

P O R T F O L I O

b y

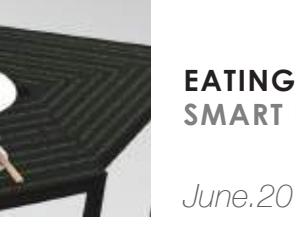
Y u a n y u a n H u

1996.08.10

BACHELOR OF ENGINEERING IN INDUSTRIAL DESIGN
COLLEGE OF DESIGN AND INNOVATION, TONGJI UNIVERSITY.

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3		FIRST-AID WEARABLE DEVICE Sept.2017-Oct.2017	Personal work
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Team Work
My responsibility:
-Industrial design
-Development
-Interaction design (50%)
-Research (40%)

BACKGROUND

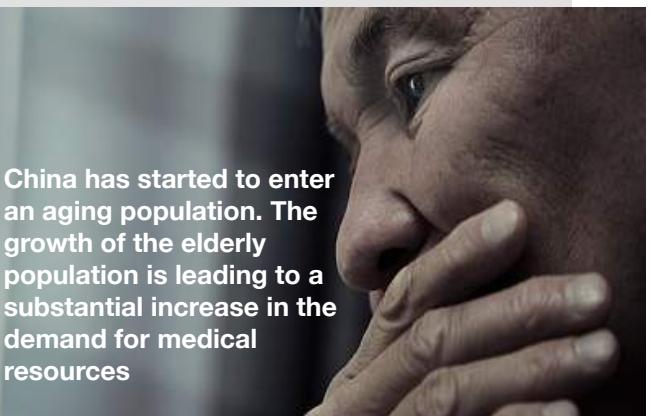
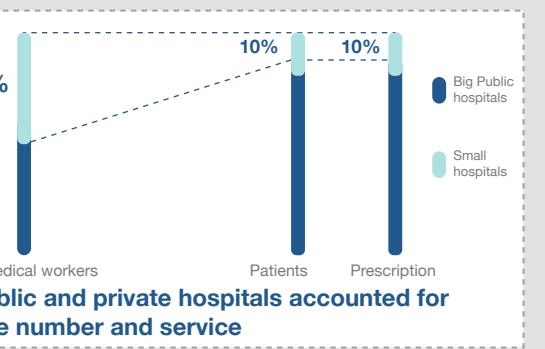


In China, the hospital service is not stratified and Everyone tend to choose large, guaranteed public hospitals for medical treatment, resulting in the crowding of patients

HUA XIAO TUO

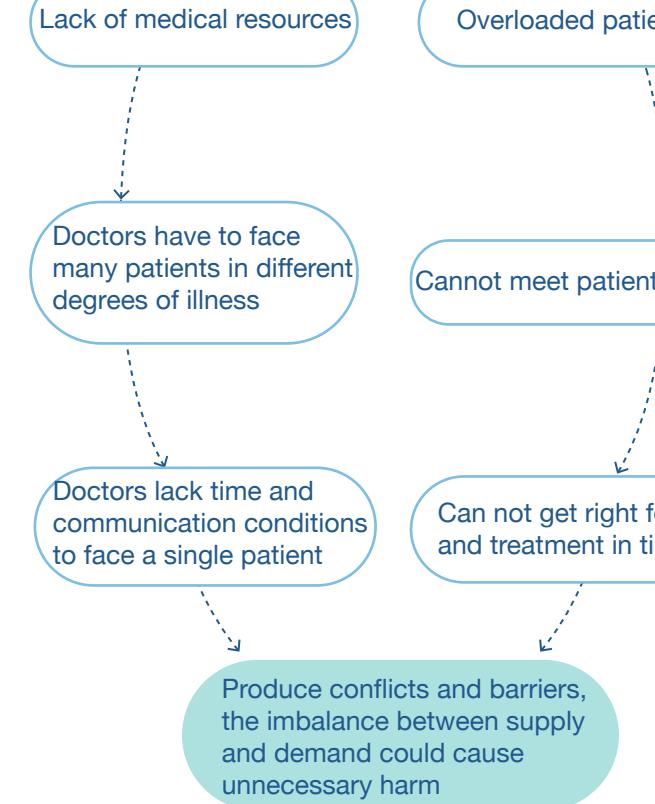
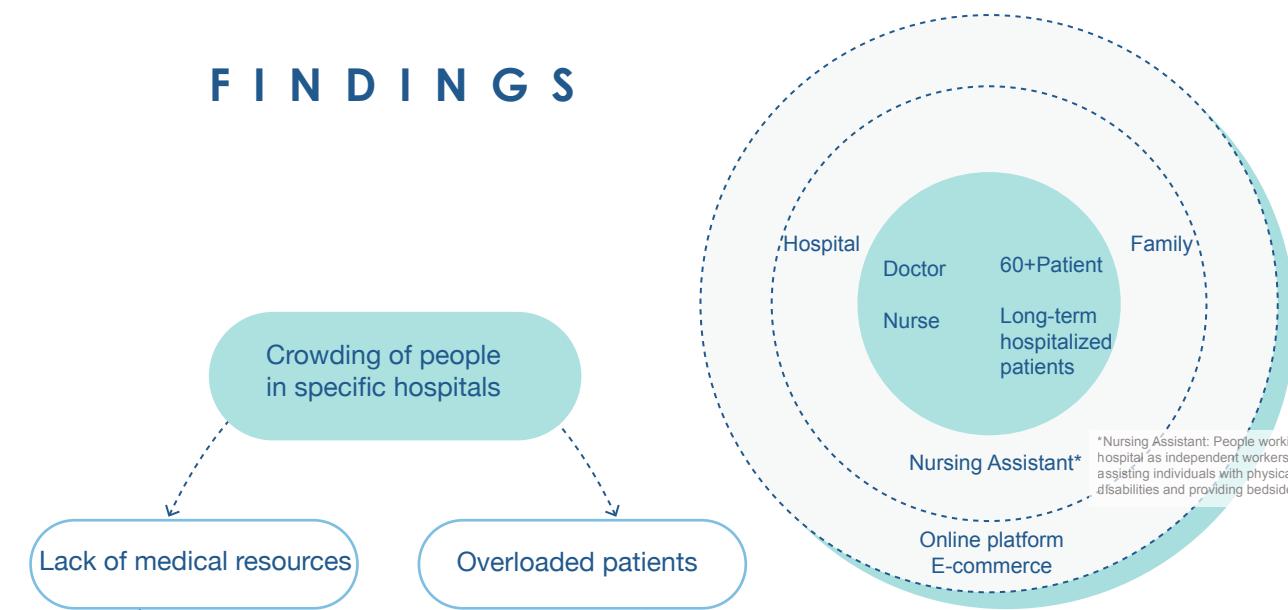
Elderly care has become a thorny issue, especially in the ward, professional care workers are in severe shortage. In this situation, the healthcare robot came into being. A healthcare robot can be accompanied by an elderly person who is disable to take care of themselves and make the life in the ward no longer depressing.

RESEARCH



China has started to enter an aging population. The growth of the elderly population is leading to a substantial increase in the demand for medical resources

FINDINGS



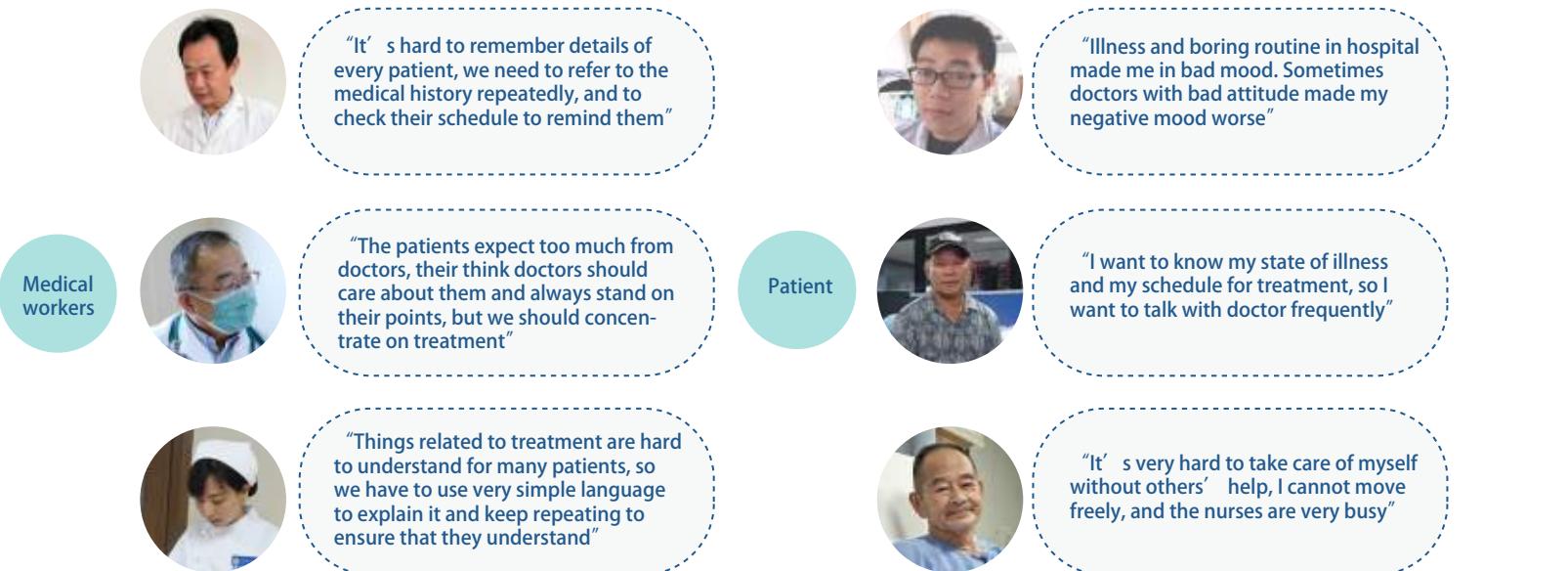
Medical resources are limited in hospital and the medical level is not balanced. It causes the issue that patients' medical difficulties can not be effectively solved.

INTERVIEW & OBSERVATION

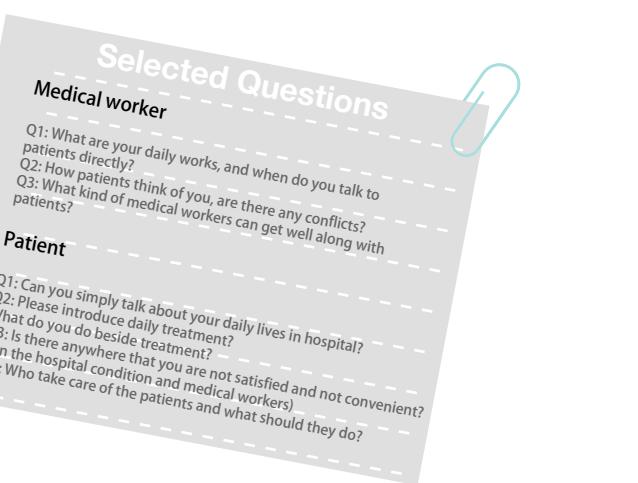


We came to Xinhua Hospital and observed the general situation in hospital and the living condition of the patients. Meanwhile, we visited 15 people, having deep conversation with them. We got aware of people's daily life during hospital stay, the demands of people in different positions and the estrangement during communication.

Selected Quotations



PROBLEM ANALYSIS



Emotional Psychological needs

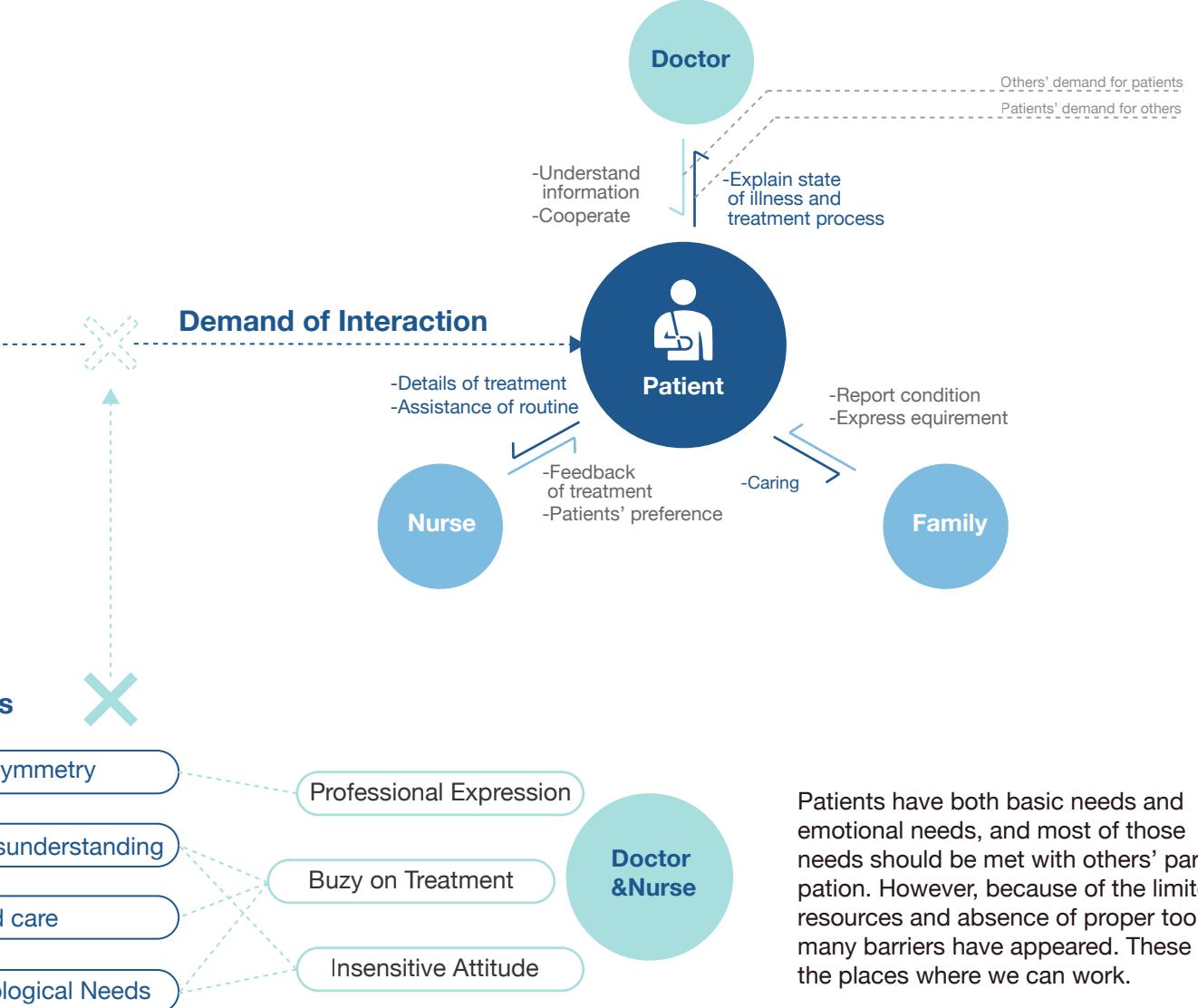
- Psychological counseling
- Psychological comfort
- Expressing

Inner needs of patients



Behavioral Accompany and Assistance

- Daily routine
- Routine inspection
- Recovery treatment



PERSONAS



Li Hongri

Age: 73
Disease: Gallstones & pancreatitis

“It's a waste of money to stay in hospital and to do so many useless examination and treatment. I can recover by myself.”

