



YISU

Design of astronaut sleeping bag based on interactive fabric

"'YISU' in Chinese means that although the space capsule in which astronauts reside is just a drop in the ocean in the universe, we hope that with the help of design, astronauts can sleep peacefully."

Who: My group and I

When: Apr.2021 - June.2021
8 weeks

Project Type: Interaction Design

I am mainly responsible for preliminary research, technical implementation, and interactive area rendering

Background Research

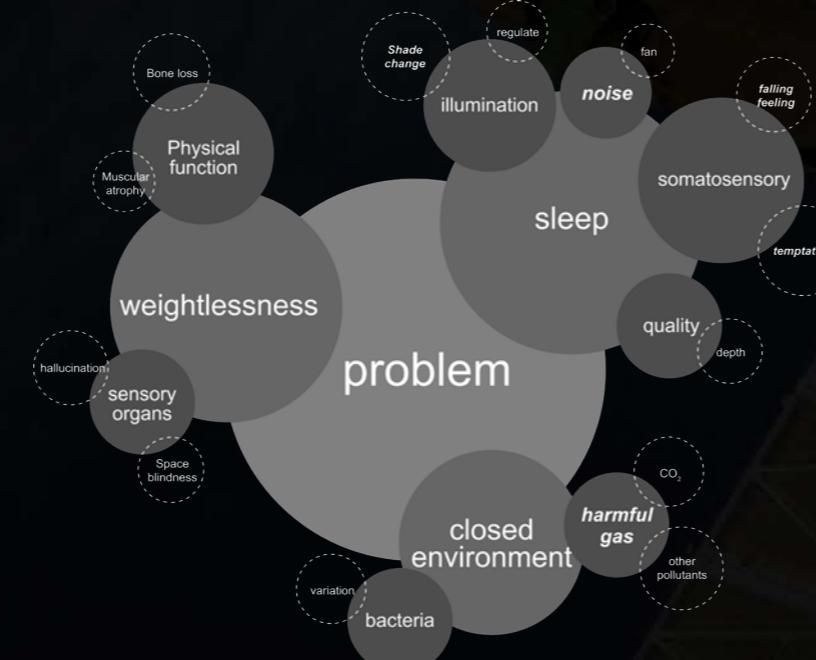
• Astronauts' dilemma

From the proposal of the space theory in 1903, to the launch of the first artificial satellite, to the landing of humans on the moon, our deep space exploration has never stopped. Behind the glamorous space travel, weightlessness and health problems of astronauts also need attention.

Astronauts need to face extreme environments completely different from the ground in orbit, and known extreme conditions include: vibration, noise, microgravity, light changes, temperature changes, loneliness and small space. In order to **ensure the working condition** of astronauts, sleep time and sleep quality need to be guaranteed. However, NASA's survey of 101 astronauts showed that astronauts generally **have difficulty falling asleep** and short sleep duration.

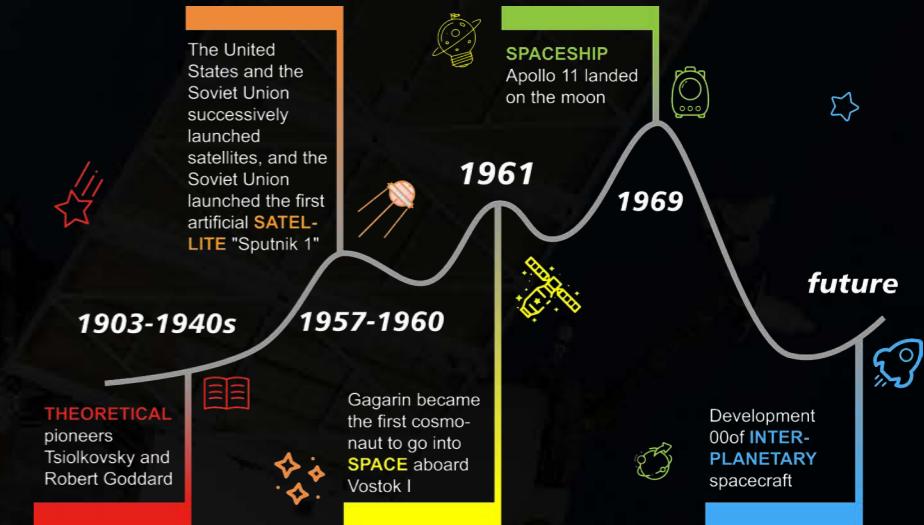
My group and I hope to provide astronauts with a simple way to control the environment in the sleeping cabin through **the sleep bag touch design**, reduce the impact of the cold feeling of the buttons on sleep under the premise of ensuring easy and safe operation, and **reduce the cognitive load** of astronauts' operation.

• Problem



• Development history

Human beings have entered space, landed on the moon and are about to go deeper into the universe, and the care design of astronauts should also be considered at a time when astronauts' survival needs are guaranteed.



• Astronauts' timetable



Examples of daily work logs of astronauts on the International Space Station:

- 7:00 a.m. - Get up, record ECG data
- 7:05 a.m. - Wake up activity
- 8:30 a.m. - Daily meeting: Briefly discuss the schedule of the day's activities with control centers around the world
- 9am - PC update
- 9:25 a.m. - Prepare equipment for maintenance
- 10:25 a.m. - Exercise on the treadmill
- 11:25 a.m. - CO₂ monitoring data collection
- 12:15 PM - Window shutters closed
- 12:25 p.m. - break time
- 1:10 p.m. - Ethernet cable swap
- 1:25 p.m. - Fill in the nutrition experiment questionnaire
- 1:35 p.m. - Lunch
- 2:35 p.m. - Free time
- 3:05 p.m. - Resistance Exercise
- 4:35 p.m. - Take photos of the AMO2 device
- 4:40 p.m. - Install the vacuum access port in Node 1
- 7 p.m. - Computer configuration check for materials science research
- 7:20 p.m. - Orbital-6 Cygnus aircraft cargo list
- 7:35 p.m. - Weekly Astronaut Office
- 7:55 p.m. - Time for evening activities, such as dinner
- 8:25 p.m. - Weekly Flight Supervisor
- 8:45 p.m. - Daily planning meeting in the evening: astronauts discuss the work completed during the day and the plan for tomorrow
- 9pm - bedtime activities
- 11:00 p.m. - Sleep

*Source: NASA – astronaut Tim Kopra's log example

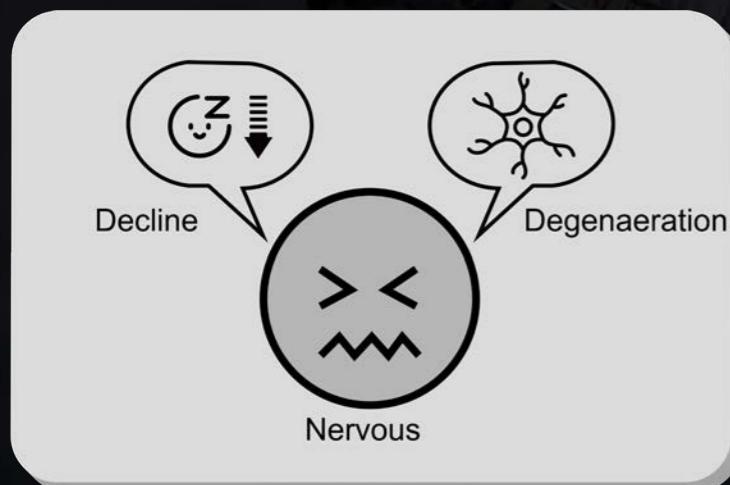
Analysis

• Environment

At present, the spacecraft is generally equipped with several sleeping cabin compartments for single use, the space is relatively small, the cabin is usually equipped with a small light bulb, and the noise level in the sleeping cabin with better sound insulation measures can be maintained at about 40 decibels.



• Sleeping problems

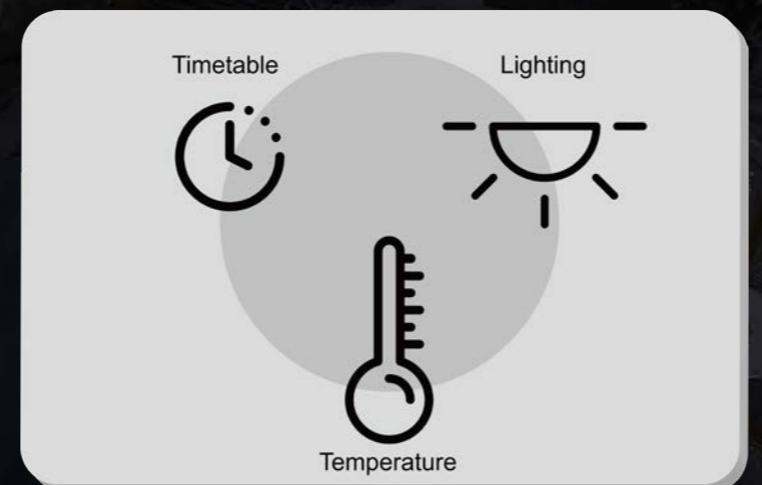


Less sleep leads to anxiety

A shorter sleep time will have a negative impact on astronauts' space work.

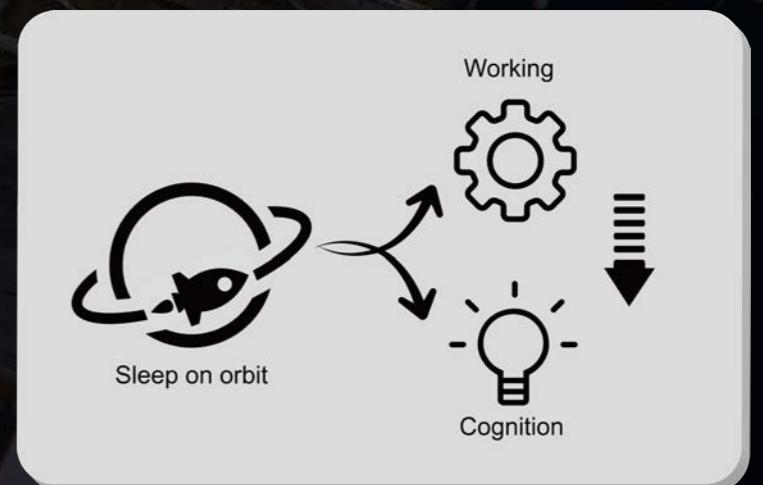
Long term insomnia and sleep disorder will cause strong stress on brain metabolism, resulting in degeneration of key neurons.

