

*PORTFOLIO of*

# YUANYUAN HU

August 10, 1996

*Bachelor of engineering in Industrial design,  
Tongji University, Shanghai.*

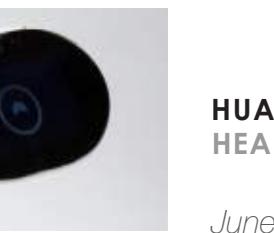
*Majoring in Industrial design, with passion and  
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→ *Online portfolio: <https://huyuanyuan96.github.io/>*

# CONTENTS

**1**

*Page-2*

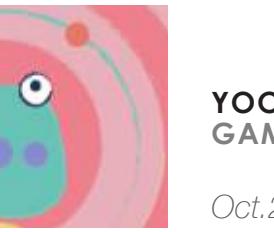


**HUA XIAO TUO**  
**HEALTH CARE ROBOT**

*June.2017-Aug.2017*

**2**

*Page-7*



**YOOTOPIA**  
**GAME/APP**

*Oct.2017-Nov.2017*

**3**

*Page-11*

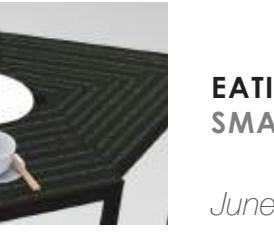


**FIRST-AID**  
**WEARABLE DEVICE**

*Sept.2017-Oct.2017*

**4**

*Page-14*



**EATING FLOW**  
**SMART PRODUCT**

*June.2017*

**5**

*Page-17*



**WASA BEAN**  
**APP FOR LEARNING**

*Nov.2017-Dec.2017*

**6**

*Page-20*



**3/6 STOOL**  
**DETACHABLE FURNITURE**

*Dec.2015-Jan.2016*

**7**

*Page-21*



**ADA BIRD**  
**KINETIC GAME**

*Jan.2015*



**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

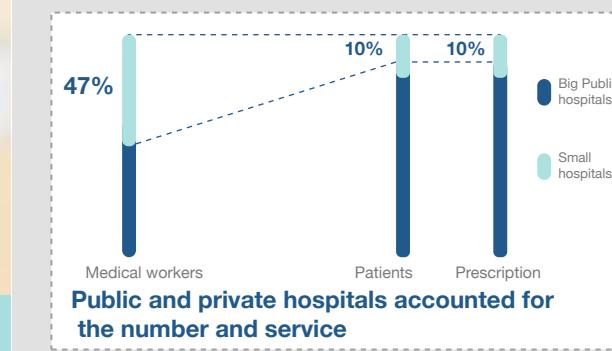
## HUA XIAO TUO

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.

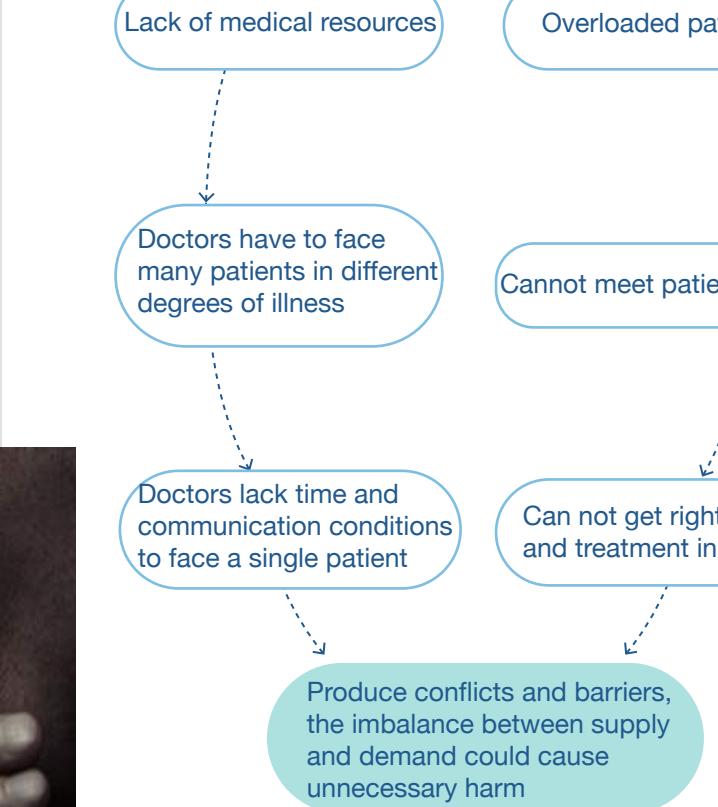
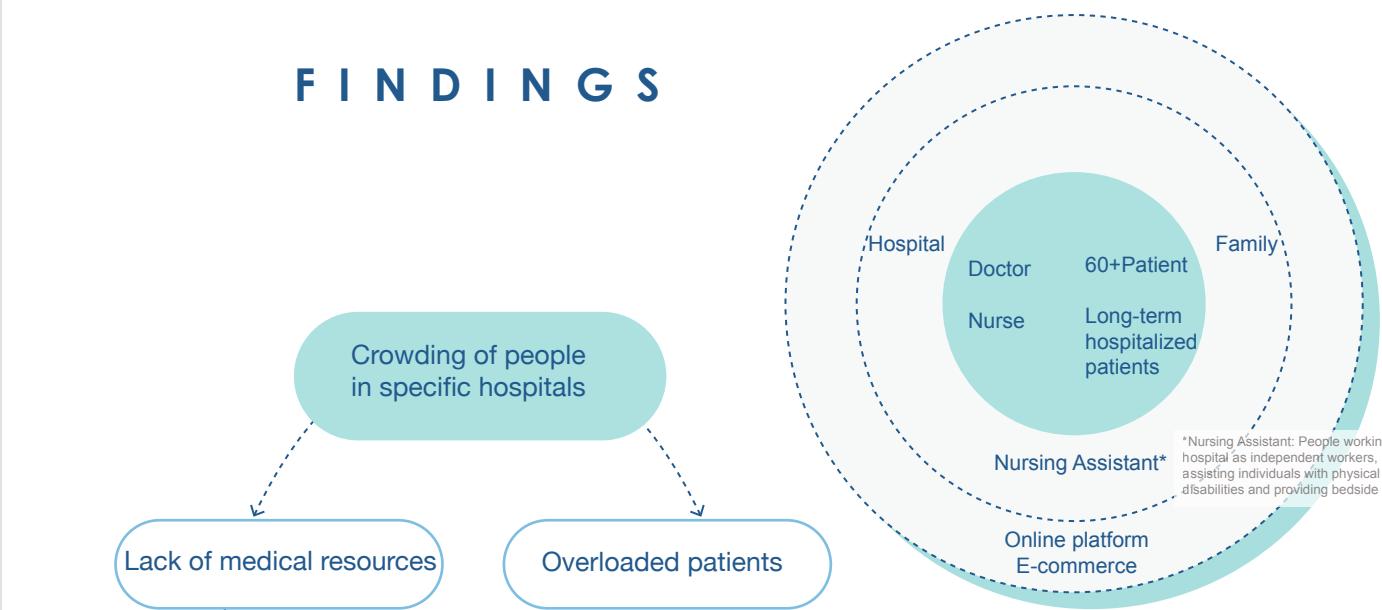


China has started to enter an aging population. The growth of the elderly population is leading to a substantial increase in the demand for medical resources

## RESEARCH



## FINDINGS



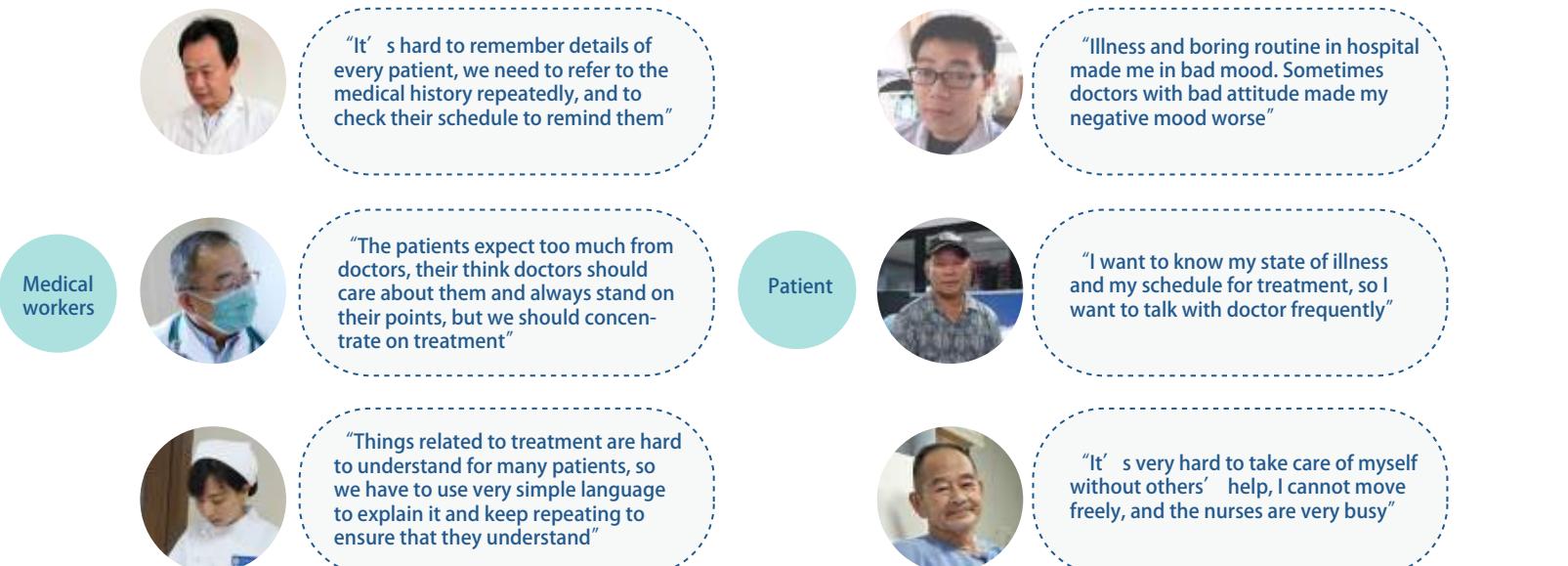
Medical resources are limited in hospital and the medical level is not balanced. It causes the issue that patients' medical difficulties can not be effectively solved.

## INTERVIEW & OBSERVATION

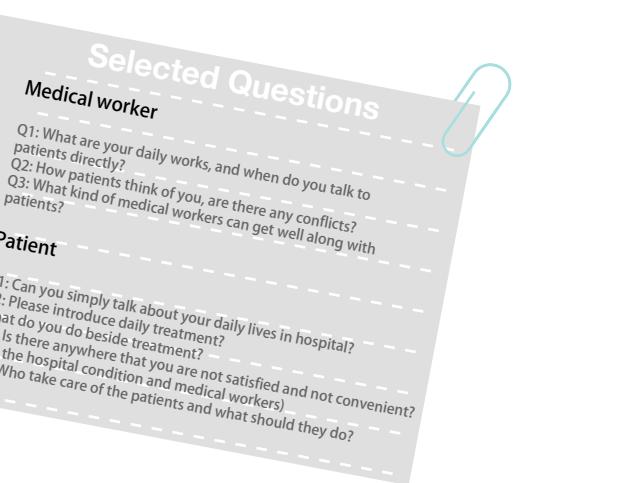


We came to Xinhua Hospital and observed the general situation in hospital and the living condition of the patients. Meanwhile, we visited 15 people, having deep conversation with them. We got aware of people's daily life during hospital stay, the demands of people in different positions and the estrangement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

### Selected Quotations



## PROBLEM ANALYSIS



### Emotional Psychological needs

- Psychological counseling
- Psychological comfort
- Expressing

### Inner needs of patients

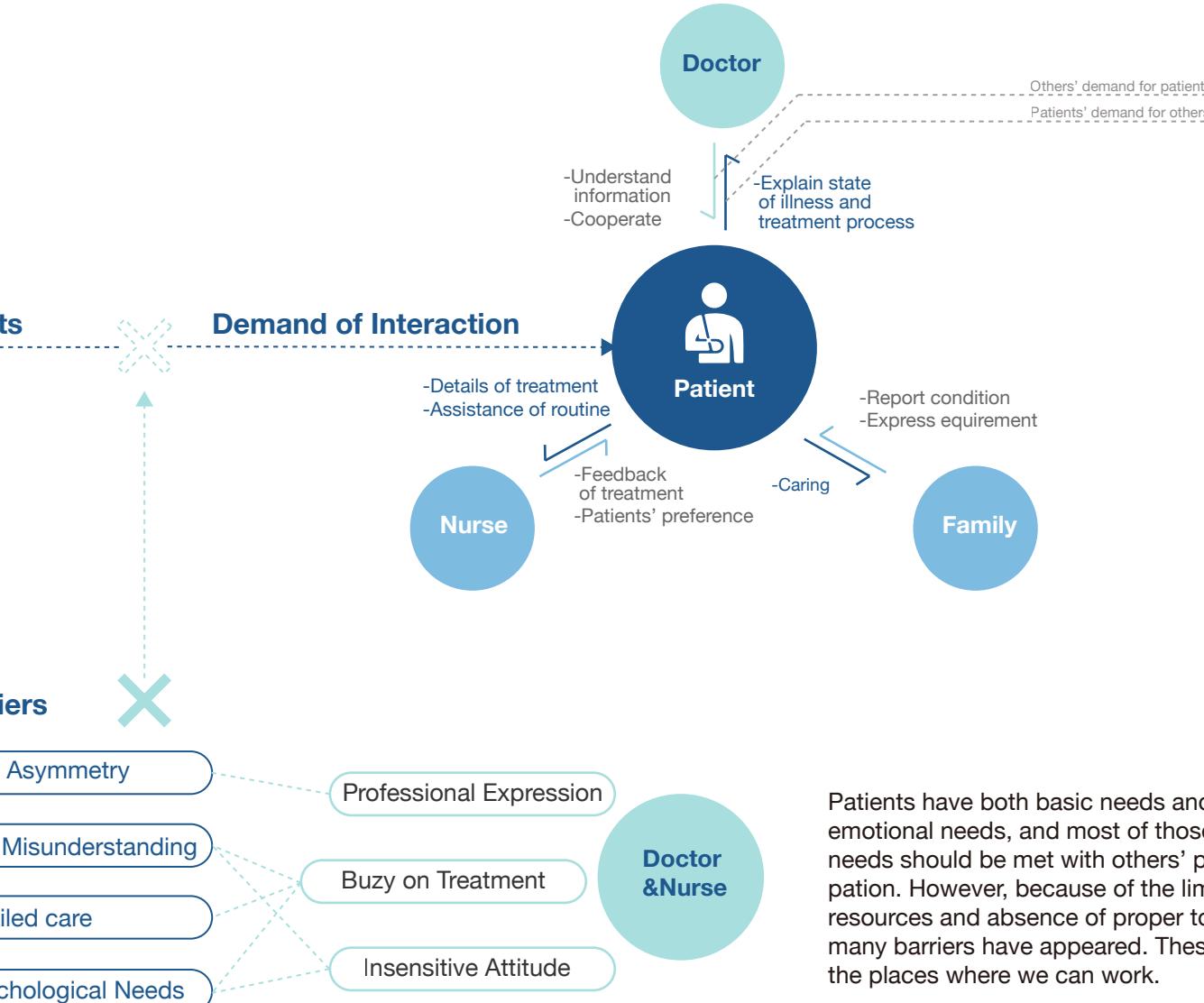
### Behavioral Accompany and Assistance

- Daily routine
- Routine inspection
- Recovery treatment



### Barriers

- No Medical Knowledge
- Information Asymmetry
- Suspicion
- Communication Misunderstanding
- Complicated Treatment
- No detailed care
- More Care
- Neglected Psychological Needs
- Professional Expression
- Buzy on Treatment
- Insensitive Attitude



Patients have both basic needs and emotional needs, and most of those needs should be met with others' participation. However, because of the limited resources and absence of proper tools, many barriers have appeared. These are the places where we can work.

