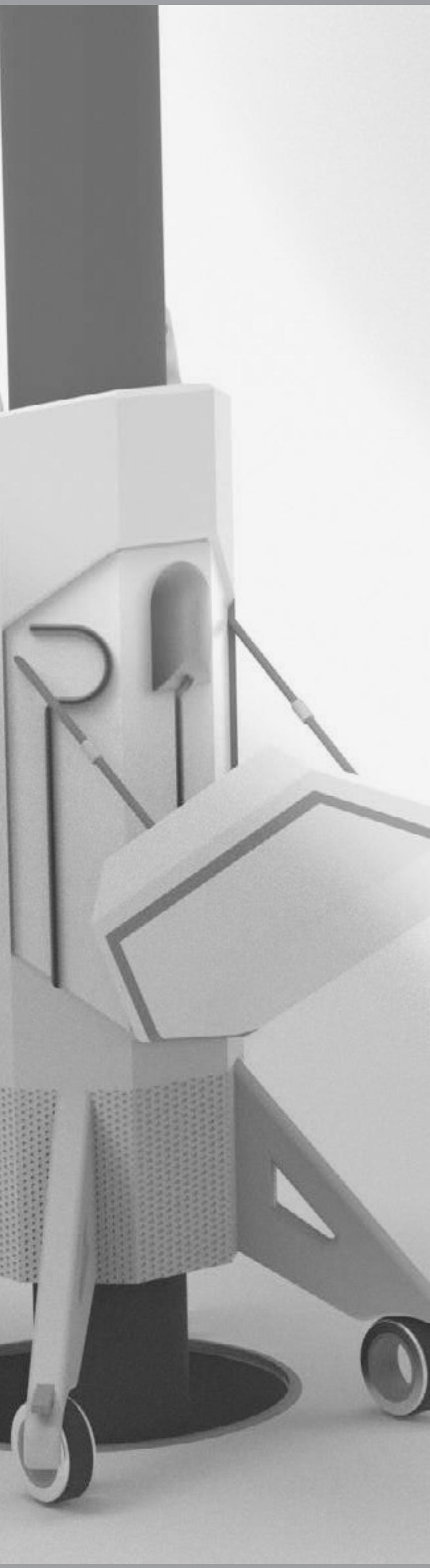


INTERACTION DESIGN
PRODUCT DESIGN
SERVICE DESIGN
USER EXPERIENCE DESIGN
USER INTERFACE DESIGN
BRANDING DESIGN

PORT FOLIO

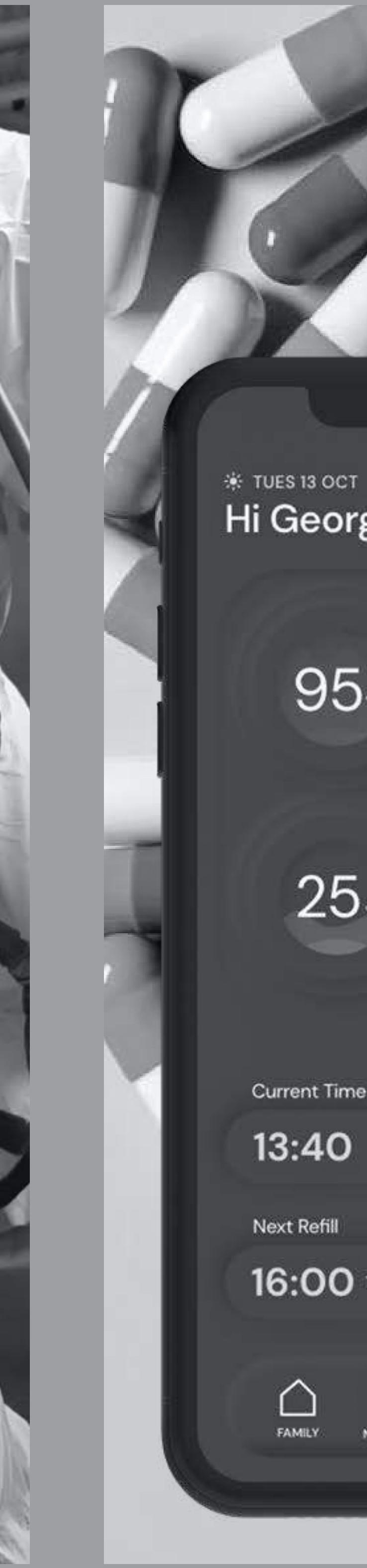
QiuTian



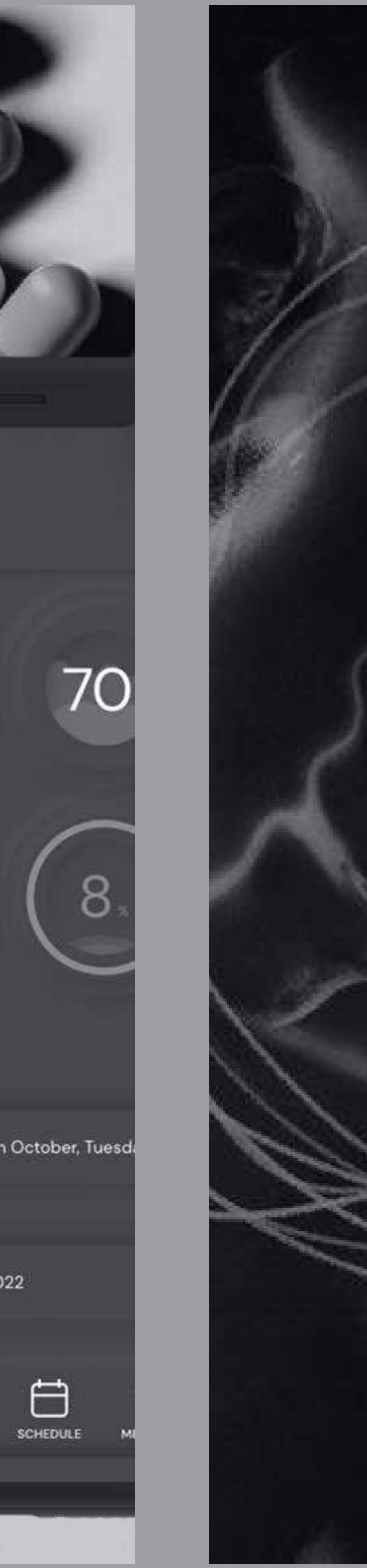
CITY DENTISTS



UNMASKED
MIND



IMPLANTABLE
MEDICINE
MONITOR



WORDS OF
THE SOUL



OTHER WORKS

City Dentists

Improving working environment of septic pumpers

As a special profession that related to human excreta, septic workers are discriminated against by society, and the discrimination and prejudice they face can undermine their sense of professional identity, well-being and achievement. This project takes a holistic approach to redefine the title of the septic pumpers' professional image through a range of design for pumpers' company branding, including working flow, equipments, and clothing.

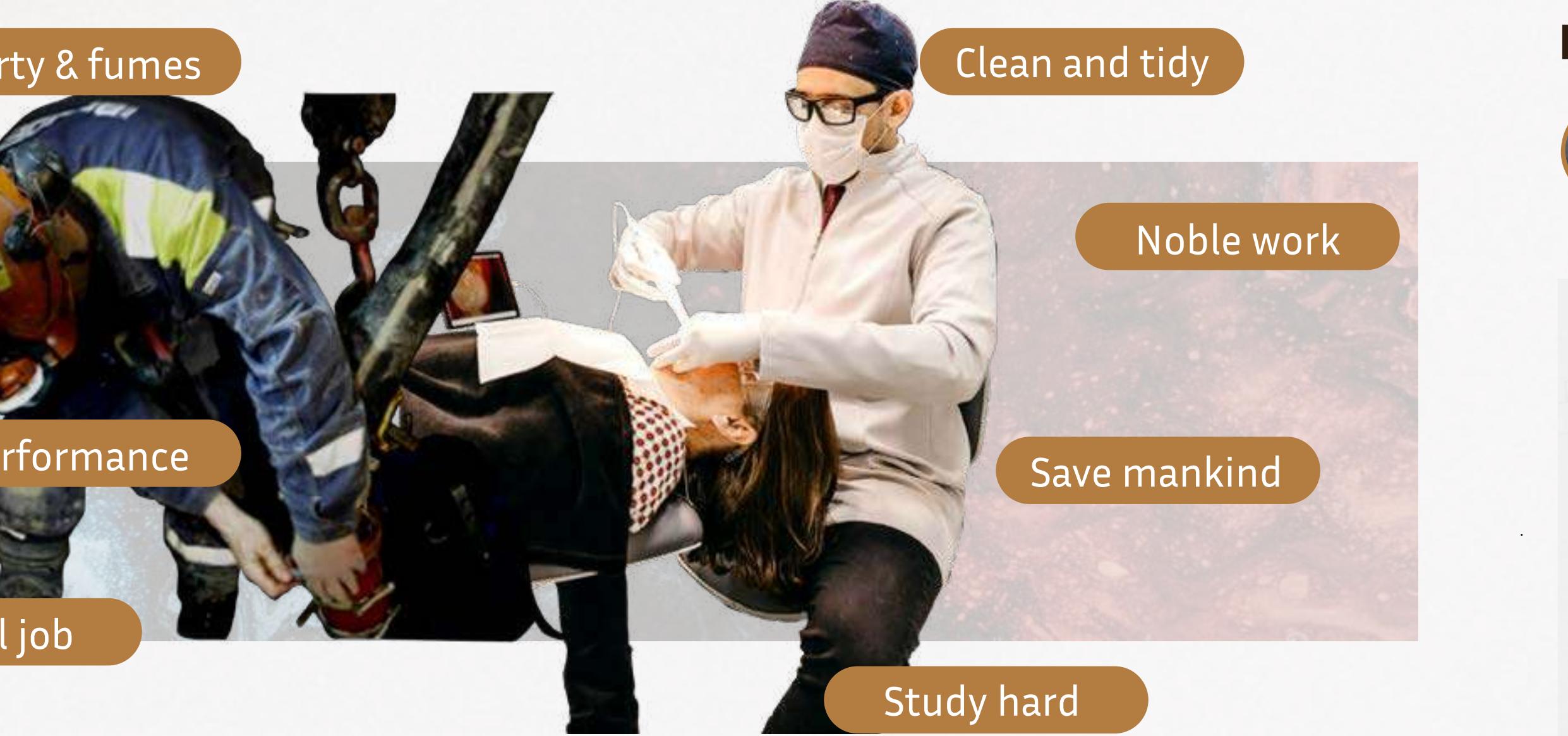


Why I start this project

Initial thoughts about pumping workers in my city



This make me think about the **professional images** for different type of job in this society



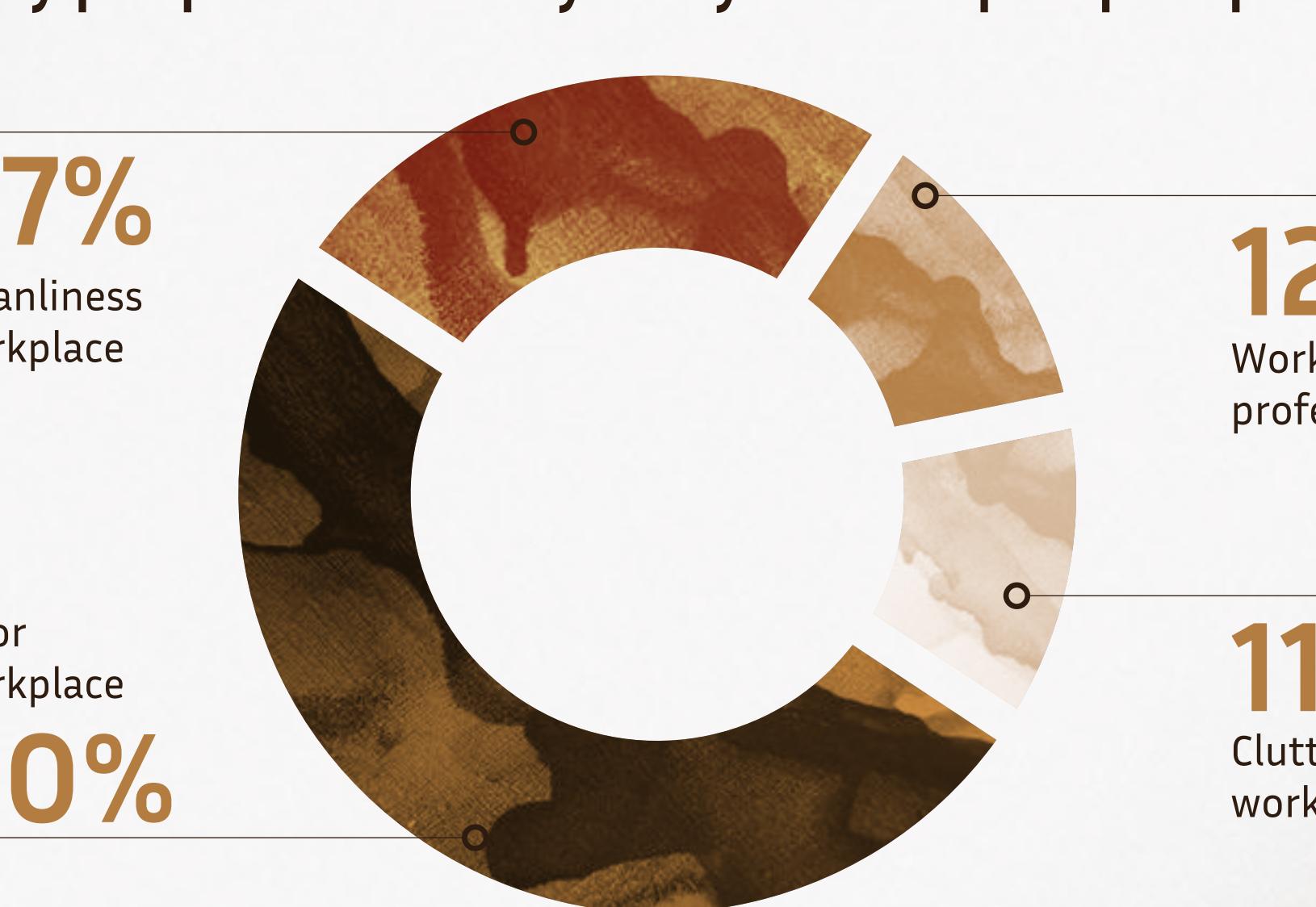
Insights

How to change the first impression people have when they heard pumping workers?

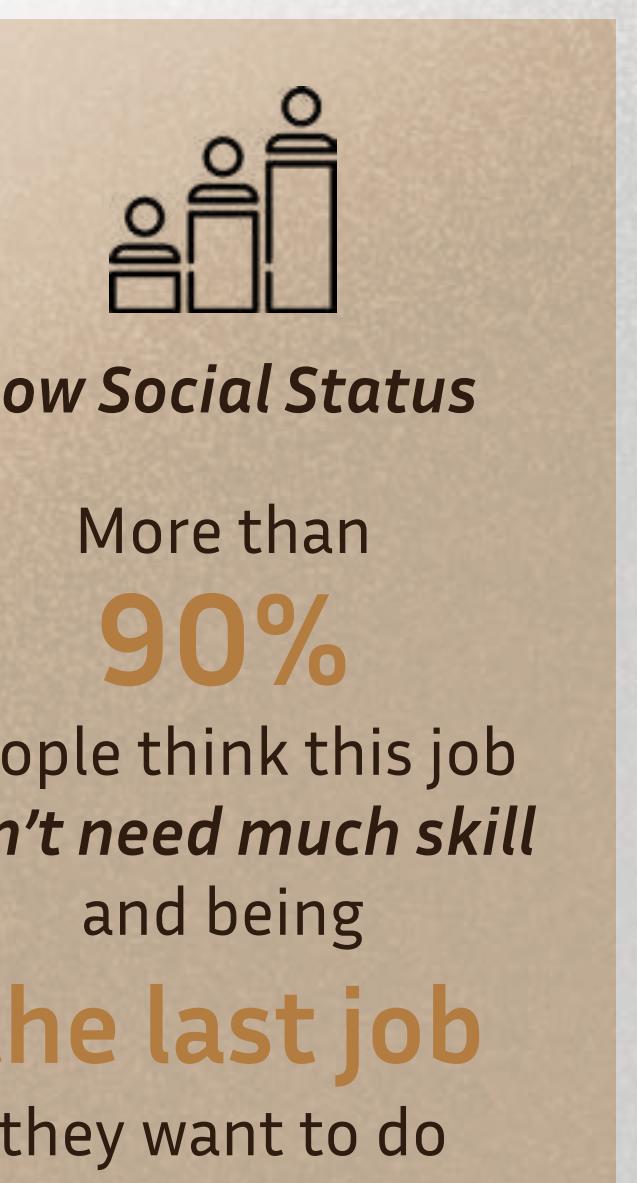
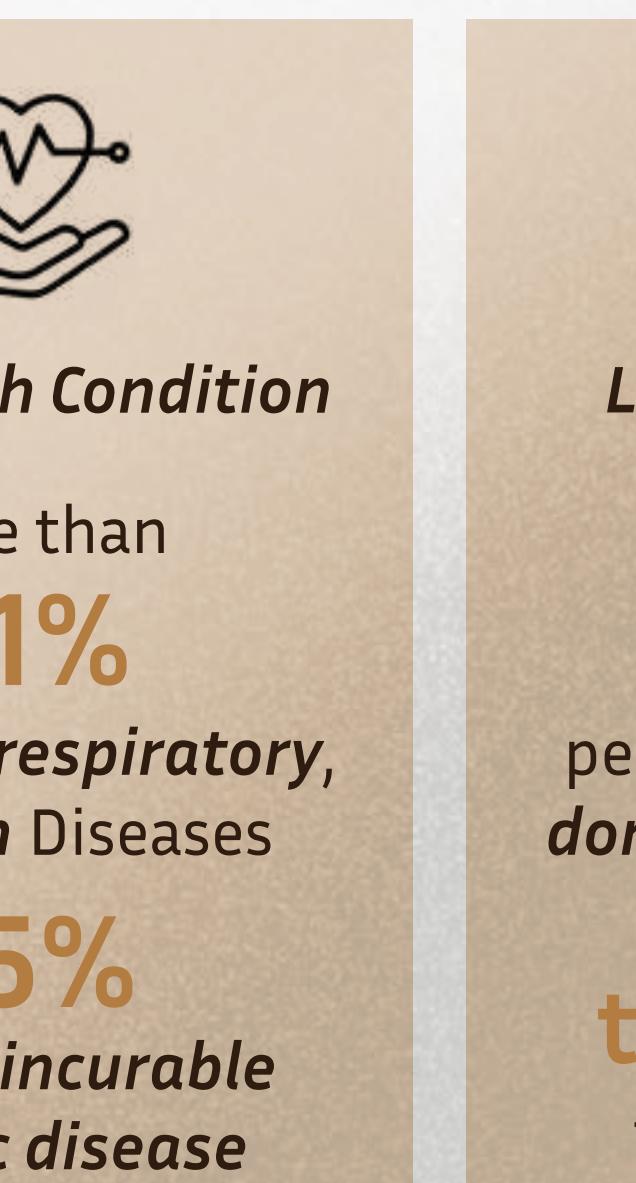
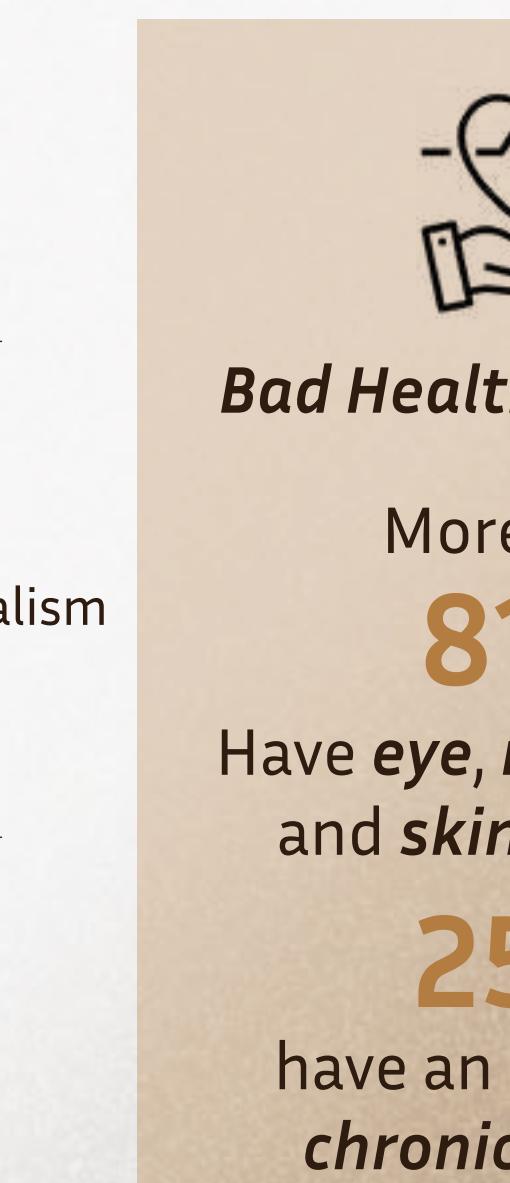
This profession is actually **the beautician of the city**. They clean up the corners of the city to keep it neat, just like a dentist will support your teeth's health and beauty. But why is it that doctors can be a respected profession, but pumping workers are **not treated with the same respect**?

Background Research

Why people like to stay away from septic pumpers?



People don't just discriminate against septic pumpers for a single reason, but the main reason is **the stench that comes from the work processes**



Interview

Xinyu Wang
32 years old · Male
1 year experience of this job

"I hope that people in the community will be **more understanding and tolerant** of what we do."

Q: How did you get into this industry and how are you feeling about this job?

A: After junior high school, I was introduced by a relative into this company.

A: I need to take tools back and forth a lot and there is no smooth place to put them.

A: Passers-by at work would often turn away from us and I felt I received discrimination.

Workplace Analysis

Demographic Analysis

On the Road

Sometimes there are vehicles pass by. The terrain is flat.

Near the Lawn

Students often pass by. The terrain is rough.

Workplace in An Area

Take the University of Nottingham Ningbo China for example.

Qiantang River

The terrain is flat.

TaiKang East Road

The terrain is flat.

GATE1

The terrain is flat.

Quinti South Road

The terrain is flat.

Academic Park

The terrain is flat.

Express Way

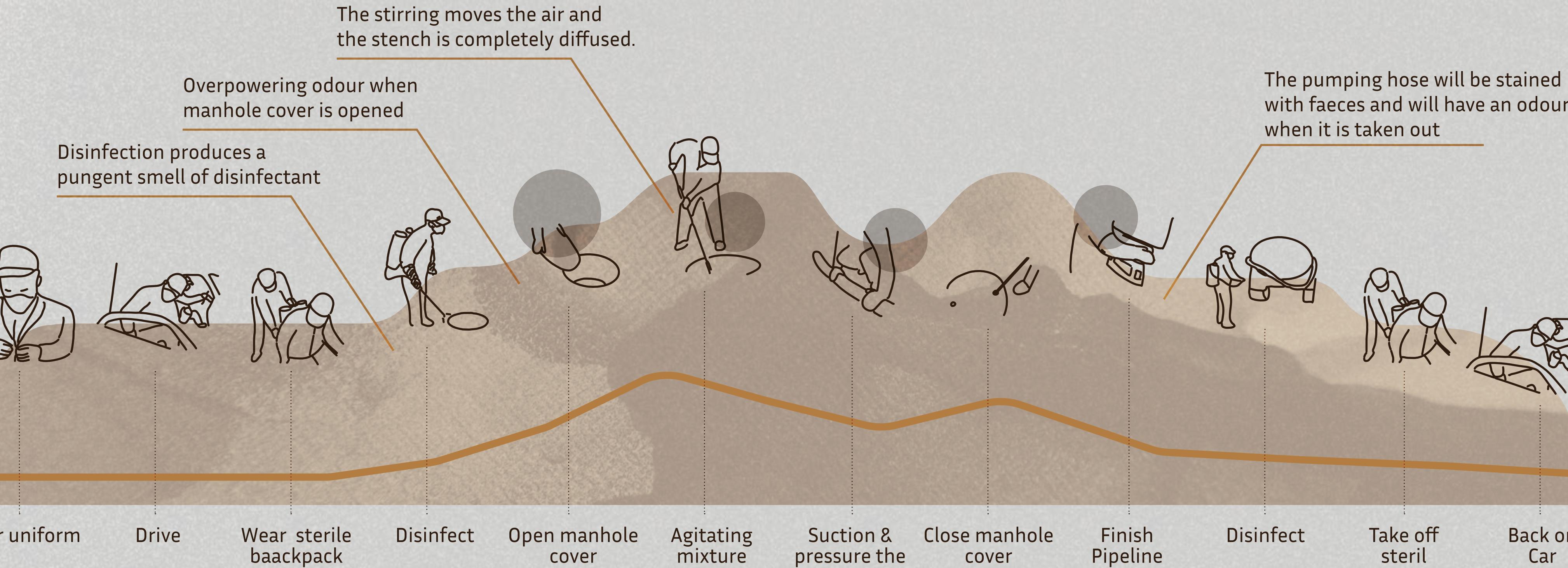
The terrain is flat.

High risk contaminated area

The level of odor around

Pollution pumping workers received

Current Situation of Working Flow



High risk contaminated area

The level of odor around

Pollution pumping workers received

High risk contaminated area

The level of odor around

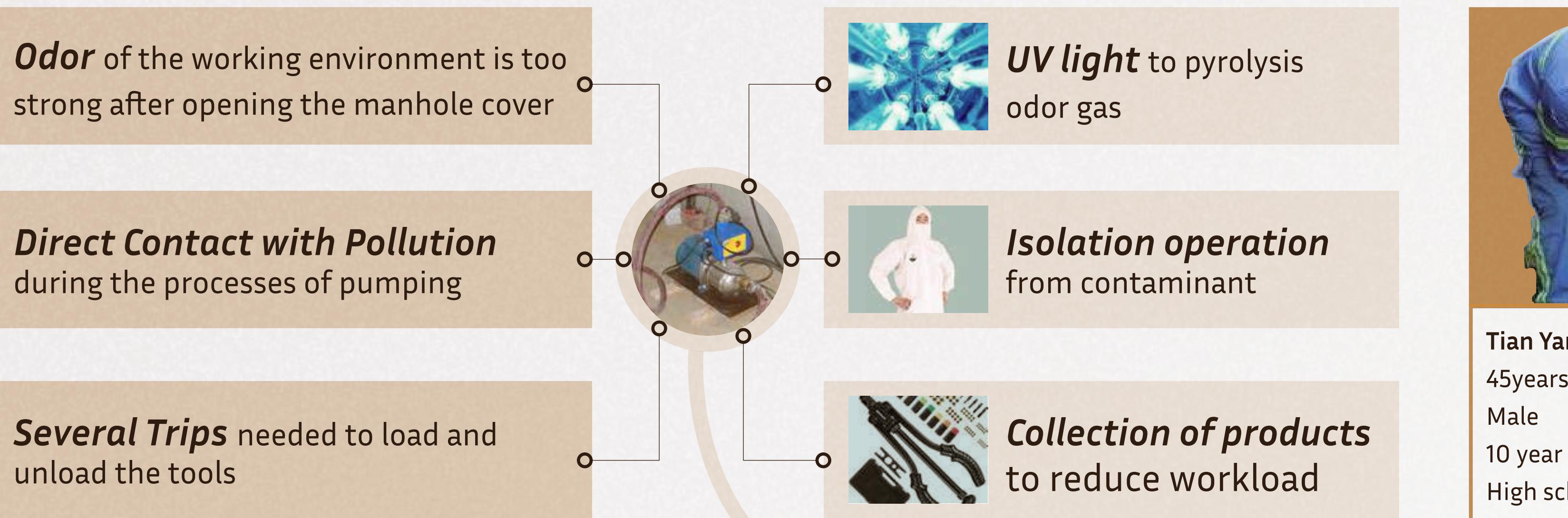
Pollution pumping workers received

High risk contaminated area

The level of odor around

Pollution pumping workers received

Problems & Solutions

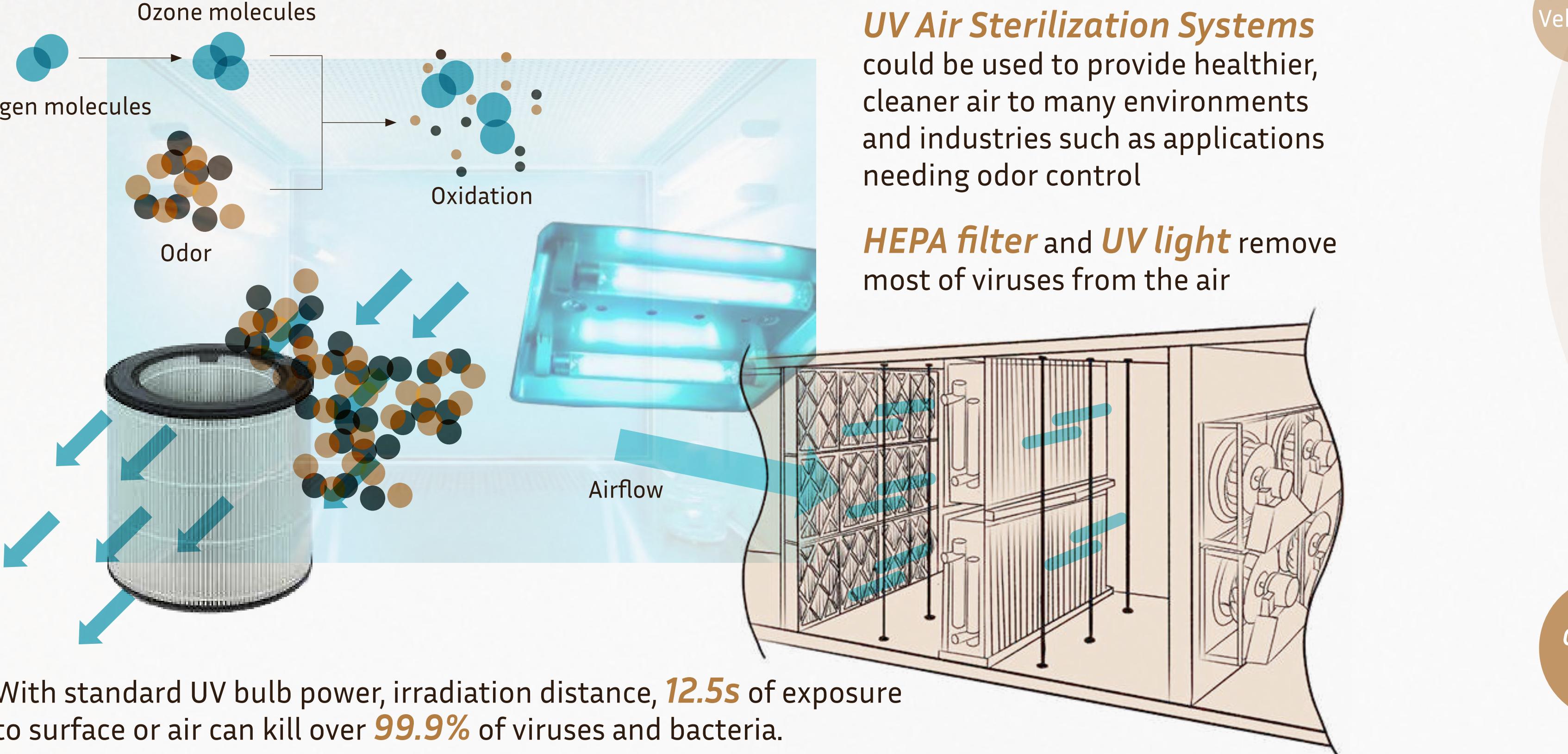


Problem Summary

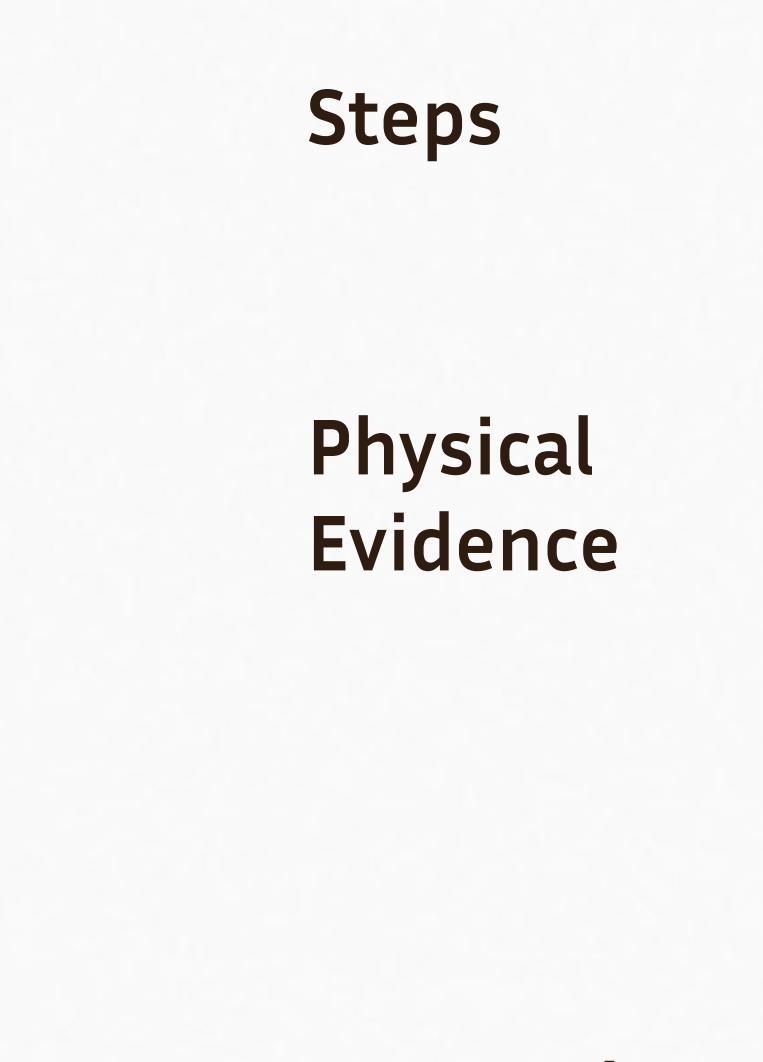
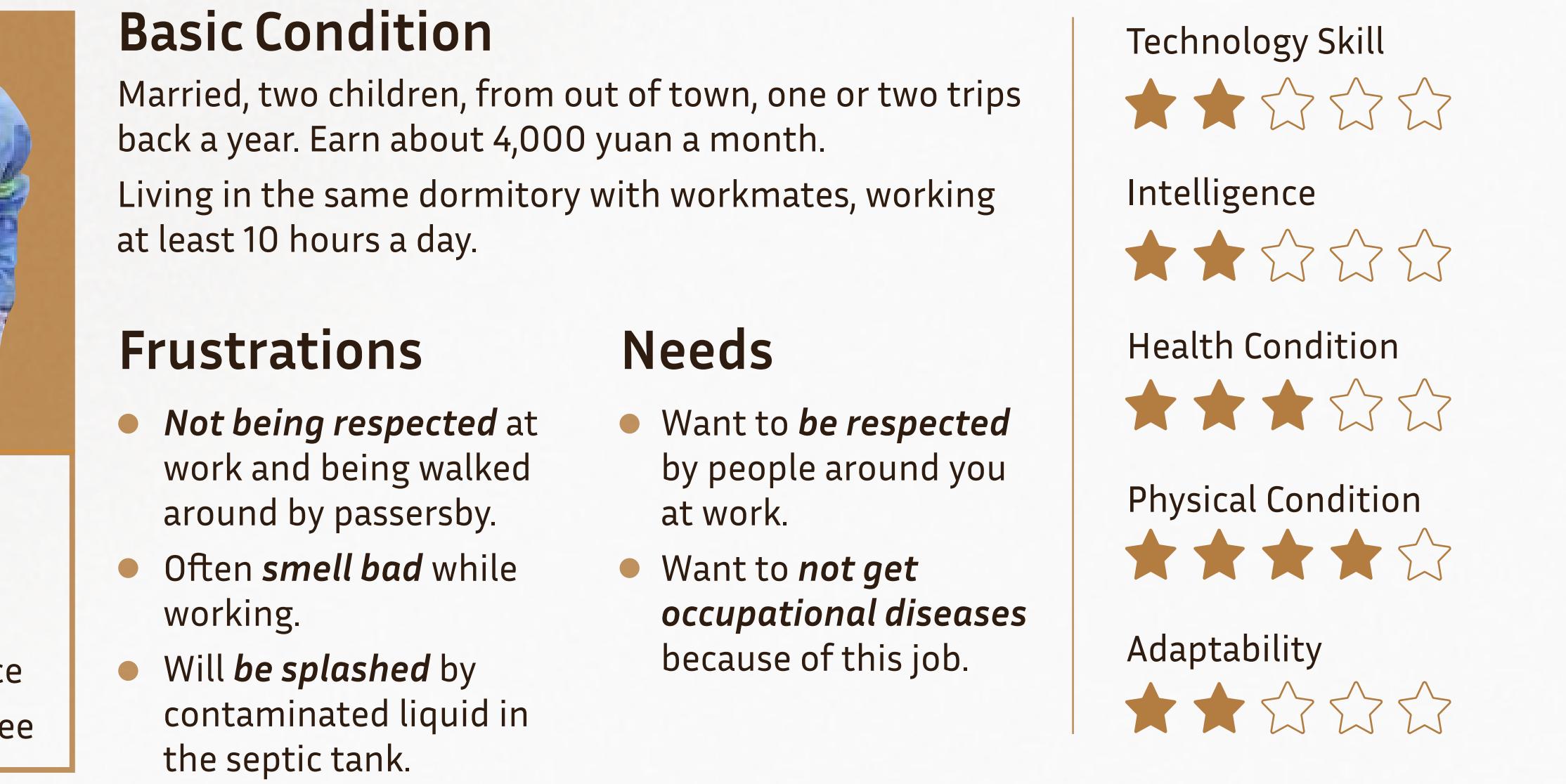
- Originally scattered tools need **to be integrated** to meet various work scenarios.
- Issues includes **working environment** and **psychological endurance** need to improve
- Expand relevant **careers education** to the general public.



