



Make it Easier

for the **Elderly** to Use

Smartphones and Appliances

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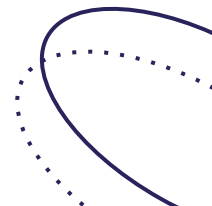
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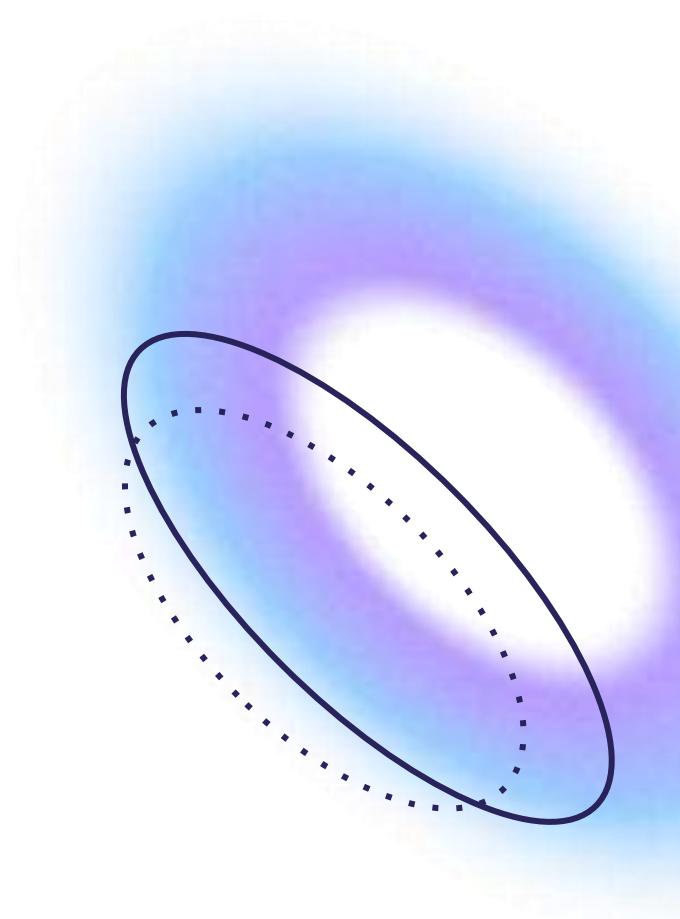
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Summary &
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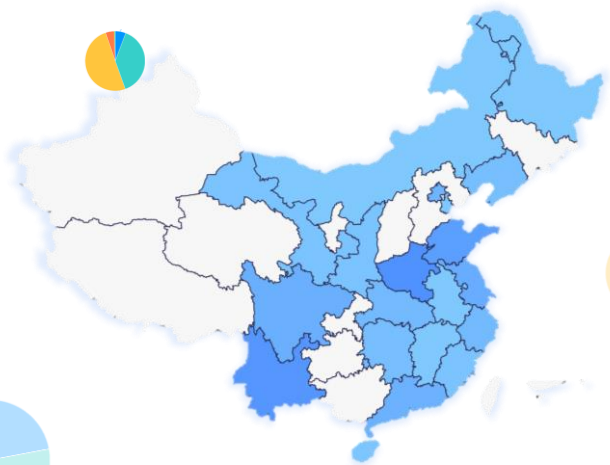


01.

Empathize



Questionnaire



- Such problem is common.
- Select key sub-problems.
 - Most common used functions and devices
 - Most common reasons

Iteration of Empathize



Prototype Implementation

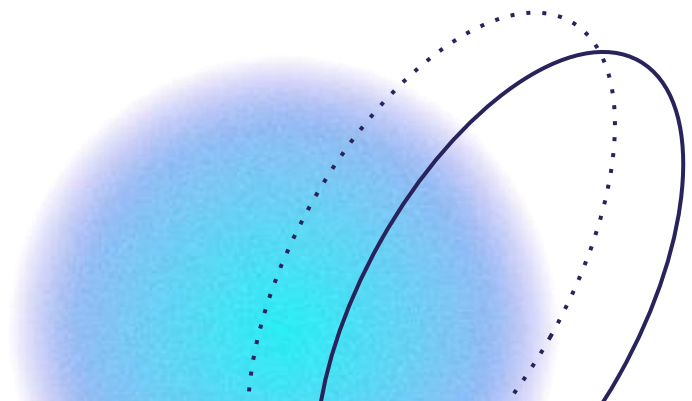
Choose Representative functions and prototyping them.

From Senses to Cognition

What painful most and hard to solve when using smart devices.

Memory System

Should consider a specific and operable method for teaching.



