

# Future dietary issues for China's elderly population in the context of the ageing trend

**Coursework** in Sustainable Development of Products and Processes courses;  
**Teamwork** with Zhang Shuyu and Zhang Xiaohan;  
**March to June, 2022**  
**Duration: 4 months**

- My part:**
- 1) Research;
  - 2) Ideation;
  - 3) Service design;
  - 4) Communicator design;
  - 5) Layout design

Service design;  
 Product design;  
 Lifestyle innovation

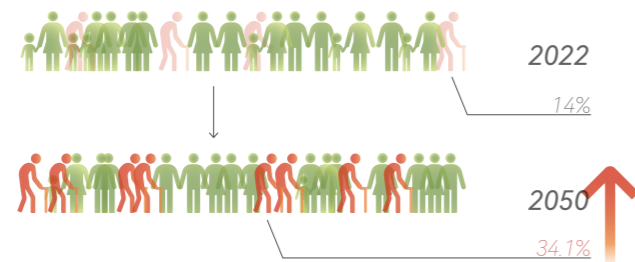
## Background: finding opportunities in society and industry

STEEP SWOT

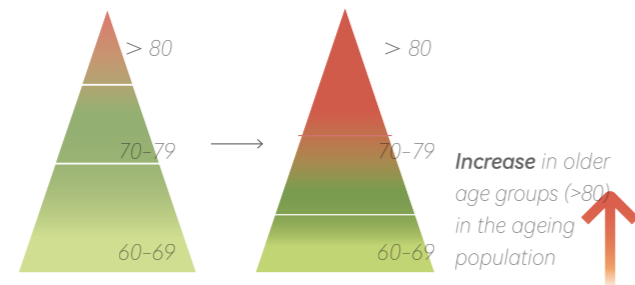
### Society: research on the elderly society

Ageing population becomes a major issue for China's future. It will have a huge impact on the society. The following data will focus on changes in the ageing population.

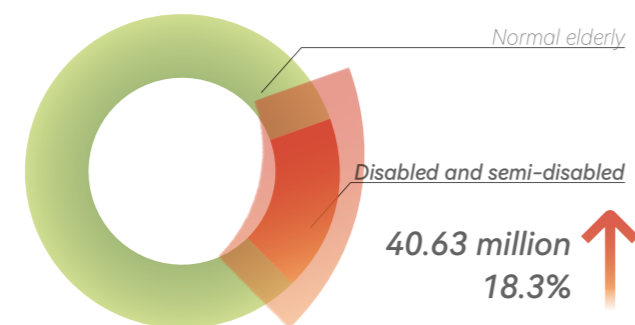
#### • Aging population



#### • Ageing of the elderly population



#### • Increase in disabled elderly population



### Criteria for determining disability or semi-disability



If an elderly person **CANNOT** complete:  
 a) 3-4 of the above 6 → semi-disabled  
 b) 5-6 of the above 6 → disabled

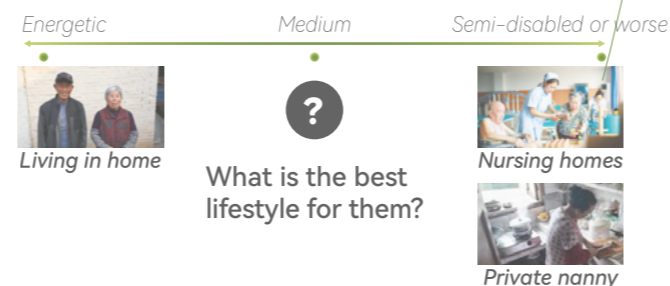
#### • Perceptions about caring the older people

**Today**  
 It would be **ungrateful** to leave my aging parents in a nursing home



**Future 10-20 years ?**

#### • Older people living option according to body energy and proportions



### SWOT: 4 main dining options

How do normal elderly people (of different ages) and disabled or semi-disabled elderly people tackle the issue of meals nowadays?

Target group: ■ Healthy, still physically fit ▲ Healthy, not very physically active ★ Disabled and semi-disabled  
 Stakeholders: **The elderly** **Community** **Catering company** **Housekeeping company** **Nursing homes** **Children**

#### Solutions

**Community canteen**

▲ > / ≈ ■

**Food market - cook by self**

■ > ▲

**Hire a private nanny**

★ > ▲ > ■

**Nursing homes**

★ > ▲ >> ■

#### Strengths

- Low prices (GOVT. subsidies)
- Convenient
- Social events
- Social reputation
- Big market prospects
- Better informed
- Convenient waste separation

- Low prices
- Daily exercise
- Cleaner

- Convenient
- Personalisation
- Qualified
- Can solve other life problems
- Huge profits
- Big market prospects
- Better informed

- Convenient
- Social events
- Standard
- Good facilities
- Huge profits

#### Weakness

- Small range of dishes
- Small coverage
- Hard to find sites
- Small profits
- Lack of standards
- Insufficient operating funds

- Inconvenience (rainy days)
- The elderly are usually frugal - Malnutrition
- Not every community has a market

- Expensive
- Solitude
- resistance
- Rising labour costs
- Some elderly people resist nannies

- Expensive
- Limited bed resources
- Rising labour costs
- Unfilial

### Economy: related industry; income etc.

#### • Industry differences between the 3 dining options

	Profitability	Problems
<b>Community canteen</b>	Deficit Few profit (5%-10%)	Income does not cover expenditure
<b>Hire a private nanny</b>	<b>40%-50%</b>	Expensive, labour costs are still increasing
<b>Nursing homes</b>	Deficit Few profit (<8%)	Beds are scarce and it is difficult to carry the nation's disabled elderly. But because it is expensive, the bed vacancy rate is as high as 46%

#### • Older people's savings and income

Deposits per capita ¥ 80,000  
 Middle income level older people takes 80% of the population

#### Middle income level older people

in an **awkward position**:  
 1) not meeting the minimum government guarantee  
 2) not being able to afford to pay for the nursing home or private nanny.