—The Journal of Neuroscience



Different solutions by NASA

With regard to space sleep, NASA currently offers solutions including: setting strict sleep schedules for astronauts; Set the ideal sleep temperature; Change the lighting on the spacecraft to improve daytime alertness, etc.



The decline of abilities

NASA has also confirmed in space missions that long-term sleep on orbit will inevitably lead to astronauts' sleep quality decline and circadian rhythm disorder, which will lead to the decline of working ability and cognitive ability.

After a detailed investigation of sleep problems, we finally determined the design direction to focus on the adjustment of astronauts' sleeping environment, take the simulation of comfortable sleep on the earth as the design goal, and use interactive fabrics to reduce interaction costs.

Design scheme

• Interaction design

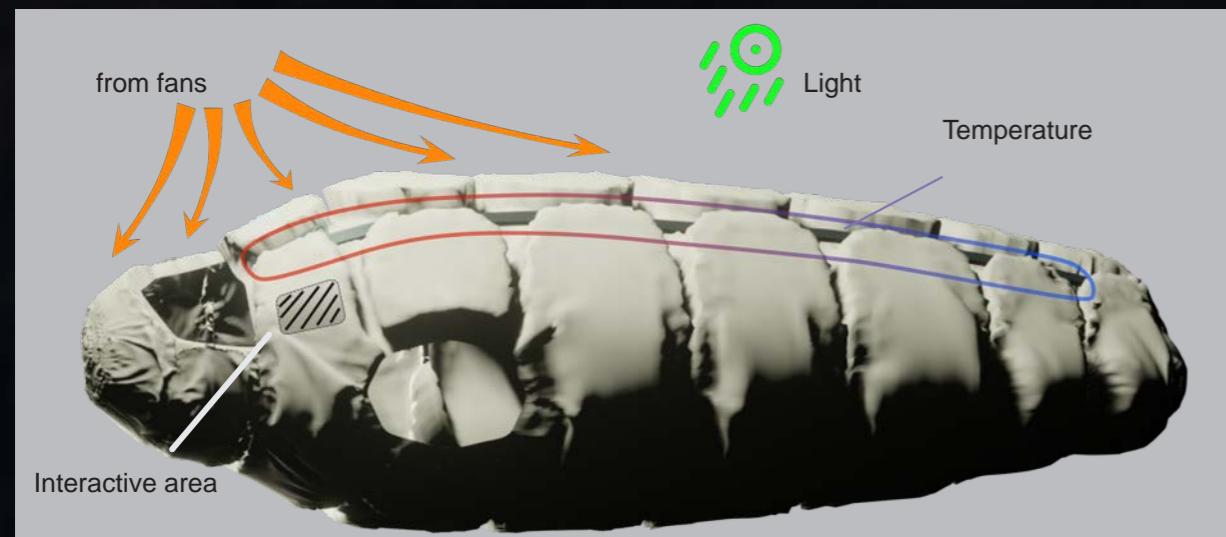
Astronauts can control each system by **simply touching the designated area of the sleeping bag**, including the classic imitation button design and more futuristic and intelligent stepless adjustment, such as he or she can control the **heating or cooling temperature** of the sleeping bag by sliding his or her finger up and down, **sliding the fan** along the ring with his finger, **increasing or decreasing the vibration amplitude** a little by little using the touch touch, touching different areas to **select the color and intensity of the light**, etc.

I envisioned a touch design scheme for six interaction zones, with partitions designed primarily to reduce astronauts' operational costs and cognitive load, while following the following interaction design principles:

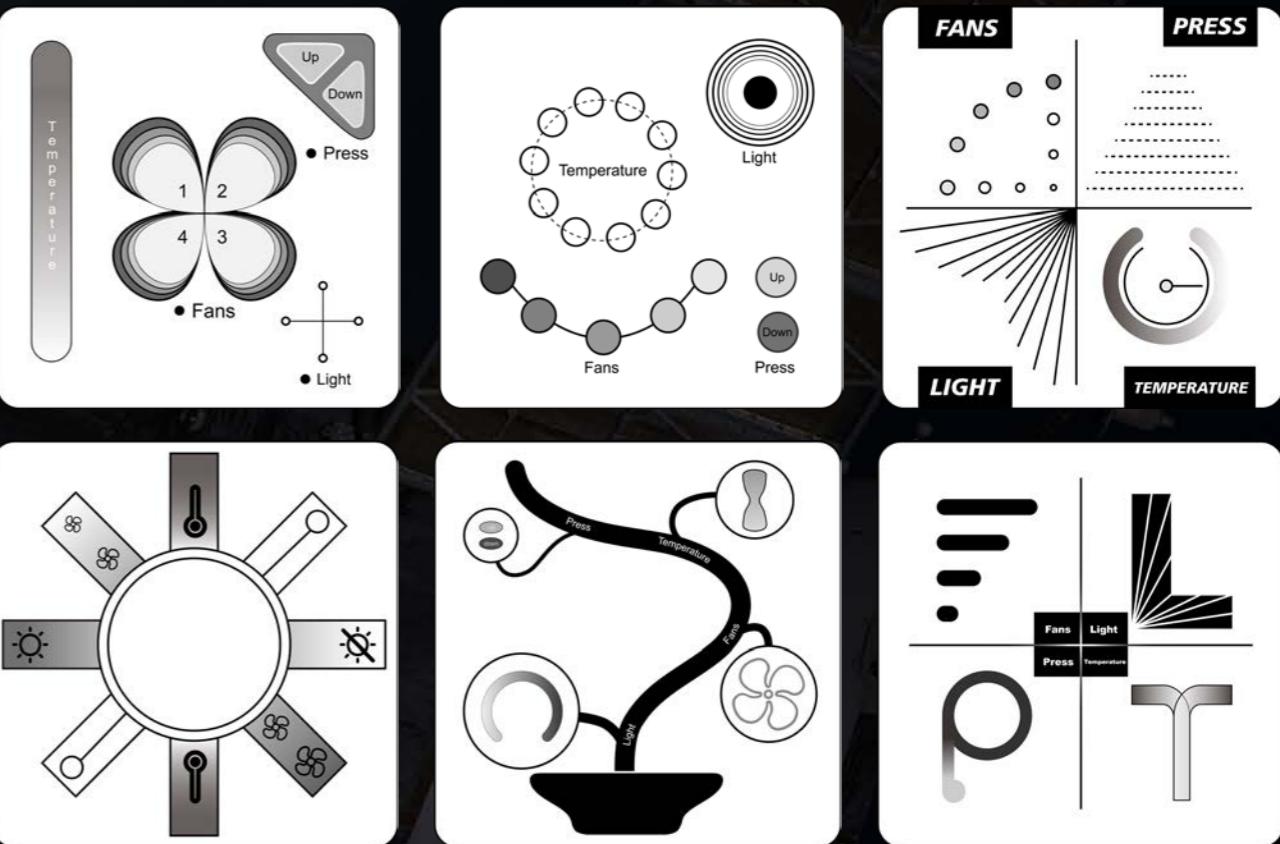
- (1) **Reduce the operation steps/objects** as much as possible;
- (2) **Physically reduce the operating load of each step** as much as possible: increase the operating area, reduce the operating distance and reduce the operating cost.

Referring to Donald Norman's book "Emotional Design" to first put forward the hierarchical theory of user emotional experience, the interactive fabric can attract users to interact by the touch of the fabric at the instinctive level, and the need to fall asleep has a natural inheritance relationship with the interactive carrier of the sleeping bag, and the interaction is natural and simple to **meet the emotional needs** of the behavioral level. After the user finishes using the product, the novel and ingenious interaction method will give the user a deep but not obtrusive impression.

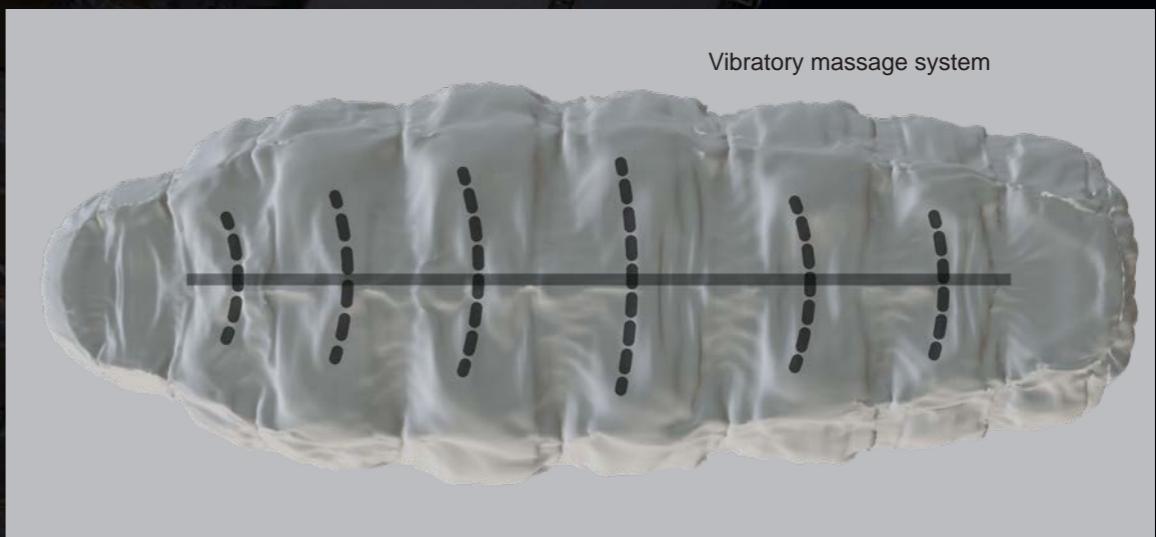
• Interactive demonstration



• Scheme draft



Here are demonstrations of the functions of the various functional systems, including lighting, temperature, air supply and vibration massage systems, which can be controlled by astronauts



