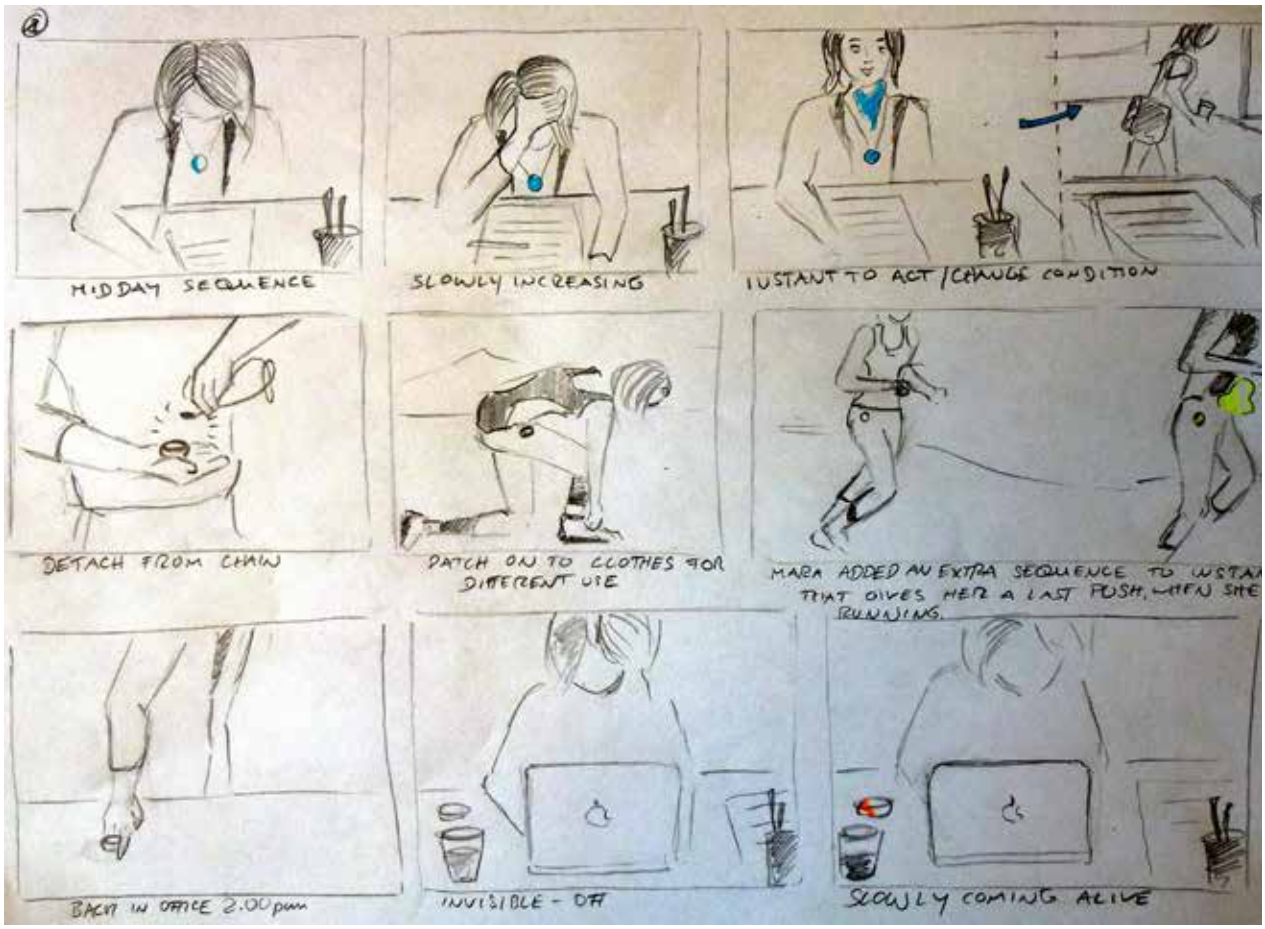
STORYBOARDING





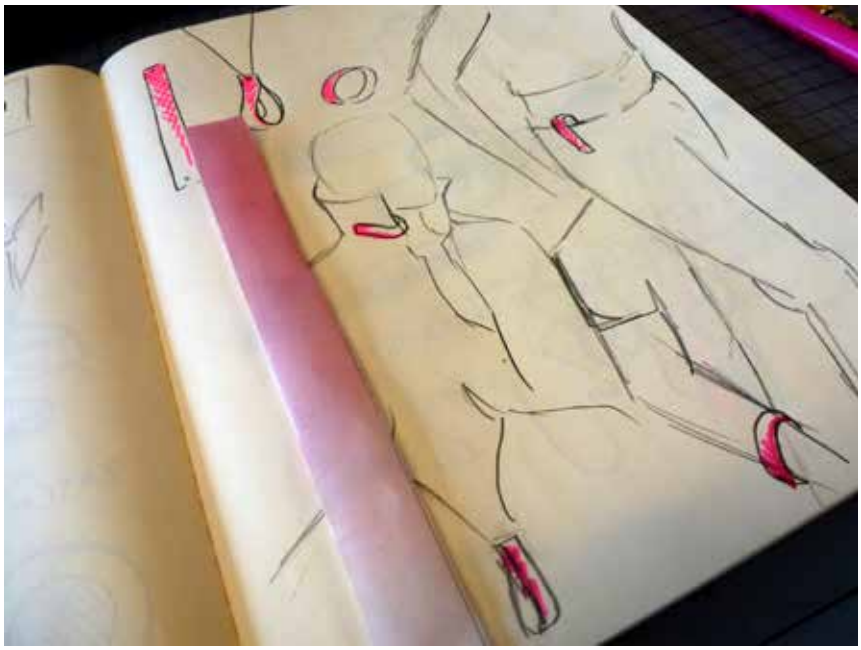


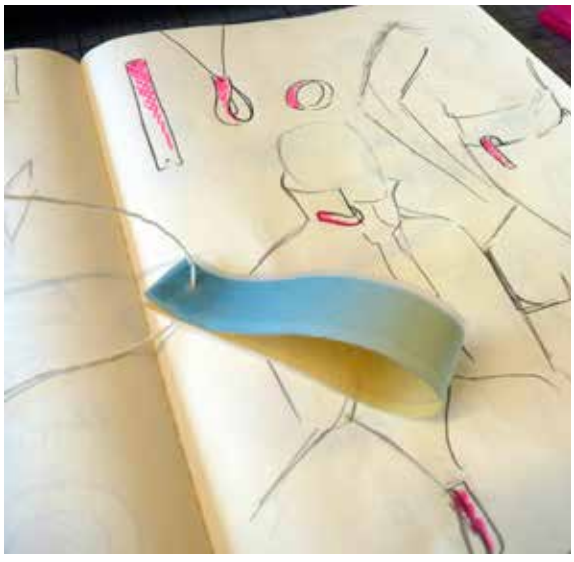

MORNING SEQUENCE
INCREASING BY TOUCH
OFF PERIOD
OFF - INVISIBLE
OFF INVISIBLE
OFF - INVISIBLE
SELF - INITIATED SEQUENCE
TURN OFF ?

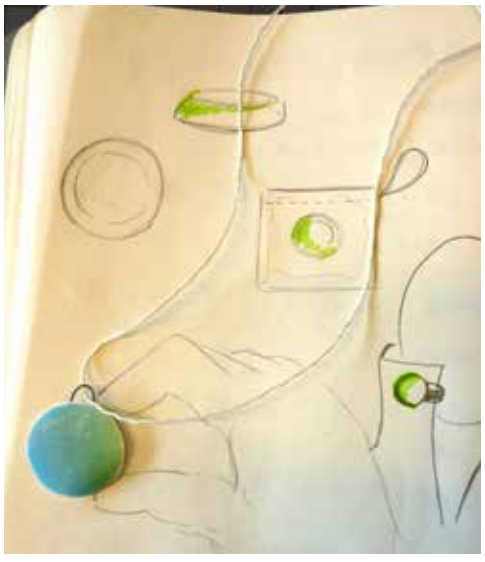

MIDDAY SEQUENCE
SLOWLY INCREASING
INSTANT TO ACT / CHANGE CONDITION
DETACH FROM CHAIN
PATCH ON TO CLOTHES FOR DIFFERENT USE
MARA ADDED AN EXTRA SEQUENCE TO INSTA
THAT GIVES HER A LAST PUSH, WHEN SHE
RUNNING.
BACK IN OFFICE 2.00pm
INVISIBLE - OFF
SLOWLY COMING ALIVE

MOCK UPS/ MOOD

different applications








NECK










»I started connecting time to my scent pattern quite fast. But as I was rarely at the same place at the same time, I related the released scent into a new context, giving me a little, private break to rethink the moment.«

TESTING

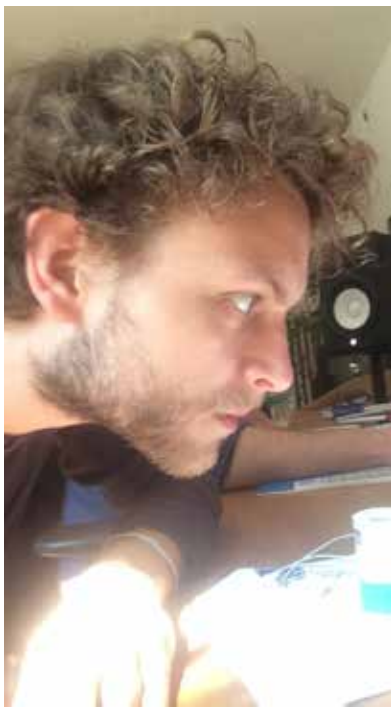
one week of injecting
scent sequences
throughout the day