**There is a lack of suitable and sustainable senior care services for the middle class (including senior meals)**

**? Innovative ways of caring for the future?**

# User research: people of the present and the future

## Research plan

1 How does an older person in "the awkward position" spend their day?

Interview Observation

2 Older people's perceptions of their current living situation

Interview

3 Older people's kitchens and food safety and health issues

Secondary research Interview

4 Perceptions of senior care among middle-aged people approaching old age in 5-10 years

Interview

5 The views of the children of the elderly

Interview

3



2



Nannies like to look after healthy employers.

We used to eat like that when everyone was poor, so I don't care (a balanced diet).

I think there is **no need** to waste the money (hiring a nanny) because there are things I can do and I feel more comfortable doing them myself.

\* Image from the internet

4/5



The good thing is that it is really necessary for the elderly to have a helper to help them with cooking and cleaning up. The disadvantage is that I cannot keep an eye on the food.

If my son sends me to a nursing home, I'd rather not have him...  
...I **wanna live at home**. I don't wanna leave.



I go to the hospital often.

I **don't want** a nanny in my house.

The **food delivery** may be quite helpful to me. Especially in rainy days. I don't know why they stopped delivering. I'd rather spend a bit of money.



I follow the wishes of my parents. They prefer to live in their original home, although they are not very strong anymore. It is true that it is not easy to take care of them.

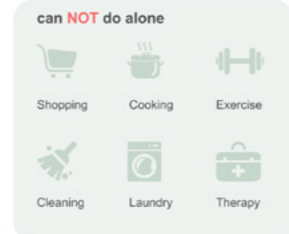
I'm lazy. I'm not really good at cooking actually, so I'd like **someone to cook for me** when I get older ahahaha...

1 Interview

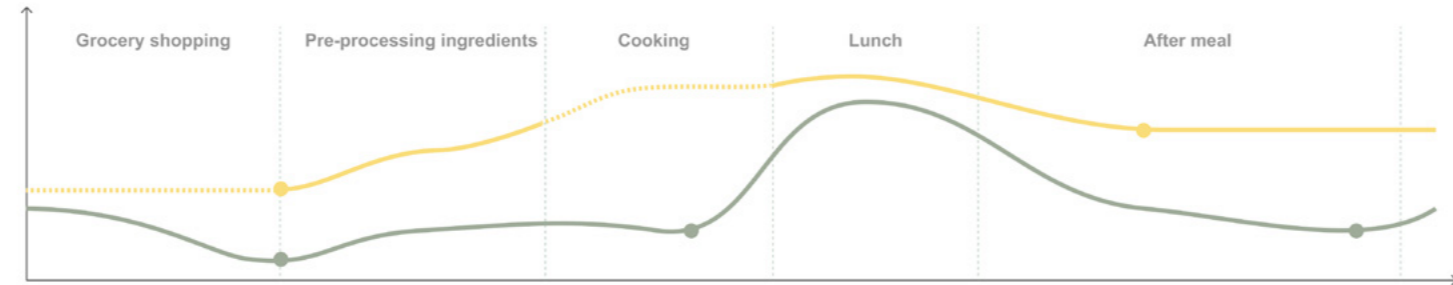


Xinghe Zheng

Beijing citizen



Experience map (Day in the Life)



Behavior	Hear	Say	Think
Go down stairs; Go to the market; Grocery shopping; Select category; Take home the groceries	Yelling; Vehicle sounds (including hooting);	Ask for the price of food; haggle over price	Too much time consuming; Rainy days are annoying; Go early to get fresh food; It's hot in summer;
Panning rice; Washing vegetables; Scraping; Chopping vegetables;	Water sounds; The sound of knives and chopping boards clattering	Chatting	Processing time
Ignition; Choose the cooking method according to the different dishes	The sound of hot oil; The sound of boiling; The sound of cooking utensils clattering;	Ask what would like to eat today	Chat; Recipes
Serve the meal; Riding the food; Get the cutlery; Eating;	Chattering sounds, chewing sounds	Chatting	Chat
Putting away dinner plates and cutlery; Disposing of leftovers; Throwing away food waste; Washing dishes and kitchenware; Wiping tables; Disinfection of tableware	The sound of crockery clashing; The sound of water	Chatting	Chat; How to dispose of leftovers

## Persona



Zhang Chunhe

Age: 70

Conditions:  
High blood pressure;  
Osteoporosis;  
History of thyroid cancer

Residency: Anzhenli, Chaoyang, Beijing

Monthly expenditure: ¥ 2,100

Former career: Teacher

Pension: ¥ 10,400



Children's information:



Zhang Jianguo (Only son)

Age: 46 Salary: ¥ 32,4000

Occupation: Manager

It is ungrateful to send your parents to a nursing home.