Technology

• Reference technology

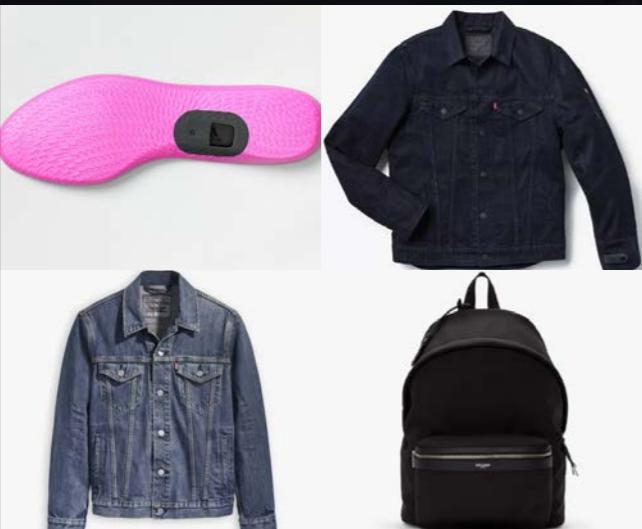
We referred to **Google Jacquard's** research on interactive fabrics, and achieved similar results by appropriately simplifying complex sensing structures.

The production of touch sensors is **complex and expensive**, and it is difficult for touch sensors to **meet the requirements of thin, flexible and multi use scenarios**.

Interactive fabric can sense multi-point touch input. The implementation method is to weave the grid of conductive wire into the interactive fabric to form a capacitive touch sensor that can detect touch input.

• Google's products

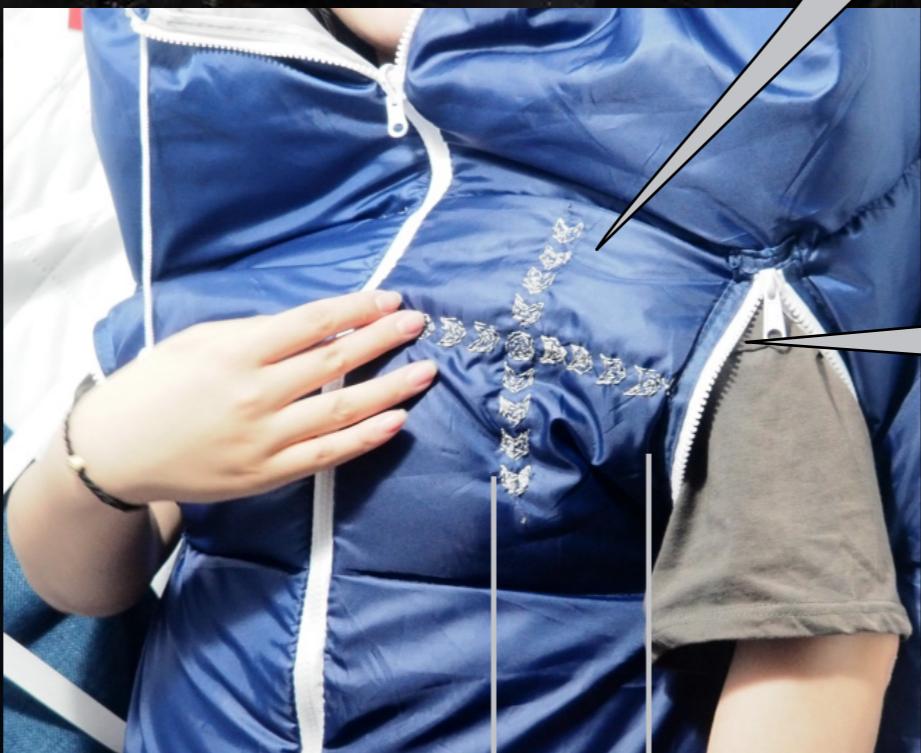
The following are some of the products that Google Jacquard has put into production, including tops, backpacks and insoles.



Google and its clothing partners have developed a number of interactive clothing and sewed Jacquard interactive modules into cuffs, collars and other parts. Some of these clothing and backpacks are currently on sale.

• How Google Jacquard works

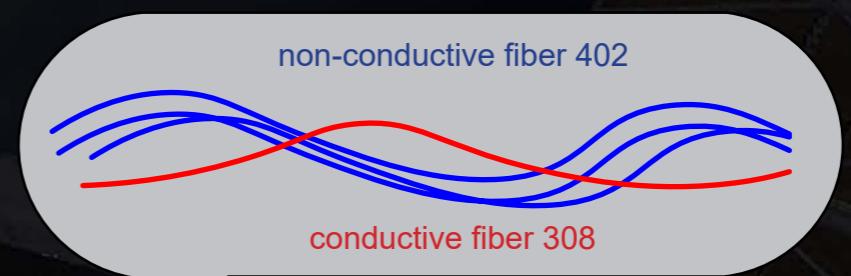
In order to simplify the material preparation, our material adopts the finished conductive wire bought online. The human touch will change the characteristics of the **conductor's capacitance to the ground**. The function of detecting touch is achieved by detecting the **potential change** through the arduino component. The actual robustness and operability can be guaranteed.



The upper layer is used for user interaction.

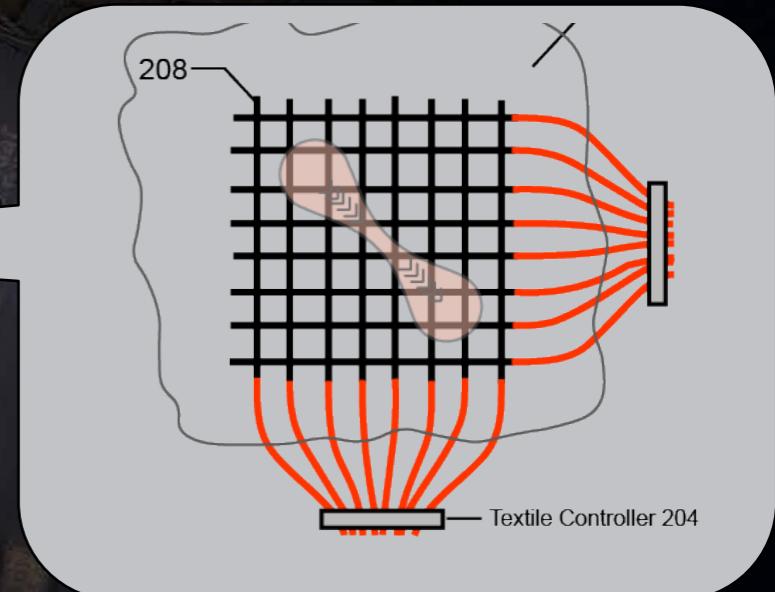
The lower layer is used for connecting control circuits.(not seen)

• Why the wires can be conductive



The **conductive wire 400** is formed by winding the **non-conductive fiber 402** and the **conductive fiber 308**, which is used to weave the block shaped interaction area. Each interaction area is interwoven by a plurality of parallel conductive wire, and the minimum spacing is determined by the interaction needs.

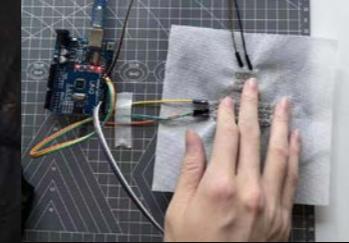
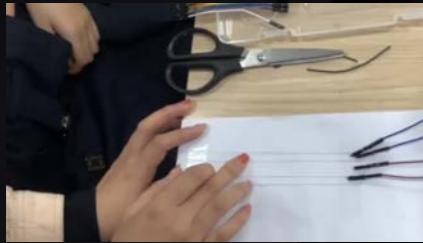
• Why the wires can be conductive



The upper and lower layers of fabrics are the same. When the middle is insulated, a **capacitive touch sensor** is formed. The upper layer is used for user interaction, and the lower layer is used for connecting control circuits. When users use **different touch methods** (such as clicking, long pressing or moving between two modules), the underlying fabric will have **different potential changes**, thus outputting different control information.

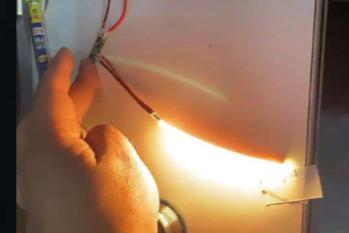
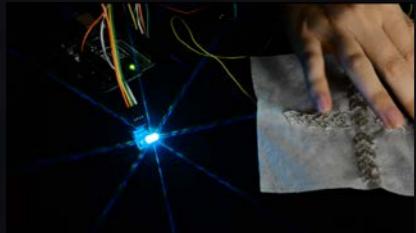
Experiment

👉 Touching



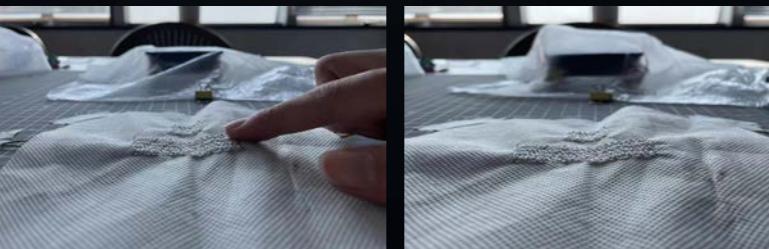
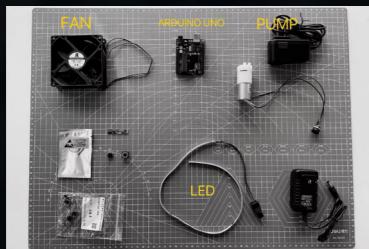
We conducted conductivity detection and touch experiments on the purchased wires, and further explored the feasibility of block interaction areas.