A day of Li Hongri during hospitalization

PHASE	0:00	9:00	9:00	10:00	11:00	14:00	15:00	17:00	23:00
TOUCHPOINT	Patient	Patient & Nurse	Patient & Doctor	Patient	Patient & Nurse	Patient	Patient	Patient	Patient
EMOTIONS	Sickbed	Ward	Ward	Sickbed	Sickbed	Corridor	Sickbed	Shop	Sickbed
PAIN	Neglect detail of treatment	Not expressing true feeling	Cannot understand Condition	Boring	Nurse cannot arrive in time	No one help	Operate without permission	Move without assistance	Insomnia with bad mood



Dr. Wang

Age: 43
Occupation: Chief respiratory Physician

“We need to be medical workers as well as servers, we can't face everyone with smile for we are too busy”

I am the archiater, in charge of dozens of patients. I make usual rounds only once per week. Detailed works are charged by young doctors. But Patients don't trust them, and they like to talk to me directly. I never refuse them even though I am busy. But patients don't understand us. They complain about our attitude and never trust us. Communication is realy difficult because they don't have professional knowledges. The doctor-patient relationship is rather tense.

CHALLENGE

Who
60+ Patient and Long-term hospitalized patients

What
Establish an information platform for effective communication mainly between the patient and the doctor
Company patient all to help with tedious detail like Nursing workers and care them as families.

How
Users are linked online by robot.

When
During hospitalization

Where
In hospital

Why
Making the hospital resources are effectively used. Patients are effectively and fully protected and cared during hospitalization



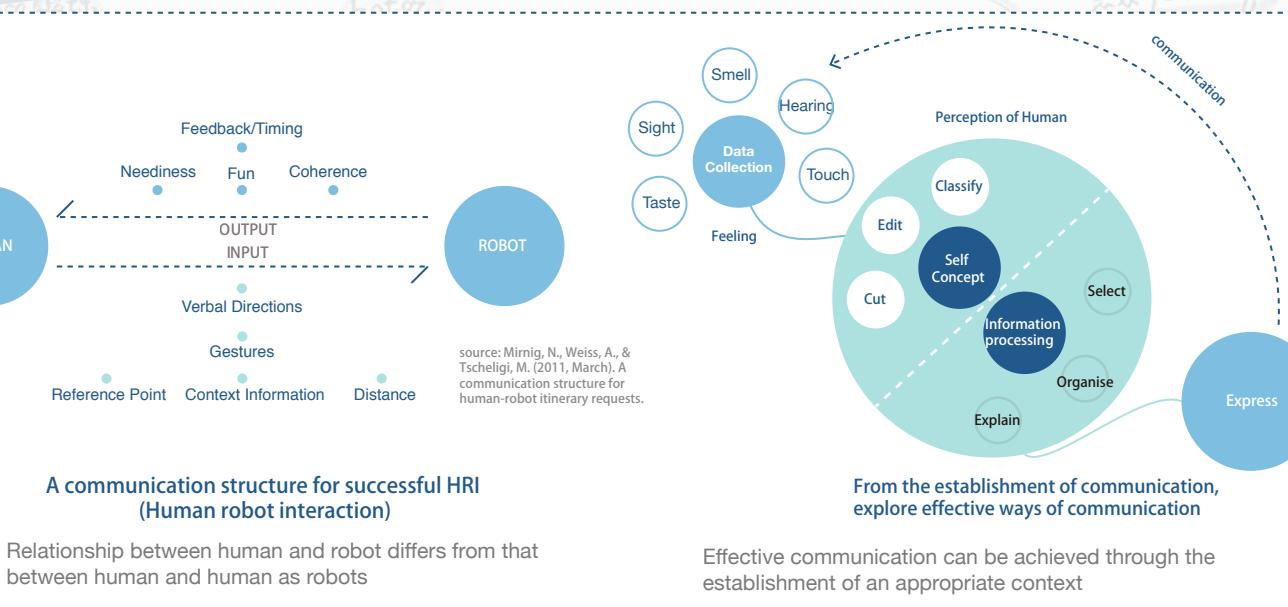
INTRODUCING OF ROBOT

Three strength of Robot

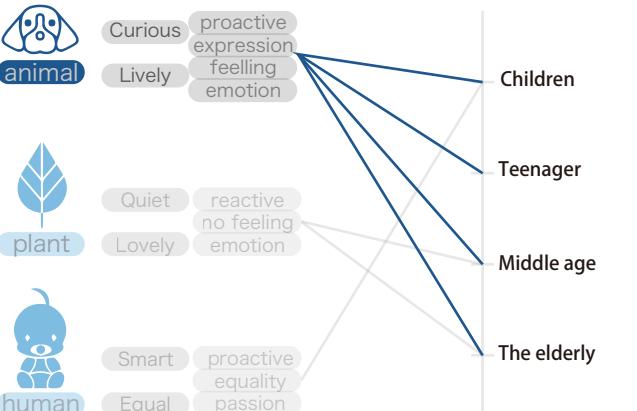
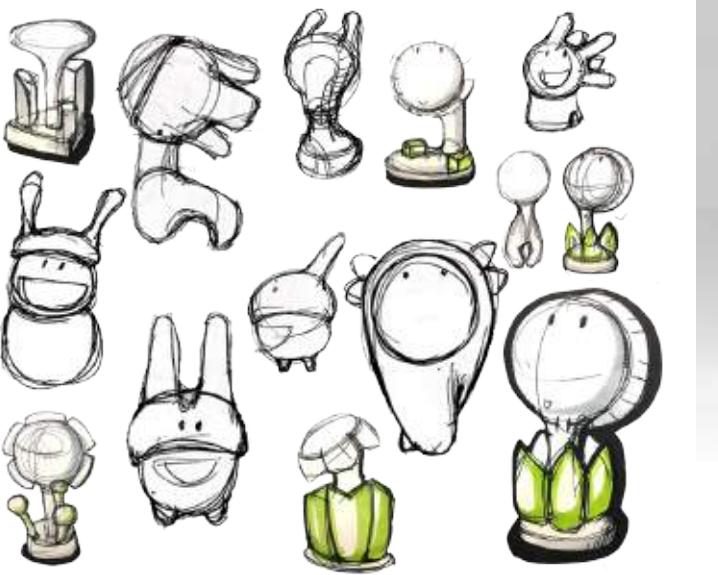
1/ Robot is directly connected with online data, so it can bridge the infomation gap.

2/ Robot is always online, so it can care when human is absent.

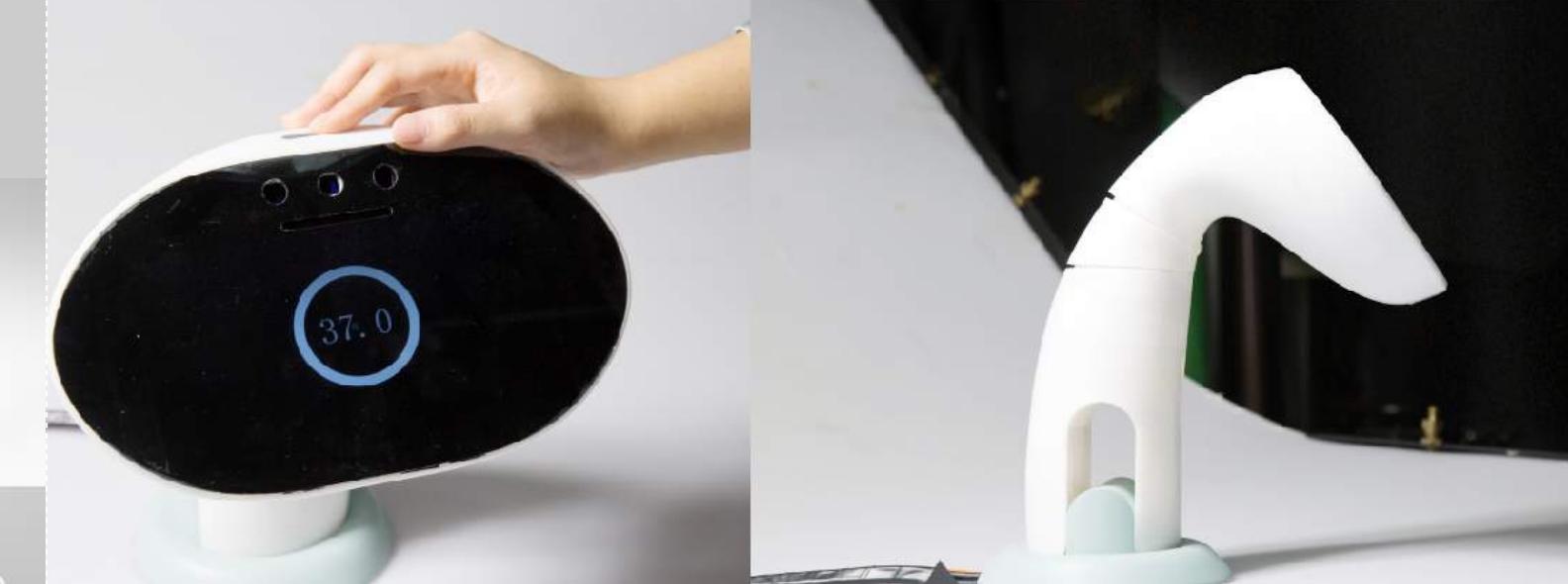
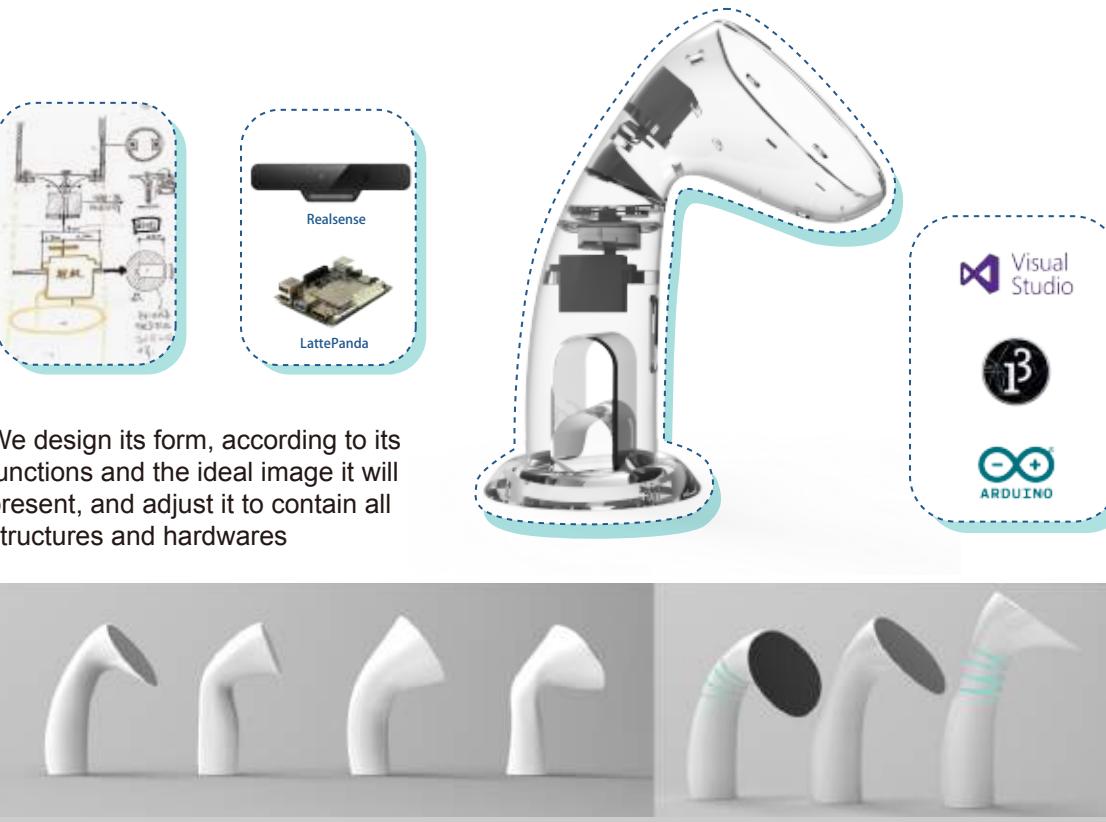
3/ Robot have a natural interaction with human, so it can support emotional fuction.



FORM



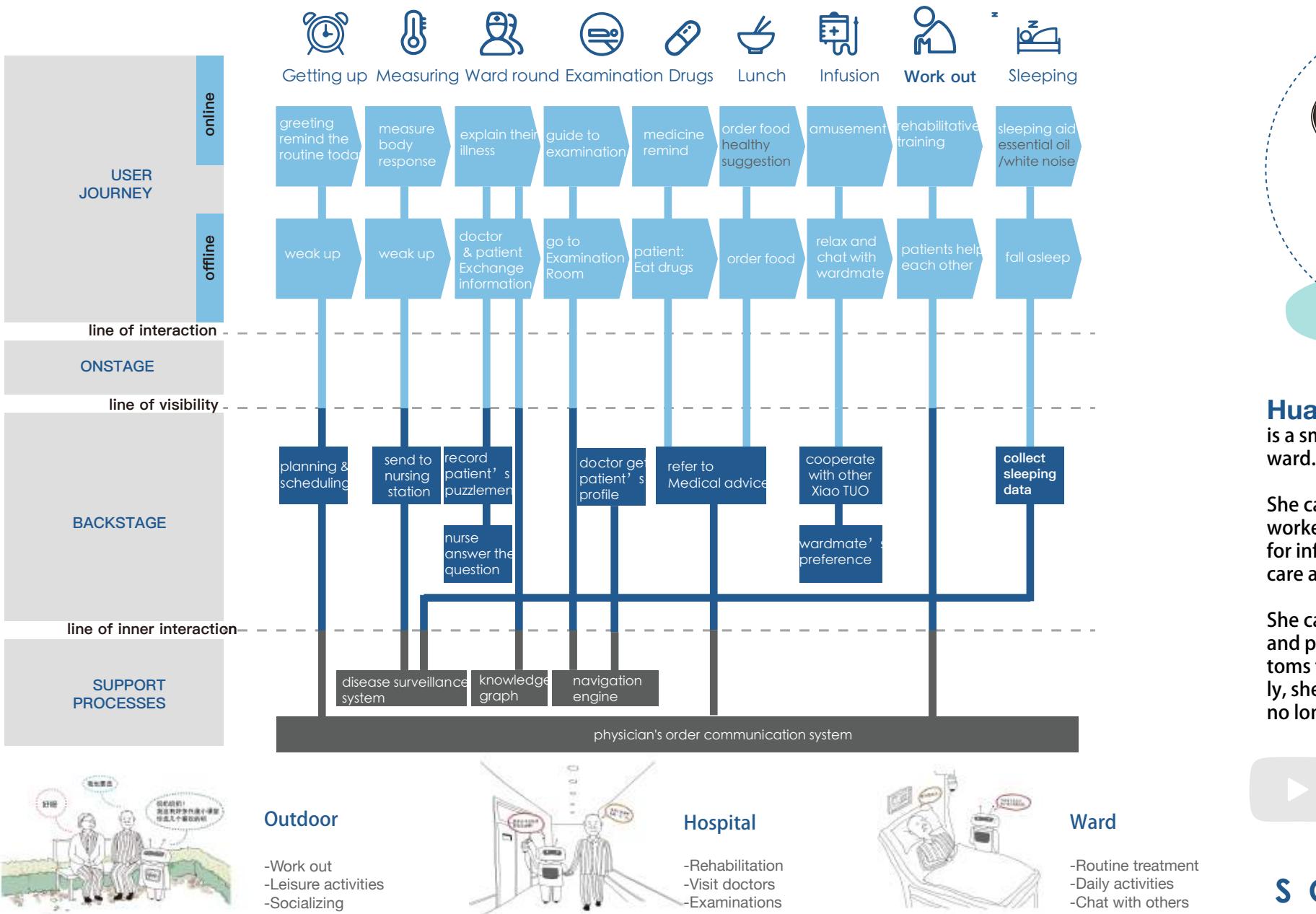
The role of the robot like the pet of users. So users feel comfortable when interacting with it.