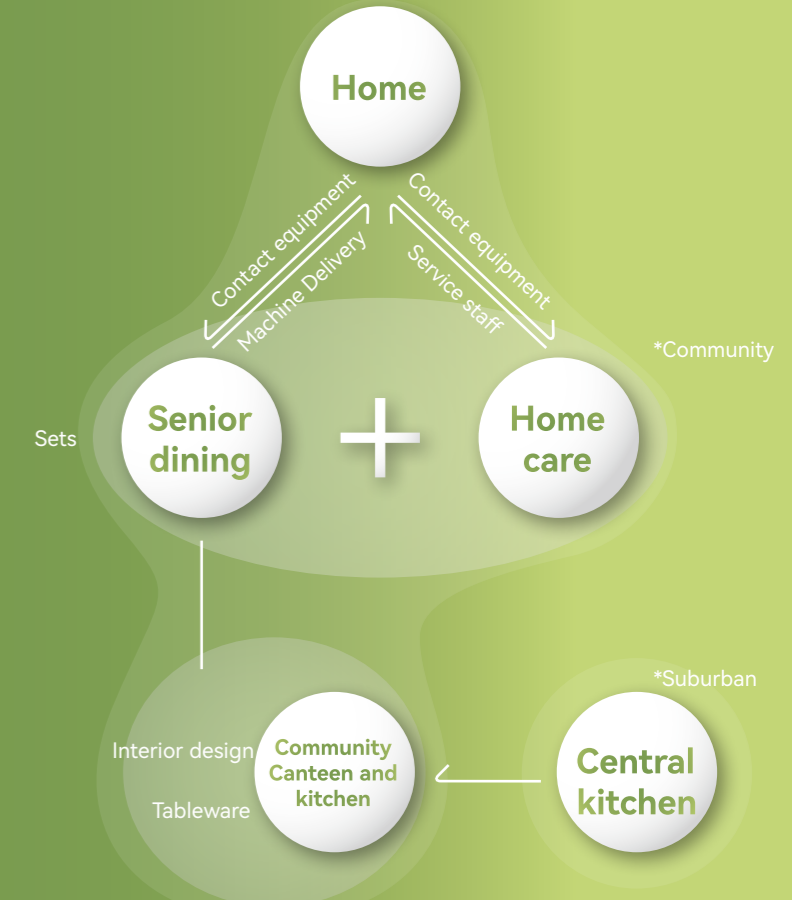
Need:

Affordable way of integrated home care

Concept: for the next 10-20 years

1) Spread the cost of senior dining by integrating the home care industry, and expand the market for senior services;

2) No-entry housekeeping for more privacy.



Objects

Service

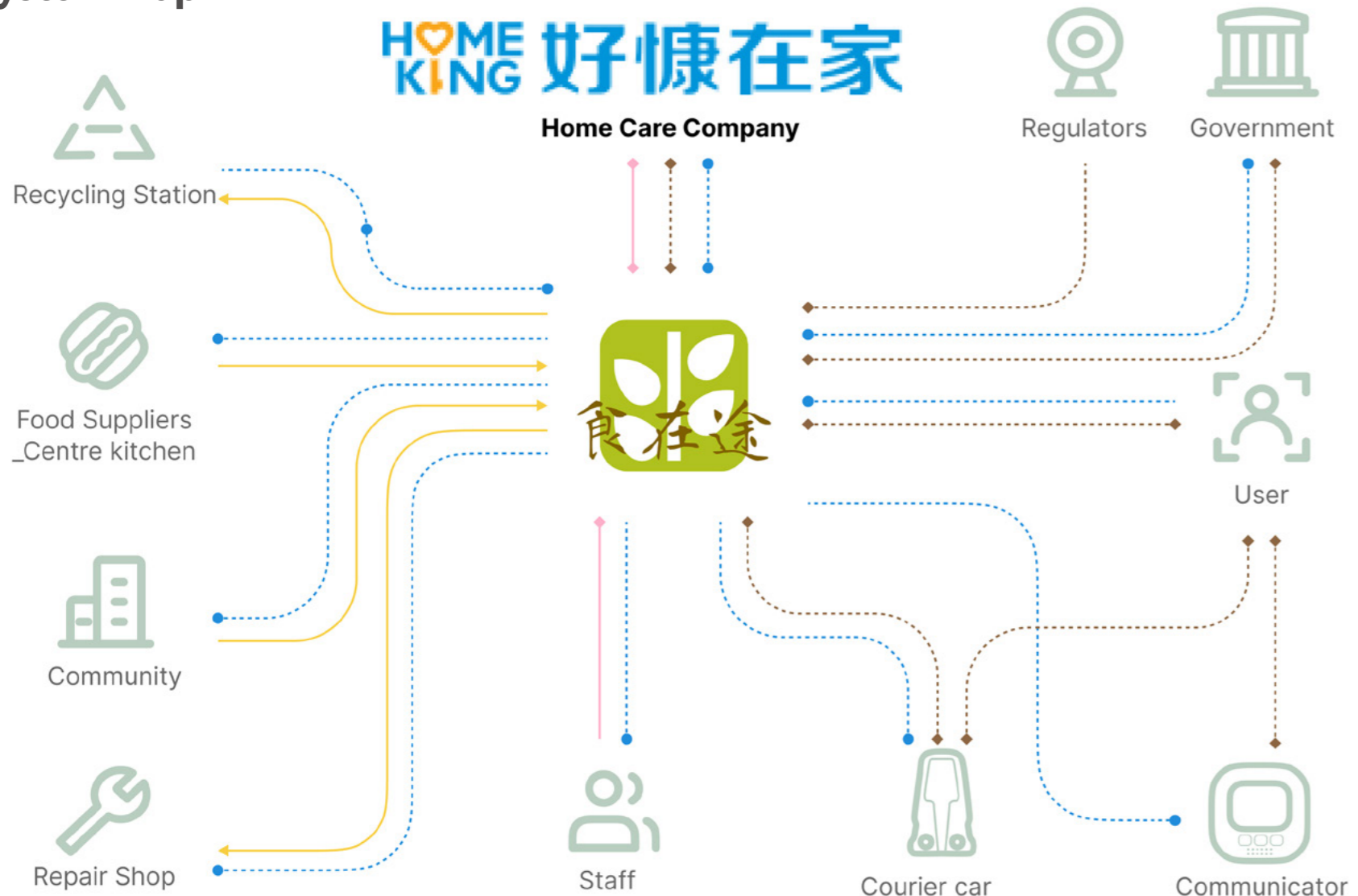
- 1) Communicator
- 2) Delivery machine
- 3) Tableware