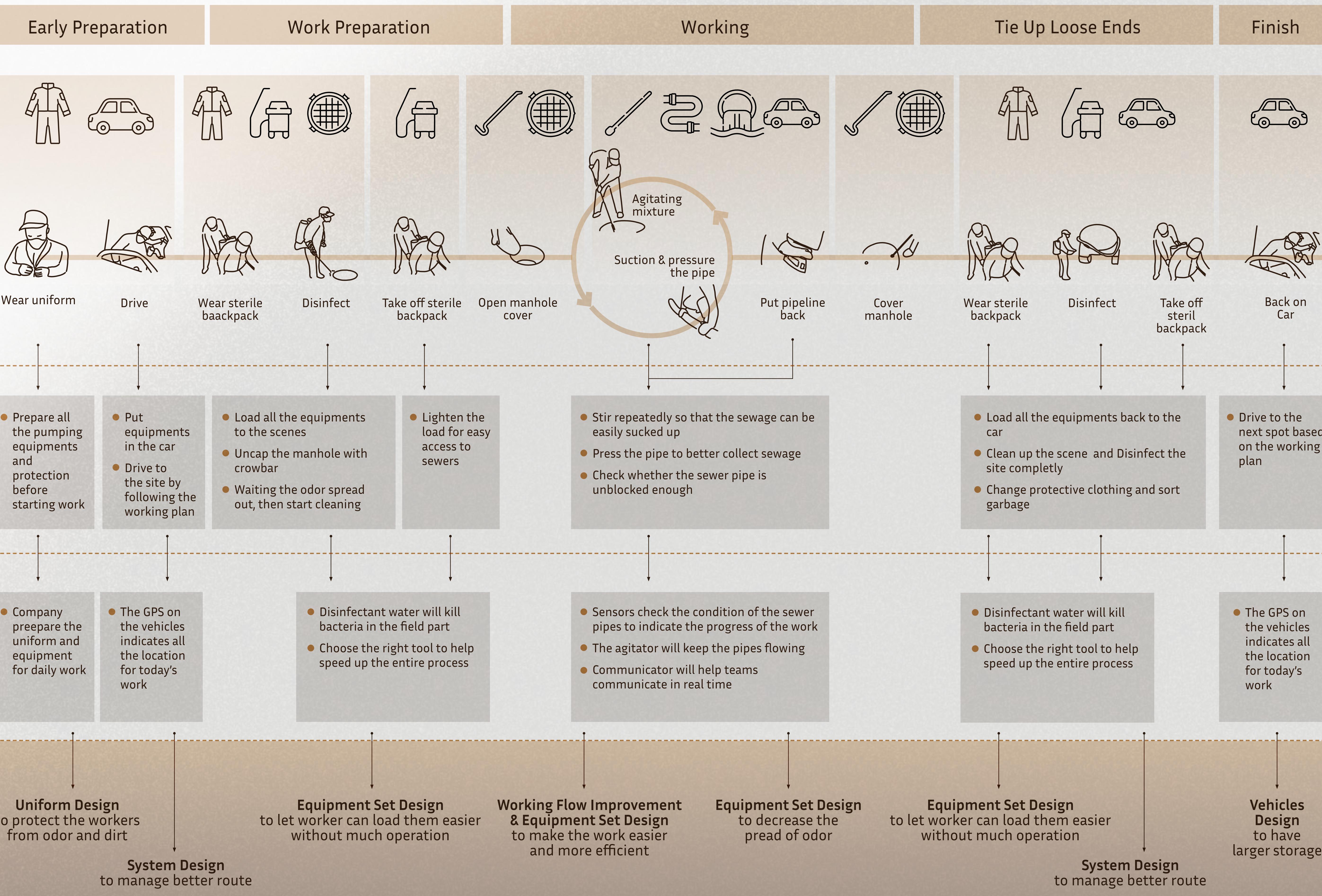
Technical Support



Target Group Analysis

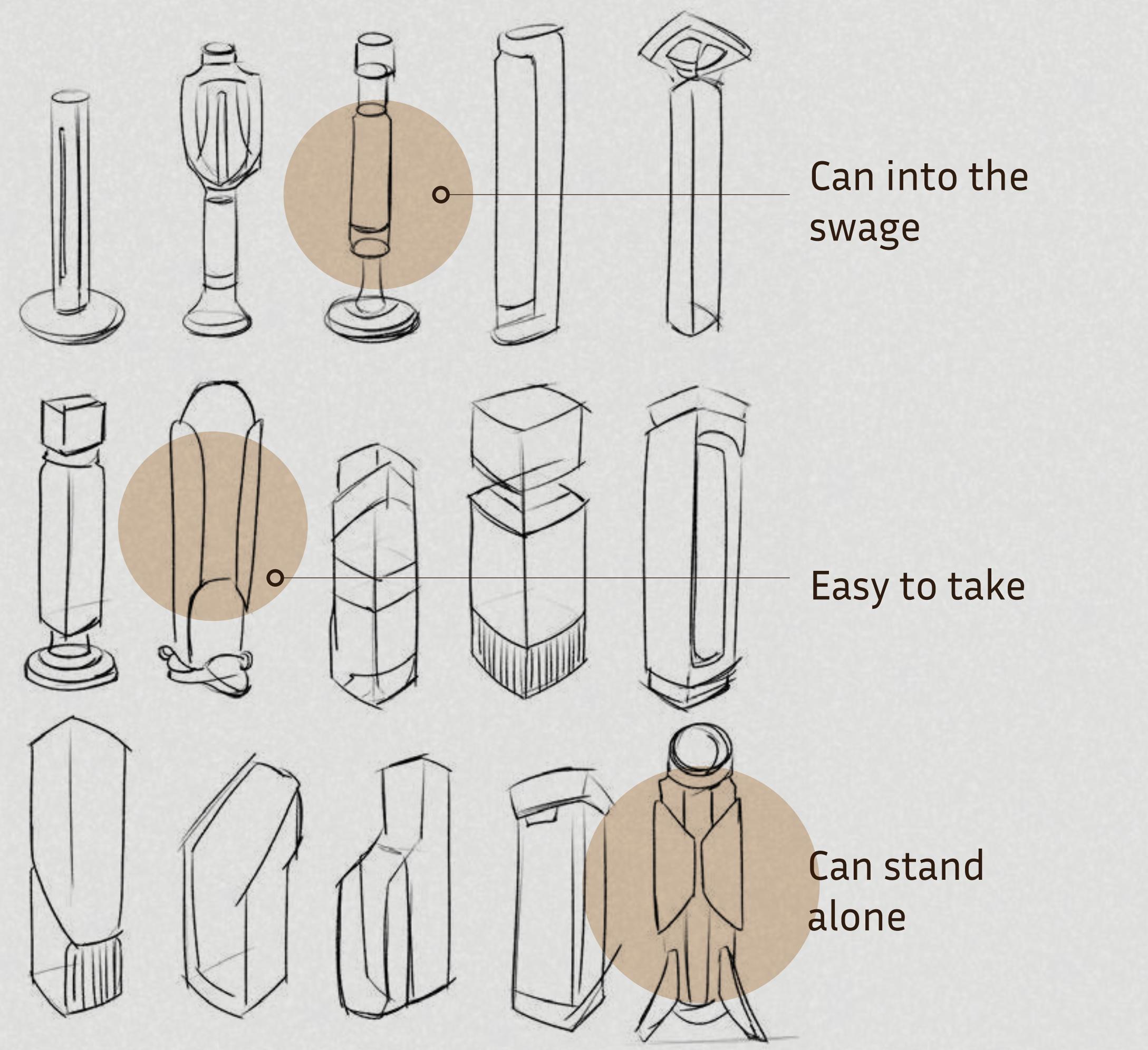


Service Blueprint

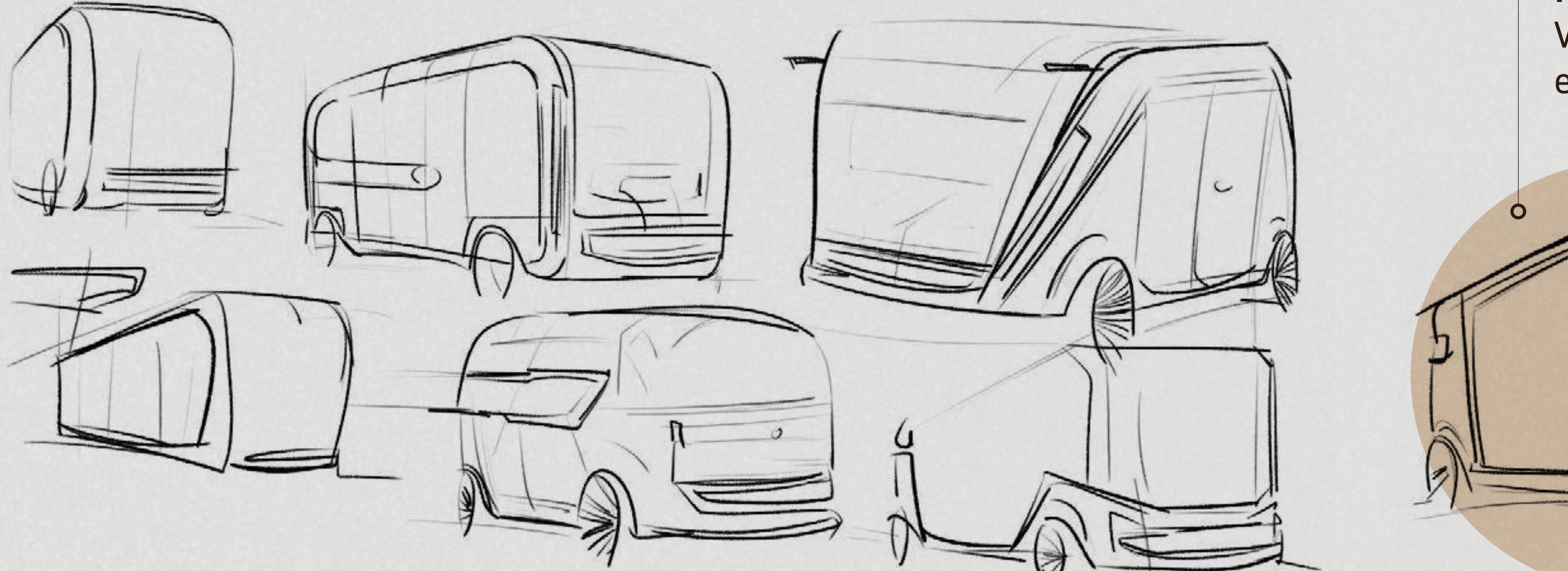


Ideas & Sketches

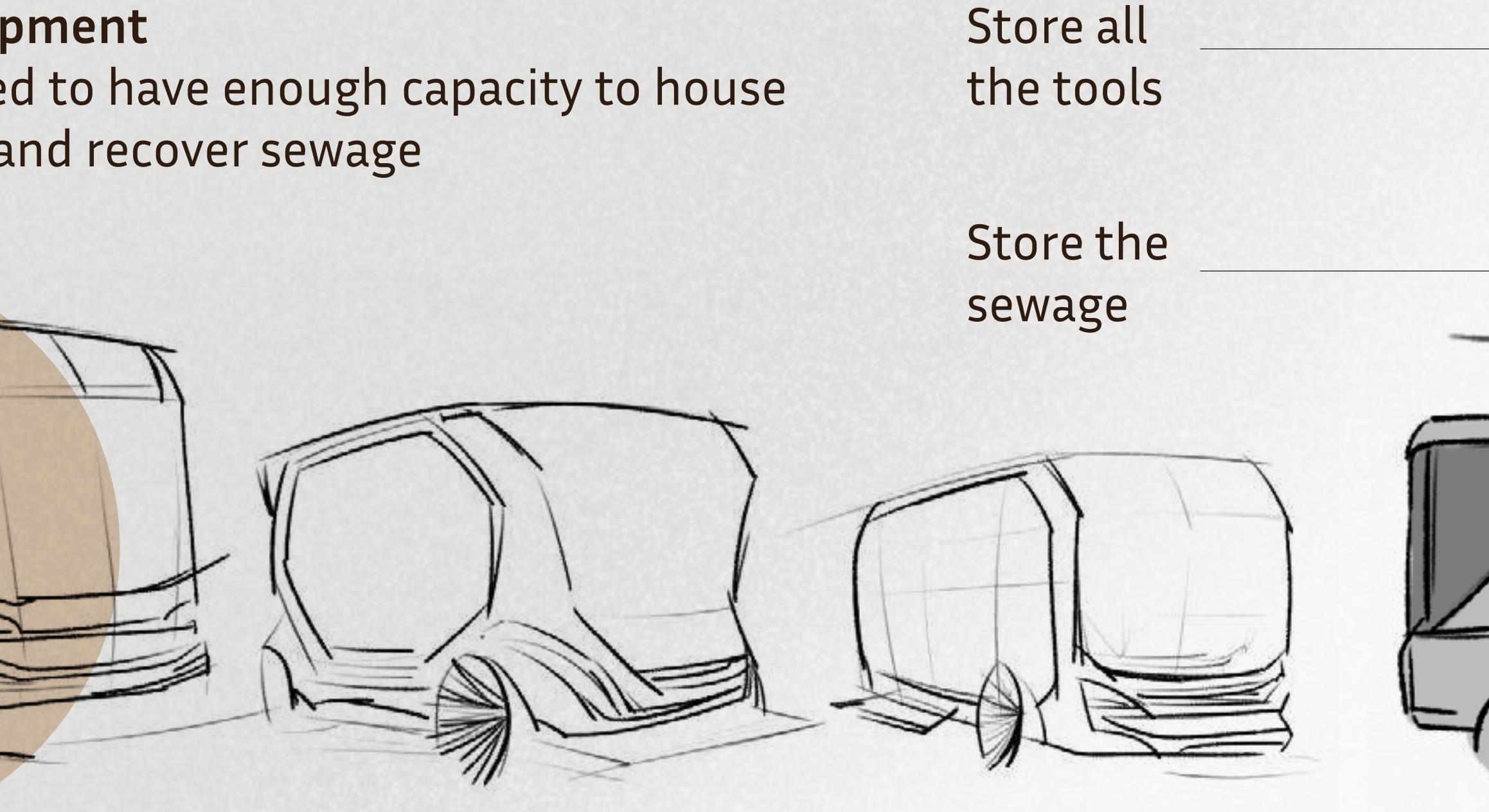
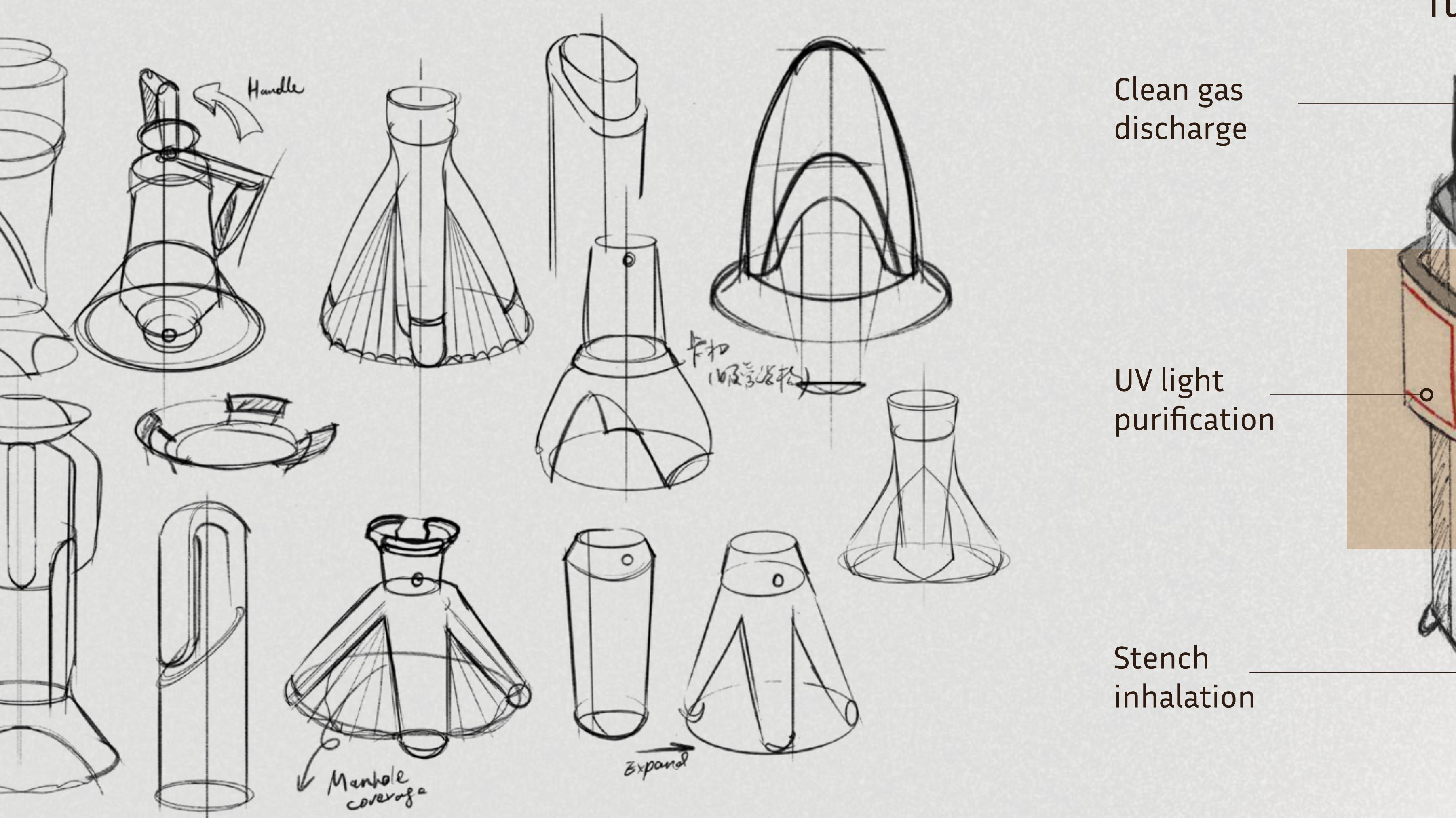
Basic Form Ideation



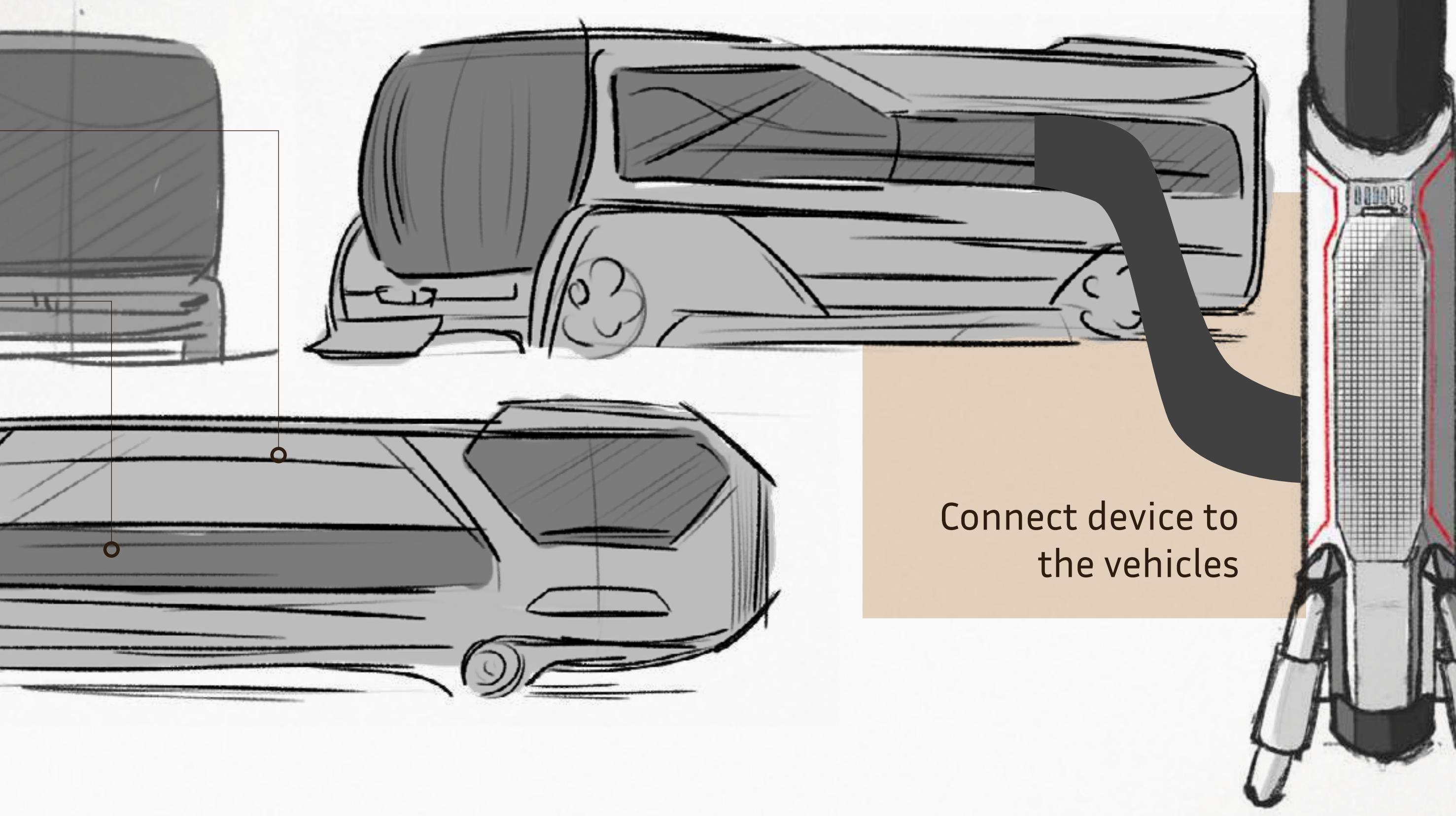
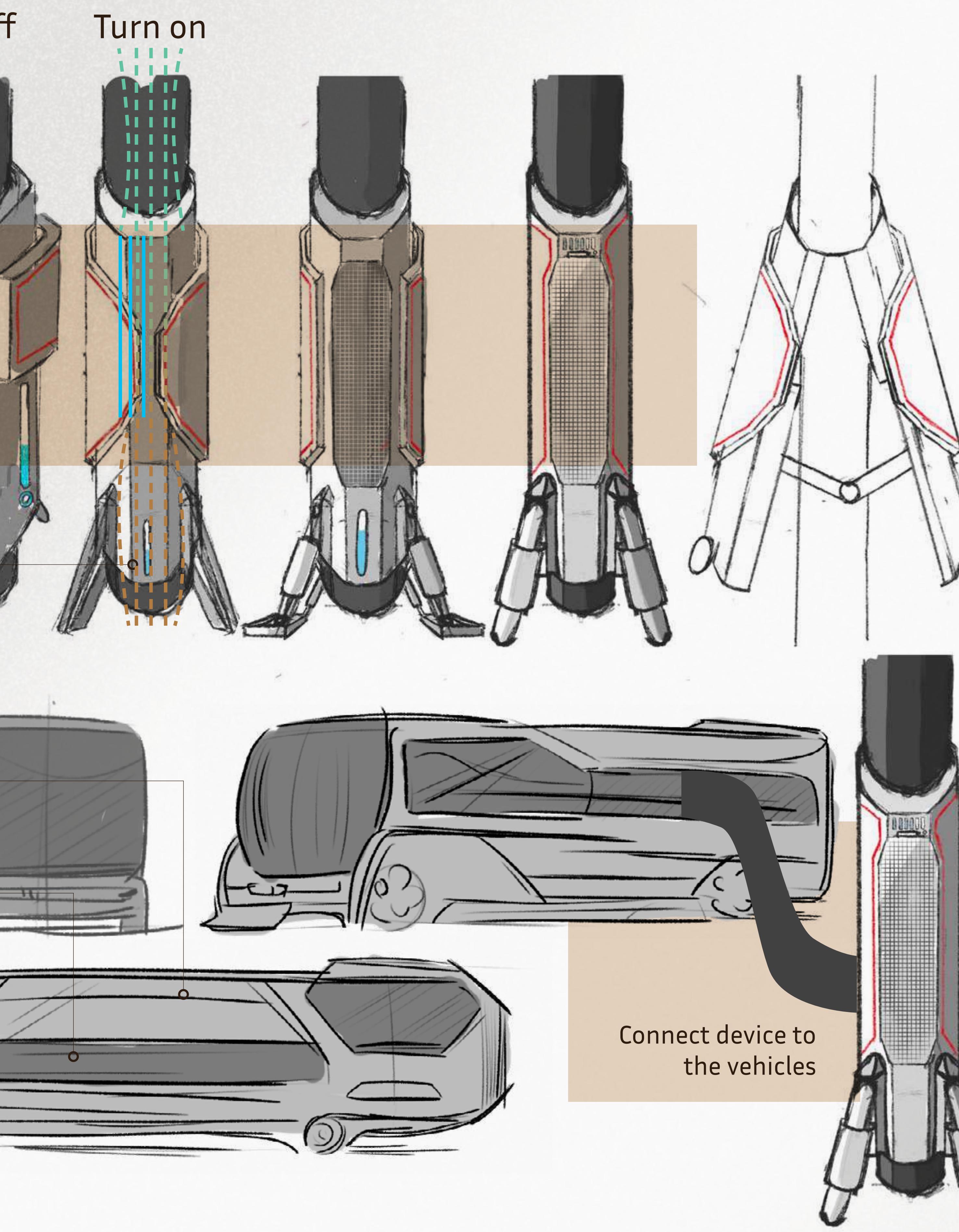
Fecal Pump Sketch



Pumping Tool Detail Development

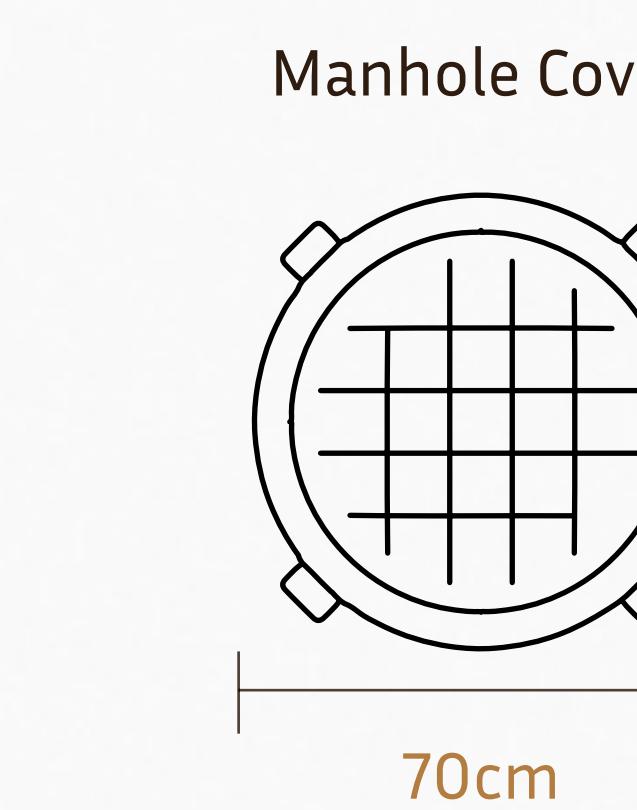


Final Sketch



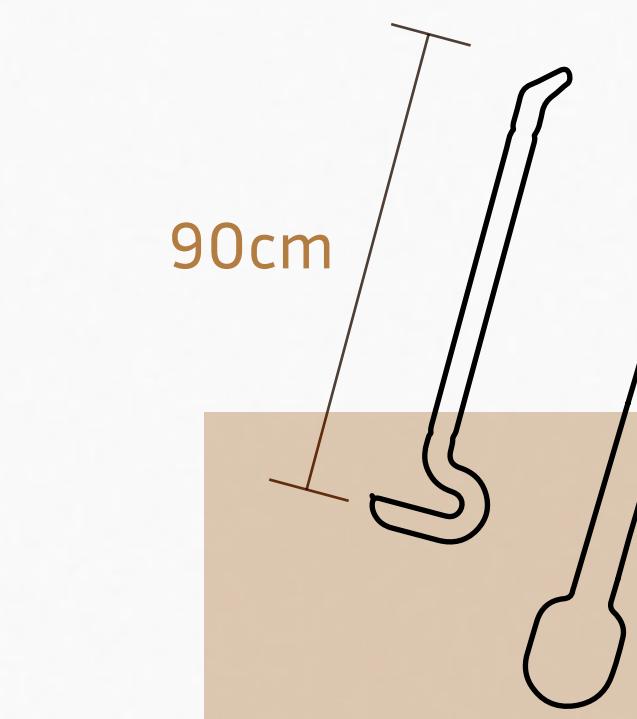
Paper Prototype

Use cardboard to create rough model help to identify the scale of the machine and how each part combine together



Crowbar & Shit-stirrer

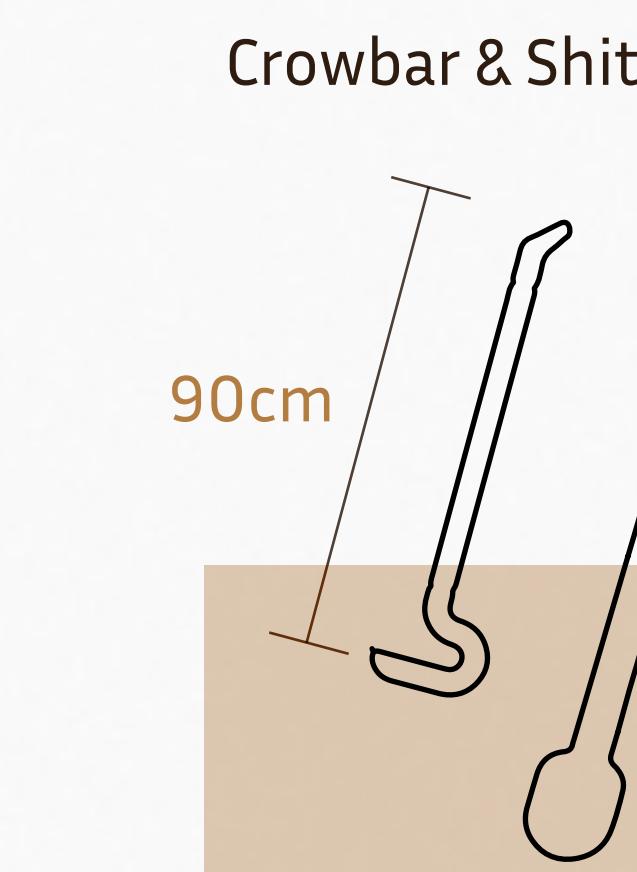
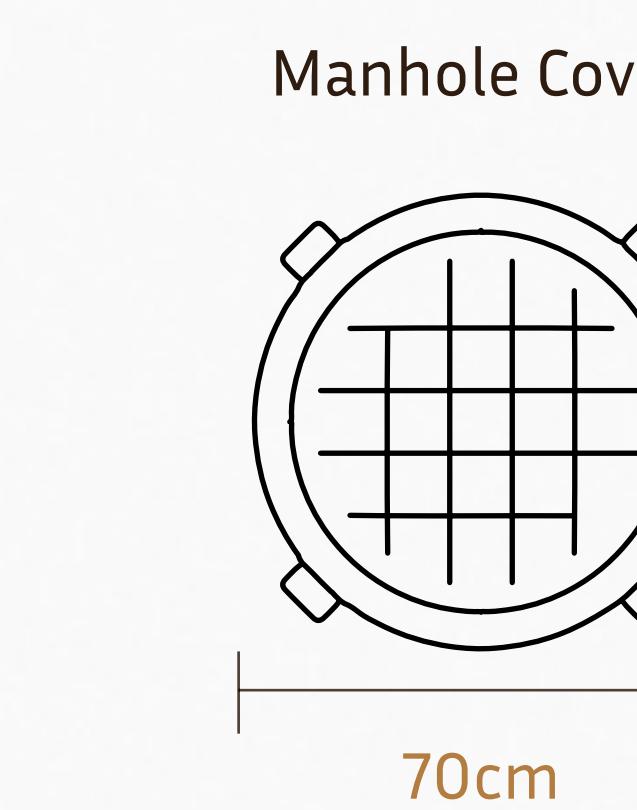
UV Light