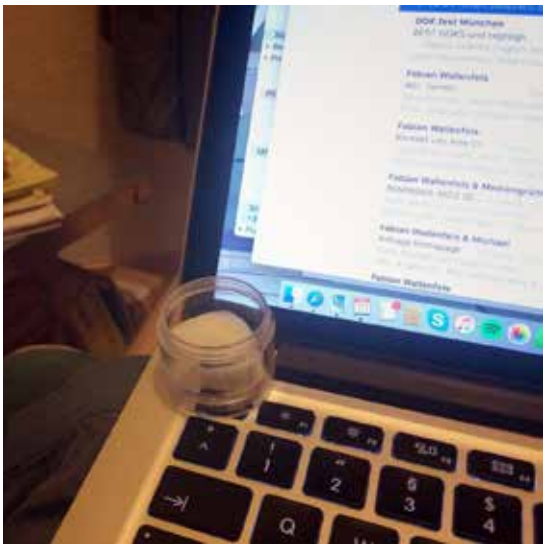
TESTING

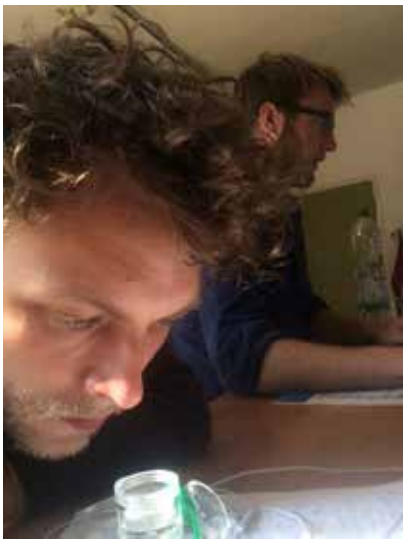




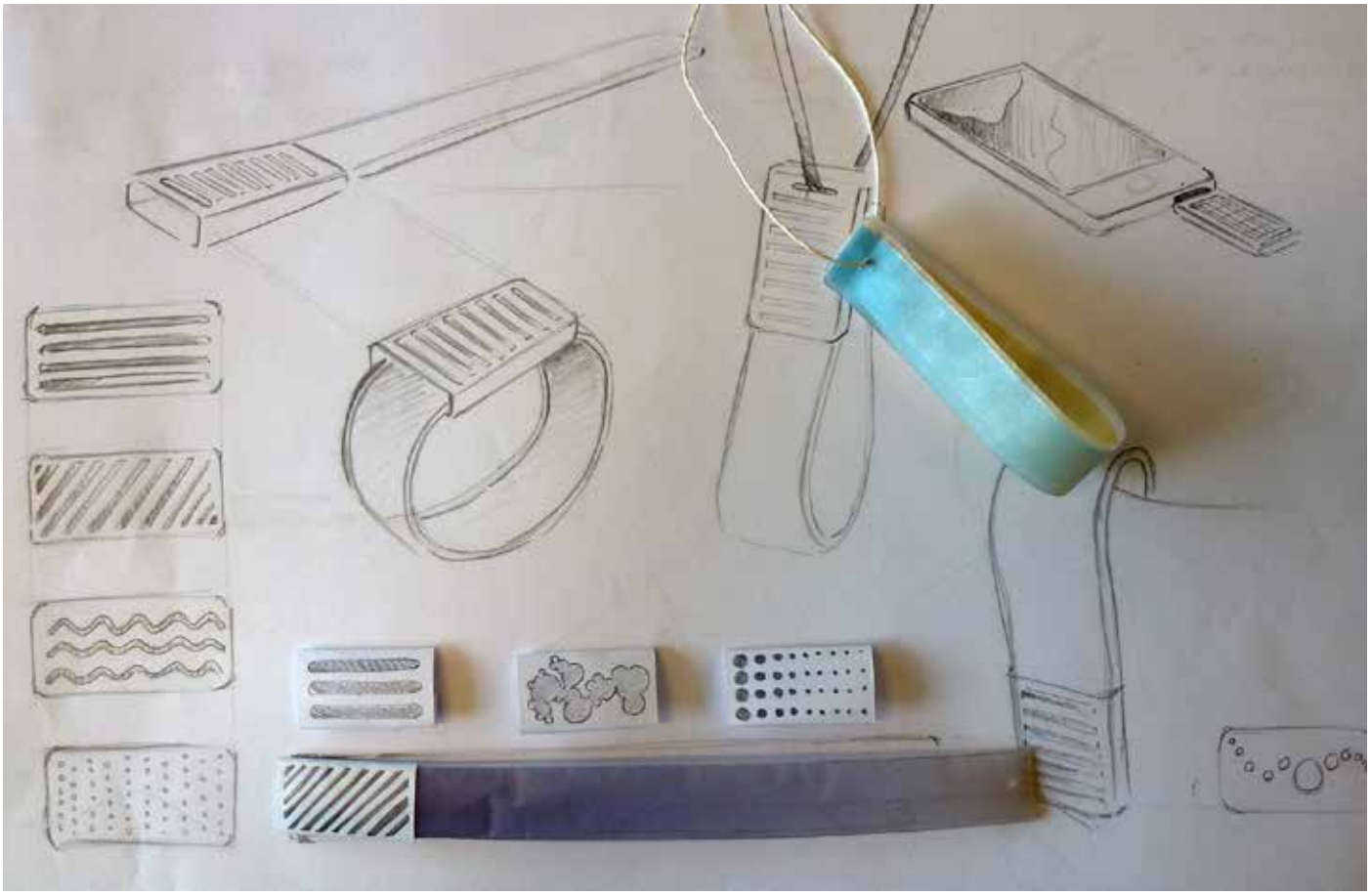


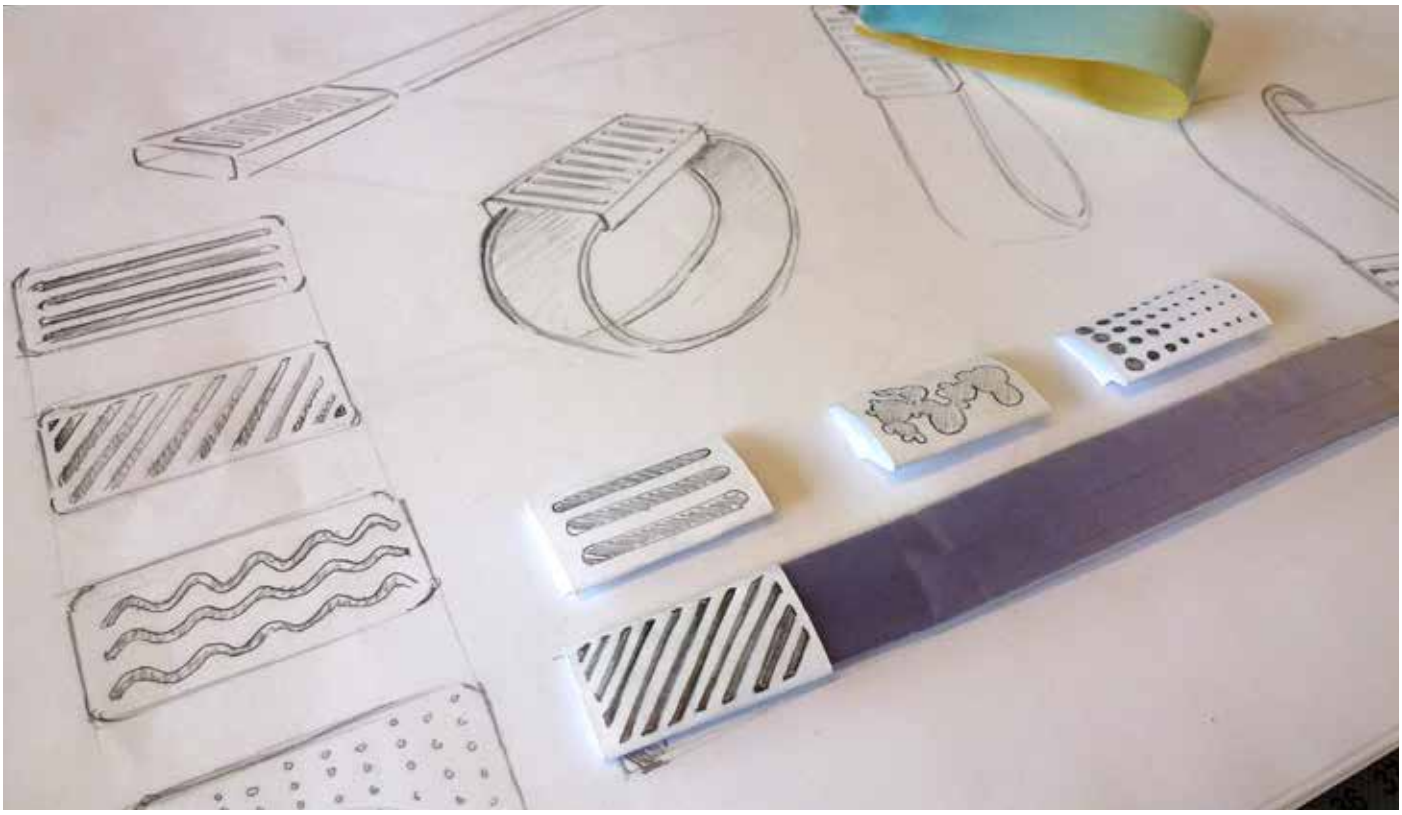


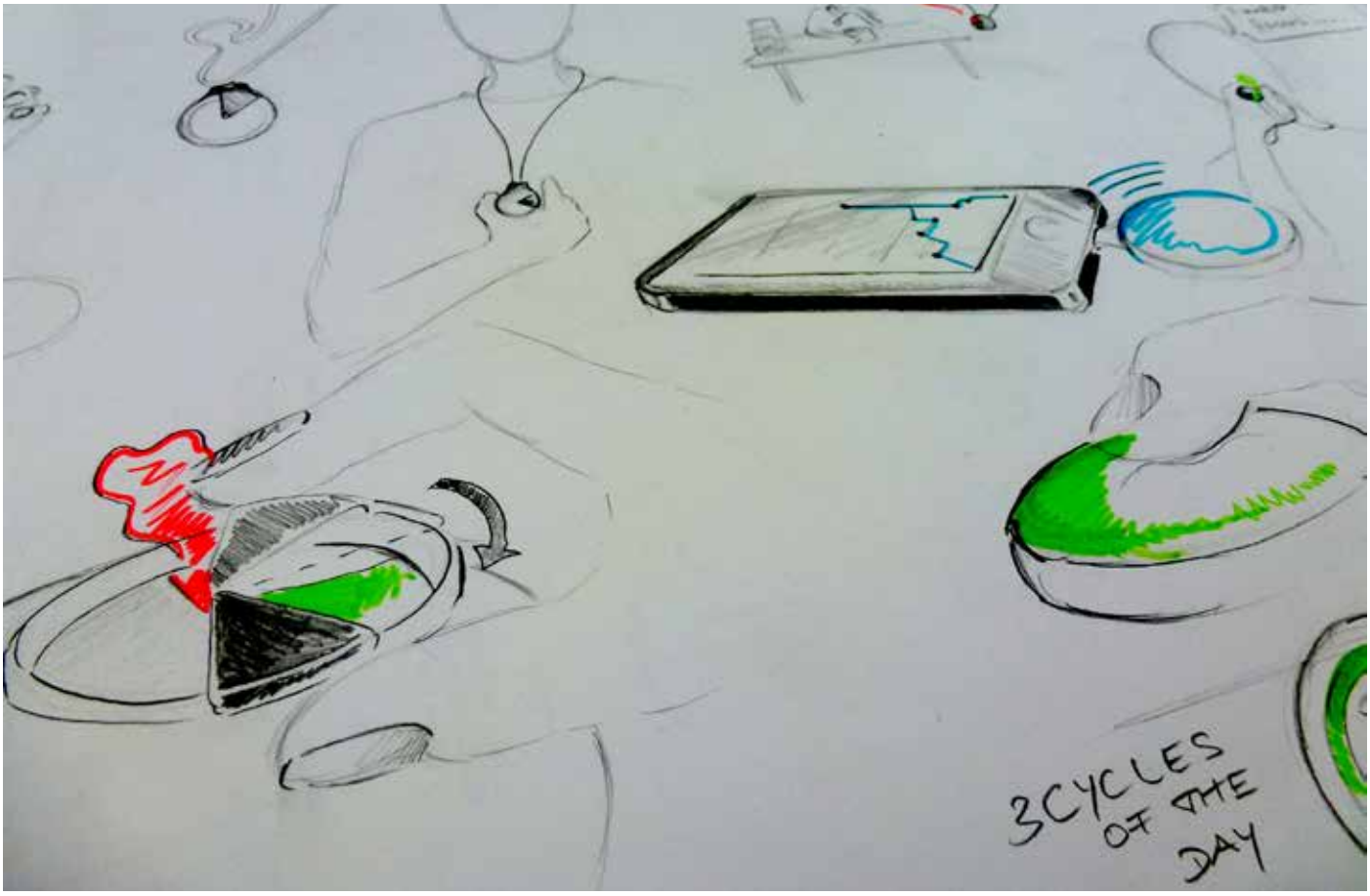



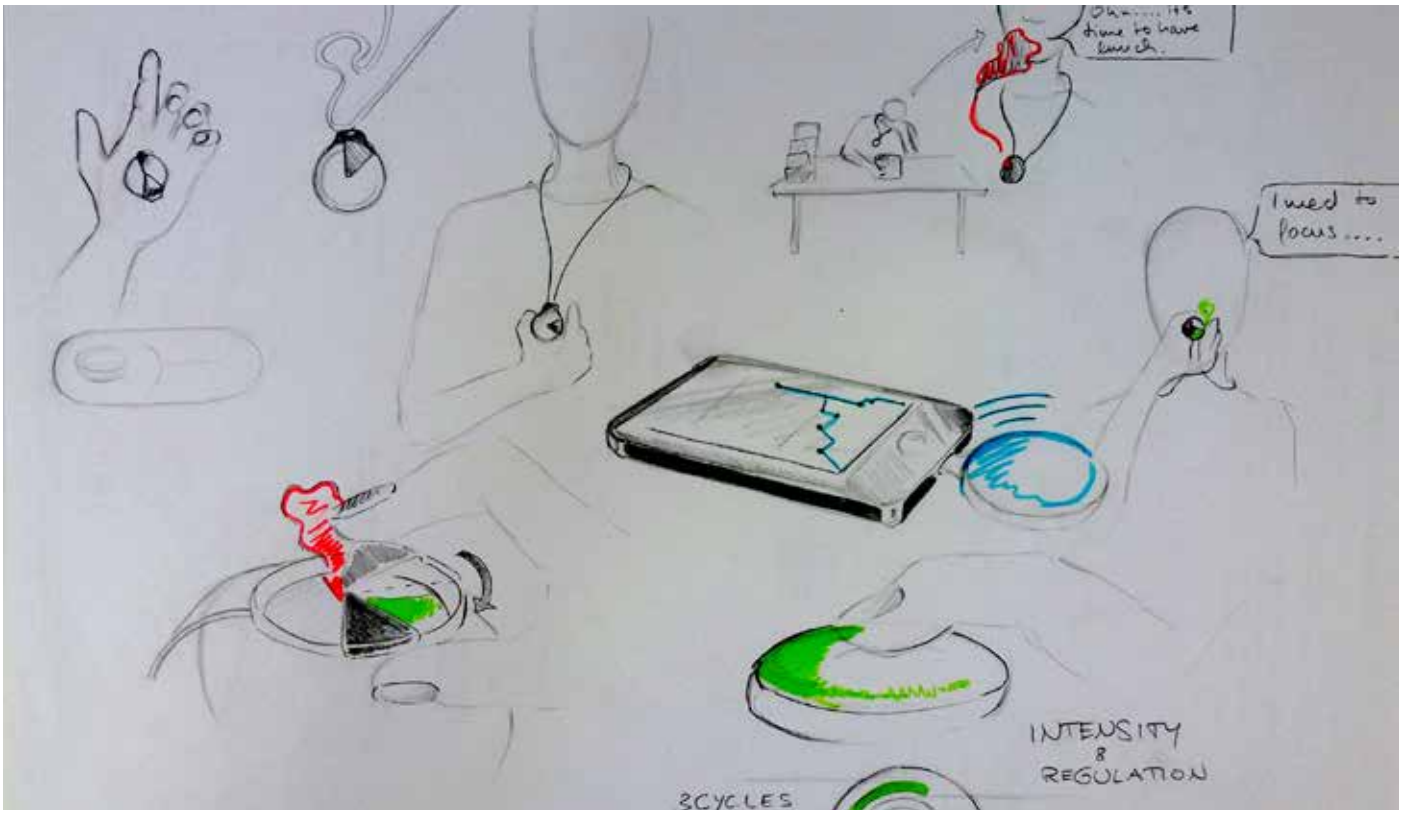


IDEATION






3CYCLES
OF THE
DAY


I need to
focus....
INTENSITY
&
REGULATION
3CYCLES

time and
chronicity

surprise
delight
wonder

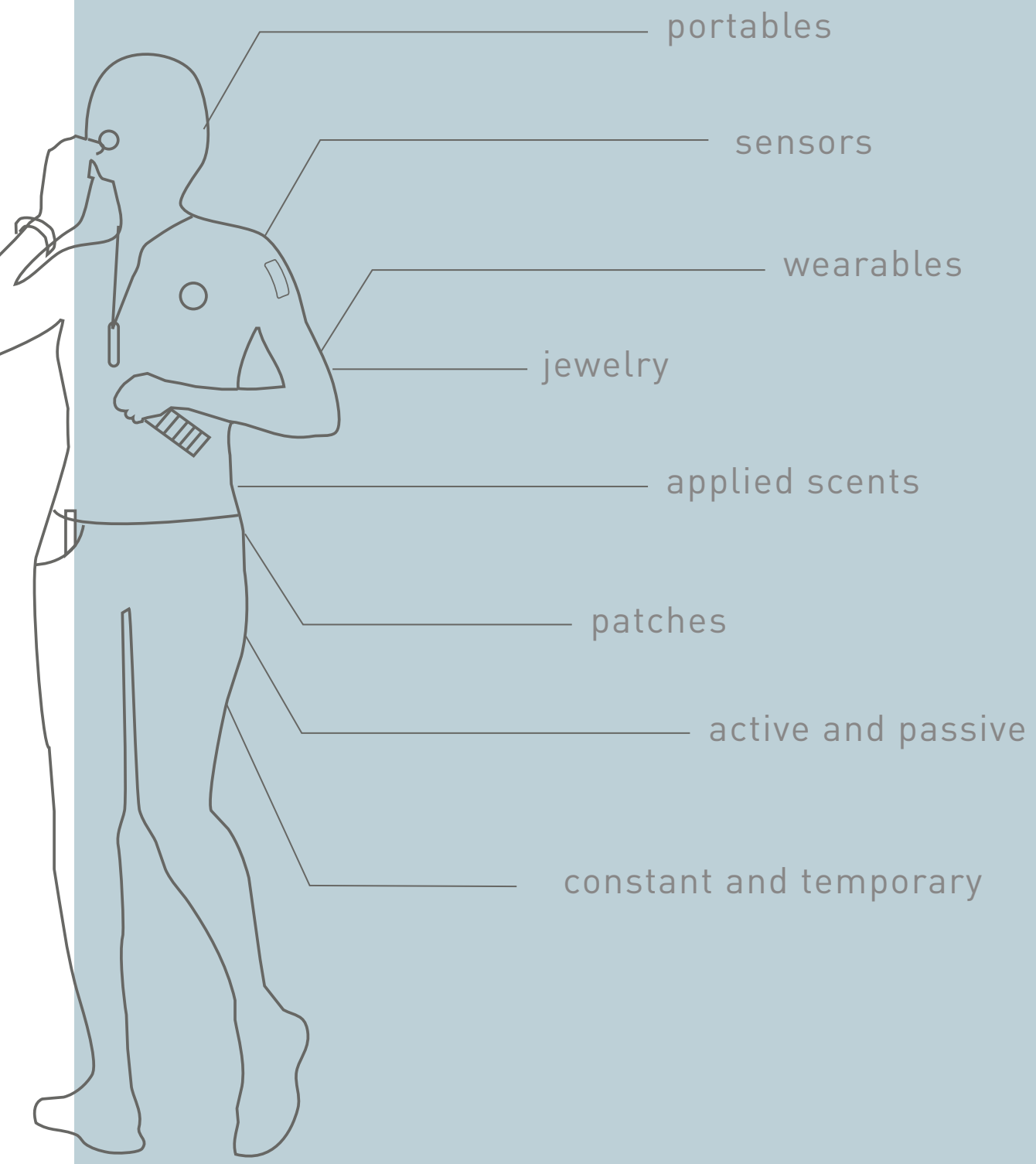
need for
activity

evolutionary
signal value of
scent

evoke emotion
to stimulate
behaviour

TIME BY SCENT

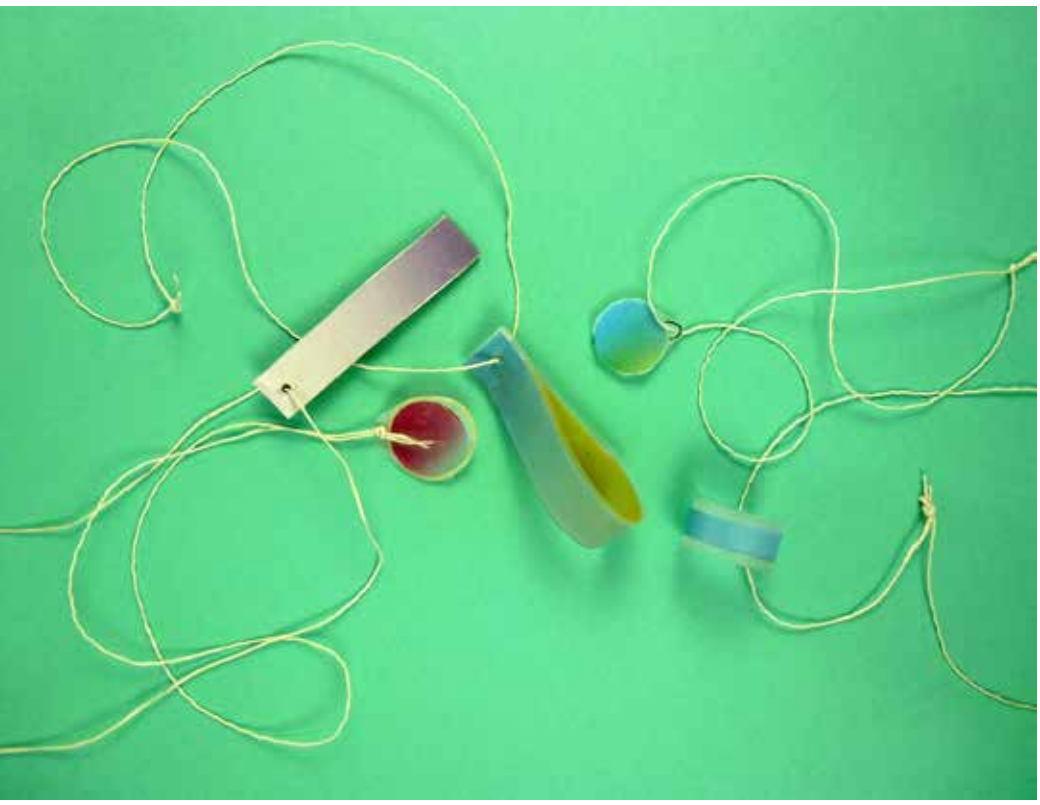
instantly change mindset

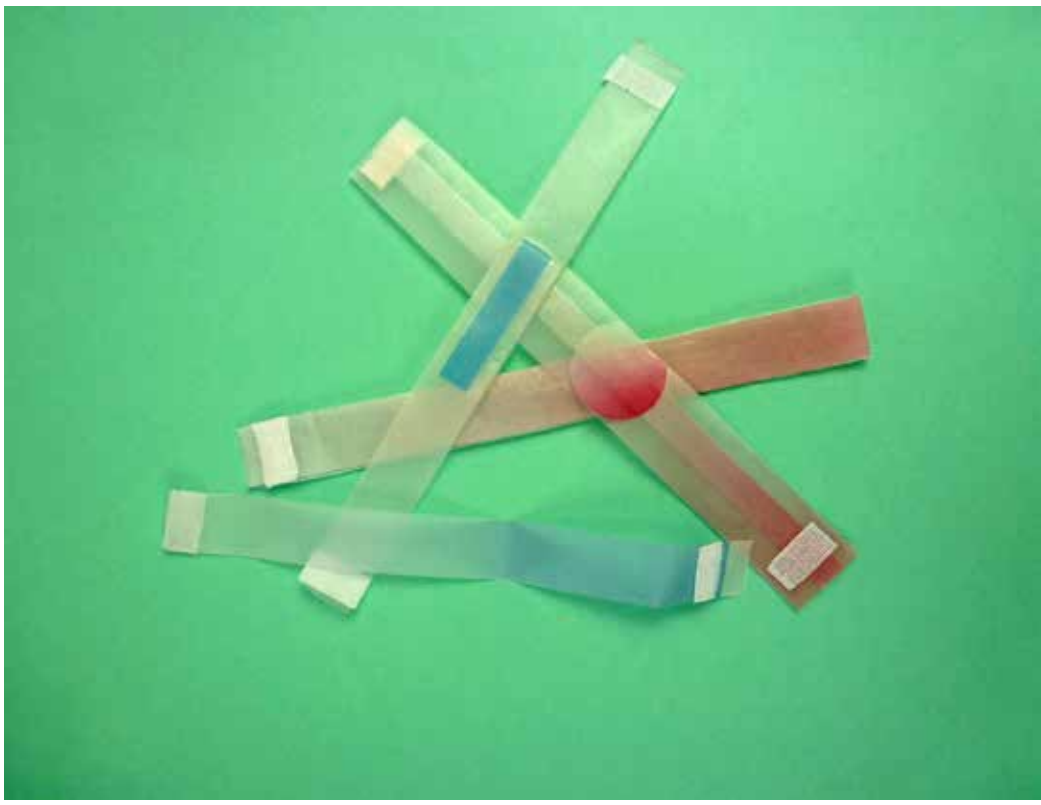

portables
sensors
wearables
jewelry
applied scents
patches
active and passive
constant and temporary