Package service combining senior meals and home care.

# Service blueprint

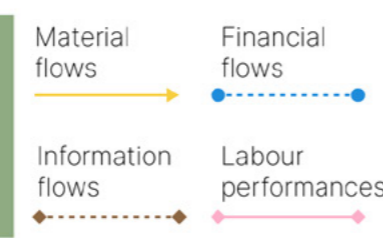


# System map



**INNOVATION**

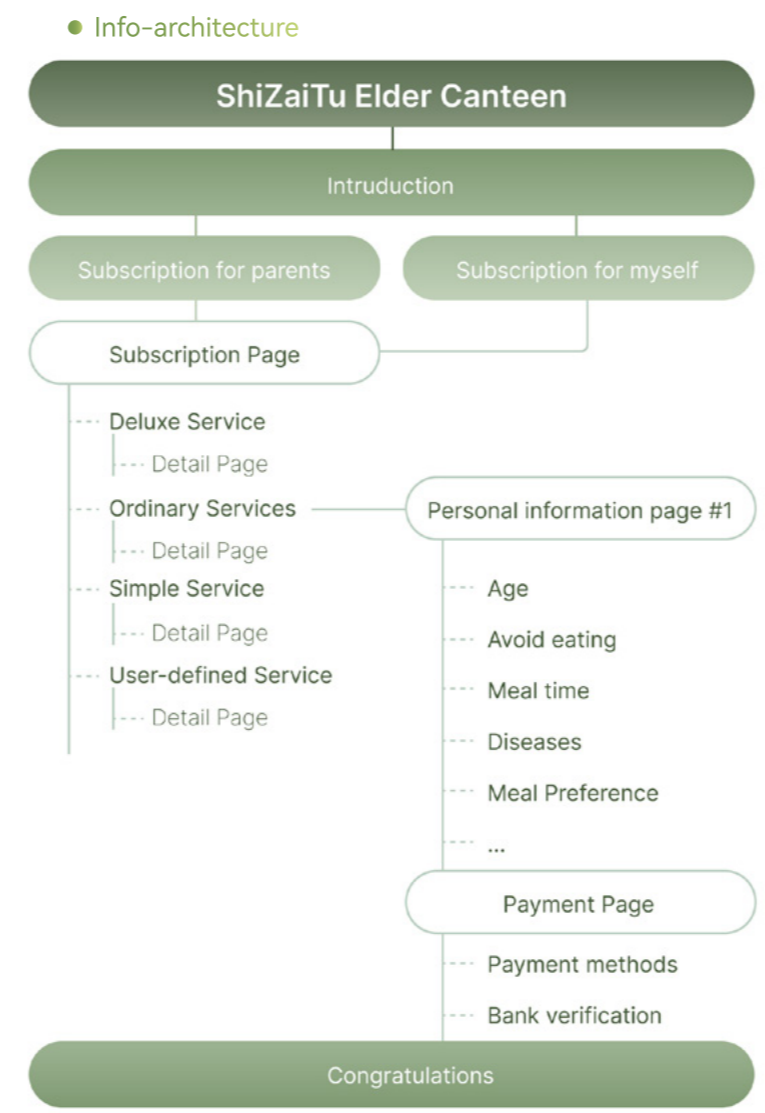
- Bundling the home care industry with the senior meal industry has to some extent alleviated the problem of low profitability in the senior meal industry and has brought a new market to the home care industry.
- The "no-entry housekeeping" initiative uses intelligent equipment to reduce the number of staffs thus could alleviate the negative impact of rising labour costs in the future.
- Can reduce product prices and open up markets.