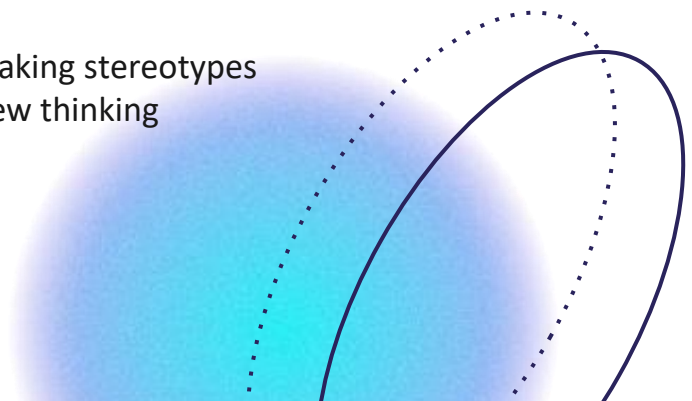
Knowledge of Empathize



Understanding Human

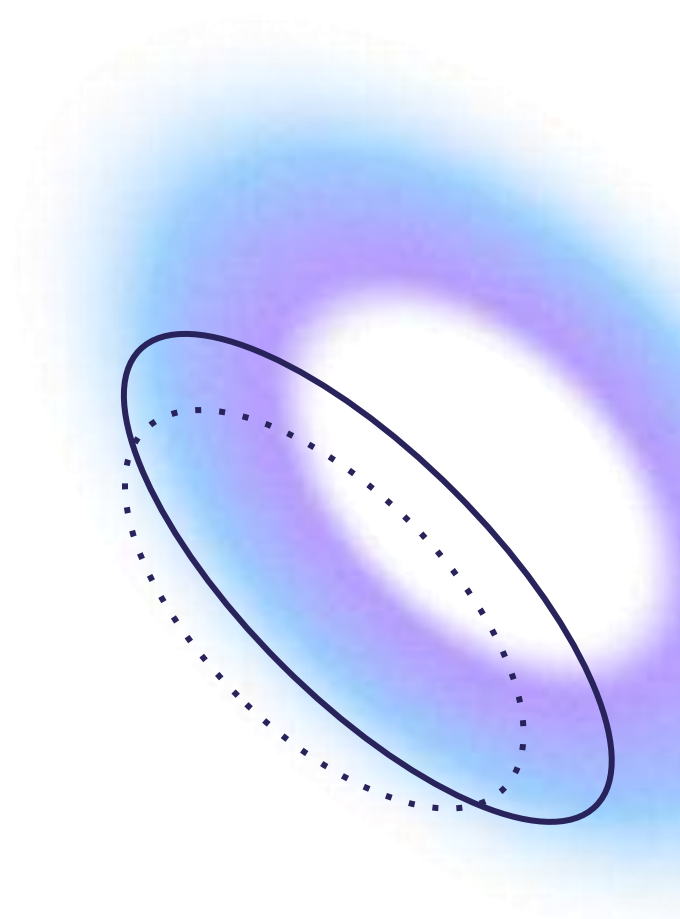
- **Senses**
Vision, hearing, touch defect.
- **Memory**
- **Cognition**
Learning, problem solving, etc.

Methods of Empathize

- **Immerse**
 - **Observe**
 - **Contact**
Objective, breaking stereotypes
and provoking new thinking
- 

02.

Define



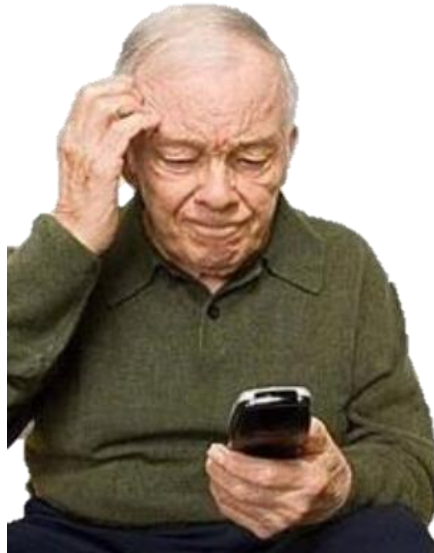
Our target user

Over 60

with diminished ability to learn, and visual or hearing impairment.

Unfamiliar with smart device

out-of-date cognitive model.
Learned but forgot



Use technique

to live better in modern society.

Lack of help

Live alone or without the younger.

Or may be not willing to find help.

The main problems they encountered



-
- Too many interaction levels
 - Interaction logic does not conform to the intuition of the elderly
 - It is difficult to learn by simply memorizing
 - The key is not large enough, and it is difficult to click on the touch screen
 -

POV-Insight



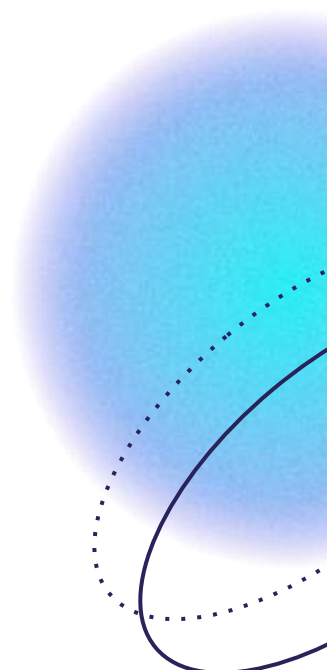
Existing Attempts

Only care about physical obstacles,
rather than **logic and interaction**.