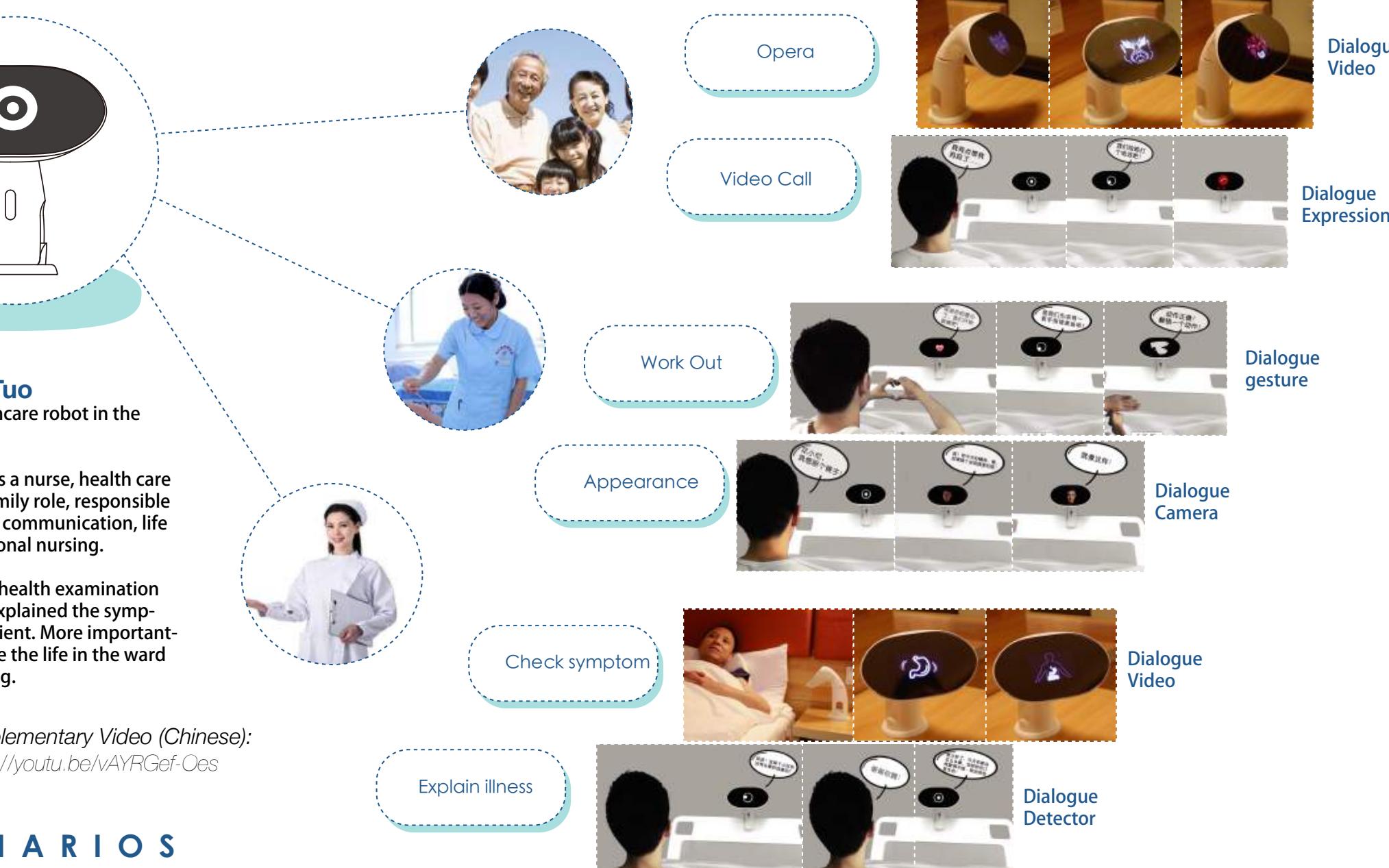
FINAL WORKS



JOURNEY MAP



USAGE



YOOTOPIA

There are Gender stereotypes everywhere around us. Those stereotypes deeply affect people negatively, and usually are not recognized. In order to stop its boost, it is necessary to eliminate stereotypes intendedly in an early age. Only in this way kids can grow up naturally, with their talent fully respected and not limited by gender stereotypes.



Not aggressive
Dependent
Submissive
Passive
Indecisive
Emotional
Kind



Traditional stereotypes

Aggressive
Independent
Dominant
Active
Decisive
Logical
Cruel

BACKGROUND



SOURCE: http://www.huffingtonpost.ca/dr-imogen-coe/gender-stereotyping-stem_b_7423048.html

Gender Discrepancy in occupation

Less women work in certain competitive positions, reluctantly or willingly, like work in STEM fields and leadership roles. Meanwhile, Men are forced to choose career from it.

WHAT

Factors leading to Discrepancy

Intended and casual factors lead kids to make choice according with gender stereotypes. It dismiss possibilities of future from an early age.

WHAT

"I'm a girl"
"girls play dolls"
"I play the mom"

-Cultural gender norms.
-Hate cross-gender
-Dating potential

11-13

-Certain qualities
-Specific occupations
-Self-segregate

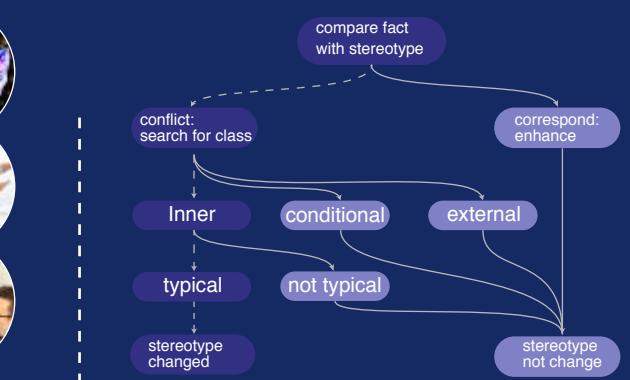
7-10

-Gender-typed play
-Certain activities
-Gender identities

AGE 2-6

Development of gender stereotype

SOURCE: <http://www.cnn.com/2017/06/29/health/gender-stereotypes-media-children-partner/index.html>



Stereotype is difficult to change

People try to explain the fact according to the stereotype that they already had.

WHY

Gender stereotype is initially generated between 3-5 years old and it is difficult to be changed since then. Therefore, it is curtail period to lead them to have a proper attitude towards gender, to ensure that people's development and talent not be limited by their gender.

And they should be encouraged to have good qualities no matter it is "girlish" or "manly".

RESEARCH

3 typical representations of gender stereotypes around kids aged 3-5:

Toys -- Cultivate gender traits



Stories -- Build concrete gender image



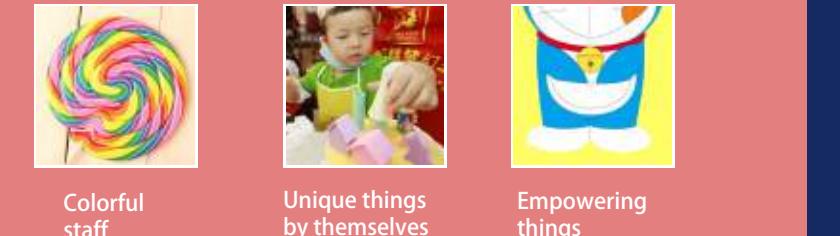
Color -- Add gender label to everything



In order to explore visual language for kids aged 3-5 and their parents' opinion, I organized a workshop In Yangguang Kinder-garten, located in Changzhou, China.



WHAT ATTRACTS KIDS

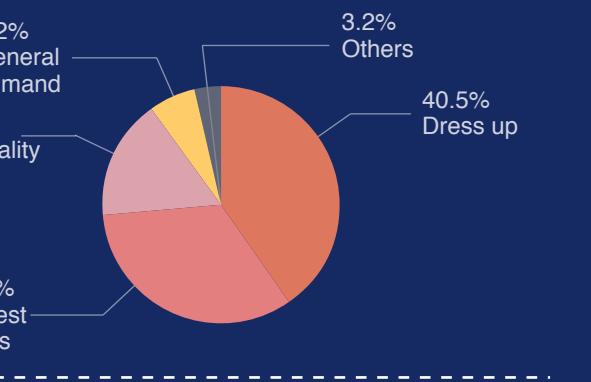


Magic	Special	Fresh
Curious	Playful	Show off

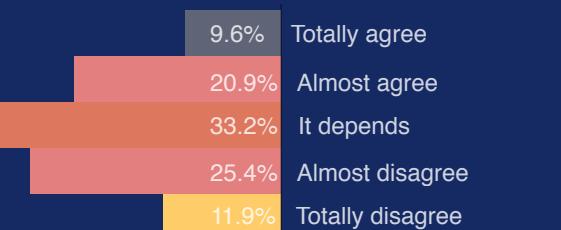
CHILDREN'S KEYWORDS

Supervise	Ability	Useful
Communication	Acceptance	Protect

In which aspect, you treat girls/boys differently?



Opinion of "you should behave as a girl/boy"



"We want our kids have gender consciousness without negative stereotypes."

"Having comprehensive abilities is important in such a competitive society."

"My daughter felt so upset since her classmates called her hoiden because of her haircut."

ANALYSIS

Gendered Environment in Real World

Undeniably gender is the most apparent feature of kids, so they can hardly escape from it in real life



Parents have gender expectation for their children. They treat boys and girls differently in many aspects, from clothes to educational method.



Peers are also affected by stereotypes, they play different roles when staying together and user languages with stereotypes unconsciously.



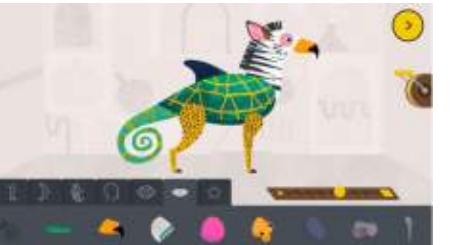
Toys and clothes are always classified as boys' style or girls' style. When people use those products they are labeled by gender elements attached to those stuff.



Advertisements promote products with gendered target group for higher efficiency. The books and TV programs also deliver gendered opinion, affecting both parents and kids.

Game as the Medium

For kids aged 3-5, playing game is their main activity, as well as the way they gather knowledges and form personalities. Game is the joint of the elements above. Unfortunately but typically, parents choose the game for children when they buy certain toy in the market, and children also conduct gendered play with each other.



Weird Garden is a game where children can create the animals and feed them in the garden. It gives the freedom to children and do not limit the image by existing animals.

Limitation: Children and parents look for certain benefits that the game can bring.



Lego gives the materials to children and encourage them to create whatever they want and encourage girls and boys to play together.

Limitation: It requires many efforts for children to build a stunning work, and may cause depression.

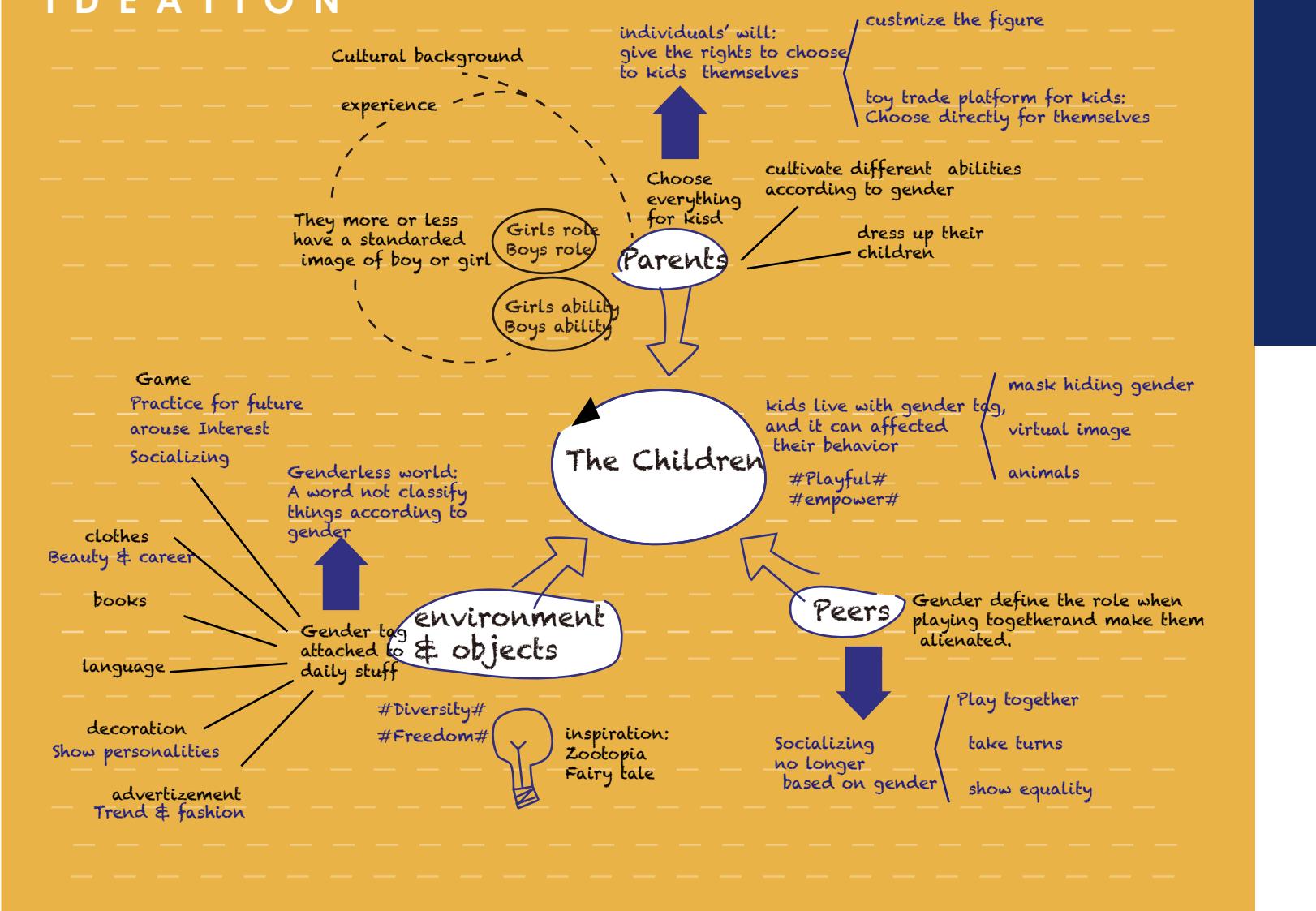


The doll is designed for boys. It introduce the elements that attract boys like batman, so boys can also develop the "girly" personalities.

Limitation: It use concrete image that may limit children's expectation.