FOCUSED MOCKUS

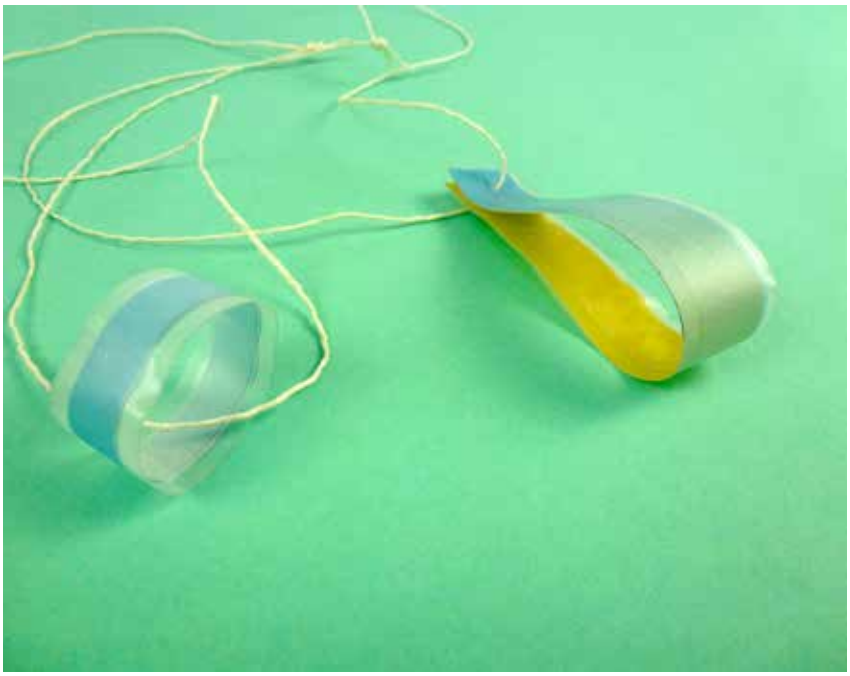
wearables

TIME BY SCENT

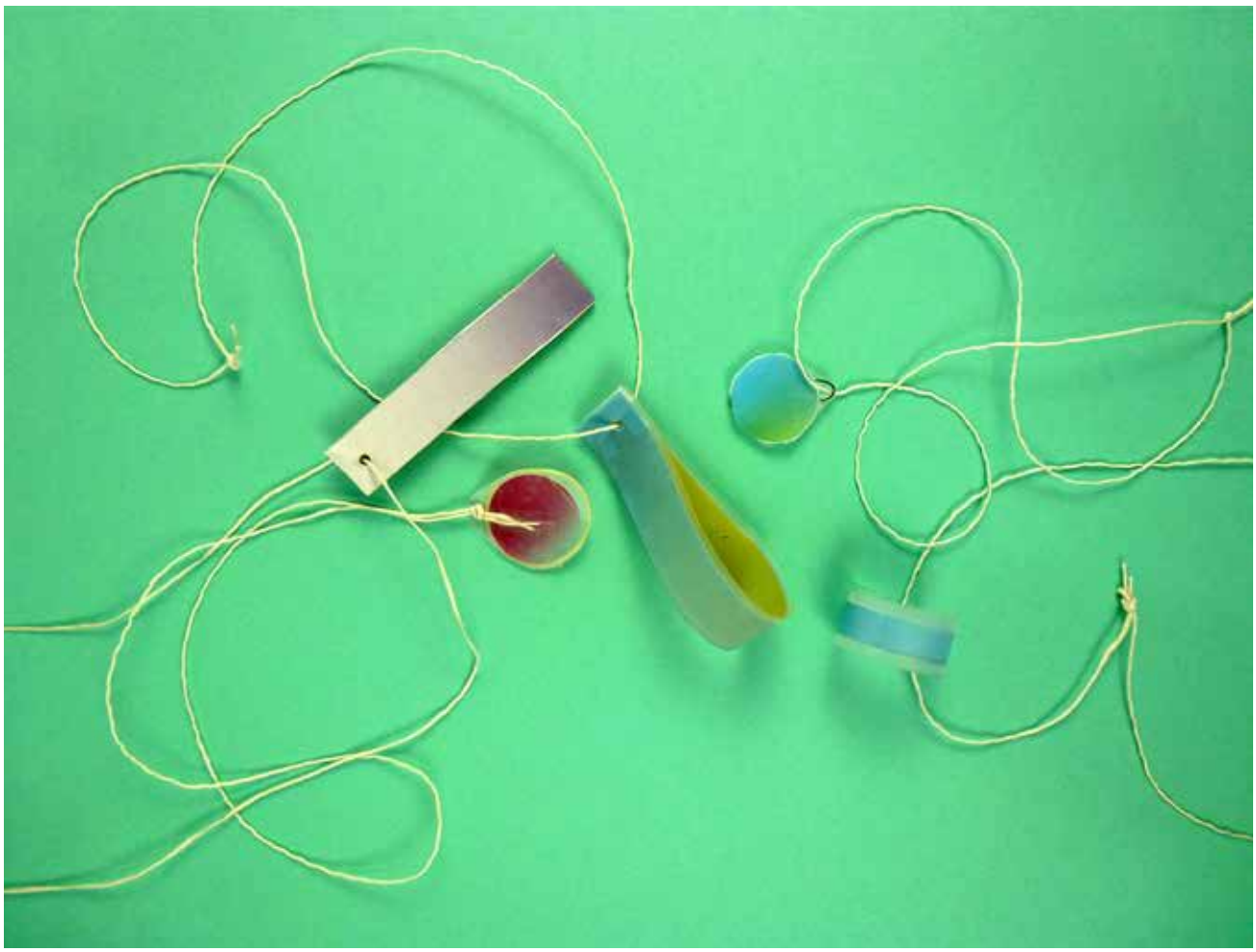




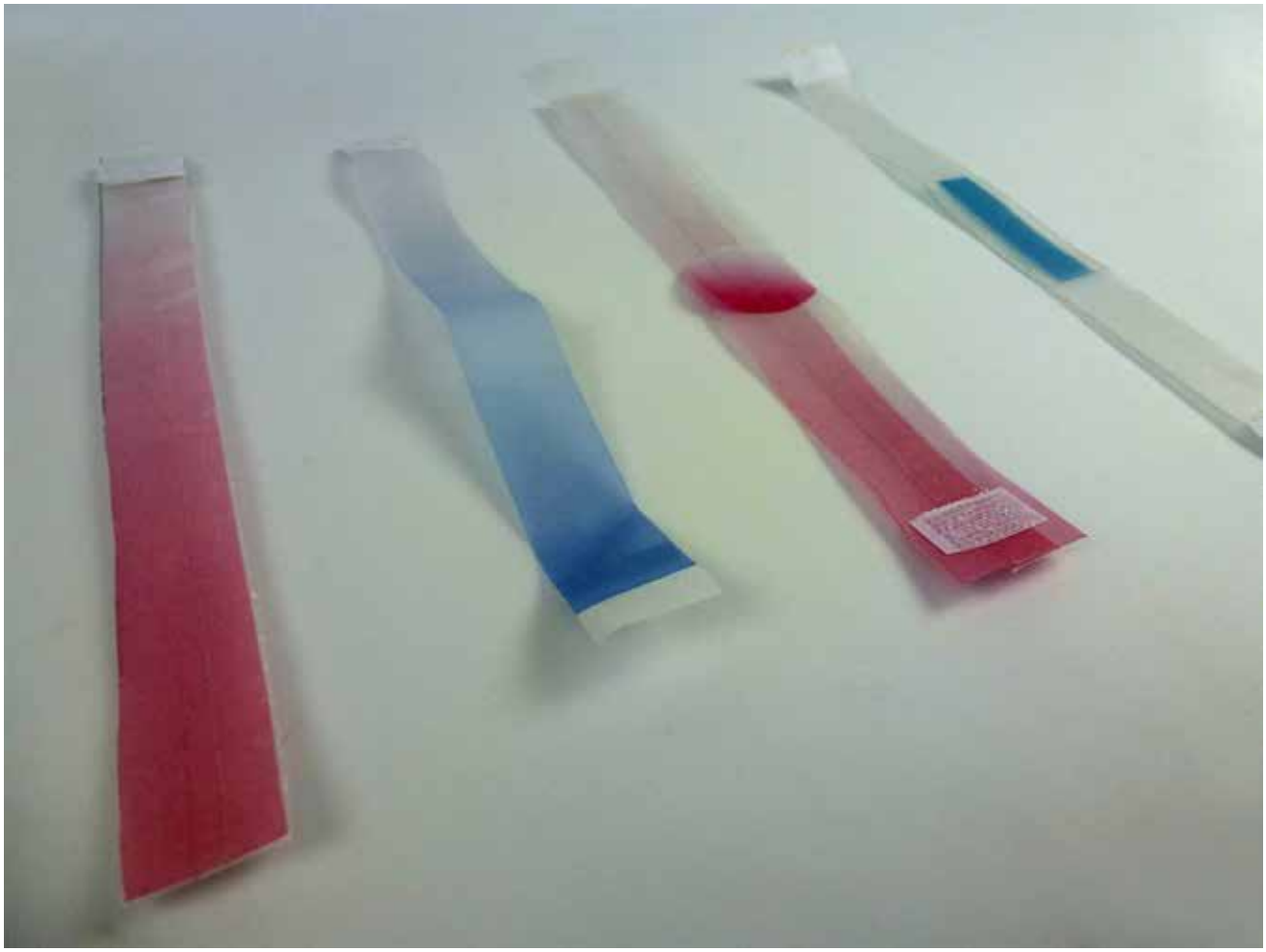
TIME BY SCENT

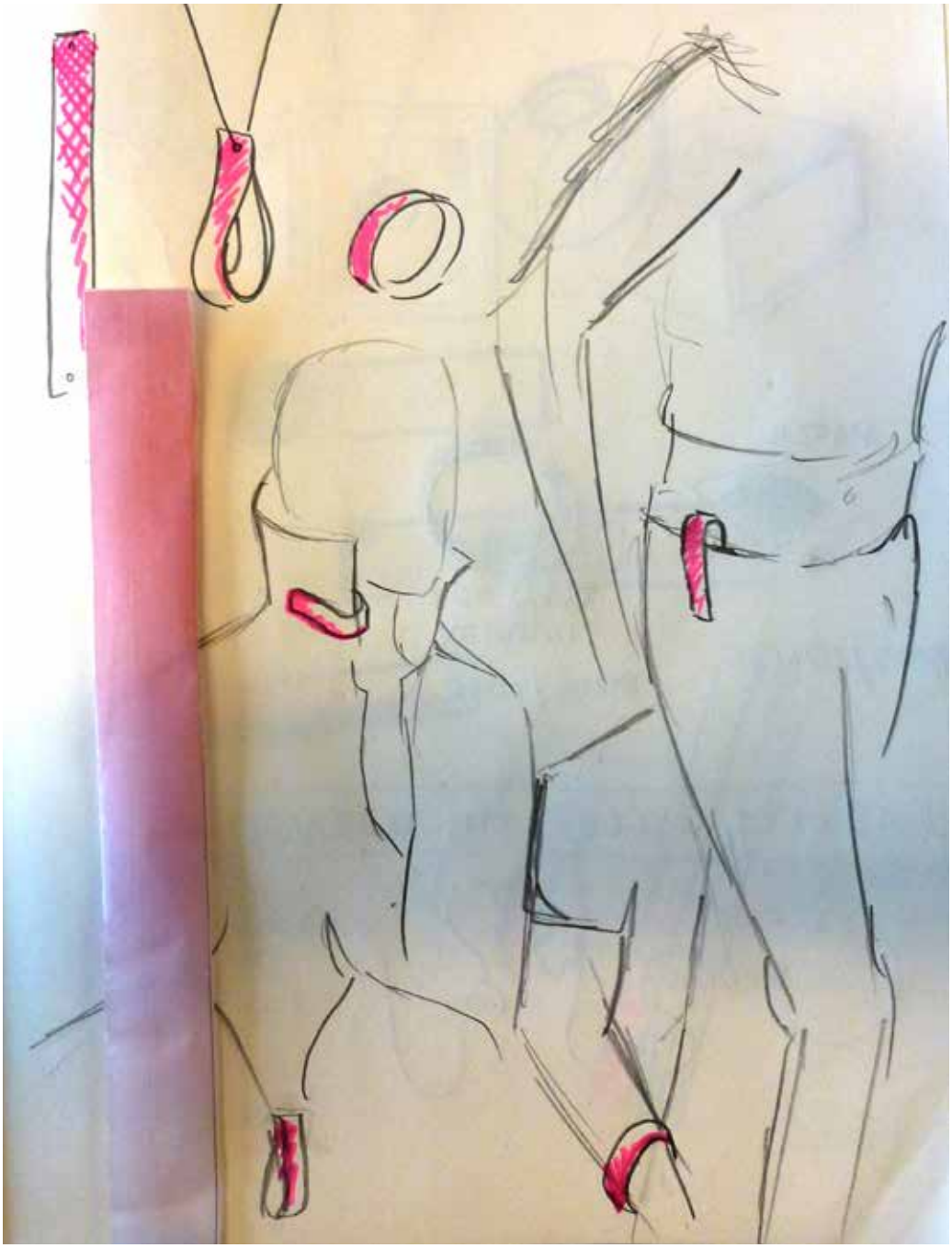


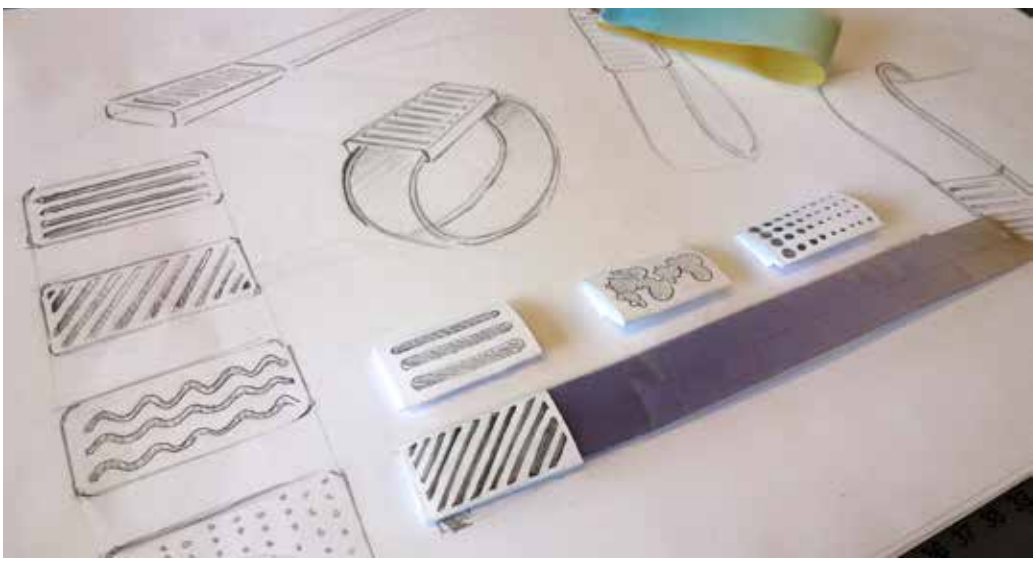
NECKLACES

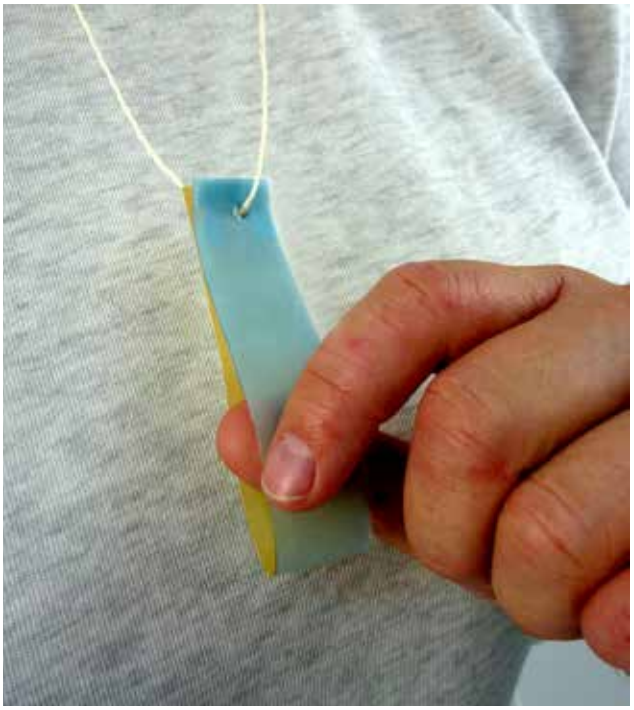


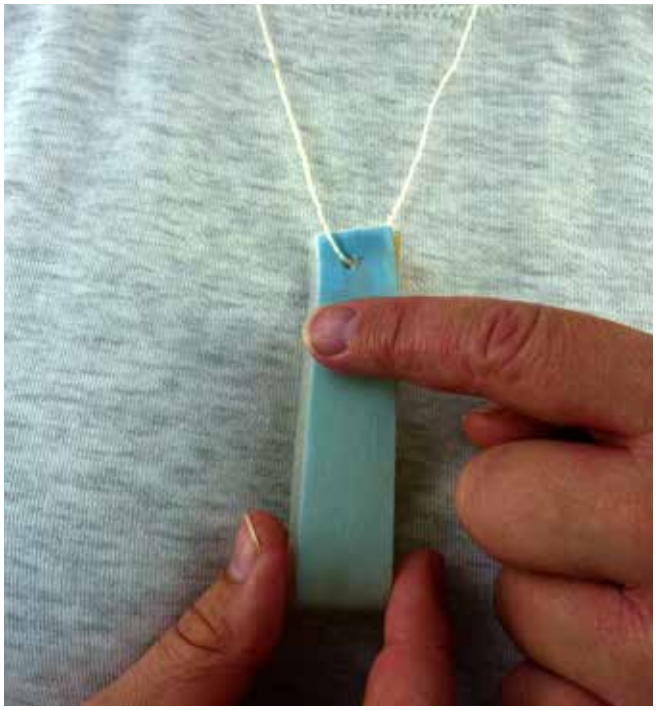
WRIST BANDS

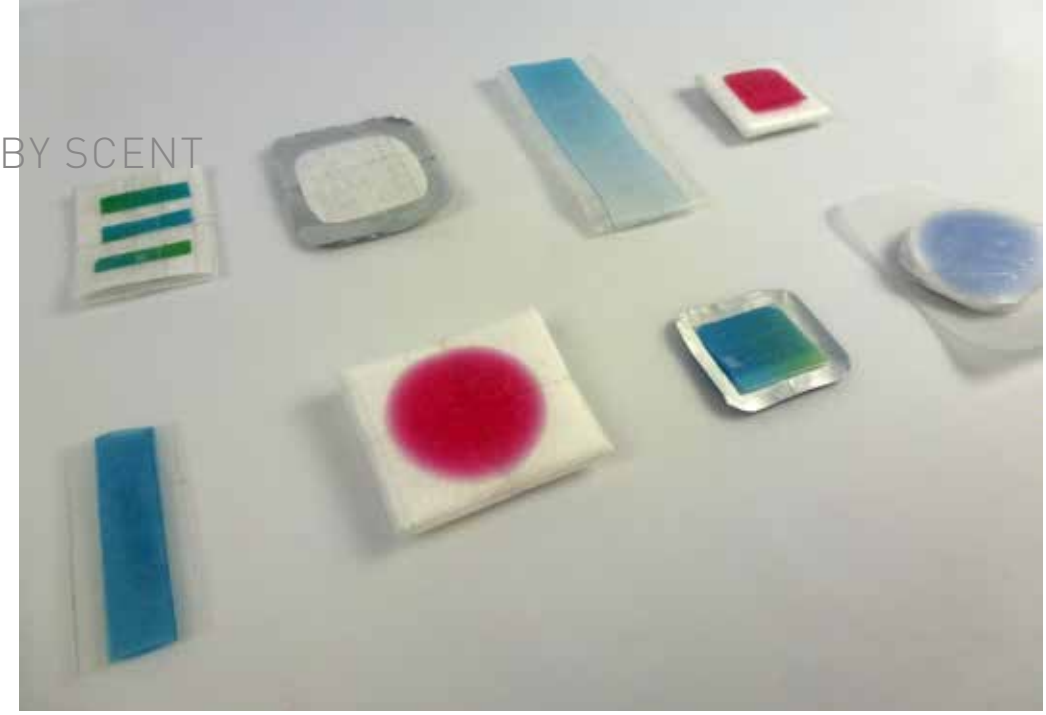


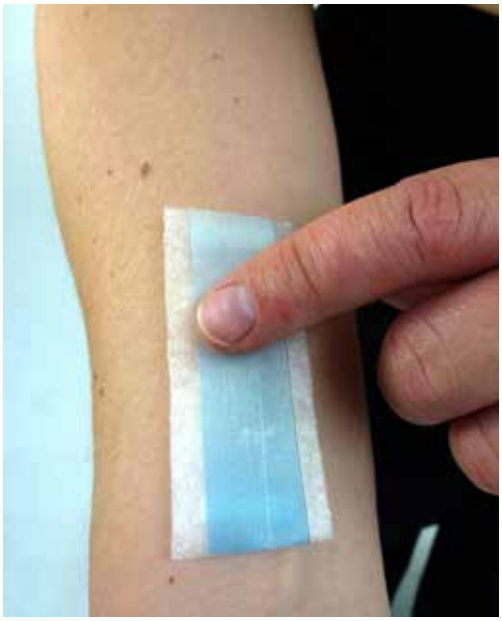


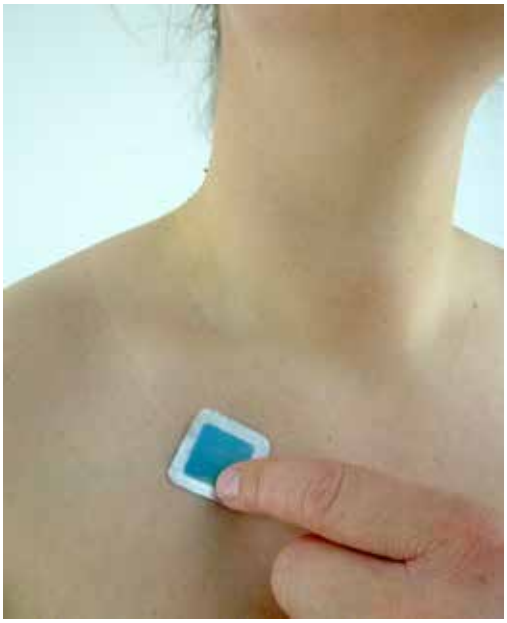