## 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



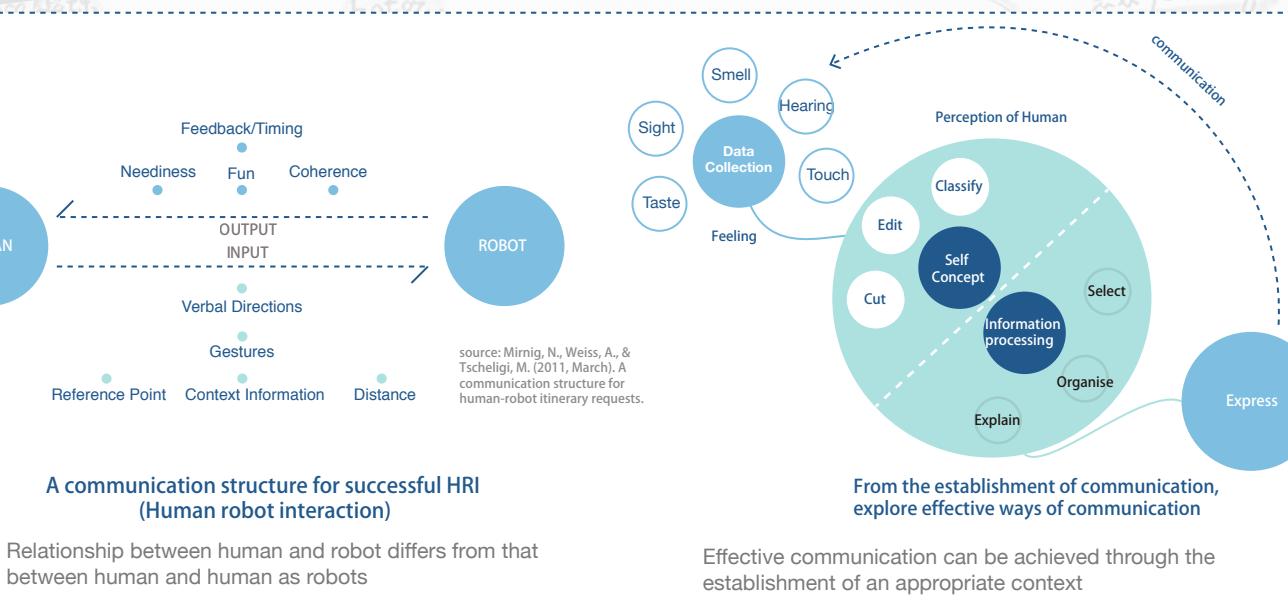
## INTRODUCING OF ROBOT

### Three strength of Robot

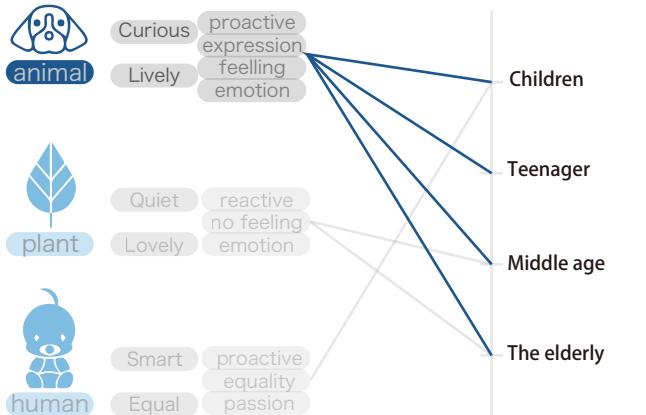
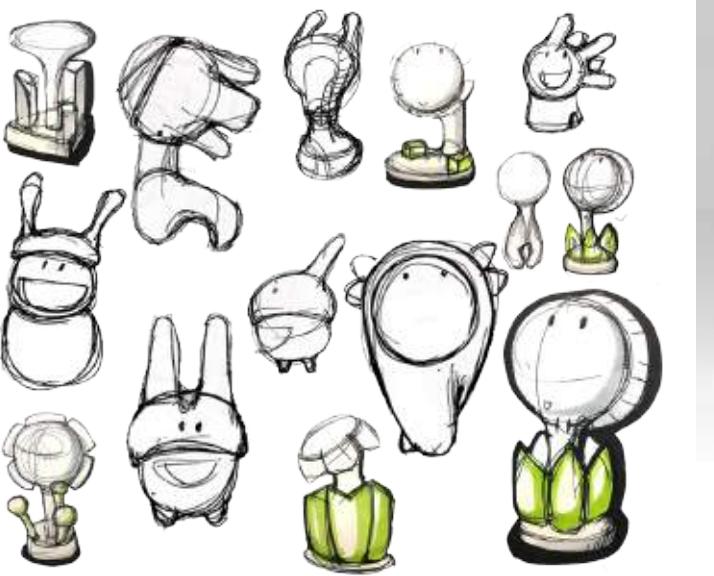
1/ Robot is directly connected with online data, so it can bridge the infomation gap.

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

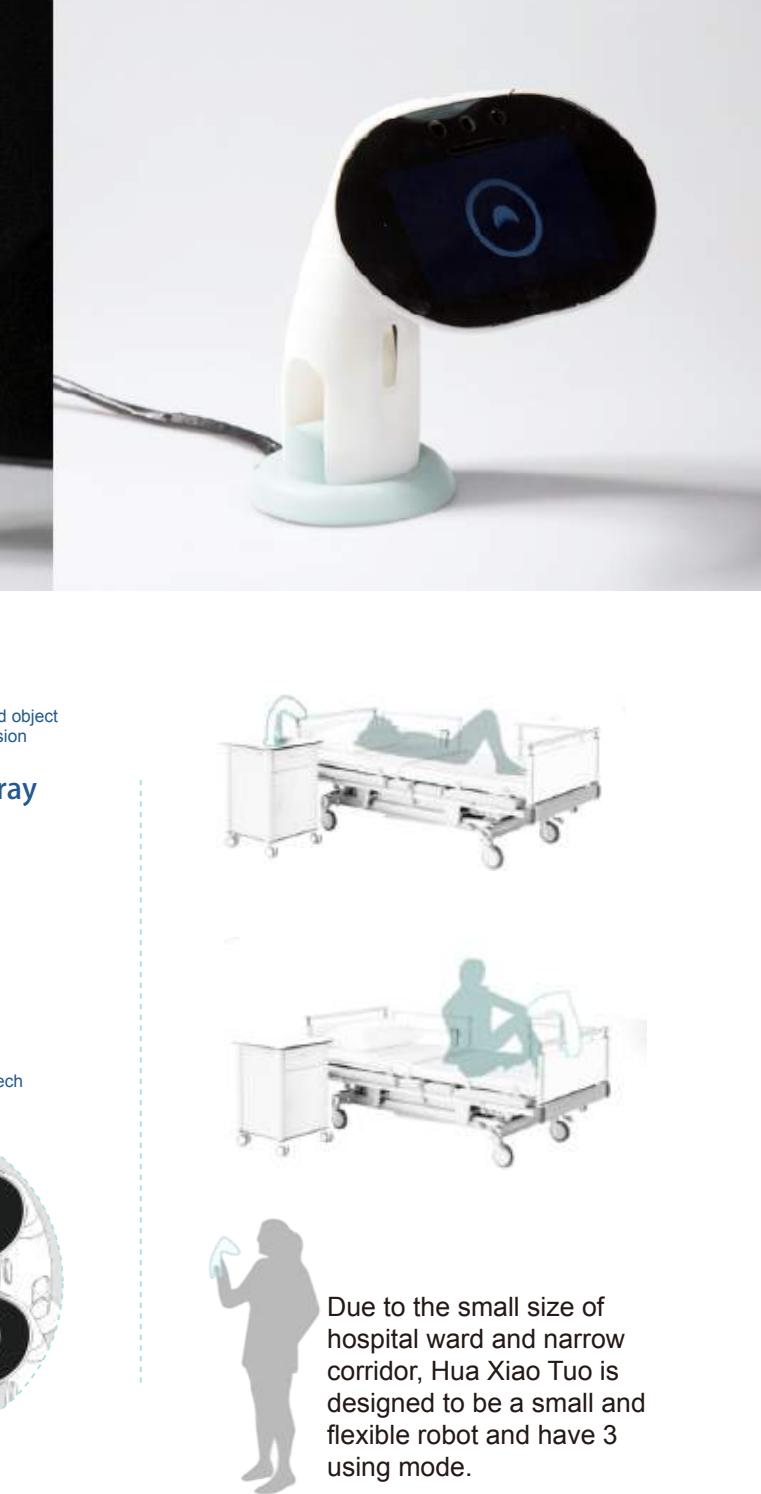
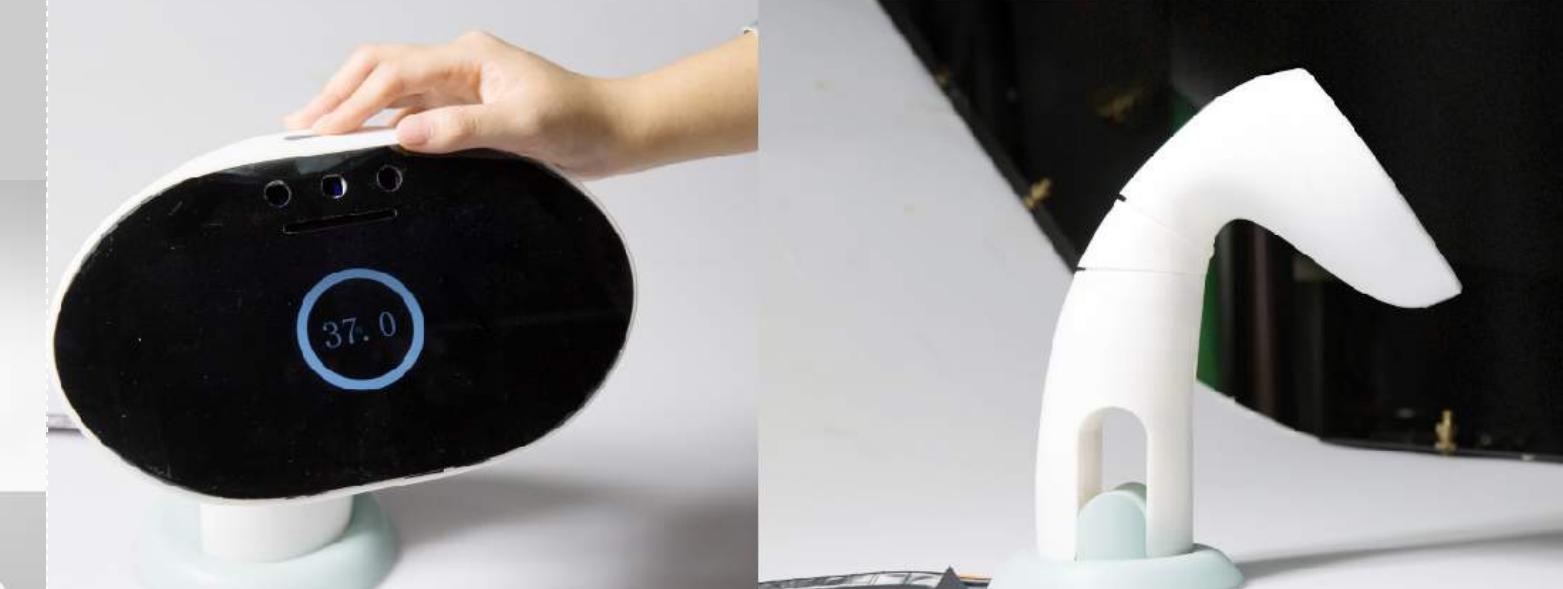
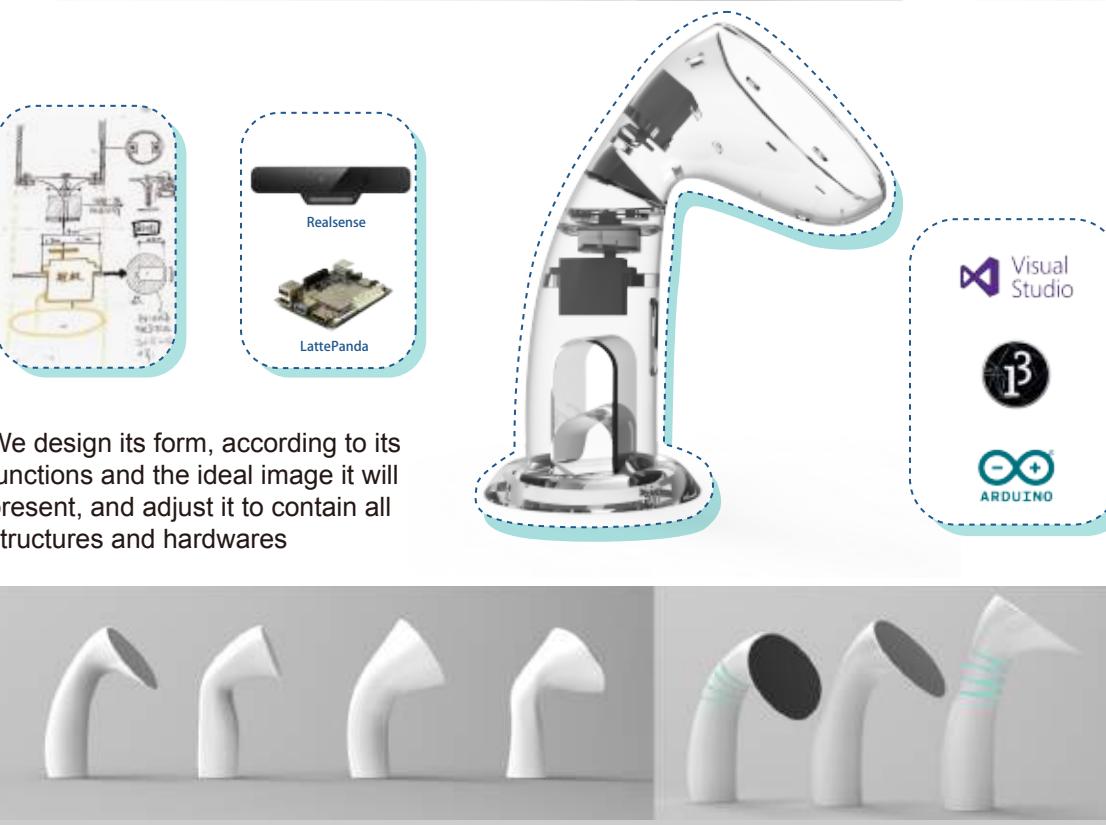
3/ Robot have a natural interaction with human, so it can support emotional fuction.