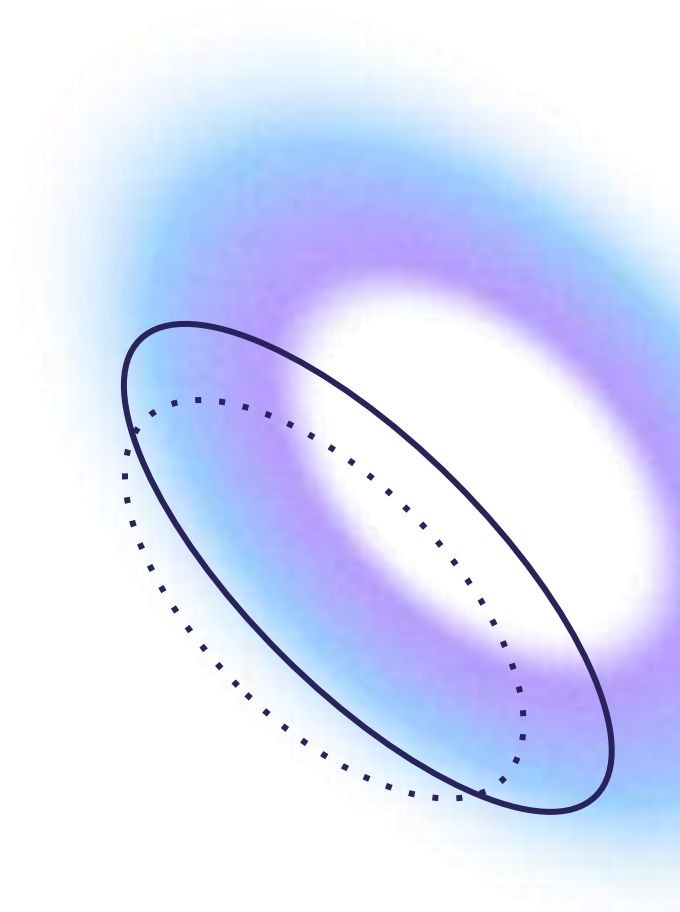
Our Goal

Some device that satisfies their
cognitive model.



03.Ideate

Brainstorm and Conceptualize the
Designs



What we did in Ideating



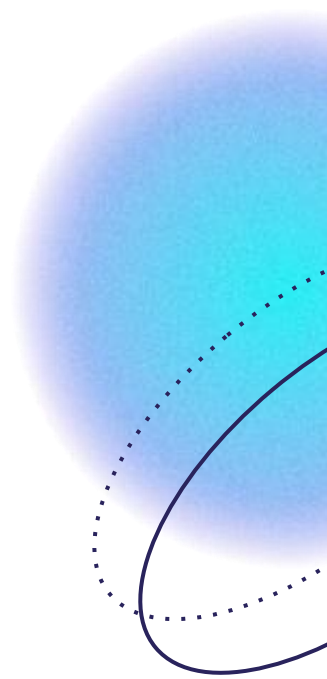
Mindmap

Brainstorm and determine the design corresponding to problems



Concept Video

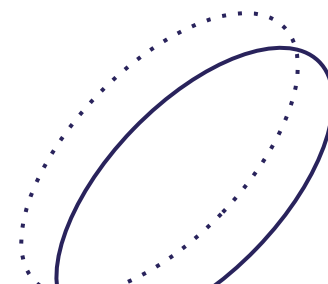
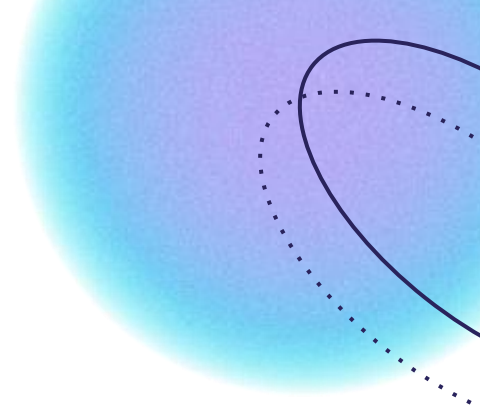
Show problem scenarios and our solutions



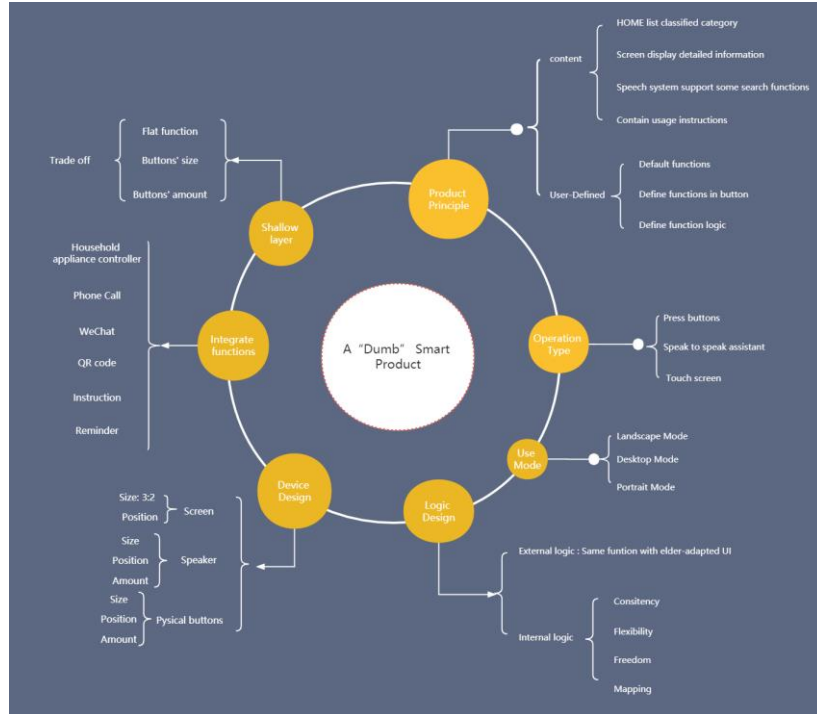


Product Design Goal

01. Decrease the number of steps
02. Provide adequate information in a simpler display
03. Offer guidance with less studying efforts
04. Personalized settings for different elderly people
05. Help construct functional abstraction



