

HELLO

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01

AIR TOUCH

Group | Interaction Design | HCI



02

THREE DAYS TO SEE

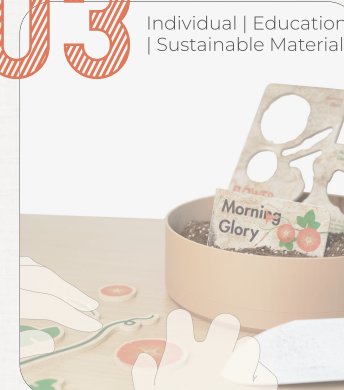
Group | Empathy Design | Inclusive



03

THE BOOK OF LIFE

Individual | Education
| Sustainable Material



04

CASTING LOTS

Individual | Empathy
Design | Inclusive



05

INCLUSIVE FRIDGE

Group | Inclusive |
Design Research



01.

A Gesture-Based Interaction System for Seamless In-Car Control

AIR TOUCH

apollo × IDEENION

Team Project
- 6 months -
(2024.03-2024.08, CHINA, GERMANY)

Breaking the Mapping Barrier Between Humans and Vehicle Functions.
Revolutionizing In-Car Experiences with Direct, Intuitive, and Human-Centered Interaction.

BACKGROUND



This project, a collaboration between IDEENION, Apollo, and ShanghaiTech University, explores the future of luxury car interiors.

I worked with two teammates to complete the main development, with technical, design, and financial support from IDEENION and Apollo. The project included 5 months of remote collaboration with IDEENION and 1 month on-site in Germany.



My Role

- Research and concept development.
- Gesture design and testing.
- 3D model refinement and form design.
- Embedded System architect & programming.
- Proofing, debugging, and fine-tuning.
- Animation and physical model creation.



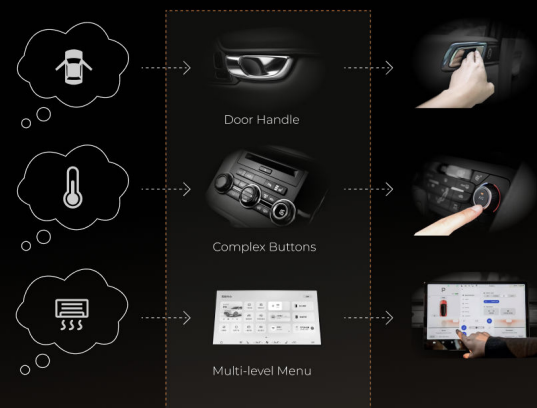
Motivation

As in-car features grow more complex, traditional controls often confuse users.

Our goal was to simplify interactions and adapt to future in-car demands.

01 CHALLENGES

Mapping Barriers



Mapping

Mapping adds steps between intent and control, reducing directness.

How might we eliminate this process?

New Trend

As technology advances and driving becomes secondary, richer functions demand a more intuitive and natural interaction system.



Large Space / Out of Reach

What if by Air?



More Components / Complex Controls

What if by Touch?

02 RESEARCH

Current Interaction

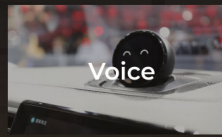
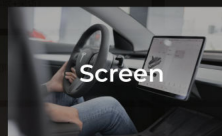
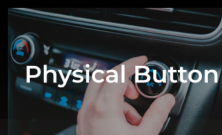
Pros

Blind operation
Sense of operation

Operating accuracy
Controllable content

Non-intrusive to driving
Satisfy vague instructions
Mature language model

Remote operation
Simple action



Cons

Manufacturing cost
Complicated mapping

No blind operations
Complicated menu

Delayed reaction
Unnatural interaction
Inaccurate

Learning cost
Limited scope
Limited choice

In-vehicle Experience + User Interviews

Conducting in-vehicle experience testing and contextual user interviews to evaluate interaction methods and identify usability challenges.



Usage



~20% for basic tasks



~40% for daily controls



Limited

Strengths

Hands-free, simple tasks

Detailed settings, buttons

Intuitive, touchless

Issues

Low precision, rarely used with passengers

Multi-level menus, distractions

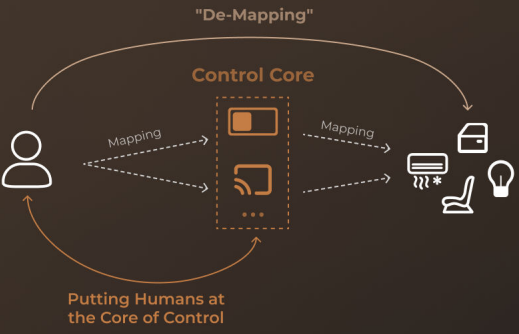
Minimal integration, low precision



Current systems demand greater precision and more intuitive interactions, *placing humans—not buttons or screens—at the center of control*. Gesture recognition holds the potential to meet this need.

03 OBJECTIVE

"Creating a *truly human-centered interaction system* for more natural and intuitive control."



Gesture-based controls enable intuitive interaction with most vehicle functions, offering **clear and natural feedback** like light and sound, adaptable to large spaces and complex features.

04 INSPIRATION



How might we

enable in-car components to light up when pointed at, creating a similarly intuitive experience in VR?

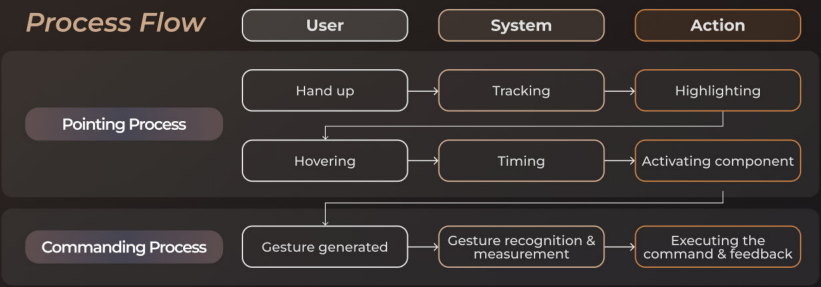
Challenge

Casual Hand Movements <-----> Intentional Control Gestures

Solution

A "loading" process activates components only when the user's gesture is sustained and intentional, with the loading ring providing clear feedback for precise control.

Process Flow



05 IDEATE

Why choosing AC as an example?