## FORM

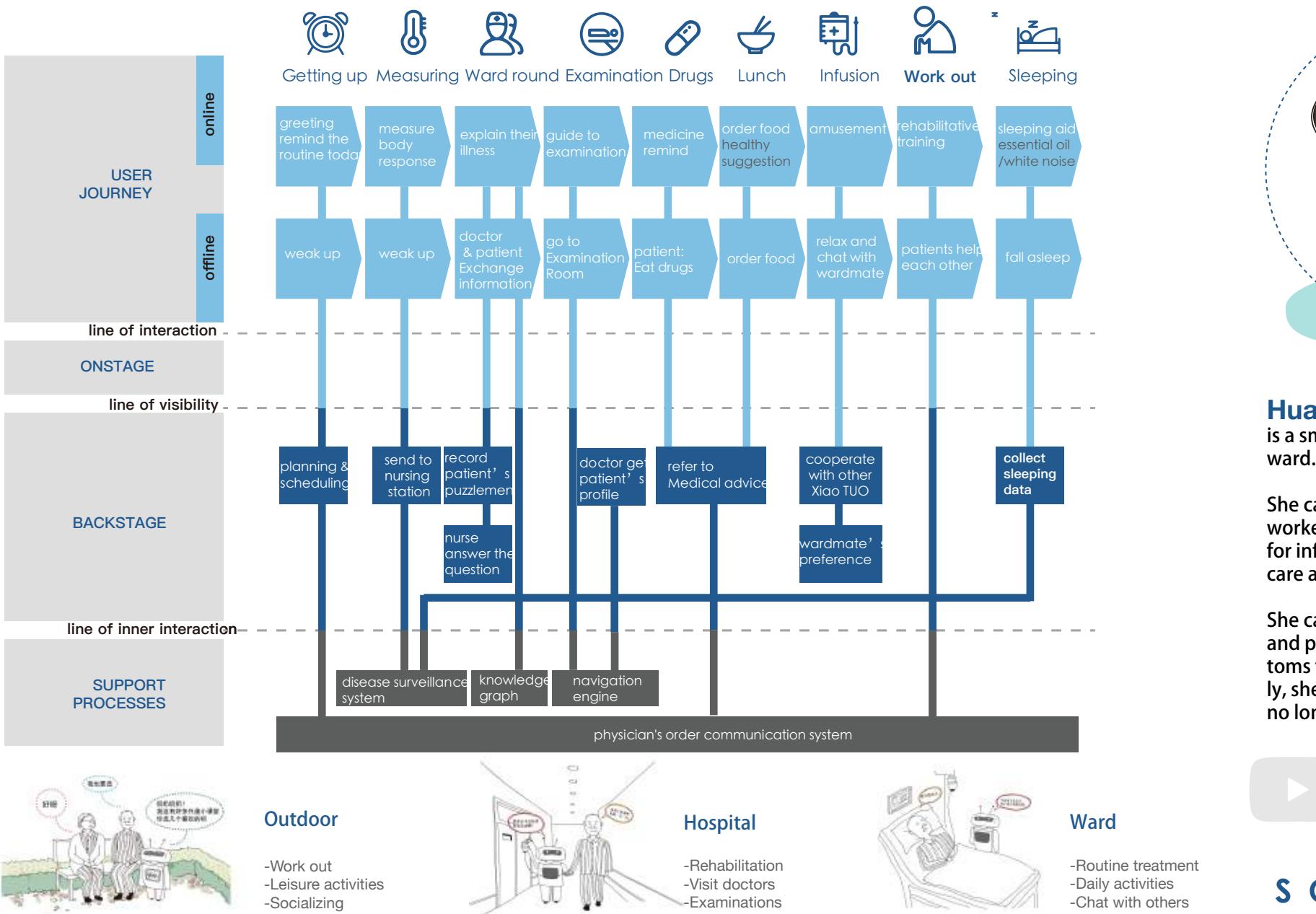


The role of the robot like the pet of users. So users feel comfortable when interacting with it.

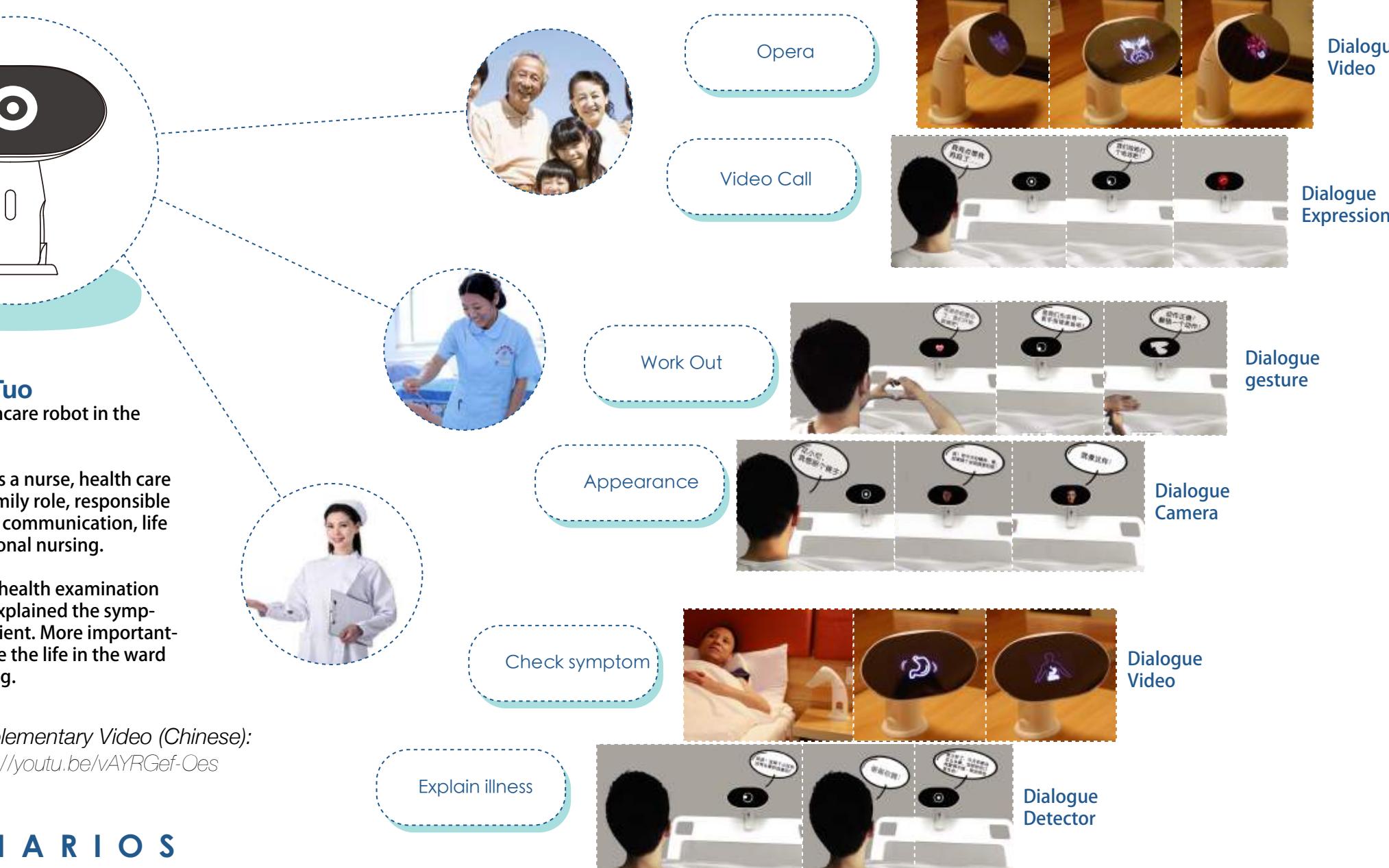


## FINAL WORKS

## 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.



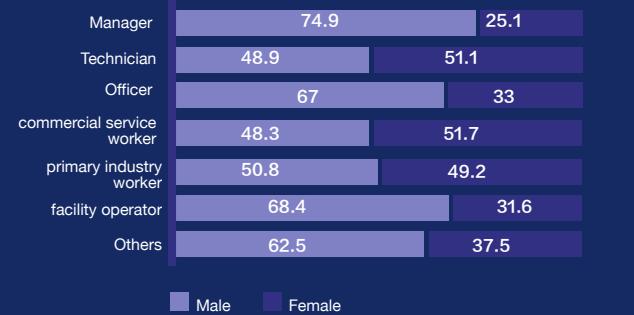
Not aggressive  
Dependent  
Submissive  
Passive  
Indecisive  
Emotional  
Kind



## Traditional stereotypes

Aggressive  
Independent  
Dominant  
Active  
Decisive  
Logical  
Cruel

## BACKGROUND



### WHAT

#### 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.

### HOW

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



#### Development of gender stereotype

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

- Cultural gender norms.
  - Hate cross-gender
  - Dating potential
- 11-13**

### AGE

### 7-10

### AGE

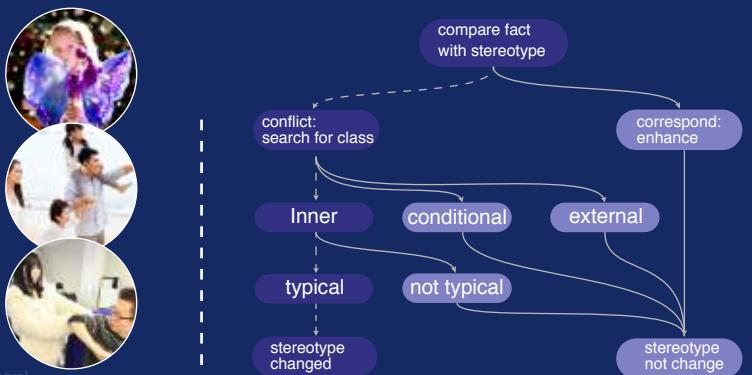
### 2-6

### AGE



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:

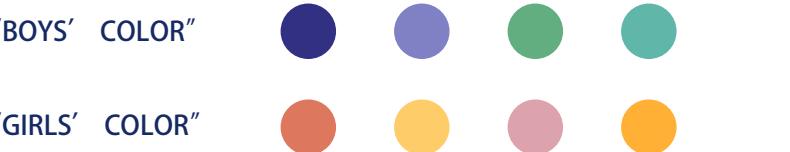
Toys -- Cultivate gender traits



Stories -- Build concrete gender image



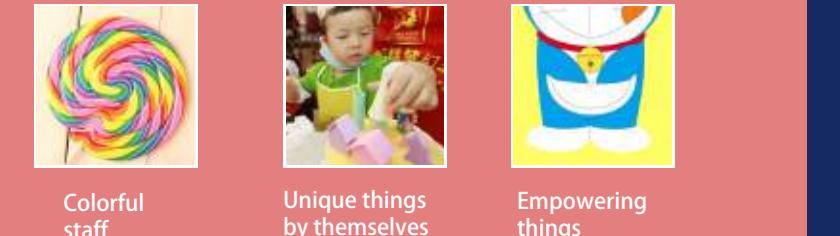
Color -- Add gender label to everything



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



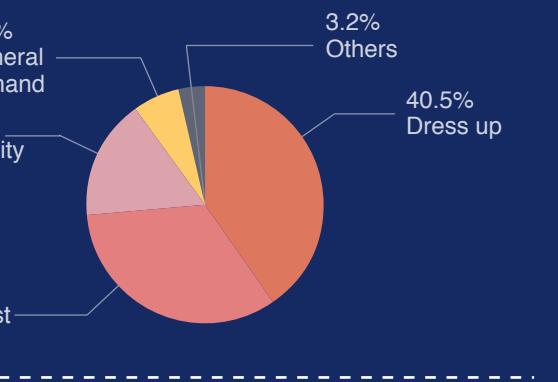
WHAT ATTRACTS KIDS



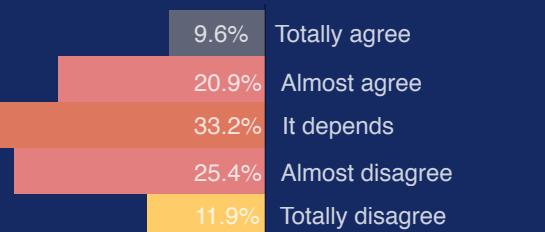
Magic Curious      Special Playful      Fresh Fellow Show off

CHILDREN'S KEYWORDS

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."

PARENTS' KEYWORDS

Supervise Ability Useful  
Communication Acceptance Protect

## 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.



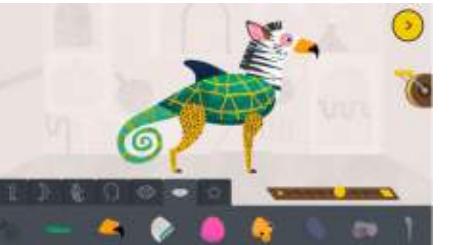
Toys and clothes are always classified as boys' style or girls' style. When people use those products they are labeled by gender elements attached to those stuff.



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.