The main body could be higher than the human body to spread the gas

Added trolley design for easy handling

Bottom support needs to be larger than manhole cover for fully cover



UV Light

120cm

90cm

30cm

50cm

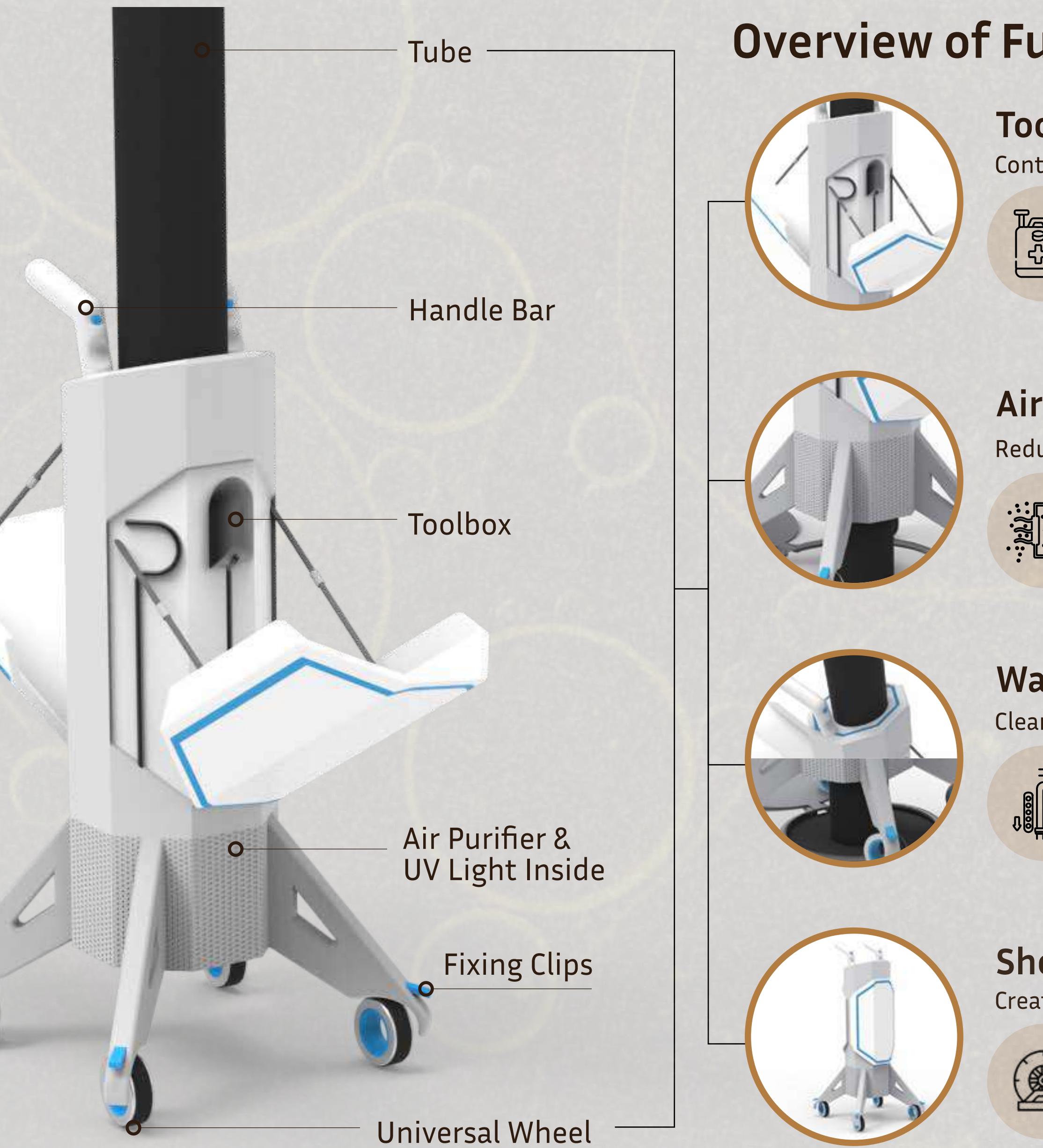
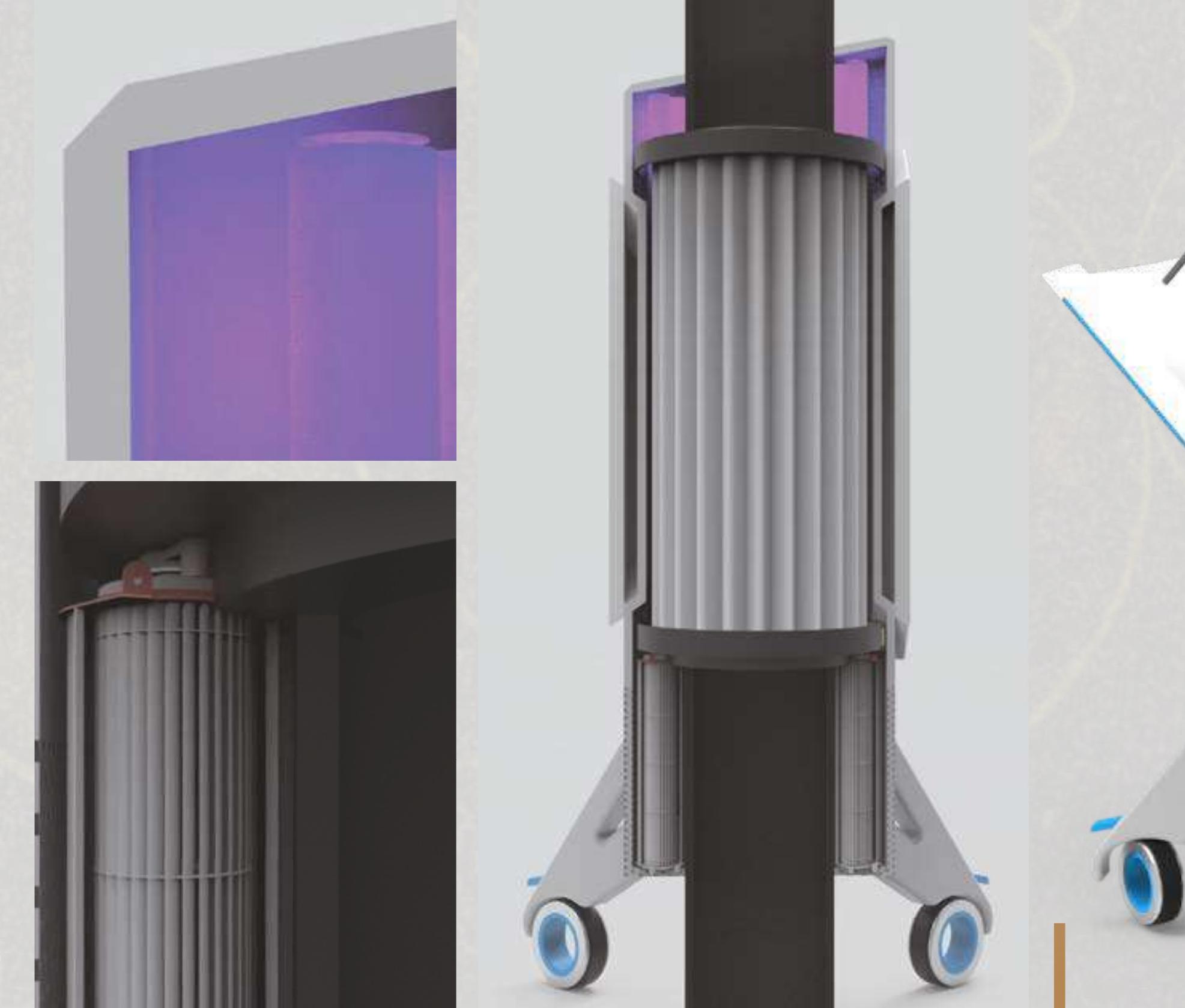
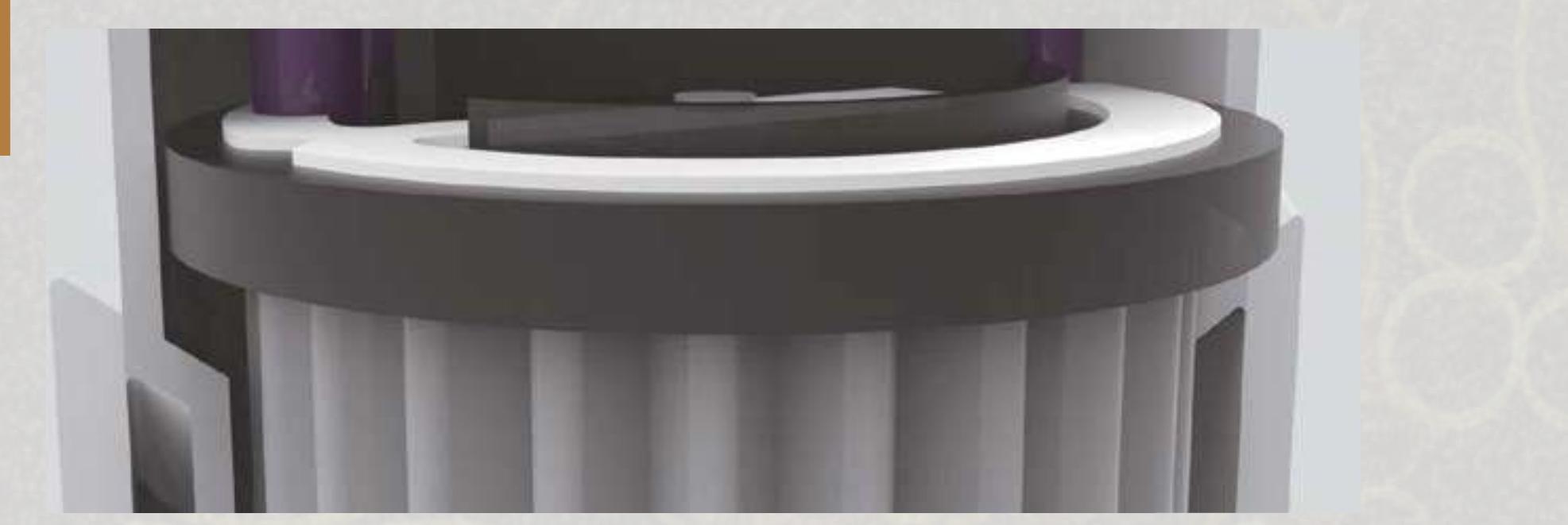
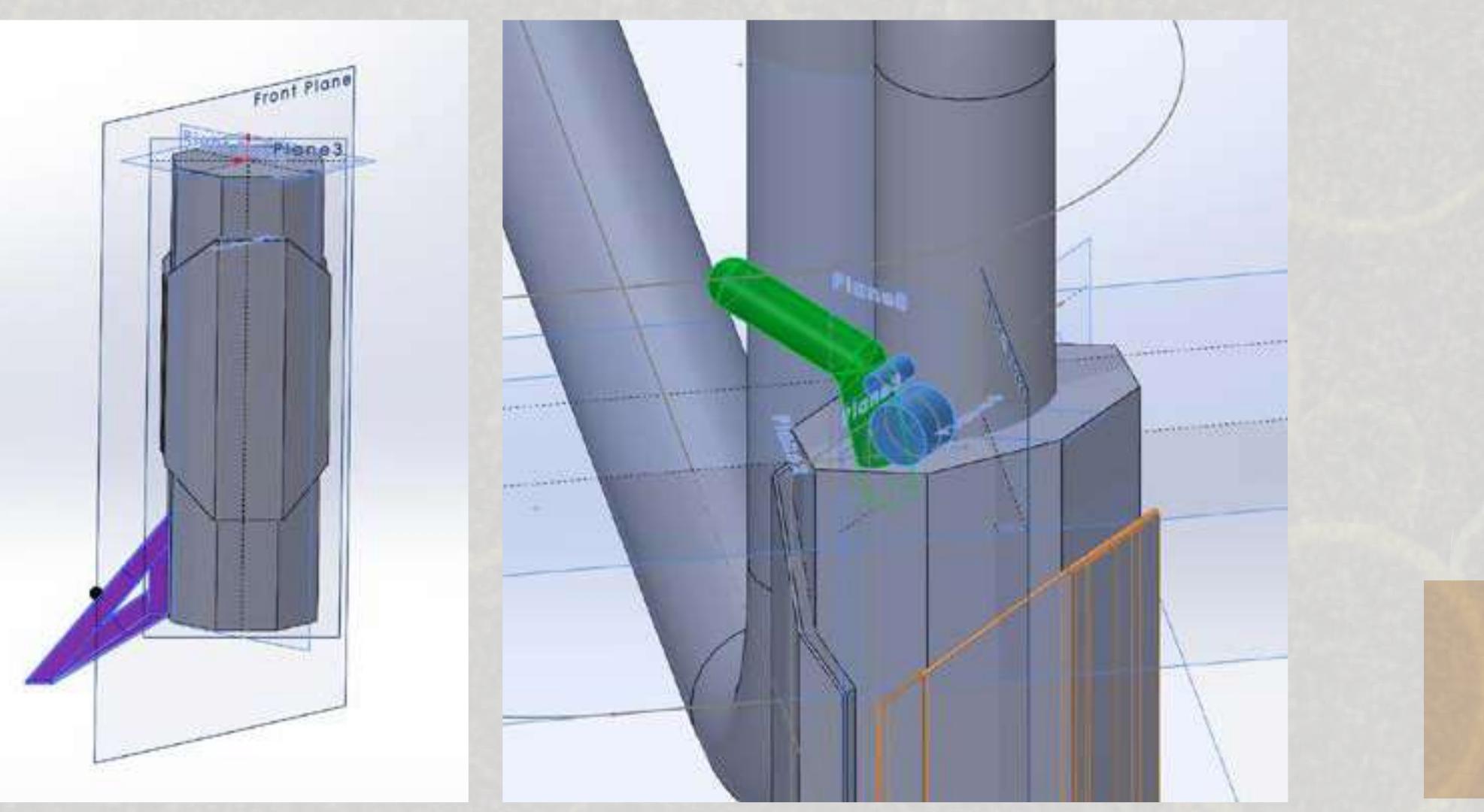
70cm

UV Light

24cm

Final Design

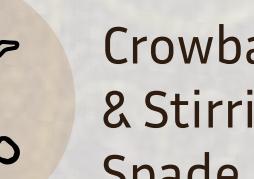
Product Rendering



Overview of Functions

Toolbox

Contain all tools needed in the cleaning scene



Disinfection Backpack



Crowbar & Stirring Spade

Air Purifier

Reduce the Odor from the sources



HEPA Filter



UV Light

Water Pump

Clean up sewage in an effective way



Transmission Line Motor



Multilayer Pipe

Shell

Create a safe working environment



Lockable Wheels



Clean Appearance

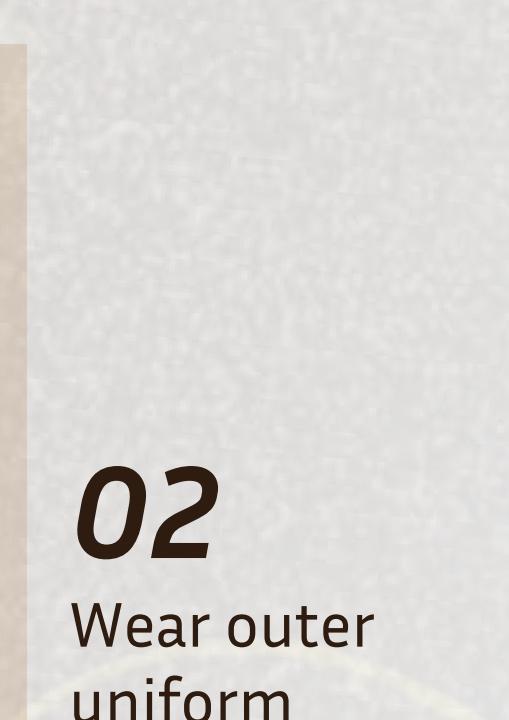


User Scenario



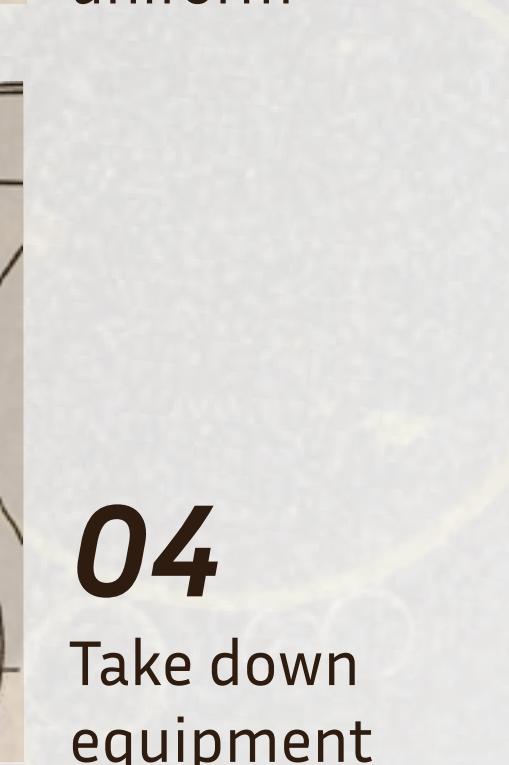
01

Arrival at workplace



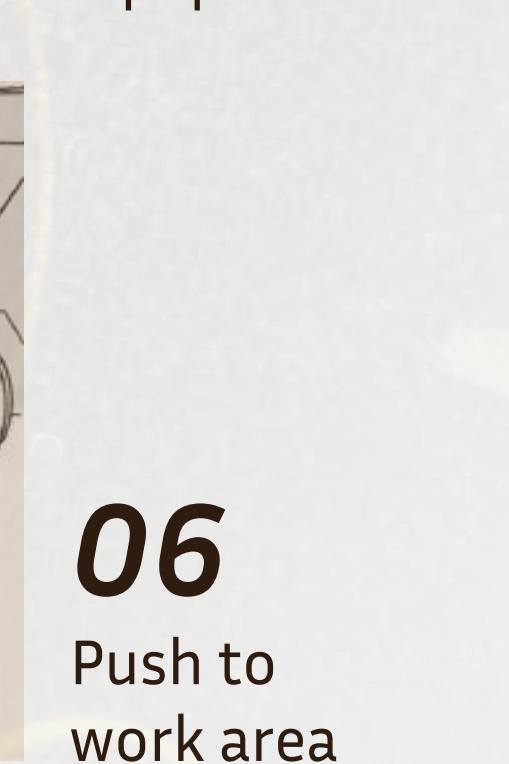
02

Wear outer uniform



03

Open the cabinets



04

Take down equipment



05

Push to work area



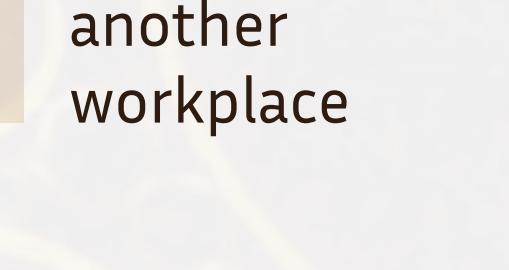
06

Put equipment back



07

Open equipment & Disinfecting the area



08

Drive to another workplace

09

Put equipment back

10

Drive to another workplace

Brand Identity

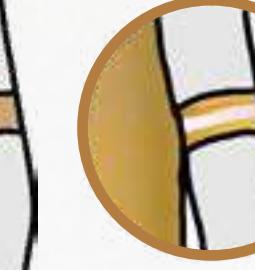
This brand identity design aims to build a **respectful profession image** of pumping workers, through a series design of uniform, outside look of vehicles, etc.

Uniform Design



Nameplate

Increase the personal recognition of workers and bring them closer to passers-by



Reflective Strip

More visible on the road, protecting workers while working in the middle of the road



White Undershirt

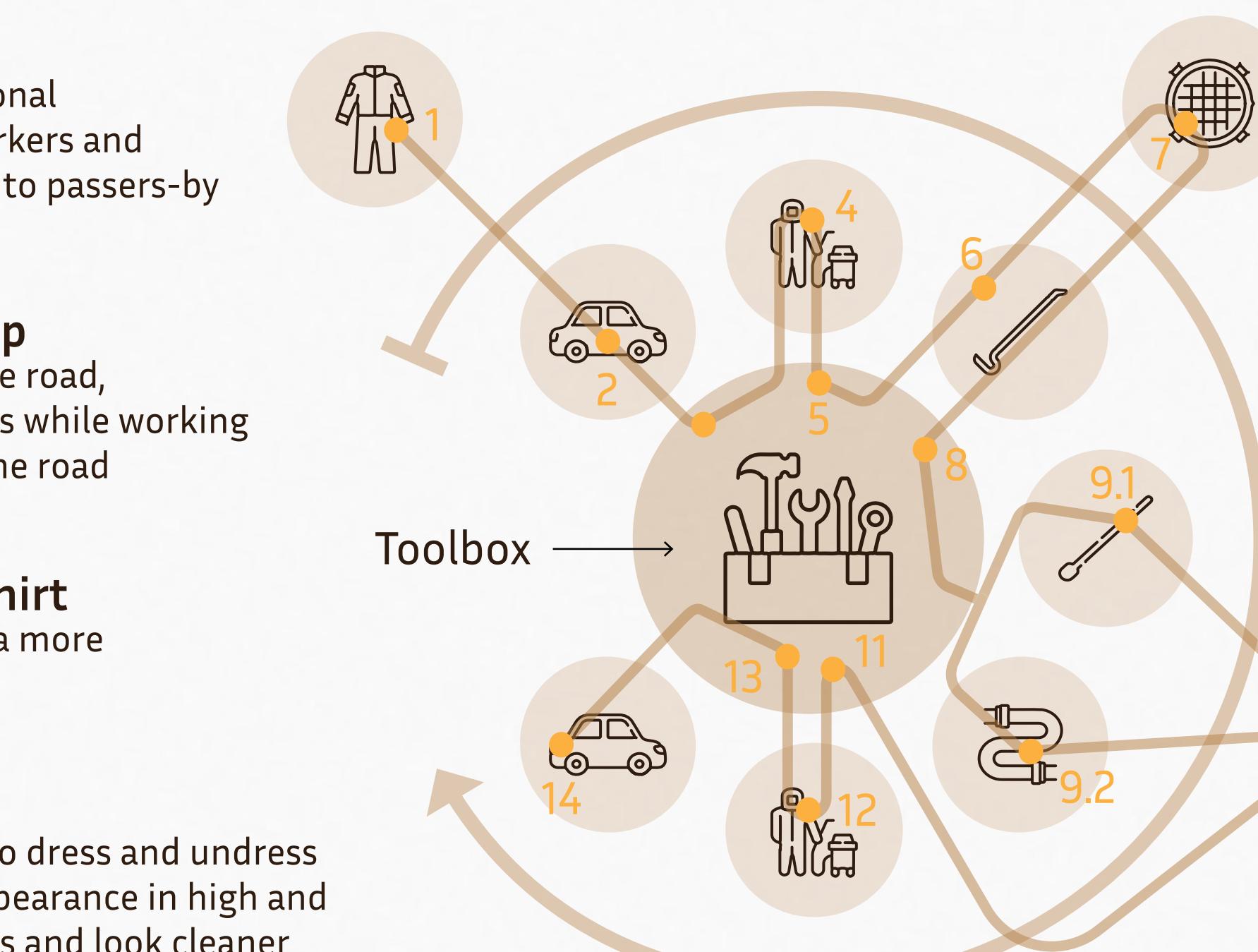
Provides workers a more professional look



Apron

Workers are free to dress and undress to switch their appearance in high and low pollution areas and look cleaner and tidier when interacting with others

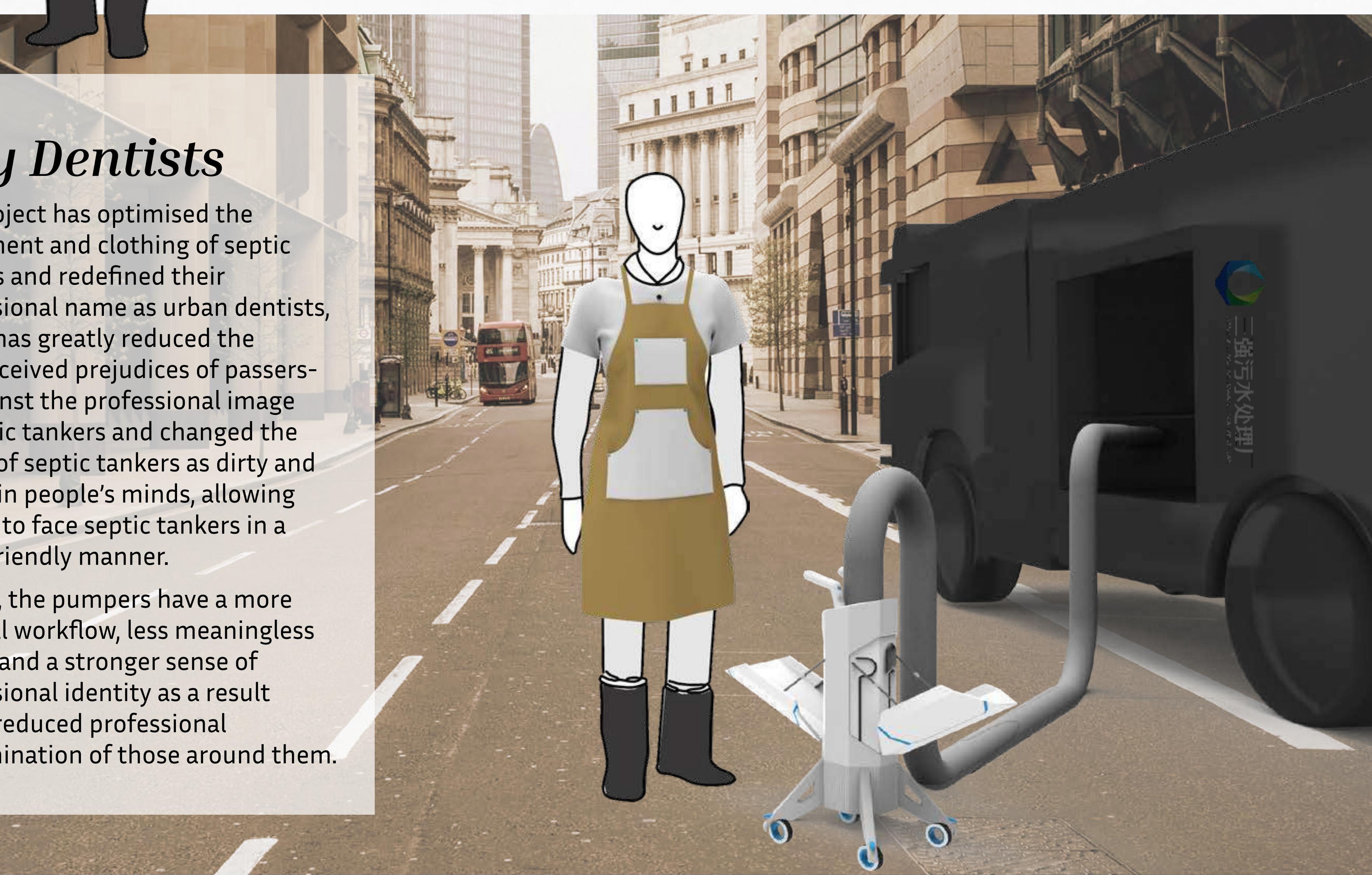
Redesigned Workflow



City Dentists

The project has optimised the equipment and clothing of septic tankers and redefined their professional name as urban dentists, which has greatly reduced the preconceived prejudices of passers-by against the professional image of septic tankers and changed the image of septic tankers as dirty and messy in people's minds, allowing people to face septic tankers in a more friendly manner.

In turn, the pumpers have a more rational workflow, less meaningless labour and a stronger sense of professional identity as a result of the reduced professional discrimination of those around them.



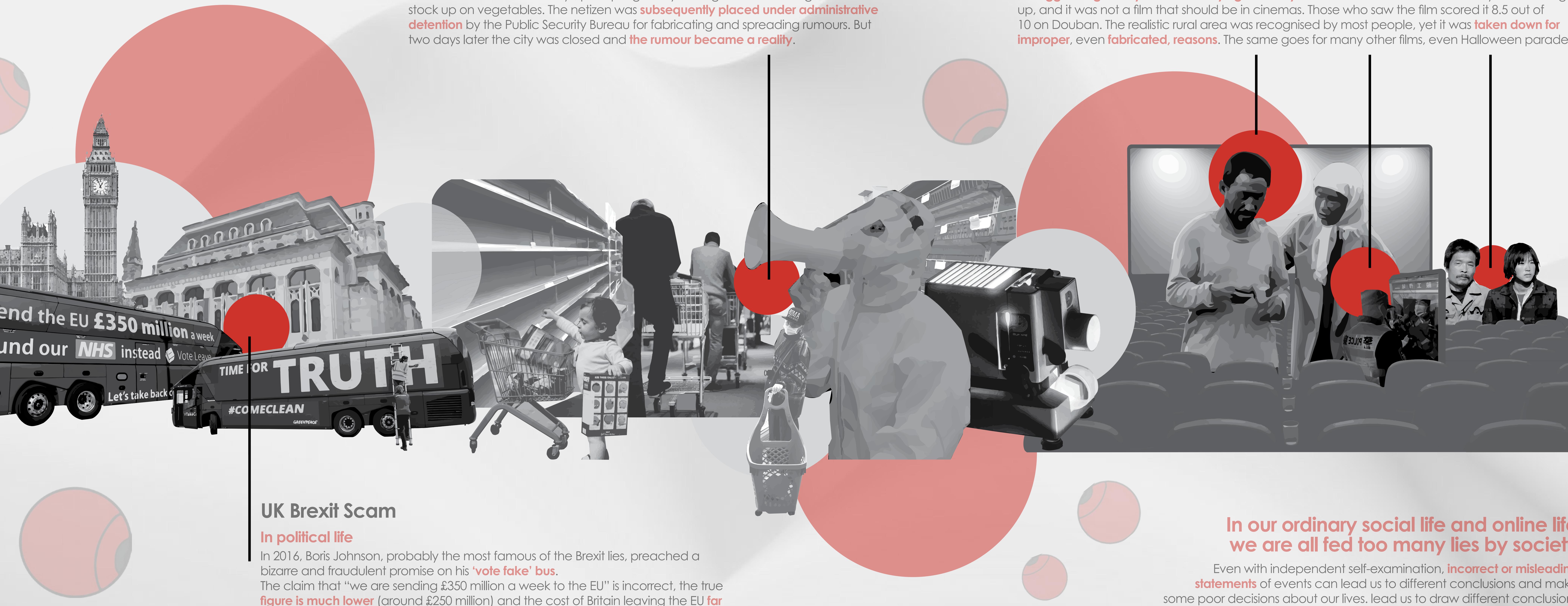
Unmasked Mind



A wearable device that can view someone's thoughts to determine if they are lying

In our lives, we often deception from others and misinformation can lead to people making bad decisions. In this project, we envisage an anti-utopian society where the central government misuses this device to spy on people's minds. We imagine a future where a technological device is created that can view people's thoughts to explore whether it can increase social trust and people's happiness.

Inspirations Why I start this project



Chengdu City Closure Scam

In consumer life

A netizen with the ID "Tropical Rainforest" in Chengdu, China, warned that the city would be closed for five days, prompting many Chengdu residents to grab and stock up on vegetables. The netizen was **subsequently placed under administrative detention** by the Public Security Bureau for fabricating and spreading rumours. But two days later the city was closed and **the rumour became a reality**.

Film Restriction Scam

In culture life

A film about a couple from the lower class in the north-western countryside has been shelved for "**exaggerating misery**" and "**destroying harmony**". It was because the National Day was coming up, and it was not a film that should be in cinemas. Those who saw the film scored it 8.5 out of 10 on Douban. The realistic rural area was recognised by most people, yet it was **taken down for improper, even fabricated, reasons**. The same goes for many other films, even Halloween parades.

In our ordinary social life and online life we are all fed too many lies by society

Even with independent self-examination, **incorrect or misleading statements** of events can lead us to different conclusions and make some poor decisions about our lives. lead us to draw different conclusions and **allow us to make some poor decisions** about our livesetly

People hate to be deceived, but it is people themselves who are deceived...

Research

Background of this project

People Lie Unconsciously

If we could suddenly discover all the lies, life in countries where infidelity, homosexuality or certain religious beliefs are illegal could be threatened.



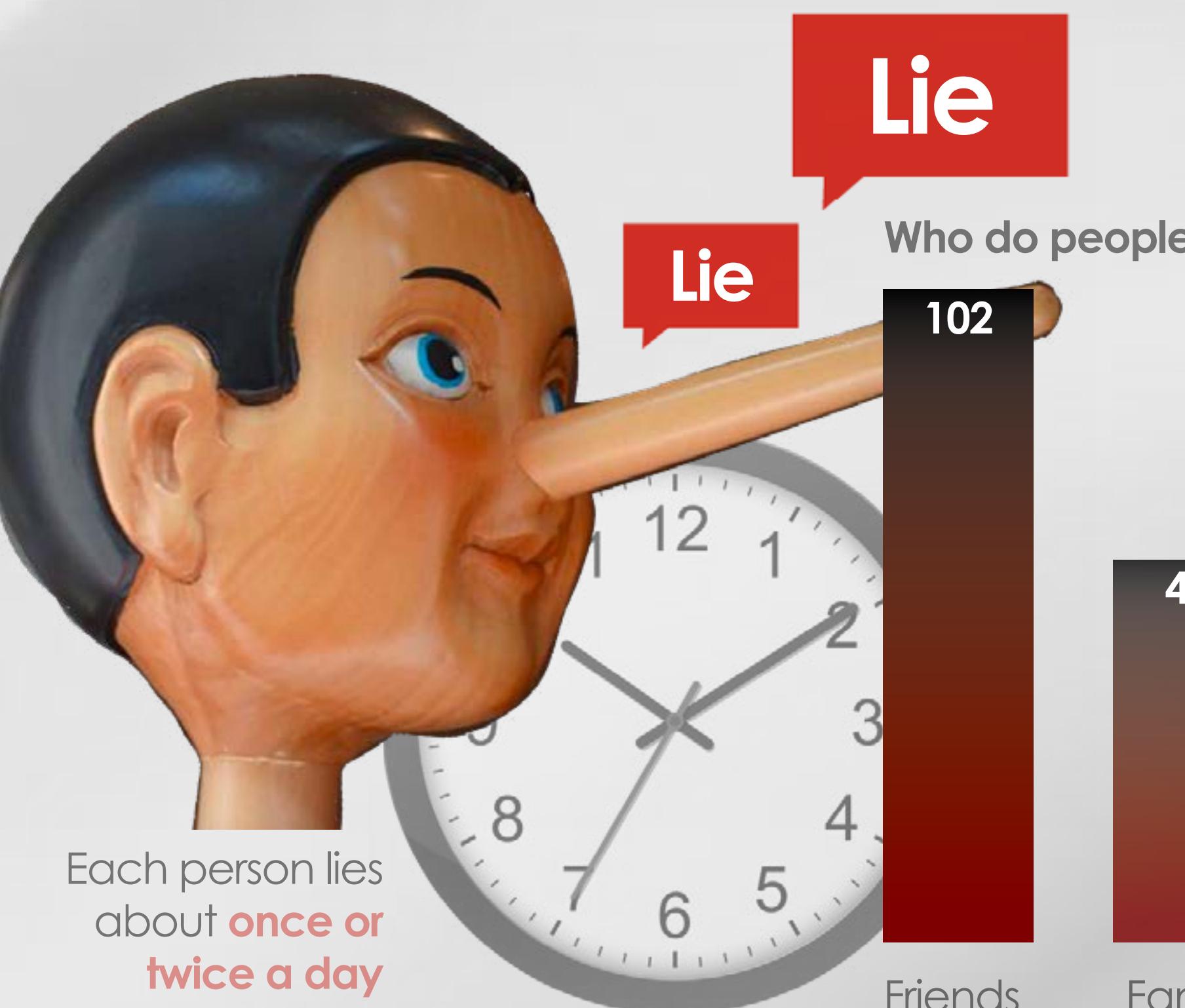
It looks good



I am satisfied

“ It's very common, so we just don't notice them.

By Michael Lewis, American Scientist

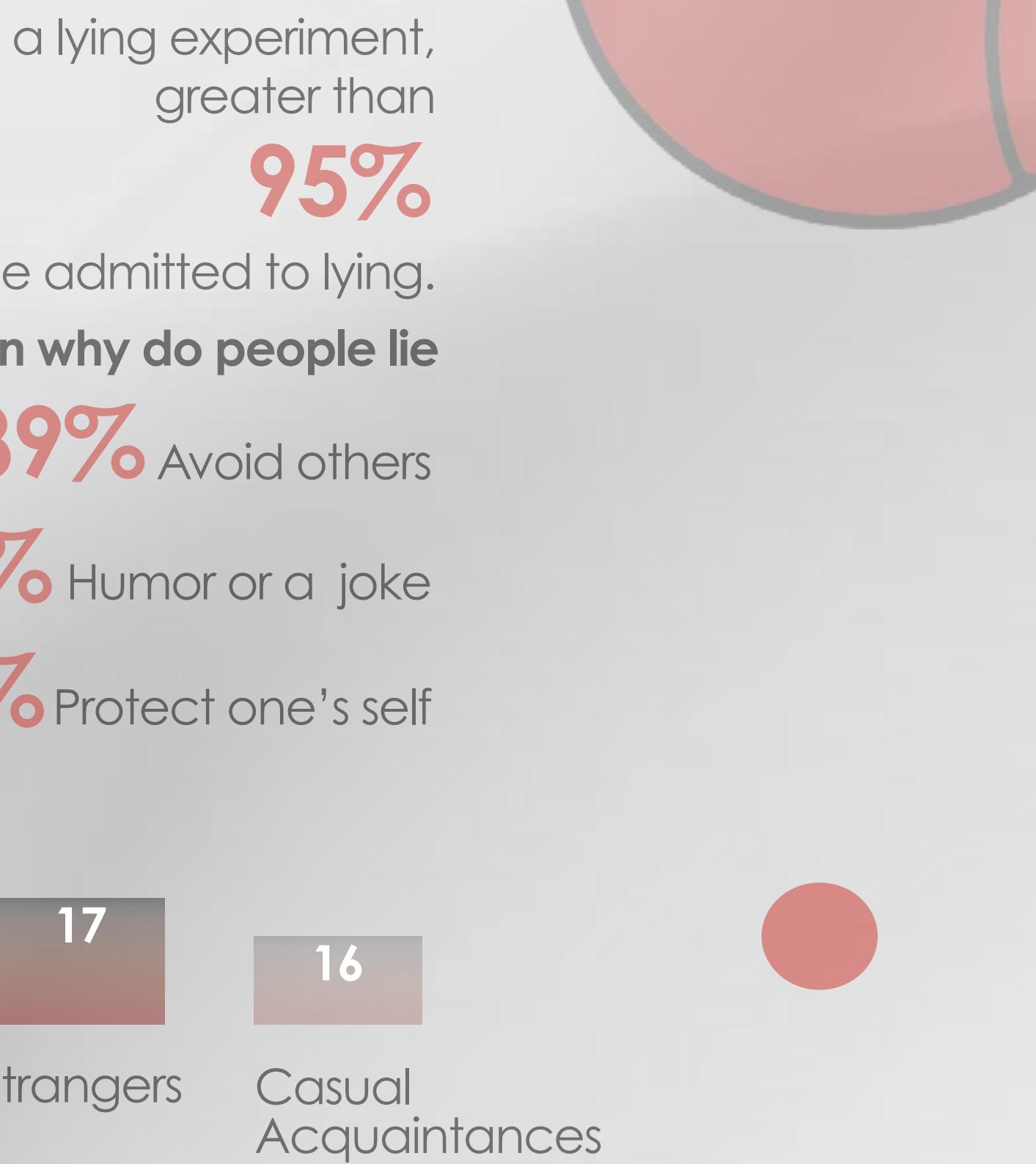


Lie

Lie

Who do people lie to?

102

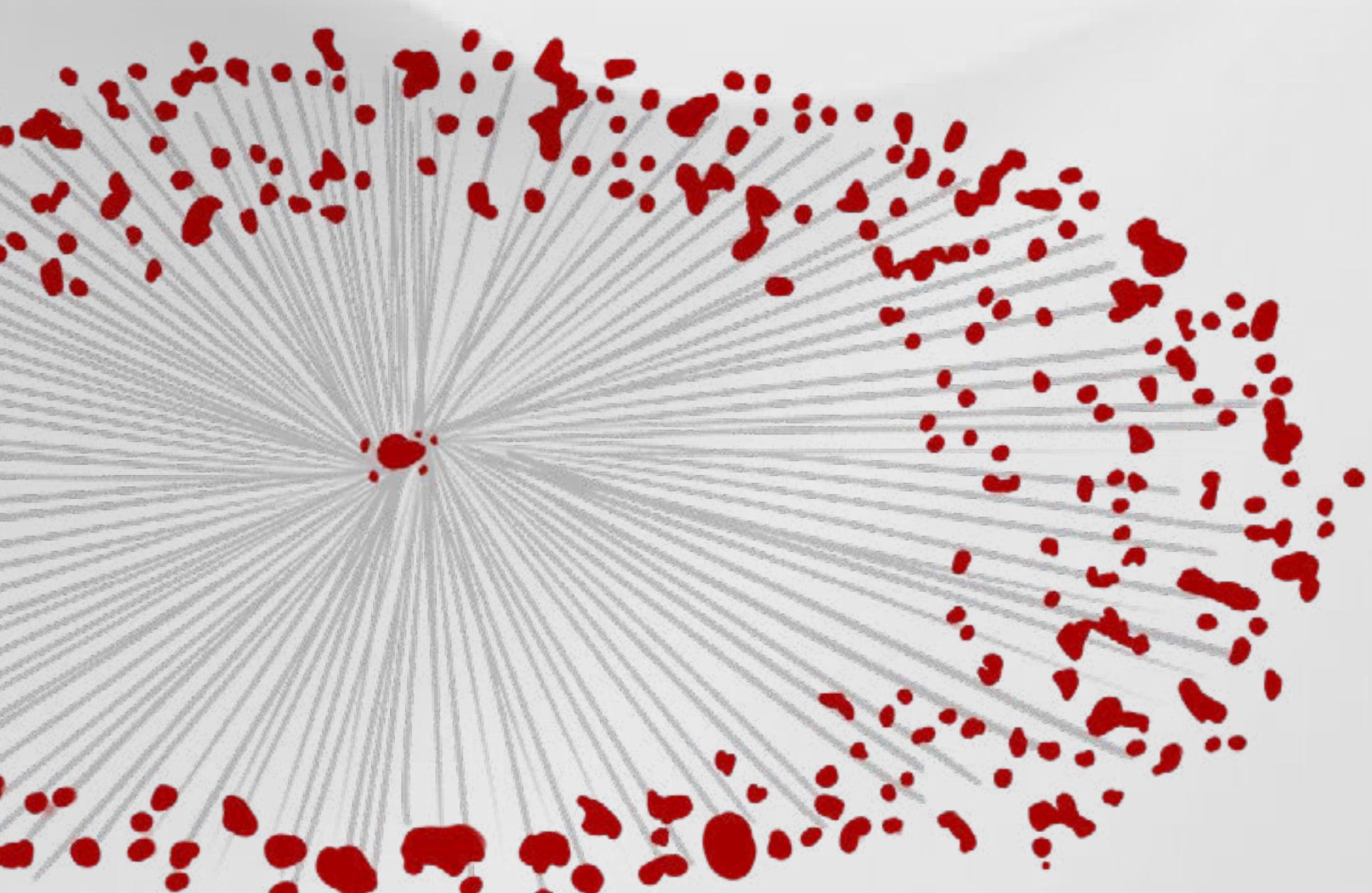


Why Lies

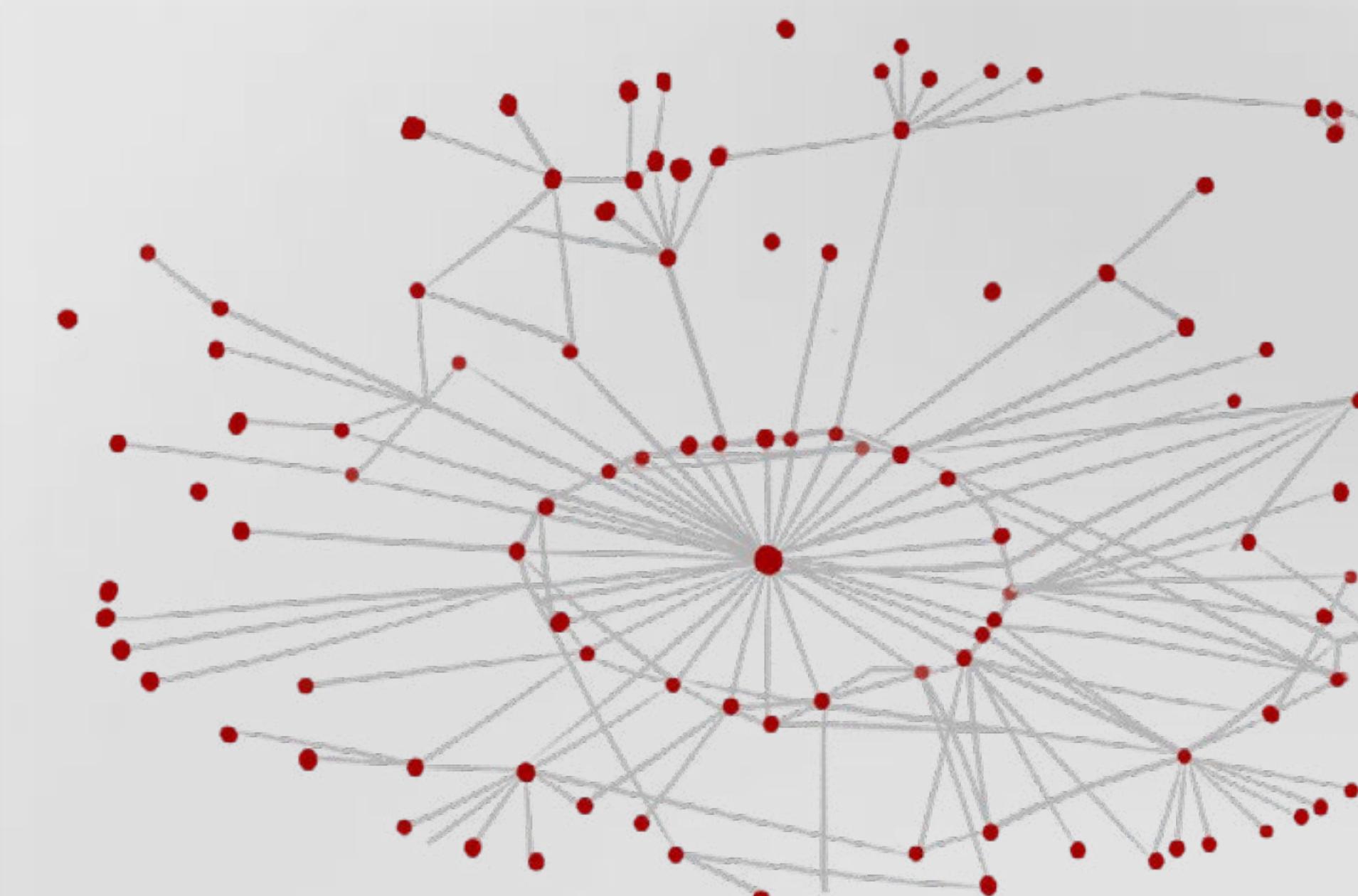
How to determine whether people are lying

Determining the fake news through retweet data

Most people retweet real news from a centralised source. And fake news is spread by people retweeting other retweeters.