# Service subscription: applets or paper

According to research, the majority of older people do not use mobile phones, so it is usually their children who subscribe to the service; another option is a paper subscription

## Applets for service subscription: mainly for children



- Requirements
  - 1) The font should be **EXTRA LARGE** to accommodate presbyopia in the elderly
  - 2) Keeping everything simple and retaining only the core functions
- Hi-Fi



## Paper for service subscription: for the elderly



康成长, 甲方对所有品中综合质量中等及

# Communicator design: order dishes, call for staff services

## Requirements

- 1) Suitable for older people – the design should be ergonomic;
- 2) Cost reduction – reduce the number of moulds, use standard parts;
- 3) Can be placed on a table or operated by hand;
- 4) Simple and clear operation.

## Seniors who participated in the test



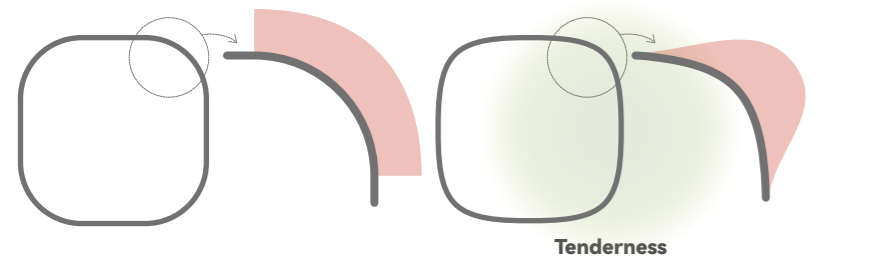
**Wang Yunhua**  
Age: 66



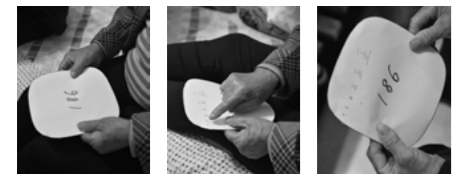
**Wang Huanxiang**  
Age: 73

## Form exploration: shaping according to the lifestyle of older people

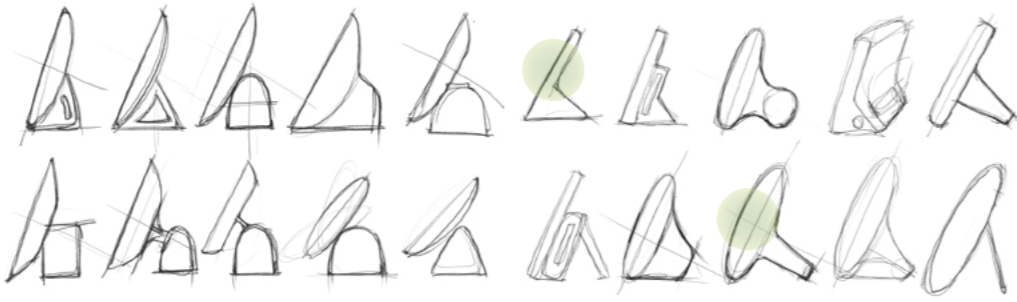
### Sketches: front view



Testing for size, font, etc.