Mindmap of Brainstorm



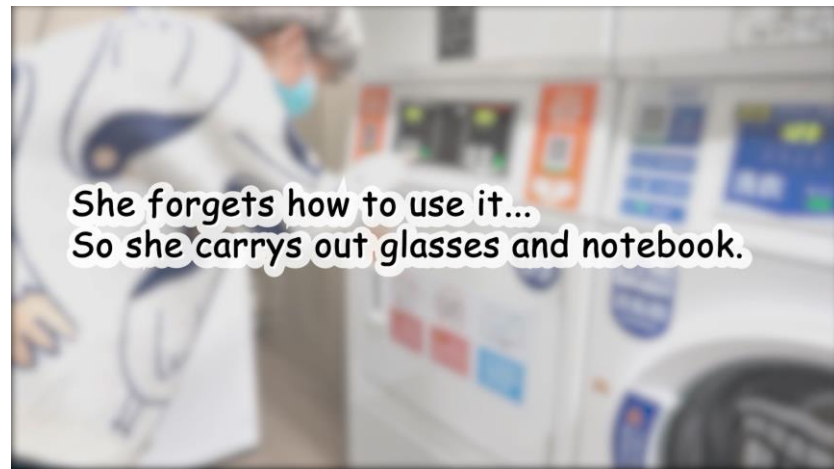
Aspects

- Functions
- Physical layout
- UI layer/logic
- Special design
- Mode

Concept Video

Two scenarios

- Use household appliance
- Use smart phone



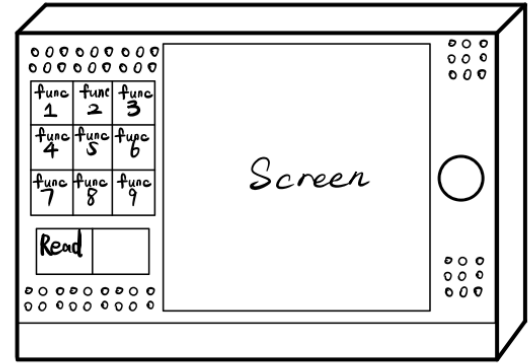
Problems and solutions

- Instructions Guidance
- One click, less operations

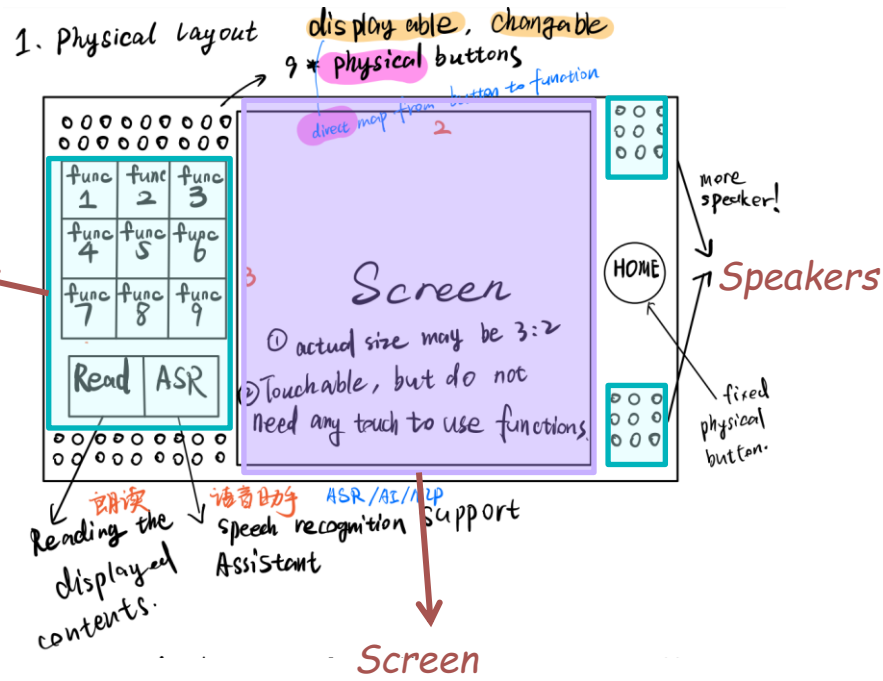
04.

Low-fi Prototype

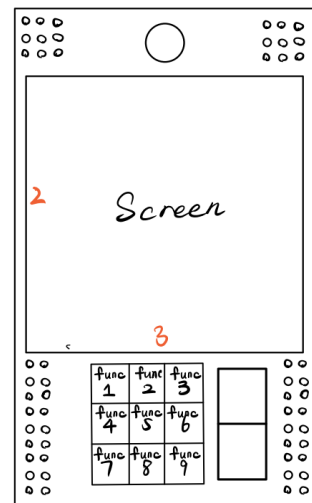
Paper sketch including components, functions, work flow...