⚡ Light



We tested the feasibility of adjusting the brightness and color temperature through touch in the lighting system, and used arduino to complete the basic signal input and output.

风扇



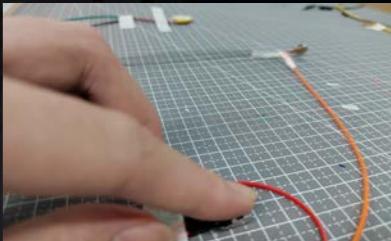
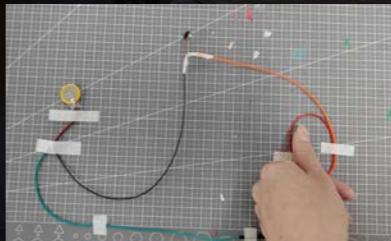
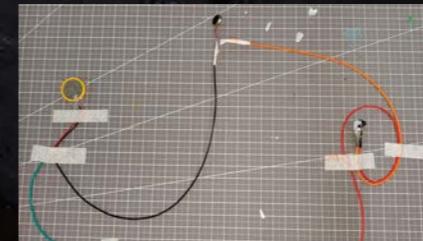
We tested the performance of the fan and conducted the inflation experiment, and used different touch methods to control the inflation and deflation.

🌡 Temperature



We purchased TEC1-12706 cooling fins and related cooling kits, and completed the experiment of controlling the cooling temperature. However, the temperature change of semiconductor cooling sheet is difficult to meet the expected requirements.

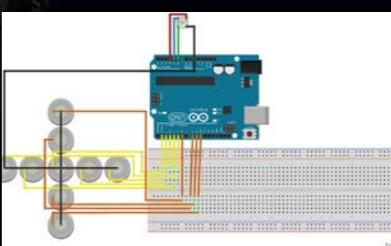
颤振



We tested the performance of the vibrator and tried to use different touch methods to control the vibration amplitude and vibration time of the vibrator.

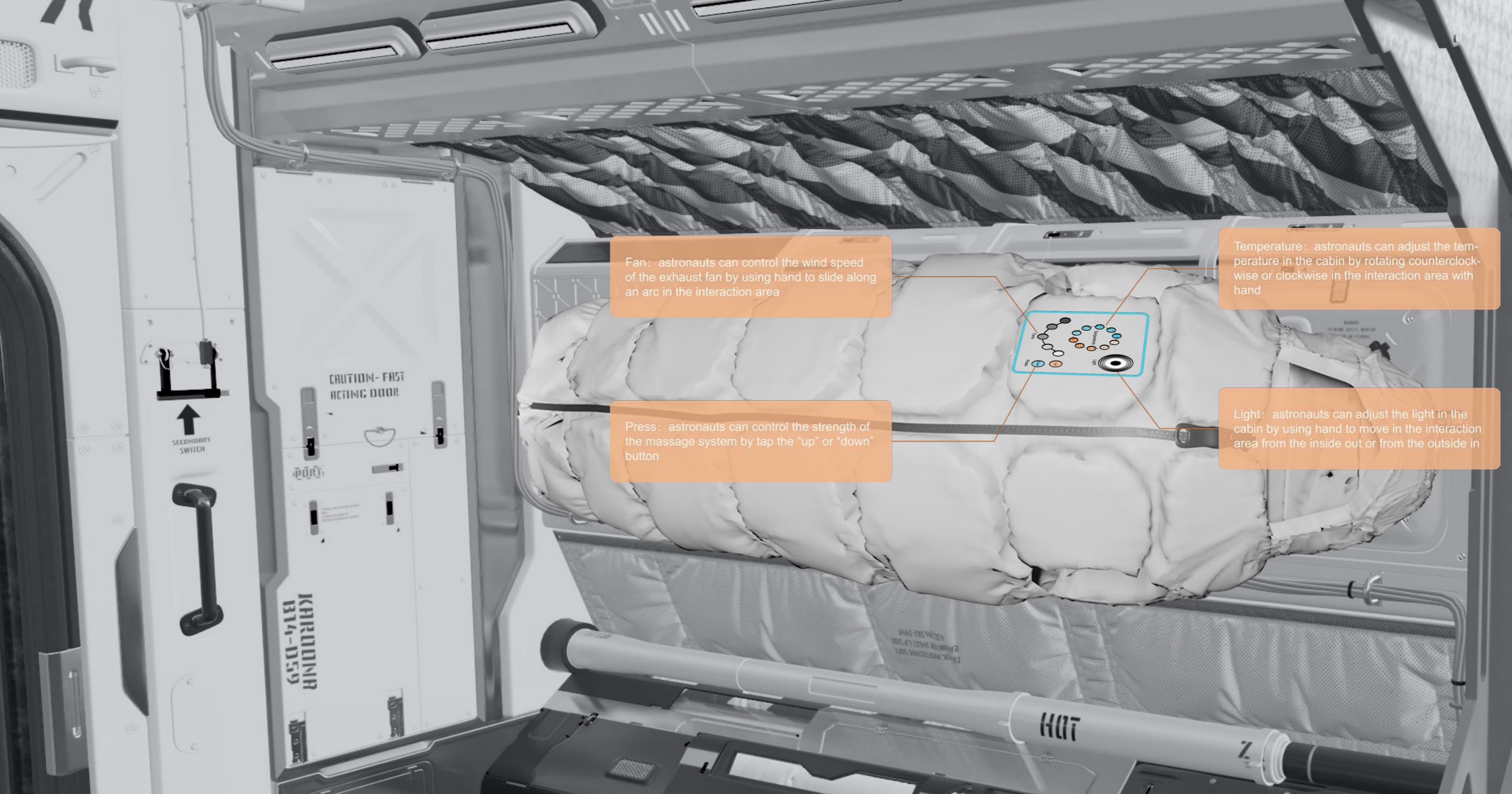
💻 Programming

```
const int fanPin = 9;
const int pumpPin = 10;
const int ledPin = 11;
const int buttonPin = 12;
const int buttonPin2 = 13;
const int buttonPin3 = 14;
const int buttonPin4 = 15;
const int buttonPin5 = 16;
const int buttonPin6 = 17;
const int buttonPin7 = 18;
const int buttonPin8 = 19;
const int buttonPin9 = 20;
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const int buttonPin92 = 103;
const int buttonPin93 = 104;
const int buttonPin94 = 105;
const int buttonPin95 = 106;
const int buttonPin96 = 107;
const int buttonPin97 = 108;
const int buttonPin98 = 109;
const int buttonPin99 = 110;
const int buttonPin100 = 111;
```



This is our code part and the circuit diagram of arduino. In this project, I am responsible for using programming to realize touch interaction and multiple functions.

We have done five experiment to test how to Implement the functionality previously envisaged. Now we have four successful experiments and one failed experiment. After experimentation, we confirmed that these functions can be implemented using arduino programming.



Fan: astronauts can control the wind speed of the exhaust fan by using hand to slide along an arc in the interaction area

Temperature: astronauts can adjust the temperature in the cabin by rotating counterclockwise or clockwise in the interaction area with hand

Press: astronauts can control the strength of the massage system by tap the "up" or "down" button

Light: astronauts can adjust the light in the cabin by using hand to move in the interaction area from the inside out or from the outside in



Wearable device design for visually impaired people

Blind, Touch, Feedback

Who: Myself

When: Oct.2022 - Feb.2023

Project Type: Interactive Design
Product Design

This is the topic of my graduation project. I have investigated that the application of haptic feedback in blind products is also concentrated in fields such as Braille reading, haptic graphics, VR perception, and it is difficult to apply it to the daily lives of most blind people. "The information that tactile feedback can receive is no inferior to hearing for blind people, so I conducted research and experiments on tactile feedback, and ultimately produced a wearable device system that can assist blind people in traveling.