### Sketches: side view



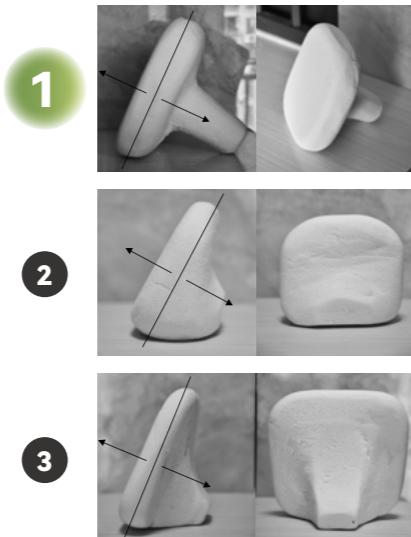
### Sketch Models

Material: paper clay



### Sketch Models

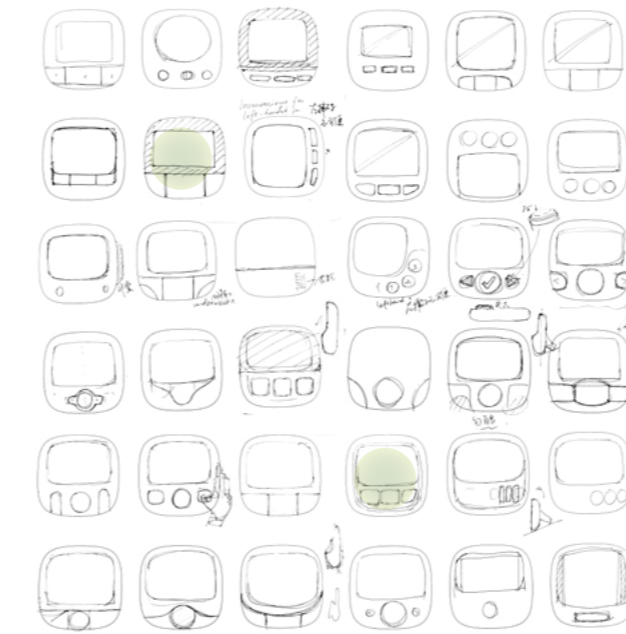
Material: PU



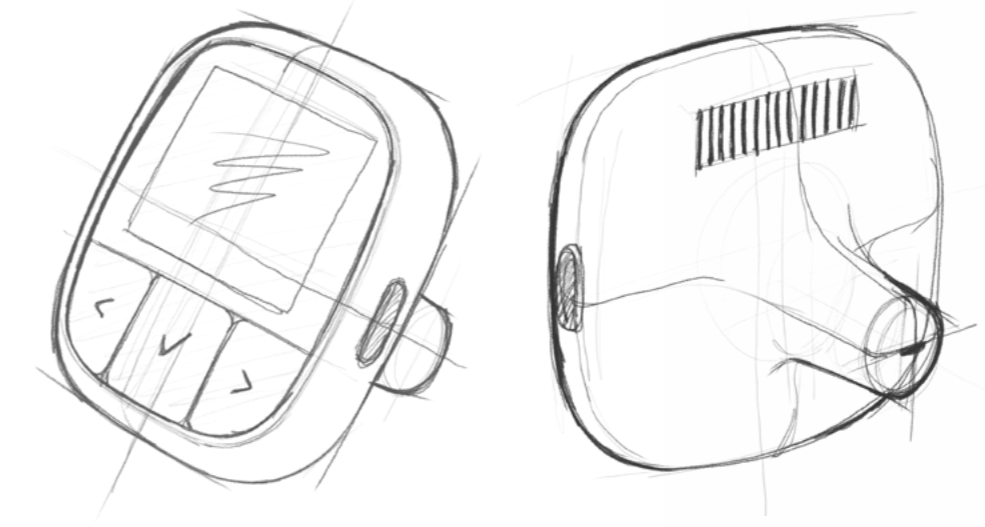
- Variety of gripping styles
- **Can be tucked between the legs (wheelchair)**
- Easy to grip (thin)



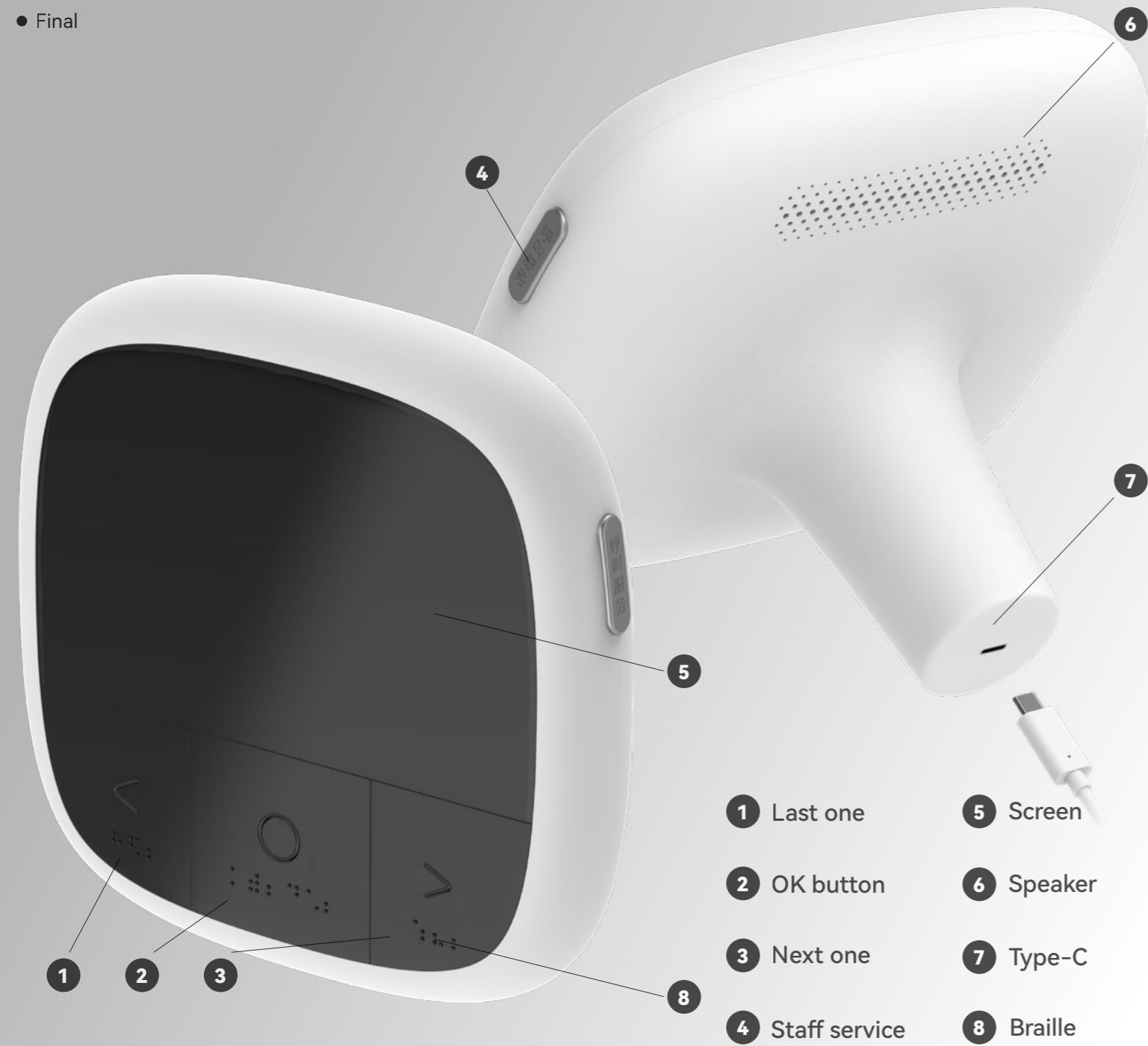
### Functions: 1) Screen; 2) Three buttons