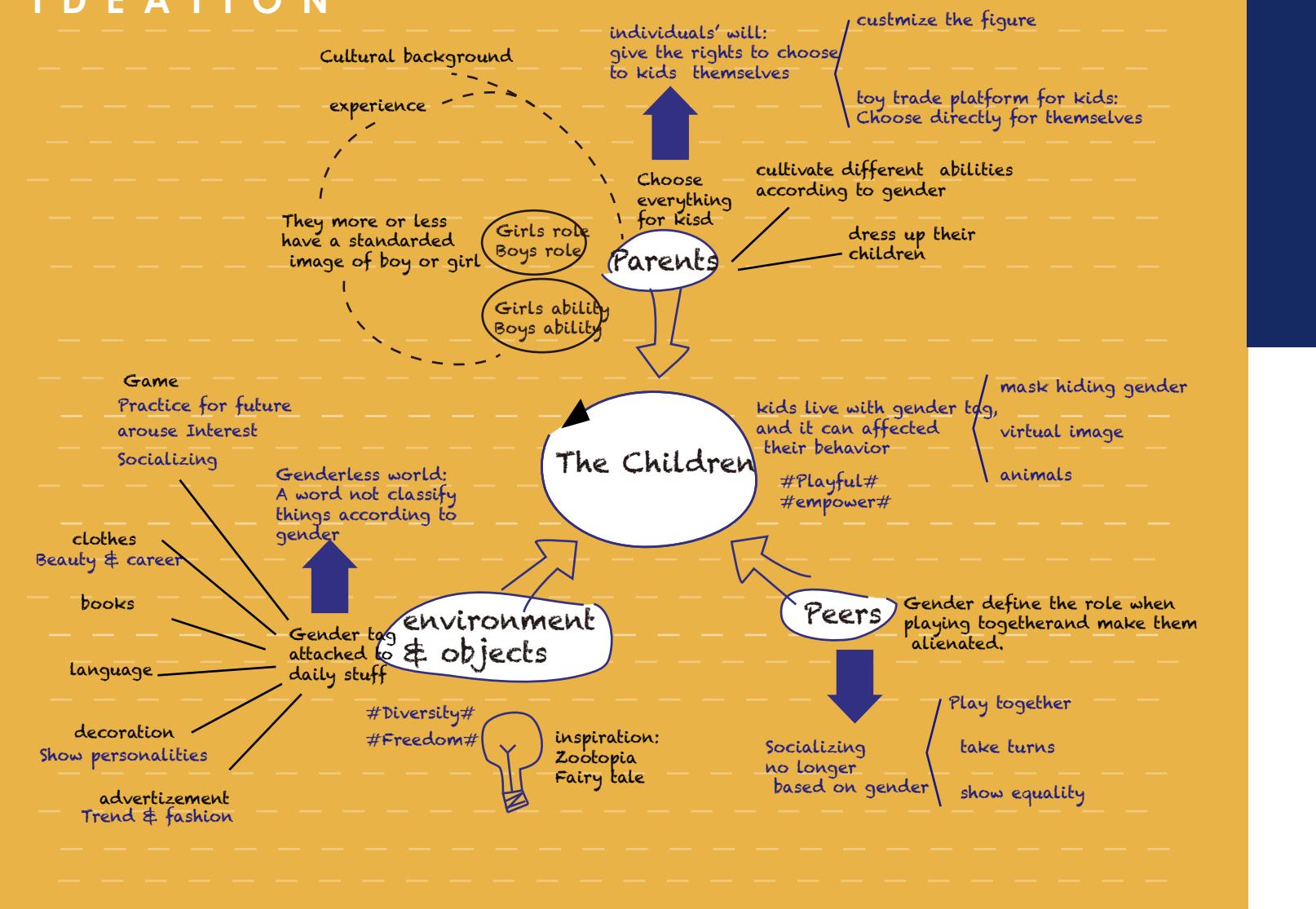


The doll is designed for boys. It introduce the elements that attract boys like batman, so boys can also develop the "girly" personalities.

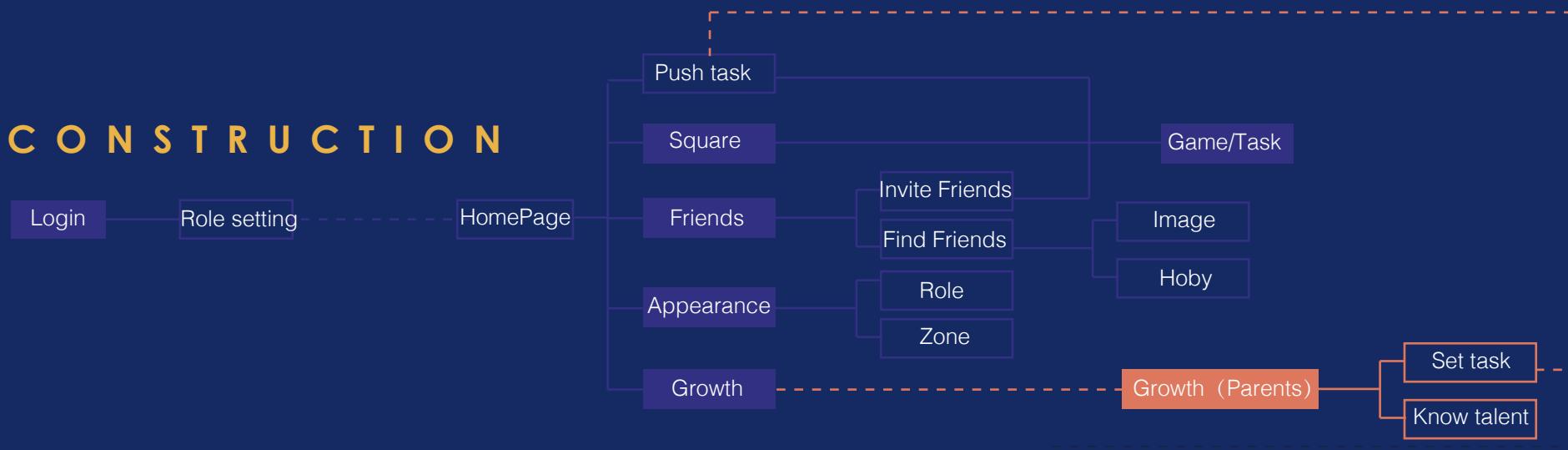
**Limitation:** It use concrete image that may limit children's expectation.