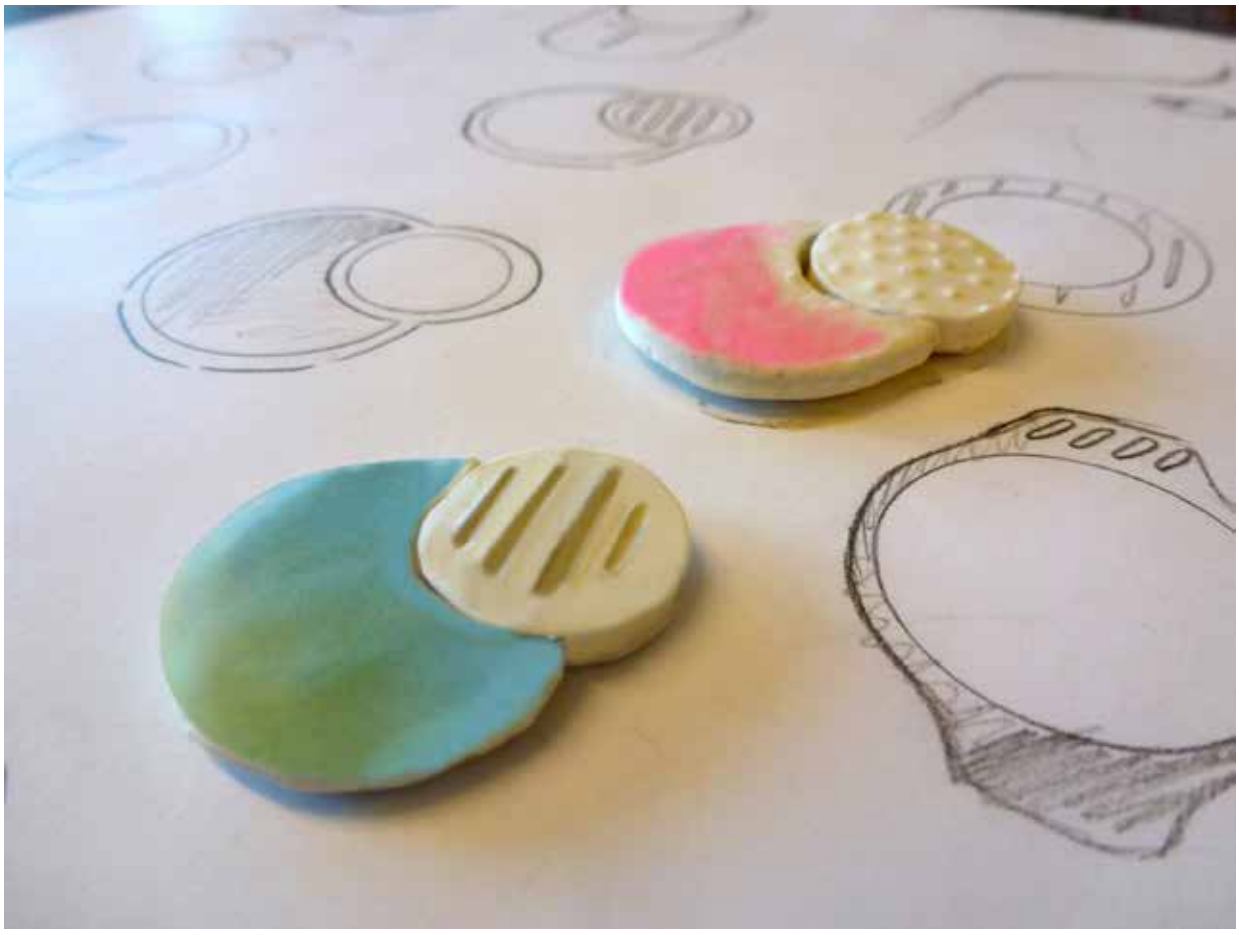




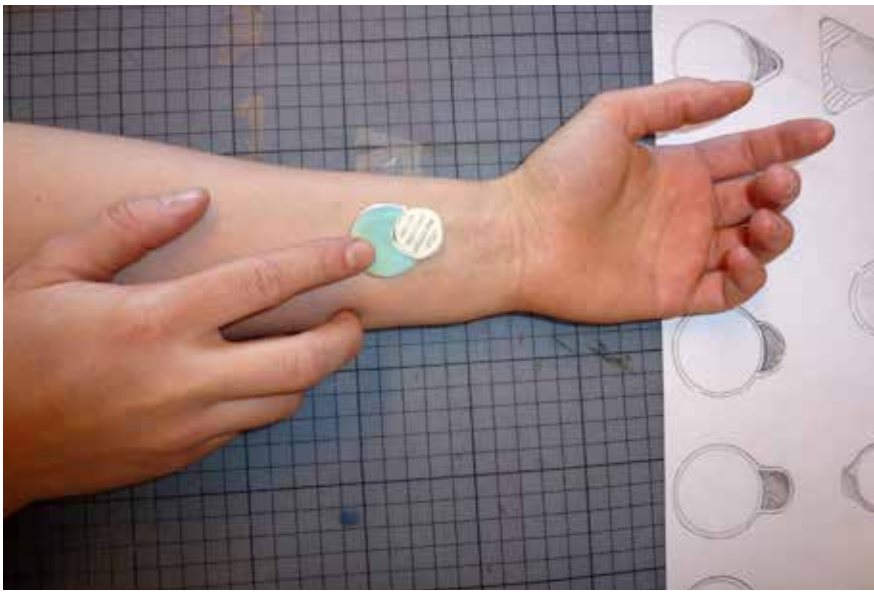


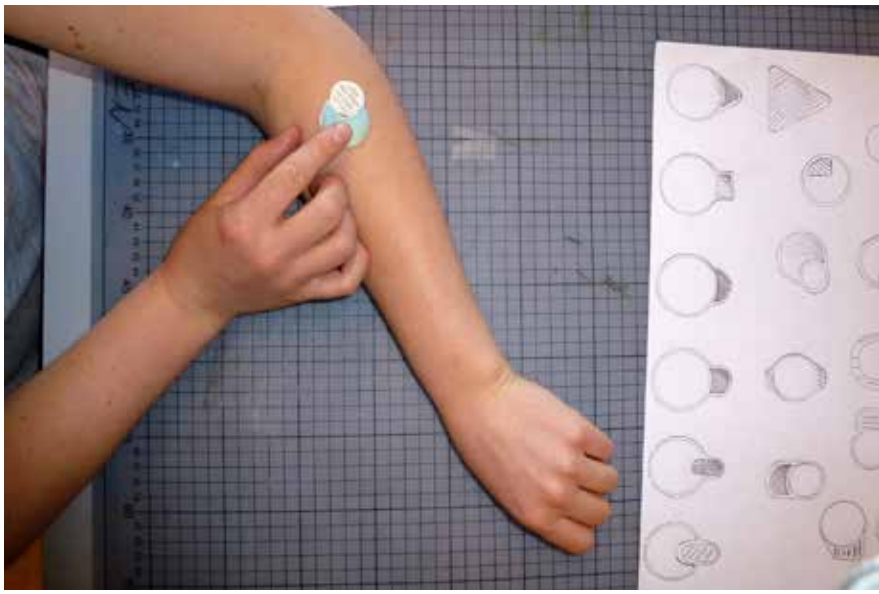


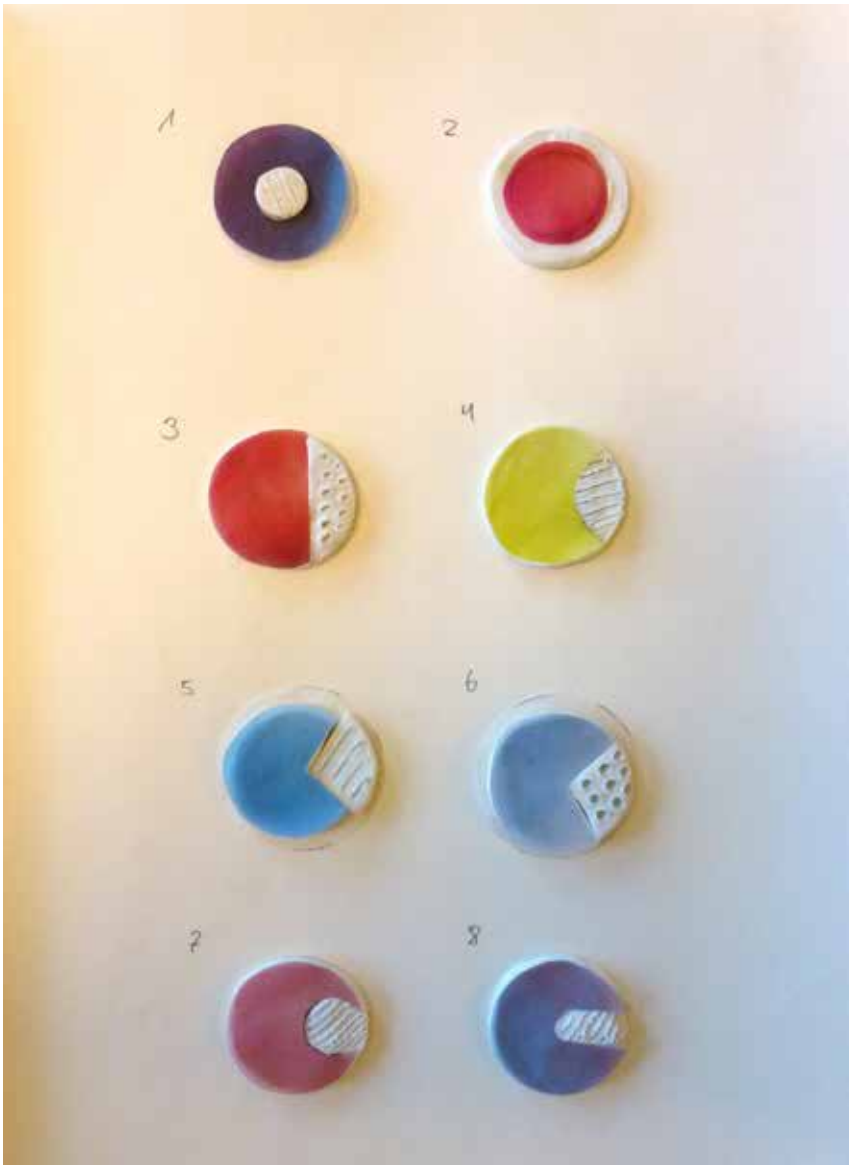
CONSTANT PATCHES



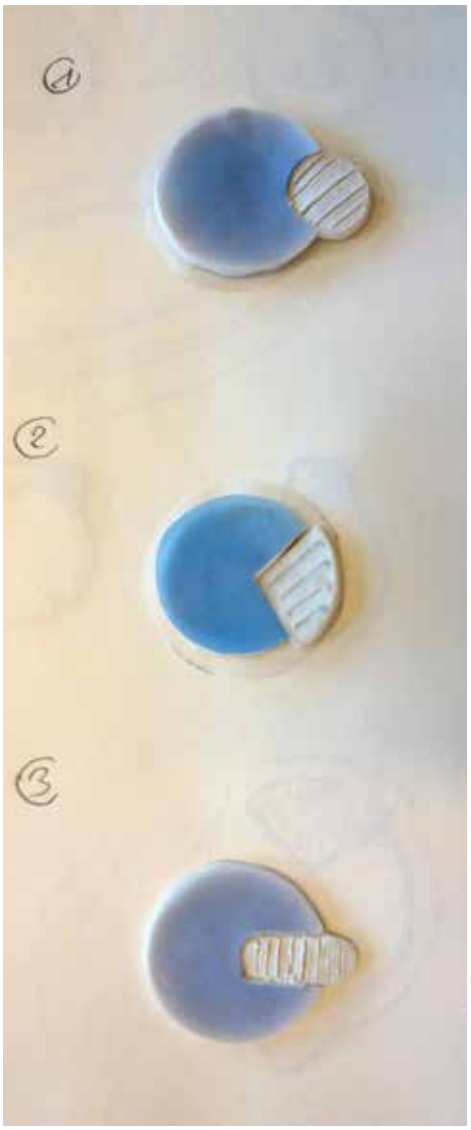





1
2
3
4
5
6
7
8

CONSTANT PATCHES

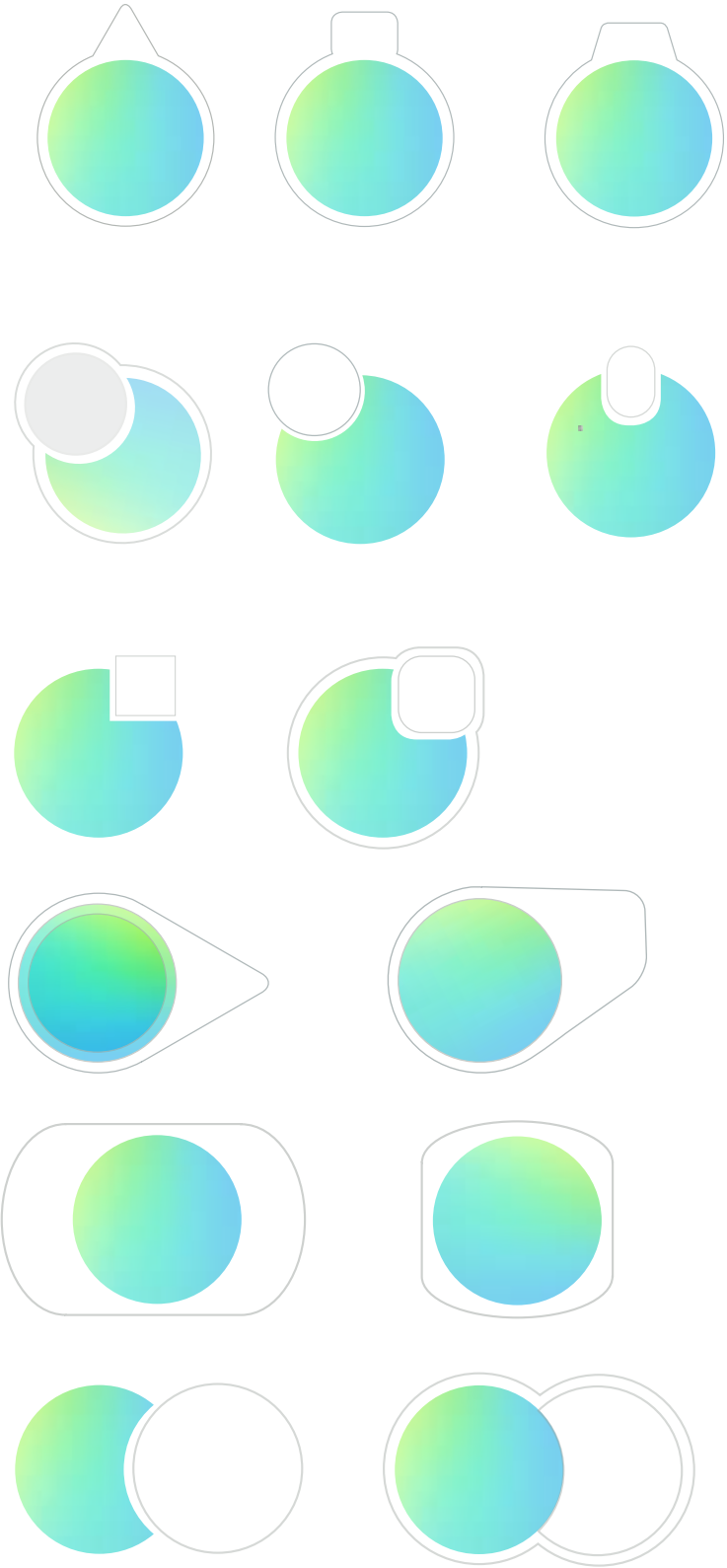


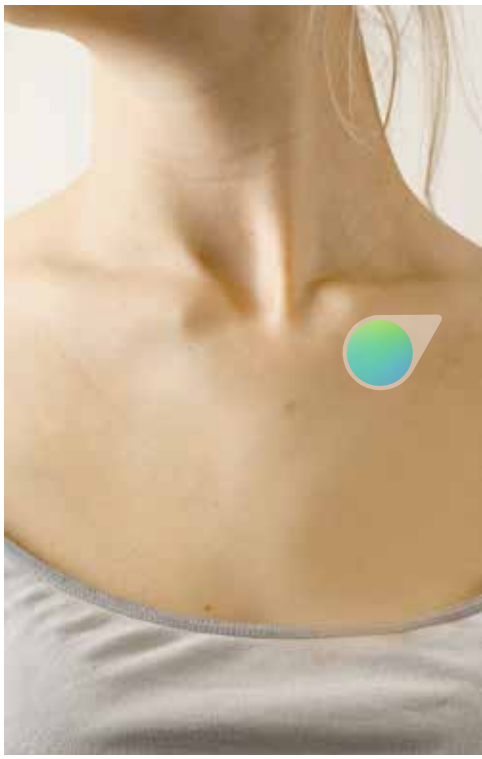

flexibility
visibility
invisibility
FILL WITH COLOR GRADIENT
encourage
interaction
intuition

DESIGN GUIDELINES

sensual

PATCH