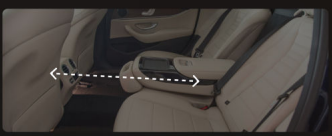


1 Complex System

- Multiple functions
- High interaction frequency

2 Inconvenient interaction

- Fixed air outlets in large space
- Some are hard to reach (e.g. console)



3 Delayed Feedback

- Temperature and airflow changes not immediately perceivable

Solution

Light and sound for immediate, intuitive feedback

06 DEVELOPMENT

Form Design



Interaction & Feedback Design

Surveyed **10 drivers / passengers** on instinctive gestures for specific functions (e.g., adjusting direction) to design intuitive controls.

We also **incorporated traditional AC interaction** habits to ensure the design feels intuitive and aligns with users' existing expectations.

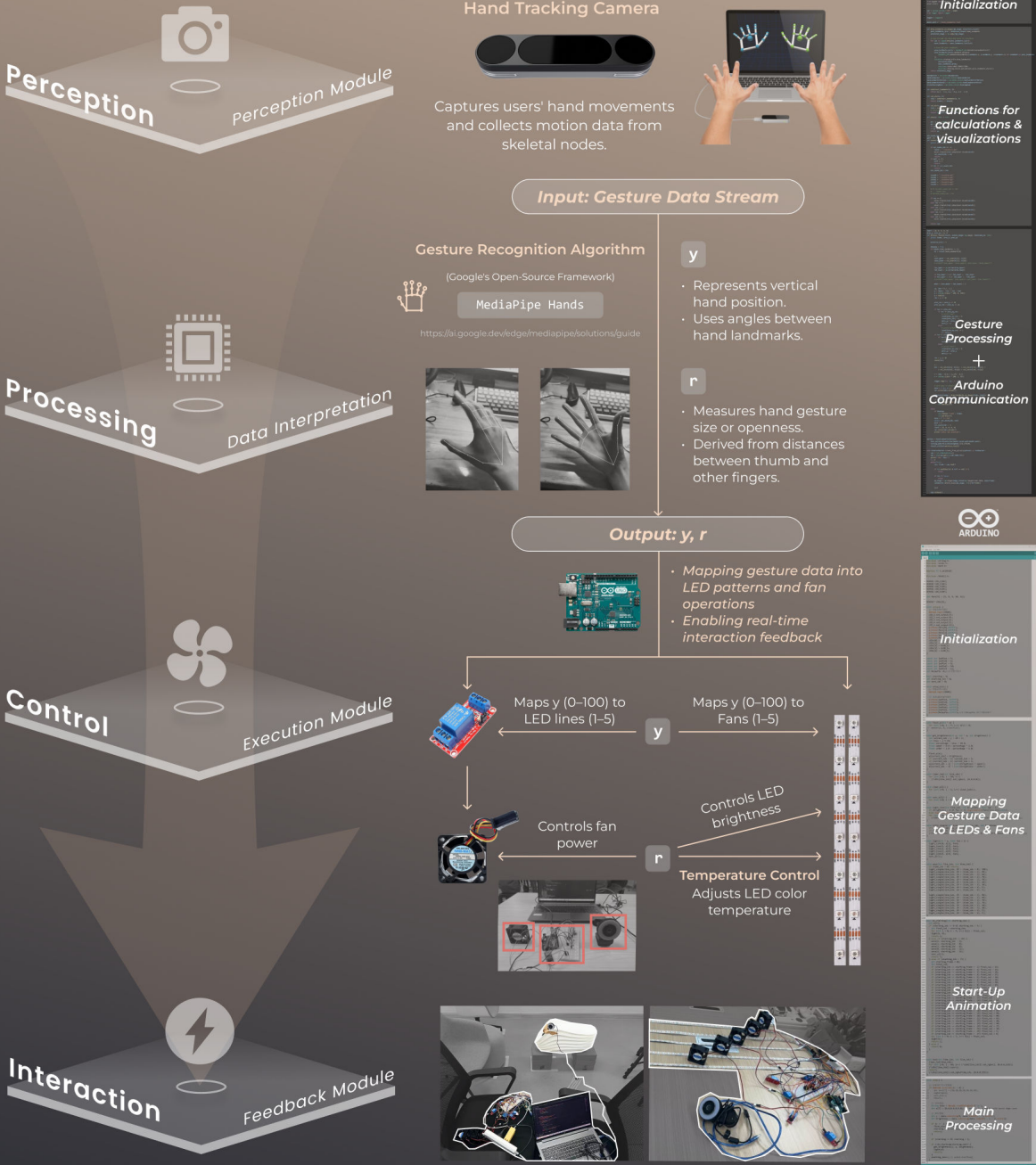


Increase & Decrease Flow Velocity Upper & Lower Air Outlets Direction Temperature Adjustment



07 PROTOTYPE

System



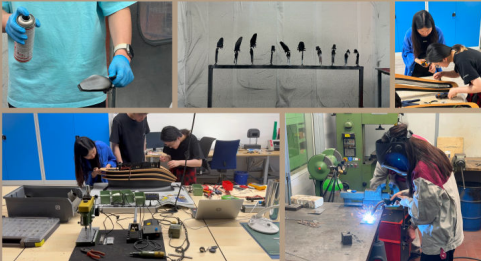
08 WORKING MODEL

Physical Model Making



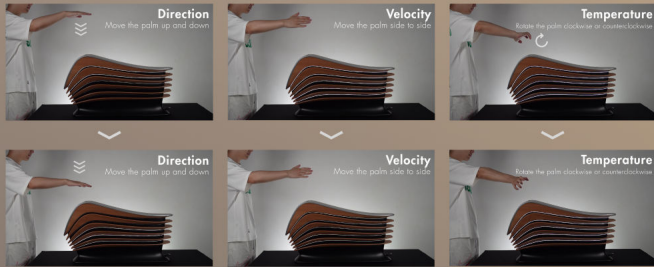
My Contributions

Modified 3D models, 3D-printed components, sanded and painted surfaces, and completed the final assembly.



Interaction Testing and Adjustment

Parameters were fine-tuned to improve performance and adapt to different users.



Final Model Showcase



02. Three Days To See

Team Project
- 3 months -
(2024.01-04, Shanghai, CHINA)

Three Days to See are **emergency glasses** designed for myopic individuals in urgent situations. Featuring **adjustable liquid lenses** and a **nose clip** instead of traditional arms, these glasses greatly enhance versatility and increase the chances of rescue.



reddot winner 2024



THE TEAM



This project was created at Tend Design Studio, which I co-founded with my partners Song, Fan, Luo and Deng.