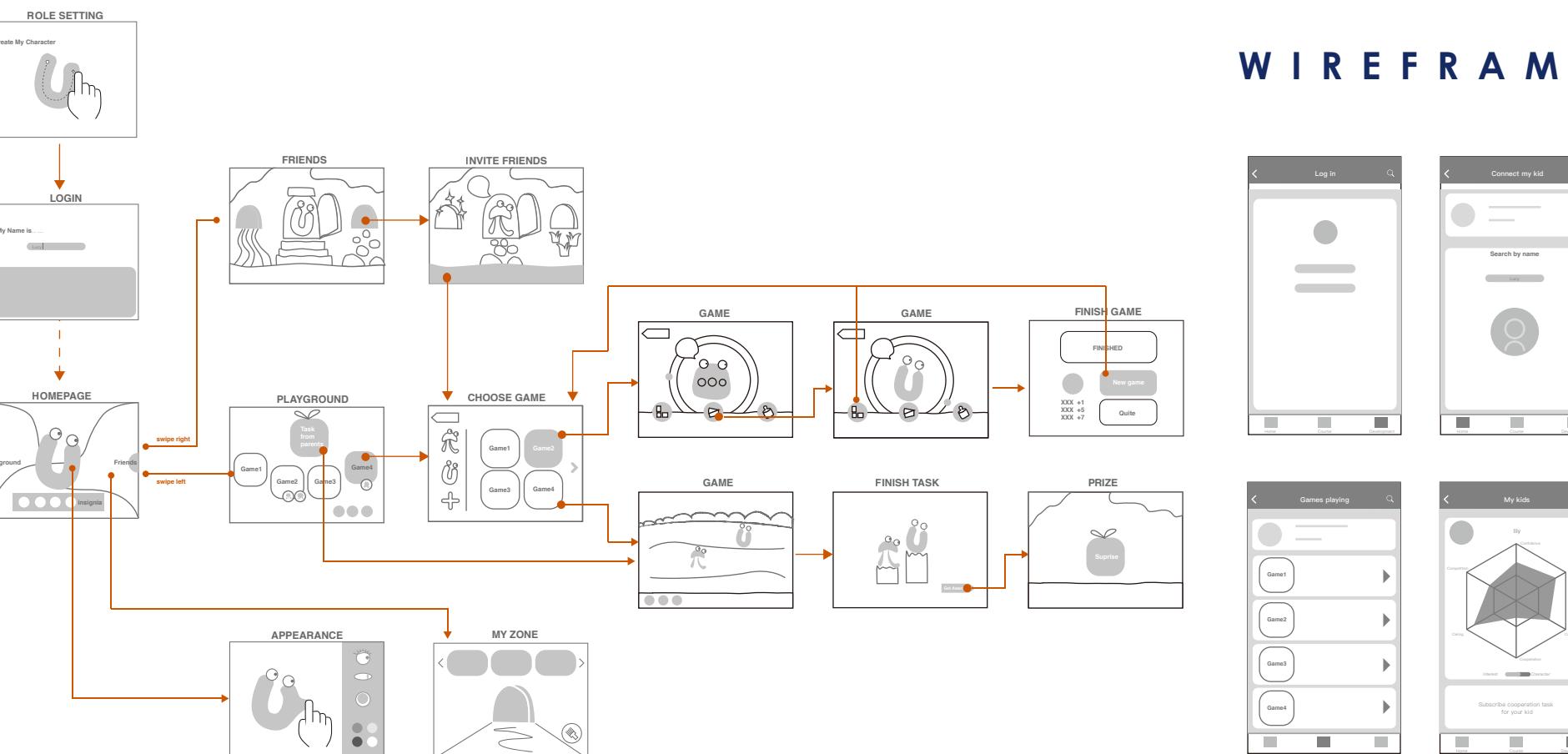
## IDEATION



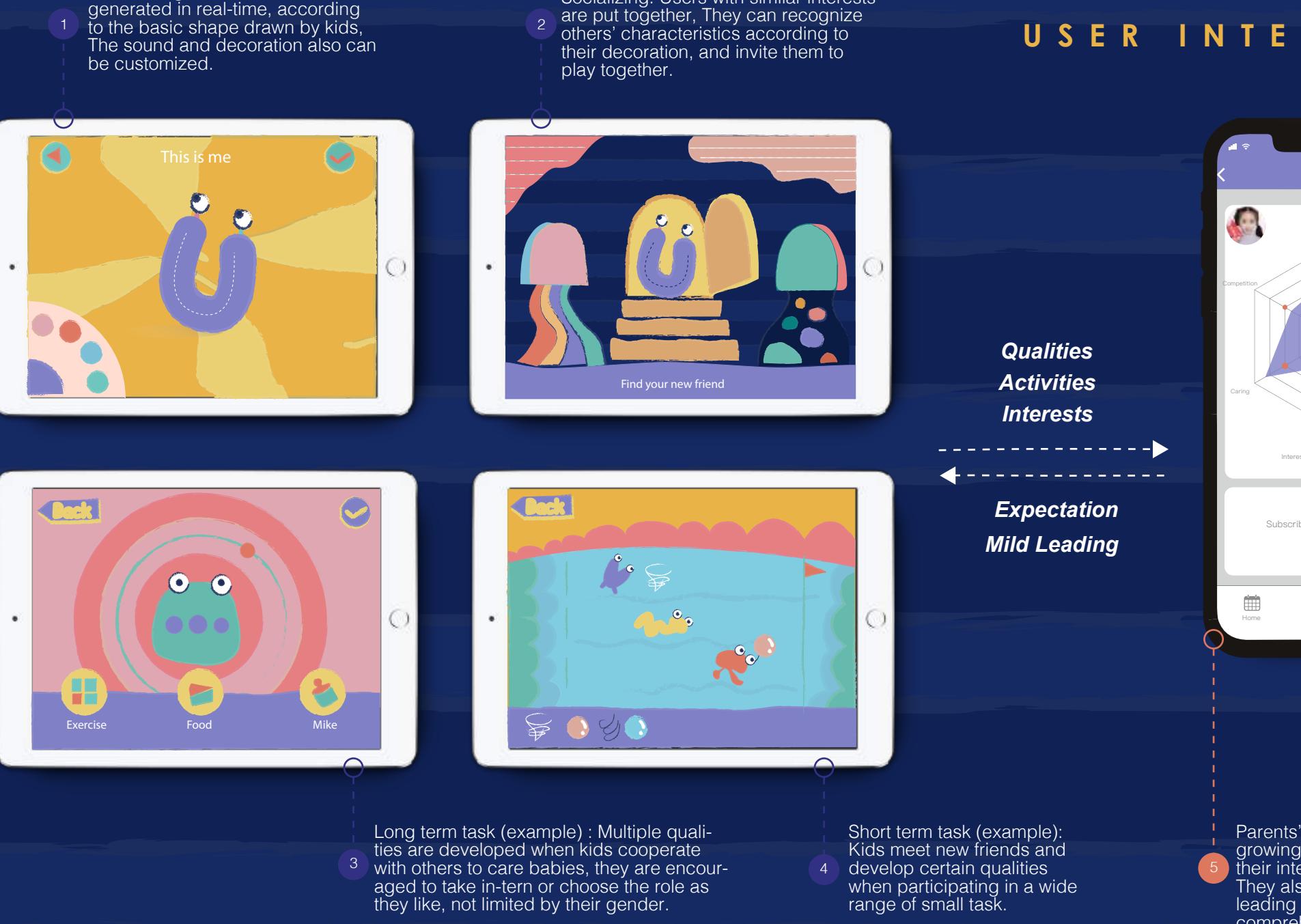
## CONSTRUCTION



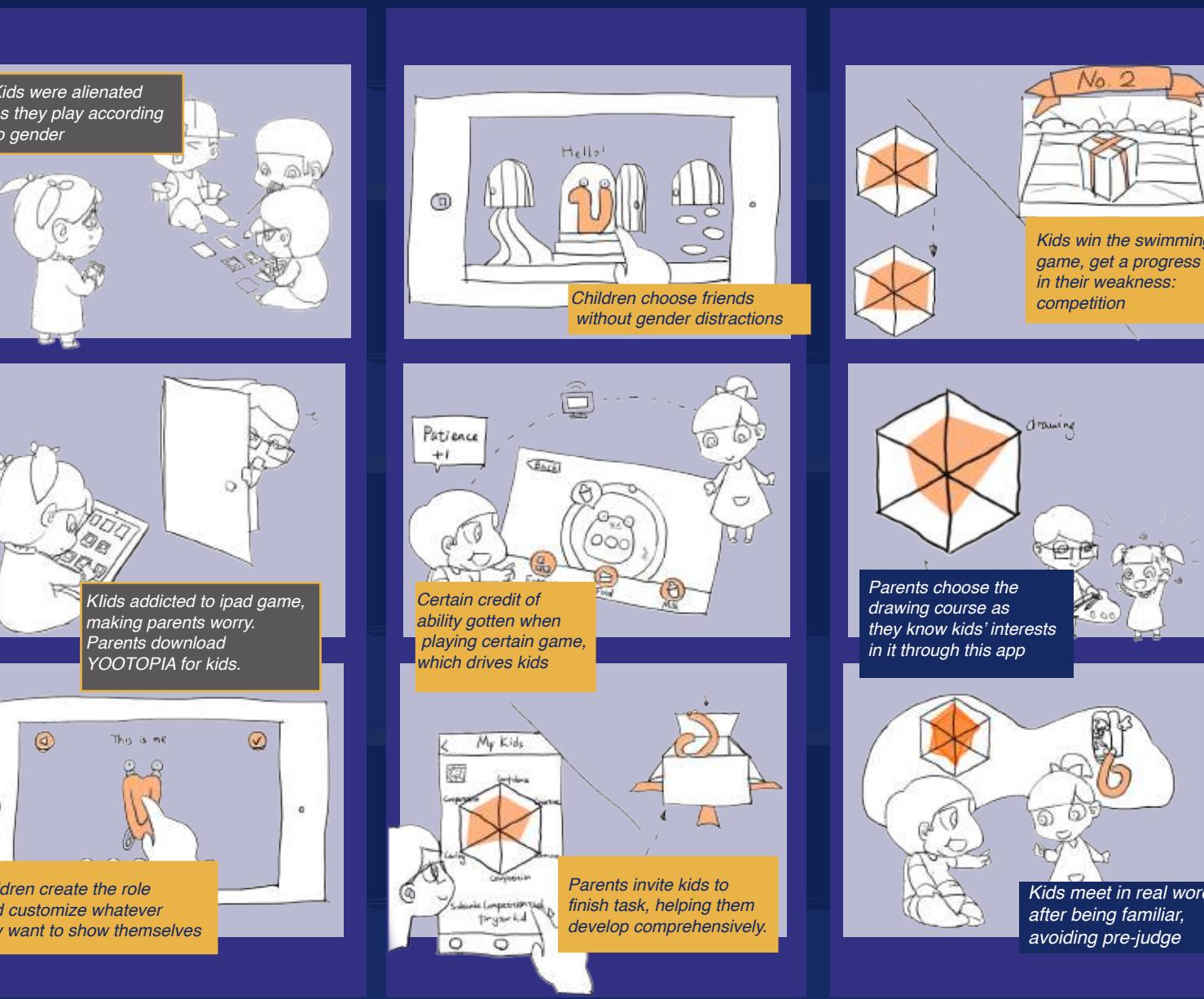
## WIRE FRAME



## USER INTERFACE



## STORY BOARD





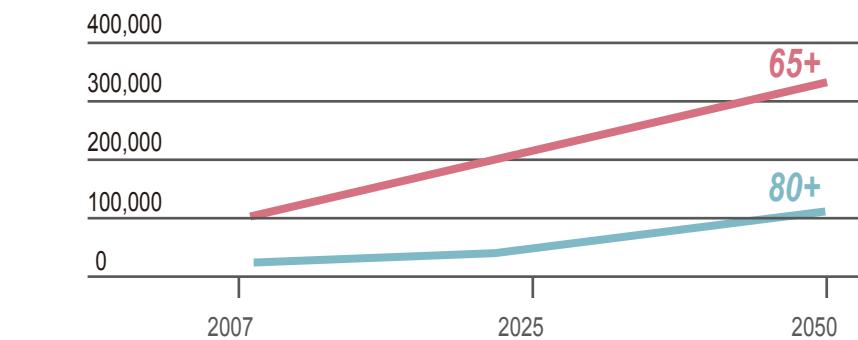
## DESIGN BRIEF

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

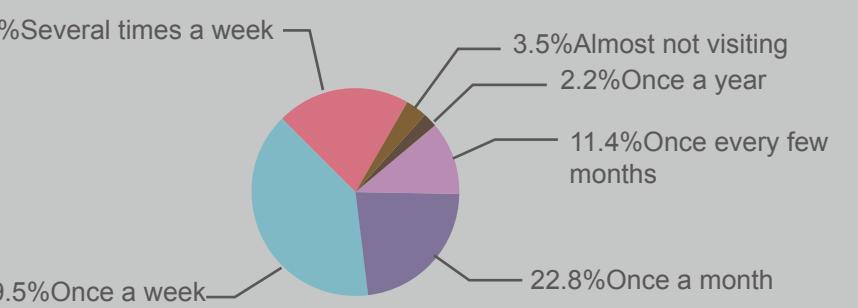
Over the past two decades, China's population has been aging rapidly. As a result of China's "one-child" policy and low mortality, the proportion of elderly citizens will continue to grow very quickly, increasing the stress on an already troubled health care system. Most of them suffer from chronic diseases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



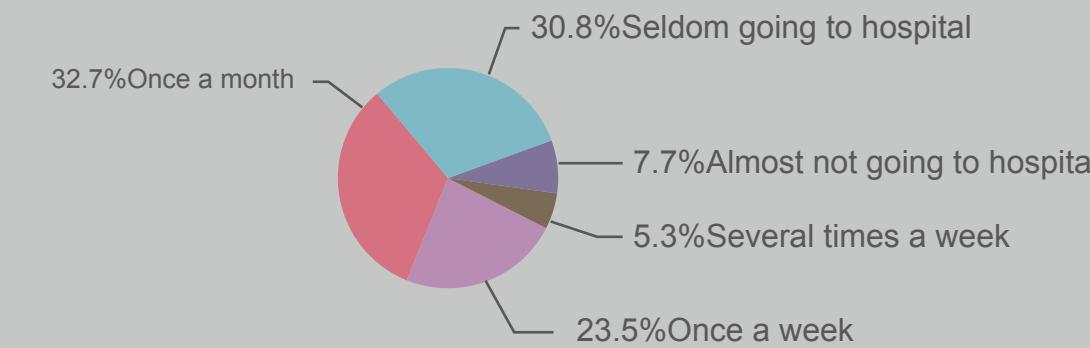
Source: United Nations, World Population Ageing 2007 (New York: UN Dept. of Economic and Social Affairs, Population Division, 2007): 202-203.

## Elder life quality questionnaire

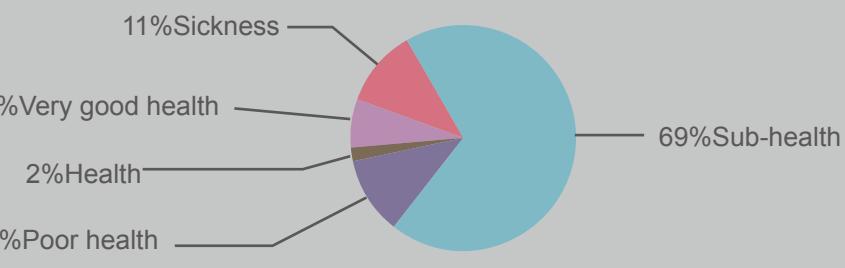
### How often does their family visit them?



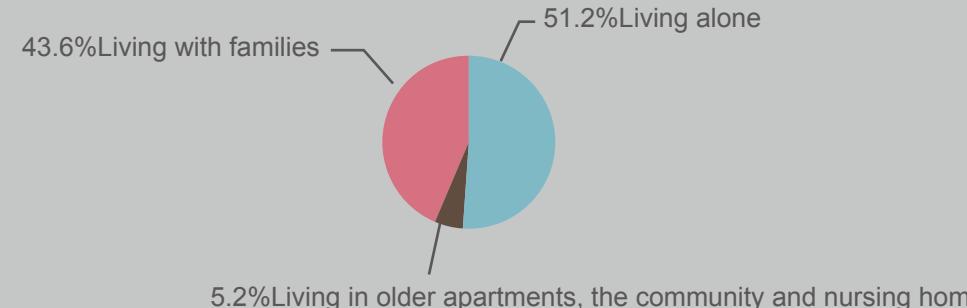
### How often do they go to hospital?



### Health condition



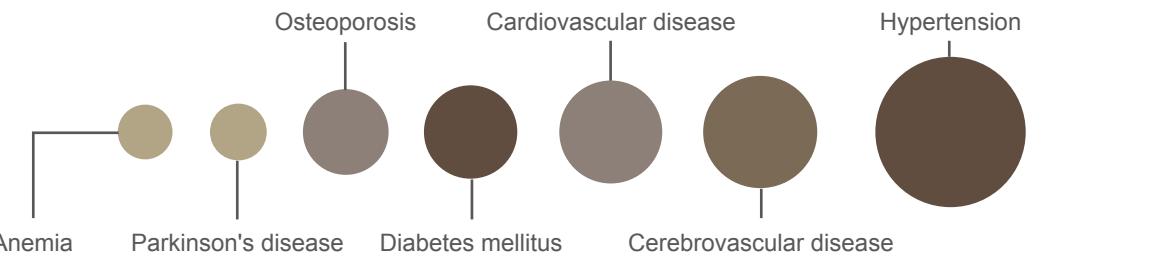
### Living conditions



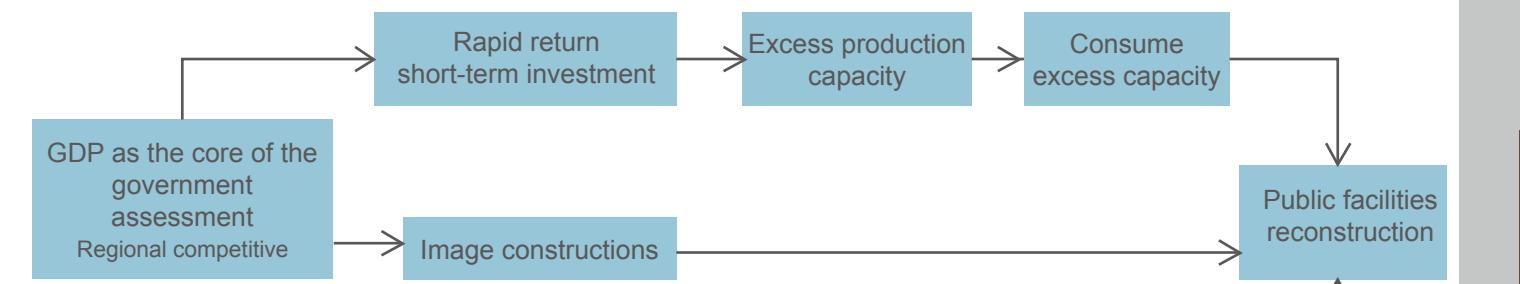
## RESEARCH

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.

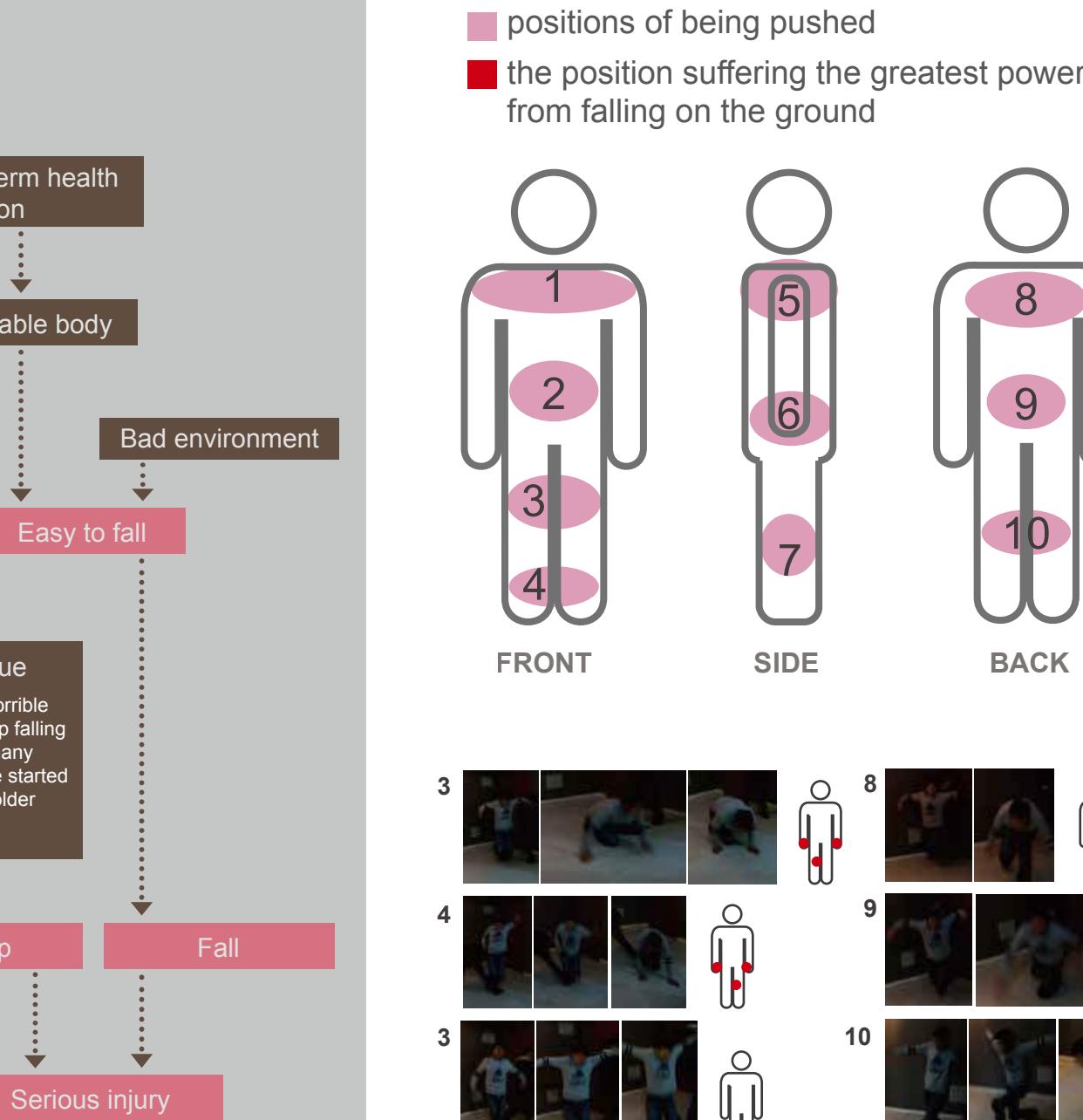
### The news most often caused by a geriatric disease and Circulation system disease



### Reconstruction problem in China

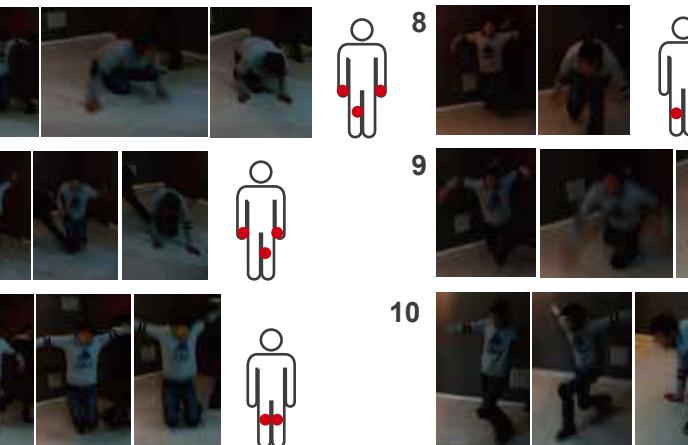
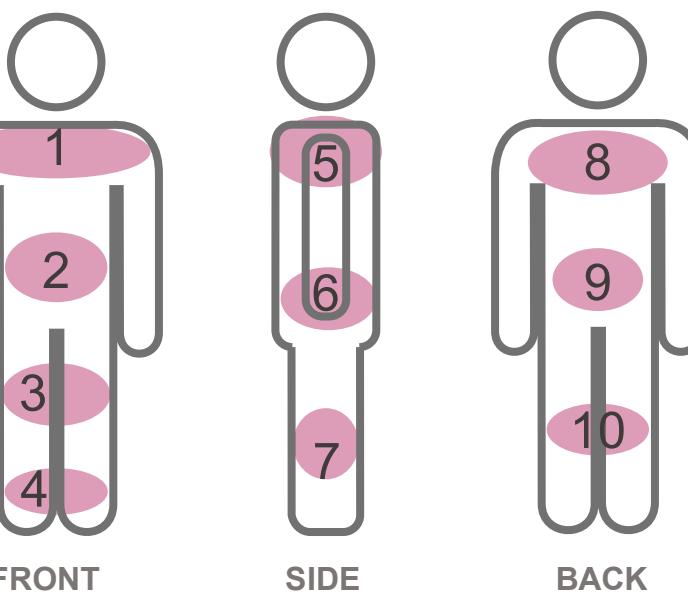