### Previous solutions

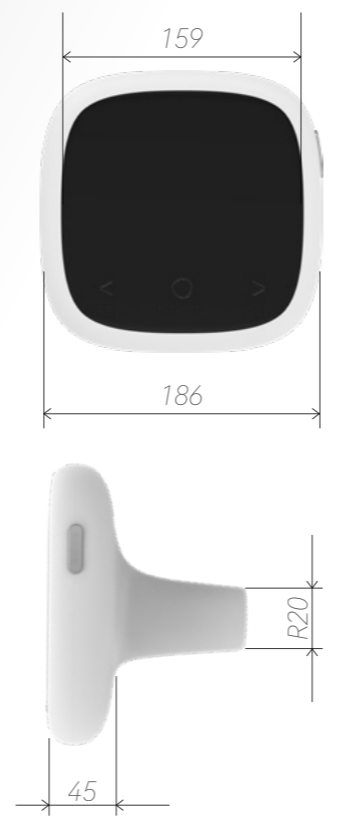


● Final

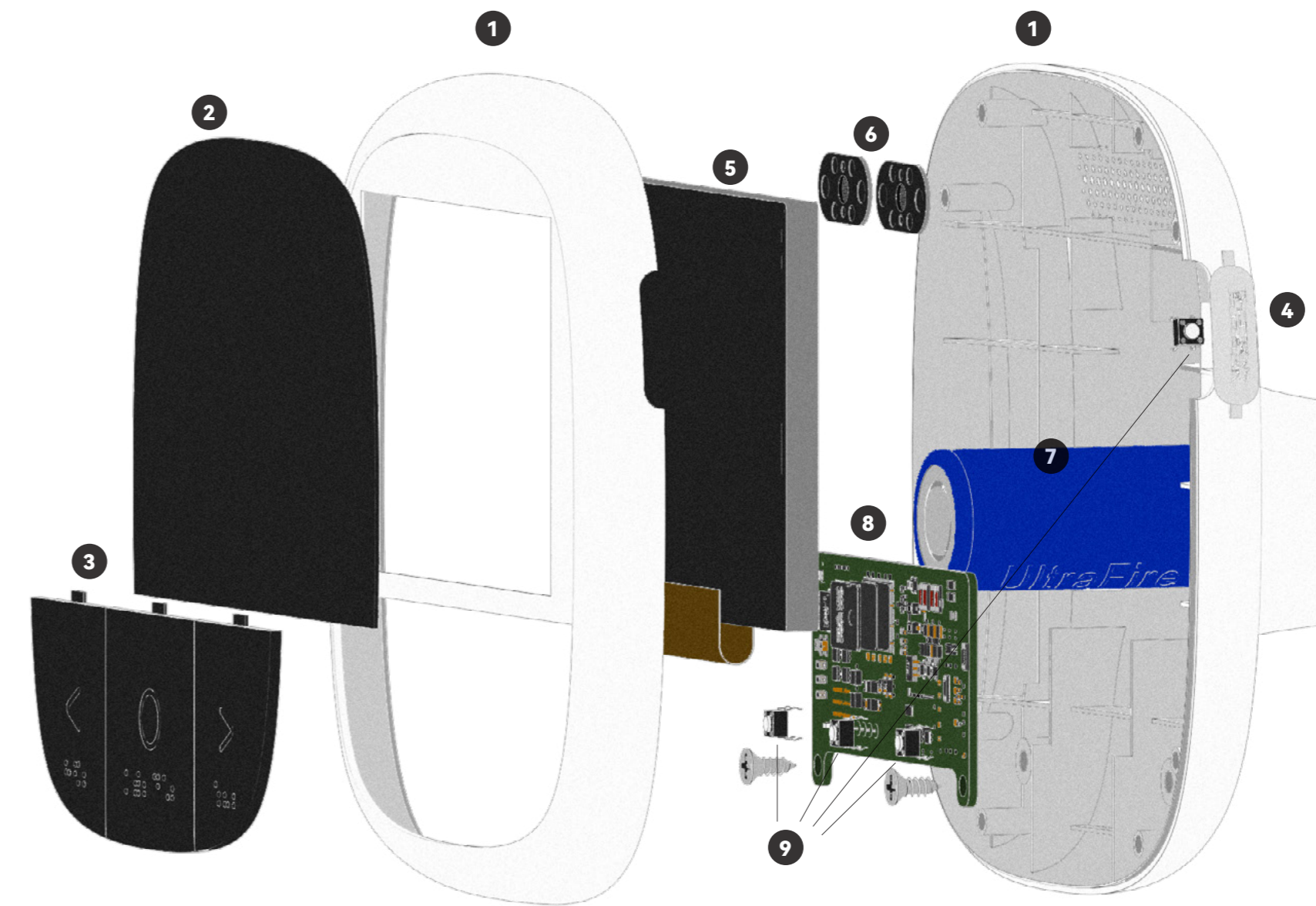


- 1 Last one
- 2 OK button
- 3 Next one
- 4 Staff service
- 5 Screen
- 6 Speaker
- 7 Type-C
- 8 Braille