A typical Twitter fake news network with 199 nodes



A typical Weibo real news network with 215 nodes

Bad Results

People need to rely on the information they're given from candidates to make an informed choice on polling day. Having a large number of misguided people in a society, especially in the news, is absolutely devastating and very difficult to deal with

Determining the lies through Lie Detector

Lie detector are still used today in a variety of places. But they're never been proven to work



Technical Support

What kind of technology can support the design

Case Study

Misleading commercial advertising is criminalised in South Australia. This has been successful in industry **self-regulation**. The next possible legislative provision will probably be applied to political advertising.



A large, stylized red number '3' is centered on a white background. The number is composed of various red geometric shapes like rectangles, circles, and a plus sign. To the right of the number, there is faint text: 'Hyp', 'People thinking', 'Potent', 'Scen', and 'Disa'. The background features several red and grey basketballs scattered around the number.

can be collected and transcribed, and people can see what others are saying (including lying itself)

Big Data

Big Data

Using big data to determine whether people are lying

A cartoon illustration featuring two ghost-like characters. The character on the left is white with a simple black outline and has two small black dots for eyes. The character on the right is also white but has a red circular area on its head. A speech bubble originates from the red character, containing the text "I like your outfit". In the top right corner, there is a large red number "5".

Current not ho

Current not having enough data

The **accuracy** of defining whether an individual's behaviour is lying through big data is **poor**

New Tw

New type prion destroys infected humans lose -



A decorative graphic element located at the bottom of the page. It features several overlapping curved shapes in shades of red and orange, creating a dynamic and modern look. The shapes are positioned on the left side of the page, with one large red shape on the far left and a series of smaller, layered shapes extending towards the right.

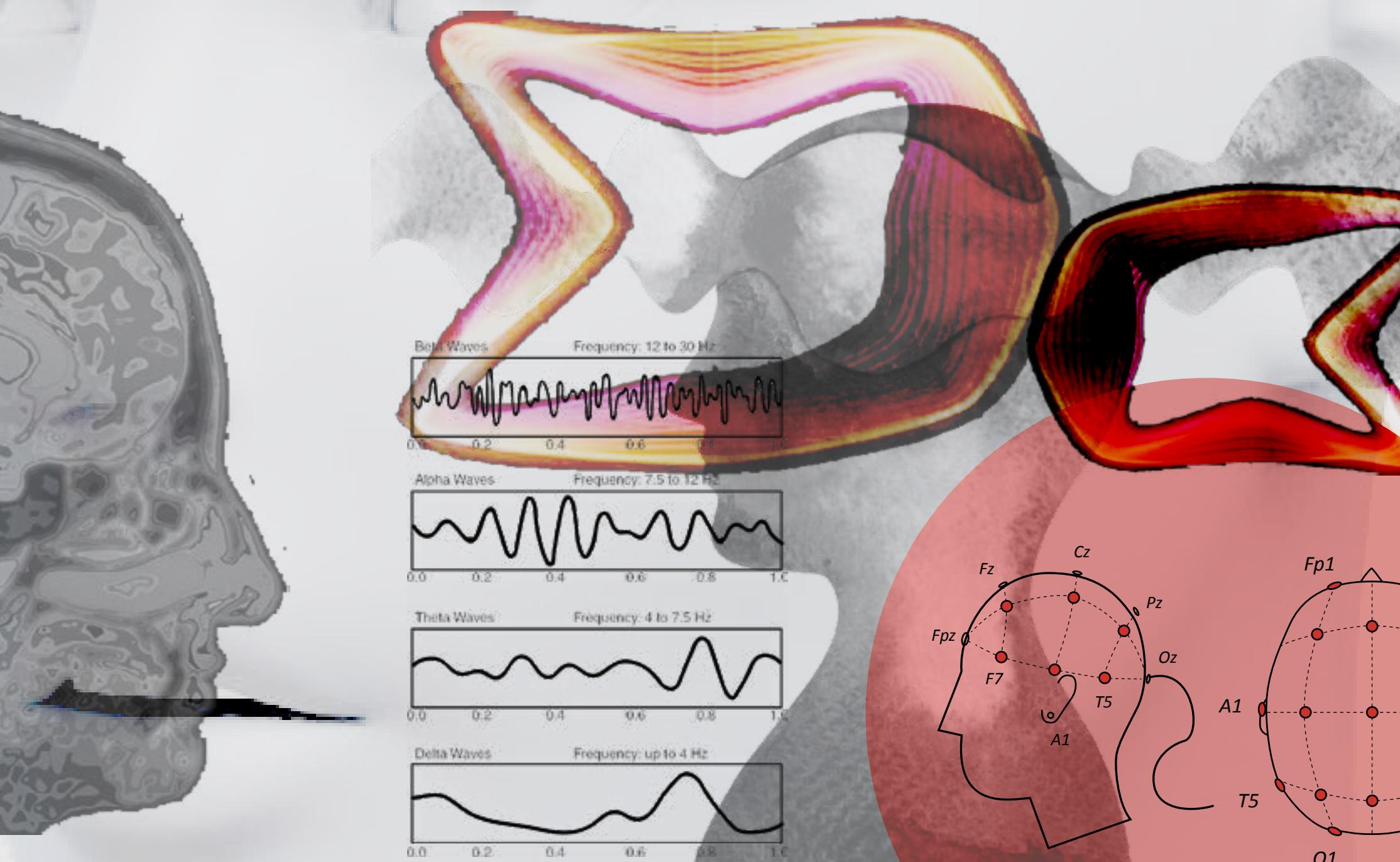


Not sure about the

The area of the brain responsible for language when humans are infected with the virus may be **irreparable**.

Brain Waves Vis

People's brain waves can be collected and transcribed and people can see what others are thinking in their entirety (including lying itself).



I should say "your dress" even though I don't



Emotion is hard to have a certain amount of

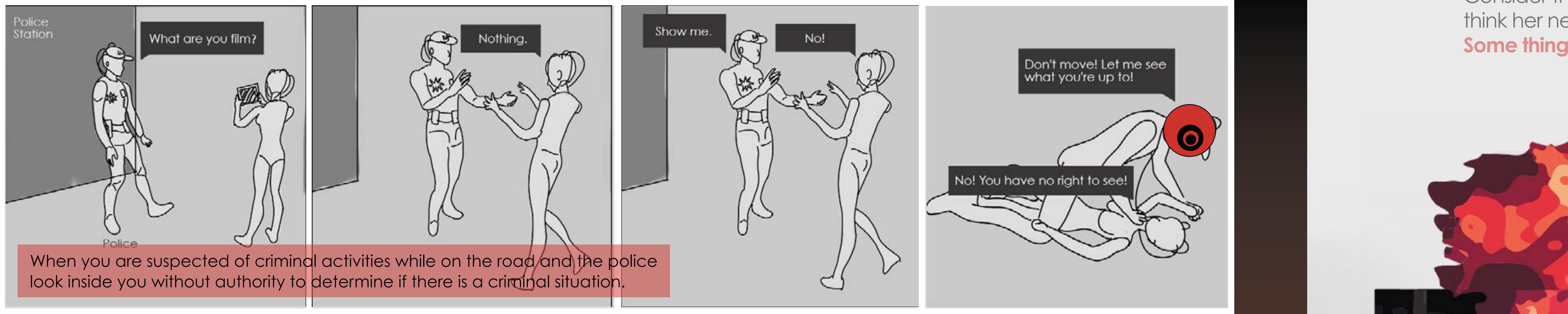
Lies are **not bipolar**, they are not all wrong, looking at other people's thoughts you get picture of the truth and **the whole story**

Storyboard

How this will work

The people has no right to demand that the powers that be display ideas. Instead, they may be monitored for ideas. Three scenario are listed in which vulnerable groups may be subjected to psychological aggression after viewing the thoughts of others

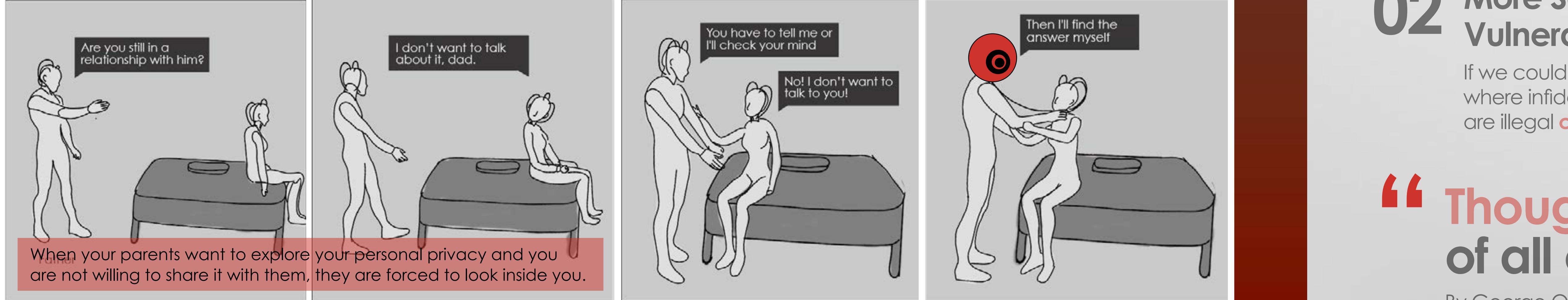
Scenario 1



Scenario 2



Scenario 3



Concept

What I can design

Problems

01 Reduced Opportunities for people to expresss goodwill

Consider the consequences of telling your partner that you think her new shirt is suitable as a rag.
Some things jus don't need to be revealed.

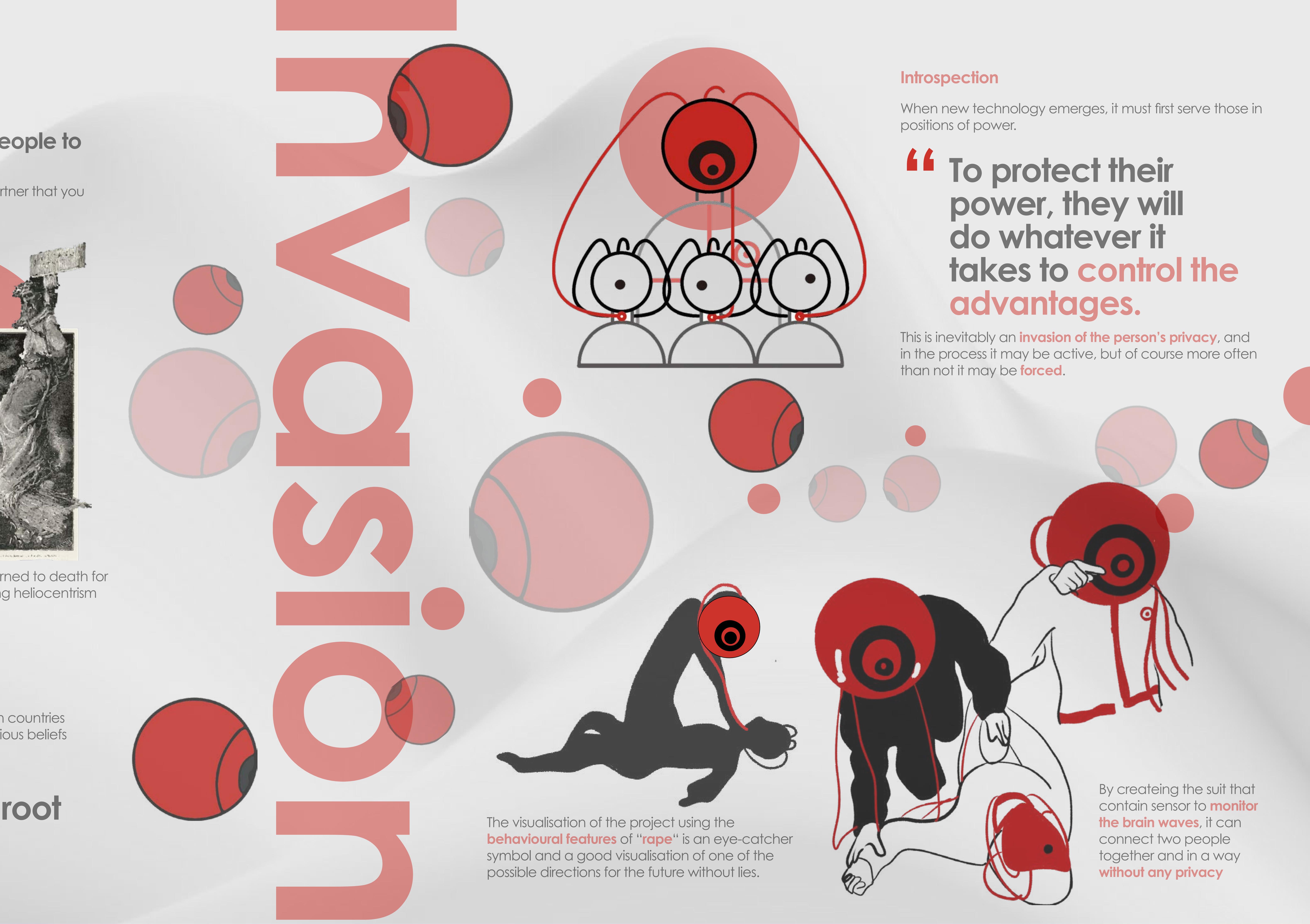


02 More Severe Persecution of Vulnerable Groups

If we could suddenly discover all the lies, life in countries where infidelity, homosexuality or certain religious beliefs are illegal coule be threatened.

“ Thoughtcrime is the root of all other crimes

By George Orwell, 1984

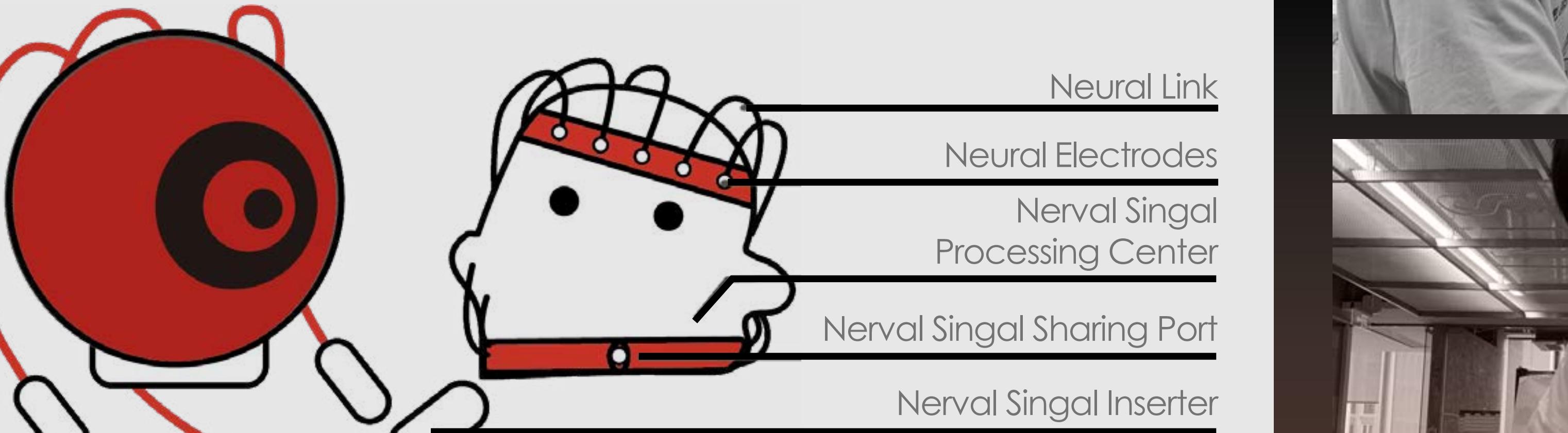


Prototype

How I make this design

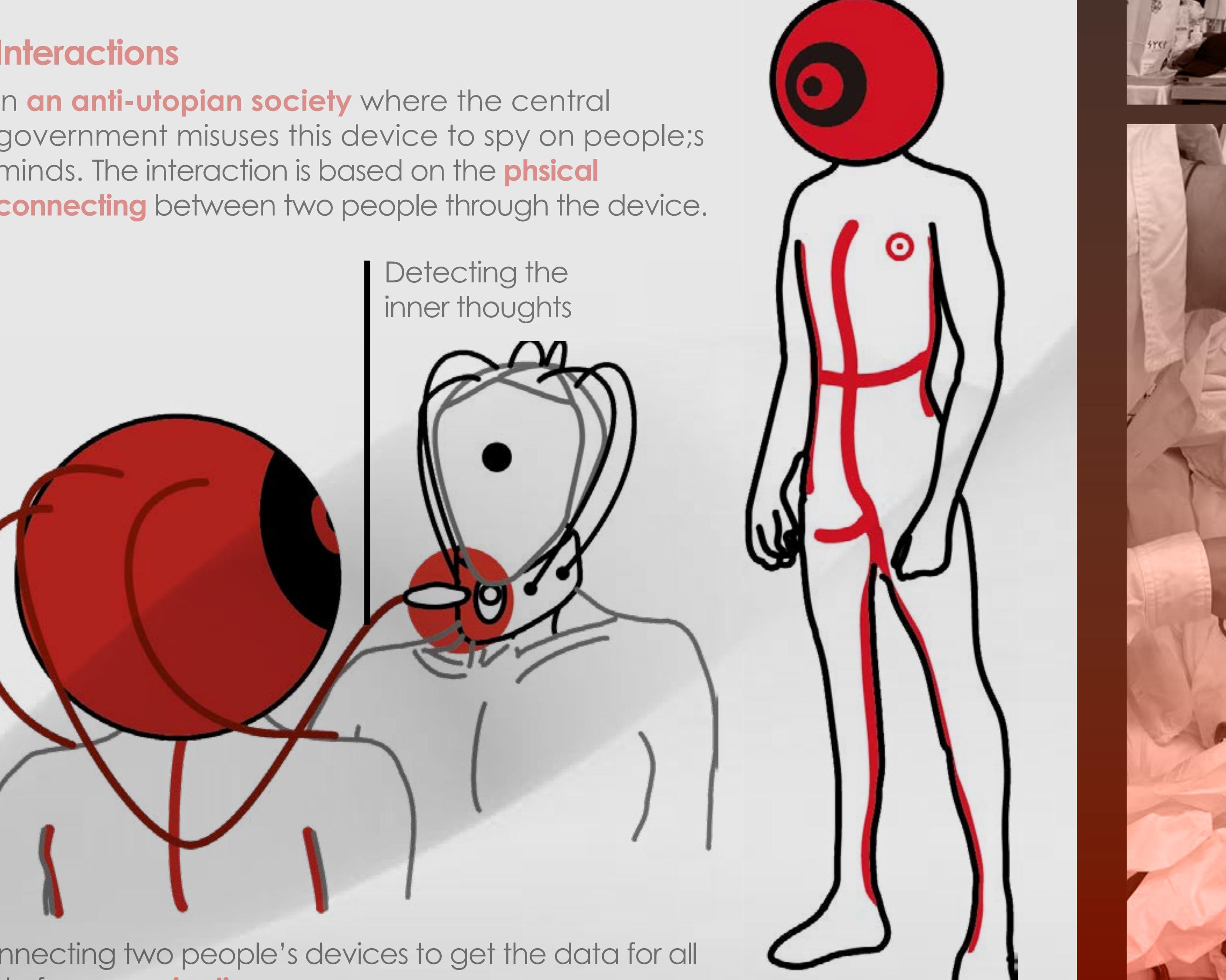
Sensor Introduction

Based on the **Neuroscience**, by analysing the activities of brain waves, the inner thoughts can be transform into **a more concrete language**, including sounds, splashing lights and other visuals.



Interactions

In an **anti-utopian society** where the central government misuses this device to spy on people's minds. The interaction is based on the **physical connecting** between two people through the device.

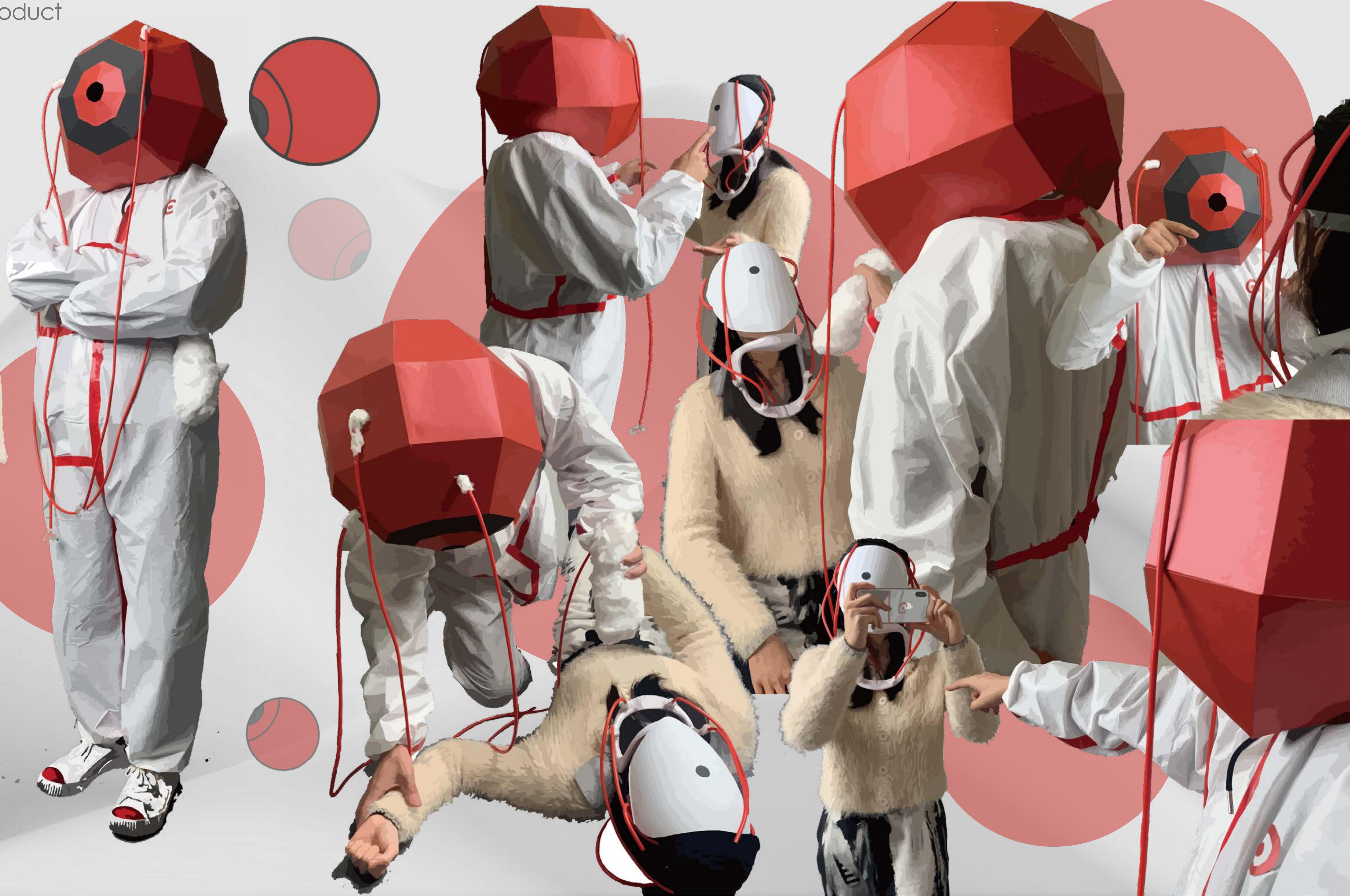


Connecting two people's devices to get the data for all kind of **communications**.



FINAL DESIGN

How I present the product



Tecchnology will be used by those in power to protect their power...

Implantable Medicine Monitor

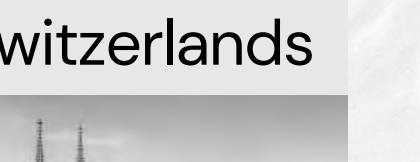
Personal long-term medication management equipment

I noticed that many elderly people around me often forget to take their medicines or don't know which medicine to take. And they are often unaware of the great harm done to their health by not taking their medicines on time. So I started thinking about whether there is a smart device that can coexist with the human body for a long time and automatically inject drugs into the body.

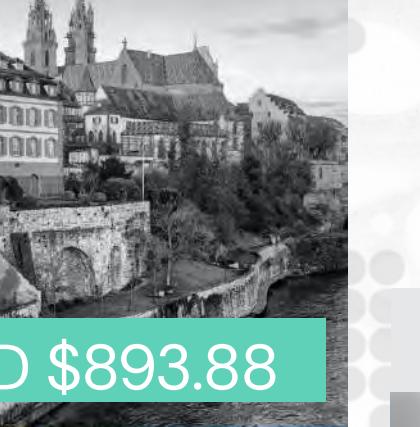
Background Research

Top 3 countries that spend the most on prescription medication for seniors in 2021.

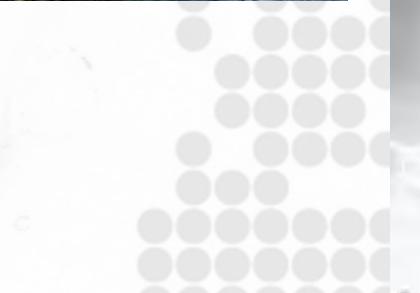
1 United States
USD \$1,228.66



2 Switzerland
USD \$893.88



3 Germany
USD \$883.88



4 Canada
5 Belgium
6 France
7 Austria
8 Bulgaria
9 Italy
10 Korea Republic

everyday medications are critical to sustaining the health and well-being of seniors. It is crucial that medications are taken properly, especially for seniors.

85% adults aged over 60 used prescription drugs daily

81% seniors with disease need to take multiple medication daily.

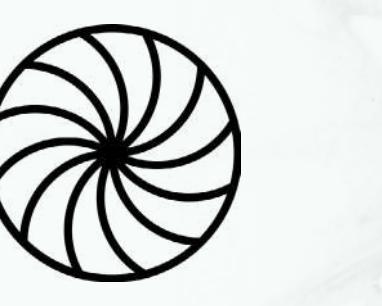
70% seniors always forget to take medication on time.

55% seniors don't take their medication according to the doctor's instructions.



The Danger of Forgetting or Taking the Wrong Medication

These adverse drug effects occur in any age group. However, seniors are more susceptible to the consequences of incorrectly ingesting medications.



Confusion



Hallucinations



Organ Failure

Symptoms range from mild to severe

66.4% of errors were reported on wards and occurred most often in patients aged older than 75 years old.

Why this is happening

people over 65 take 14 to 18 prescription medications a year.

Hard to manage
Need to be taken at different times of day
Easy to have wrong mixed up or missing

Pain Points
Increases the risk of ill effects
200,000 older adults are hospitalized annually due to adverse drug reactions

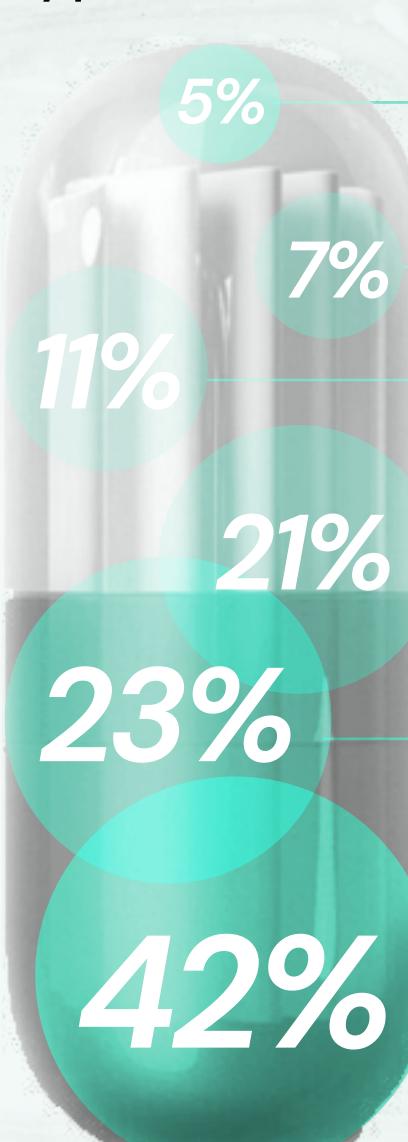
Inadequate monitoring
Symptoms that don't improve
Having a stronger effect than intended

Pain Points
randomly adjust the medication without professional guide

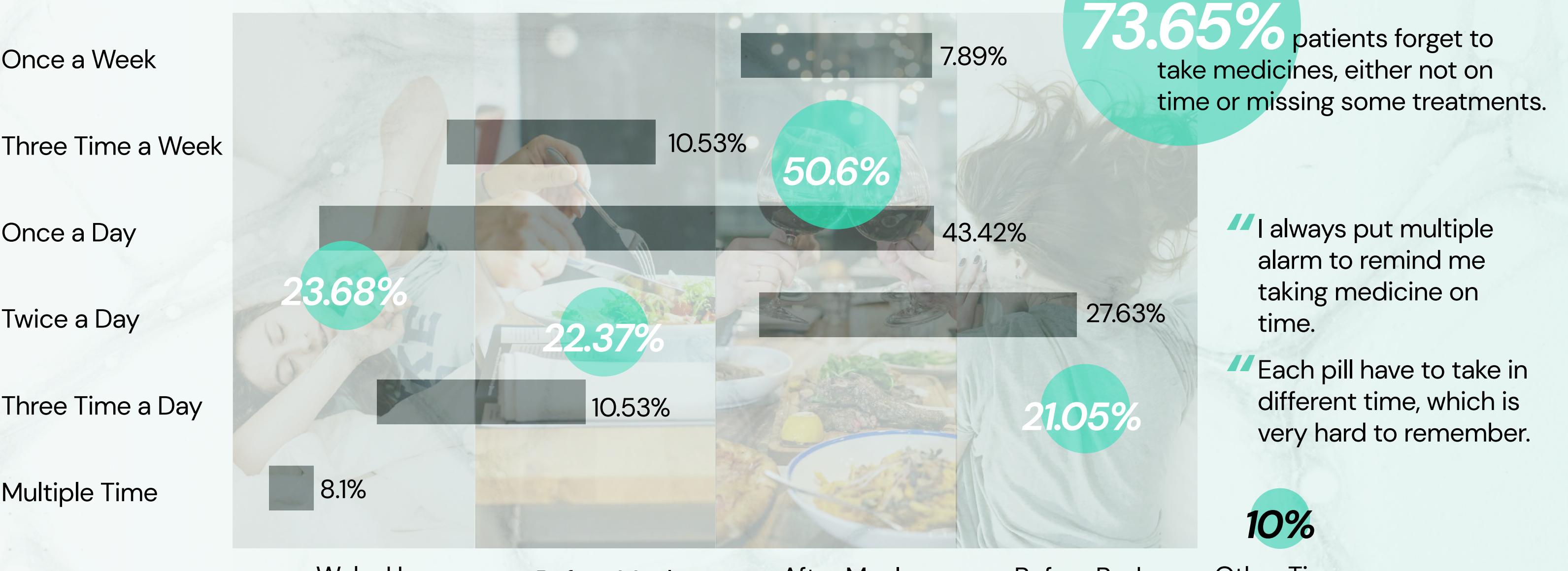
Design Insight
Looking for a smart way to manage seniors' medication taking and reduce the number of reminding to take them.

Questionnaire & Interview Analysis

Type of disease do you have



Time analysis of taking medicine in a week time



The ways of taking a long-term medicine

89.47%

Oral

12.89%

Injection

9.89%

Topical

84.21%

Room Temperature

22.37%

Refrigeration

22.37%

Ventilation

18.42%

Seal

7.89%

Shading

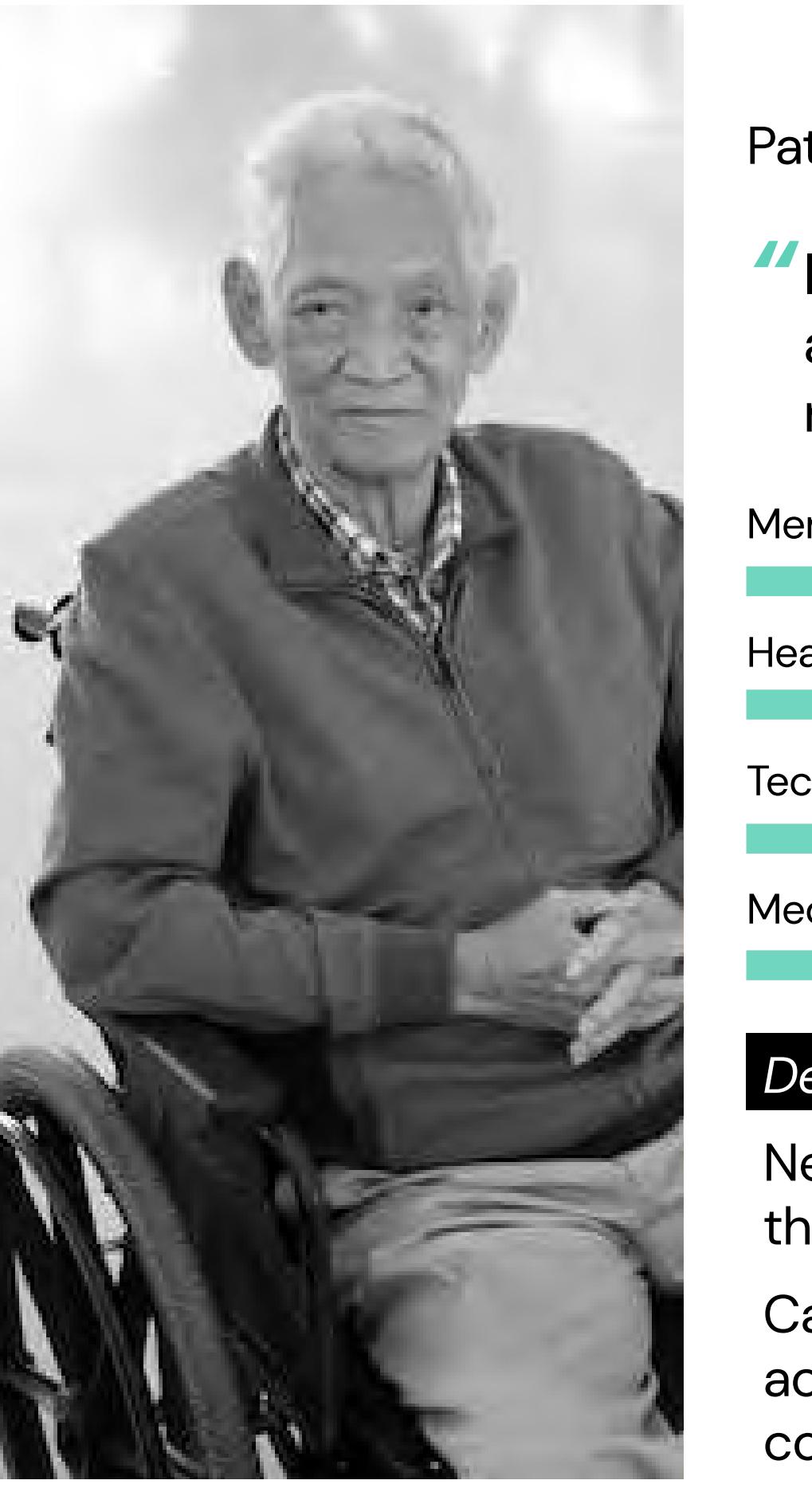
"I always put multiple alarm to remind me taking medicine on time."