Background Research

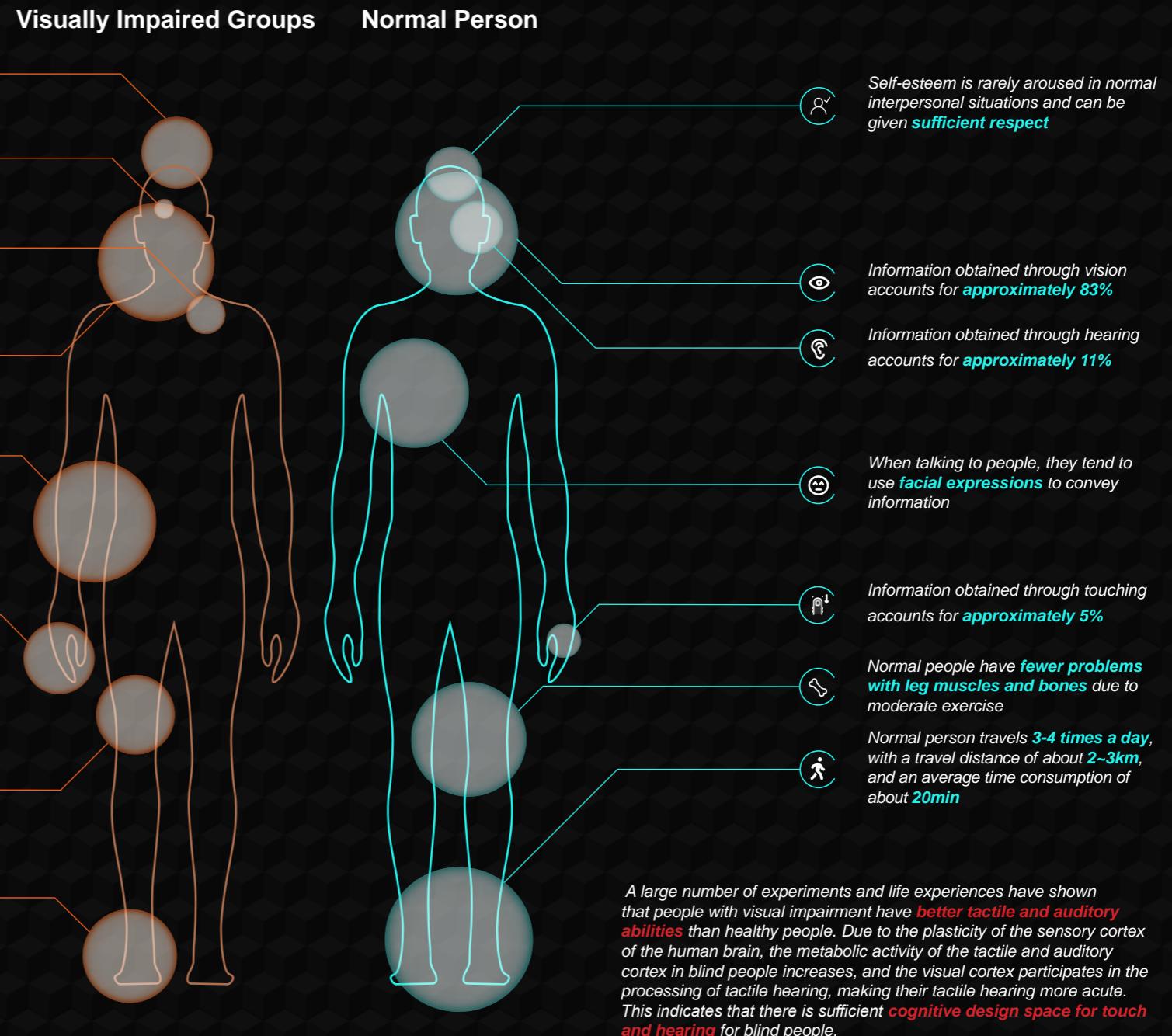
According to WHO statistics, at least 2.2 billion people worldwide suffer from **visual impairment or blindness**, while China is the country with the largest number of blind people in the world, accounting for 18% to 20% of the total number of blind people in the world. The number of blind people newly added each year is as high as 450000.

• Types of visually impaired groups

The design hopes to take into account the vision situation of all visually impaired groups. Therefore, according to the data of the China Disabled Persons' Federation, blind people can be classified according to their vision and visual field status. The following is a schematic diagram of the **vision of different types of blind people**:



• Differences between us



User Research

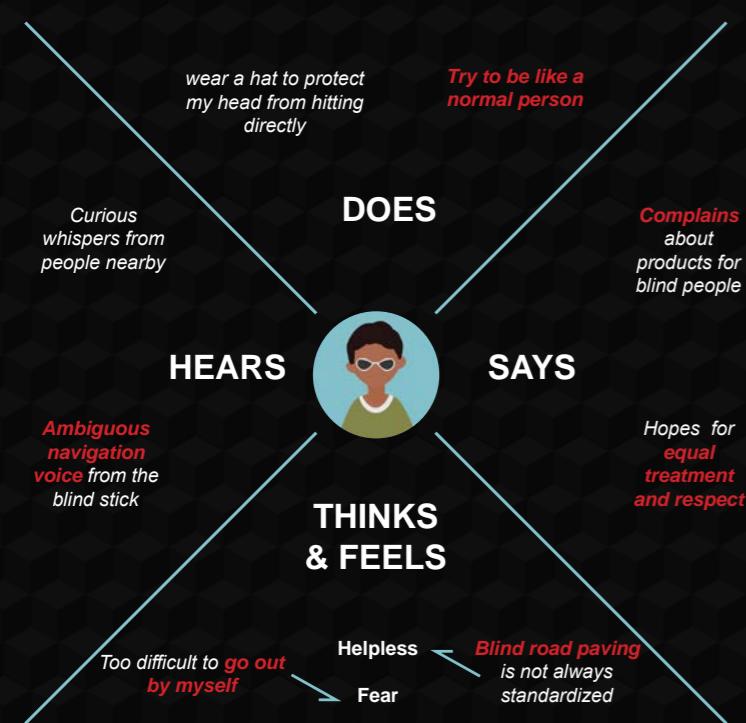
For blind people, due to their lack of vision, they cannot obtain visual information, and they encounter many difficulties that normal people cannot imagine in their daily life and travel.

Through interviews with blind people, I have summarized the pain point map of the blind person on the right when traveling and the empathy map below, which are used to represent the behaviors, feelings, and thoughts of the blind person during the travel process and daily life.

• Interview & Empathy map

Part of the interview questions

- What is your age?
- What is your degree of visual impairment? (If it is inconvenient to disclose, it can be refused)
- What is your type of visual impairment? (Congenital or acquired visual impairment)
- Do you travel a lot every day? How far do you travel on average? How much time do you spend on travel on average every day?
- Have you ever used a blind aid product? If so, how do you feel about using it? If so, how would you like the product to be improved?



• Travel map

- 1 The blind man walked out of his house and found a nearby tactile paving. **Obstacles on the tactile paving or irregular laying** will hinder the normal travel of blind people.
- 2 When blind people cross roads, it is **difficult to judge the traffic lights and vehicles** by themselves.
- 3 When passing an area without a tactile paving, the blind people usually **stop to confirm** whether the route is correct. At this time, accidents are more likely to occur.
- 4 It is difficult for blind people to **distinguish the situation ahead** when trying to leave the tactile paving for a better route, and it is **difficult to travel in places with large traffic**.
- 5 At intersections with high traffic flow or no traffic lights, it **takes more time** for blind people to **eliminate hazards**.
- 6 After entering an unfamiliar indoor environment, blind people need to **slowly feel their way forward**, and are prone to fall when they need to go upstairs or downstairs.
- 7 When blind people go to a subway station without a tactile paving, **escalators and subway doors** may pose a danger to the blind people; **The sharp increase in pedestrian flow** in subway stations during peak hours can also make it difficult for blind people to pass through.
- 8 When blind person go to a bus stop alone for a ride, the bus stop may cause the blind people to **bump into their head**; The large amount of time wasted in determining the position of bus doors may cause blind people to **miss the bus**.

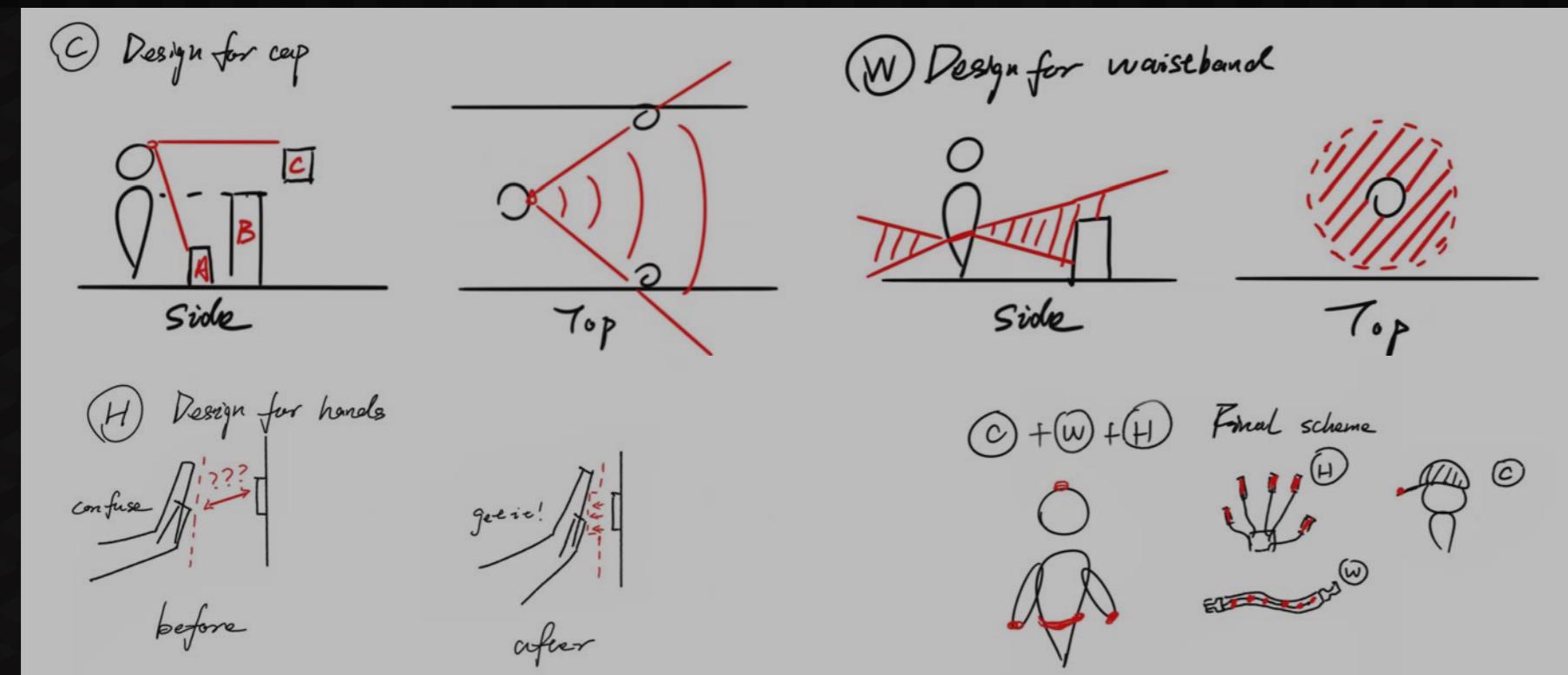


Scheme exploration

• What if ?