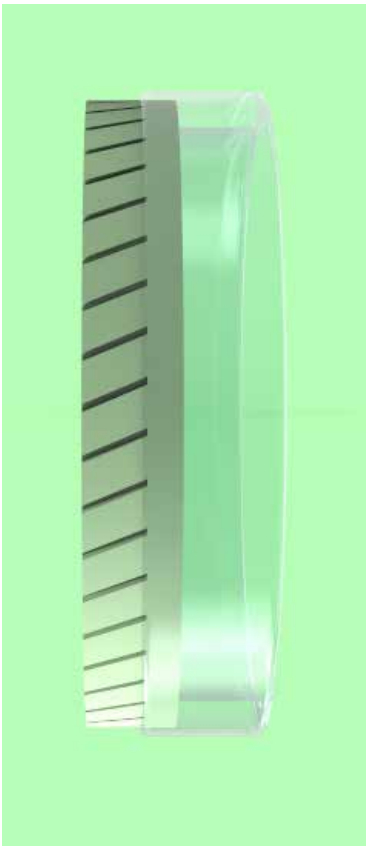


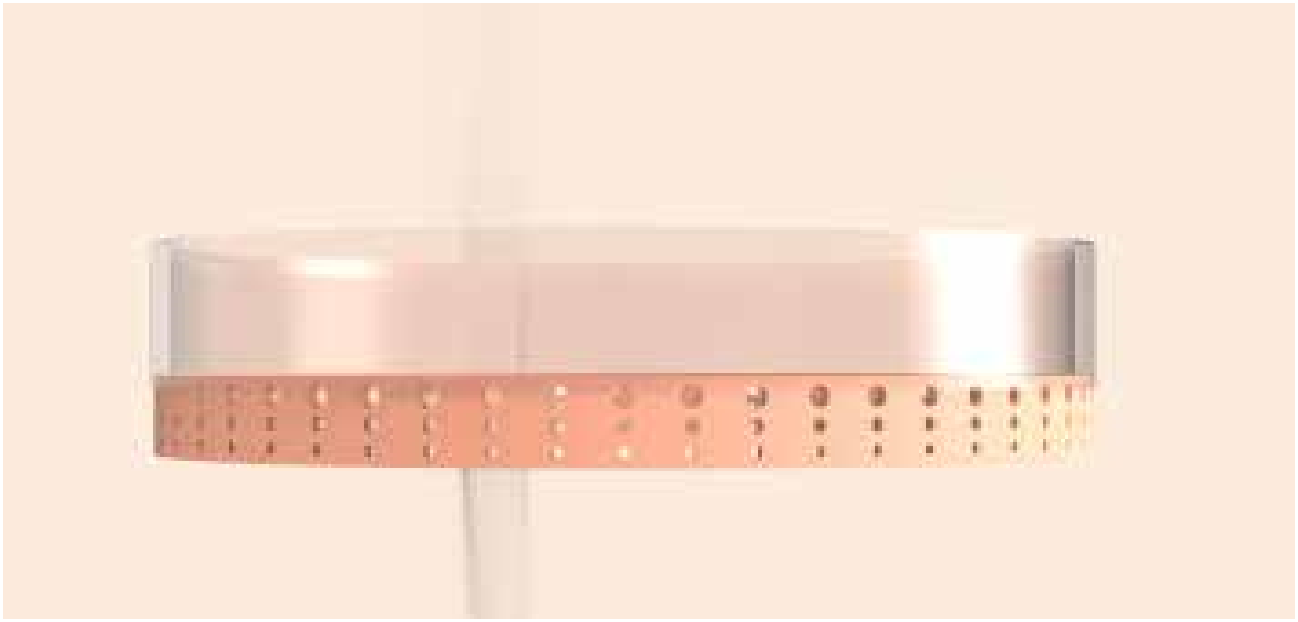


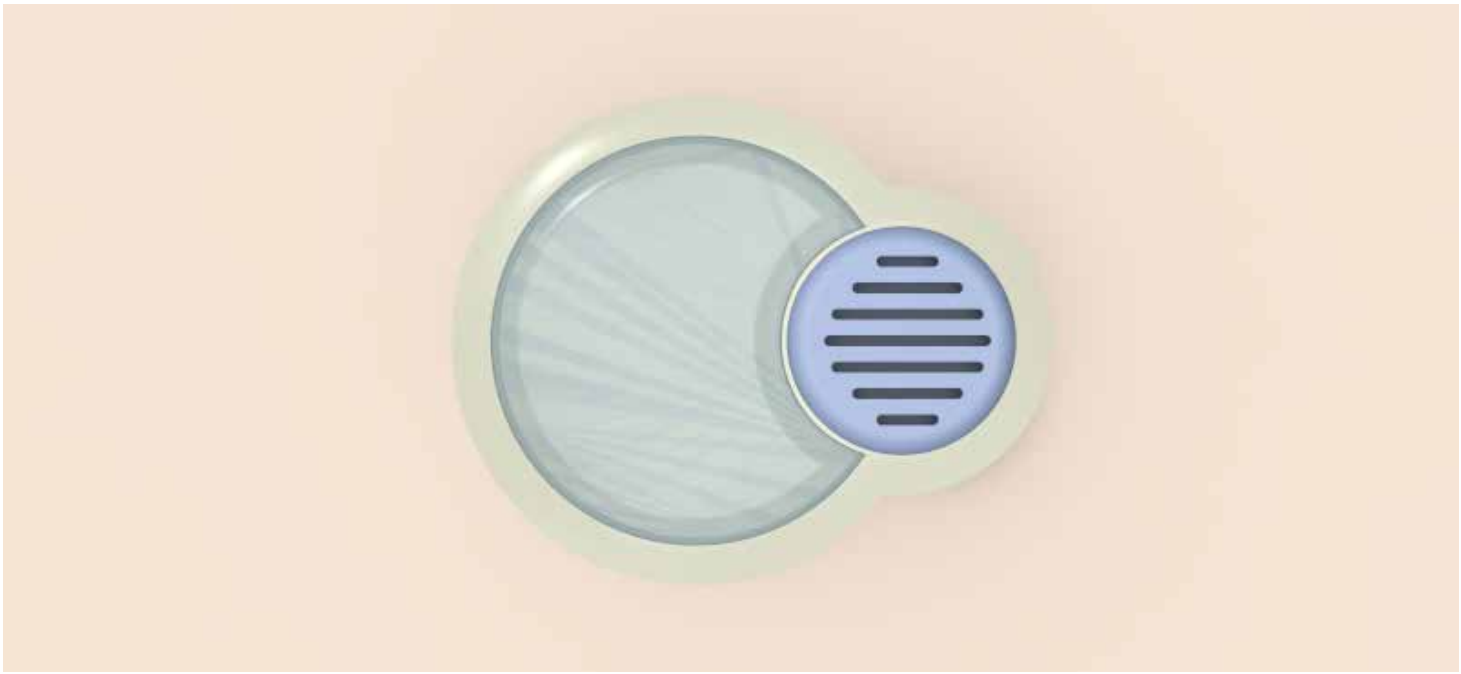


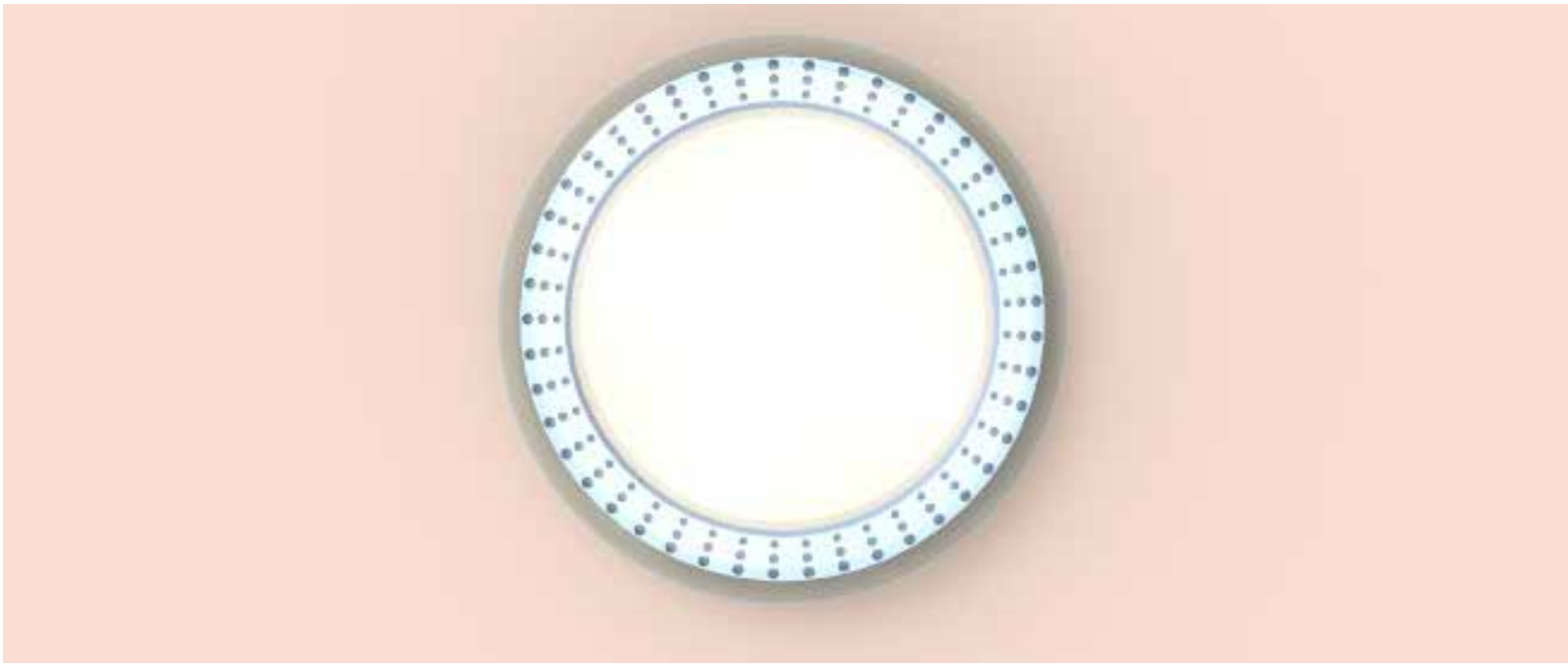


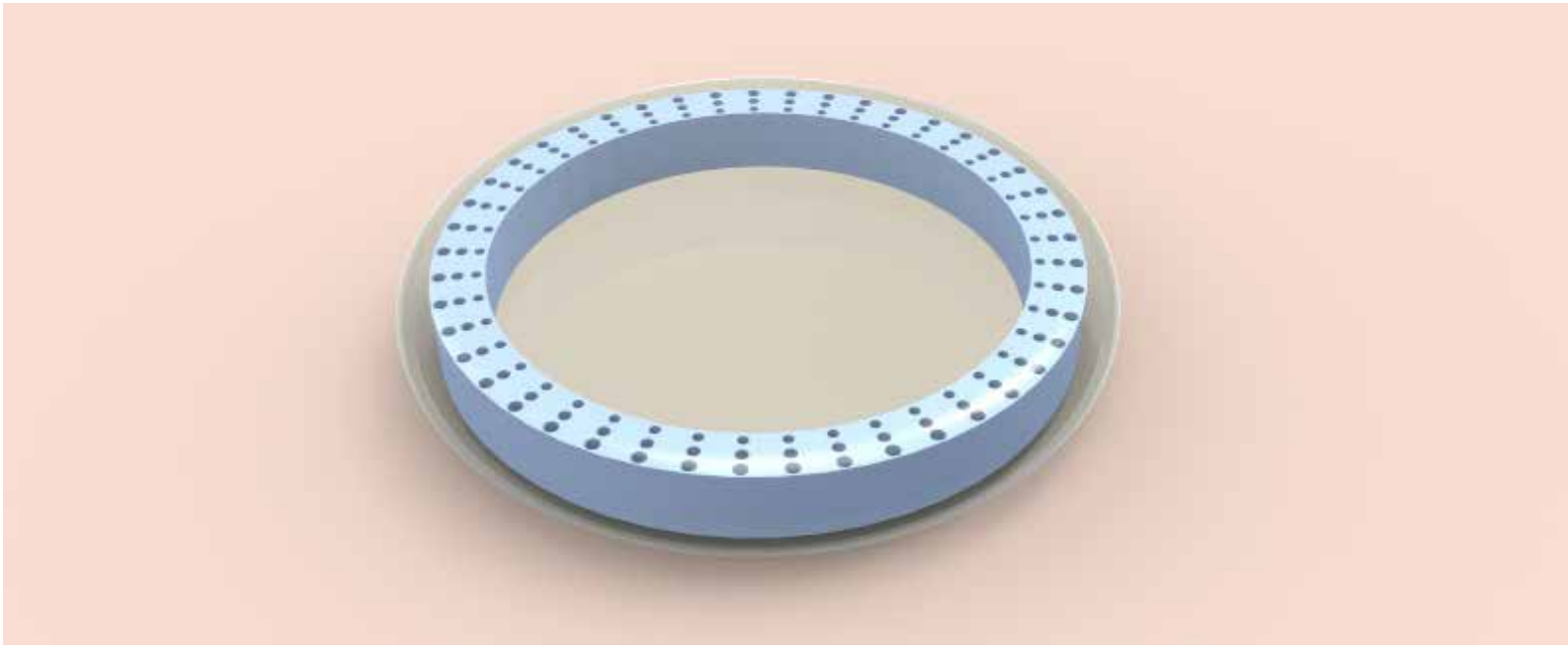

WEARABLE











INSIDE OUT

magnets at the ends to form a loop
attach to clothes
wrap around the wrist

outer and inner part

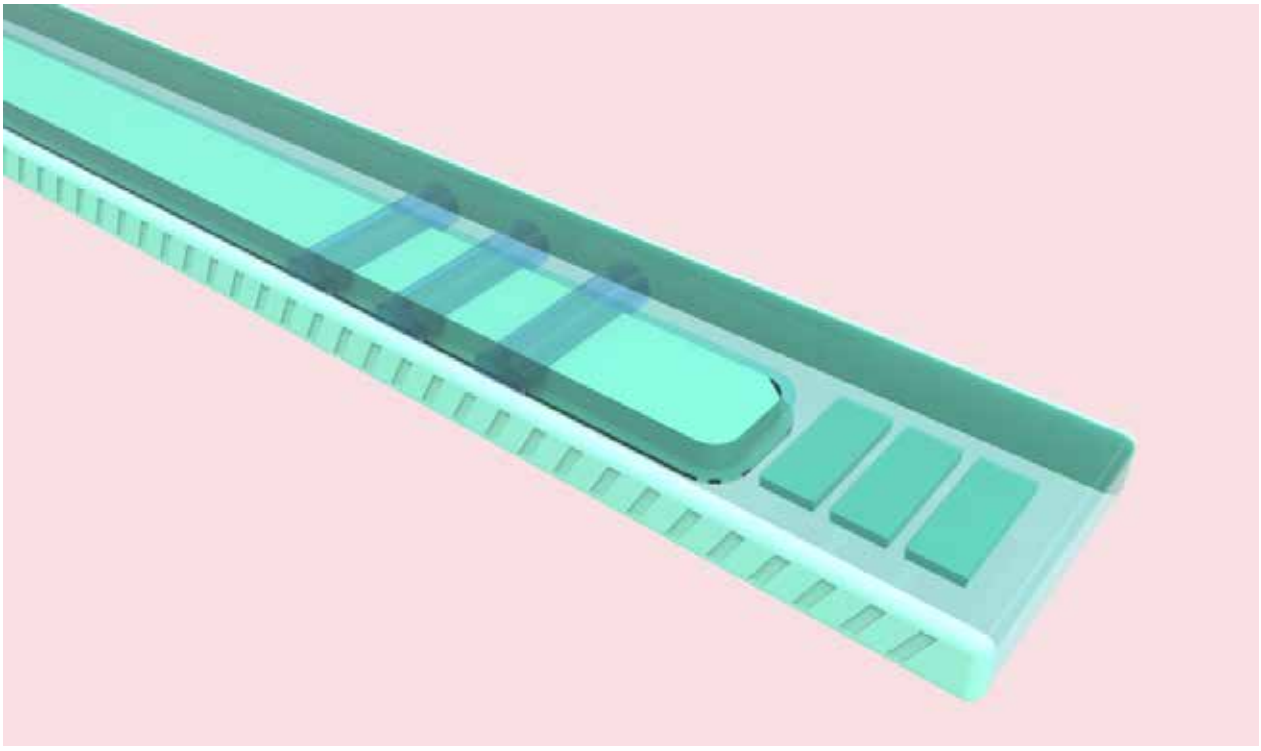
inner pouch contains bluetooth sensor
multitouch sensor
battery for induction charging
six scent capsules
led (neopixel stripe)