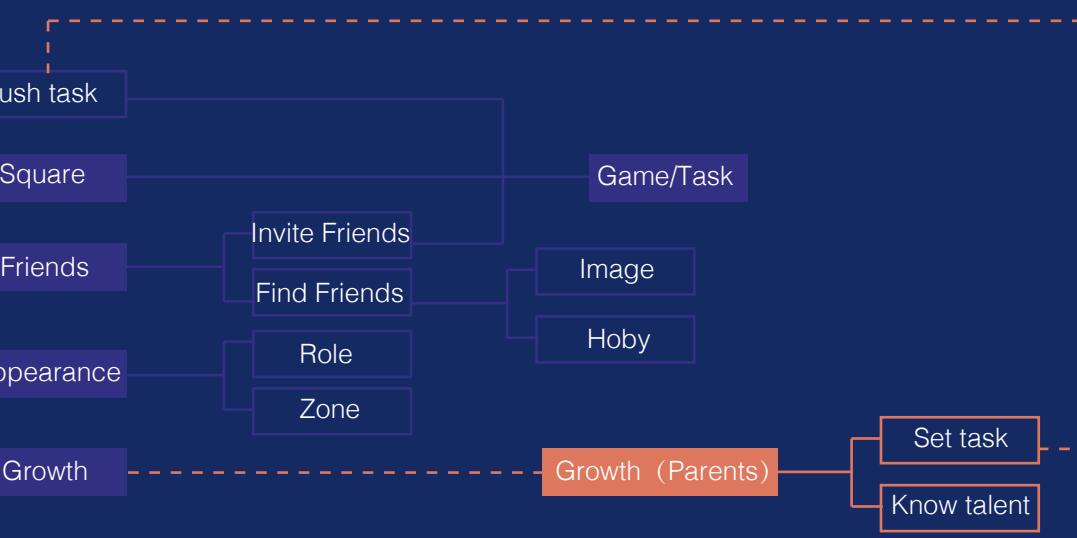


IDEATION

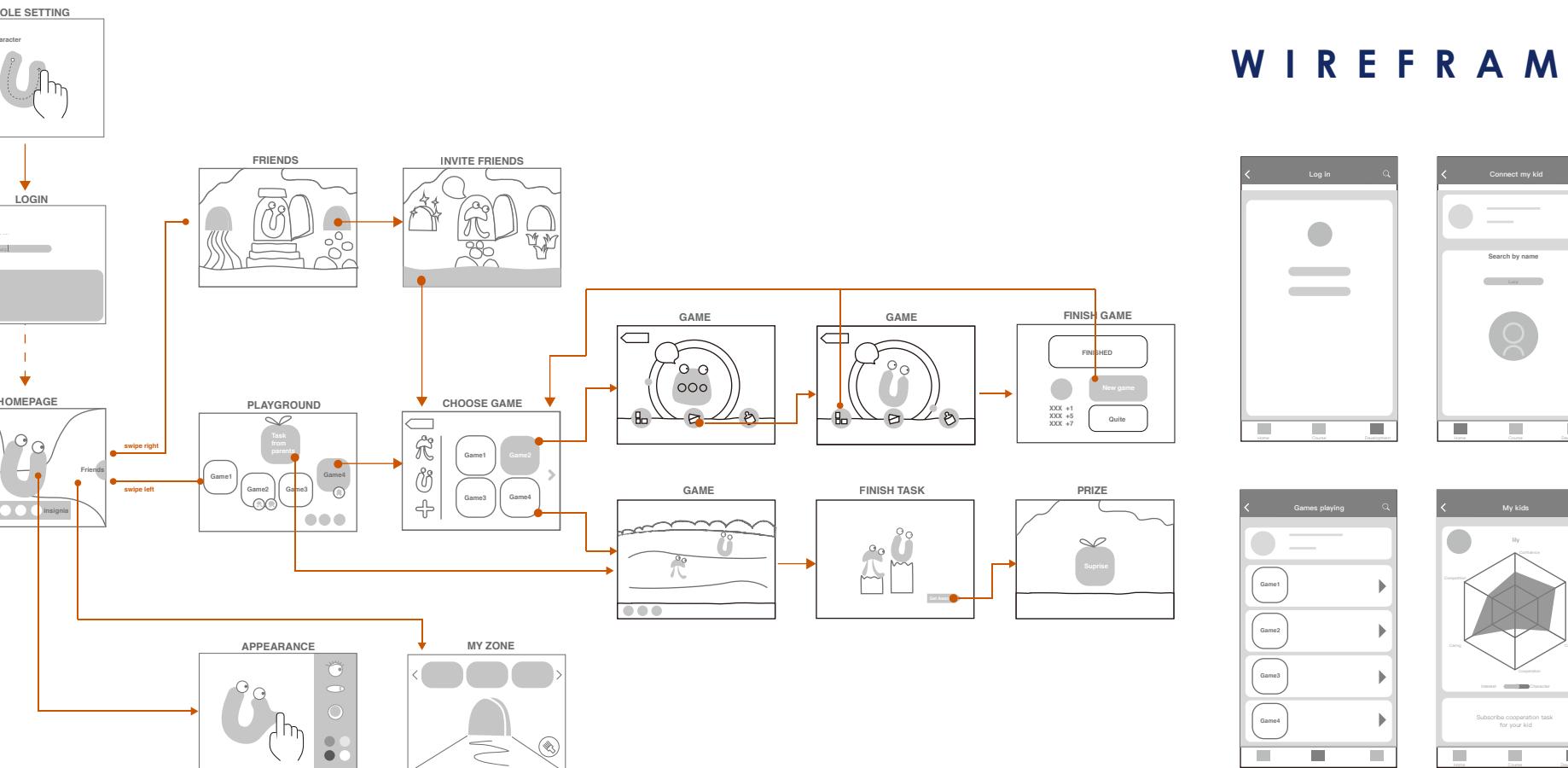


The game that can cultivate comprehensive abilities, referring to the character of every individual and eliminating gender labels.

CONSTRUCTION



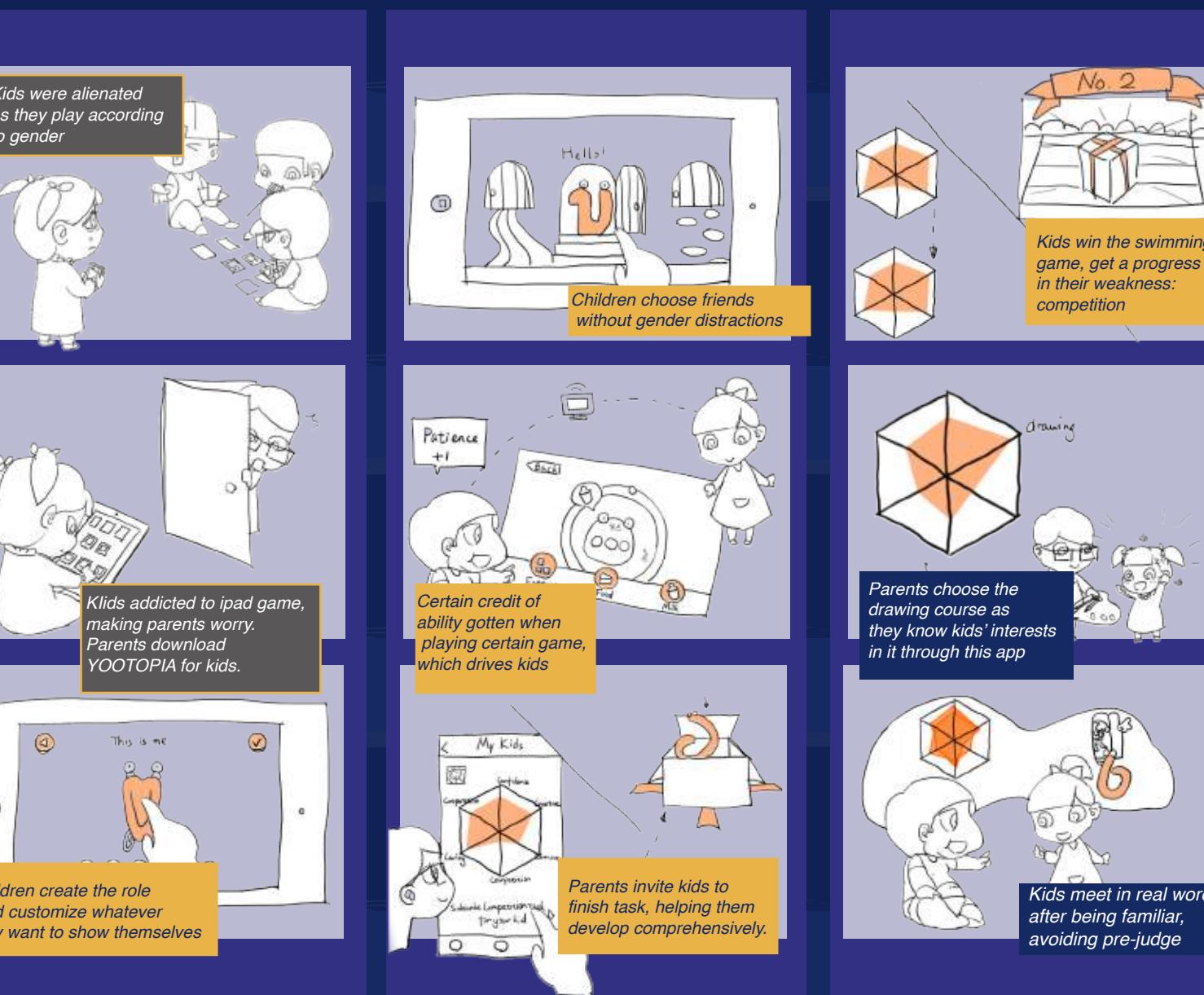
WIRE FRAME



USER INTERFACE



STORY BOARD





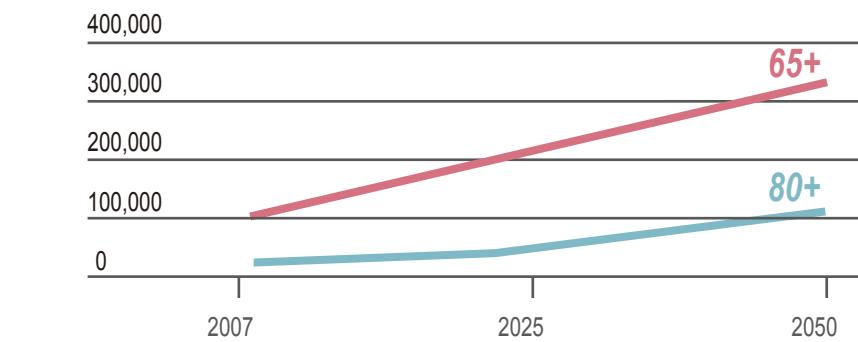
DESIGN BRIEF

Many acute diseases are worsen when an old man falls down, an example is cerebral hemorrhage. This is the most urgent time, but they cannot ask for help.

In order to provide them with first aid and to bridge the gap between people who need help and those who offer a hand, this set of wearable device is needed.

BACKGROUND & RESEARCH

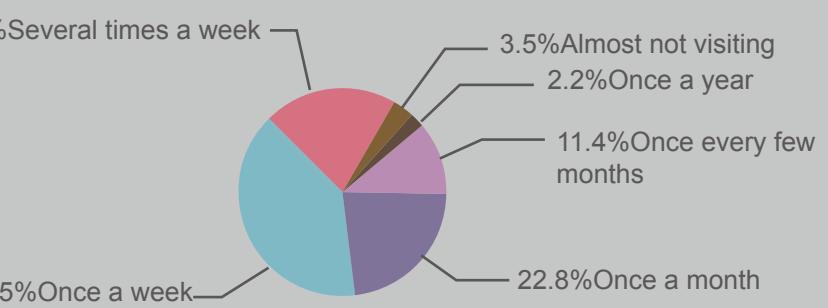
Over the past two decades, China's population has been aging rapidly. As a result of China's "one-child" policy and low mortality, the proportion of elderly citizens will continue to grow very quickly, increasing the stress on an already troubled health care system. Most of them suffer from chronic diseases and have to take care of themselves.



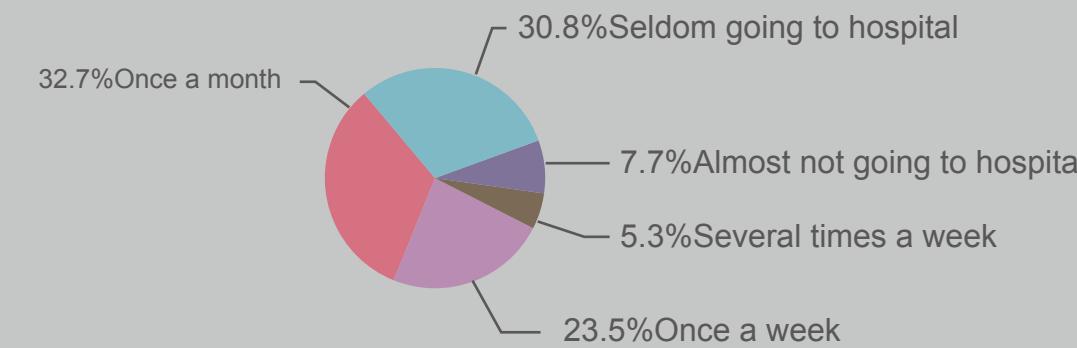
Source: United Nations, World Population Ageing 2007 (New York: UN Dept. of Economic and Social Affairs, Population Division, 2007): 202-203.

Elder life quality questionnaire

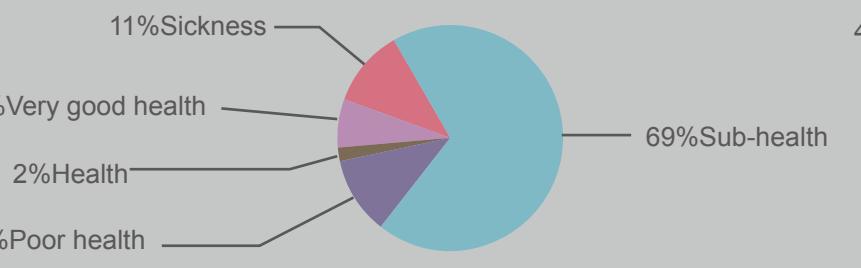
How often does their family visit them?



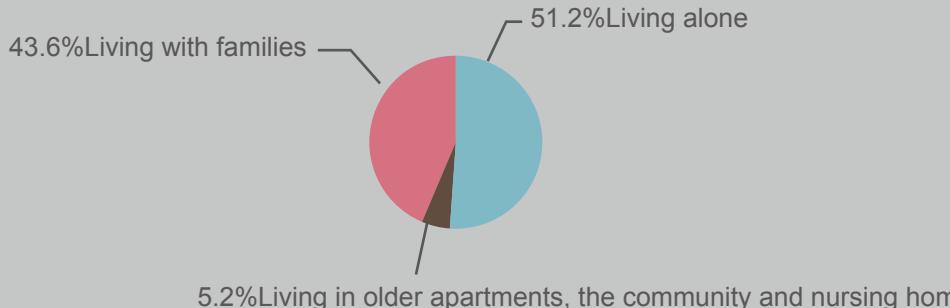
How often do they go to hospital?