● Dimensions unit: mm



● Exploded view



- 1 Shell  
ABS / Matte finish
- 2 External Screen  
Acrylic
- 3 Buttons  
ABS / Glossy finish
- 4 Staff Service Button  
ABS / Matte finish
- 5 Screen  
LCD screen
- 6 Chip Speakers
- 7 Battery  
Cylindrical lithium battery
- 8 PCB Board
- 9 Button Elements

- Main functions: order meals, call for staff services

All operating the communicator would automatically read aloud the text on the screen.

### 1 Order meals



Press any of the buttons to turn it on.



Select "Shi Zai Tu"



You don't like it? Press on the next one.



Your favourite? Press on the OK button.



Eat vegetables! Press on the OK button.



Choose your staple food in the end.



Time of arrival of the meal.



Showing that the meal has arrived.

### 2 Call for staff service



Press the OK button to turn it on.



Press the "Call for Service" button.



Choose which staff service.



Select "Health Care Services"



Make an appointment.

## Other designs

### Tableware design:

use colours to differentiate salt and oil content in food and guide healthy eating.

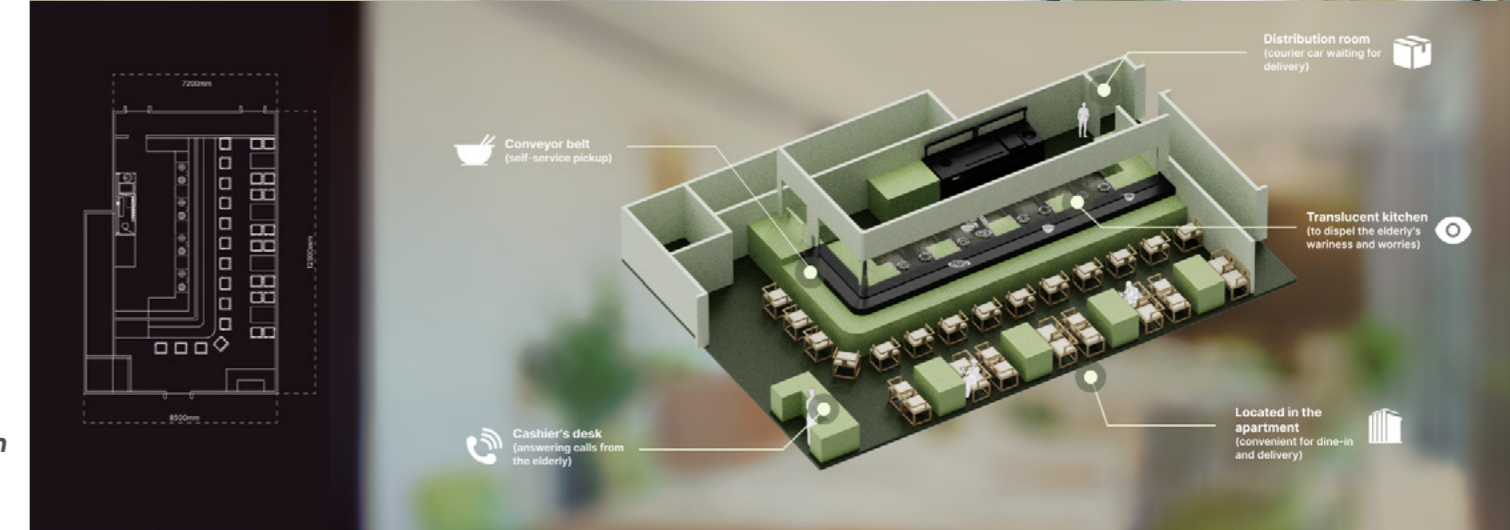
By Zhang Xiaohan



### Interior design:

for community canteen and kitchen. This is where the dishes are cooked and where the food trucks depart. One can eat here and it can also be used as an activity centre for the elderly.

By Zhang Xiaohan



### Delivery machine design:

in the future to replace manpower (in a future of high labour costs) and deliver meals to the homes of service subscribers within a certain time.

By Zhang Shuyu



## Stakeholder map

CURRENT



Government  
Regulators

Community

ShiZaiTu Elder Canteen



## Business model

### Key partners

Community

Repair Shop

Recycling Station

Food Suppliers



### Key Activities

Personalized food sales for the elderly



### Key Resources

Cuisine preparation

Human Resources

Data Analysis

Personalization



### Value Propositions

Food health for the elderly

Personalization for the elderly

Convenience for the elderly



### Customer Relationships

Service Hotline

app

Volunteer

Community Staff



### Channels

Social Media

Advertisement



### Customer Segment

Community residents

Community Staff



### Cost Structure

Food Sourcing

Human Resources

Platform Maintenance

Marketing



### Revenue Streams

Online Advertising

Food Sales

Housekeeping services