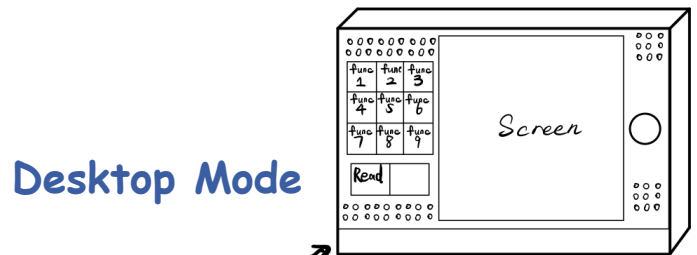
Physical layout



Landscape Mode



Portrait Mode



Desktop Mode

rubber edge case

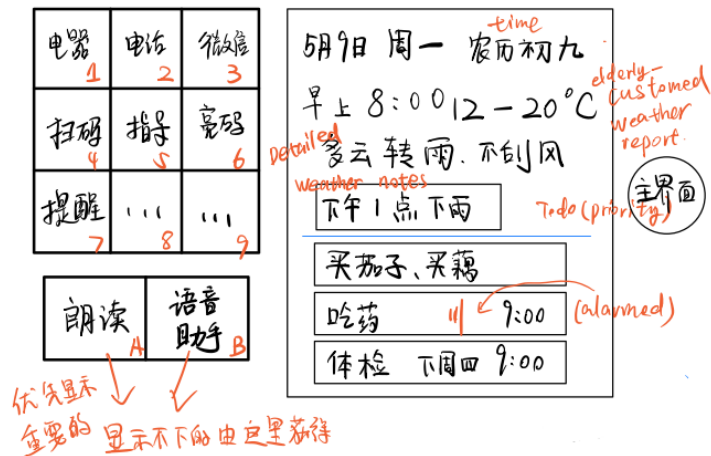
↑ enhance holding capacity

Function and workflow

Functions: phone call, wechat, event reminder, householic applicans control

Operation: press buttons, speak

2. Home. 主界面

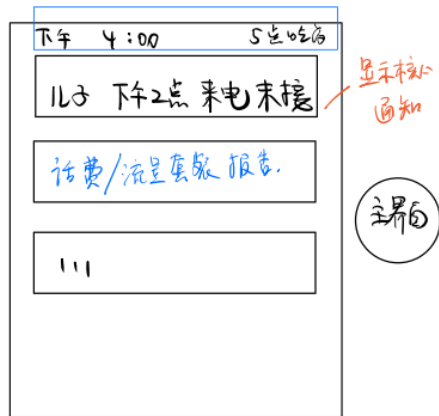


Home

4. 电话.

from: press 3 at 主界面

仍有状态栏, 后台

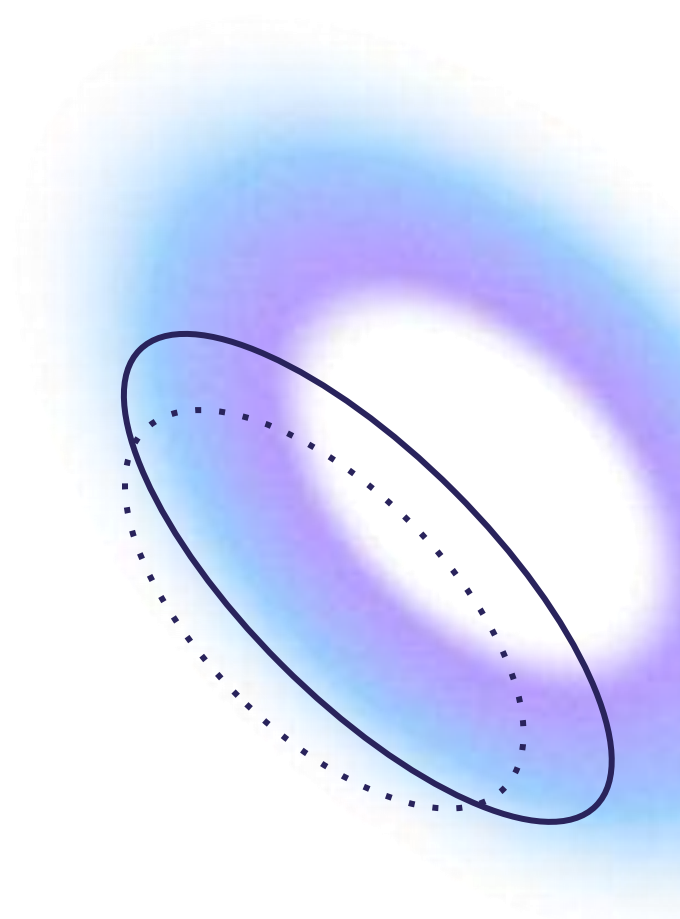


Phone-calls relative

05.