Health condition



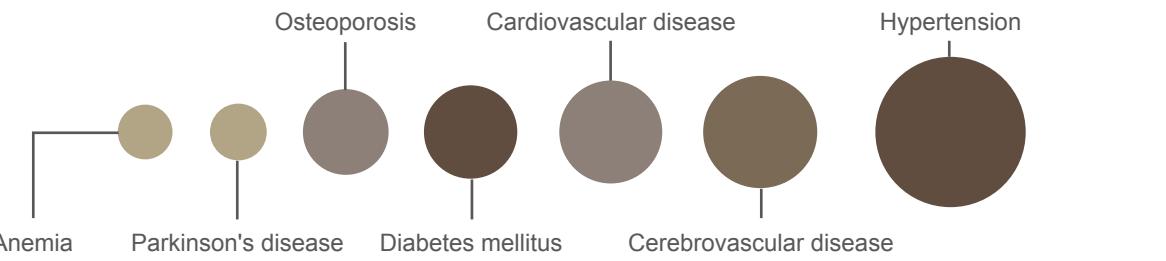
Living conditions



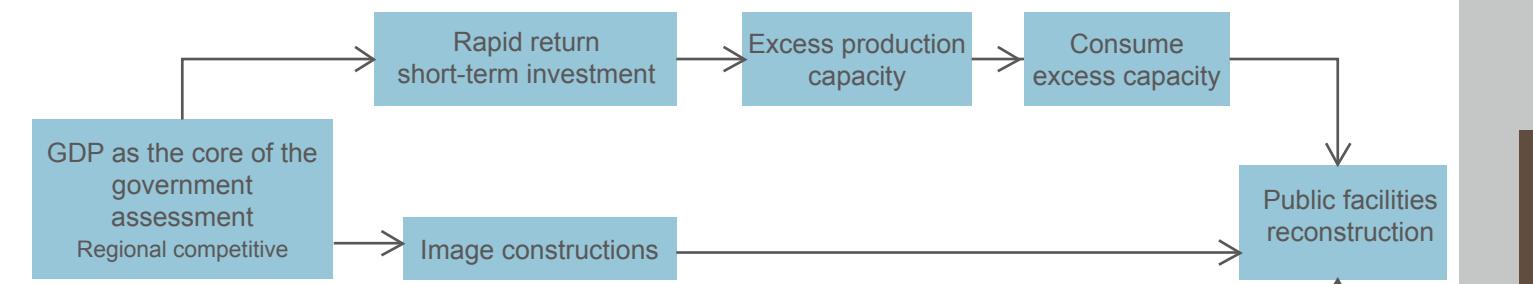
RESEARCH

According to NHS report, around one in three adults over 65 living at home have at least one fall a year, and about half of them have more frequent falls. Most falls don't result in serious injury. However, most of Chinese older people have circulation system disease, such as hypertension, cerebrovascular disease and diabetes mellitus. If they fall down, it can cause serious harm, even to death.

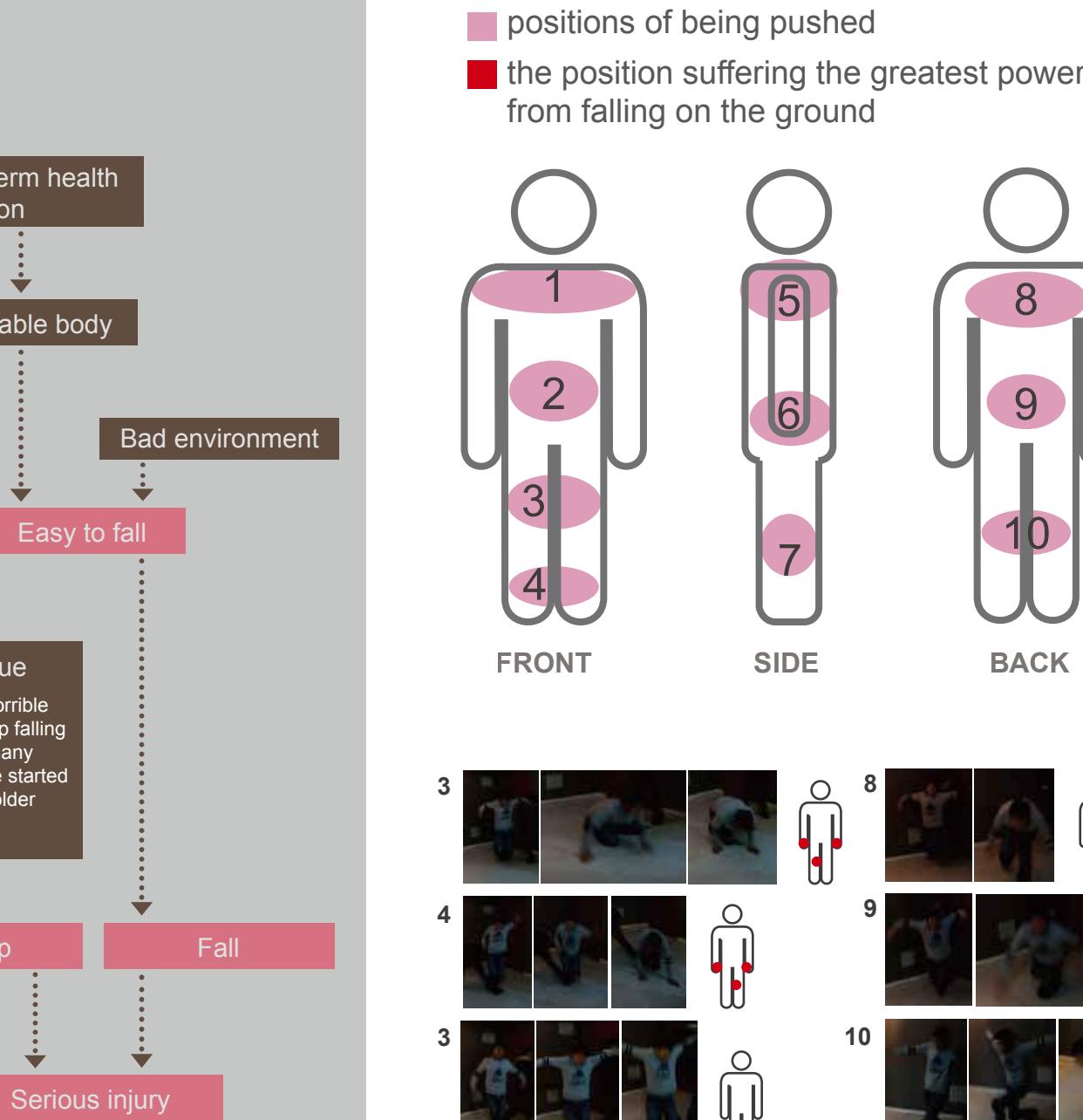
The news most often caused by a geriatric disease and Circulation system disease



Reconstruction problem in China

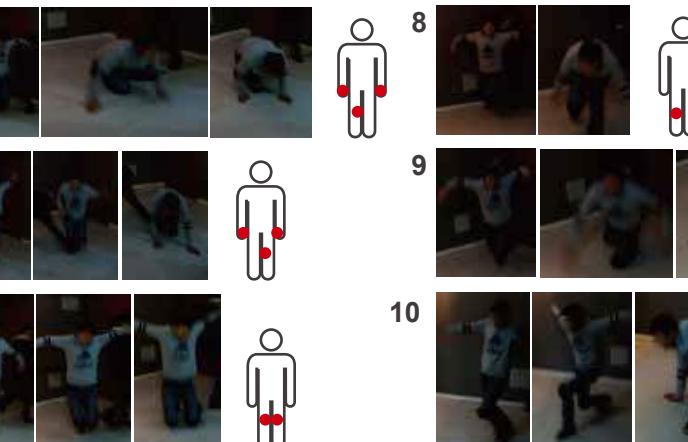
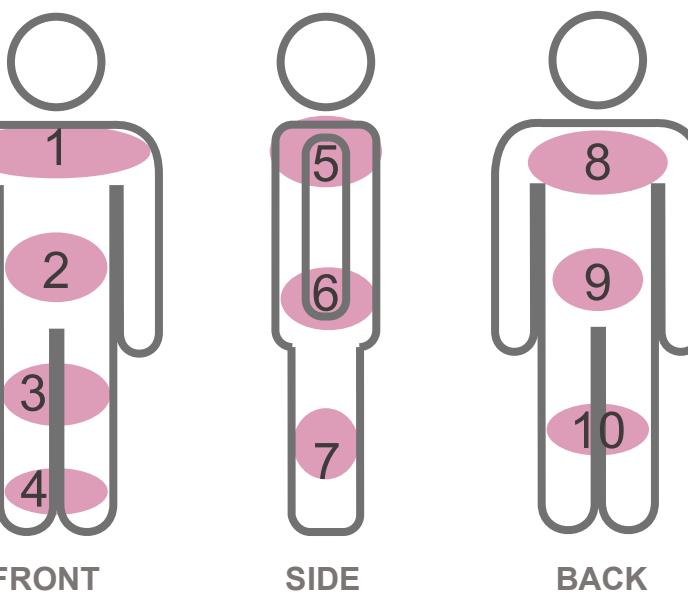


PROBLEM

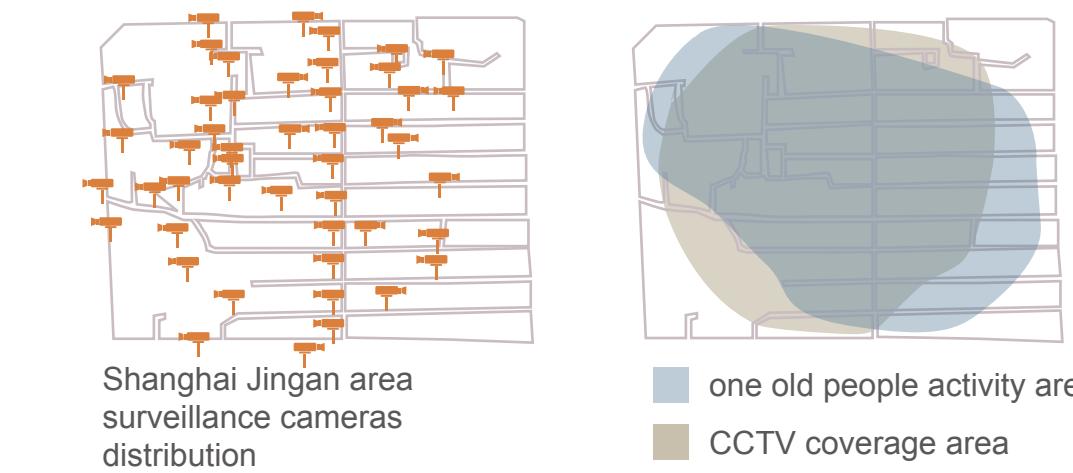


TUMBLING TESTS

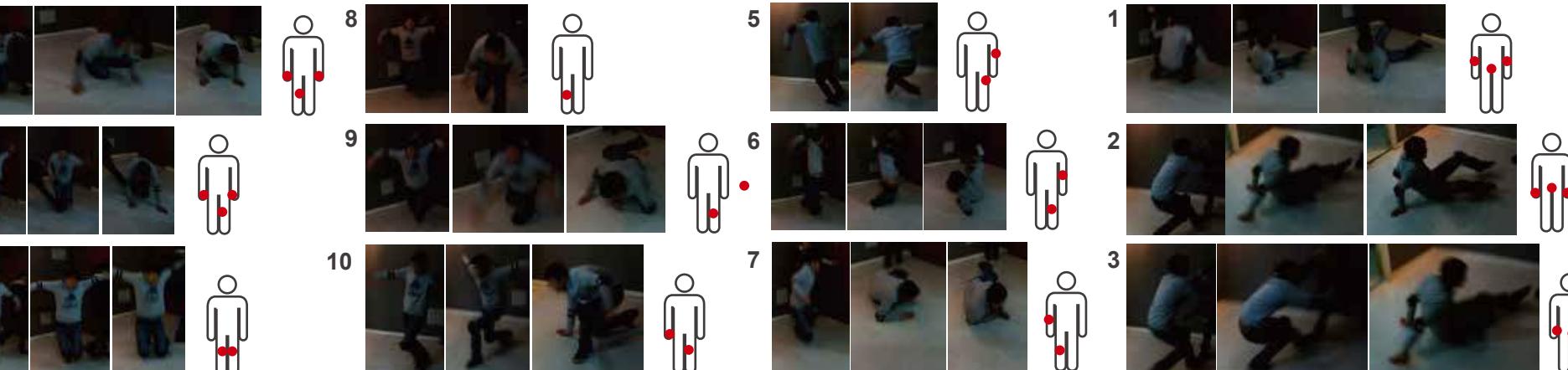
- positions of being pushed
- the position suffering the greatest power from falling on the ground