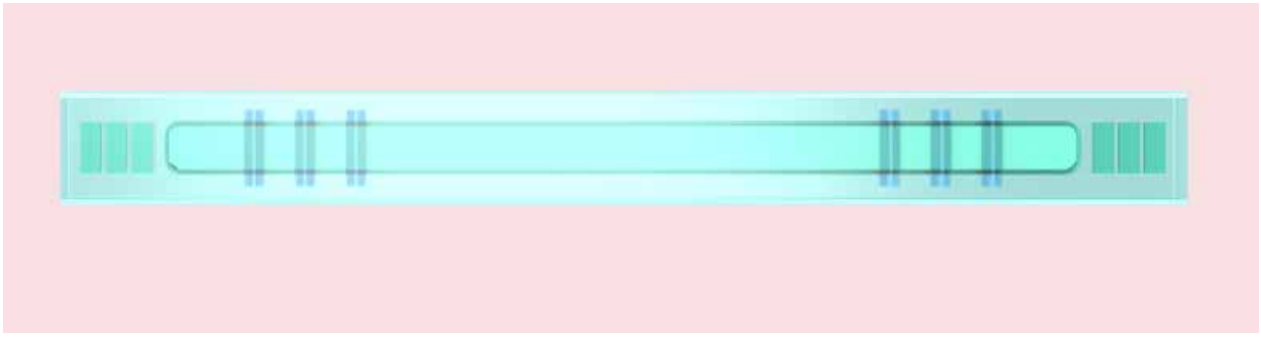
inner pouch is removeable and capsules refillable

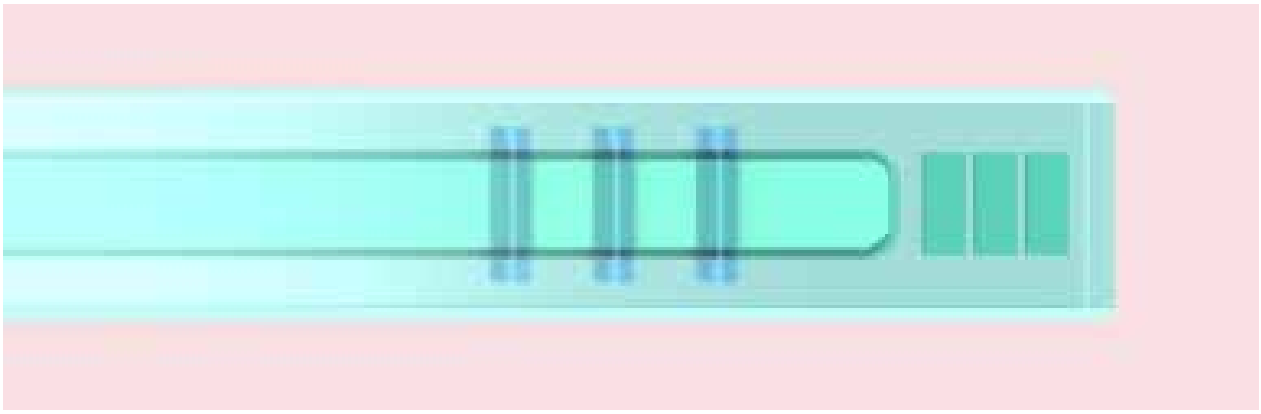
Scent capsules partly visible

outer part - translucent silicone
inner part - colored silikon

flexible and moveable in any direction







HALF / HALF

magnets at the ends to form a loop
attach to clothes
wrap around the wrist

2 sides

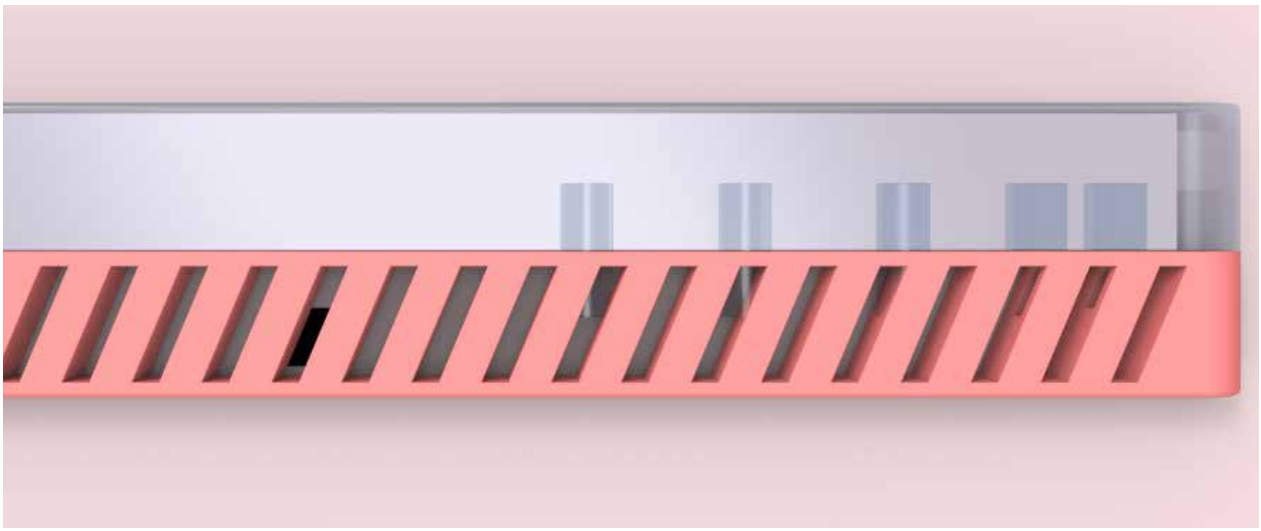
coloured part: bluetooth sensor
multitouch sensor
battery for induction charging
six scent capsules
led (neopixel stripe)

Scent capsules partly visible

is removeable and capsules refillable

part 1 - translucent silicone
part 2 - colored silikon

flexible and moveable in any direction



VISIBLE / INVISIBLE

magnets at the ends to form a loop
attach to clothes
wrap around the wrist

one base with components (color)

coloured part: bluetooth sensor
multitouch sensor
battery for induction charging
six scent capsules
led (neopixel stripe)

is removeable and capsules refillable

coloured part is also silikon and will adapt to wrist, round, bended shape

translucent silicon part will only light up in a gradient when scent is released, otherwise will be see through (milky)

WEARABLE

EVALUATION
patch

TOUCH

touch yourself through the patch

VISIBILITY

the patch will be most likely not be visible to the user, since its placed on the chest
Scent before vision

INTERACTION

Mainly rotational and pressure
Initimite and calming.
Intensity, time laps, self initiated

ASSOCIATIONS

Patch, band aid, health care, sickness, skin

USABILITY

could be tricky to reapply (glue, hair, sweat)

TECHNOLOGY

hard to integrate without making the patch too disturbing in thickness

EVALUATION
patch

TOUCH

rather touch the object than yourself

VISIBILITY

visible to everyone, unless it is applied to colar or trousers

INTERACTION

Playful and functional, also initimite and calming.
Intensity, time laps, self initiated

ASSOCIATIONS

Watch, sports, wearable, jewelry

USABILITY

habitual, known, easy to wear

TECHNOLOGY

components easier to integrate

TOUCH

rather touch the object than yourself

VISIBILITY

visible to everyone, unless it is applied to colar or trousers

INTERACTION

Playful and functional, also initimite and calming. Intensity, time laps, self initiated

ASSOCIATIONS

Watch, sports, wearable, jewelry

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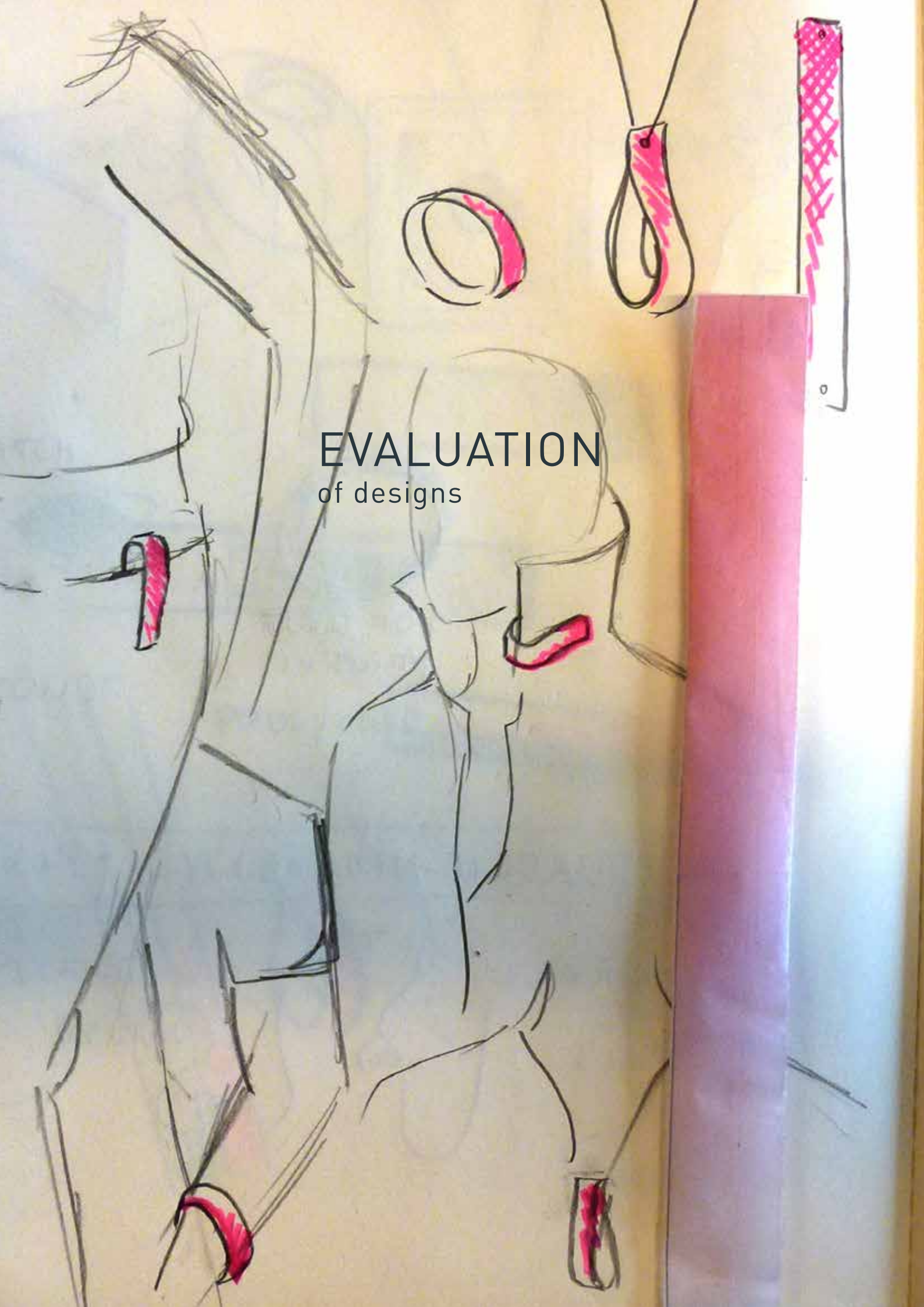
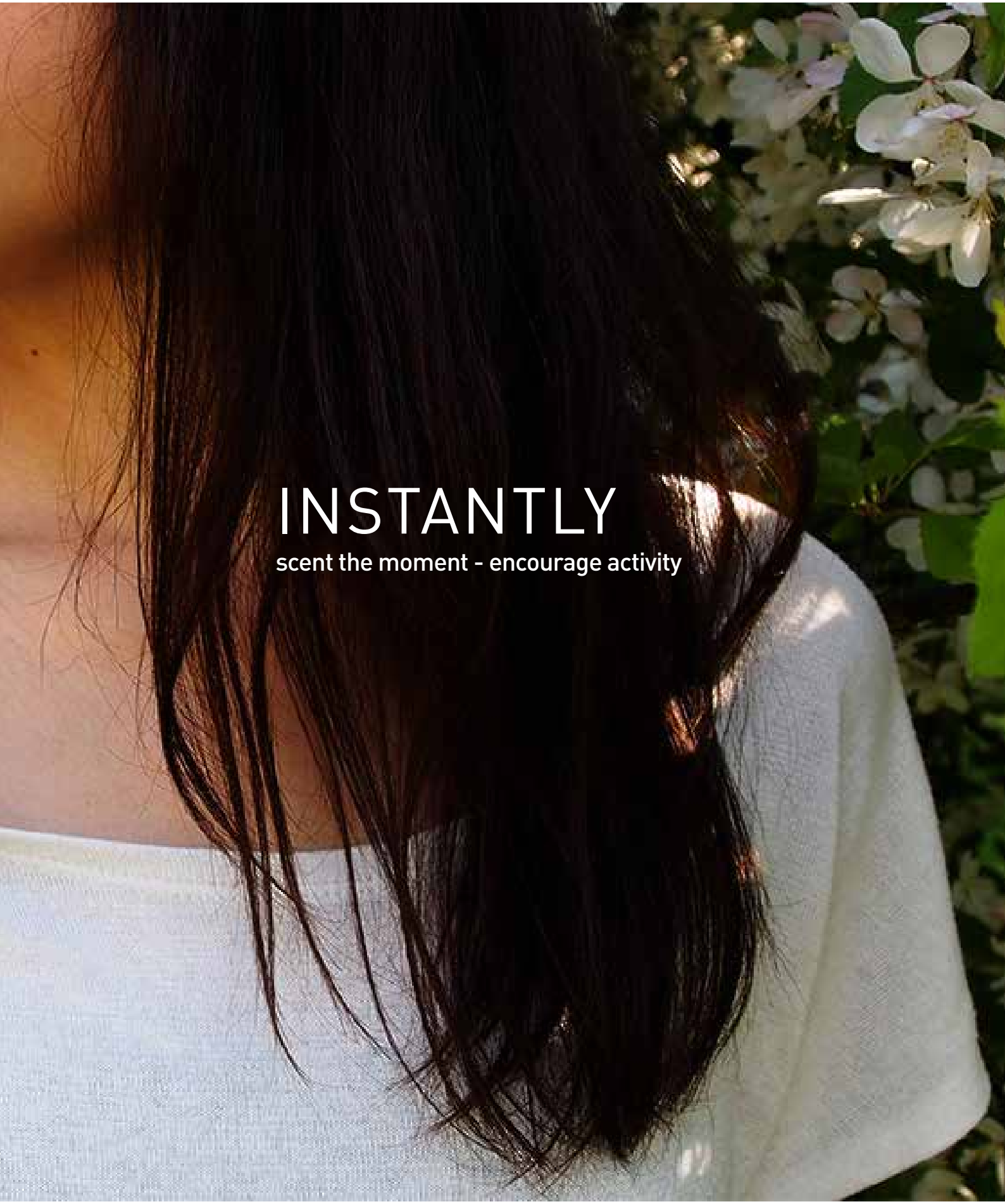
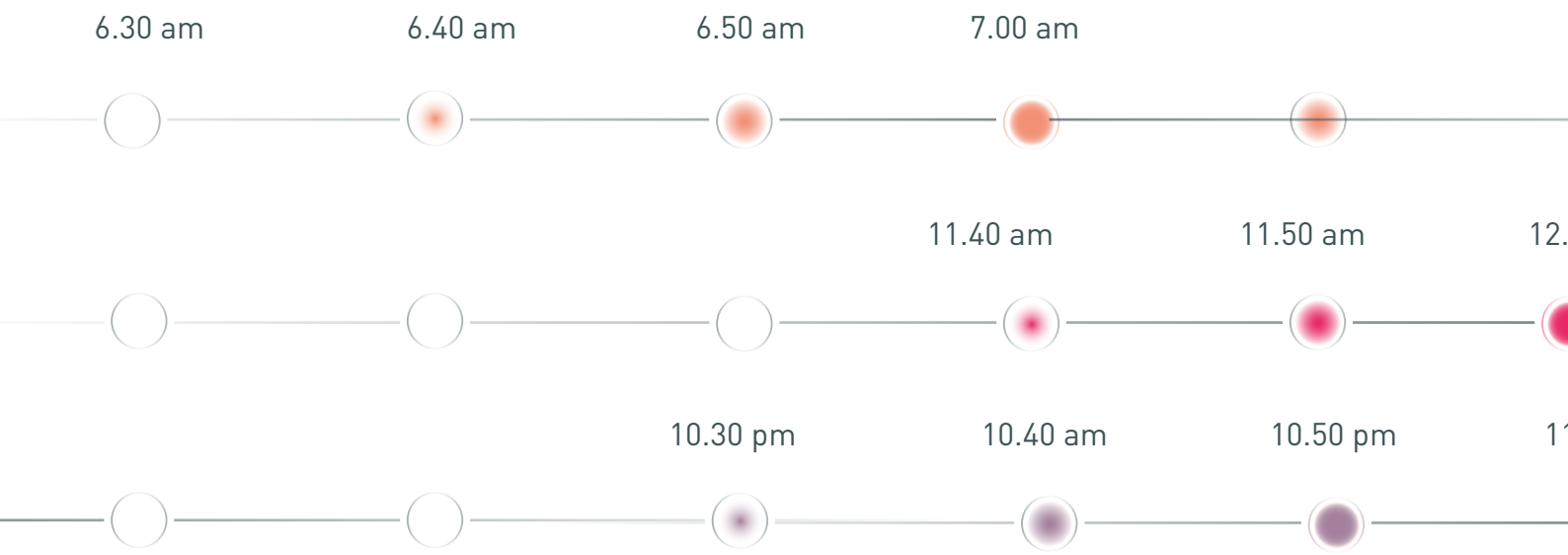