## PROBLEM

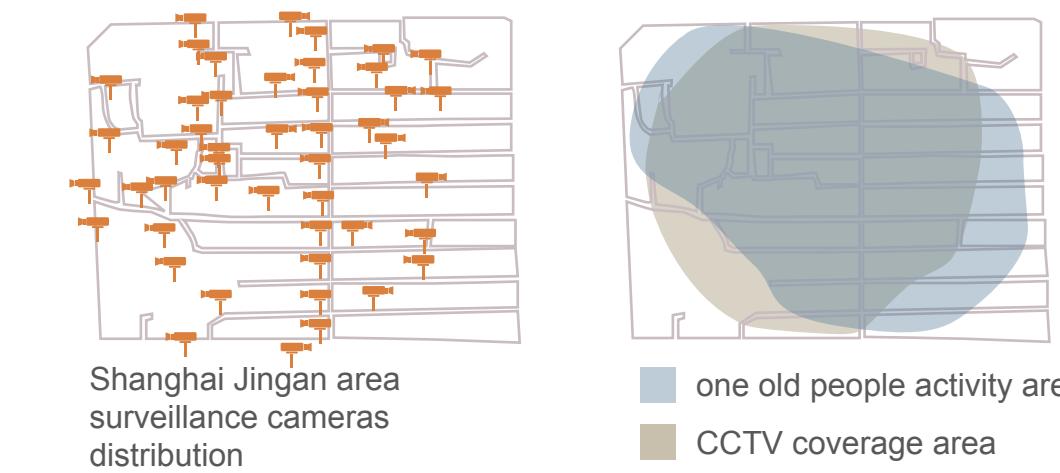


## TUMBLING TESTS

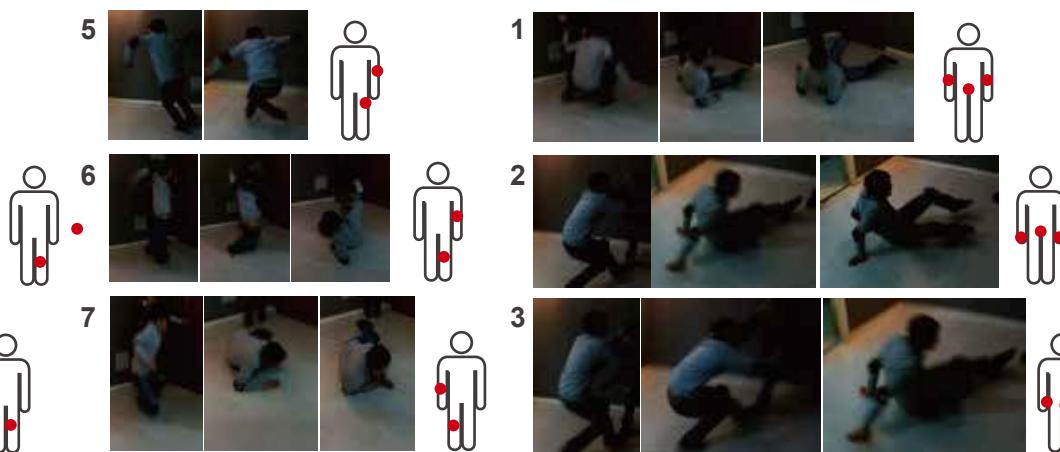
- positions of being pushed
- the position suffering the greatest power from falling on the ground



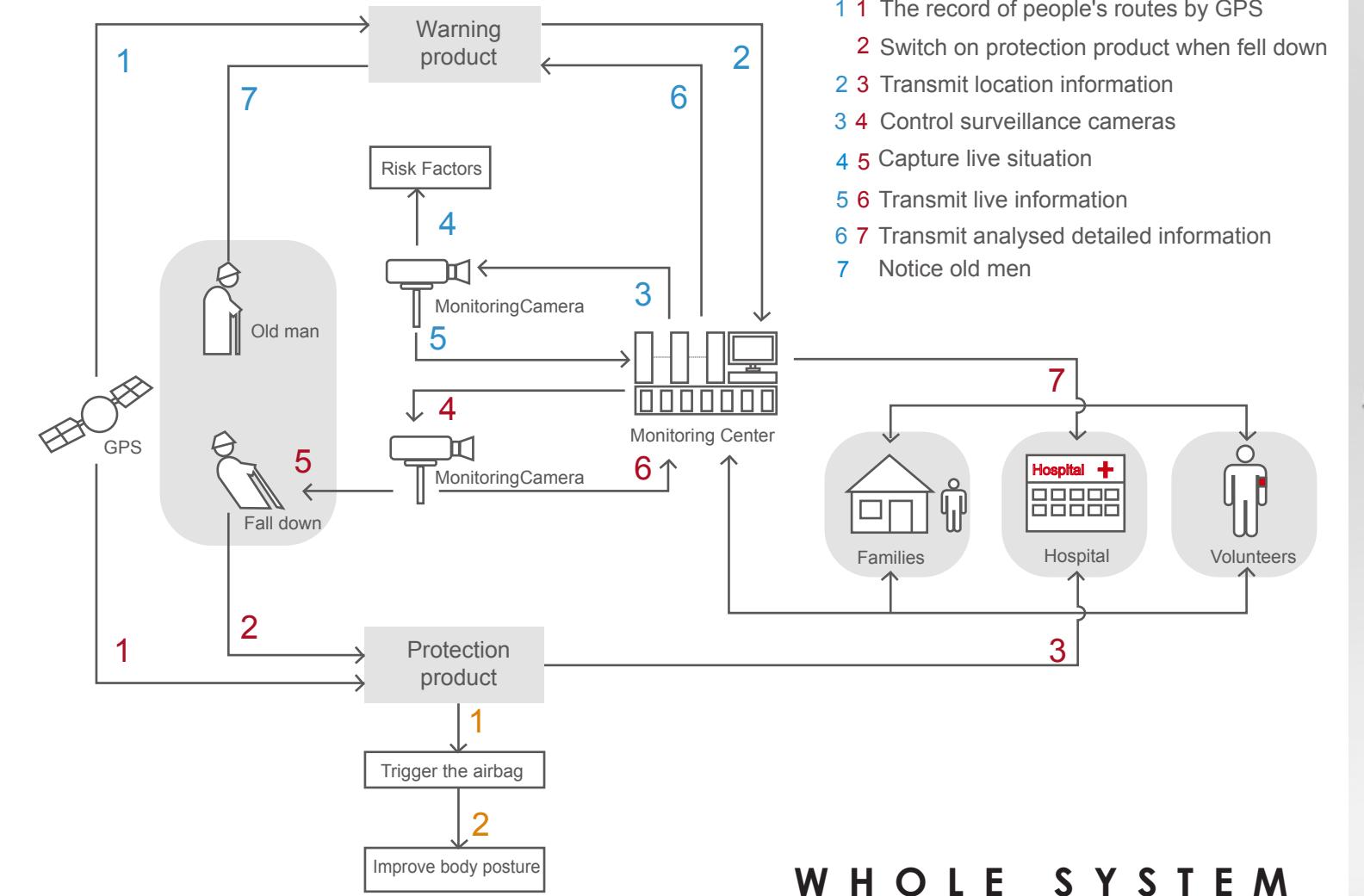
## IDEA



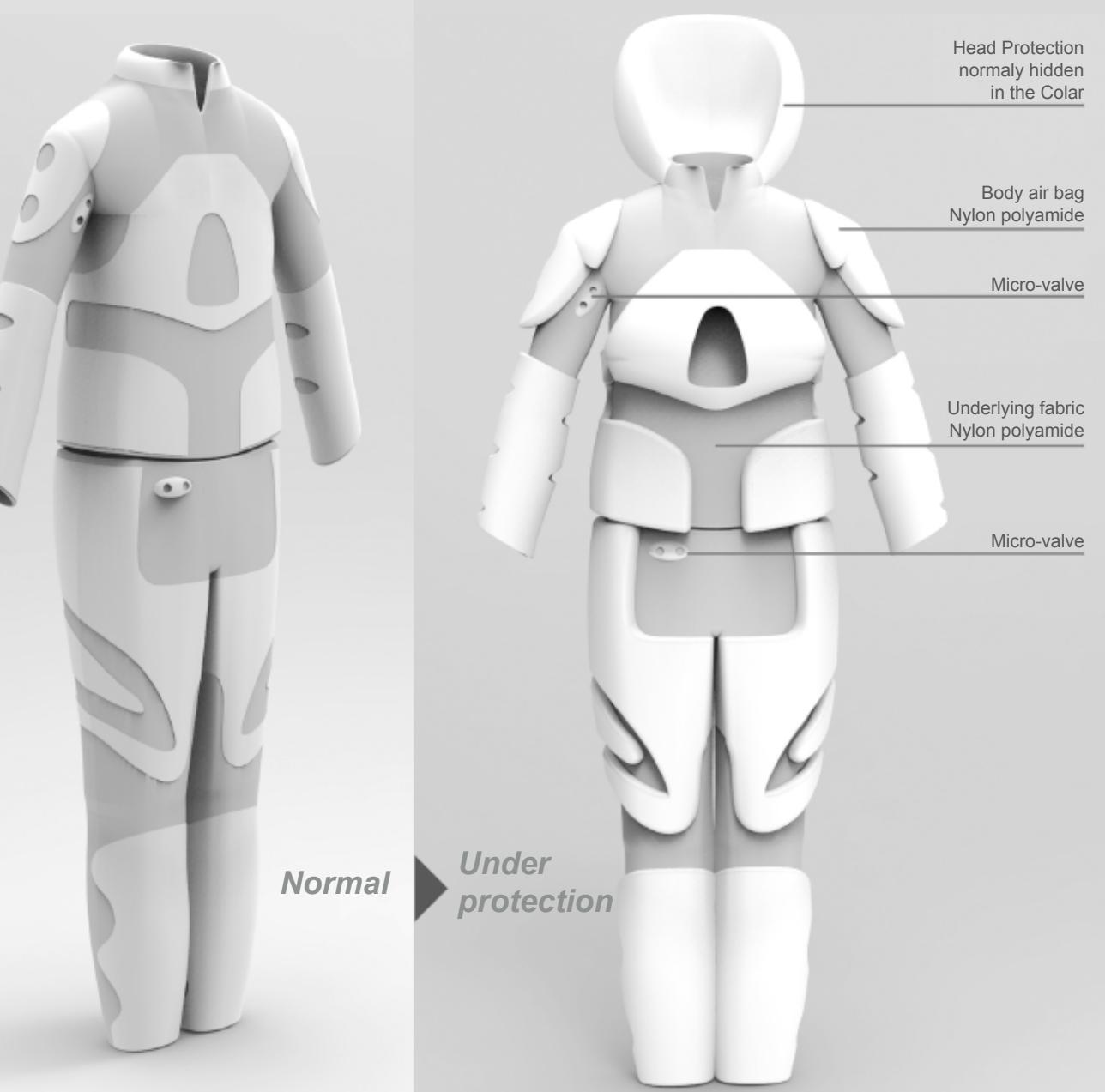
In this topic I would like to explore what changes or even new possibility in the state of exchange between people, behavior and relationships will be brought with the use of public systems and the interaction between people.



## FINAL WORKS



## PROTECTION PRODUCT



## WARNING PRODUCT

- When an emergency occurs, an avigation map is shown.
- When volunteer arrive at the site of the incident, the red light is on.



- When an emergency situation occurs, rescue signal will send, the signal will be sent to the nearest volunteer.
- The signal also can be sent from the nearest volunteer when he/she needs more help from others.



- 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.



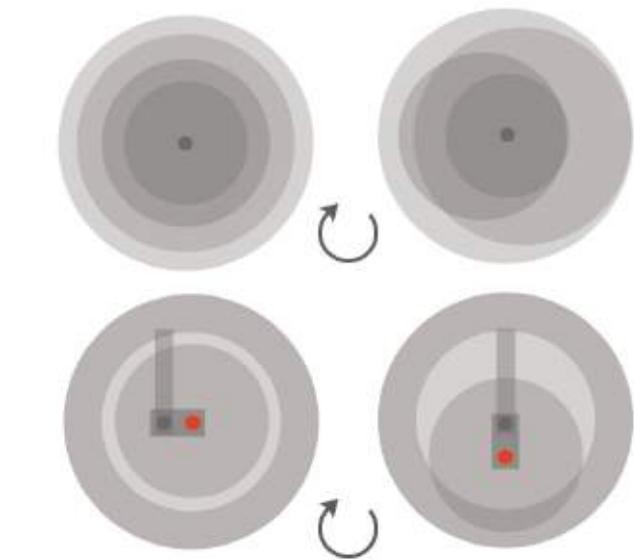
Many people view too much negative impact of the development of technology on our lives, and they think technology and nature are opposite; on the other hand, Kenya Hara in Japan Aichi World Expo put forward technology may not necessarily be opposite to the nature. This theme is to explore the relationship 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