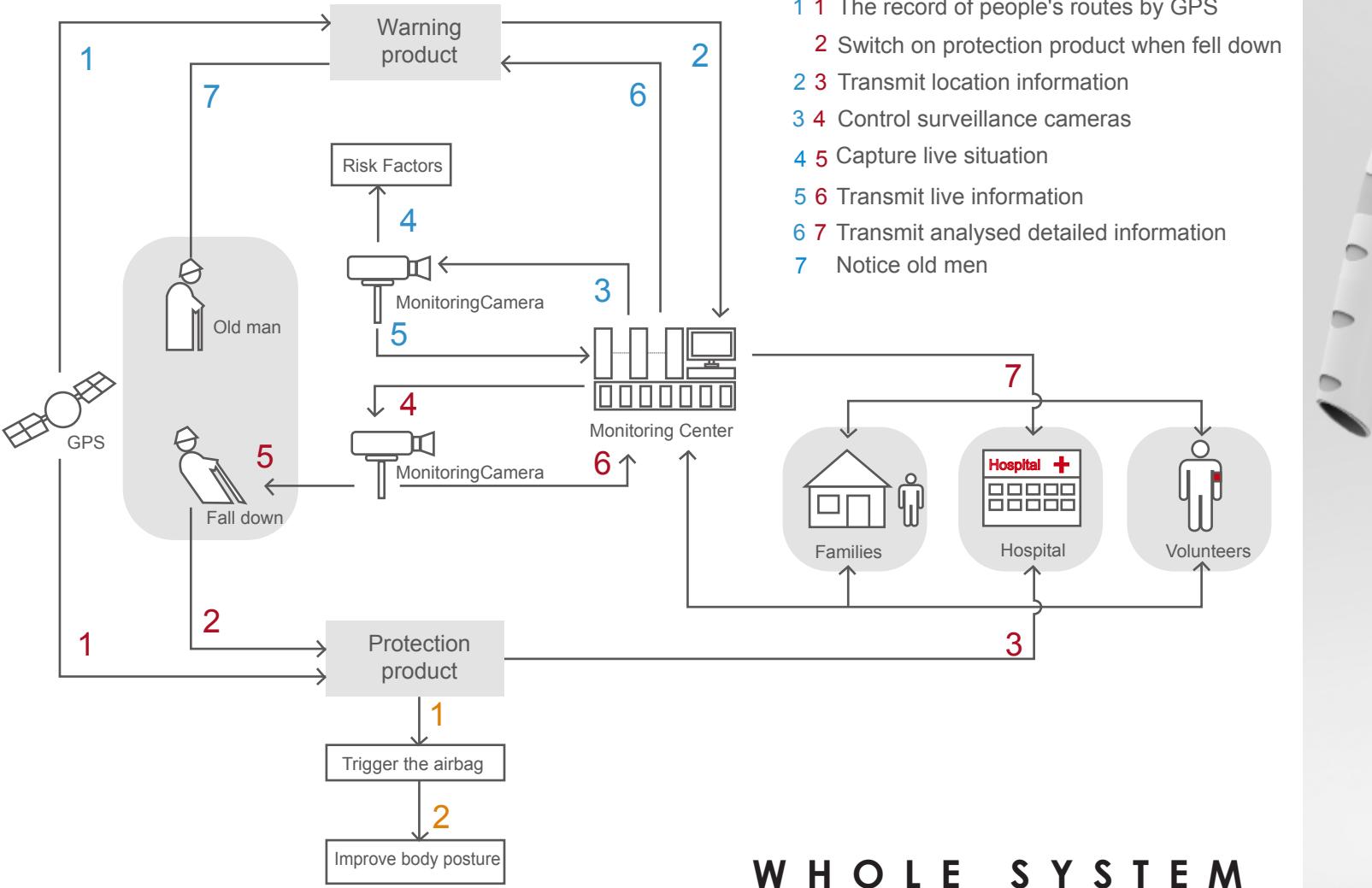
IDEA



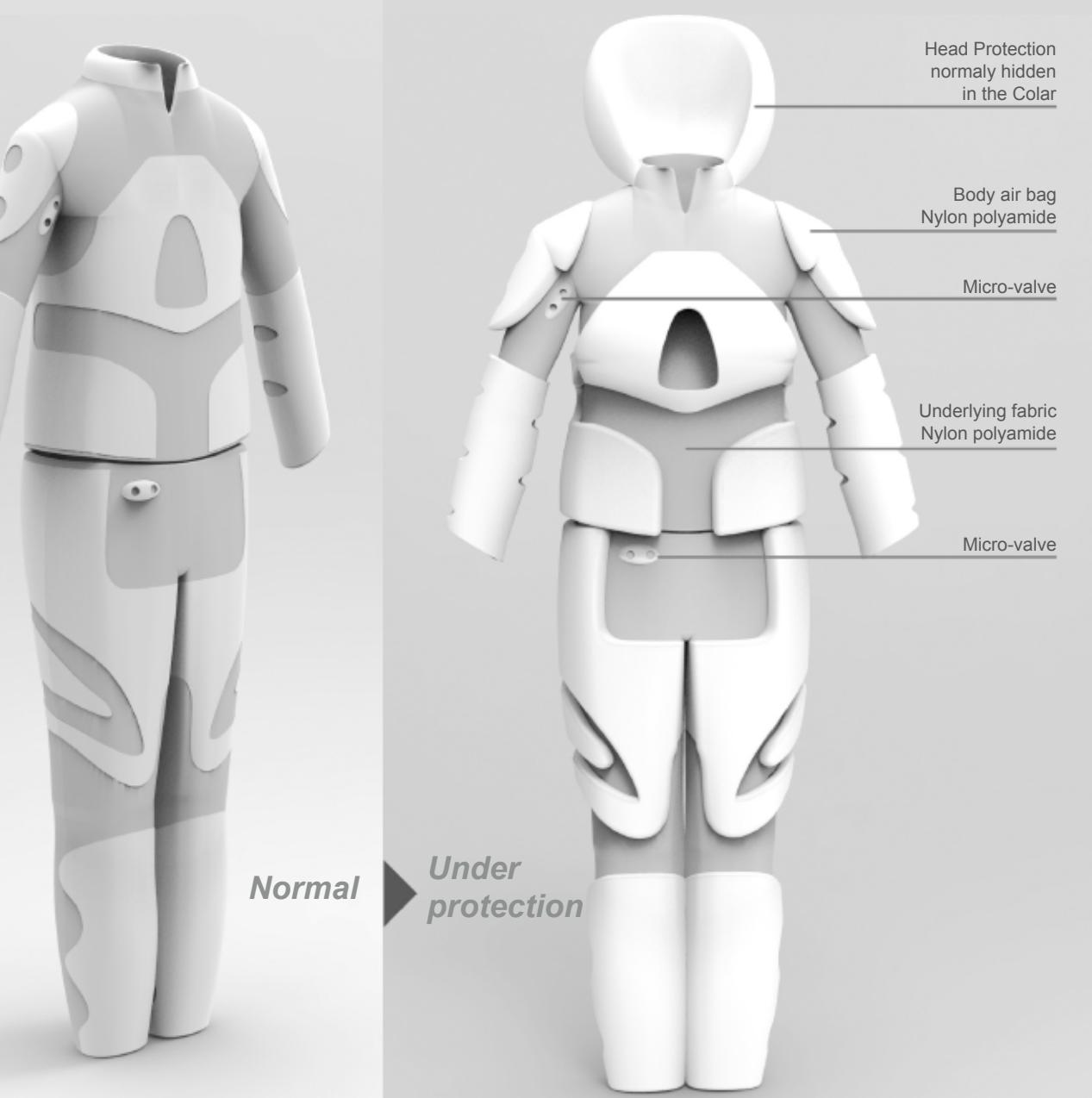
In this topic I would like to explore what changes or even new possibility in the state of exchange between people, behavior and relationships will be brought with the use of public systems and the interaction between people.



FINAL WORKS



PROTECTION PRODUCT



WARNING PRODUCT



- E A T I N G F L O W -

B A C K G R O U N D

The diet is a culture which is not just food, but also includes the associated activities during the process of diet. The eating utensils, food activities, catering and entertainment, and dietary exchanges, etc. in traditional culture are very rich, among which people enjoy the process and the exchange of people. However, today's advanced IT and fast-paced culture has changed our lives greatly.



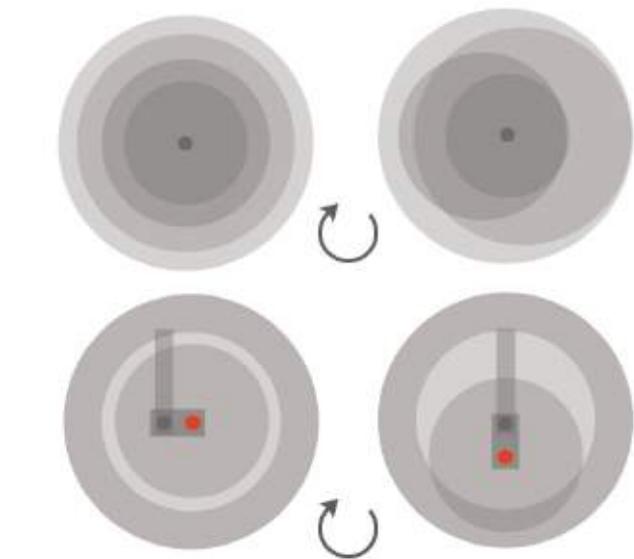
Many people view too much negative impact of the development of technology on our lives, and they think technology and nature are opposite; on the other hand, Kenya Hara in Japan Aichi World Expo put forward technology may not necessarily be opposite to the nature. This theme is to explore the relationship between technology and people through diet. This is a product, but I hope to stimulate people's thinking through exploring the new eating behavior.



E A T I N G I N F O R M A T I O N



TECHNOLOGY & STRUCTURE



Mechanical principles

Glass surface

LED

It always displays the latest news, which are collected from Internet on real time.
The news are moving around the table



FINAL WORKS



tells the
debt
vis Italy's d crisis
d resignation of
Prime Minister Silvio Berlusconi last year. Since
the Latin "Citius, altius,
treni who set out to use an evil
led to the resignation
of
encana

Glass surface

TECHNOLOGY & STRUCTURE

LED

It always displays the latest news, which are collected from Internet on real time. The news are moving around the table

Table Frame

Table leg Frame

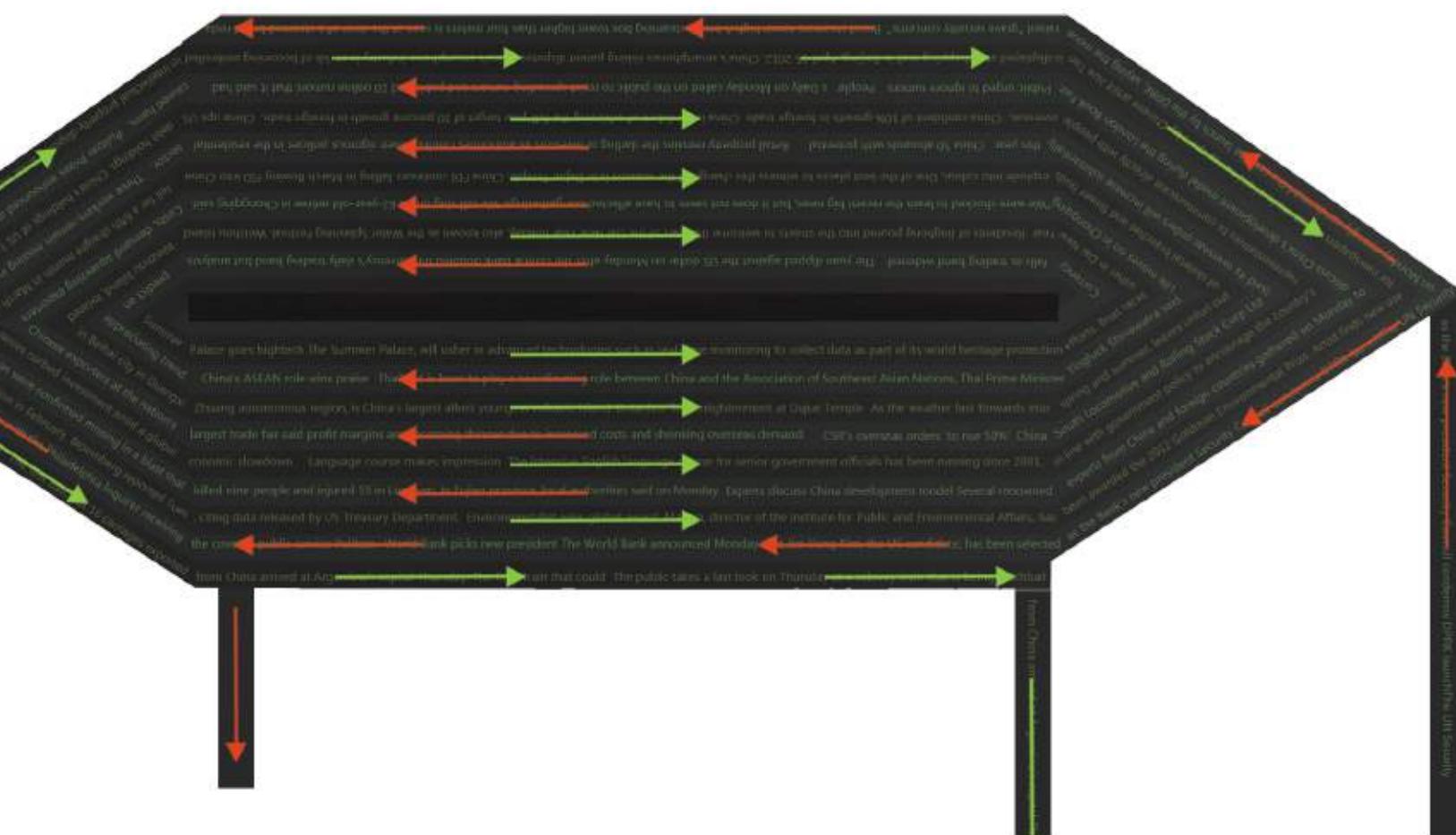
LED

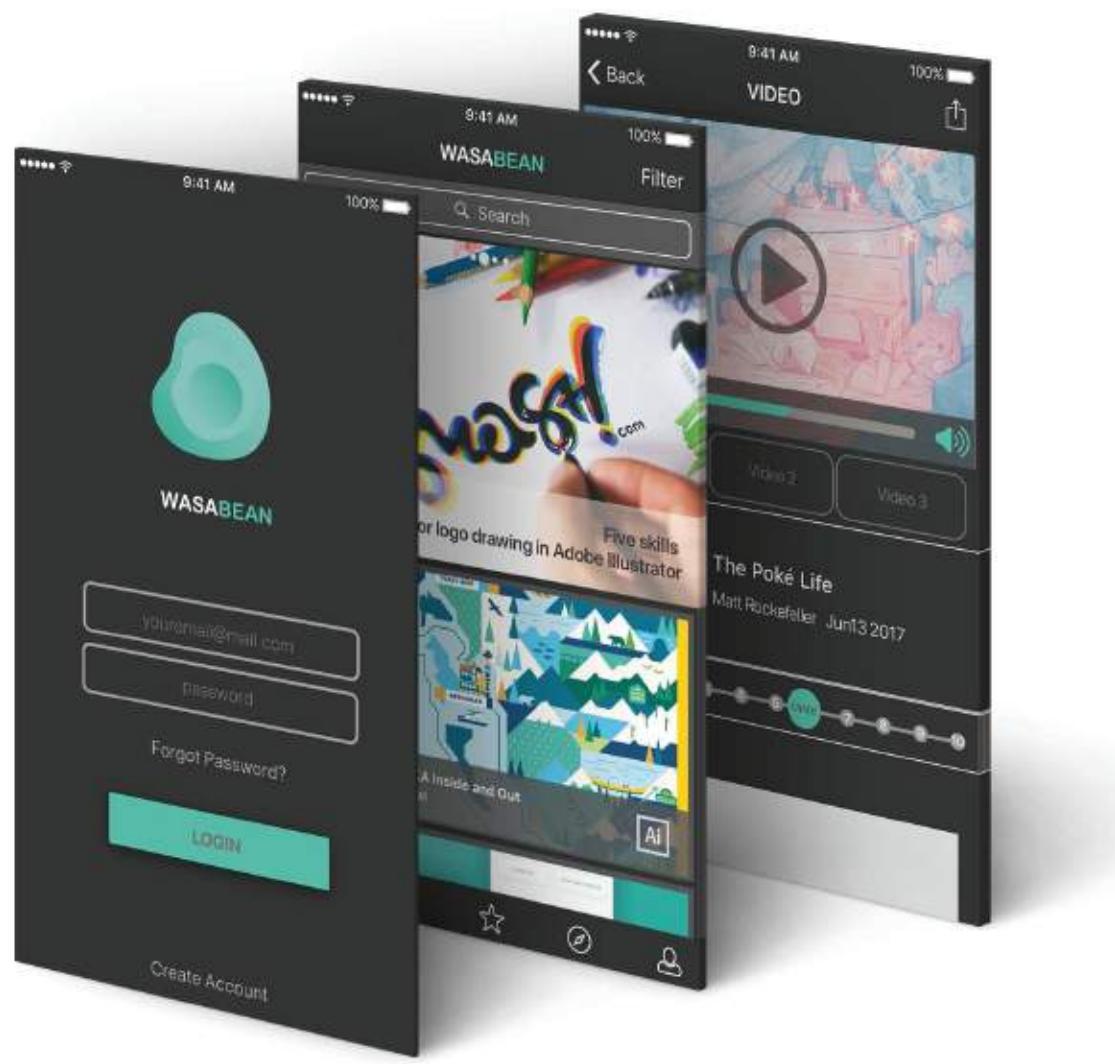
Displays the latest news, collected from Internet on real time.

Glass



THE WAY TEXT FLOWS





Wasa Bean

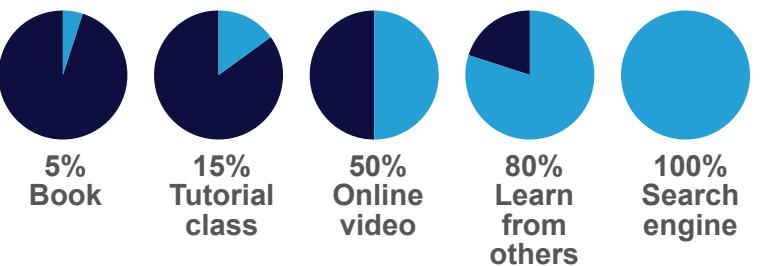
An App helping design students learn more.