- Help them determine **how far** the obstacle is in front of them.
- Help them determine if there is a **vehicle coming ahead**.
- Helping them determine if someone might **bump into them** next to them.
- Help them determine if there are any car stop signs or street lights ahead that could **hit their head**.
- Help them determine if the subway door ahead is open.
- Help them determine where the bus door is.

• Design scheme

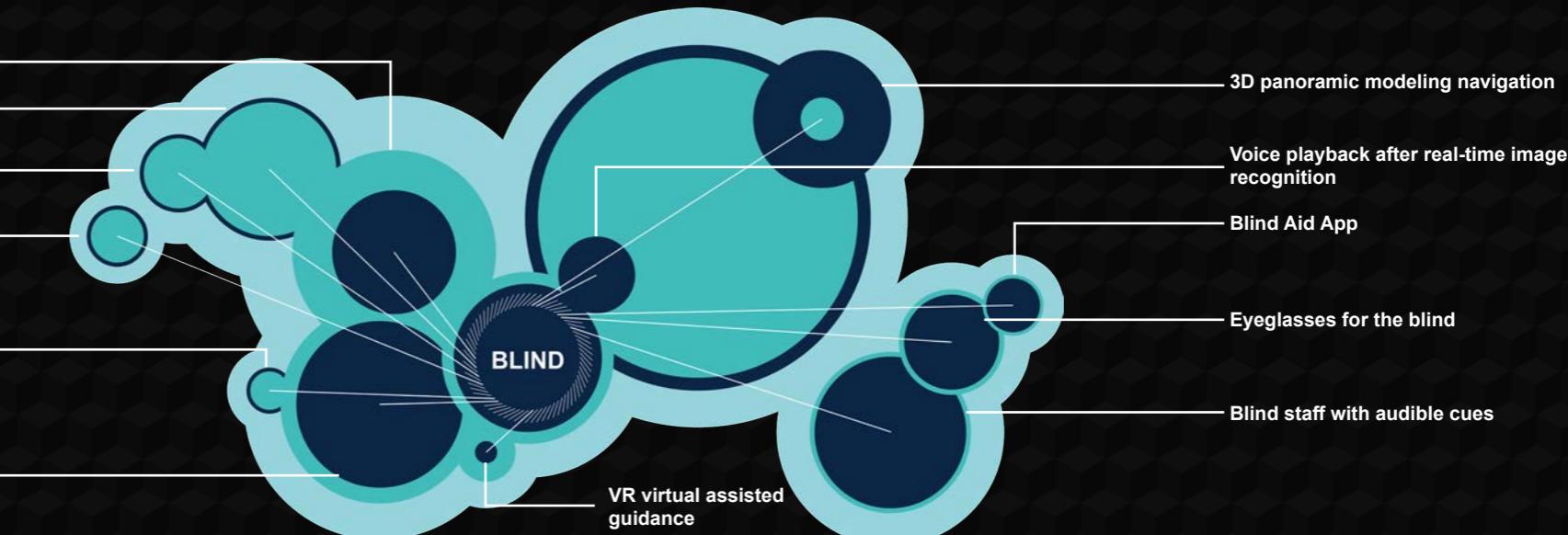


• Brainstorm

- Signal feedback using haptics
- Using vibration pads to transmit tactile signals
- Using distance sensors to detect obstacles
- Different distances correspond to different tactile signals

Lighthouse for blind
Install signal transmitters on buildings, trees, vehicles, and other objects in the city. They act like lighthouses to the receivers of blind people

Urban coordinate plan
The floor tiles of the blind tracks can be modified so that they can transmit signals and be received by the blind



The vision impaired group wearable device design scheme of includes a set of systems, with main components including **distance sensors** for detecting distance and **vibrating pads** for feedback tactile signals. The draft image on the right can provide a clearer understanding of the effects of sensors and vibrators.

• C: Design for cap

- The distance sensor is located on **both sides of the brim**.
- It is mainly used to **detect the distance** from the obstacle in front and transmit data signals.
- The detection range has **height and width limitations**.
- The depth camera is located in **the middle of the cap**.
- It is mainly used to comprehensively judge road conditions and **detect the blind area range** of distance sensors.

• W: Design for waistband

- The distance sensor is located on **the outside of the belt**.
- It is mainly used to assist in **detecting the surrounding environment**, providing timely feedback on the **danger signals behind the side**.
- The detection range has **height limitations**.

• H: Design for hand

- Vibrating pads are located at **the end of the finger**.
- They are mainly used for feedback on **tactile signals** and **distance feedback** in hand contact scenarios.

Technical exploration

• Technical research

I have mainly investigated **six common distance sensor components** that can be used in Arduino, and made charts to visually demonstrate their differences.

• List of distance sensors

Sensor	Name & Type	Working voltage	Measuring range	Price	Evaluation results
	TFMINI Based on the TOF (Optical Time of Flight) principle	5V	30cm ~ 1200cm	¥ 249	NO
	MVR1EB Based on the TOF principle	5V	30cm ~ 1400cm	¥ 198	NO
	HC-SR04 Based on the ultrasonic ranging principle (NOT robust)	5V	2cm ~ 400cm	¥ 4.15	NO
	GP2Y0A02YKDF Based on the Geometric Triangular Optical Measurement principle	5V	20cm ~ 150cm	¥ 23.5	NO
	TOF10120 Based on the TOF principle	3 ~ 5V	5cm ~ 180cm	¥ 37	FOR HANDS & WAISTBAND
	TOFsense-F Based on the TOF principle	5V	5cm ~ 1500cm	¥ 138	FOR CAP

• How system works

• Distance sensor & vibrate alert system:

- From **left to right** within the measurement range

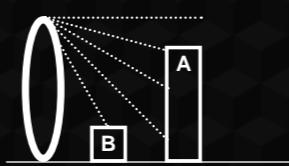
When fine measurement is required, just shake your head slightly. When the left and right hand vibrations switch, the obstacle position is the direction of the head facing.



- Left and right hand vibrations

- From **high to low** within the measurement range

We only need to measure the range below the user's head to confirm the road condition. Each measurement direction has an included angle of 15° to ensure the identification of small obstacles in close range and large obstacles in long distance.



- Fingers from thumb to pinkie

- Distance** of obstacles within the measurement range

Very simple mapping relationship



- vibration amplitude and frequency

- The object approaches **at an average speed**



- the vibration amplitude and frequency uniformly increase

- The object **accelerated approaches**



- vibration amplitude and frequency rapidly increase

- Objects close to the user's **side and back**



- Waistband vibration prompts the user

Experiment & Output

• Experiment

I conducted a series of experiments to verify the feasibility of feedback logic and the stability of various devices, and asked subjects to conduct indoor obstacle avoidance tests using product prototypes as blind people.

• Feasibility testing



This is my simple experiment using planar obstacles to detect whether the distance sensor is working properly.



These are the curve images that are fed back when the object and the sensor remain relatively stationary and maintain relative motion, respectively.

• Obstacle avoidance experiment

I have conducted several experiments simulating blind people to verify the feasibility and effect of this device on blind people. It has been proven that after simple training, blind people can use tactile feedback to avoid obstacles and meet the need for independent travel.



• Final design

• Cap

- The depth camera
- Two distance sensors

• Gloves

- Ten vibrating motors
- One small distance sensor

• Waistband

- Several small distance sensors
- Central processing module (Arduino)



Hu Qingyutang Tonic Diet Box Experience Design

Hu Qingyutang, health, tonic diet, share



Project Type: Service Design
User Experience Design

This is a survey conducted by our group on the innovation of Hangzhou time-honored enterprises, and we found that Hu Qingyutang has many typical characteristics of time-honored enterprises, so we carried out a service design around the innovative point of Tonic Diet for Hu Qingyutang.

Who: Li Muzi, Liu Huiting, Mao Xinyu, Xu Zhehao, Yu Shuang, Li Yining, Fang Yuyang, Wei Wanyi, Qi Zhi

I am mainly responsible for research, user journey mapping, and business model exploration.

When: Oct.2022 - Dec.2022



Background

▪ Introduction



In the innovative design of school curriculum integration, our team wanted to investigate the development status of old enterprises in Hangzhou. At this time, we paid attention to Hu Qingyutang.

Founded by Hu Xueyan in 1874, Hu Qingyutang is one of the existing **traditional Chinese medicine enterprises** with a long history in China, and is also a representative enterprise of "China's time-honored brand".

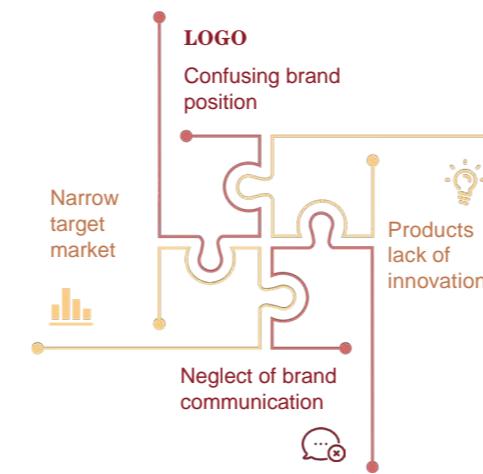
At present, Hu Qingyutang's main business direction includes **offline pharmacies** and **online e-commerce**. The business scope of offline stores includes two parts: traditional Chinese medicine products and consultation services. Products include raw materials of traditional Chinese medicine, finished traditional Chinese medicine, health food, and cosmetics of traditional Chinese medicine.