EVALUATION
of designs


INSTANTLY
scent the moment - encourage activity

INSTANTLY

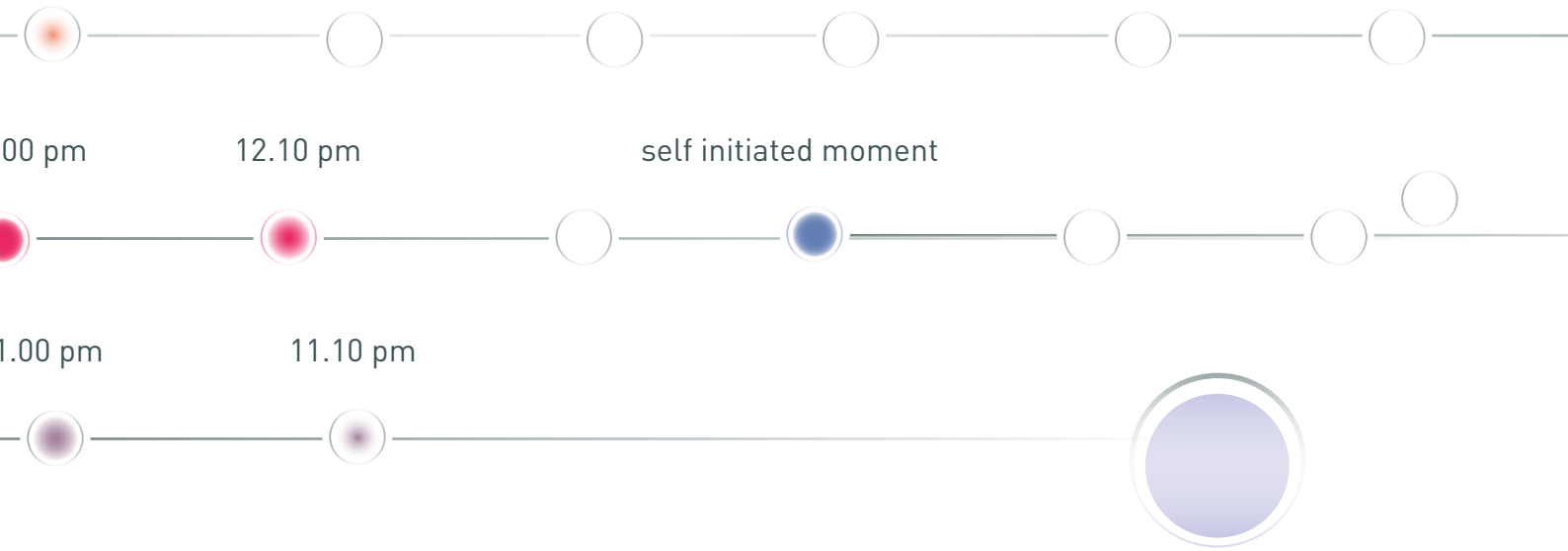


BACKGROUND

Scent is evolutionary anchored to give us signals (warning) and is the only sense, that is instantly influencing our brain (emotional cortex). It is the strongest to give ambient information, but the most neglected intellectually. Scent triggers and motivates behaviour.

Time in our daily routines and habits has become insignificant in terms of how we react to it and it is not perceived linear. Knowing the time is mostly exclusive to the visual perception in terms of „taking a look at the clock".

In any situation that is chronic, meaning habitual and constant, time is an important factor.



DESCRIPTION

Instantly is a „living service“ that will structure your day into cycles using subtle sequences of scent. Just like learning the clock as a child, you will have to learn the sequences over time and will know what time it is by being primed on a certain scent sequence.

The crucial idea with instantly is, that your reaction to the time will be more considerate. In your daily routines it is not about the actual time, but about the moments you actively anticipate change. It should encourage you to change the condition you are in, no matter where and when. Any constant condition can be harmful in the long run.

COPY LINK TO WATCH MOVIE:

HTTPS://DRIVE.GOOGLE.COM/FILE/D/1GZI62OXS-RECRV7ZSXS_KK1AC_UBEYIKR/VIEW?USP=SHARING

INSTANTLY

service for
initial set up

synch with the
wearable

INSTANTLY

three scent
compositions
structure your day

release
selected scent
on demand

main interactive
component

system initiated

self initiated


INSTANTLY

THE WEARABLE

Immerse yourself in a sensory journey that organically segments your day into eagerly awaited intervals through the subtle power of scent.
This ambient device gracefully blends into the background, making its presence known only when absolutely necessary. Explore scientifically validated scent cycles tailored to harmonize with your daily rhythms. Disrupt the monotony of your surroundings with a seamless and unobtrusive experience that remains dormant until the opportune moment, coming alive precisely when the time is right.

THE EXPERIENCE

Indulge in an intuitive, ambient interaction devoid of visual or direct engagement. This device seamlessly syncs with wearables, intervening only when adjustments are required. Effortlessly control scent intensity through touch, rotation, or pressing gestures.

Fine-tune your aromatic experience with the convenience of adjusting scent cycles directly from your phone. Empower the device to autonomously initiate brief, purpose-driven scent sequences. Take charge of your daily rhythm by skillfully hacking the day cycle, effortlessly setting it back or propelling it forward to a desired stage.

SYSTEM INITIATED - elements of surprise

USER INITIATED - freedom of self regulation

CHAINS OF SENSES

How scent and touch activate


INSTANTLY

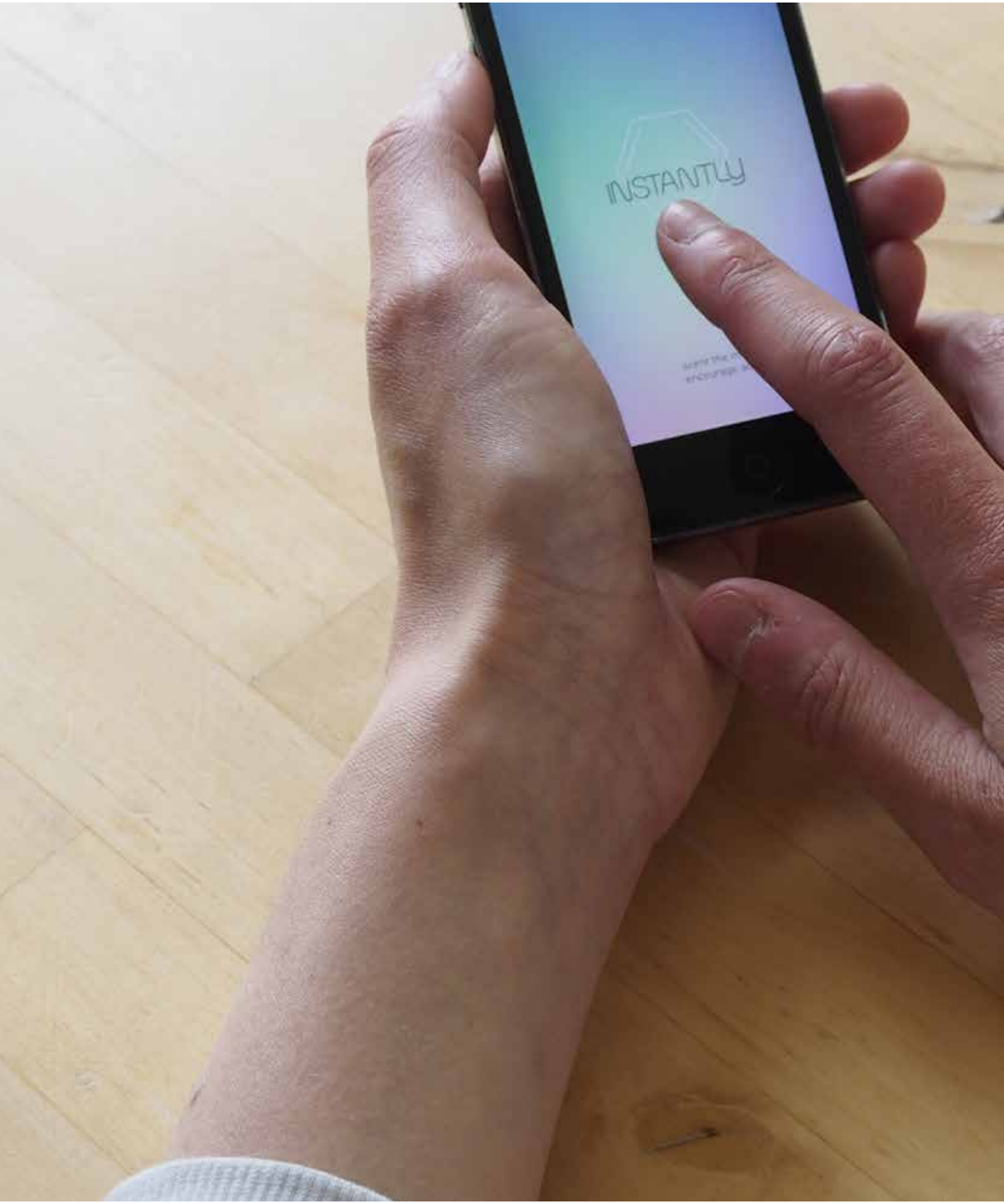
TIME & MEMORY

subjective perception of time

„Odours memories are emotional, highly evocative in relation to time and place and excell our other senses memory capacity in vividness. They enable us to recall and even more re-experience a certain emotion and event.“


ambient
physical
create
micromoments
scent and touch
interactions
become visible
when its time
interrupt
mindset


intuitive interactions
trigger memories
element of surprise
CHARACTERISTICS
subjective perception of time
signals time
information on an unused sensory layer
motivate behaviour


INSTANTLY

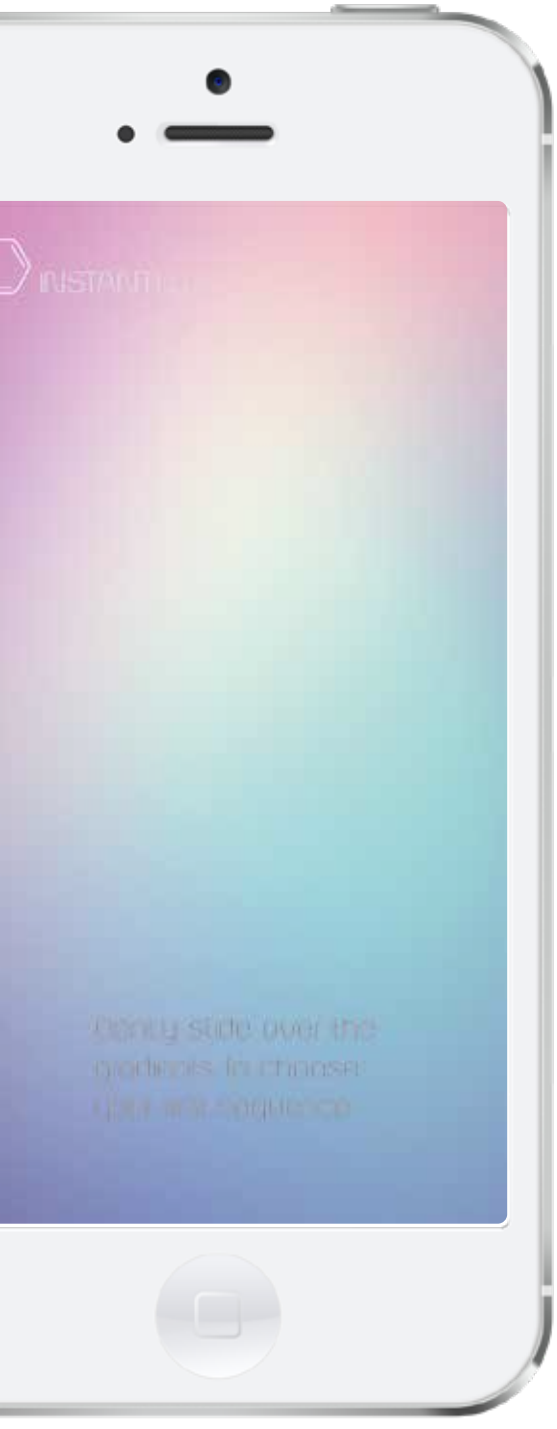
THE SERVICE
and main interactions

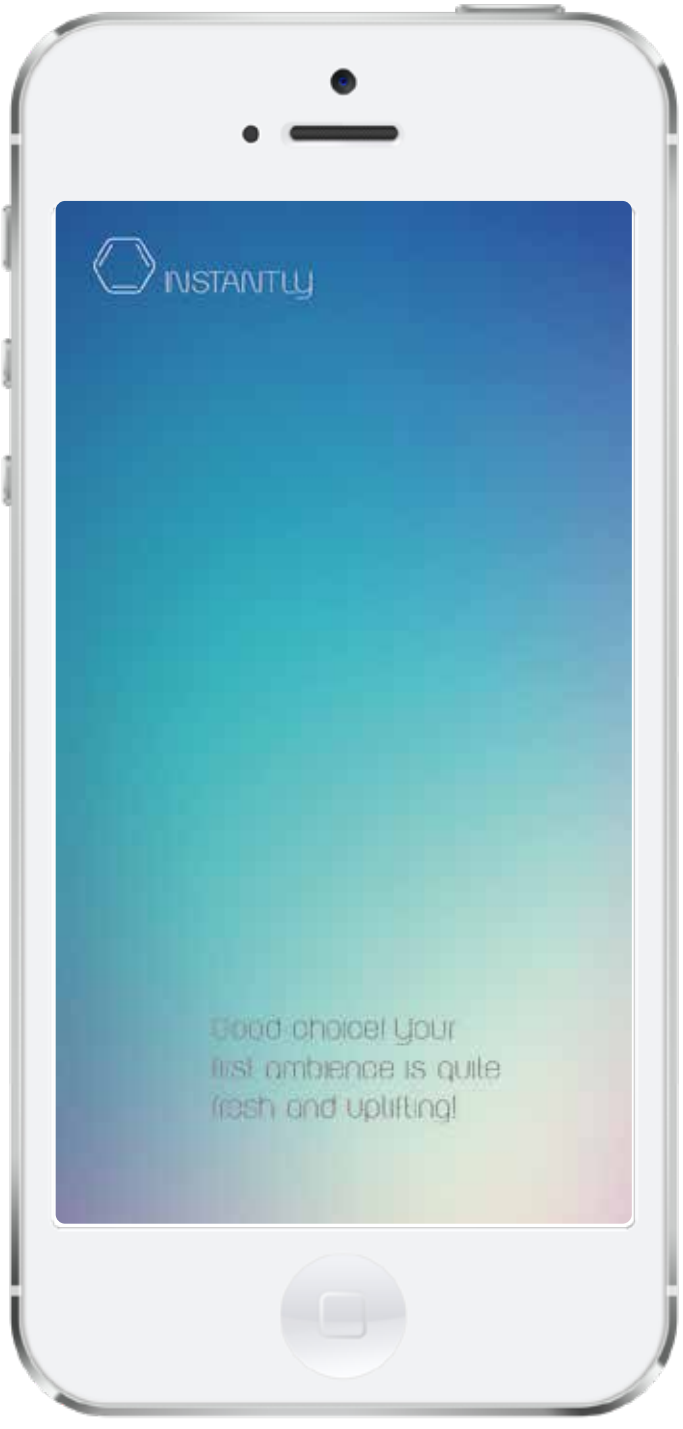
„Odours, as well as colours and emotions are perceived as homogene perceptions.“

Rachel Herz

THE SERVICE

Empower your experience with personalized application settings, tailoring every aspect to suit your preferences. Seamlessly store, share, and compare data with fellow users, fostering a collaborative and enriching community. Ensuring a secure application and user-friendly behavior lays the foundation for future utilization, guaranteeing a consistently safe and reliable experience. Beyond the present, anticipate forthcoming health care benefits, aligning your well-being with cutting-edge advancements for a healthier, more informed tomorrow.




INSTANTLY
Good choice! Your
first ambience is quite
fresh and uplifting!

A HOMOGENE APP

play within suggested compositions

initial set up enables the user
to chose within suggested scent
compositions


INSTANTLY
Assign a scent to
your task for
enhanced motivation.