This project aims to help Chinese design students to easily find a suitable software tutorial. Many Chinese universities don't provide enough design software training, students have to learn by themselves. However, current learning experience is not very friendly, it leads many students to be afraid of studying software. The final idea comes from the way of student doing design work. An app will provide detailed software processes to help students learn from design work which they are like.

RESEARCH & INTERVIEW

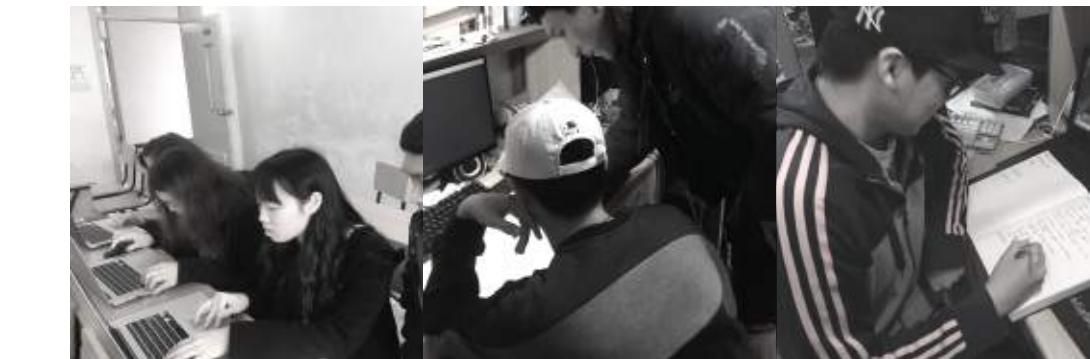
The research work started with my classmates and other design college students, totaling 38 people. Net learning as one of the primary forms of study design software is already available. But the learning experience of net learning is barely satisfactory.

Where students get study resources?



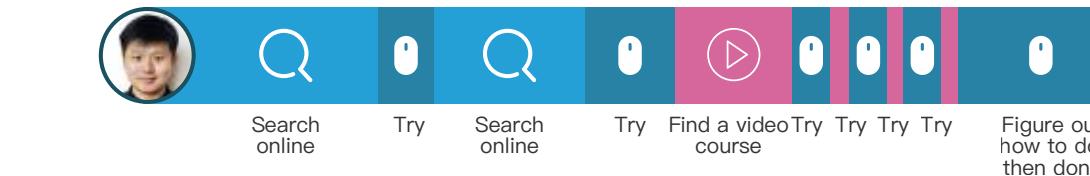
Disadvantages of different study approaches

	Search Engine	Information messy Don't know how to search Waste too much time
	Software Book	Information out of fashion Boring to study Need quite a long time
	Friends Classmates	Information has limits Not always can help Time and location limit
	Tutorial Class	Information has limits Need quite a long time Time and location limit
	University Class	Information is out of fashion Need quite a long time Time and location limit

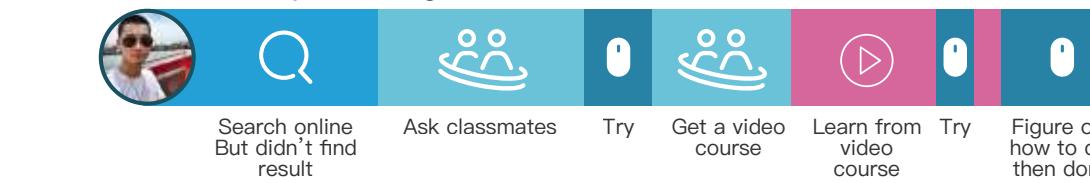


Co-design Interview, observe how students finish a design work.

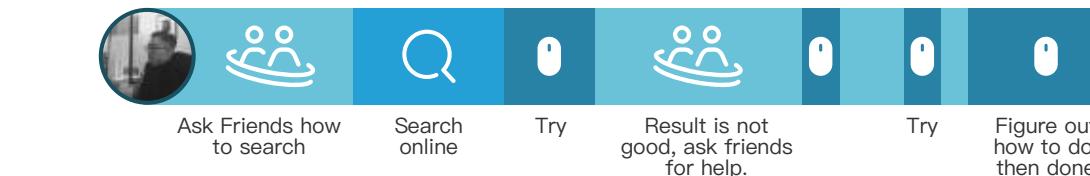
Xueqi Lin, a sophomore student. He has learned Photoshop for one year. He is not really good at Photoshop.



Xueqi Lin, a senior student. He can use several graphic design software, but he is not really into design softwares.

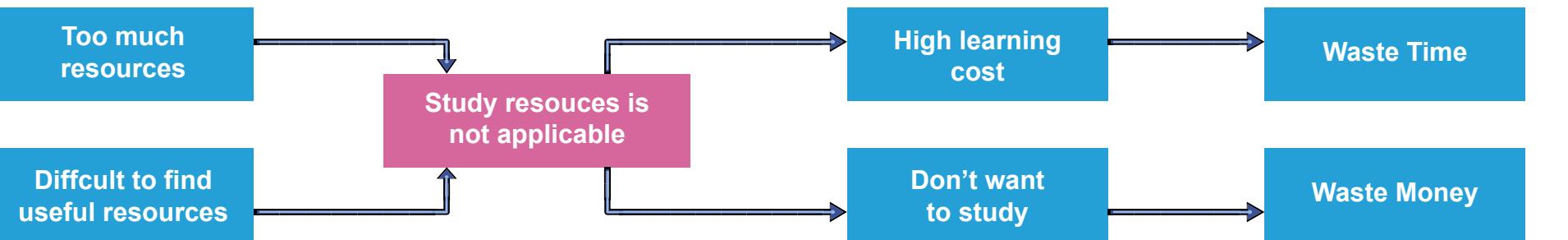


Gong Ban is a junior design. Ban is good at 3D software. He usually studies with online forums. He got some friends through design online forums.



PROBLEM ANALYSIS

Imitation is a great way to learn software. Most of students start with imitate others' design work. However online website doesn't provide too much information to help them learn others' work.



PERSONA



Tianyi Yang

Gender: Male
Age: 24 years old
Location: Shanghai China
Operation: Senior student of product design

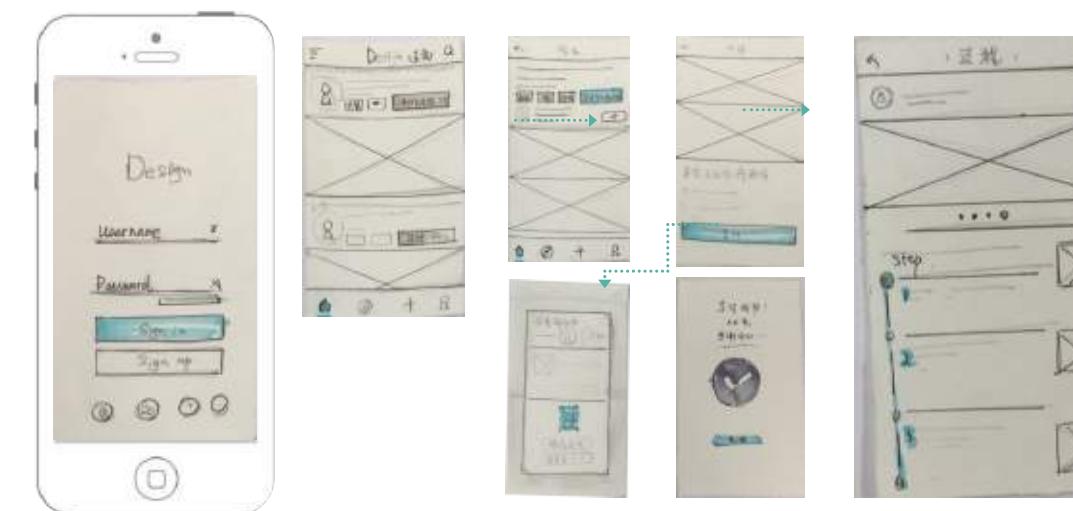
Yang would like to take time to learn software, but the information on the Internet is too much and too complex to have a more convenient way and a more comprehensive platform to learn.

IDEA

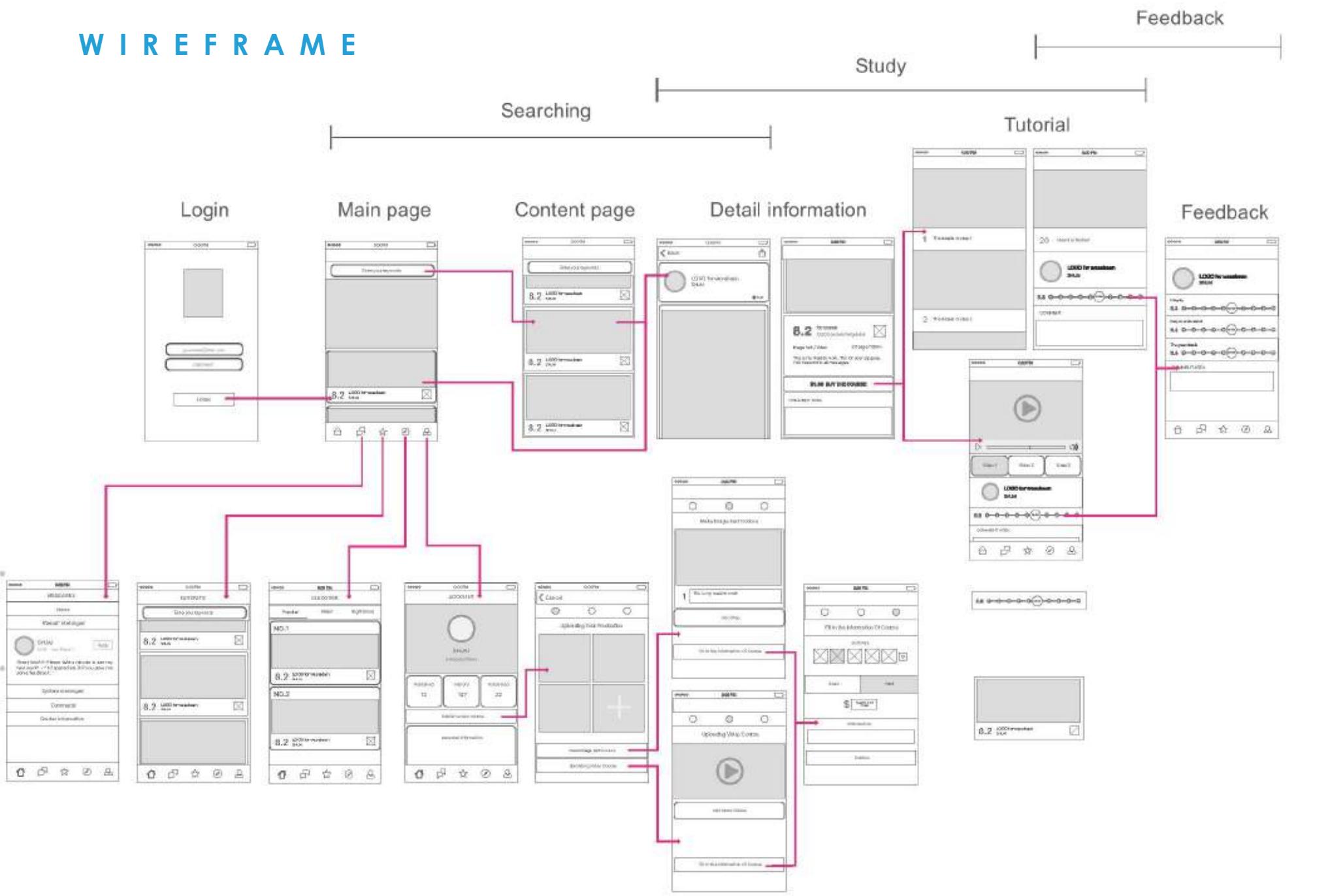
An online design community for student to find design works with tutorial. Any student also could submit their design work and tutorial for others to earn money.