"Each pill have to take in different time, which is very hard to remember."

10%

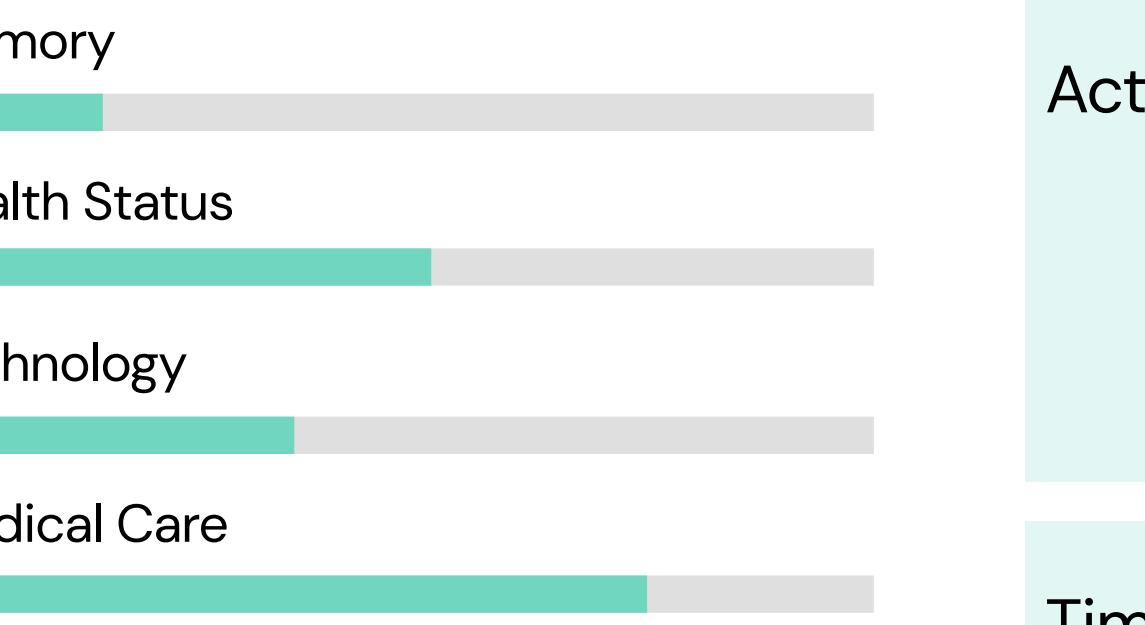
Other Time

Persona & Journey Map



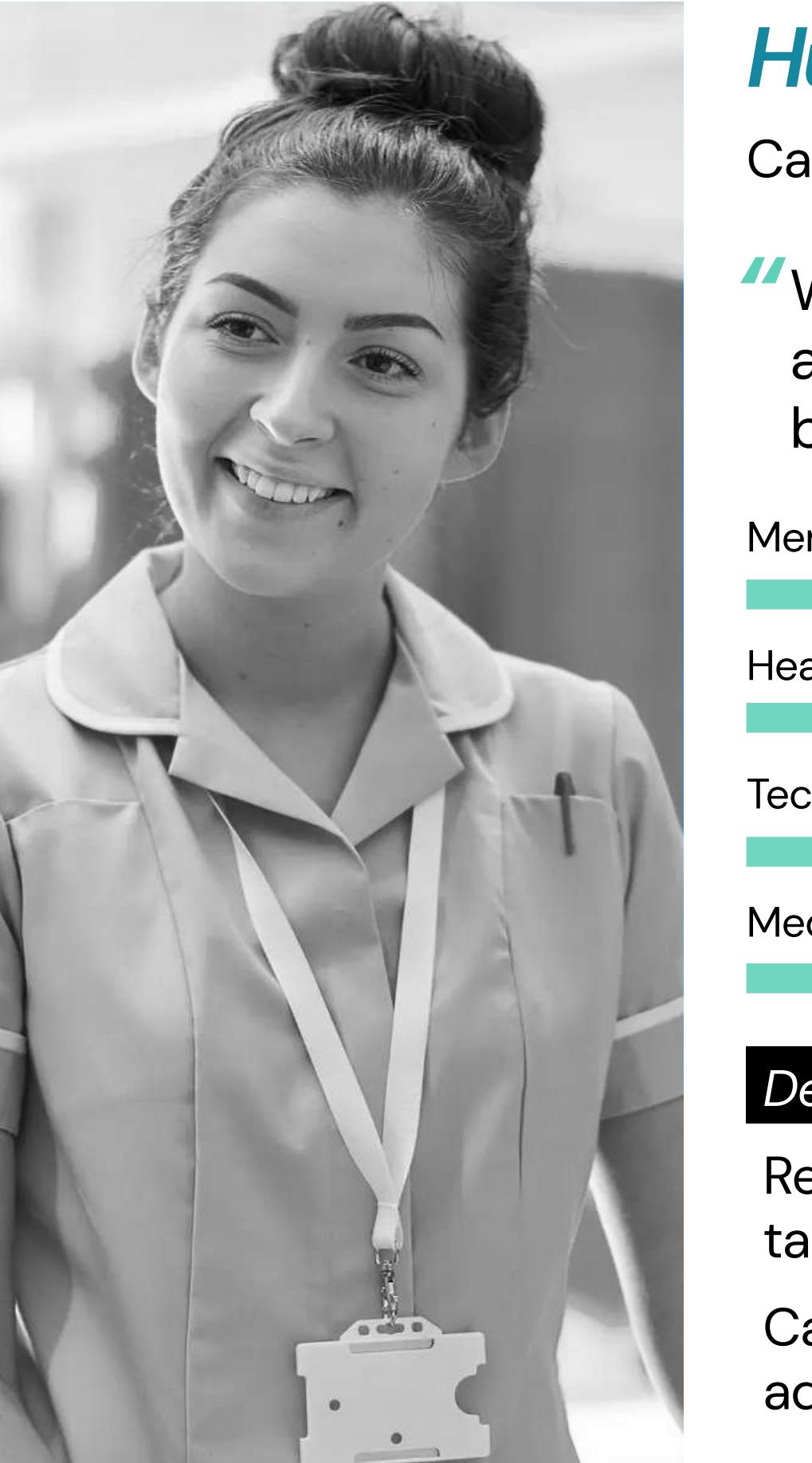
Patient · 75 years old

"I have a bad memory and always forget to take the right medicine on time."



Demands

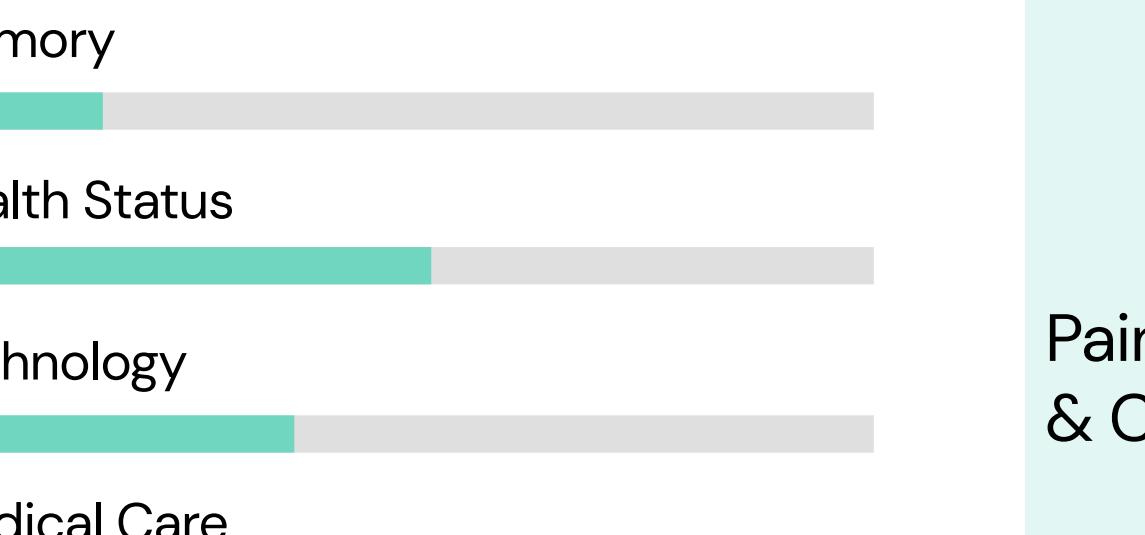
- Need help to remind me taking the right medicines on time
- Can adjust the dosage according to my physical condition in time



Hui Fang

Care Giver · 35 years old

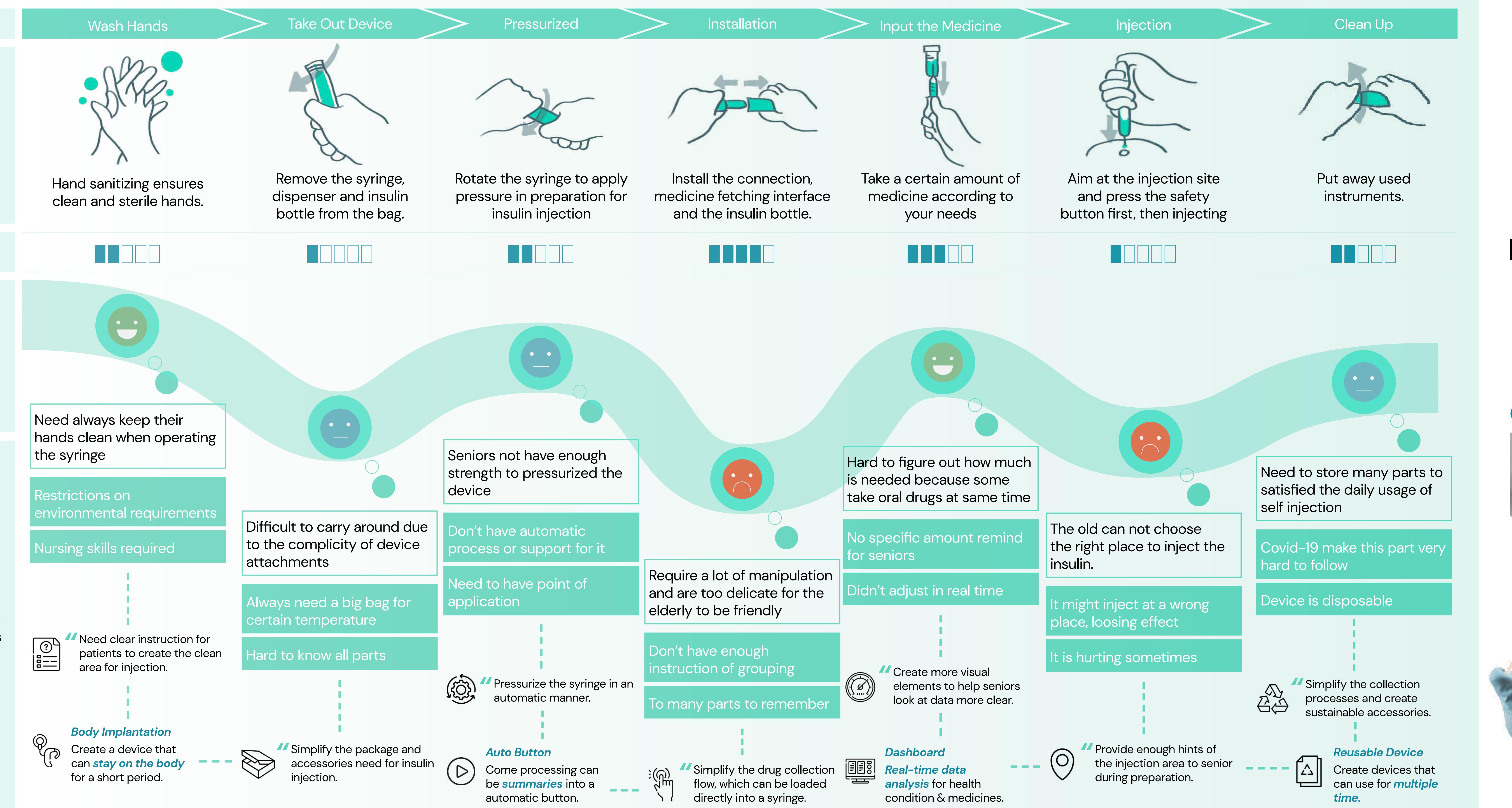
"While working, I can't take an eye on my mom for High blood pressure medicine."



Demands

- Remote to remind seniors taking medicines on time
- Can prepare the medicine in advance for seniors

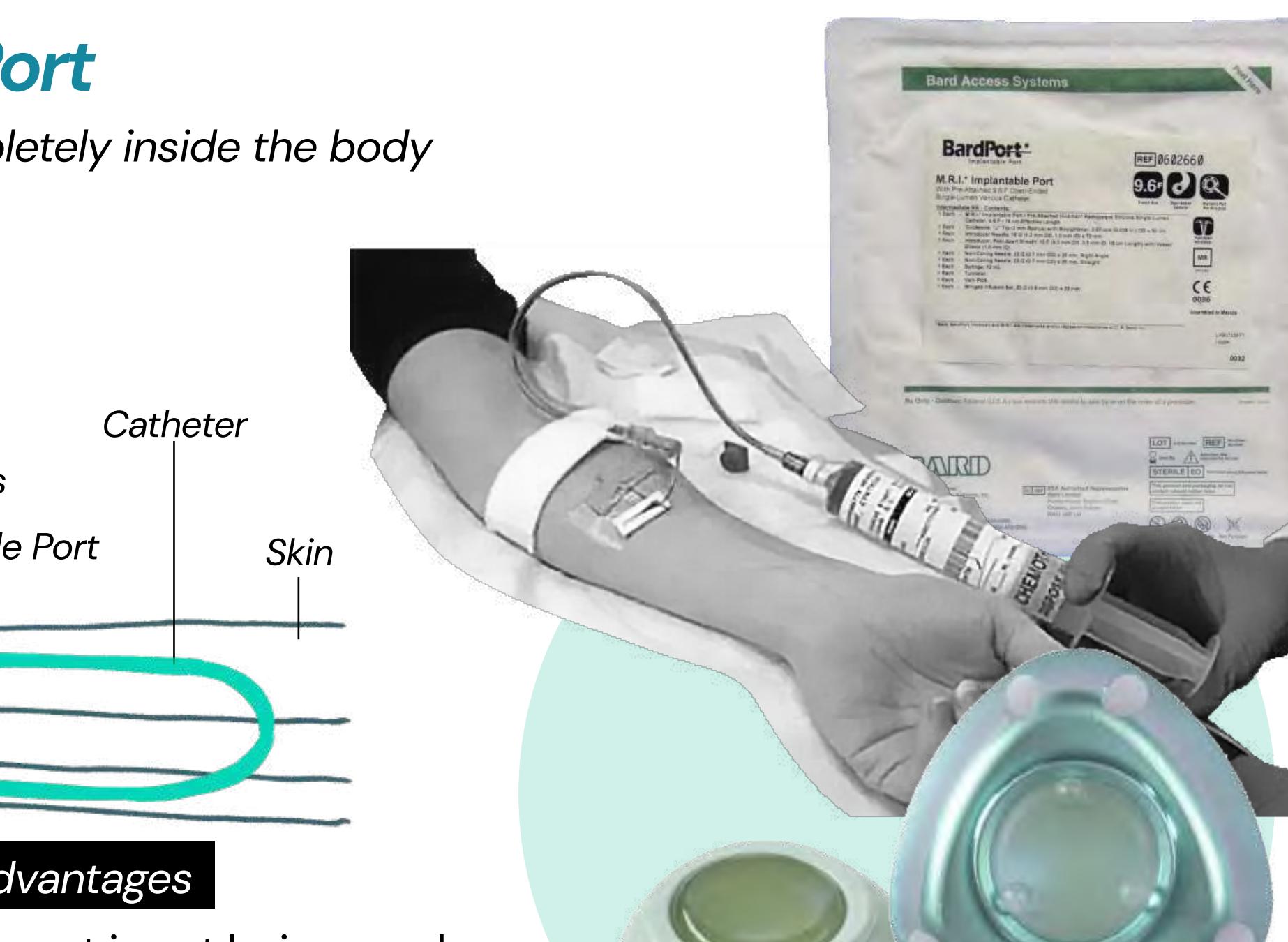
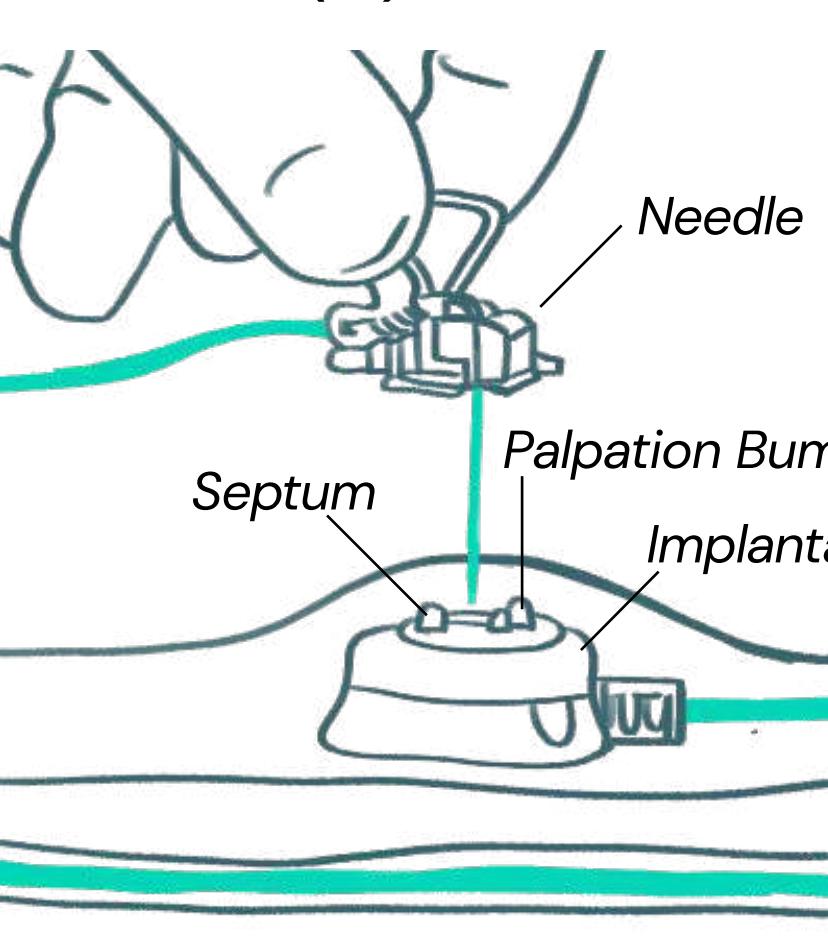
Taking an example of insulin injection experience to analysis the possibilities about using smart device to achieve automated medication intake.



Technical Case Study

Implantable Venous Port

an intravenous (IV) line that is completely inside the body



Advantages

Very visible and easily felt, resulting in more efficient access

Permanent and used as long as it is needed

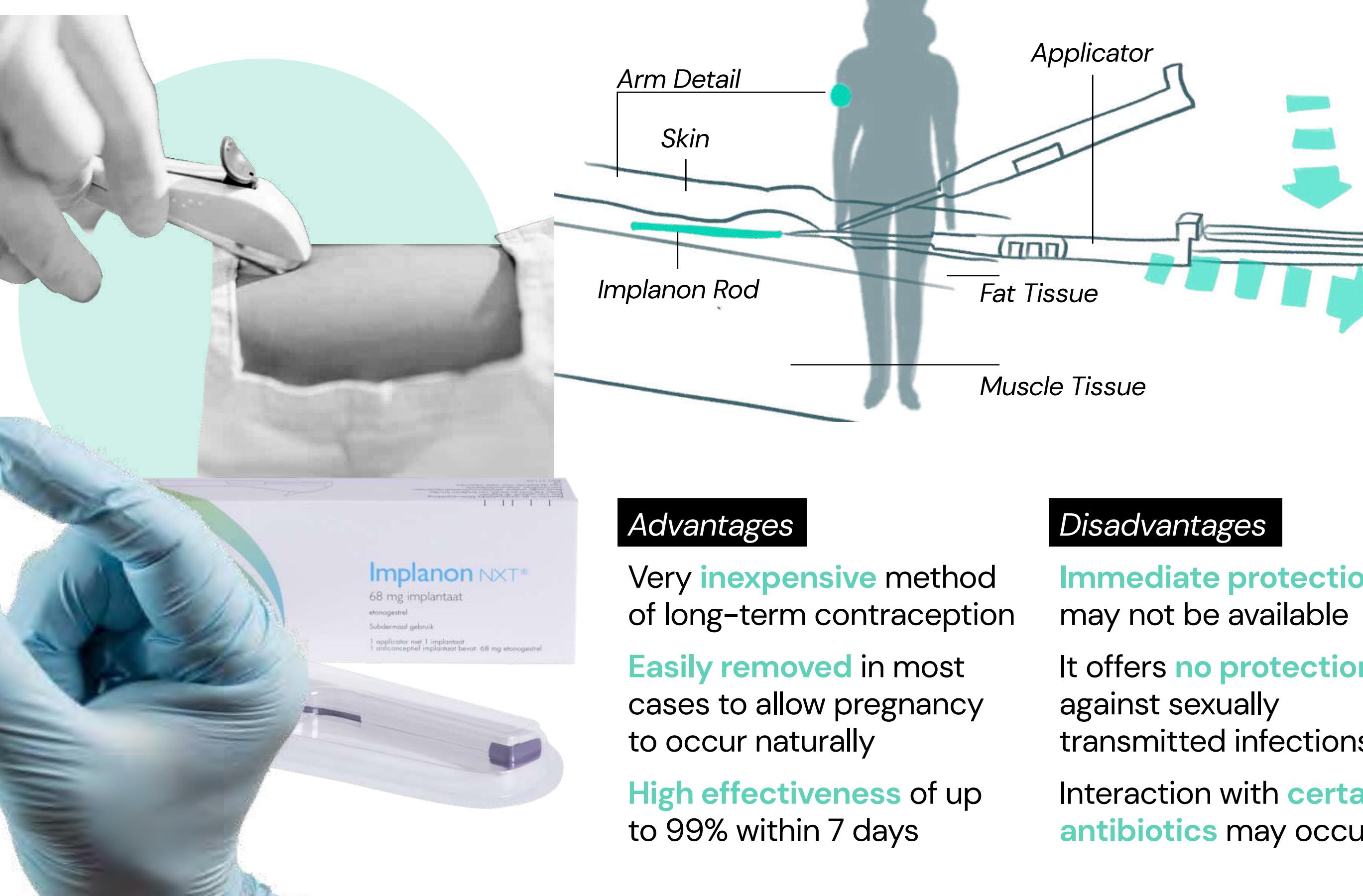
Can remain accessed with a needle up to 7 days

Disadvantages

If the port is not being used at least every four weeks, it must be flushed to keep it safe for use.

Port placement requires a surgical procedure; IV access does not.

Contraceptive Implant



Advantages

Very inexpensive method of long-term contraception

Easily removed in most cases to allow pregnancy to occur naturally

High effectiveness of up to 99% within 7 days

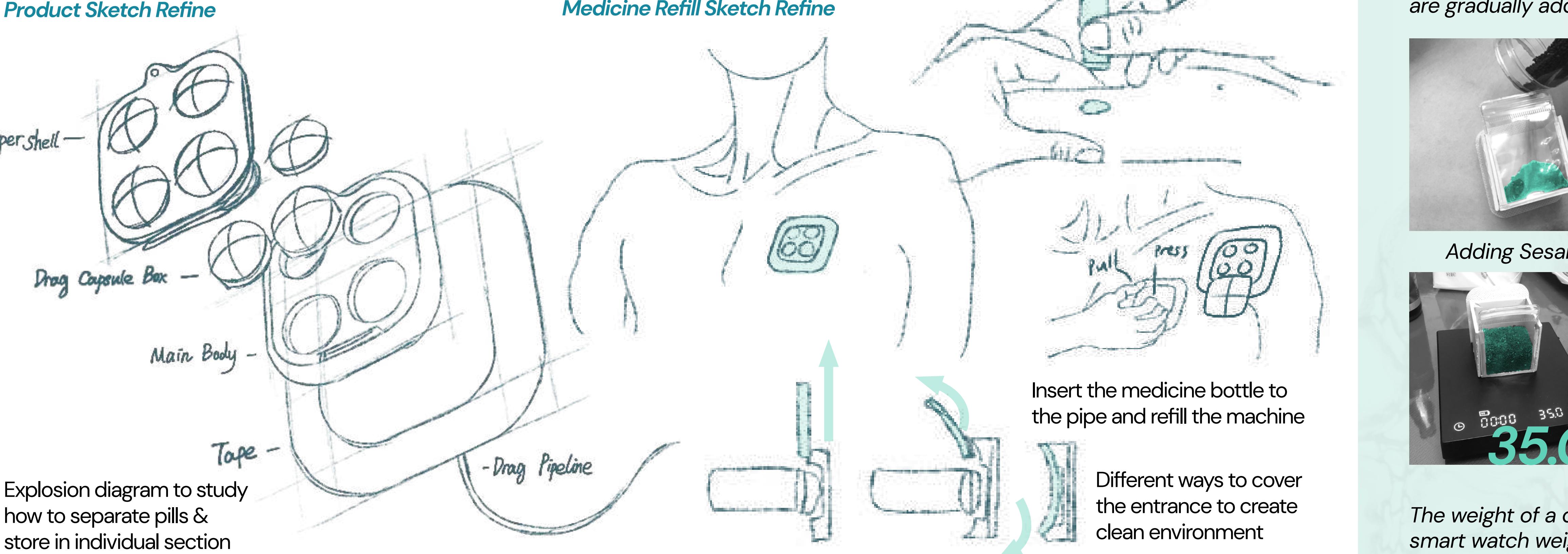
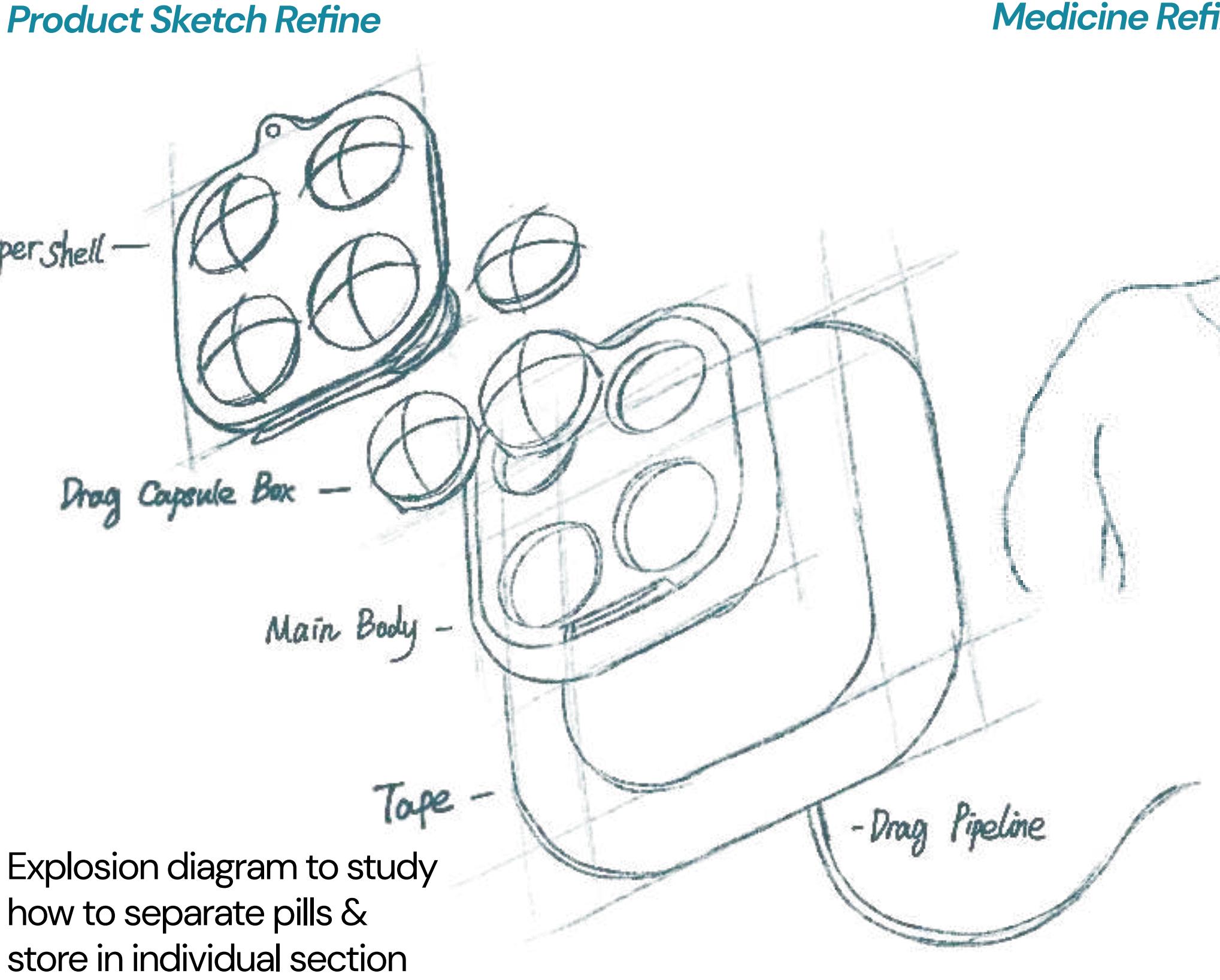
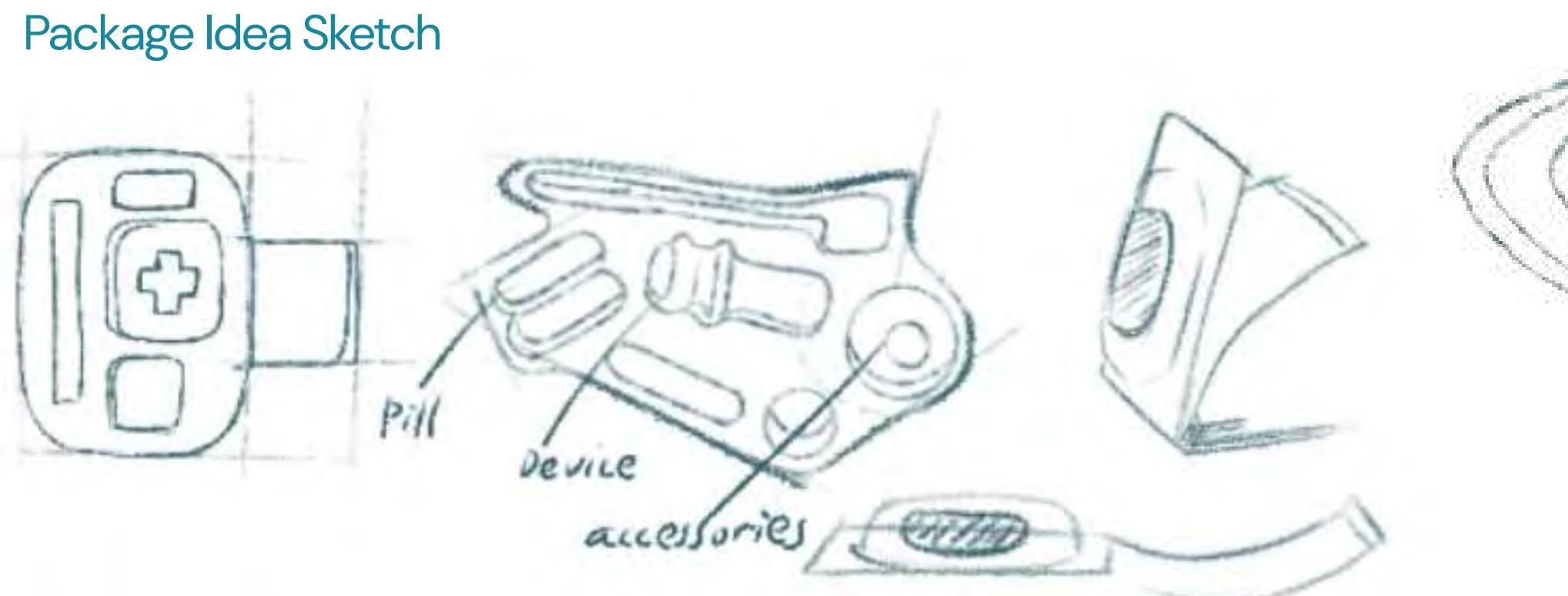
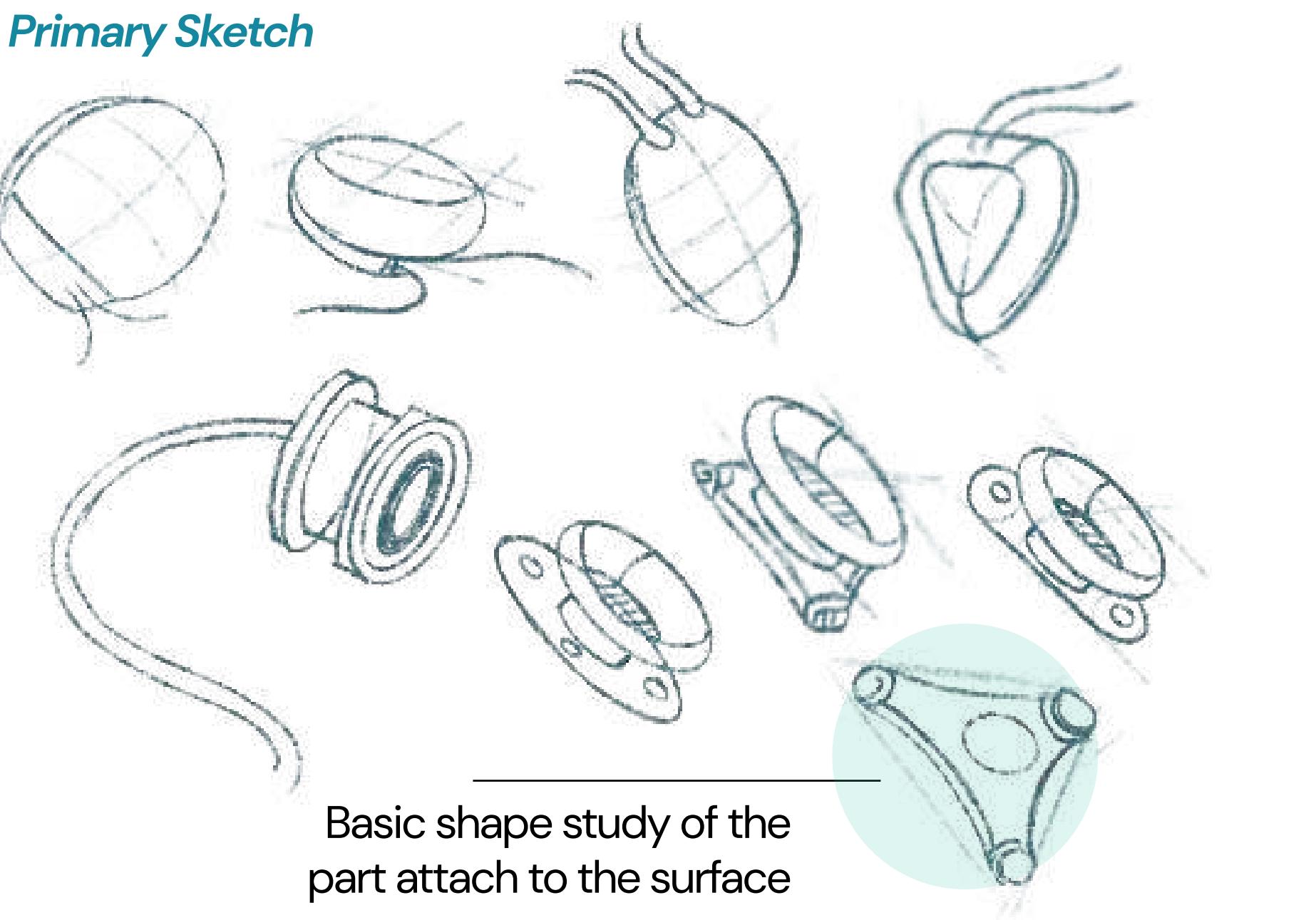
Disadvantages