Medium-fi Prototype

On-Screen Interactive Wireframe, detailed version of low-fi prototype

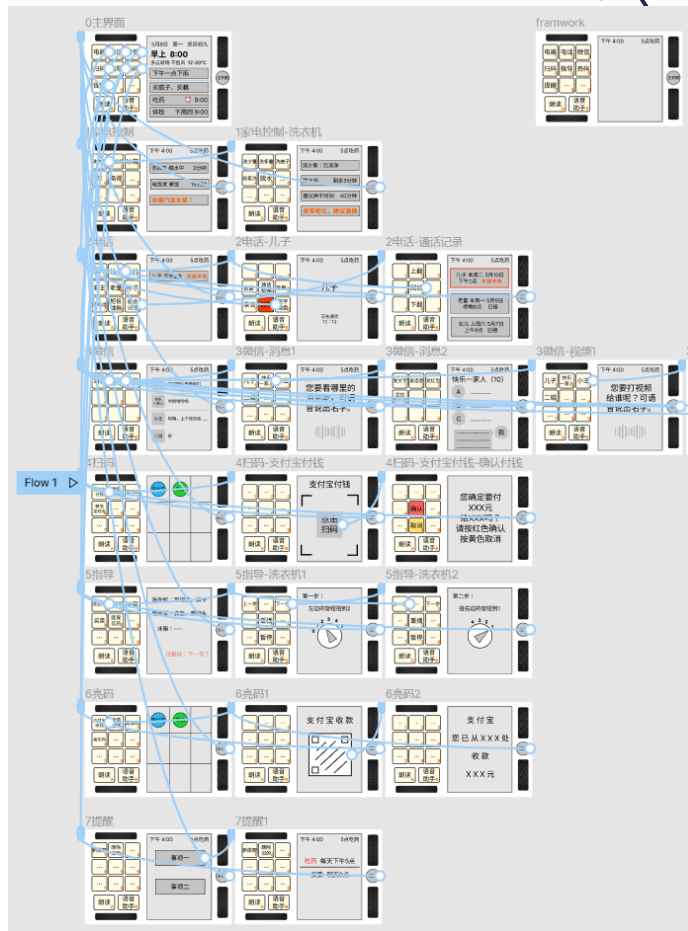


Mid-fi prototype design

- *Implement Tool: Figma*
- *Improvement Based-on: Low-fi prototype*



Main menu



Link relationship



Corrections

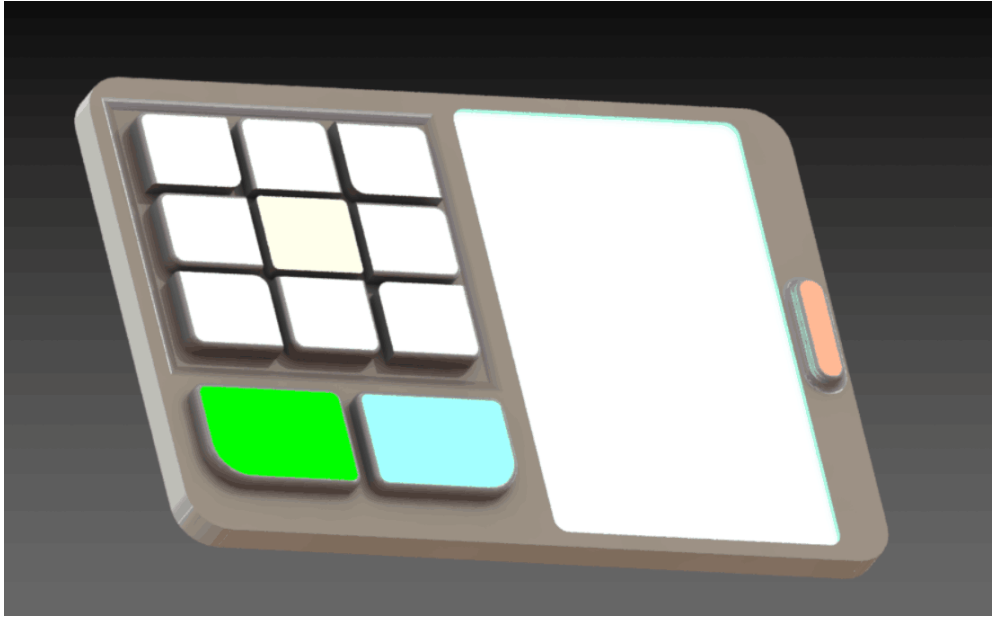
01. Modified the message sending hierarchy

02. Modified the interaction logic of the contact mode

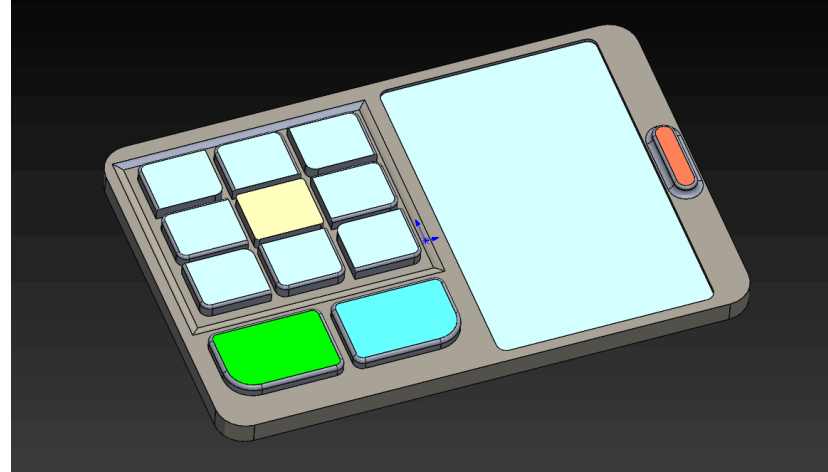
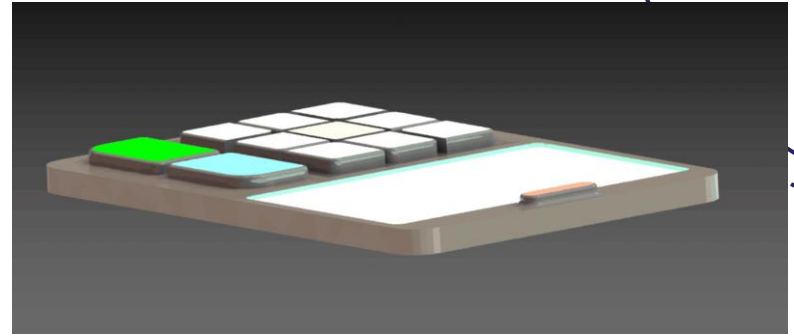
03. Optimized Wechat functions