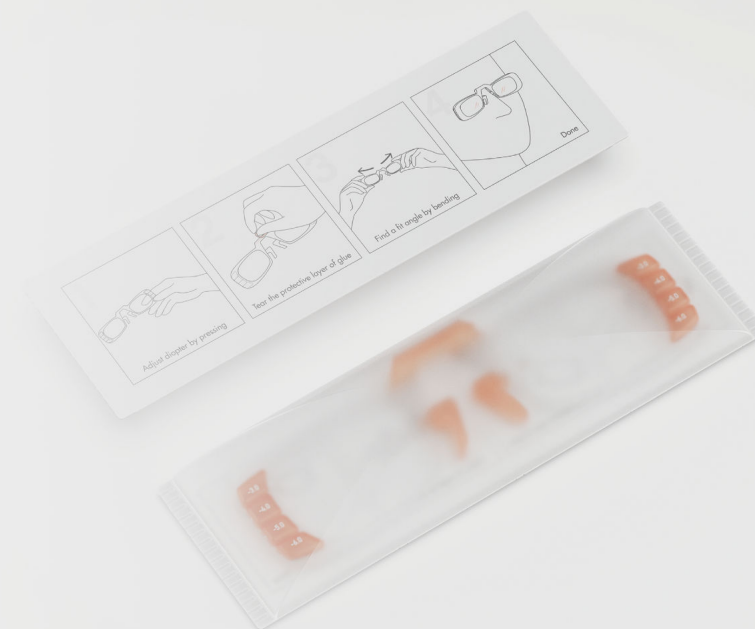
Motivation

We are all **nearsighted**. After an earthquake struck a nearby city, we realized that **losing our glasses in such a situation would be extremely dangerous**. Yet, the needs of this large and vulnerable group were overlooked in rescue efforts. We aimed to address this issue.



My Role

In this project, I was mainly responsible for **research, defining design objectives, design & modeling, iteration & testing, as well as patent application**.



01 PROBLEM

Nearsightedness

They face more difficulties than others in emergency situations. However, conventional first aid supplies typically do not include glasses.

What happens to a nearsighted person in an emergency?

Hard to see emergency signs

Victims feel scared and unsafe

Hard to adapt to life in settlements

Complex & dangerous environments

Glasses are easily lost or damaged

02 RESEARCH

Existing First-aid Kits



What's in the First-aid Kit?

- Simple bandaging tools
- Mostly disposable
- SOS tools (flashlights, whistles)
- No glasses!!

Emergency Shelter

Components of key supplies

Water	7.5-15L / person / day	Clothing	Food	Water
Toilet	One for every 20-50 persons	Disinfection	Housing	Other Activities
Disinfection	Chlorine solution at 2% concentration			
Food	2100 calories / person / day (53g)			
Housing	3.5m² / person, One folding bed, One			
Clothing	Two full sets of clothing / person			

Reference: "Emergency Management Industry Standard of China"

Environmental features

- Similar tents → Get lost
- Unfamiliar environment
- Confined space



Interview

Our interviewee, a person who relies on glasses to see the world clearly, shares her story of unexpectedly losing her glasses.

Olive

- Highly myopic (~7.00D)
- Frequency of wearing glasses: Daily
- Experience: Her glasses once slipped off and broke while she was going down the stairs.



"I could roughly estimate the height of the step. But at that moment, I felt extremely uneasy, helpless, anxious and lost. In my panic, I slipped."



When people who wear glasses for a long time suddenly lose their glasses, especially in emergencies, they may feel insecure and have difficulty making judgments, increasing the risk of accidents.

Insight



Great sense of insecurity

Blurred vision can cause a strong sense of insecurity, leading to greater risks.

Risky environments

In emergencies, the road conditions are often complex, with many obstacles and potential new dangers.



Poor access to information

There will be many rescue signs or information at the first aid scene to help get assistance quickly.

Unfamiliar settlement life

Similar tents and an unfamiliar shelter environment can easily cause people to get lost or trip.

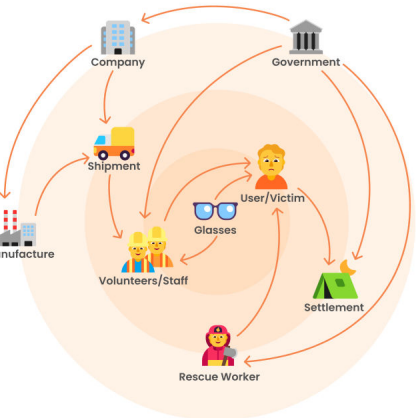


03 OBJECTIVES

NOT Only For End Users

In this project, as the product is an emergency rescue tool involving many stakeholders from production to usage, the design must comprehensively consider all stakeholders throughout its lifecycle.

Stakeholder Map



Design goals for different stakeholders

Volunteers/Staff	Easy to DISTRIBUTE	UNIVERSALITY	Adjustable diopter + Fits all head & face shapes
User/Victim	Easy to USE	Easy to understand + Simple operation	
Shipments	Easy to TRANSPORT	Flat packaging + Unbreakable	
Manufacture	Efficient to PRODUCE	Stable materials + Simple structure	
Government	COST EFFICIENCY	Fewer components + General demand	

04 IDEATION

How to wear eyeglasses?

Iteration Process

01 Glasses with legs	02 Glasses with band	03 No legs, but noseclip	04 Another noseclip
☒ Easily damaged	☒ Adjust band length	☒ Flat, fits all regardless of face shape	☒ Steady: Nose clip and forehead support (+ tape)
☒ Not suitable for different people	☒ Not fitting the shape of the face	☒ Unsteady	☒ Comfortable: Human factors engineering

How to adjust the diopter?

01 Glass / Plastic / Polycarbonate

Most common, but it cannot change diopter after production. This requires the preparation of multiple diopter lenses for adjustment.

Multiple diopter lenses > Expensive + Inconvenient for quick distribution

02 Liquid glasses lenses

Elastical deformation of the elastic case by increasing or decreasing the volume of liquid, resulting in a diopter change.

Transparent Refractive index = Glasses

Transparent & Flexible

Add liquid

Diopter ↓

How to adjust the volume of liquid in the lens?