Immediate protection may not be available

It offers no protection against sexually transmitted infections

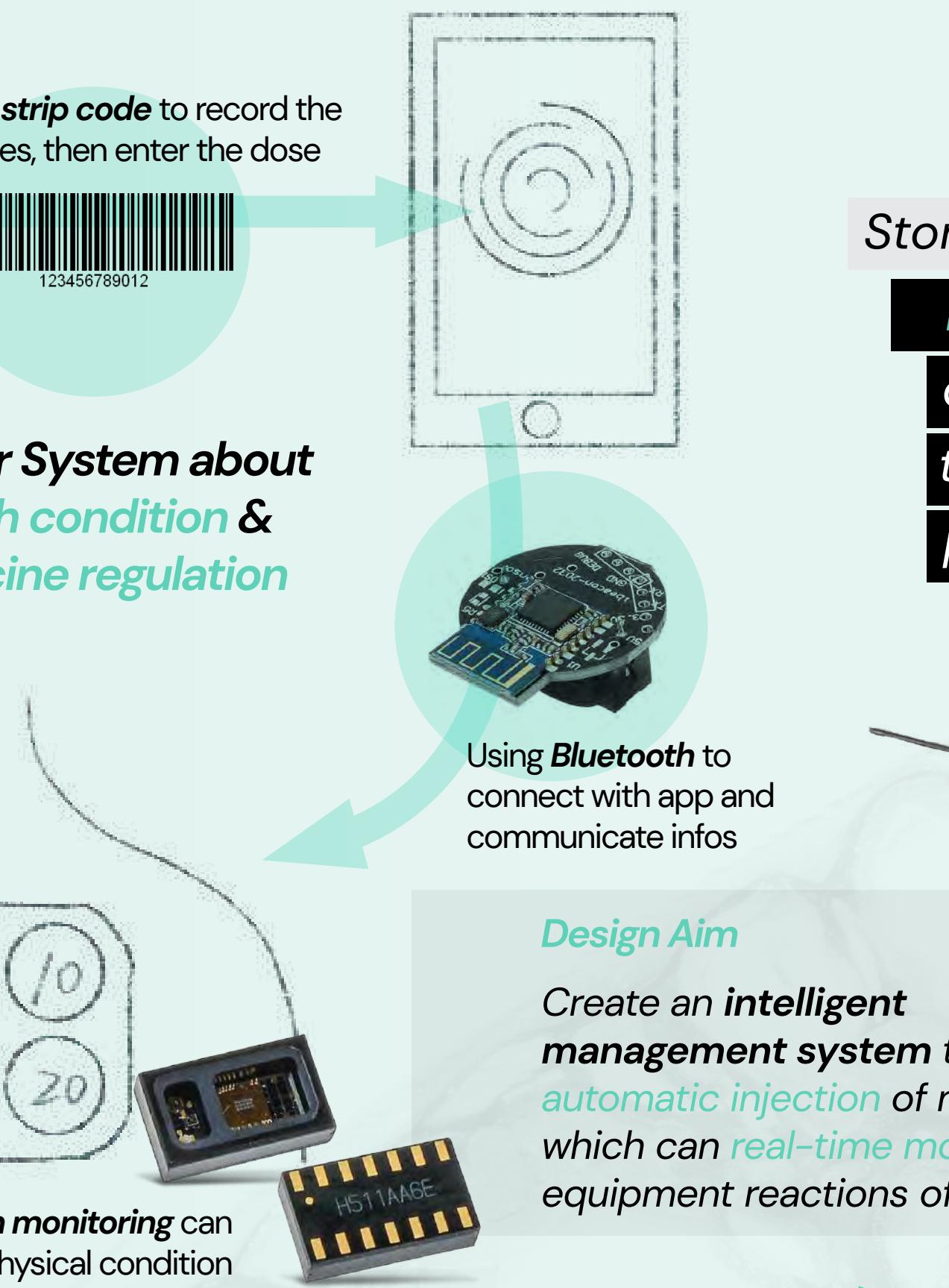
Interaction with certain antibiotics may occur

Concept Sketch



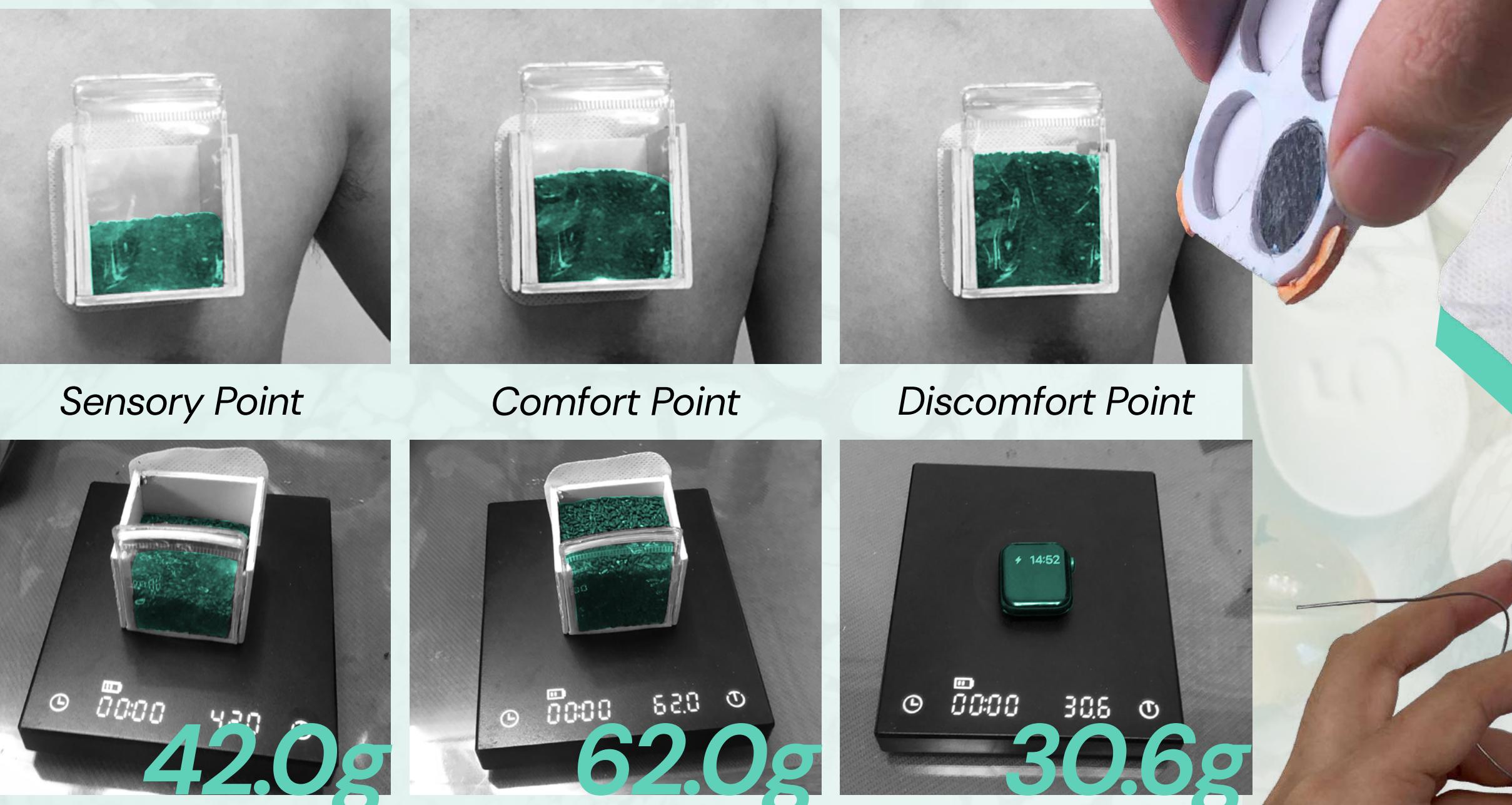
Concept Prototype

Logic Analysis



Ergonomic Test

An empty box is attached to the chest using sterile stickers and black sesame seeds are gradually added to it, weighting at the **sensory**, **comfort** and **discomfort points**.

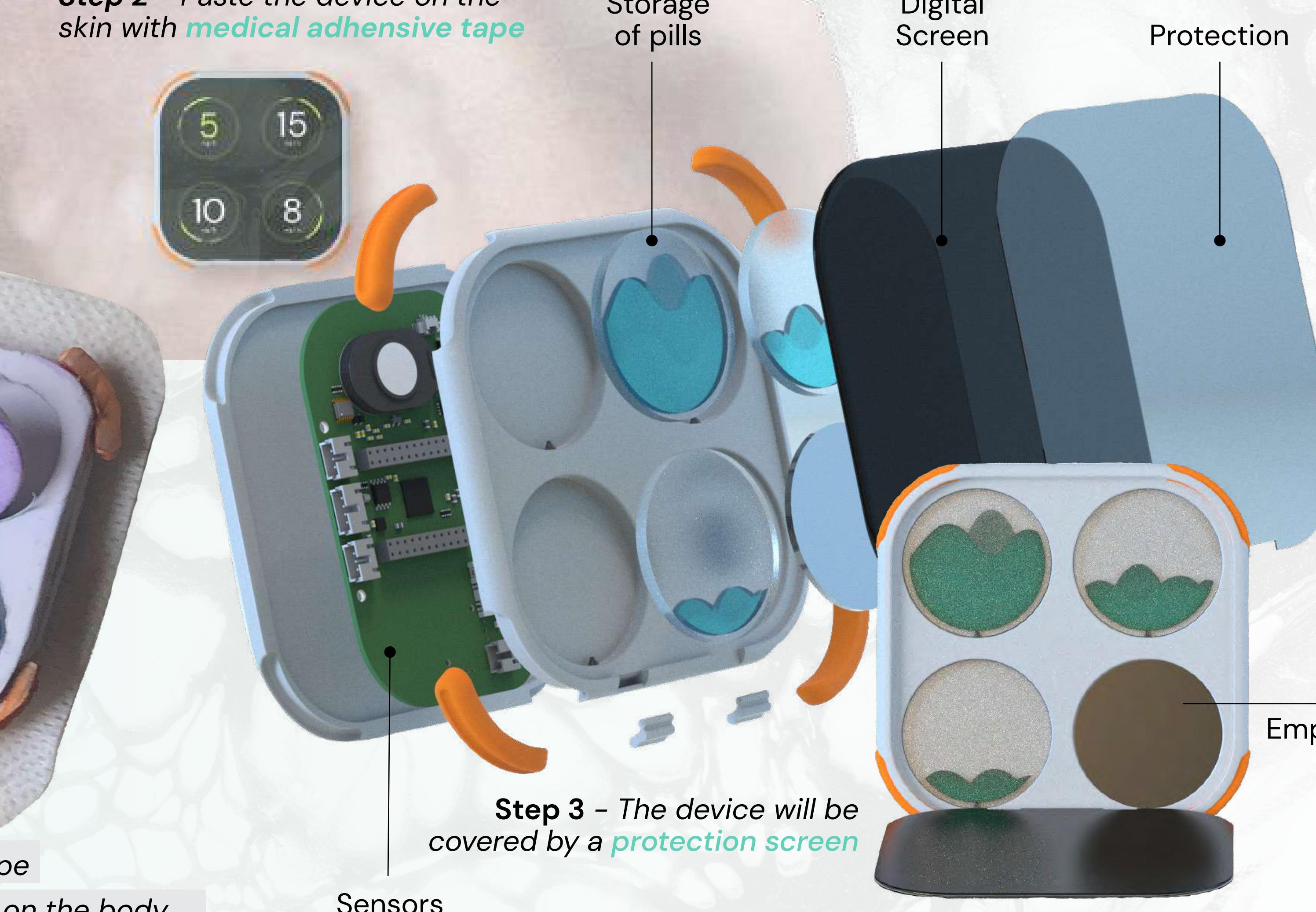


The weight of a device on the chest is best at 35–42g, increasing to 65g in extreme cases. With a smart watch weighting 30.6g, it is possible to make a smart injection device at 42g or less.



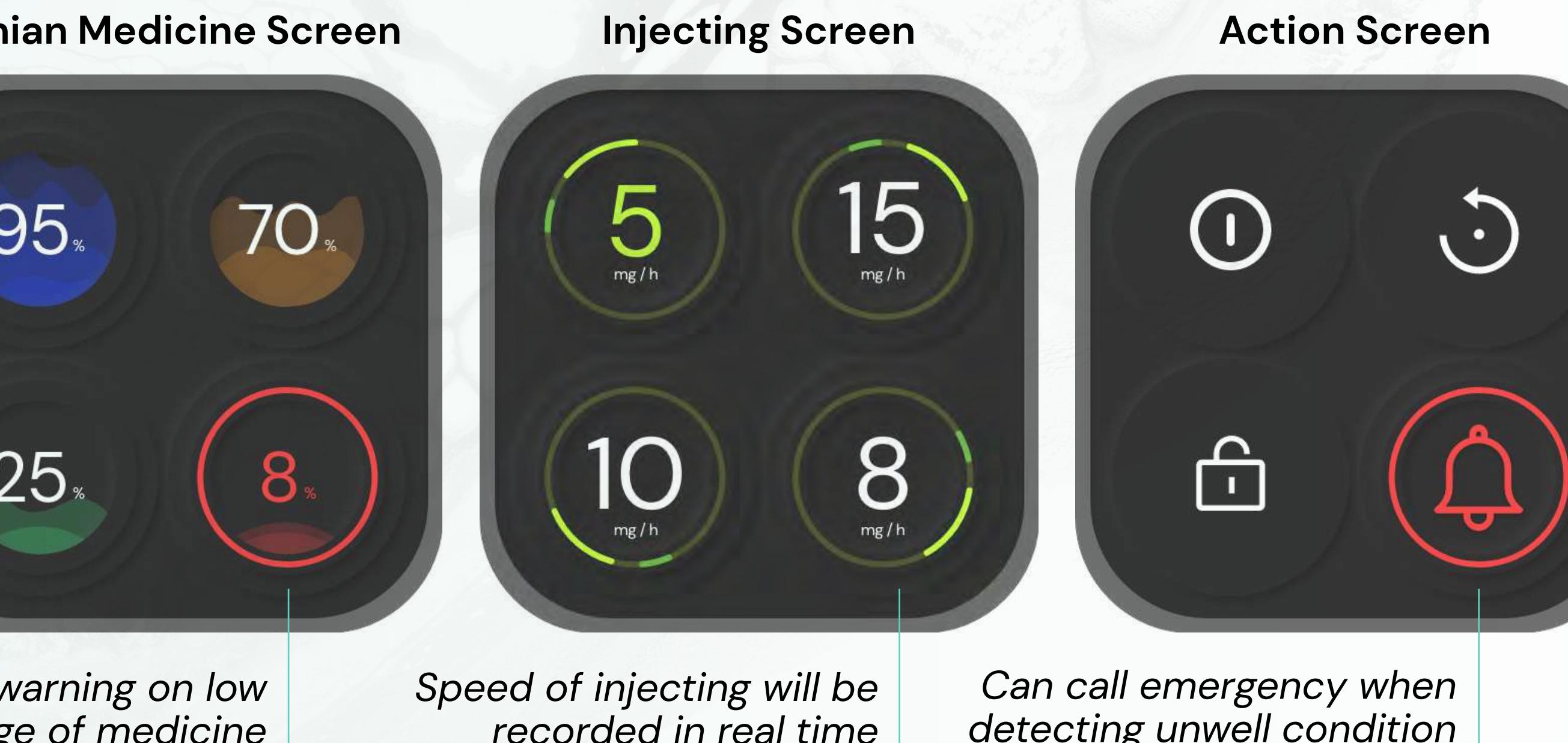
Step 1 – Fully sterilized

Step 2 – Paste the device on the skin with **medical adhesive tape**



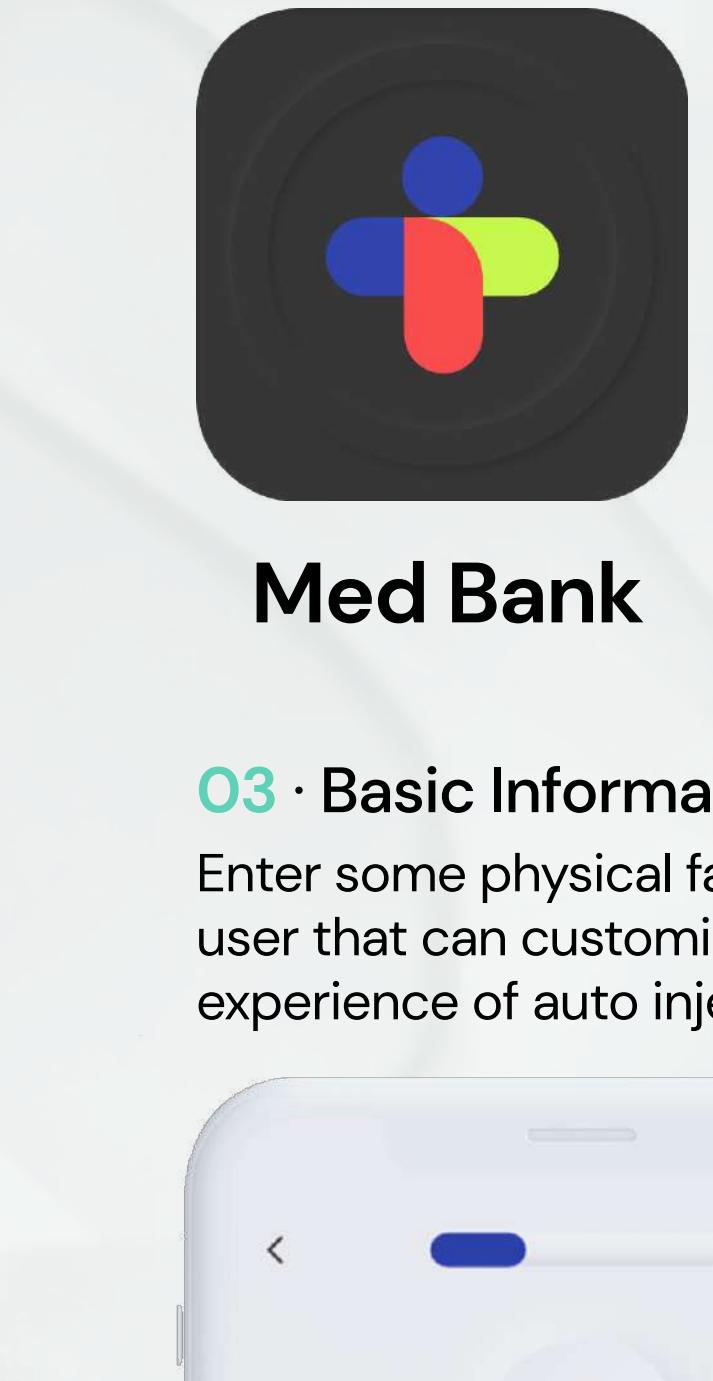
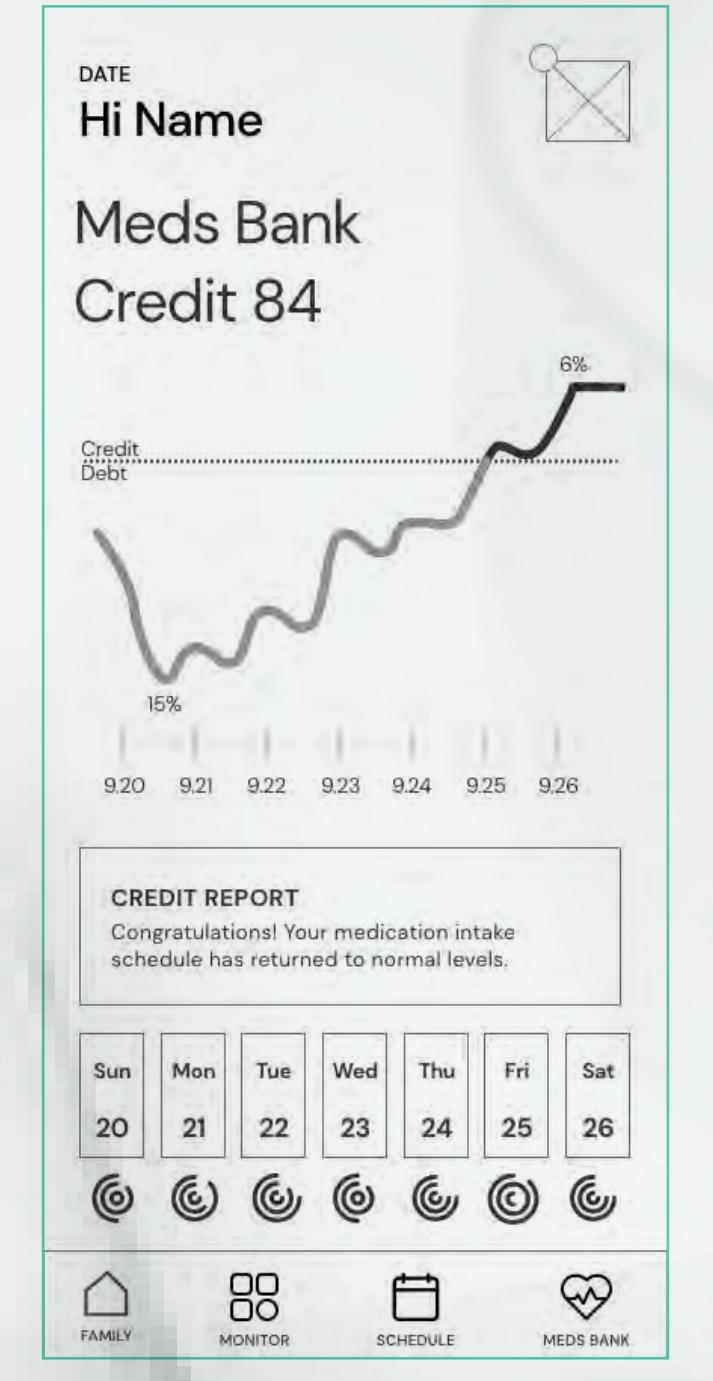
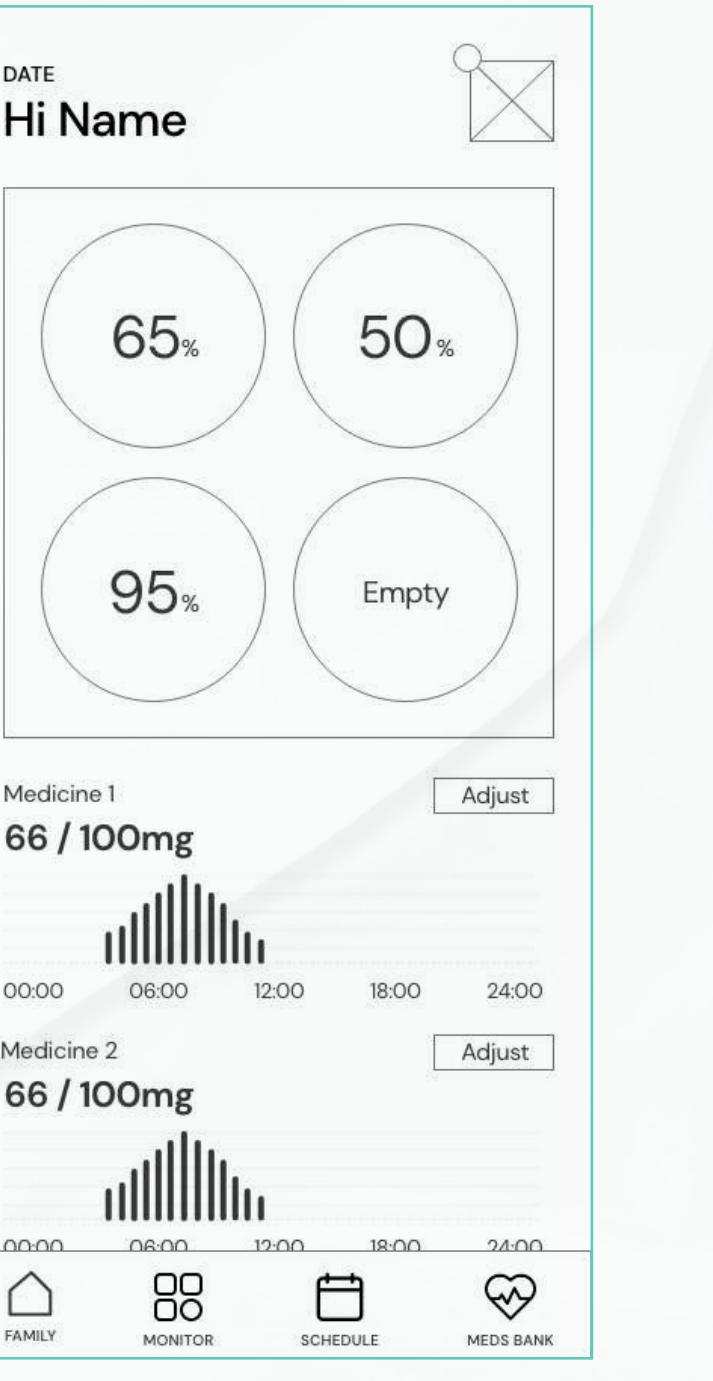
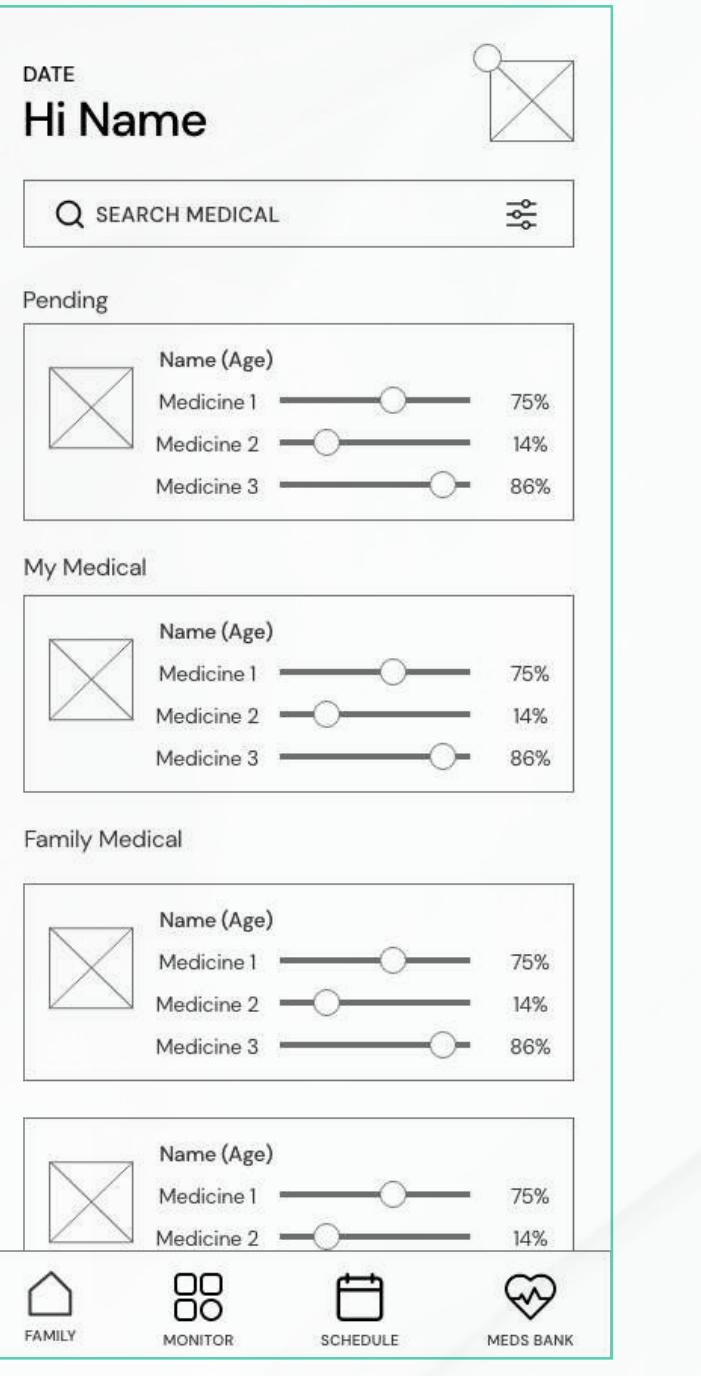
Product Interface Design

The digital screen of smart injection device will have **3 kinds of interfaces** for different condition of senior patients.



Monitor App Design

Wireframe

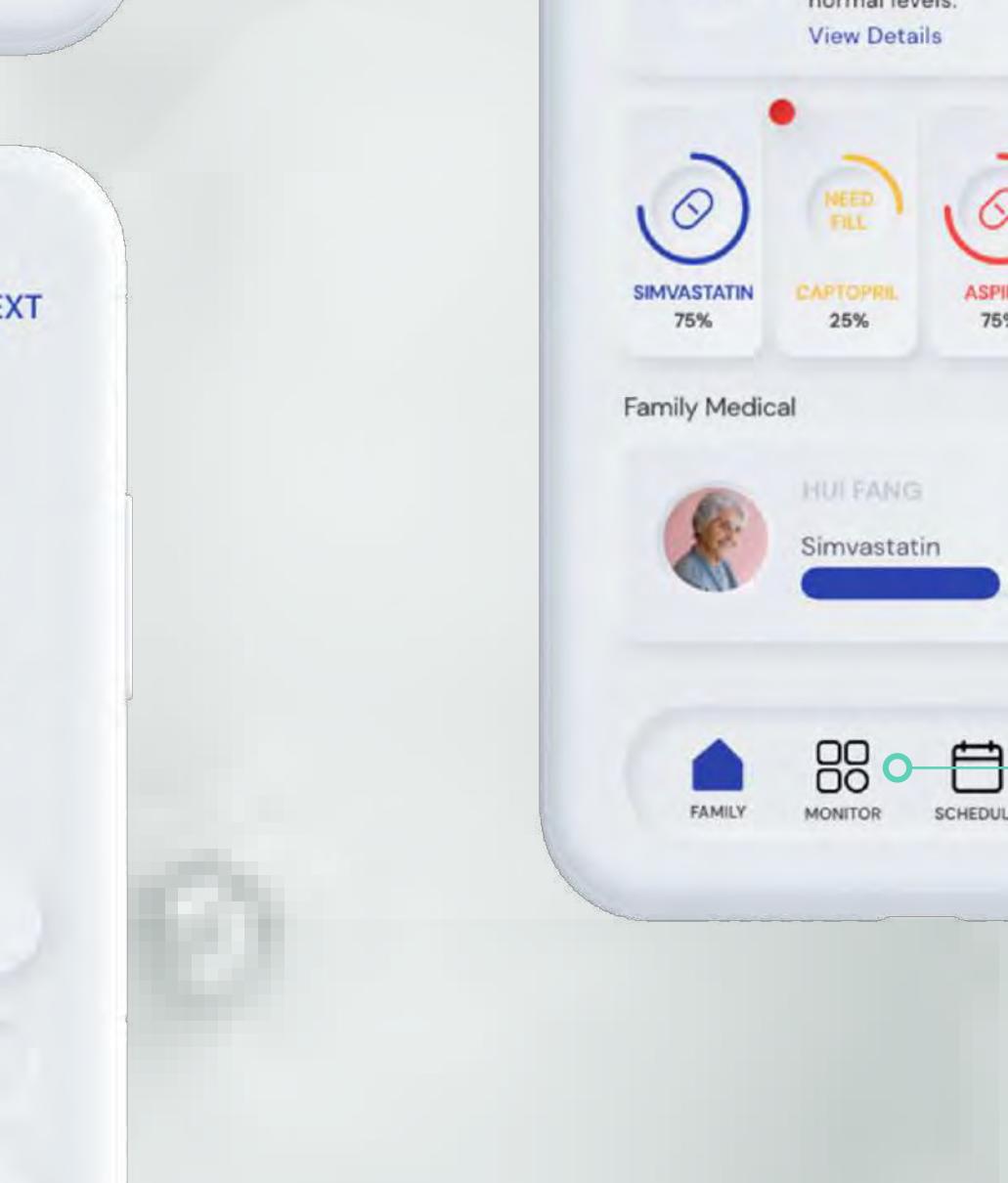
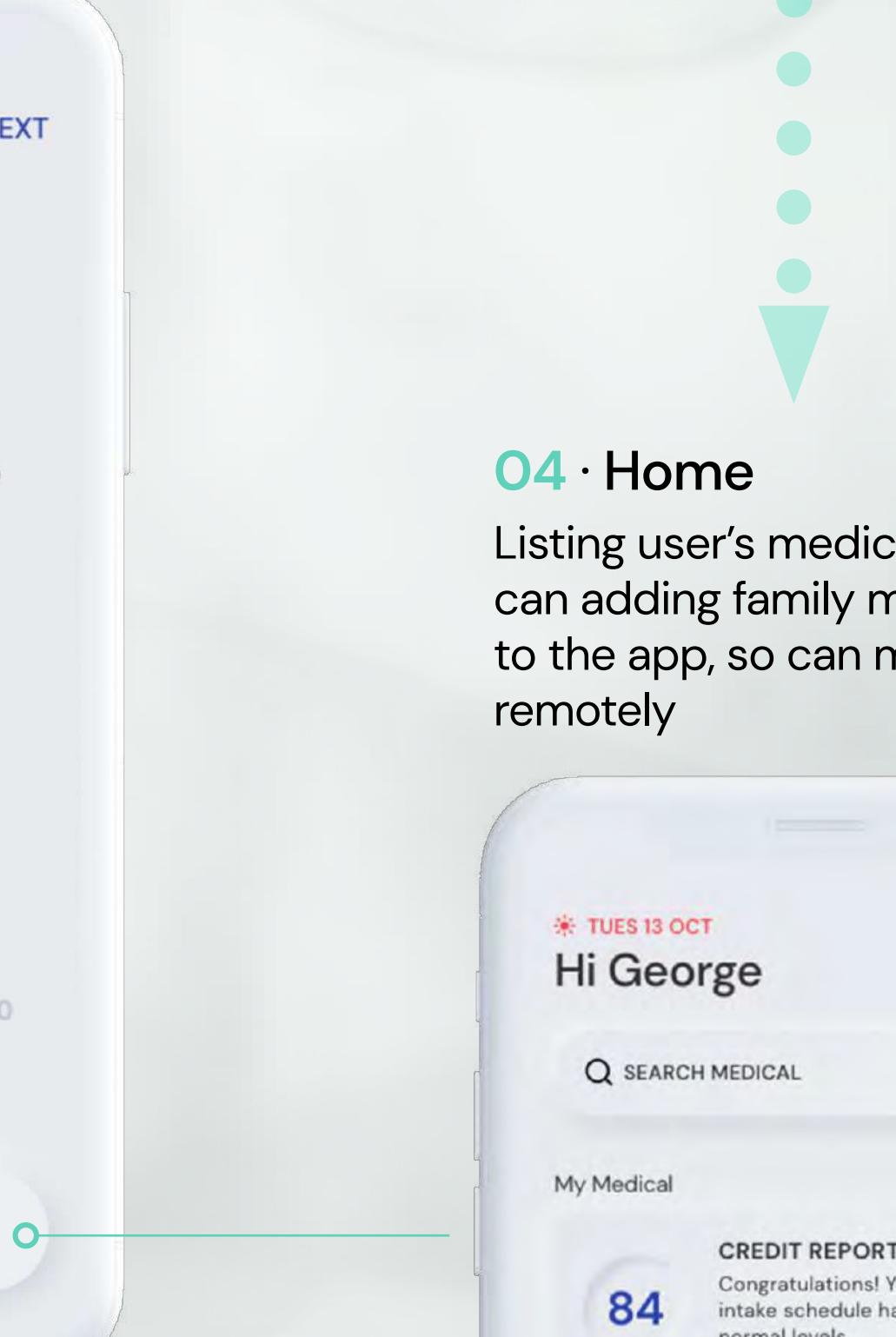


Icon Design



Med Bank

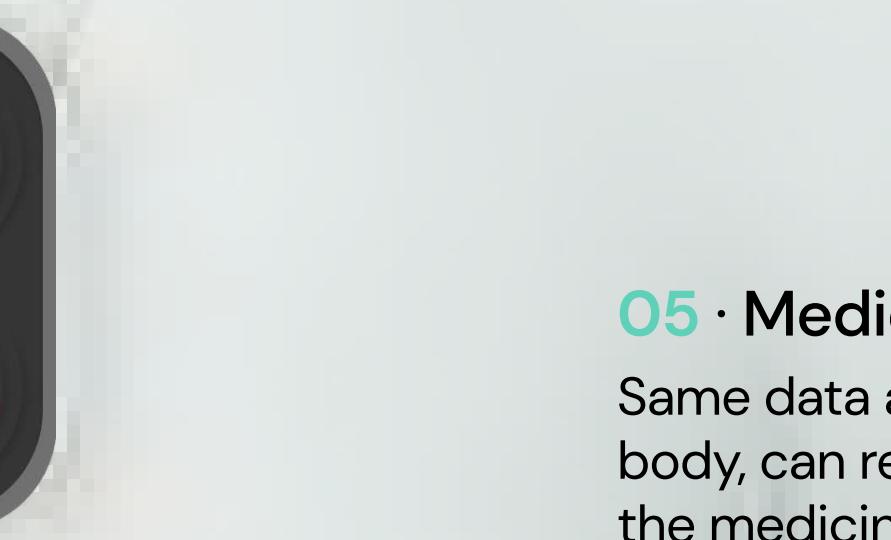
03 · Basic Information
Enter some physical facts of user that can customise the experience of auto injection



Meds Bank is an Mobile App that using data **analysis of the user's physical condition** in real time through the monitoring of the mobile app, so as to achieve the purpose of **timely taking medicine** and **adjusting the dose** in a timely manner.