3D prototype design

- *Implement Tool: SolidWorks*
- *Improvement Based-on: Mid-fi prototype*



Main menu



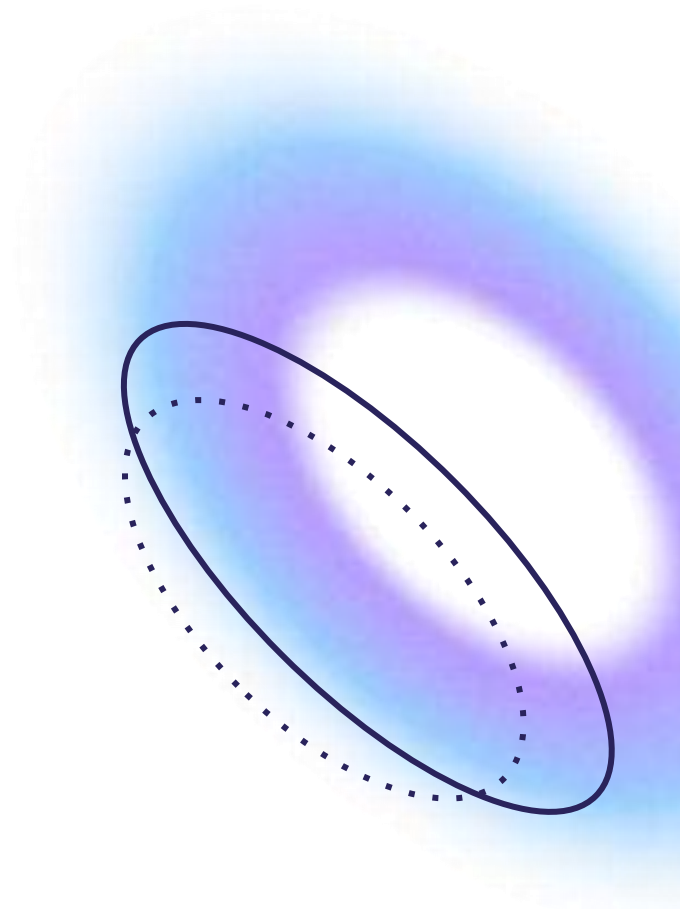
Light to use

06.

Test: Group

Heuristic Evaluation

Feedback & Solutions



Recap: Our Evaluation Design

Participants

1 compere
1 operator
1 recorder
2 observers

+ users

Scenario

Use mid-fi prototype
with/without instruction

Tasks

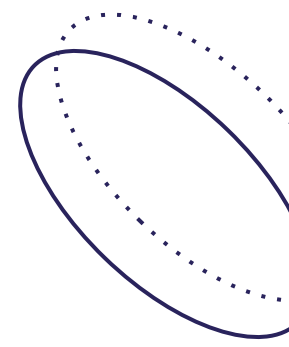
1. call Wang on wechat
2. pay with Alipay
3. check instructions for washing machine
4. use message reading

Metrics

Several aspects to
evaluate the product

Analysis & Improvement

Analyse the result of
experiment and
iterate the products



Group Heuristic Evaluation: Outcomes

Problems (Under 10 Usability Heuristics)	Solutions (and explanations)
Parts of the functions in 'Guidance' and in 'Electric Appliance' overlap , making users, especially the elderly, confusing	Move the guidance for electric appliances into the 'Electric Appliance' part
The interface is a little bit confusing and there are too many buttons for the user to use.	Solution: 1) Add introduction video on the home page which can be hidden and displayed liberally by users. 2) Reduce some logical hierarchies, for each button navigation can be more detailed.
Compared with Wechat , this APP may not be useful on message dealing. It is easier to send messages and give phone call on Wechat instead of this APP.	Solution: 1) Only list message that is not read and return to Wechat if users want to reply. 2) Based on the current functions, add 'return to Wechat'
The default functions may not be suitable for every family.	We already have customized functions. User can define as how they like.

A fast Reflection on test process:

To make the user totally understand our model (some fidelity loss & communication problems)

Updates on our mid-fi: examples

Old

"To who " and "send what"
At the same time

"给谁发什么信息"

New

2-Step guidance



Updates on our mid-fi: examples

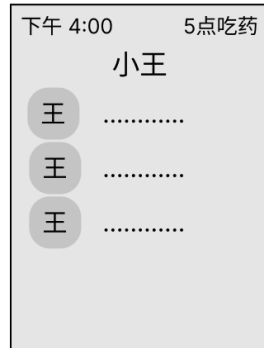
Old

“Method – People”

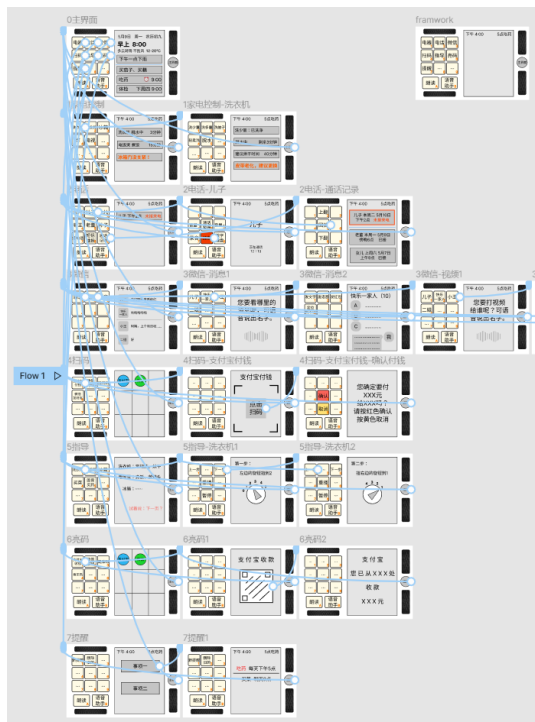
“联系方式-联系人”