01 Injector Structure

Increase or decrease the volume of liquid

Many Components:

- Complex structure
- Big size
- Hard to keep airtight
- High costs

02 Connected bubbles

Inspiration

Pill Packaging

When a "bubble" is pressed, the pill is pushed out and the "bubble" doesn't bounce back.

What if the "bubble" is filled with transparent liquid?

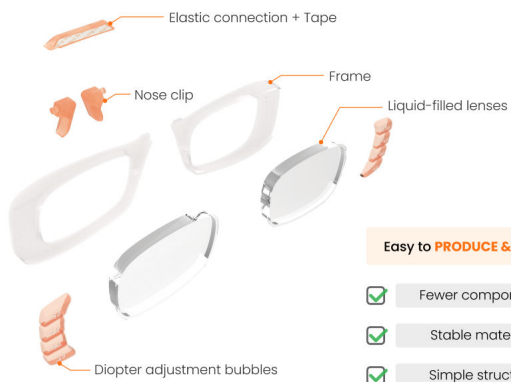
Simple structure and fewer parts

Fast adjustment of diopter

05 FINAL DESIGN All Design Goals Were Accomplished!



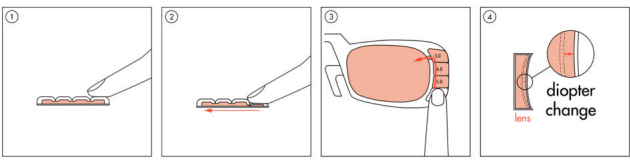
Explosive View



Easy to PRODUCE & CHEAP

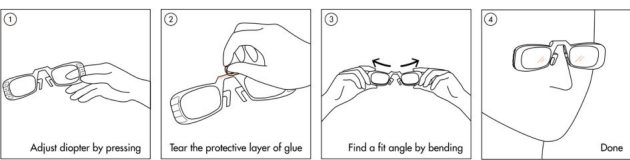
- ✓ Fewer components
- ✓ Stable materials
- ✓ Simple structure

Mechanism



Utilizing liquid injection to alter the lens thickness and consequently modify diopter. Four bubbles facilitate the control over liquid injection, ensuring **simplicity and ease of operation**.

Wearing Method



The design adapts to **different face shapes and head sizes**. Instead of traditional legs, the glasses use a **nose clip and medical tape for support**.

The innovative liquid-connected lens with bubbles structure allows for **easy adjustment of the diopter**, ensuring great versatility.

This is highly beneficial for the **production, distribution, and use of emergency supplies**.

Easy to DISTRIBUTE & USE

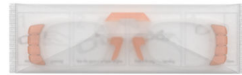
- ✓ Fits all head & face shapes
- ✓ Adjustable diopter
- ✓ Simple operation

Packaging



The package features a **flat design**, which makes it easy to put into any firstaid supply kit.

Additionally, **clear and user-friendly illustrated instructions** are provided on the package's back, ensuring quick and easy use for anyone.



Easy to TRANSPORT & USE

- ✓ Easy to understand



Flat packaging



Unbreakable

Cost

One SKU for Diverse Use

Disaster supplies, backup temporary glasses at home (in first aid kits), transition period after losing or breaking glasses before getting new ones

General demand

25% of the global population is nearsighted, **3.344 million** people at emergency shelters per year
Reference: Data released by China's Ministry of Emergency Management in 2023

- ✓ Fewer components



Single-SKU product

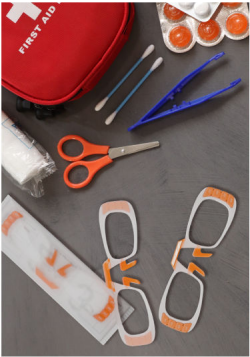


Massive production

Low fixed cost



COST EFFICIENCY



06 PROOF

Concept Proof

I designed an experiment to verify that the liquid lens adjustment structure I envisioned would be effective.

Principle



Objective

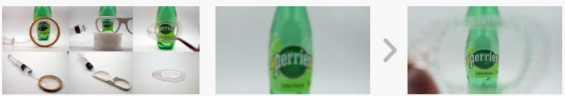
To verify the feasibility of adjusting the refractive power by changing the lens thickness through regulating the amount of liquid in the cavity of the liquid lens.

Experimental Process



Result

The **clarity changes significantly** with different lens shapes as the thickness is adjusted by adding or removing liquid.



Usage Proof

Wearing Process



Long-time Stability Test



By wearing this glasses for **5 hours during daily activities** (walking, communicating, eating, etc.), it was verified that its **stability** meets temporary needs.

Adaptability Test

Testing on individuals with different face shapes and head sizes demonstrated the glasses' **versatility**.



07 FEEDBACK

We presented the design concepts to various stakeholders and sought their feedback to optimize our concepts.

User

"The nose clip feels pretty handy, and adjusting the diopter is straightforward. I think a **softer material for the clip** would make it more comfortable, especially if worn for a while."

Keywords for future work:

Nose clip material, Extended wear usability



Emergency Shelter Volunteer

"I can see these glasses **saving us time** in distribution since people could adjust them themselves. But I'm worried about if they'd still work if stored in harsh weather, like **prolonged sunlight**."

Keywords for future work:

Long-term storage, Extreme conditions



Truck Driver

"The flat design looks like it'd make stacking and unloading a lot easier, which could **save space**. I'd suggest **adding some padding** to the corners to prevent any damage during transport."

Keywords for future work:

Packaging protection, Transport resilience





03.

Interactive Plant Puzzle

Linking Play, Learning, and Nature

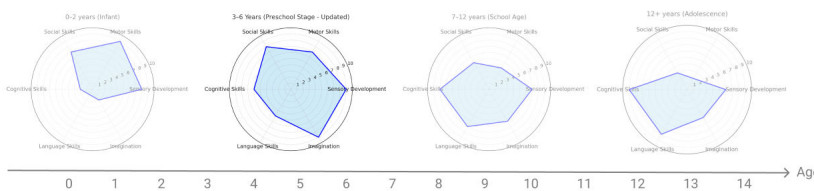
Individual Project
- 1 month -
(2024.01-2024.02, Shanghai, CHINA)

This project combines innovative biomaterials with a plant-themed puzzle to create an engaging and educational experience for children. By assembling the puzzle, learning about plant structures, and planting the biodegradable frame, kids explore nature hands-on while fostering responsibility, curiosity, and ecological awareness.