Injection Device

For the first time installation can be done at **hospital**, then the refill can be done easily for the future



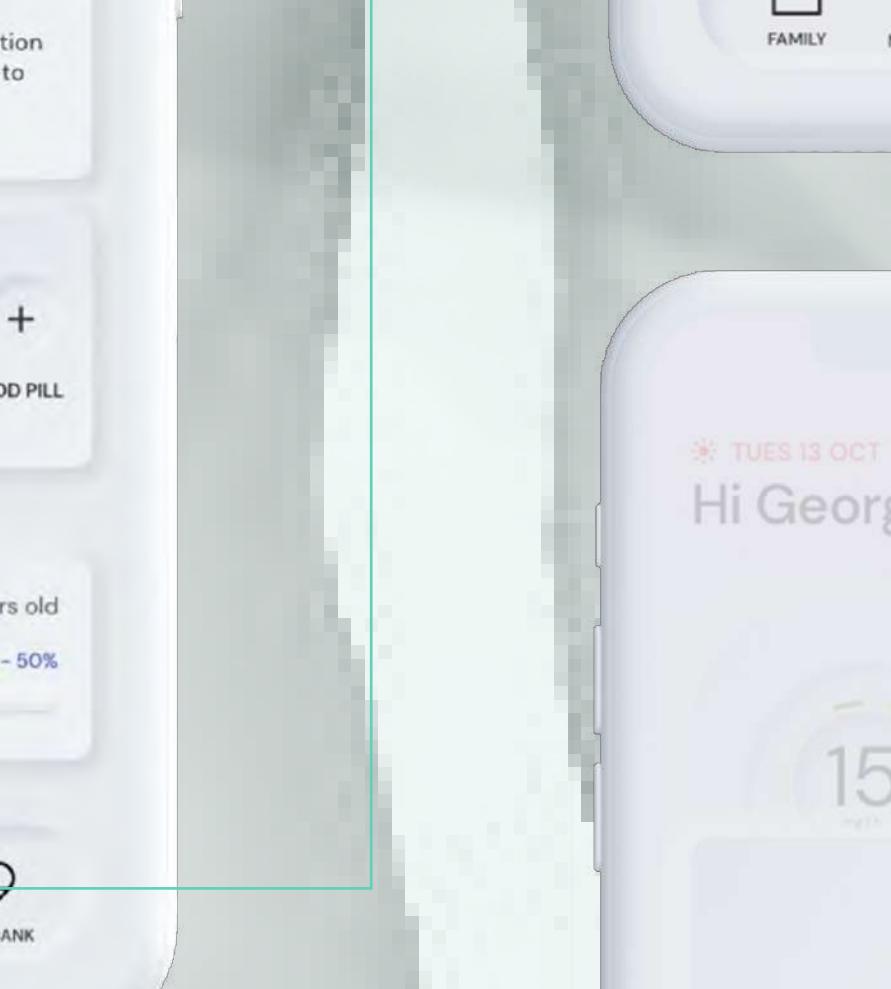
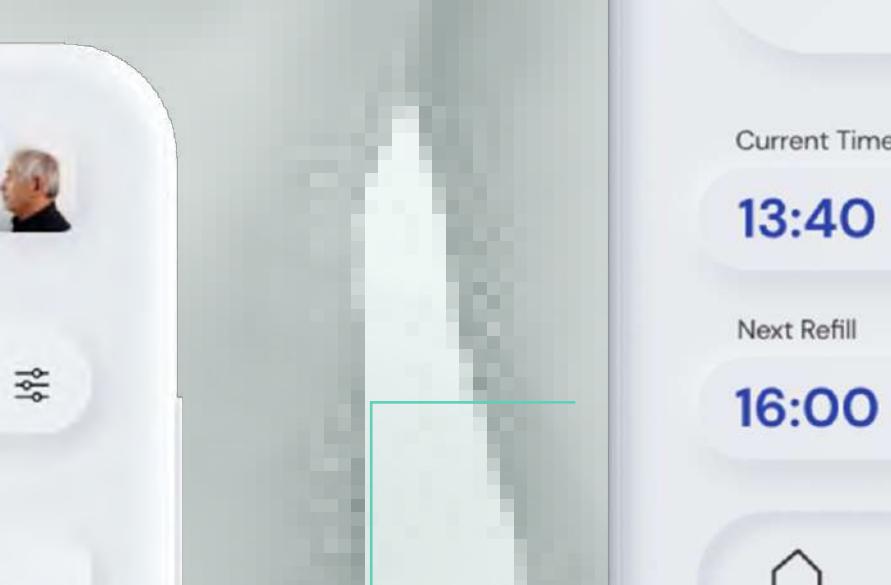
05 · Medicne Monitor

Same data as the device on the body, can remind user to refill the medicine on time



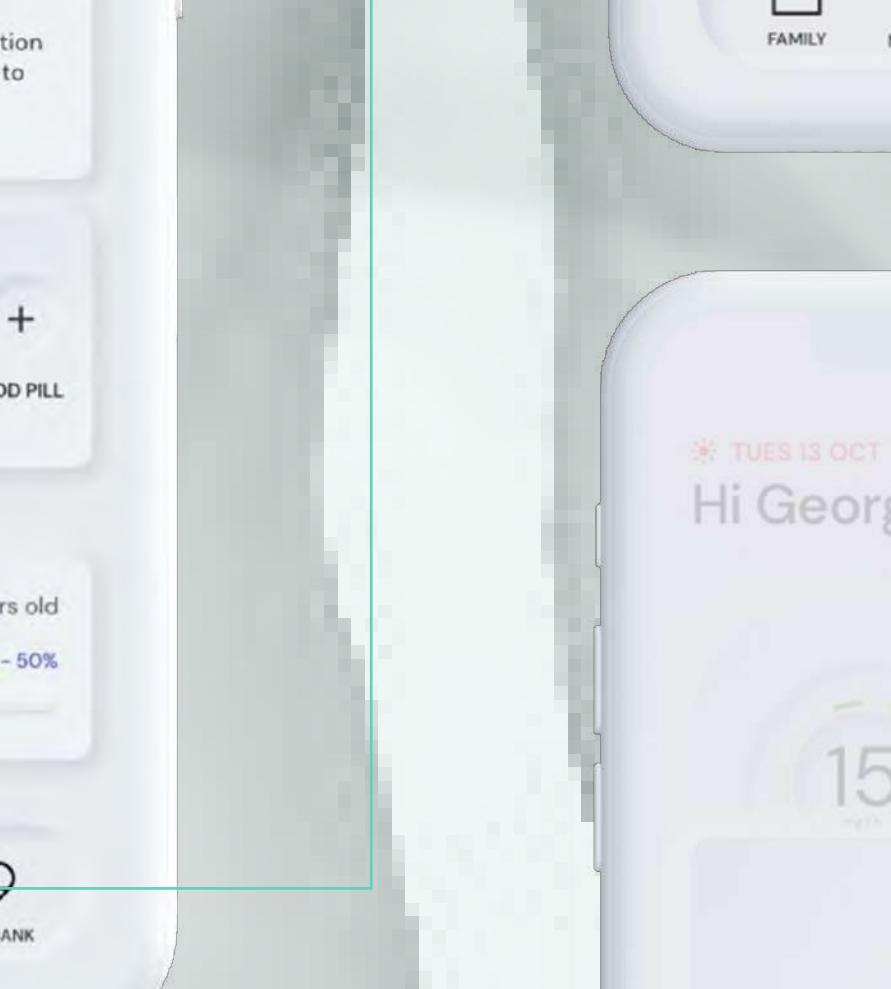
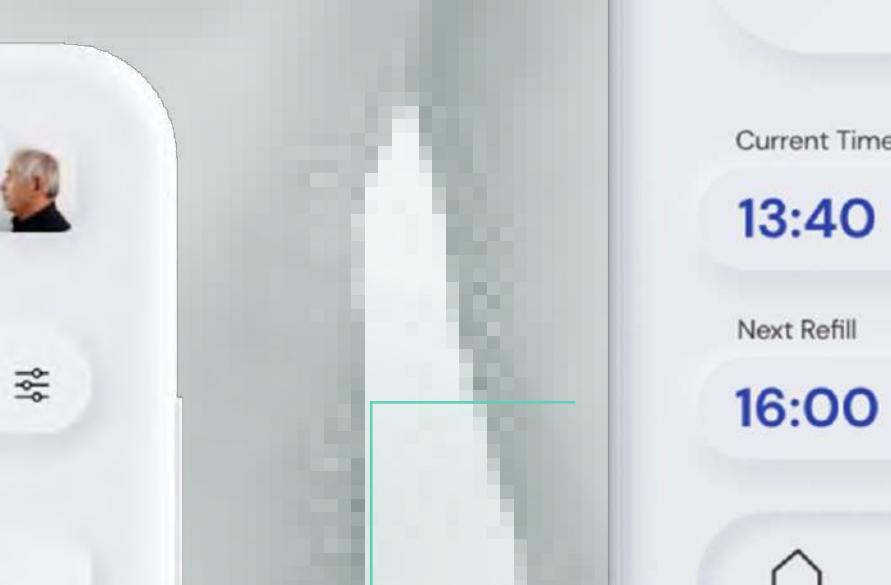
04 · Home

Listing user's medical condition, can adding family members to the app, so can monitor remotely



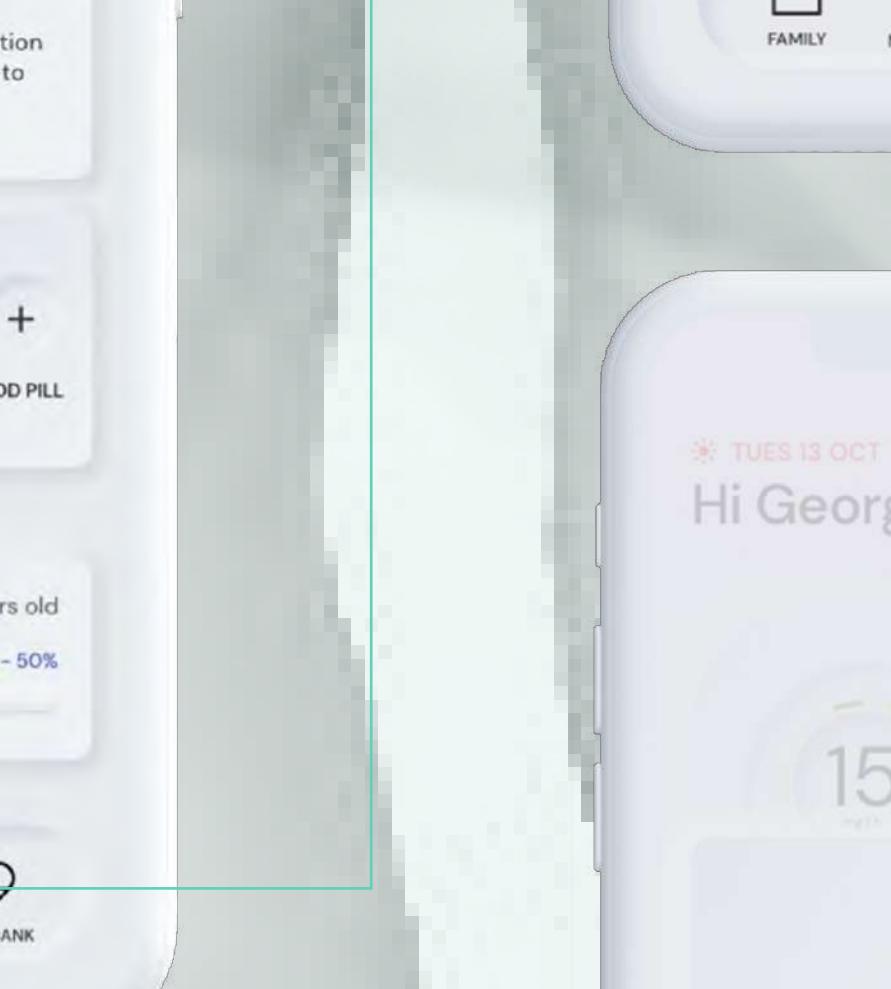
06 · Medicine Schedule

With a week of data analysis, users can adjust the amount at anytime and anywhere



07 · Med Bank

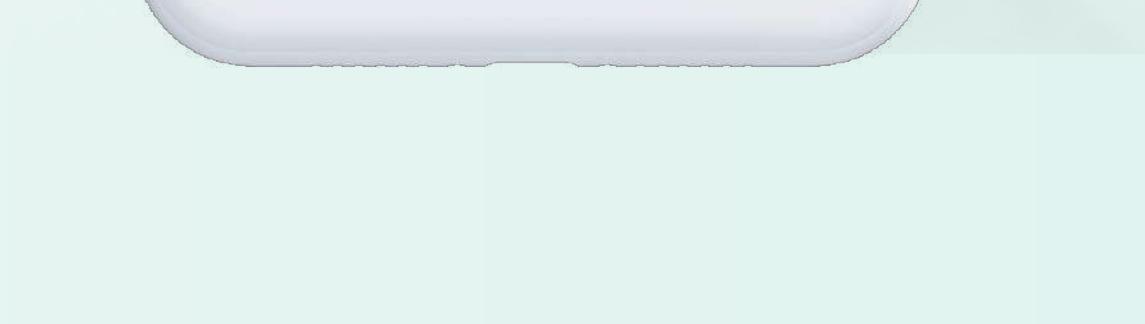
Credit can be stored in here if take medicine on time, to encourage users have a better life attitude



Other Application of Interface



The dark version UI design & iWatch UI design can fit into more devices for better experience



Package Design

When the main users of this product are the elderly, the packaging design & Instruction become especially important



Design with clean instruction & big fonts

WORDS OF THE SOUL

Re-learning system for patients with aphasia

I explored how language & emotion system work in our brain, which possible can help to translate what is in the mind into the simplest visual elements. For people with aphasia who cannot express through language, it is possible to express, and to create the possibility of language re-learning for them.

BACKGROUND

Bruce Willis

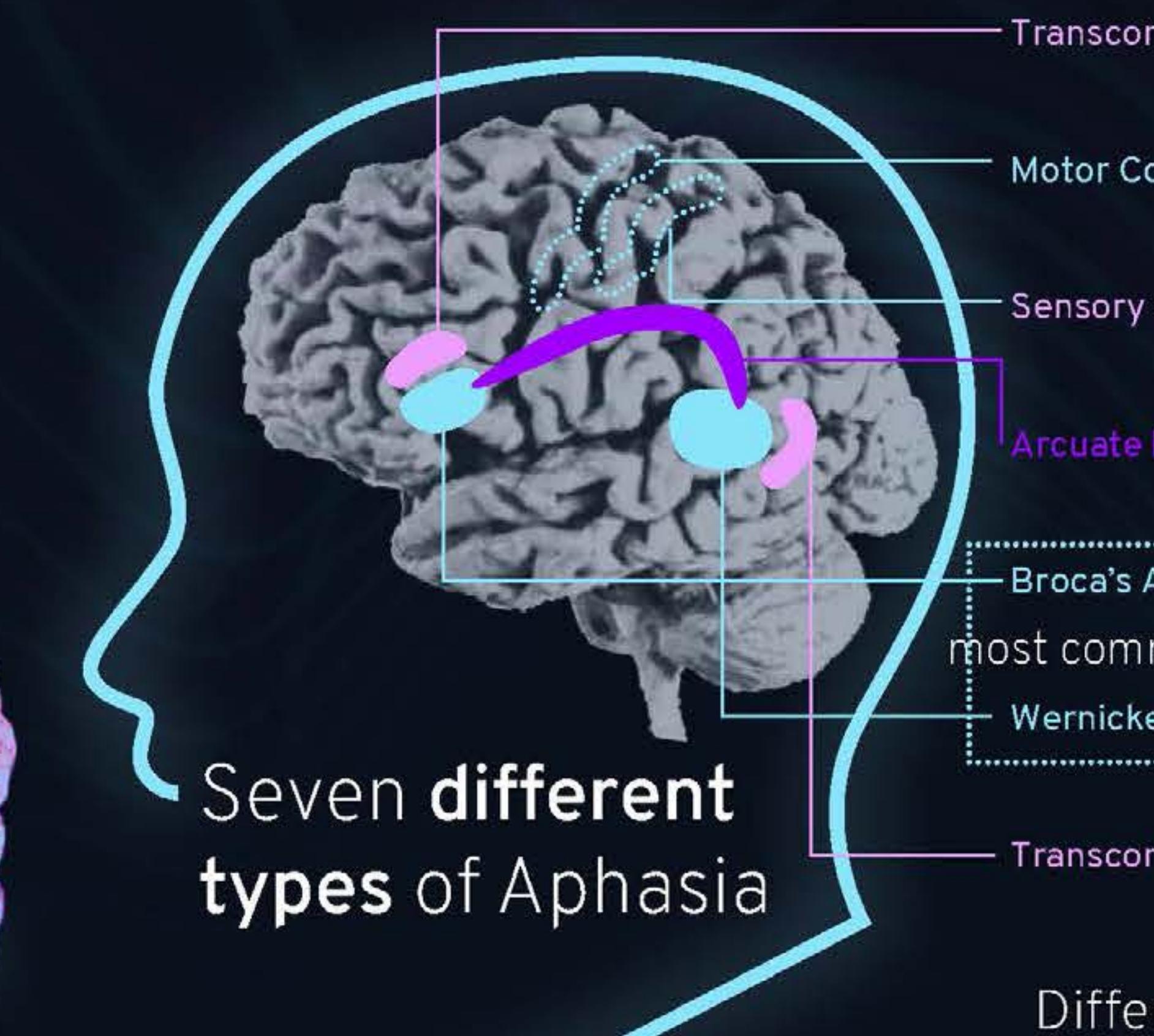
At age of 67, he announced he was retiring from acting after being diagnosed with **aphasia**.

This is actually the first time I notice this group of people.

Aphasia has start to damage his **language centres** in the **cerebral cortex**. He is facing with **expressive** and **receptive** language, including:



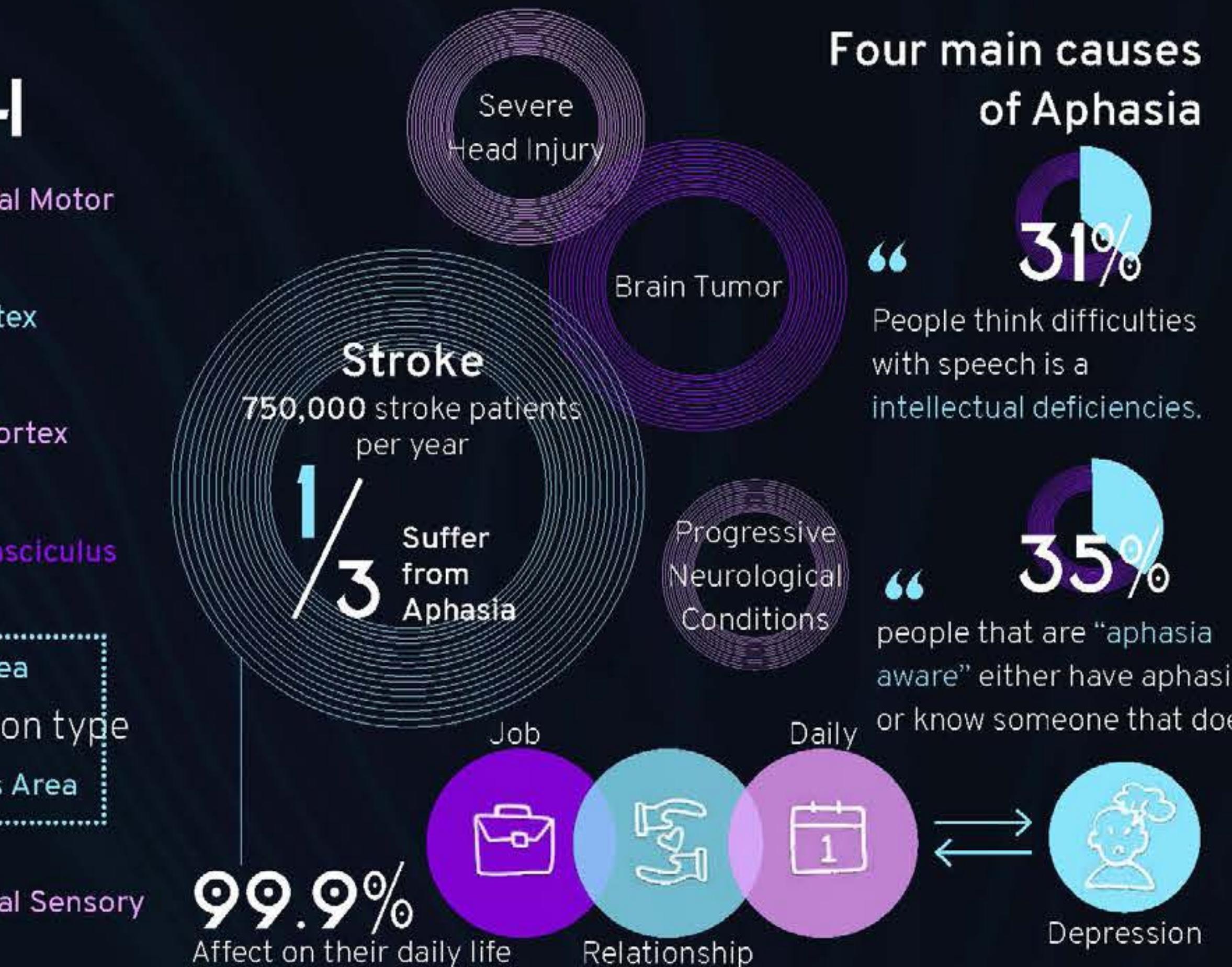
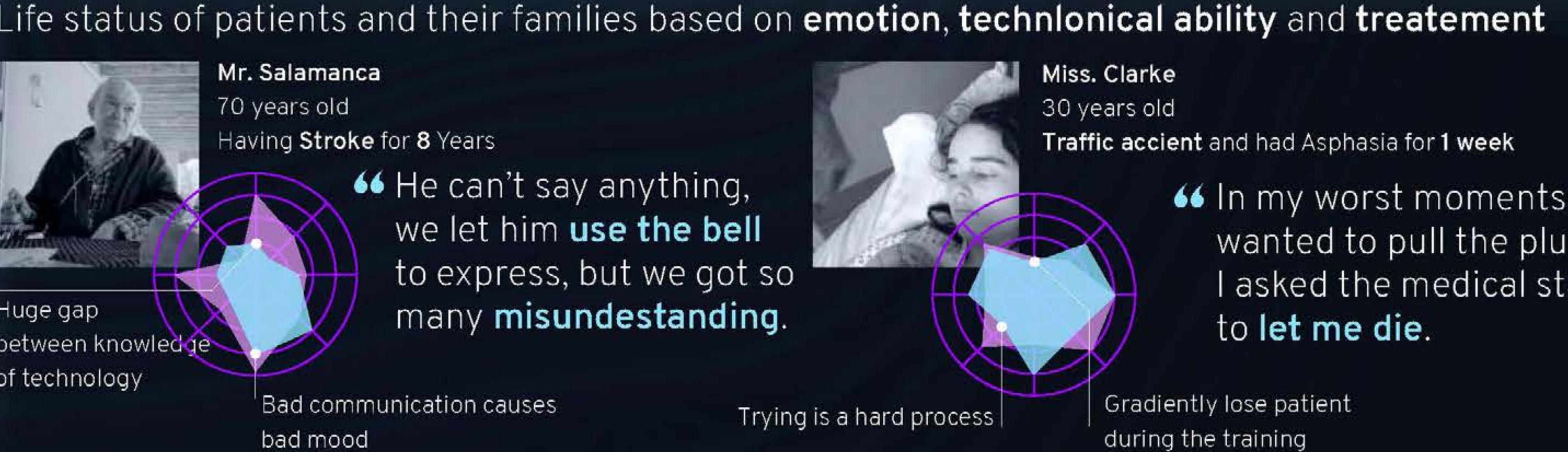
PATIENTS' RESEARCH



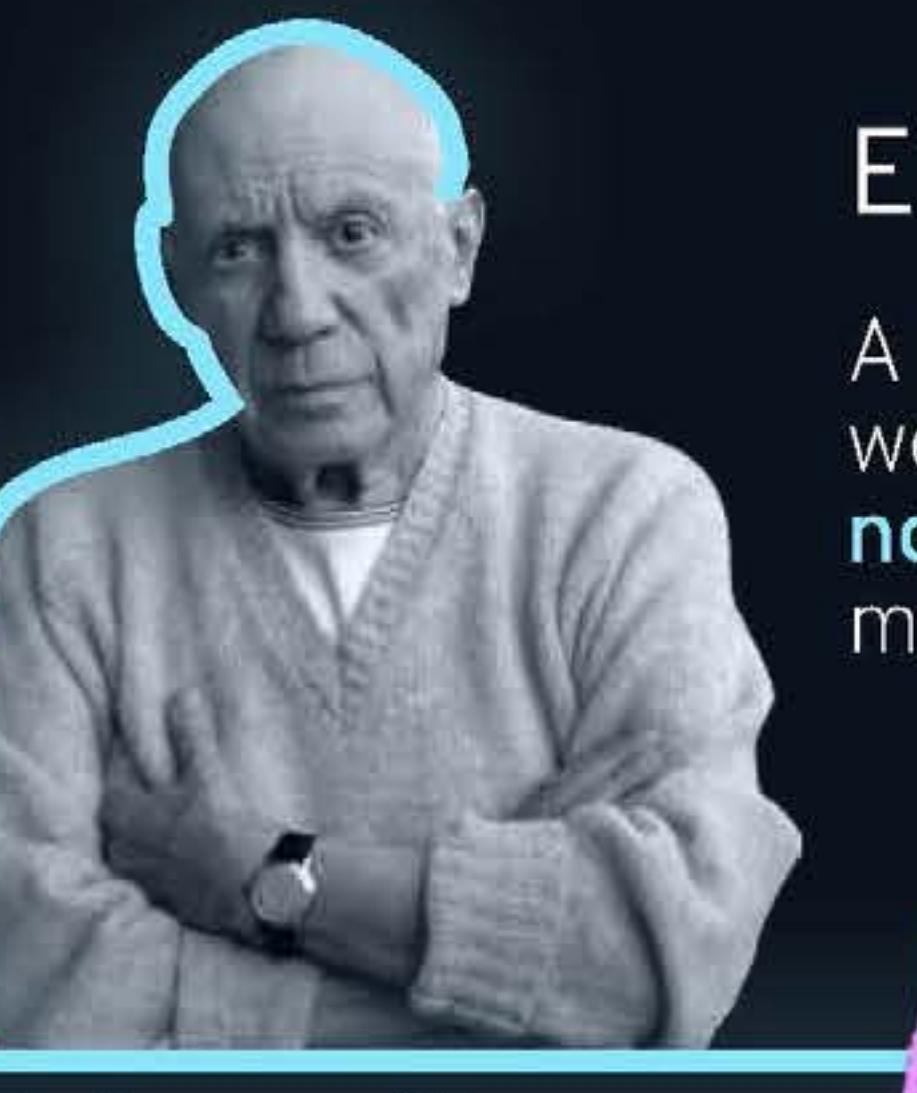
Different **damage** to specific brain regions can cause different **inability to comprehend or formulate language**

	1	2	3	4	5	6	7
Fluency	✗	✓	✓	✗	✓	✗	✗
Comprehension	✓	✗	✓	✓	✗	✓	✗
Repetition	✗	✗	✗	✓	✓	✓	✗

PERSON△ SYMPTOM△



SCIENTIFIC THEORY STUDY

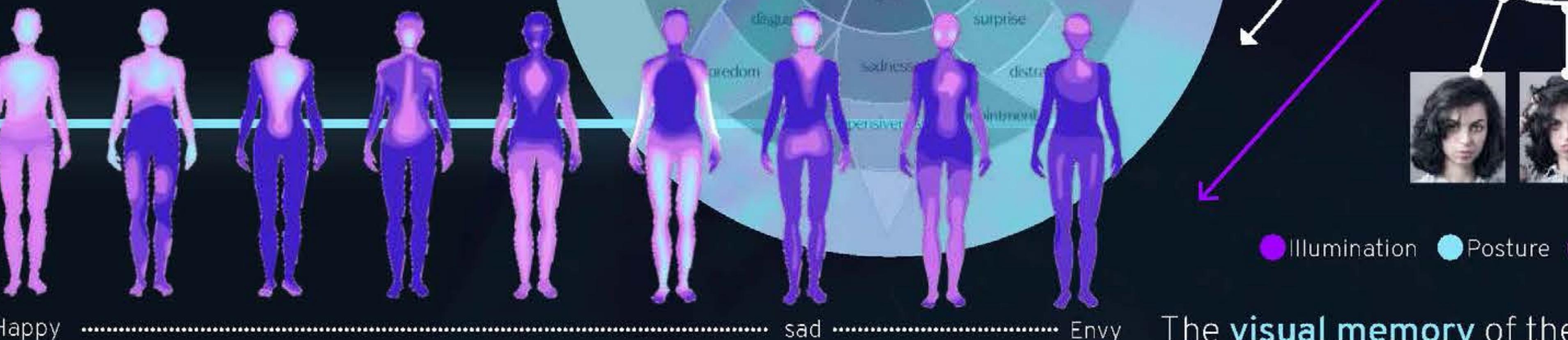


“Colours, like features, follow the changes of the **emotions**.

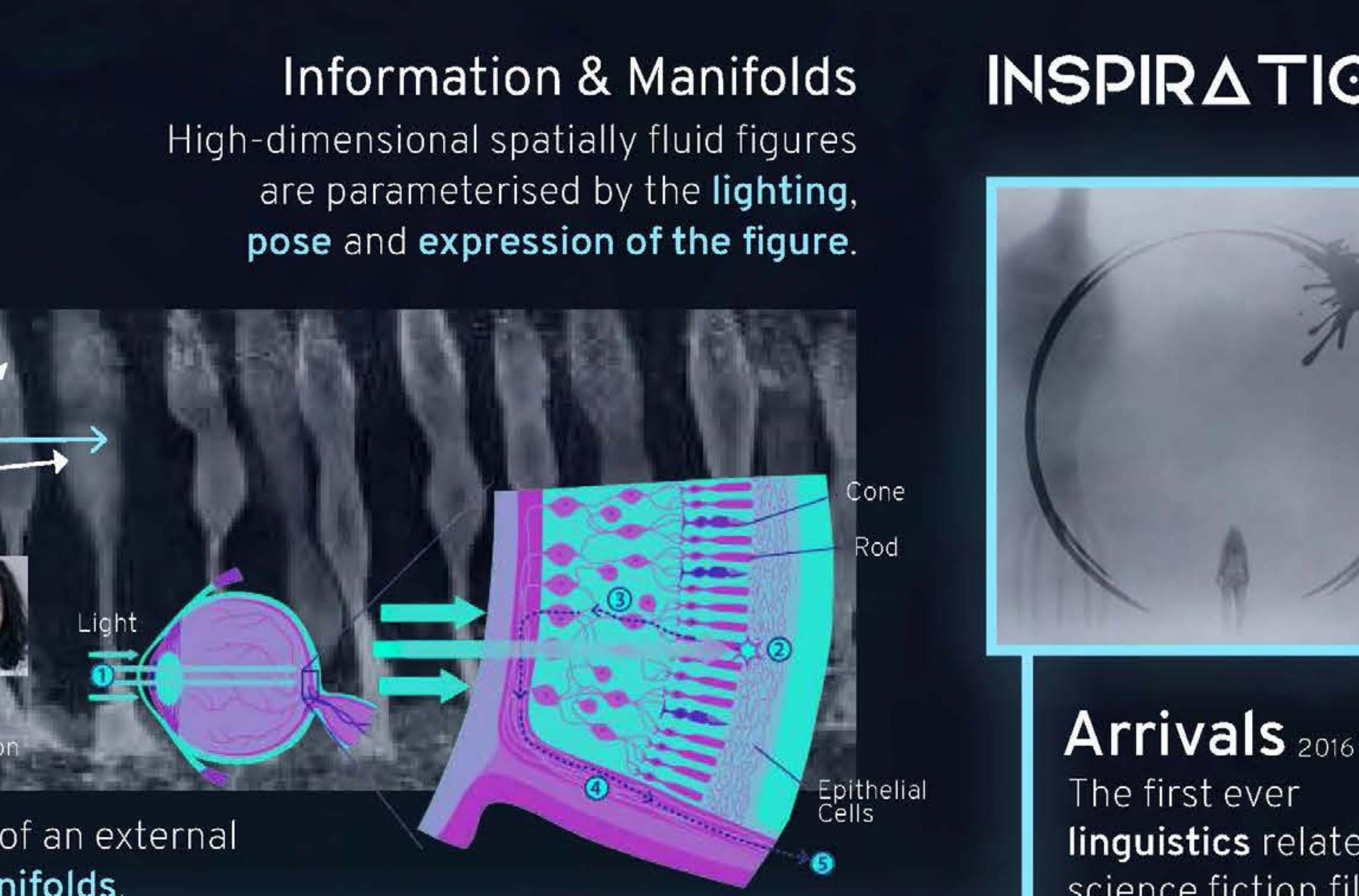
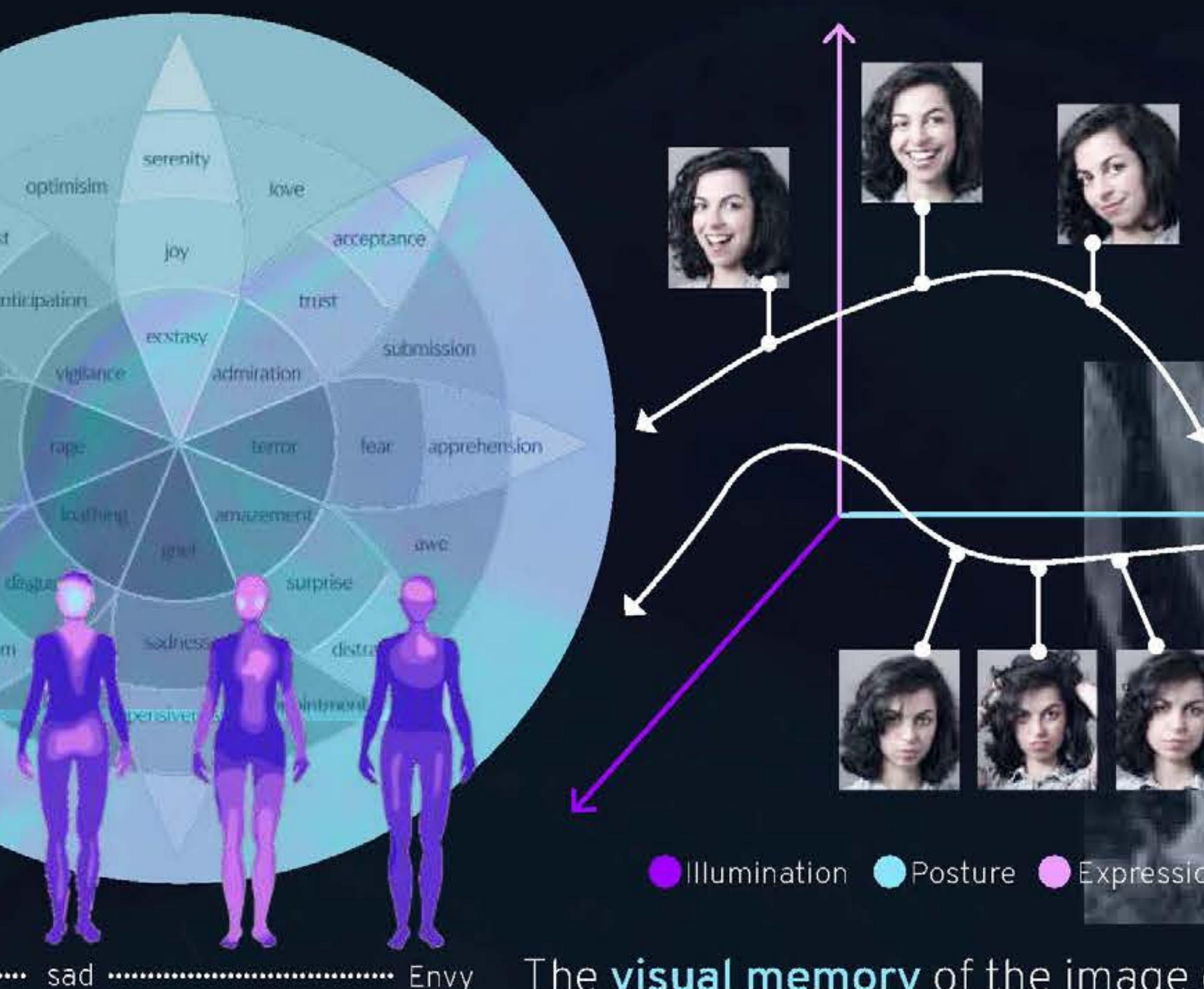
by artist Pablo Picasso

Emotion & Colors

A project points to ways in which we can use colour to develop **non-verbal approaches** to assess mood and well-being outcomes.



Like on a heat map, **increased** activity corresponds with **warmer colors** (Red & Yellow), while **decreased** responses correspond with **cooler colors** (Green & Blue).



Information & Manifolds

High-dimensional spatially fluid figures are parameterised by the **lighting**, **pose** and **expression** of the figure.

INSPIRATION



Details in story telling



Basic Form



Emotion flow in 3D



Cause & result

As an interaction designer, I start to question myself

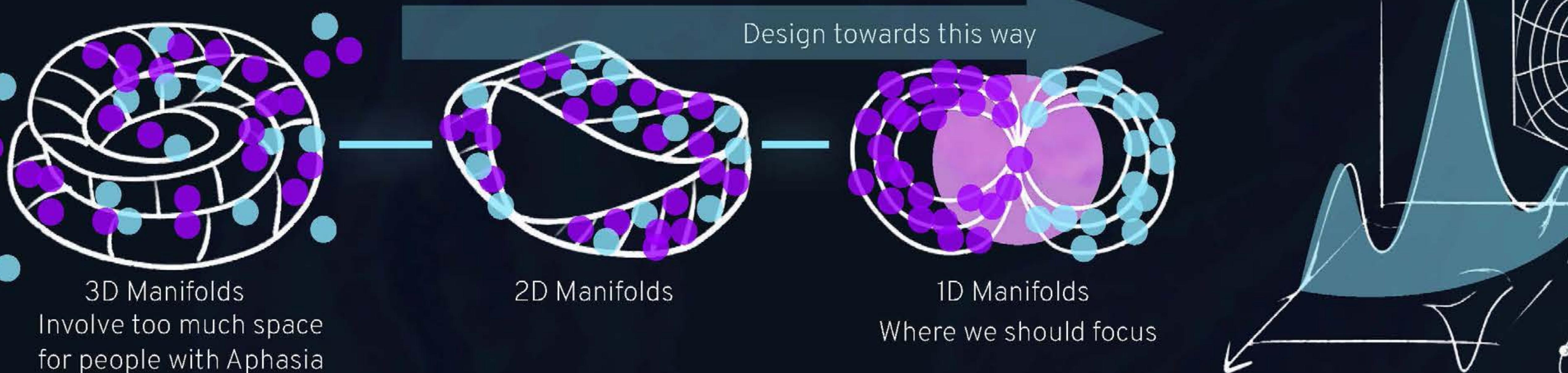
IS THERE A SYSTEMATIC WAY CAN HELP PEOPLE WITH APHASIA TO SPEAK VISUALLY?

- In languages, ease of learning is not the dominant force.
- Understand **experience & mood of the interlocutor** to understand all **behavioral explanations without barriers**.