## 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

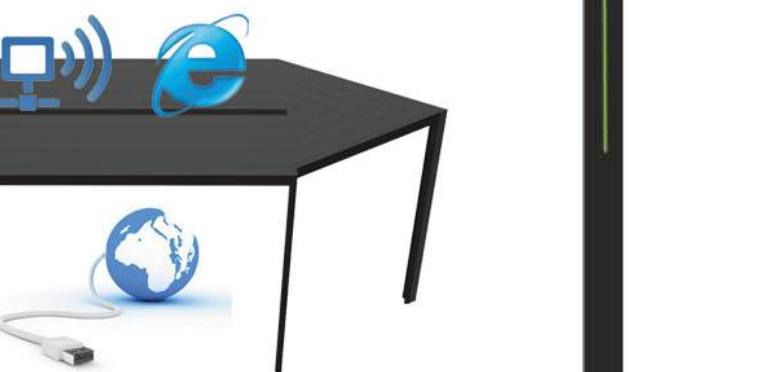
## Table Frame

## Table leg Frame

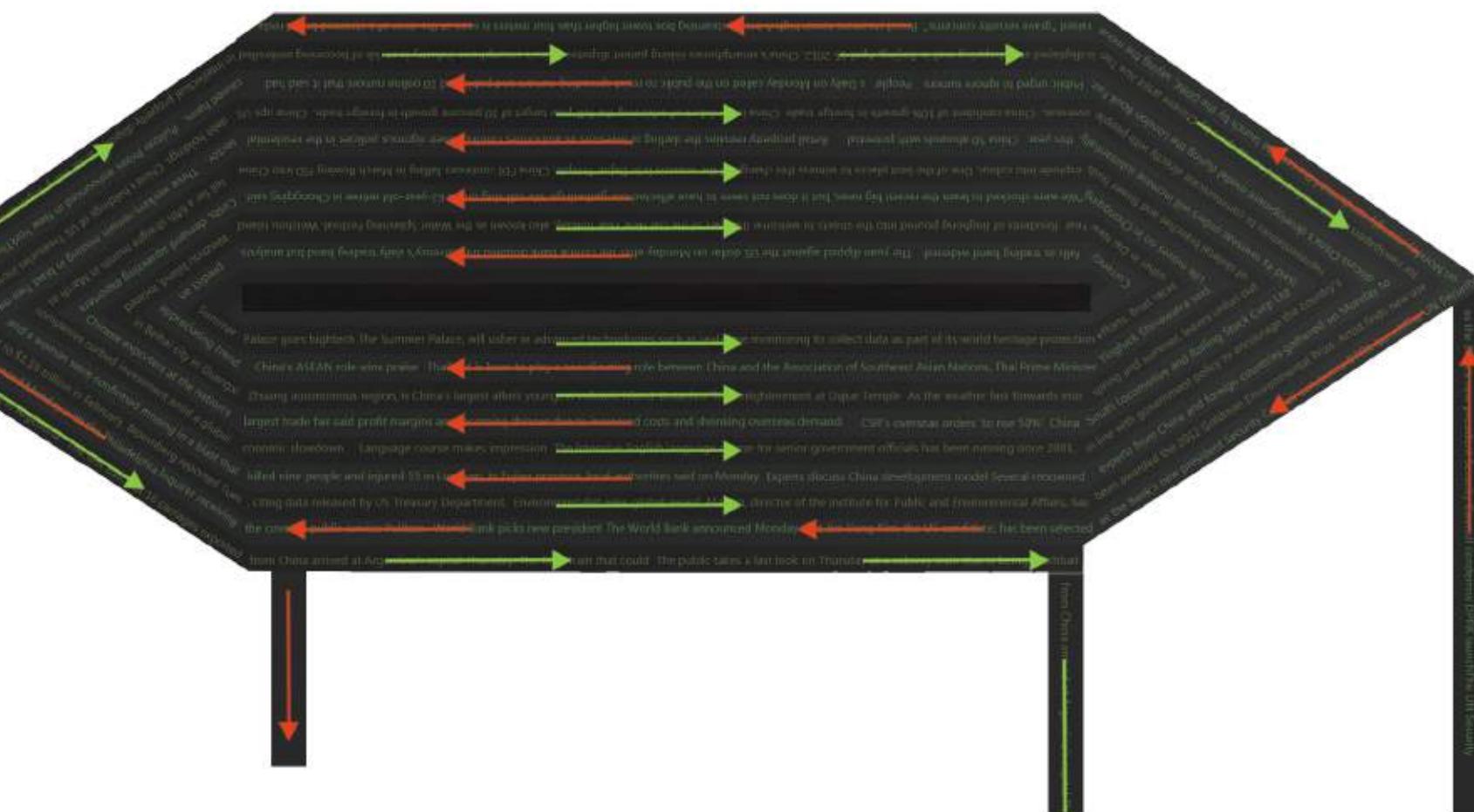
## LED

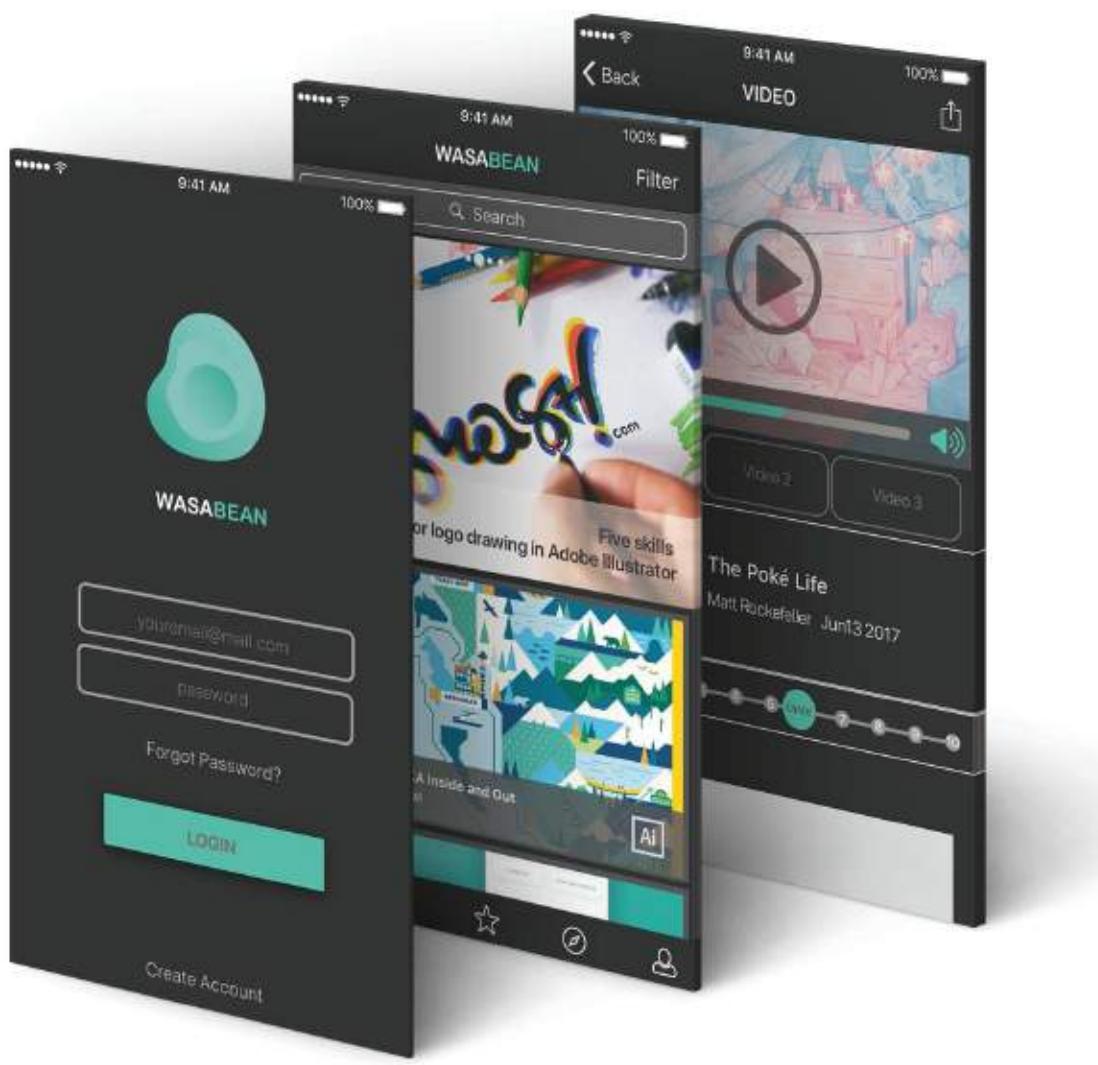
Displays the latest news, collected from Internet on real time.

## Glass



## THE WAY TEXT FLOWS





# Wasa Bean

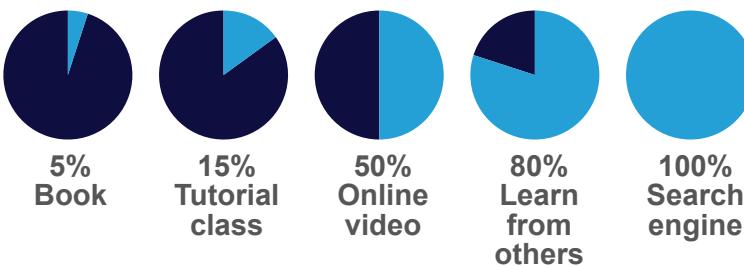
An App helping design students learn more.

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 makes many students 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

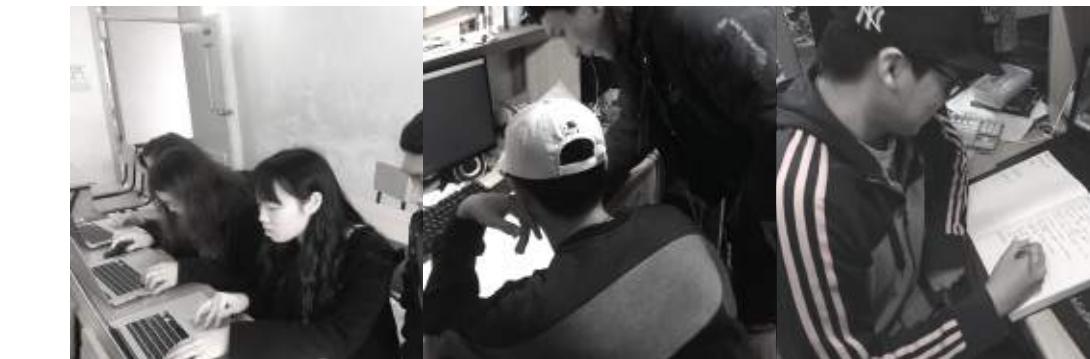
The research work started with my classmates and other design college students, totally 38 people. Net learning as one of the primary forms of study design software is already. But the experience of net learning is barely satisfactory.

### Where students get study resources?



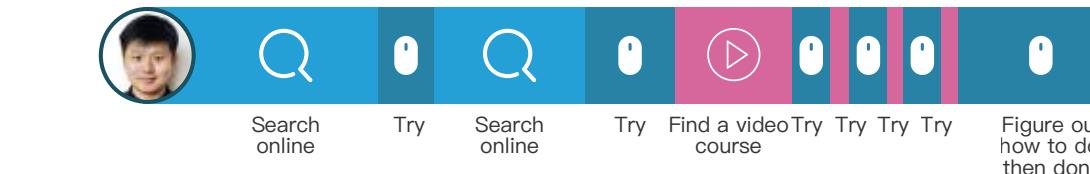
### Disadvantages of different study approaches

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

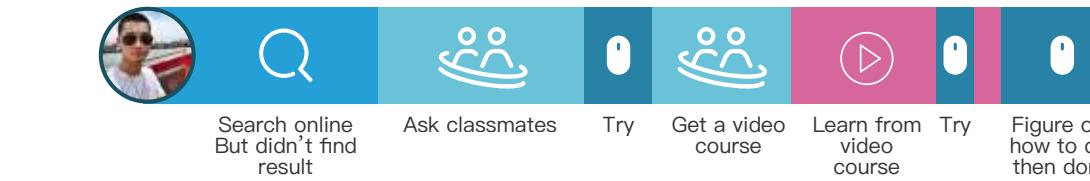


Co-design Interview, observe how students finish a design work.

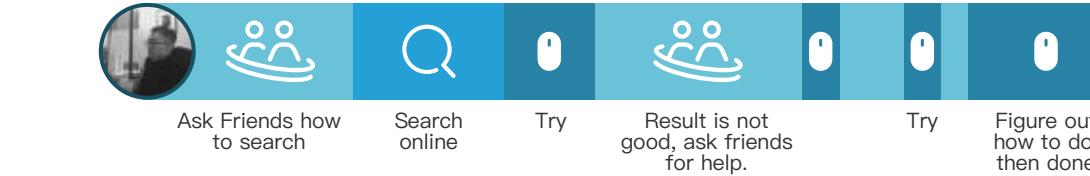
Xueqi Lin, a sophomore student. He has learned Photoshop for one year. He is not really good at Photoshop.



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

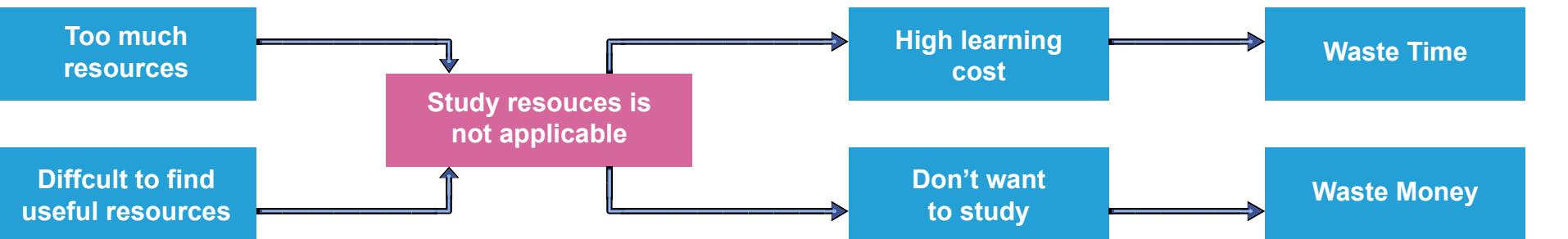


Gong Ban is a junior design. Ban is good at 3D software. He usually studies with online forums. He got some friends through design online forums.



## 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

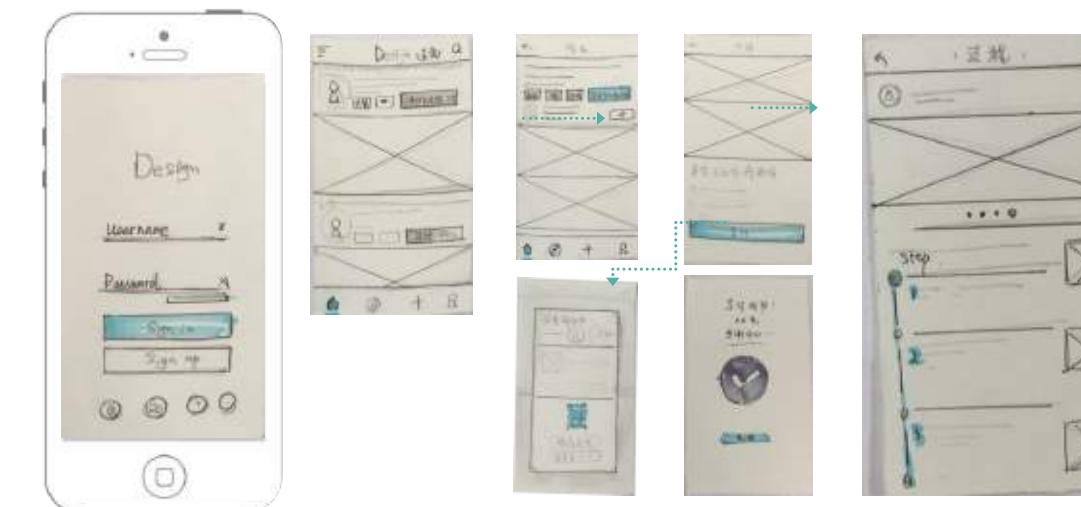
Yang would like to take time to learn software, but the information on the Internet is too much and too complex to have a more convenient way and a more comprehensive platform to learn.