▪ Problems

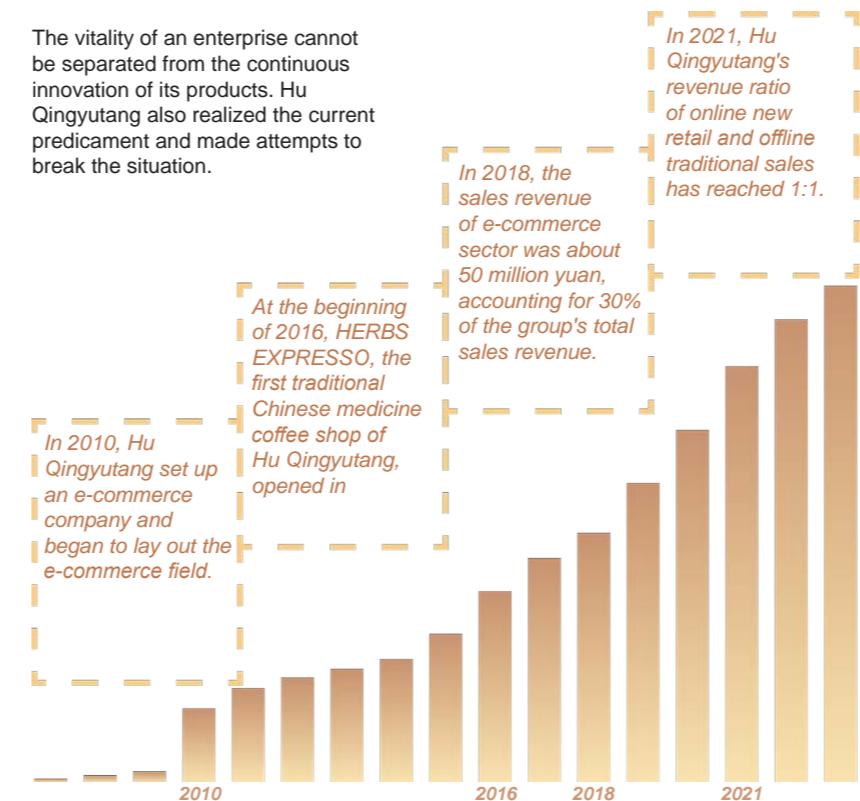
The dilemma of China's time-honored brands

With young consumers becoming the main force of the consumer market, China's time-honored brands are facing multiple problems.



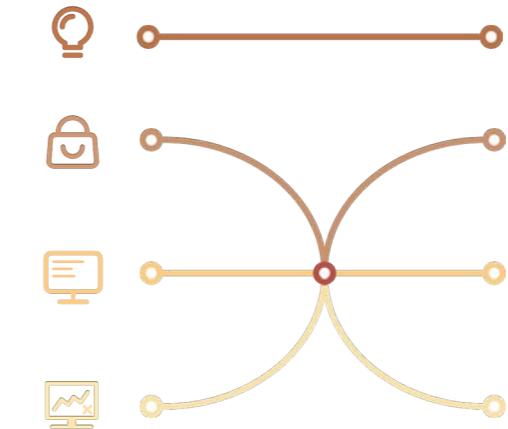
▪ Attempts

The vitality of an enterprise cannot be separated from the continuous innovation of its products. Hu Qingyutang also realized the current predicament and made attempts to break the situation.



▪ Research

Condition of business



Hu Qingyutang's attempt

Hu Qingyutang has already made several successful attempts to avoid being eliminated, but there are more problems in its online retail.

Disadvantages of social e-commerce

Social e-commerce has the problems of price confusion and counterfeit products, which will cause misunderstanding among consumers.

Non-standard platform management

In publicity platforms such as Douyin, the introduction of medicinal materials is wrong, and after user feedback, the platform still hasn't dealt with it.

Lack of store specifications

Although Hu Qingyutang has entered multiple online platforms, Hu Qingyutang's online mall is not standardized.

Field observation



The offline stores are mainly traditional Chinese medicine stores and traditional Chinese medicine clinics, providing traditional Chinese medicine diagnosis and treatment services while selling brand products.

Conclusions of field observation

1. The number of traditional Chinese patent medicines and simple preparations actually sold by pharmacies is **small**, and the actual sales of most health products are **poor**.
2. The Tonic Diet restaurant is similar to ordinary restaurants, but only operates on Tonic Diet as a selling point, **without more innovative attempts**.
3. The advantages of Hu Qingyutang's "time-honored brand" inheritance are **not fully utilized**, and there are **no highlights** in the comparison of similar enterprises.
4. The user group is mainly **the elderly**, and the consumer group is single.

Discover

Interview

Questions

- What is your age? (If you mind, you can answer the age range)
- What is your approximate monthly income? (If you mind, you can answer the income range)
- How often do you usually use health care products?
- How much do you spend on health maintenance every month? (If you mind, you can answer the expenditure range)
- What purpose do you hope to achieve through health preservation?
- How is your health?
- Do you have any problems during the health maintenance process?
- What methods do you usually use to maintain health? Such as traditional Chinese medicine, health products, sports, etc.
- What are the flavors of health food that you can accept?
- Do you enjoy sharing health care products and knowledge with family and friends? If so, what are the general methods?

Summary



Interaction Designer
"I want to avoid taking medication regularly to relieve my stomach pain, and I prefer dietary therapy."



Product manager
"A complete set of medicinal meals is better, because it is very troublesome to choose herbs by myself."



Programmer
"I'm fed up with taking pills every day to relieve my symptoms. I hope there can be more mild treatment."



Student
"I hope I can discuss and share health care methods with my friends in WeChat Moments."

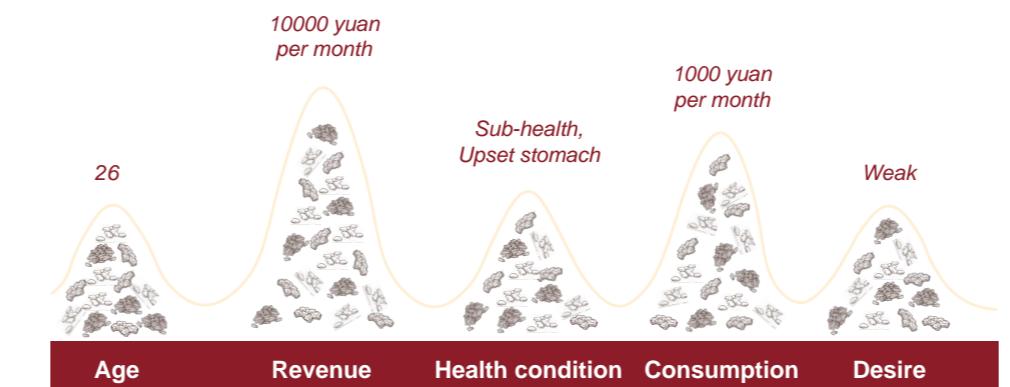
Persona



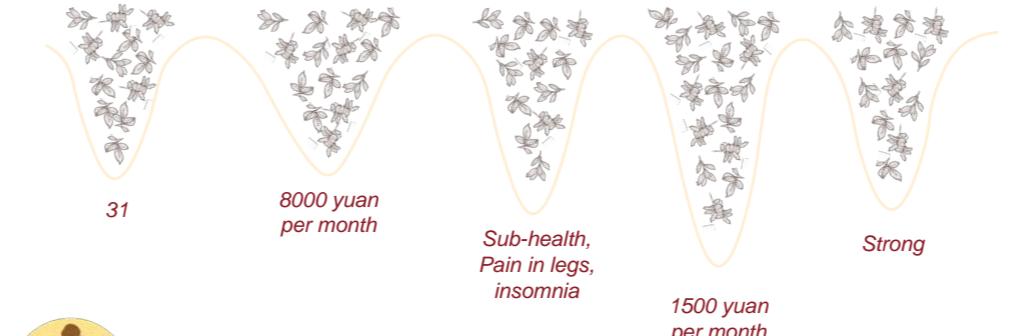
Basic Information
Sex: male
Age: 26
Revenue: 10000 yuan per month

For Health Preservation
Health condition: Sub-health, Upset stomach
Consumption: 1000 yuan per month
Information channel: Referral by a friend, self-searched

Expectation
Function: nourish the stomach
Palate: Not too bitter
Attitude: The desire for health is weak



Age Revenue Health condition Consumption Desire



Basic Information
Sex: female
Age: 31
Revenue: 8000 yuan per month

For Health Preservation
Health condition: Sub-health, Pain in the legs, insomnia
Consumption: 1500 yuan per month
Information channel: child recommendation

Expectation
Function: relieve insomnia, treat leg pain
Palate: All acceptable
Attitude: Strong desire for health and high motivation

SWOT

STRENGTHS

- 1.Complete product technology chain
- 2.A complete set of subordinate sales systems
- 3.Large existing customer base

WEAKS

- 1.Less experience in developing younger products
- 2.Poor consumption ability of elderly customer groups

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OPPORTUNITIES

- 1.The trend of health preservation in the post epidemic era
- 2.Reputation and influence of time-honored brands among young people

OPPORTUNITIES

- 1.Competition from peers
- 2.Changeable new market conditions

What if ?

Try to give full play to the advantages of the enterprise itself and create a new "time-honored brand"

Trying to sell new products through online channels

Try to add personalized customization features for the user

Try to incorporate popular social elements into product services

Try to target health care rather than treatment that young people prefer

Try to integrate health preservation as a cultural transmission method into products

Try to simplify the packaging of products

Try a more reasonable color scheme

Definition

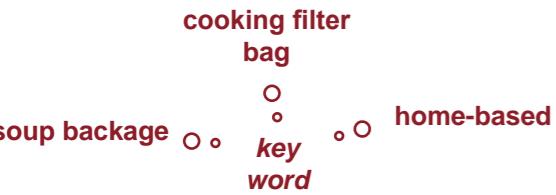
Case study



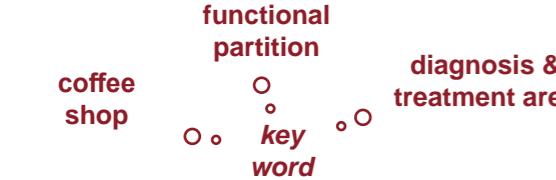
Xishantang adopts the business model of brewing soup restaurant, Xishantang Soup Brewing House, which is provided by Nanjing Tongrentang Biotechnology with a soup bag. It adopts a standardized meal delivery mode of unified output of core ingredients which can complete the meal in one minute.