01 BACKGROUND

Stages of Child Development and Educational Needs

Children's developmental needs vary significantly across stages, with each period emphasizing specific abilities. By analyzing these stages, we can align educational tools with their natural growth trajectories.



The preschool years (3-6 years) are vital for sensory, motor, and imaginative growth through hands-on exploration and interaction.



Sensory skills peak as children explore the world hands-on.



Imagination drives creativity and early problem-solving.



Social interaction begins to shape collaboration and communication.

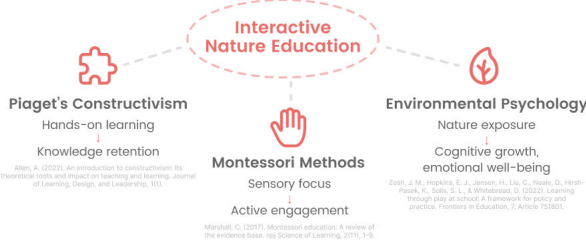
02 RESEARCH

Which Educational Approach Engages and Develops Best?



- | | | |
|--|---|--|
| ☒ Resource-rich | ☒ Teacher guidance | ☒ Hands-on exploration |
| ☒ Harms eyesight | ☒ Limited personalization | ☒ Sensory growth |
| ☒ Lacks tactile experience | ☒ Low engagement | ☒ Creativity & curiosity boost |

Theoretical Research



Existing Products



Exploring Potential Design Directions

HANDS-ON EXPLORATION

Interactive products focusing on sensory development and tactile engagement.

ECOLOGICAL STORYTELLING

Designs embedding environmental narratives to foster ecological awareness.

MATERIAL INNOVATION

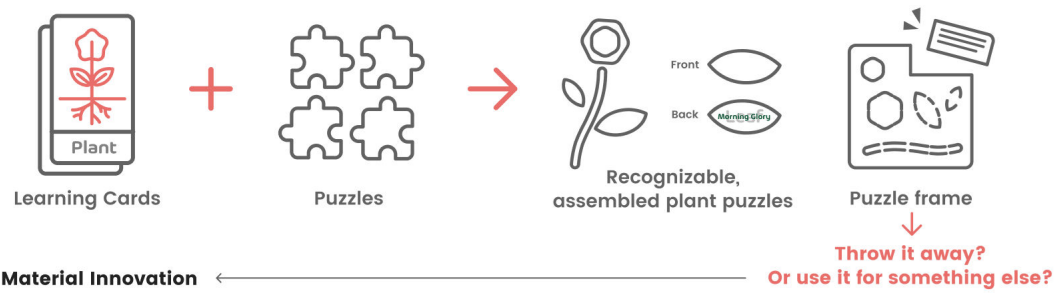
Leveraging biodegradable, plant-based, or upcycled materials.

COLLABORATIVE LEARNING

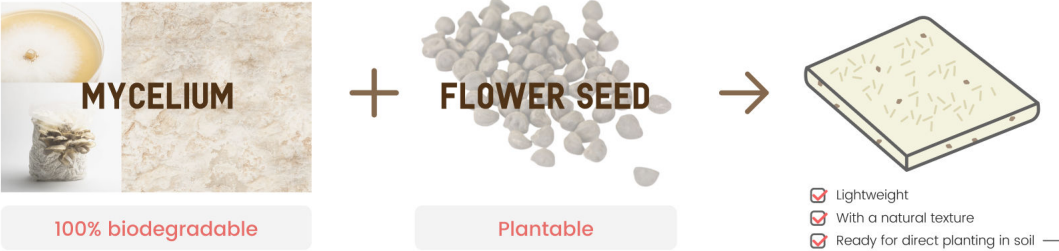
Tools encouraging peer-to-peer or parent-child interaction.

03 IDEAT

Merging Nature, Play, and Learning



Material Innovation



04 DESIGN

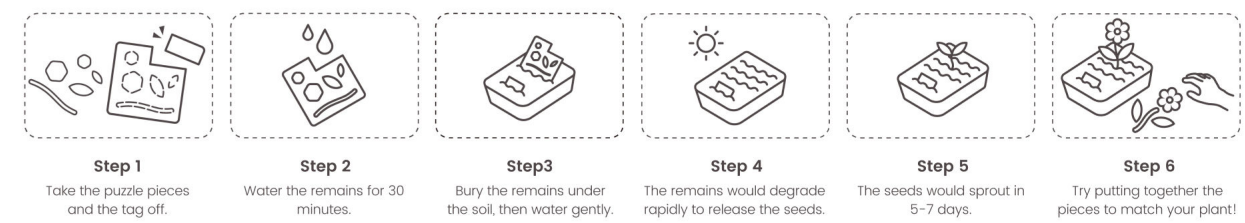
The Book of Life



A plant-themed puzzle made from innovative biodegradable biomaterials combines sustainability with tactile, nature-based learning. Through hands-on assembly, observation, and planting, children actively explore plant structures, compare parts, and connect with nature, fostering curiosity and engagement.

- #Interactive Learning
- #Sustainability
- #Nature Education
- #Sensory Engagement
- #Hands-On Exploration
- #Parent-Child Interaction

How to plant?



1

Comparative Learning

- Use the descriptions on the back of each puzzle piece to compare parts of different plants (e.g., leaves, flowers, stems).
- Encourage recognition, matching, and comparison skills through observing variations in plant anatomy.

Planting the Puzzle Frame

- Place the biodegradable puzzle frame into the soil to grow the corresponding plant.
- Foster parent-child collaboration to instill a sense of responsibility, enhance observation skills, and create joy by comparing real plants with their puzzle counterparts.

Recreating Plant Structures

- Assemble the puzzle to form a plant's structure, helping children understand its components and how they fit together.



How to Play

Children can easily detach the puzzle pieces, and will be protected by the large, round and soft pieces while playing with them.

Info Cards

Parents supplement knowledge while accompanying their children.

Content

The book collects numerous types of plants, allowing children to explore the growing process of different plant species.

Rope Packaging

The book eschews the heavily polluting adhesive binding method, opting for eco-friendly and natural hemp rope packaging.



Material

The innovative application of seed-embedded mycelium on children's educational products promotes the principle of maximizing utility, minimizing waste.