INSTANTLY
08.00 pm

PRIMING

to enhance motivation

Set times and scents for certain tasks/activities

EXPOSURE TIME
surprise

NATURAL SCENTS
enhance well being

ASSOCIATIONS
with unknown and known scents

TOUCH & SCENT

enhanced interactions

„Odours vary in their intensity and therefor become more or less pleasant/ unpleasant. The intensity is linked to the density and volume.“

AMPLIFY INTENSITY

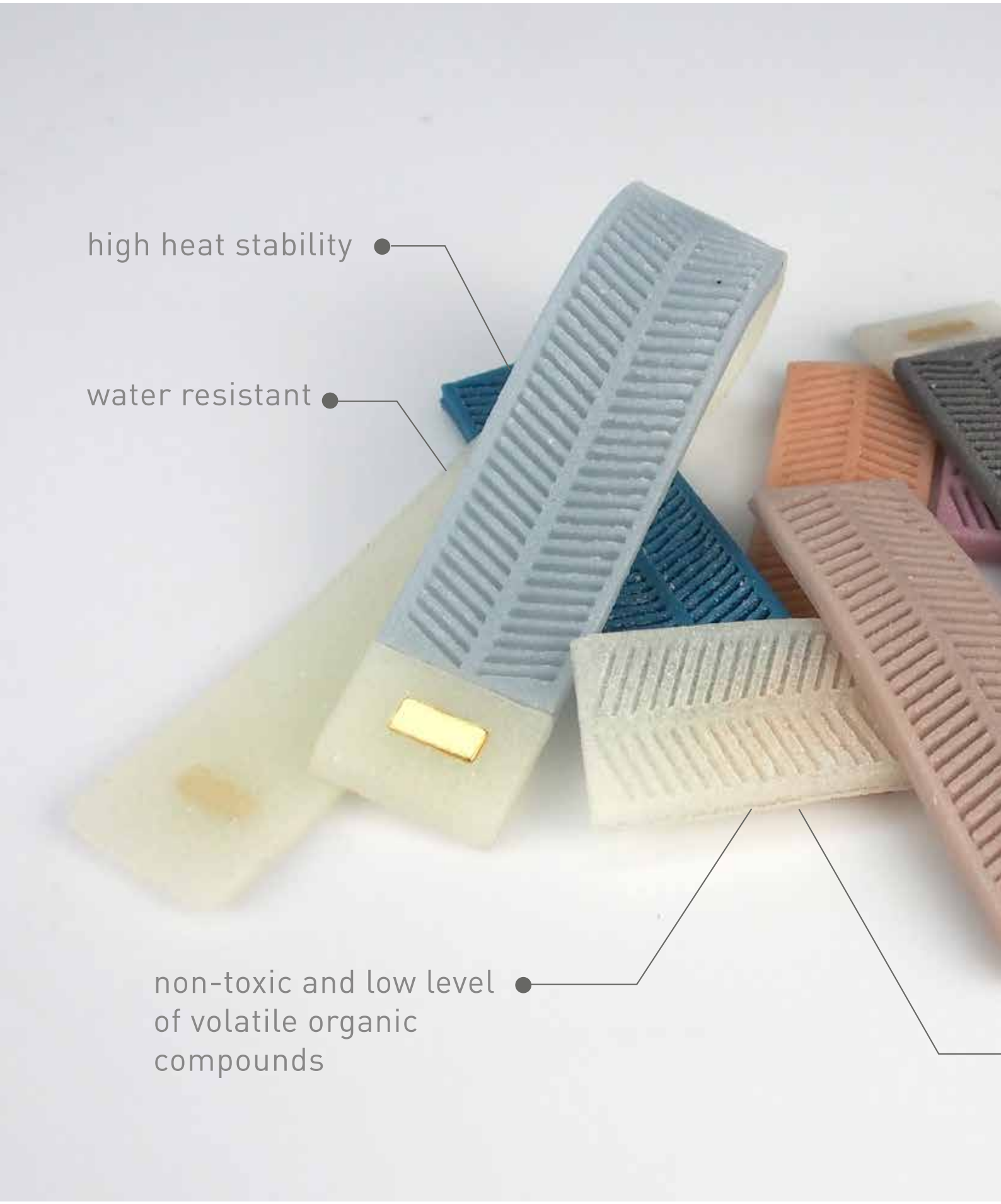
Stroke to amplify or go back in time.

TIME & MEMORY

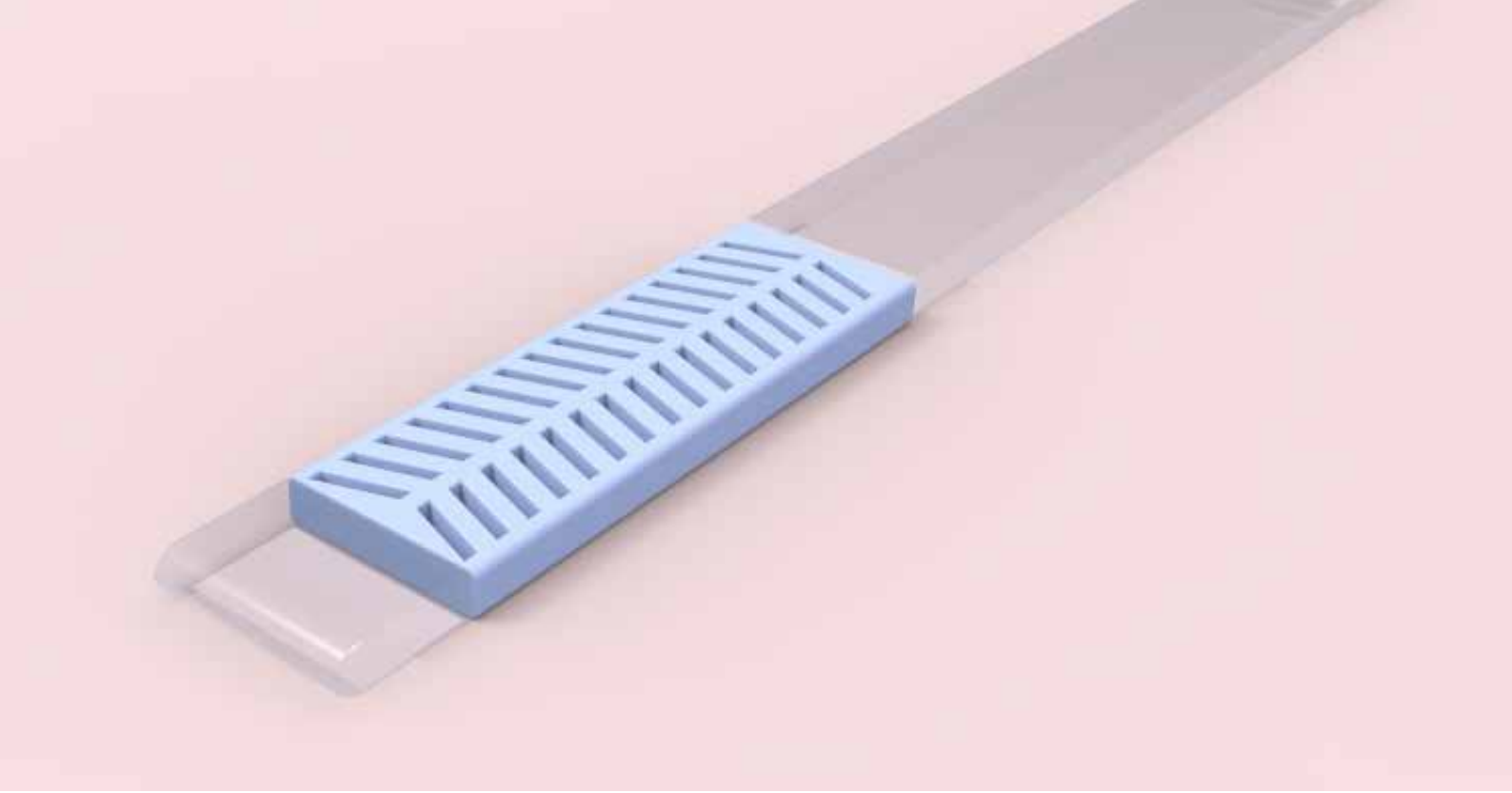
subjective perception of time

„Odours memories are emotional, highly evocative in relation to time and place and excell our other senses memory capacity in vividness. They enable us to recall and even more re-experience a certain emotion and event.“

COLOR & MATERIAL


high heat stability
water resistant
non-toxic and low level
of volatile organic
compounds


Highly versatile materials
electrical resistance, can be made conductive
SILICONE
Suitable for food and medical appliances



TECHNICAL COMPONENTS

INSTANTLY

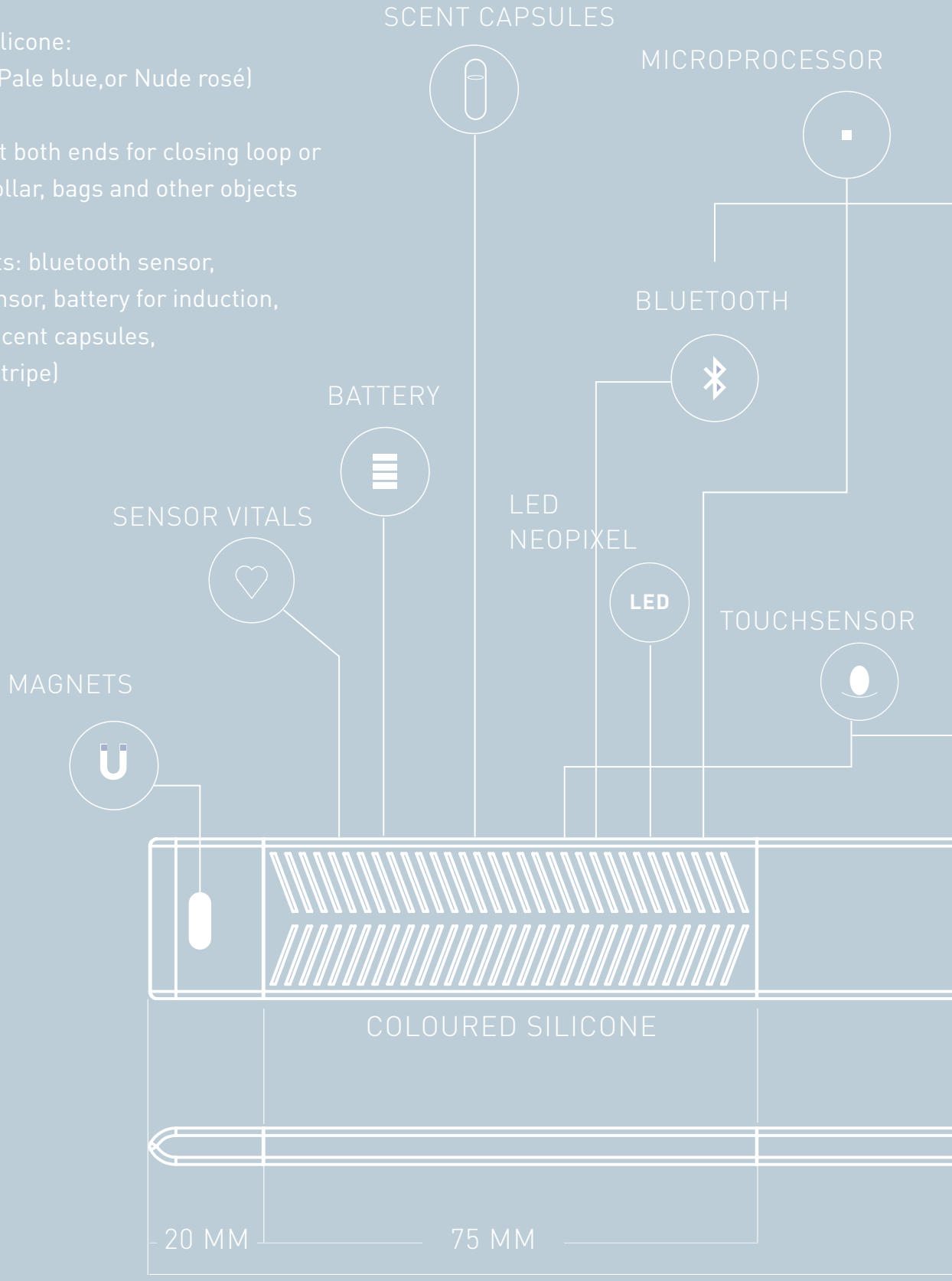
MATERIALS & FINISH

>> Main material: non-toxic, translucent and matt silicone
(water resistant, elastic, heat stable)

>> Coloured silicone:
(Graphit grey, Pale blue,or Nude rosé)

>> Magnets: At both ends for closing loop or attaching to collar, bags and other objects

>> Components: bluetooth sensor, multitouch sensor, battery for induction, charging, six scent capsules, led (neopixel stripe)



DATA PROCESSING

INSTANTLY

BLUETOOTH

Low energy bluetooth sensor to communicate with the app on the users phone, phone sends time to wearable

BATTERY

Small lithium battery.
Interactive coupling for charging

TOUCH SENSOR

Multitouch application
Motion detecting capabilties
Through programming capacitities on the surface different interactions are possible:
Rotate the wearable for time shifts
Stroke around for intensity
Tap/press for instant release

(SENSOR FOR VITAL SIGNS)

To have future knowledge/ benefit of the effects on the user. Physical / mental reaction to scent. Every day data collection.

MAGNETS

Integrated magnets at both ends of the wearable make it attachable to itself and on clothes, surfaces

SCENT CAPSULE

Release of scent connected to the timer of the iphone and to touch for self initiated release

LED / NEOPIXEL STRIPE

Color gradients emitted through silicon to show that scent is released. Colors the transparent part of the silicon

WATERPRROOF

Wearable should be resistant to water, possibly able to shower with

Sealed

DATA PROCESSING

Phone of user will be the main source for data processing

MICROPROCESSOR

Local microprocessor in wearble to prioritze information to be send via „air“ to phone

SCENT EMISSION OF INSTANTLY

While designing and considering different materials and components for the wristband I consulted with Joachim Rodrigues from the Department of Electrical and Information Technology at Lund University. We were able to combose the different electronical components. For the emission of scent there was no obvioud straight forward solution. There are three technologies, that could potentially be applied to release the scents from the wrist band:

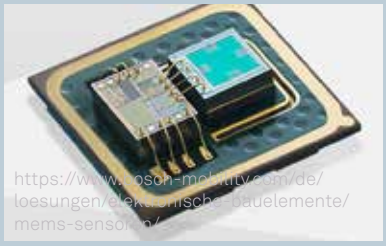
1. **Microfluidics:** Is a technology enabling the control and manipulation of fluids at a very small scale. Microfluidic channels and valves could be used to enable a precision release from the capsules integrated in the wristband.


https://www.dantecdynamics.com/applications/microfluidics/

2. **Piezoelectric Atomizers:** In this technology alternating voltage causes piezoelectric material to vibrate, which enables liquids, such as Microfluidics, to be released into a fine mist. Advantage of this technology is that there is no need for heat or high amounts of power.


https://www.auroraprosci.com/piezoelectric-atomizer-series

3. **MEMS (Micro-Electro-Mechanical Systems):** This technology holds a combination of valves, pumps, and gears with electronic components. In this way the release of scent from the capsules could be regulated. Since this technology can be used on chip sized level it could be a feasible solution for the problem.


https://www.bosch-mobility.com/de/loesungen/elektronische-bauelemente/mems-sensoren/

The product being a wristband comes with certain requirements that the chosen technology should meet. Priority being that the usage is safe for the user and assures a high level of reliabilty.

SCENT EMISSION OF INSTANTLY

There should be no risk of evolving heat or toxicidity. Secondly the component should be as small and flexible as possible so that it does not affect the flexibility and comfort of the wearable. The component should reliably function in the way it is designed to. Considering a daily use it would not only be energy efficient, but also more convenient if power consumption is as low as possible so users do not have to deal with charging or replacement on a frequent basis.

With these requirements in mind, a combination of MEMS sensors with Microfluidics could be a feasible choice as it ensures safety, precision, size and weight efficiency, energy efficiency and a smooth integration with other components like the bluetooth sensor. MEMS sensors are robust and highly sensitive which caters to both durability as well as reliability.

With the consultation and research done this combination seems the to be possible, but it would need a final approval of an expert to validate this choice of technologies as an ideal integration for the wristband.

Having that in mind I prioritized other aspects of the product such as the moments where it can be applied (priming, intervention etc.), the design and elements of the App and eventually the creation of a movie to make the experience more tangible for „the audience“. Eventhough this technology is an integral part for the feasibility of the product it would have been out of proportion in terms of research and testing with limited resources, knowing that there is a possible way to solve this.

REFLECTION

REFLECTION

Sadly and gladly we are on autopilot 90% of their days. We follow patterns and paths, that help us get through our days and routines. To an extend this is extremely helpful to save capacity and ressources, but as soon as patterns turn against us, they can be the most harmful power in our routines. With the exploration of „Instantly“ I explored the “invisible“ power of scent and the effects it can have as an integrated part in our days. Away from visual stimulis, away from screens and haptics, this has been an approach to thinking with scents in designing experiences.

As abstract and complex as human perception can be, as abstract have been parts of my process in this Master Thesis. To actually combine the magic of scents with actual and measurable benefits in our practical days, I have faced a lot of challenges. Making something intangible, tangible for daily use has taught me new ways of approaching the design process in itself.

After diverging in the process and thinking of different areas for application I am happy with the conclusion I have found at this point of the project. Combining scents with the concept of time to break routines and to intervene with a new medium is something I see can have immense value.

REFLECTION

The project „Instantly“ has shed light on integrating scents in design, it shows an extensive process in different way of applying it, it has explored various uses cases and ways of integrating it in a persons life in terms of mock ups and wearables.

Even though it has been tested as low fidelity prototypes with focus groups and potential users, to exist and persist in the world, it would need further validation on how users would actually build habits around this use case. In which situations would it be valuable, in which potentially not. And which groups would potentially draw the highest value from this product.

At this point of this project I have not lost my love for the human perception and especially exploring scents. I have deepened my knowledge in the context of designing experiences with the human perception in mind and it feels like this could just be the beginning of a bigger journey, where I will always be drawn to see the bigger picture of perception, behavior and experiences when designing products.

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