Yunnan Baiyao launched a package of healthy soup ingredients, which is vacuum packed to prevent insects and oxidation, increase storage time, and use a cooking filter bag to facilitate the use of ordinary users. It mainly focuses on home-based diet.



Tongrentang Zhima Health is a cross-border Chinese medicine coffee shop. It is divided into two floors. The first floor is divided into three functional areas, one side is the Tongrentang product sales area, the other side is the coffee and catering sales area, and the middle is the customer's dining room. The second floor is the diagnosis and treatment area.



Initial concept

After classifying and studying the attempts of pharmaceutical peers according to case study, we propose the following requirements that must be met by the service process.



User's feedback

We solicited several users who are using health care products, and improved our whole set of service processes around Tonic Diet boxes according to their feedback.

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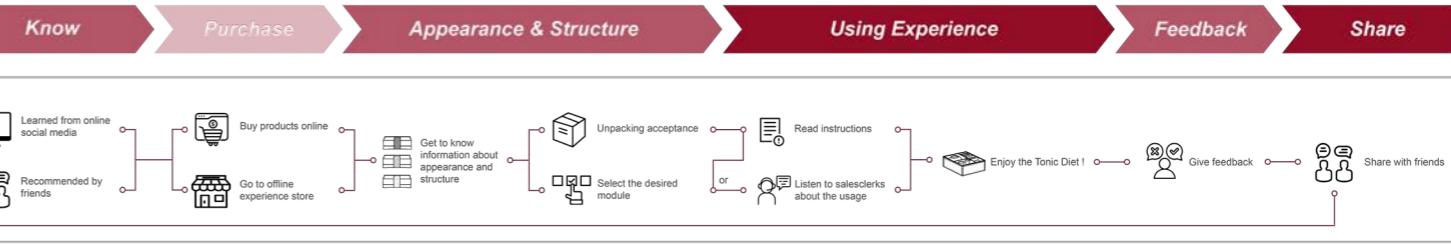
With the help of user feedback, we have expanded and improved the original scheme and presented it in the form of the user experience process.

User Experience Process

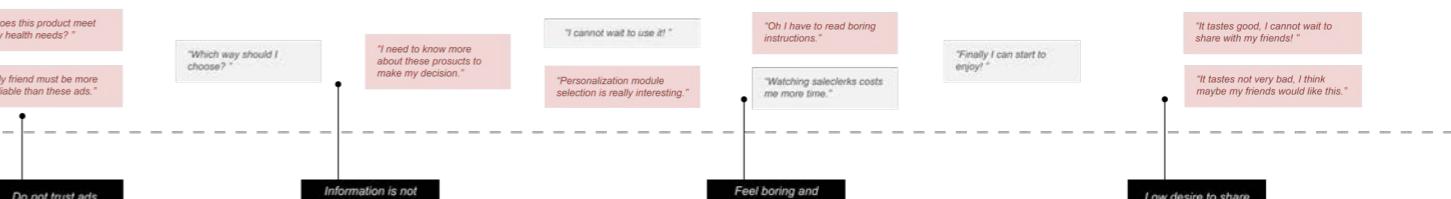
STAGES



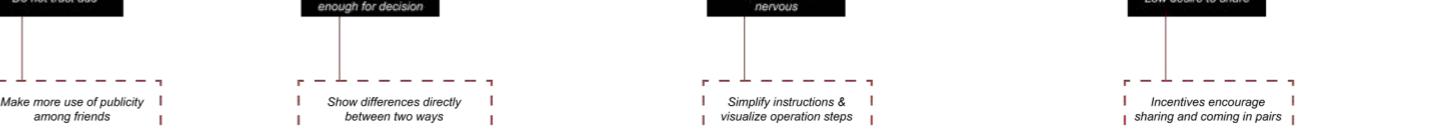
PHYSICAL EVIDENCE



THOUGHTS



KEY POINT



IMPROVE PLAN



EMOTION MAP



FRONTSTAGE



BACKSTAGE



SUPPORT PROCESS

Output

▼ Tonic Diet Box Design

► Color selection

We choose three colors as the main constituent color of our tonic diet box.



"Chinese Red"

The color "Chinese red" stands for the brand of Hu Qingyutang and reflects the sense of history and heaviness. It also sets the main tone of the product. In China, Chinese red is always linked with tradition, health and festivity. We choose this to echo Hu Qingyutang's consistent design style and product concept.



"Ochre Yellow"

The color "Ochre Yellow" stands for the traditional package of Chinese herbal and the original color of bamboo. It is also one of the main components of the product appearance. We chose to retain the original color of bamboo products, because bamboo is used as a symbol of longevity in China. When bamboo products are used for health products, they can give people a natural and healthy first impression.

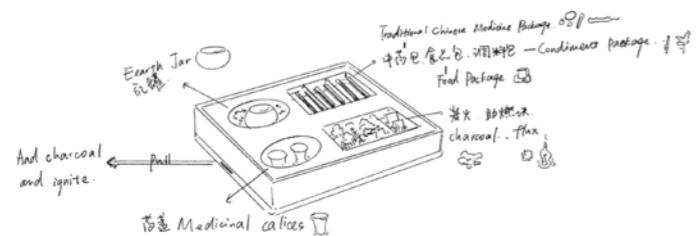


"Brick Brown"

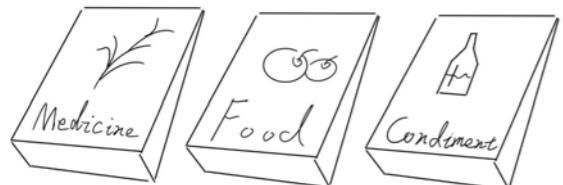
The color "Brick Brown" stands for the vessel for boiling Chinese herbal. As an ornament color, it is used to neutralize the light tones of the first two colors, giving the product a sense of stability and durability.

► Structure display

The tonic diet box attempts to give users a sense of freedom to customize. So we refer to the idea of semi-finished product takeout, instead of presenting the finished Tonic Diet directly, we provide materials such as charcoal fire, Chinese medicine, pots, etc., so that users can experience the whole health preservation process and gain the immersion and satisfaction of completing Tonic Diet cooking.



► Sustainability considerations



Traditional Chinese medicine package & Food package & Condiment package



Smokeless
charcoal & flux



Earth Jar



Heat resistant
medicinal calices

► Final design

Finally, considering the practical issues of online distribution and offline storage, we split the product from a flat cube box into a heating box and a storage box, and optimized the actual appearance of the earth jar and heat resistant calice.



Output

Share incentives

- Hold Tonic Diet picture sharing activities on social platforms and encourage users to share.



- When users and friends come together, they can unlock gifts for multiple people.

- Users can receive discounts when sharing on social platforms such as Weibo and WeChat friends circle.



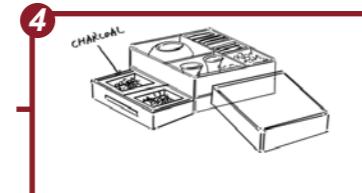
Instruction design

How to use our semi-finished medicinal food box?

Users first adds the material package, then pulls it away from the bottom, adds the charcoal fire and combustion promoter, and ignites and heats the medicated diet.



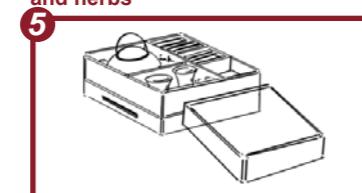
Unpack and add hot water and food packs



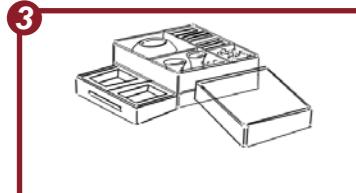
Add the charcoal to heat the food and herbs



Add herbal fragments to the container



Push the drawer back and close the cover



Pull out the bottom drawer



Enjoy it!

Business model canvas

Partners

Supply partners:

Medicated food box manufacturers, charcoal fire suppliers

Online sales partners:

Taobao, JD and other major e-commerce platforms

Publicity media:

Short video and live streaming platforms such as TikTok and Bilibili

Channels

Online channel:

Sales on e-commerce platform, short video platform, WeChat Moments and live broadcast platform

Offline channel:

Hu Qingyutang Herbal Food Experience Store

Key activities

Manufacturing:

Production of medicated food boxes and material kits

Online advertising:

Ads on e-commerce platforms, short video and live broadcast platforms

User sharing :

Share in WeChat Moments and face-to-face share with friends

Value proposition

Personalized customization

For the health care needs of young people, semi-finished medicinal food boxes are introduced, allowing users to assemble the boxes themselves, which can meet the needs of personalized customization and repeated use.

Social sharing

We encourage users to share after use, incorporating the hot social attributes of the moment into the health care process, and stimulating the health care intentions of users and potential users

Customer segmentation

Main target groups:

Office workers and students with health needs

Other possible target groups:

Bloggers or Internet celebrities who are interested in medicinal food or therapeutic areas

Important resources

Physical resources:

Traditional Chinese medicine and manufacturing equipment

Brand resources:

"Time-honored brand" brand value, user evaluation of medicated food boxes

Customer relationships

Co-creation

Hu Qing Yutang provides semi-finished medicinal food boxes, material kits and charcoal fires to ensure the use value of the products

Users use, share and recreate behaviors on the basis of medicated food boxes to create more communication value

Cost structure

Manufacturing cost:

Manufacturing of medicated food boxes and material kits

Transportation Cost:

Logistics

Operating costs:

Maintenance and management of online stores, continuous advertising delivery, and operation of offline experience stores

Source of income

Main income:

The sale of medicated food boxes and kits is the main source of income
Offline store service fee

Possible income:

IP co-branding and advertising revenue