## IDEA

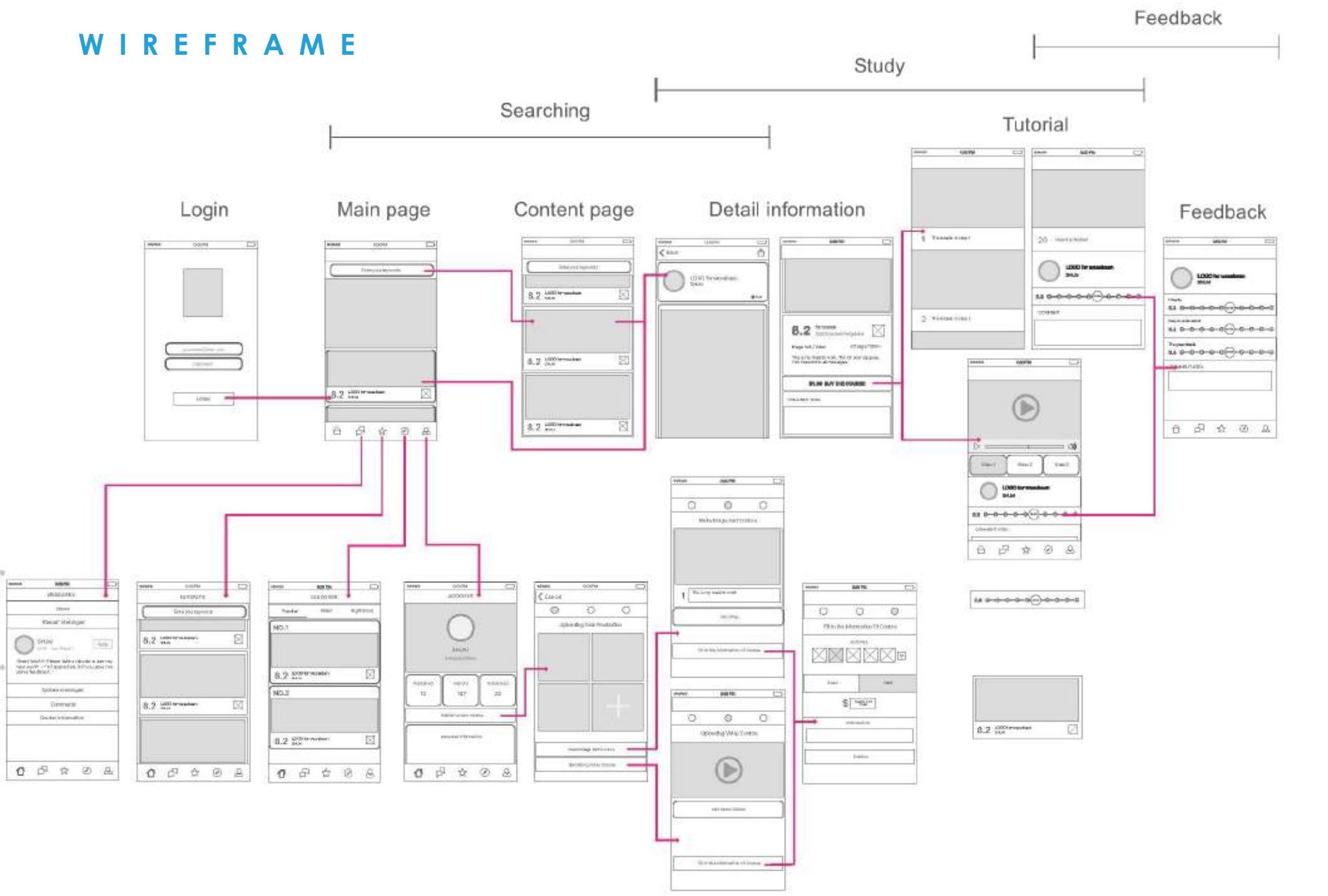
An online design community for student to find design works with tutorial. Any student also could submit their design work and tutorial for others to earn money.



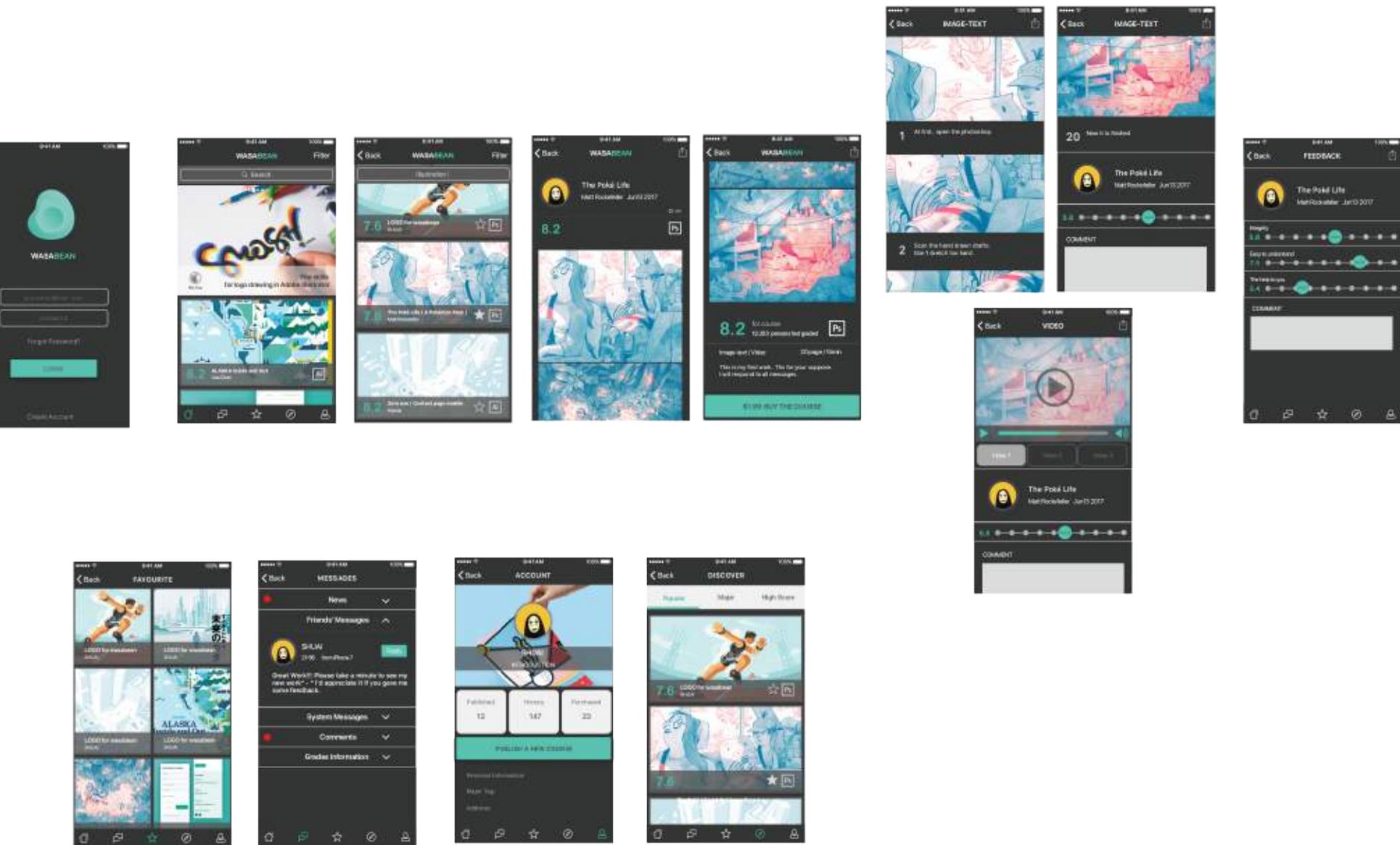
## PROTOTYPE



# WIREFRAME



# UI DESIGN



# 3/6 STOOL

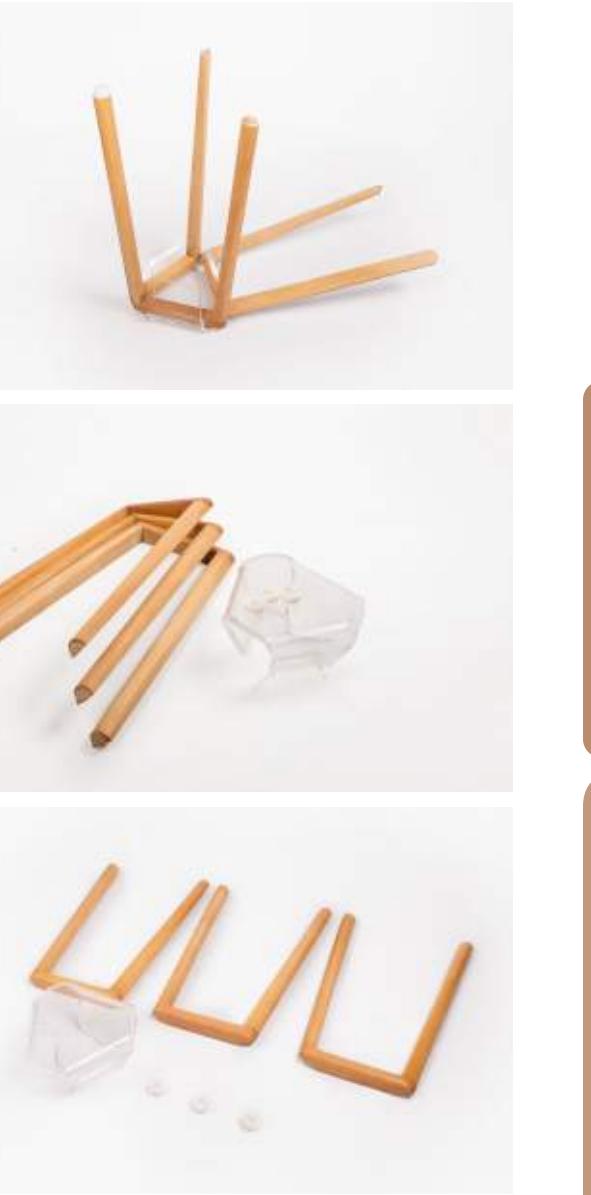
The design of this stool is a experiment of structure.

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.

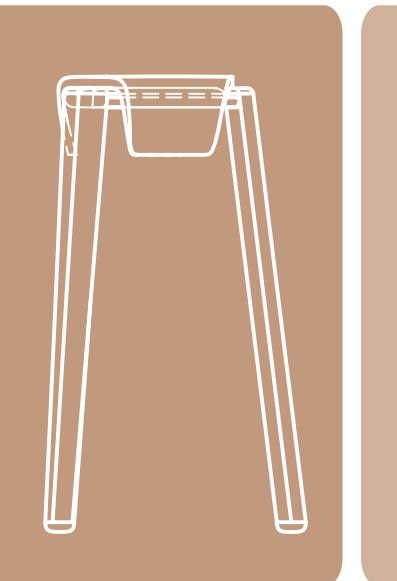
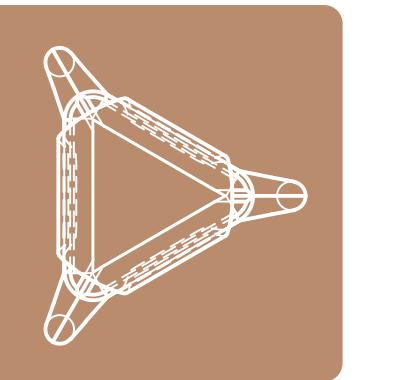
Because of the simple attended mode, customers can assemble or disassemble the stool within a minute.

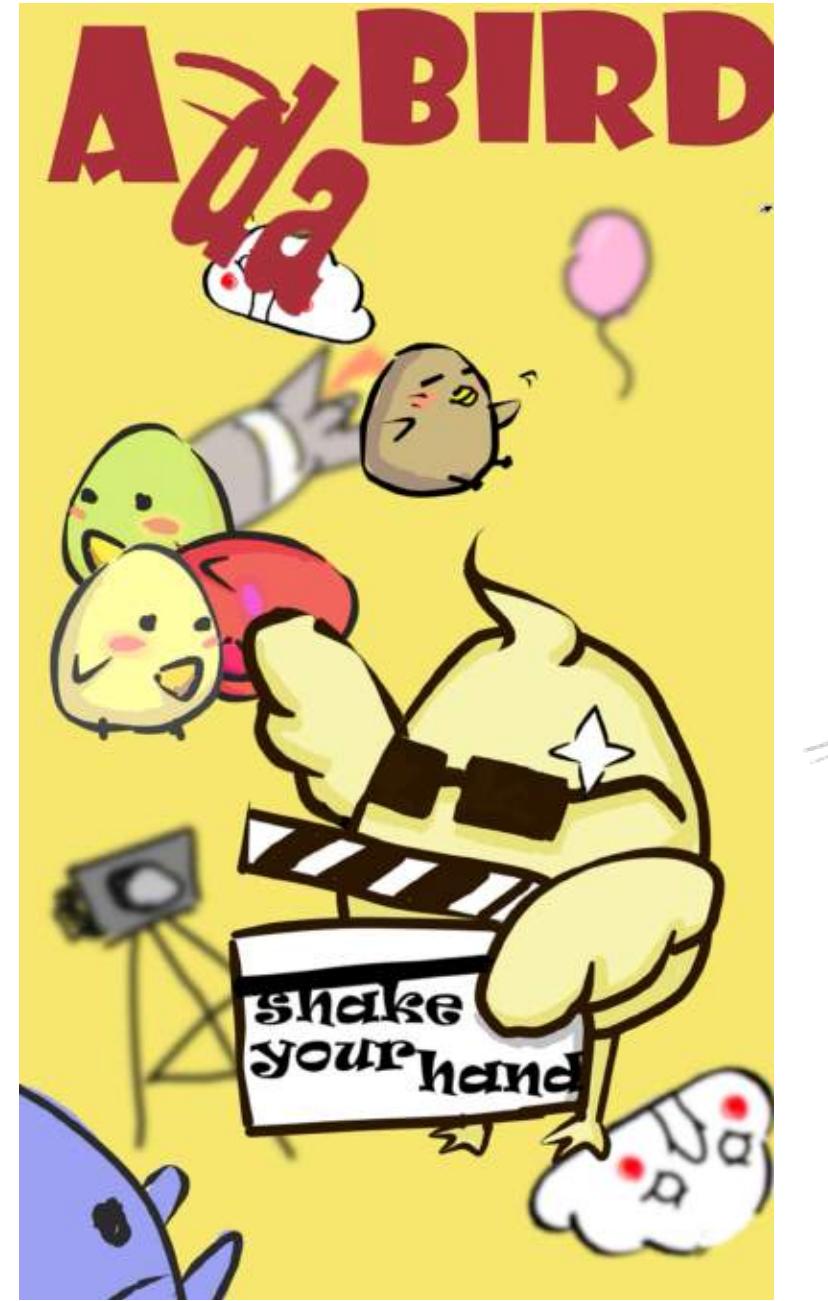


/Simplified  
/Disassemble  
/line



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 player. 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.