05 FEEDBACK

I created a prototype and invited a 5-year-old child and her mother to playtest it together.

Kid (5 years old)

"The puzzle feels so nice to touch! I finished a whole morning glory flower, and I'm super happy!"

Keywords:
Tactile sensation, assemble, sense of achievement

Parent

"The concept is fantastic! My child loved assembling the puzzle and learning about plants. Even though it's just a prototype, the idea of growing a plant from the puzzle is really exciting. Clearer instructions would make the process even smoother."

Keywords:
Natural education, planting, clearer instructions

Future Work

- 1. Optimize User Flow and Instructions**
 - Streamline the overall experience to make it smoother and easier for parents to engage effectively.
- 2. Develop an Evaluation System**
 - Create a framework to assess the effectiveness of this design, enabling better iteration and validation.

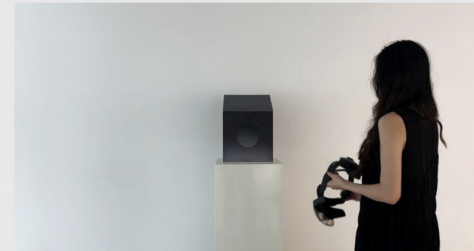
04.

CASTING LOTS IN MODERN FORM

Modern Interpretation and Interactive Redesign of East Asian Casting Lots Rituals

Team Project + Individual Development
- 4 months -
(2023.10-2024.02, Shanghai, CHINA)

This project uses interactive and entertaining design to ease the anxiety around uncertainty. By merging traditional rituals with modern technology, it encourages a playful exploration of the unknown, promoting a healthier relationship with uncertainty.



My Role

This project is a team collaboration with my personal **MR expansion**. I was responsible for interaction flow, installation and structural design, Arduino programming, Unity for MR, and photography.



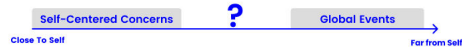
Motivation

Inspired by the turn to mysticism amid uncertainty and the anthropological concept of the 'vanishing nearby,' this **MR-based interactive design** helps young people reconnect with reality.

01 BACKGROUND

Anthropologist Xiang Biao points out that young people often feel bored and indifferent to what's nearby.

What do young people care?



They focus only on personal development and follow global events through social media. However, there's a gap between these abstract, large-scale topics and the uncertain, personal ones. This gap is the 'nearby' in our daily lives.

The 'vanishing nearby' leaves young people feeling lost, anxious, and disconnected from reality when dealing with real-life issues.



(Rebuilding the nearby: how can young people gain strength from reality? Interview with Biao Xiang (Part 2). Interview by Lan Kang. <http://hdl.handle.net/2111116/0000-0000-0209-B>.)

What happens when lost in DISCONNECTION?



Time Waste on Unanswerable Questions

This habit diverts attention from meaningful actions or experiences in the present.



REALITY



Diminished Awareness of the Nearby World

This disconnection causes young people to miss out on everyday beauty and meaningful real-world experiences.



Loss of Creativity

This can result in a decrease in innovation and fewer new ideas.



02 INSPIRATION



Then a peculiar phenomenon occurs...

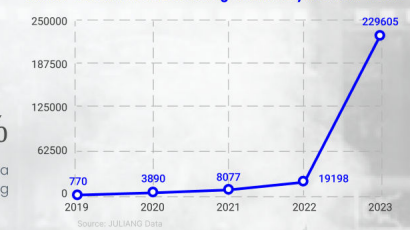


78%

of young people in East Asia have engaged in fortune-telling activities, like casting lots.

Source: NetEase Digital Reading 2023.03

Search volume for fortune telling related keywords on TikTok

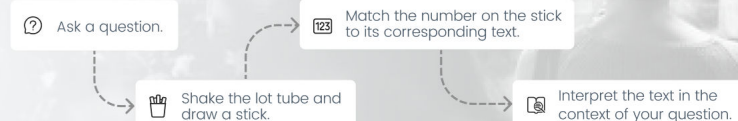


Fortune-telling is trending among young people again!



Casting Lots - One of the Most Popular Fortune-Telling Methods

How does it work?



03 RESEARCH

Why do they like casting lots?

01 Psychology



High-risk Situations with Uncertainty

"Believe in something, whatever it is."

Uncertainty ↓

Researchers found that in **high-risk situations with uncertainty**, people often **rely on beliefs or superstitions**, showing a tendency to "believe in something casually."

Simple superstitions then become a common way for young people to **relieve stress and cope with uncertainty**.

02 Anthropological



Daily Constraints



Ritual Escape



Sense of Freedom

Casting lots is an **extraordinary ritualistic behaviour** that allows people to escape the constraints of daily life.

By engaging in this practice, they experience a **sense of liberation** from the 'control' of routines, finding joy beyond structured living.



Traditional vs. Modern

01 Form



- Temple setting
- Bamboo sticks

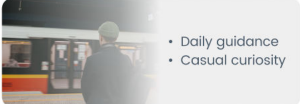


- Digital apps
- Diverse in form

02 When

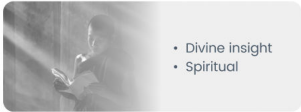


- Festivals
- Life milestones



- Daily guidance
- Casual curiosity

03 Meaning



- Divine insight
- Spiritual



- Personal growth
- Reflective

Casting Lots becomes more **"entertainment-oriented"** and **"integrated into daily life,"** reflecting a shift from a serious ritual to a more popular and accessible experience.

04 DESIGN GOAL

Phenomena

"Vanishing Nearby" + Re-emergence of casting lots

Challenge

Anxiety caused by uncertainty & Disconnect from reality + New scenarios and needs for casting lots

Approach

Reinterpret the traditional divination ritual with a modern, interactive redesign

Goal

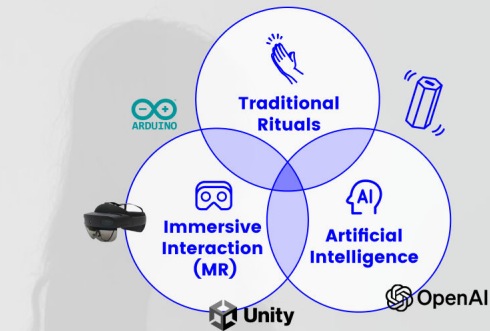
Immersive experience

Reducing uncertainty

Refocusing on reality

Entertainingly deconstructing the anxiety of uncertainty

04 IDEAT



Why MR?