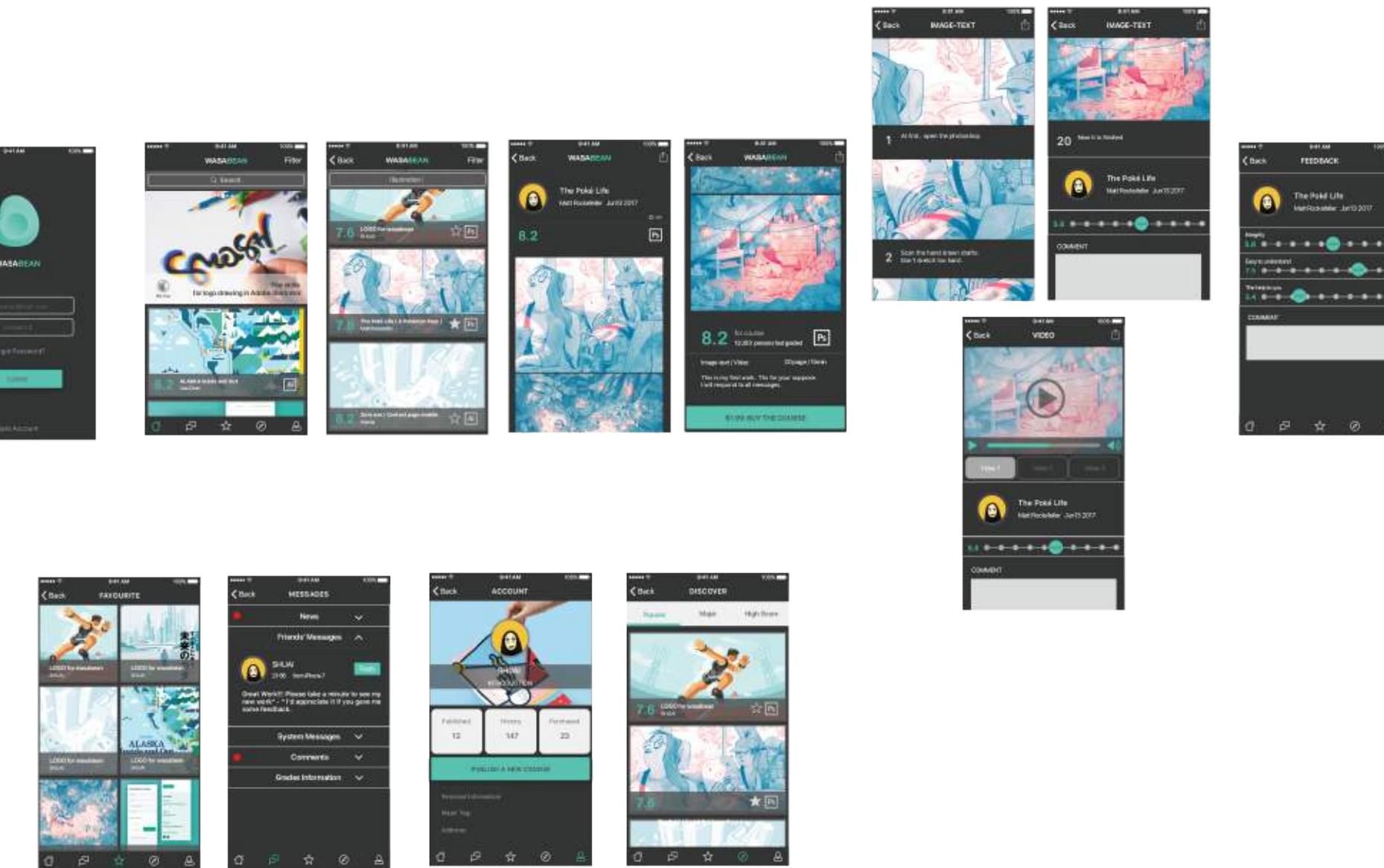
PROTOTYPE



WIREFRAME



UI DESIGN



3/6 STOOL

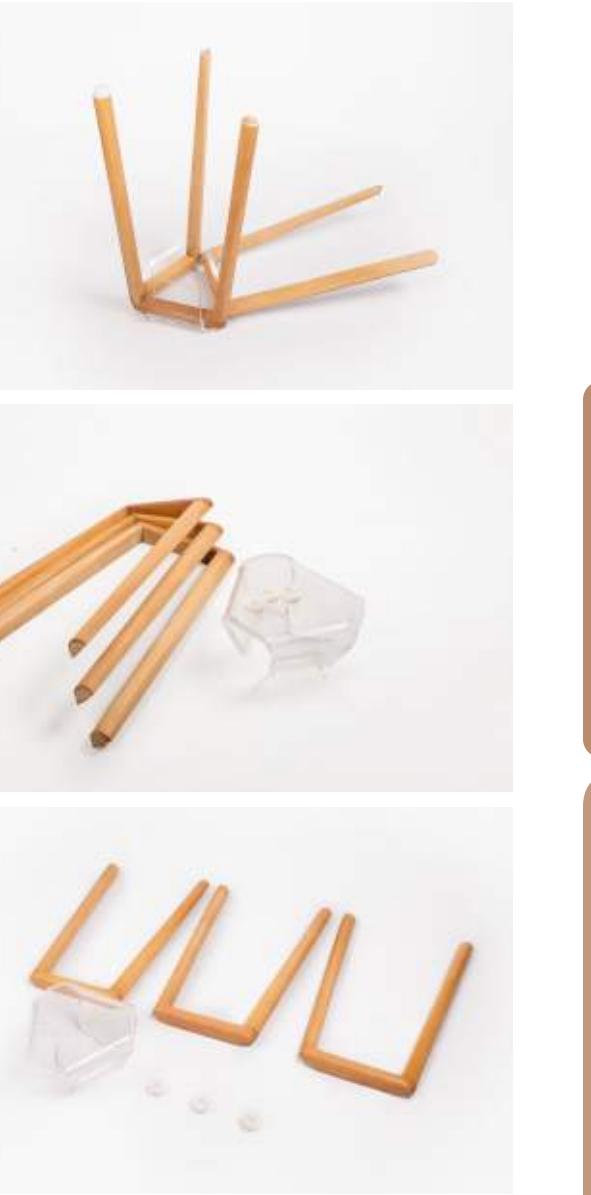
The design of this stool is a experiment of structure.

The designer separated each foot of the stool into two parts and joint them with different Rungs, forming 3 equal wooden components. And the acrylic panel is curving in order to lock 3 components together. Foot pad made of nylon also plays the role of fastening of each foot.

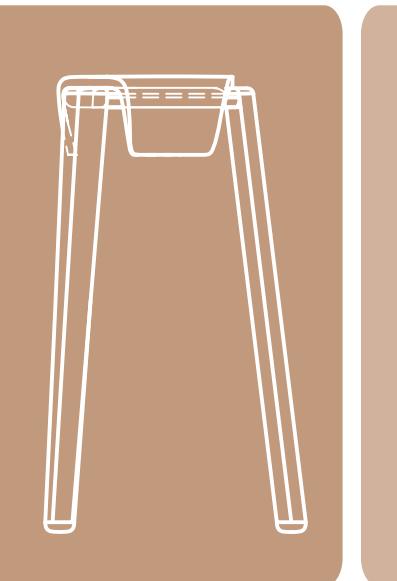
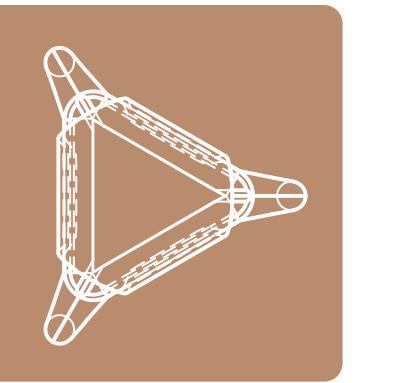
Because of the simple attended mode, customers can assemble or disassemble the stool within a minute.

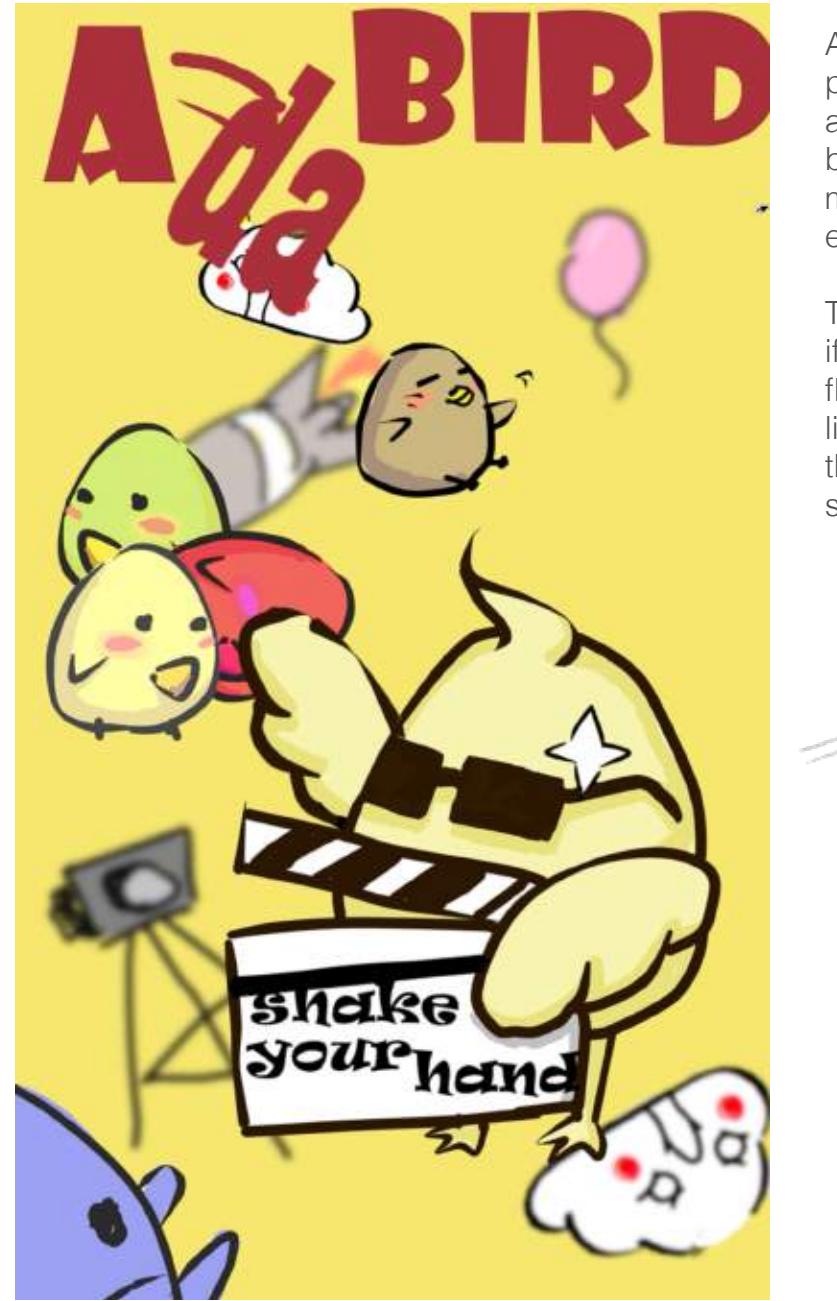


/Simplified
/Disassemble
/line



model making





My responsibility:
-Ideation
-Coding (60%)

Hengyuan Li:
-Visual Design
-Coding (40%)

Yuxuan Su:
-Visual Materials

Ada bird is a kinetic game that can be played by one or two players. One aim of ada bird is to excite offline interaction between players, so in the 2 players mode players are required to control each wing of the bird to help it to fly.

The game has 3 levels. In level 2 and 3, if there is no obstacle, players should flap their hand with the similar frequency like that in the level 1, if obstacle appears they should adjust their frequency to swerve in the air.

Input sensor: ball switch

The cheapest sensor to track the time when players hand moved.

Arduino

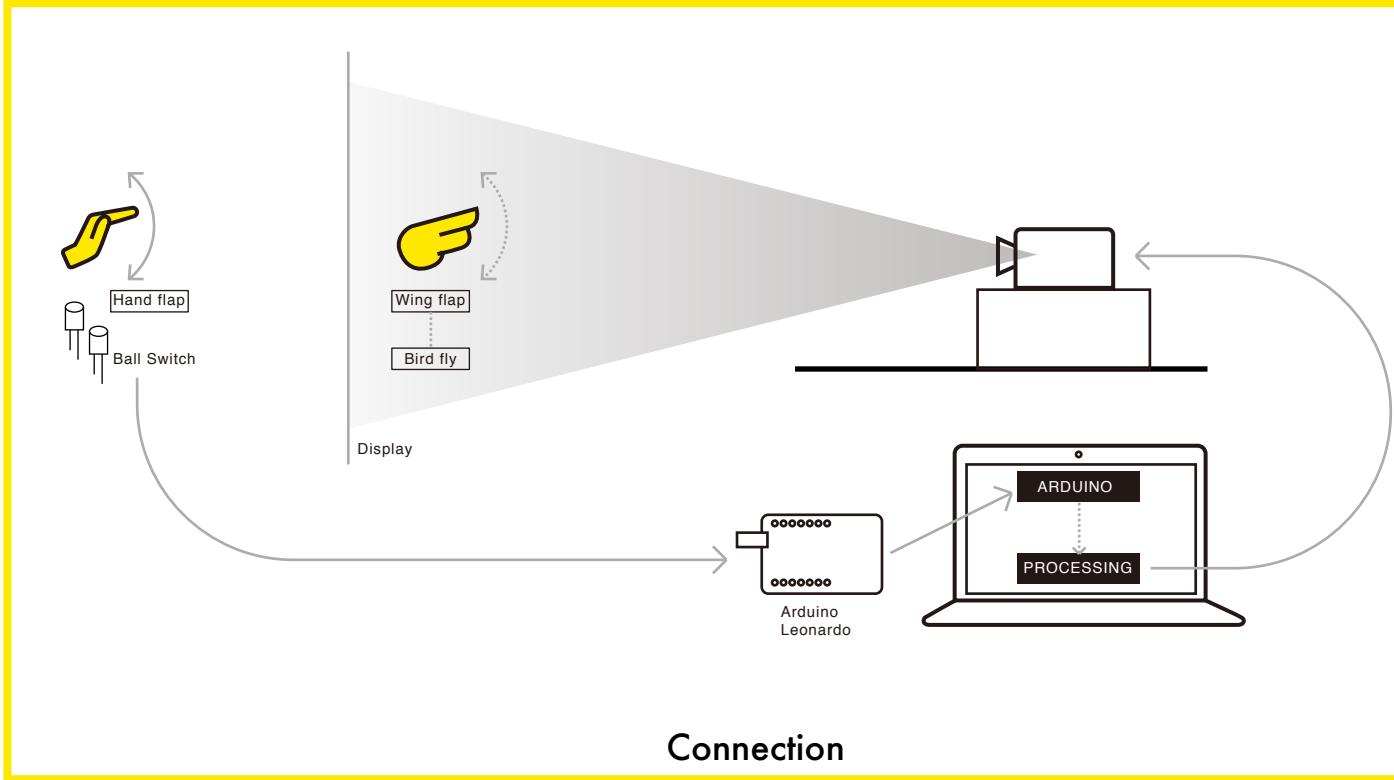
Tend the on/of if the switch into the time of each flap, then send the data to processing.

Processing

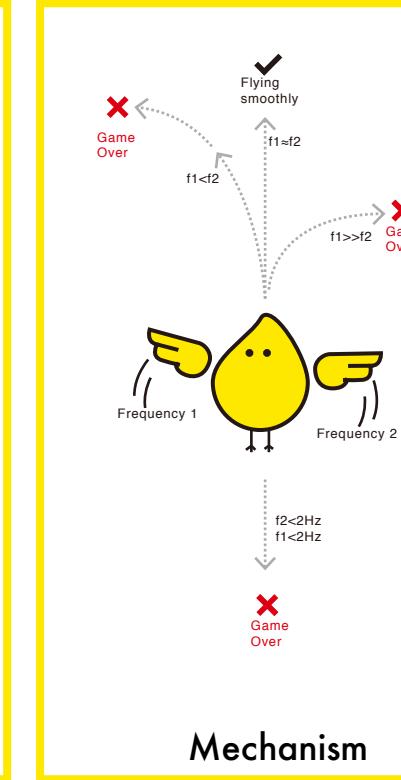
Filter the data and calculate the flapping frequency.

Map the frequency of players' hand flapping with the movement of the bird.

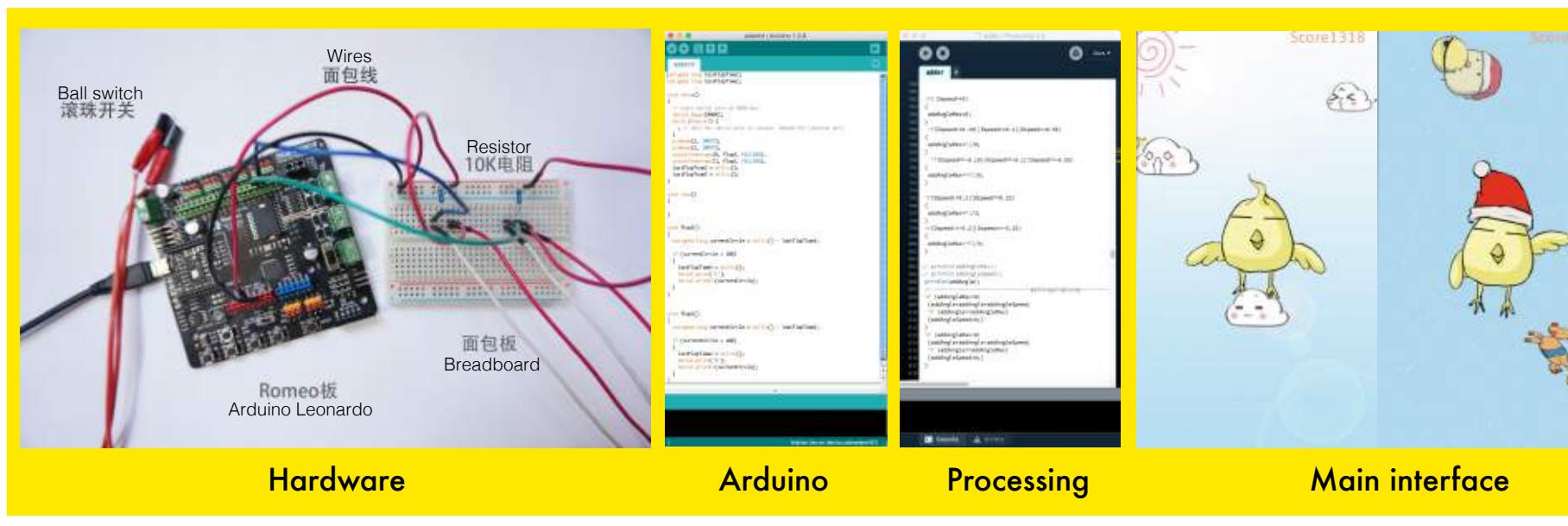
Draw the visual interface and build the whole game.



Connection



Mechanism



Hardware

Arduino

Processing

Main interface