Writing & speaking might be unnecessary

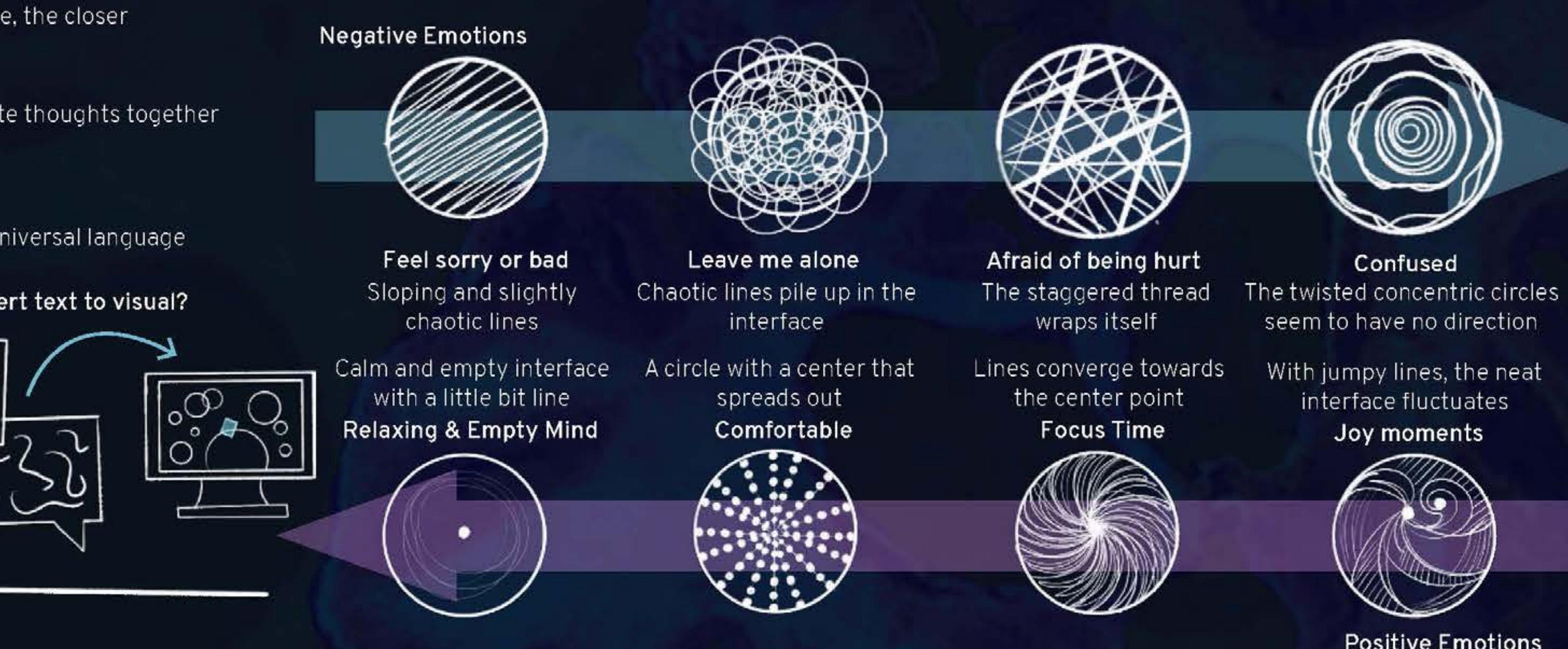
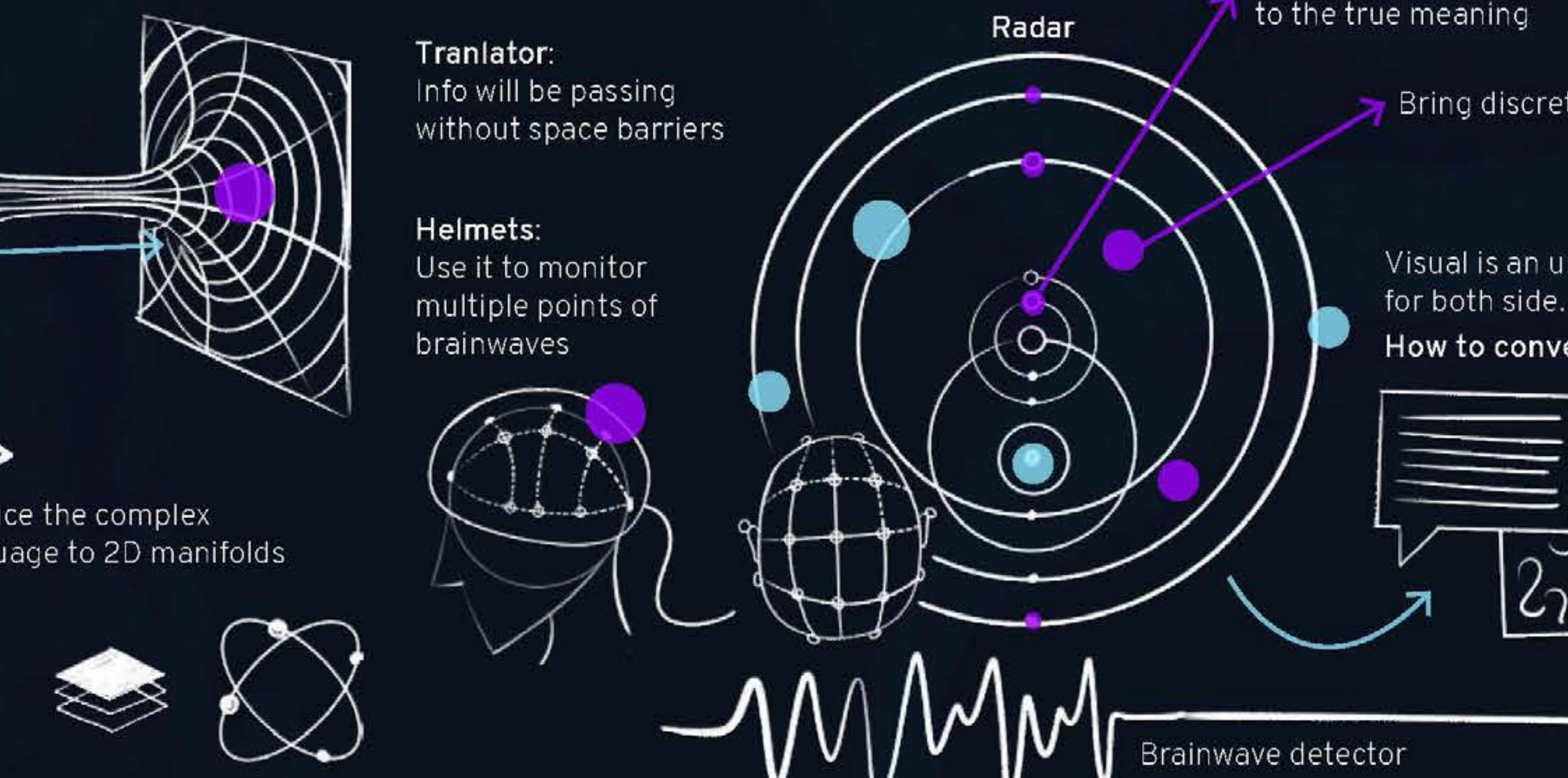
CONCEPT

Potential design gap - **Lower-dimensional neural manifolds** can be better studied and analysed in this project.



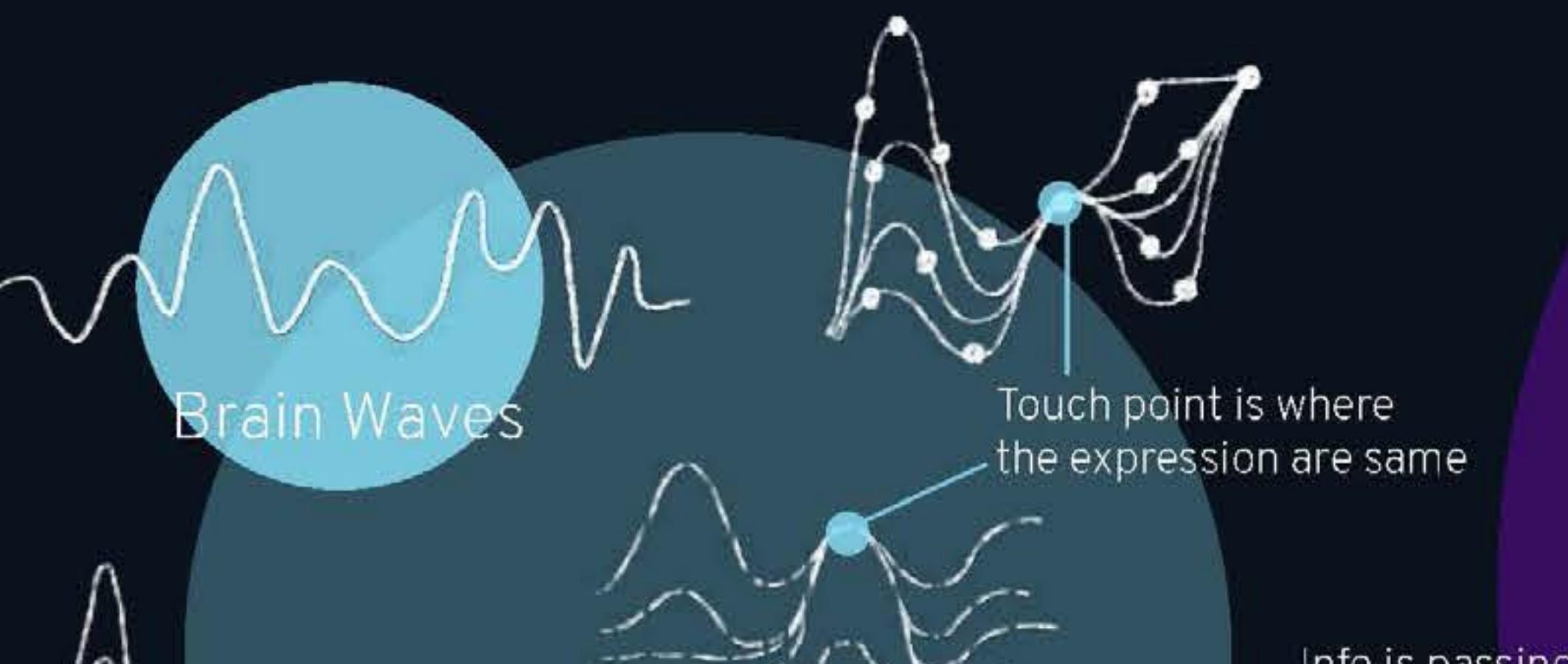
Humans have been able to record data on the activity of hundreds of neurons in real time.

Mindmap - Possible way this can happen through some devices



Beyond the two-dimensional text semantics, it is possible to know **the cause and effect**.

VISUAL EXPERIMENTS



Quick abstract line font sketch to express in word

Round 2 Sketching

Testing in a 2D dimensional scene

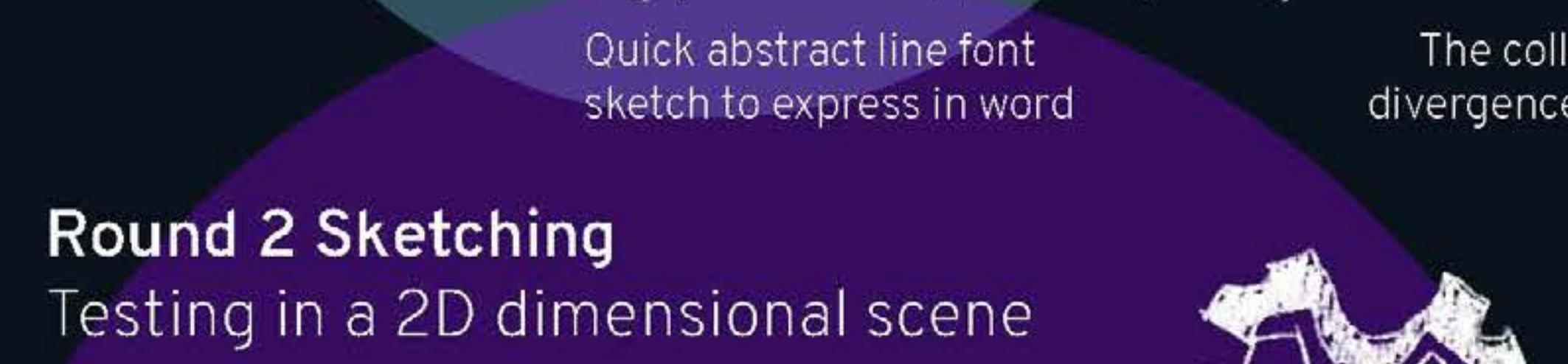


Integration of thinking

Combining both advantage of 2D & 3D, try to simplify the shape

Round 1 Sketching

Testing in a three dimensional scene

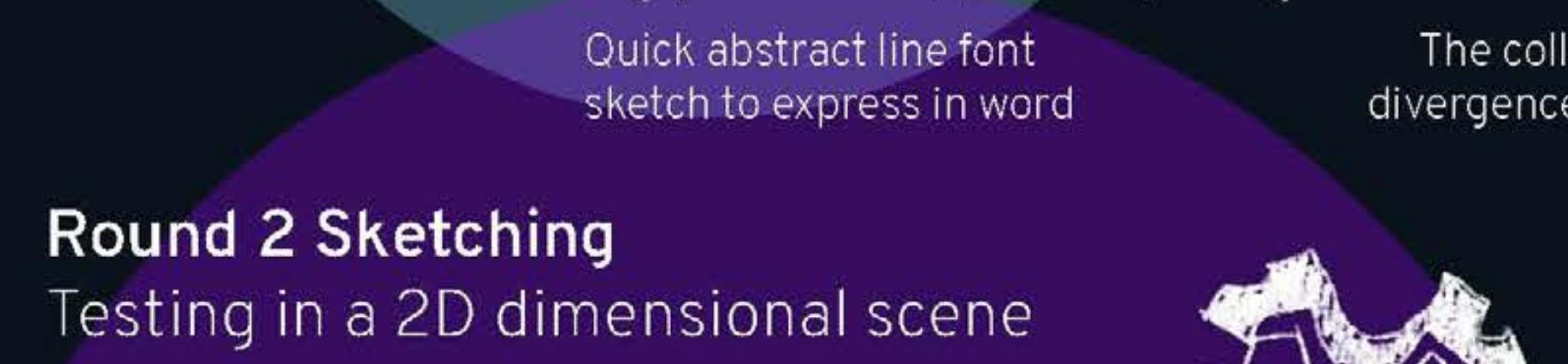


Integration of thinking

Combining both advantage of 2D & 3D, try to simplify the shape

Round 3 Sketching

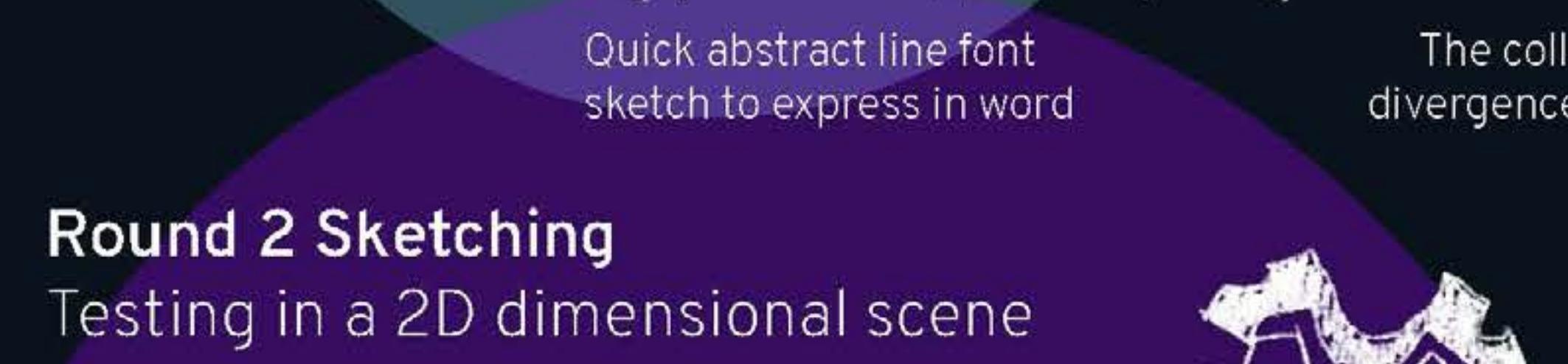
Combining both advantage of 2D & 3D, try to simplify the shape



Graphic language is non-linear and can enhance the ability of others to understand the words of people with aphasia.

How to interact with the visual?

How the visual will be formed by coding?



Matching to see whether both participants are on the same step.

CODING PRODUCTION

Step 1 - form a simple 2D model

The function is used to reduce the dimensional data of the manifold.

Step 2 - form visual brainwaves

An invariant images are generated by randomly generated array input to processing.

Step 3 - Generate random colours by emotions

Generate colours for images to show the mood of the user. By generating dynamic and changeable colours to show how the user's mood changes during the presentation continuously

Step 4 - Optimised graphic for better visual

Optimised graphics to make each feature line easier to distinguish. By matching brainwaves that represent mood, thoughts, we can know if the discussion is on the same page.

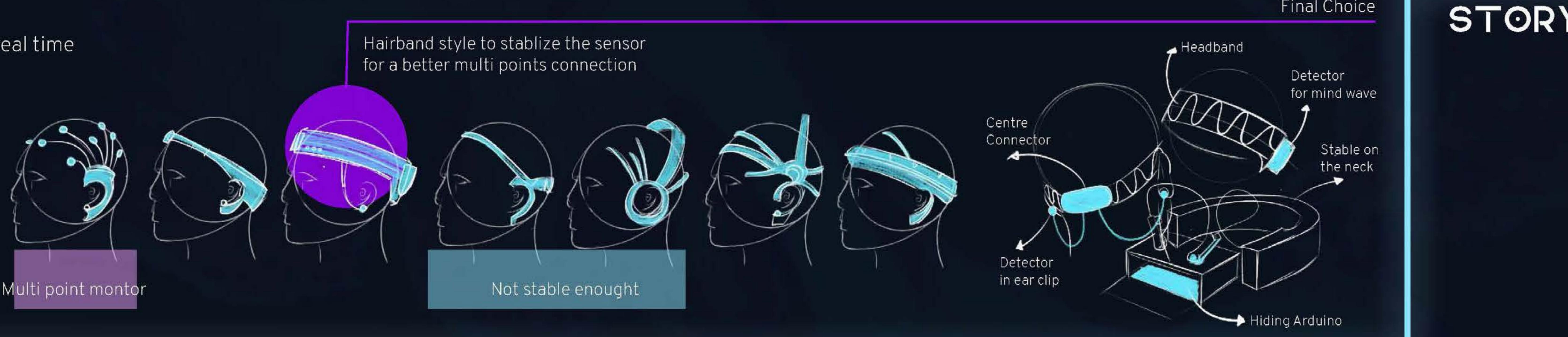
Arduino

Connecting to the brainwaves and formula the final two manifolds for interacting.

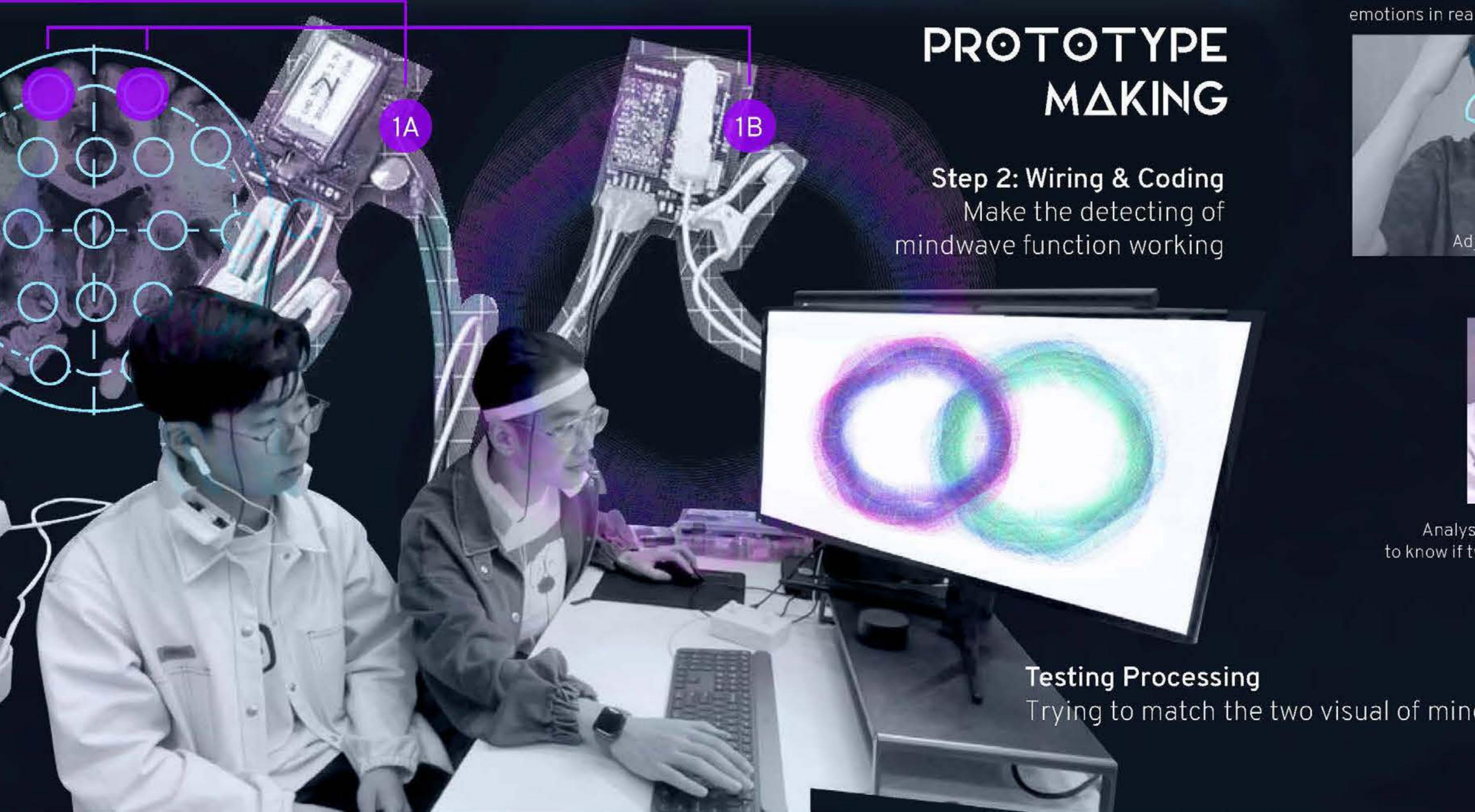
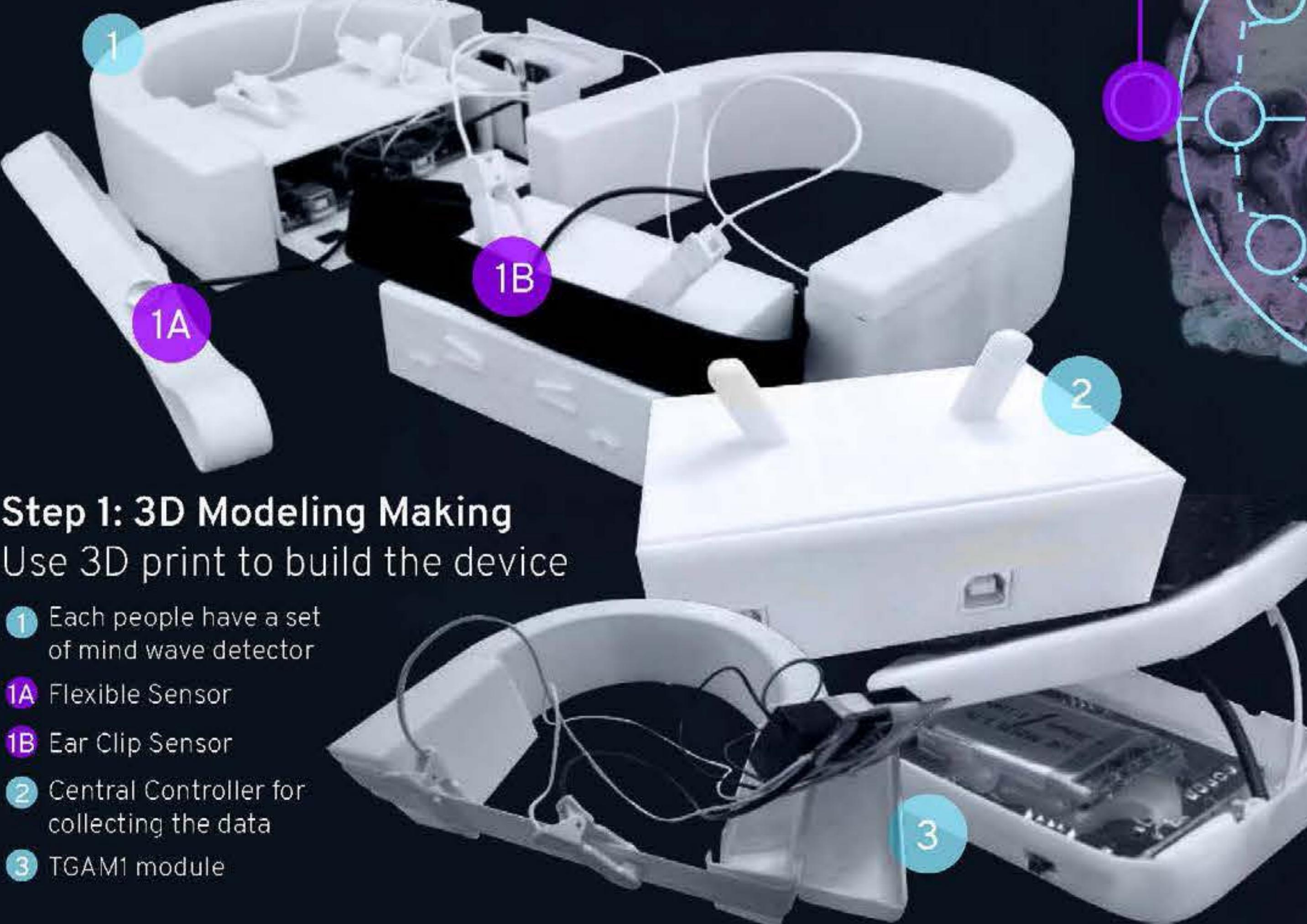
Device Sketching

How to get mind wave in real time

Device Form exploration



Real time visualise the mind wave on projection



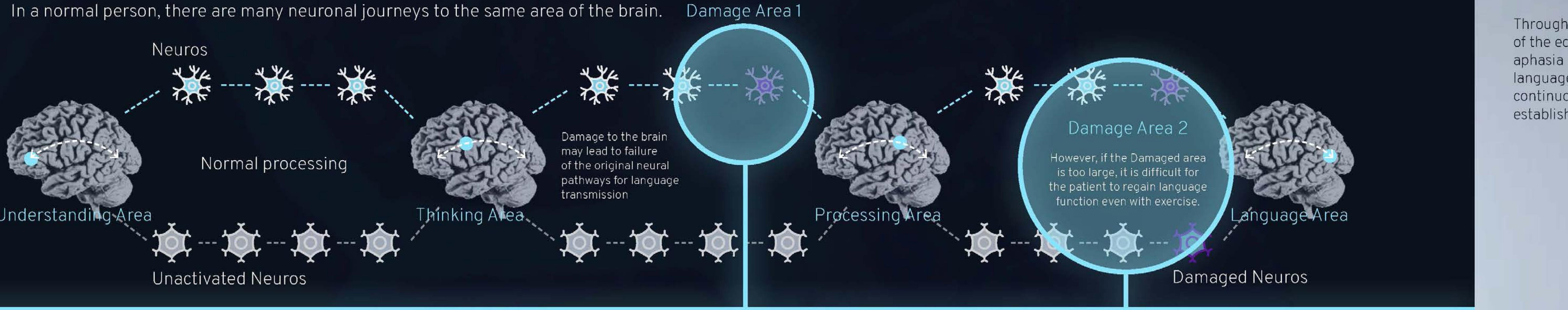
STORYBOARD



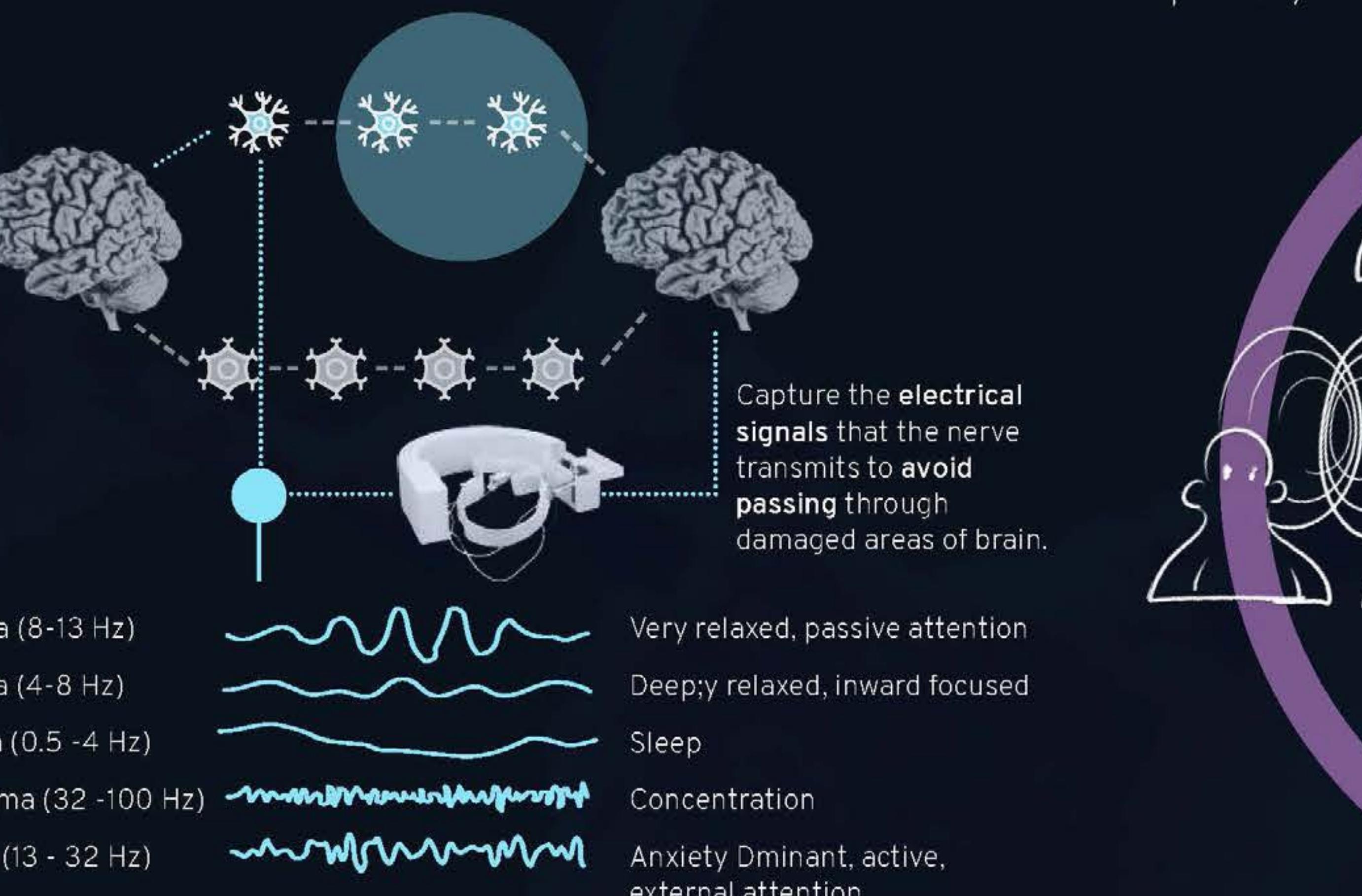
Demo Video: <https://www.youtube.com/watch?v=34HD0VIWUBg>

SYSTEM FURTHER APPLICATION

In a normal person, there are many neuronal journeys to the same area of the brain.



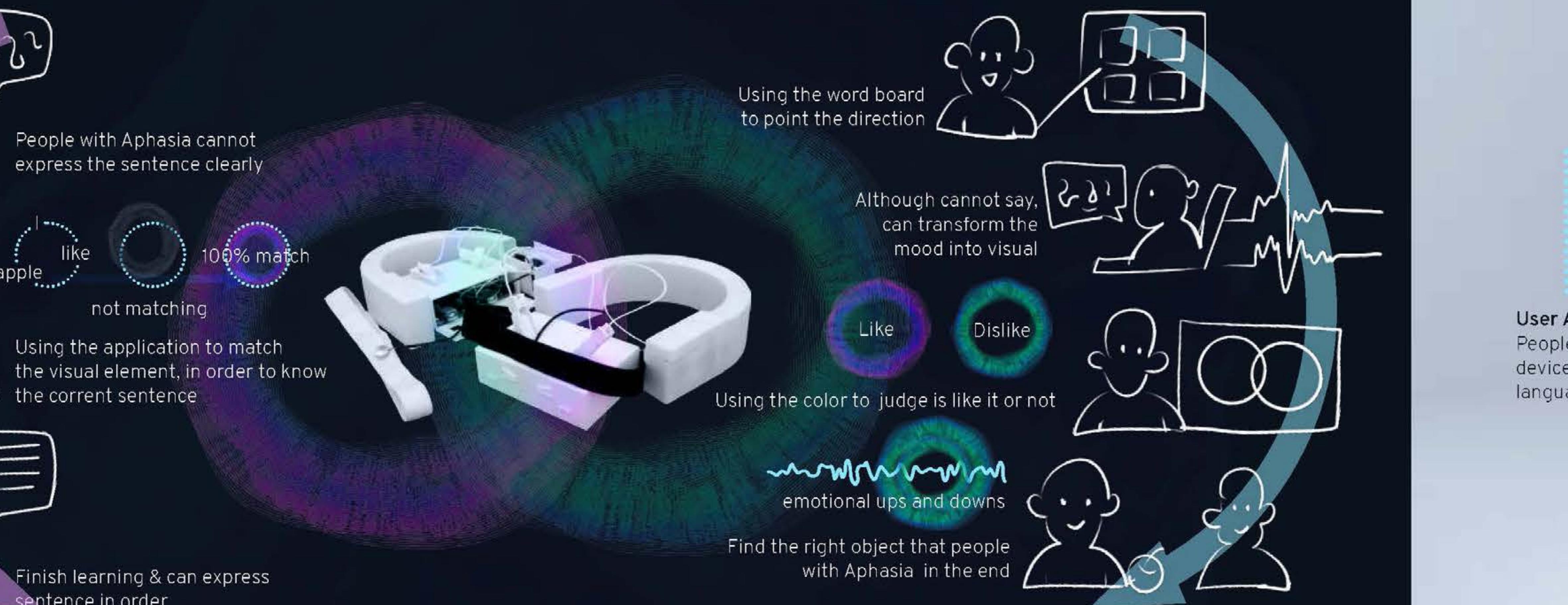
With the new language system, we can try **different approaches** with people who has Aphasia, either making exercise plan to recover their language skill or using as a translator base on their **condition of the brain damage's degree**.



APPROACH 1

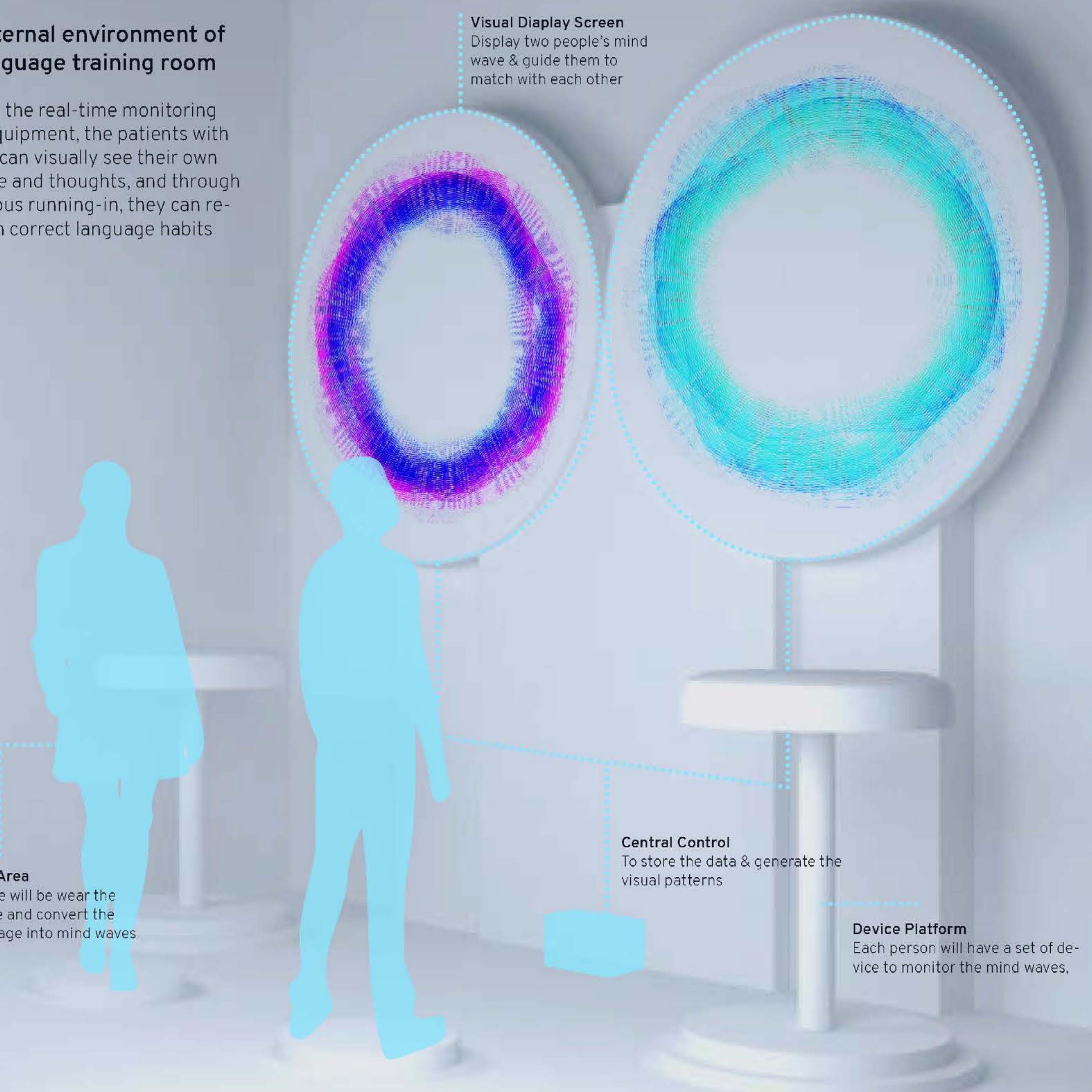
Can be apply to the damaged area 1.

The transmission of linguistic information through new neural pathways is difficult. But it **can improved through exercises**.



The internal environment of the language training room

Through the real-time monitoring of the equipment, the patients with aphasia can visually see their own language and thoughts, and through continuous running-in, they can re-establish correct language habits



Other Works

Bicycle phone holder

Multifunctional phone holder for shared bikes



Treadmill for the blind

A treadmill designed for a Brazilian-Chinese treadmill company DXID to accommodate blind people for running training

Instruction Book

Large picture instruction manual reduces the difficulty of installing the chassis