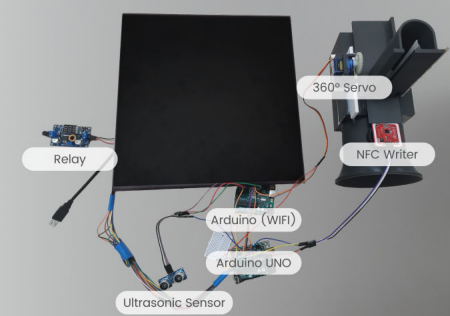
- Enhance Immersion**
MR technology blends virtual content with the real world, creating a mysterious visual and auditory atmosphere, enhancing user immersion, and making it easier for them to enter a ritual state.
- Enrich Interactivity**
Traditional divination rituals are dull and complex with poor interactivity. MR allows users to interact in various ways, like gestures, enhancing their connection to the divination results.
- Fusion of Traditional Rituals & Modern Technology**
MR technology presents traditional divination rituals through modern technology, allowing users to experience ancient practices in innovative ways, leading to new reflections.

05 INSTALLATION DESIGN

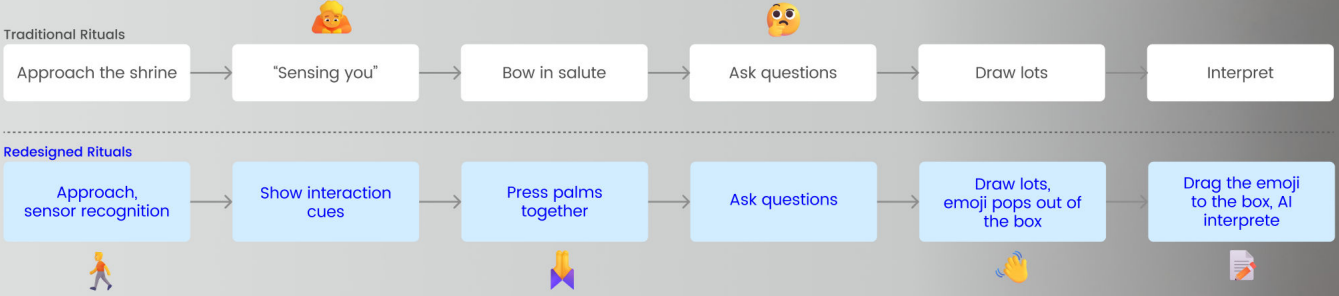
Moodboard & Sketch



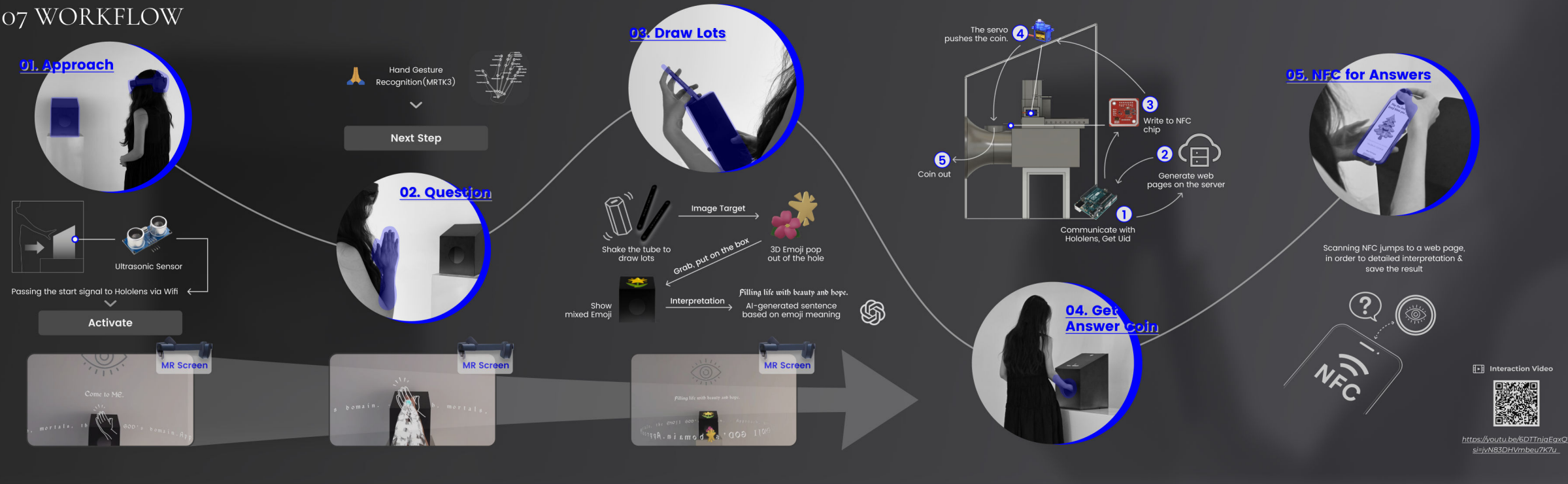
Circuit Design



06 INTERACTION DESIGN



07 WORKFLOW



08 EXHIBIT & FEEDBACK

Exhibition + Media Coverage

Our project was exhibited at Isola District, one of the largest venues at Milan Design Week 2024, and received coverage from Isola Media.

<https://isola.design/Journal-casting-lots-in-modern-form-by-chenchen-du-yutong-luo-jiaxin-he>

isola Milan Design Week 2024

FEEDBACK

Captivated & Engaged

Users are drawn in by the mysterious design and start interacting.

Serious Questioning

Users carefully think about their question.

"What is this?"

"Hmm, let me think carefully about what I want to ask."

Coin Interaction

Users are fully think about their question.

"Whoa! What's this coin for?"

NFC Scan & Self-Interpretation

Scanning the coin reveals an emoji, which sparks curiosity and self-reflection.

"Wow,Emoji! This could be a sign for me hhhh!"

09 REFLECTION

Technology's Role in Easing Emotional Tension

Using technology to transform divination into an entertaining experience shifted people from tension to curiosity, making uncertainty feel less intimidating.

What Comes Next?

Once the anxiety eased, users engaged with the emojis humorously and reflectively. The challenge is: how can we guide deeper reflection without losing the playfulness?