New

People - Method



Updates on our mid-fi



Smoother flow

Less confusions

Improved details

New

future: higher fidelity

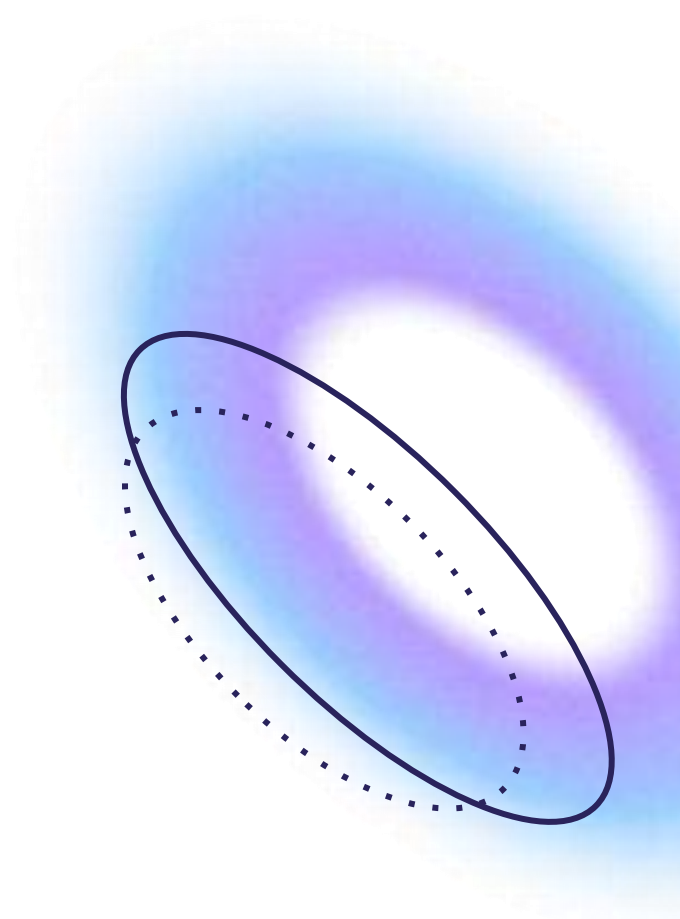


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07.

Summary & Outlook













































What we do?

Member:



李馨 李亦安 李振邦 张航菲 张若隐

Work	Participants	Work	Participants
Brainstorm of topic	    	Concept Video	 
Questionnaire and Interviews	    	Low-fi prototype	
POV	 	Mid-fi prototype	 
Brainstorm of Ideate	    	Group heuristic test	   
Mindmap		3D model	
Presentation	   	PPT	    
Discussion	    		

What we learn?

Member:



李馨 李亦安 李振邦 张航菲 张若隐



帮助老人更好地在智能产品环绕中生活一直是我想做的，这次课程项目经历让我深入了解了他们的使用困境。与之前不同的是，这次我们得以更系统地思考解决方案，在共情、优化等步骤中得到了更理论的指导，系统性和细节兼具；并且得到了一个相对完整的解决方案，也知晓了应当如何进行产品的进一步测试分析。这完整的实践流程让我的头脑非常清醒，而不只是之前天马行空的想象。HCI令我受益匪浅，收获良多。

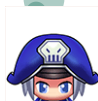


在本学期的HCI课程中，我们从发现问题出发，经历了分析问题、头脑风暴、原型制作、测试和评估等等，最终收敛出了我们今天所呈现出来的较为完善的方案。整个过程是充满了各种挑战也收益颇丰的，体验和实践了HCI的完整流程，在小组合作中共同解决一系列问题。当经过反复修改做出这个符合我们预期，得到老人好评的原型时，我倍感开心，这是对我们努力的认可，更因为它实实在在解决了老年人们的痛点问题，让每个人都能享受到科技带来的便利。



这次的选题，是和同组同学里讨论家里老人生活痛点时有感而发的产物。以前仅仅是停留设想，这次得到了使用HCI的思维方式、技术点和工作流程去系统思考问题，发掘真正的需求，得出，测试和修改解决方案这一完整过程的体验。最终也做出了得到老人和其他用户们一定程度上认可的模型，无疑是快乐又收获丰富的。

虽然我们平时对于身边的各种电子产品如手机平板等经常抱怨功能不好用，对于平时使用的许多软件或者网站也时常吐槽设计不合理，但当我们自己来做软件和产品的时候才能够体会到这个过程是多么不容易，同时也回看到了现在市面上的许多产品的闪光点。后来我们通过细致的测试，多方取经修改，最终做出一个符合我们设计的原型，虽然它的完成度没有那么多高，但能够让被测试者不自觉地称赞一些功能和设计，我们已经感到非常开心了。



在确定需求的过程中，和身边的老人进行访谈时，除了发现老人们使用电子设备和智能家电时操作性的问题外，还发现老人们修复意外错误的能力是很差的，比如他们误点了广告或软件下载时，他们很难中止这些意外的发生，所以简洁和错误预防也是我们在产品设计中非常重要的部分。并且完成了从需求寻找到模型设计与评估全部流程，从中学到了很多方法和理论，收获颇丰。

Thanks

They are our grandparents, our parents and ourselves in the future.
Helping them is helping ourselves.