Future Directions

- Integrate long-term interaction for ongoing engagement with uncertainty.
- Incorporate AI to track users' anxiety and uncertainty over time.
- Balance entertainment & reflection for deeper emotional growth.

Milan Design Week 2024

Isola Design Festival, 15 - 21 April

isola Via Valtellina 5

To receive the oracle of Emoji God You Need To ...

Approach

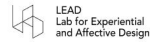
Touch

Get

Reveal

NFC

05. INCLUSIVE FRIDGE DESIGN



LEAD
Lab for Experiential
and Affective Design

Research on Improving
Fridge Usability
for Elderly Living Alone

Team Project
~ 4 months ~
(2023.01-04, Shanghai/Suzhou, CHINA)

This project is part of the **Inclusive Design Project Research** by LEAD Lab, where I led the research group focusing on elderly individuals living alone. Our investigation **revealed key challenges in fridge usage**, including memory decline, poor food organization, and reliance on leftovers. These insights highlight the **need for inclusive improvements to fridge design**, tailored to the unique needs of this demographic.

01 BACKGROUND

Target Group

Elderly Living Alone

Definition:

Elderly living alone are individuals aged 65+ who live without children or caregivers, either alone or with a spouse.

1.91 Billion

In 2020, 65+ population reached 1.91 billion, 13.5% of the total. By 2057, it will grow to 4.25 billion, over 1/3 of the population.

Aging population is growing rapidly.

Source: Ren, Zeping, et al. (2022). Aging Research Report 2022. Zeping Macro.

19.7% Dependency Ratio

By 2050, every two working-age individuals will support one elderly person.

Rising dependency stresses family.

Source: 21st Century Business Herald. (2019). How Pressing is the Pension Burden? in 16 years, Every Two Workers Will Support One Elderly Person. Retrieved from

36.6 Million

36.6 million elderly live alone in 2020; will rise to 159 million by 2050.

More elderly live alone.

Source: Ren, Zeping, et al. (2022). Aging Research Report 2022. Zeping Macro.

urgent need for better solutions to support their independence and well-being

02 OBSERVATION

Approach: Shadowing

IDEO

HOW: Tag along with people to observe and understand their day-to-day routines, interactions, and contexts.

WHY: This is a valuable way to reveal design opportunities and show how a product might affect or complement users' behavior.

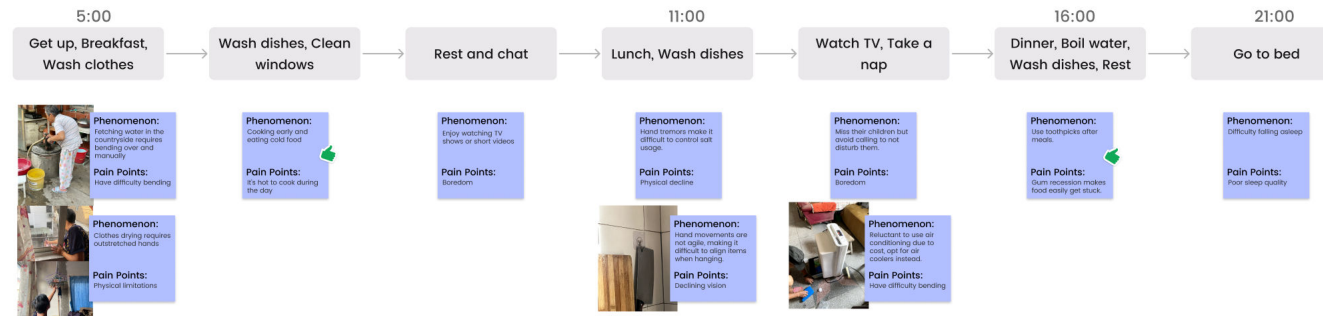
Approach: A Day in the Life

IDEO

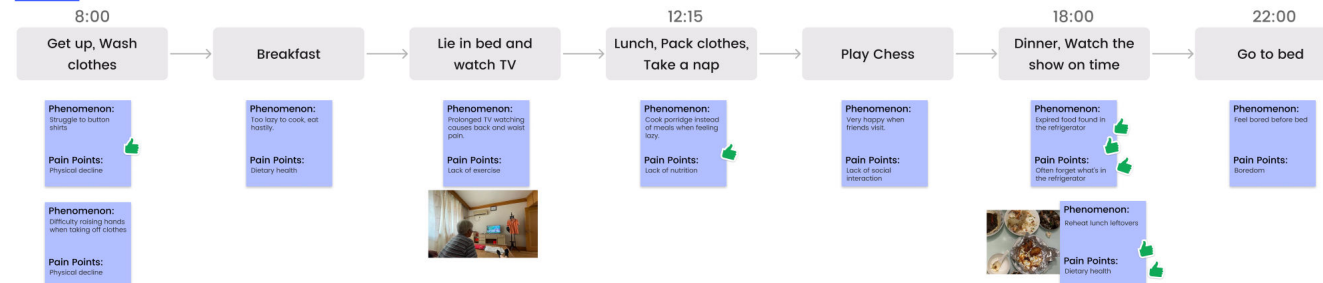
HOW: Catalog the activities and contexts that users experience throughout an entire day.

WHY: This is a useful way to reveal unanticipated issues inherent in the routines and circumstances people experience daily.

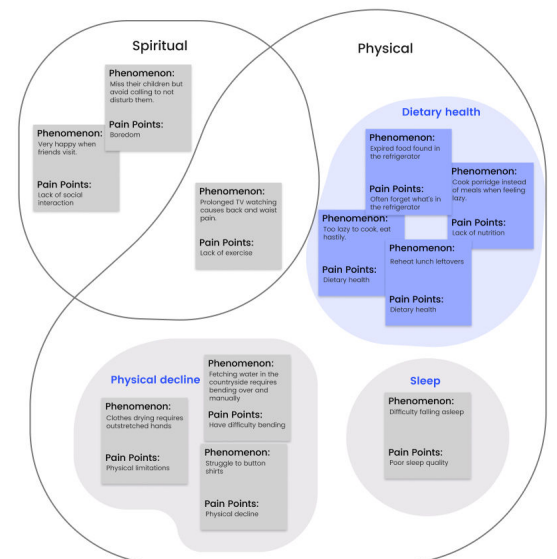
User 1



User 2



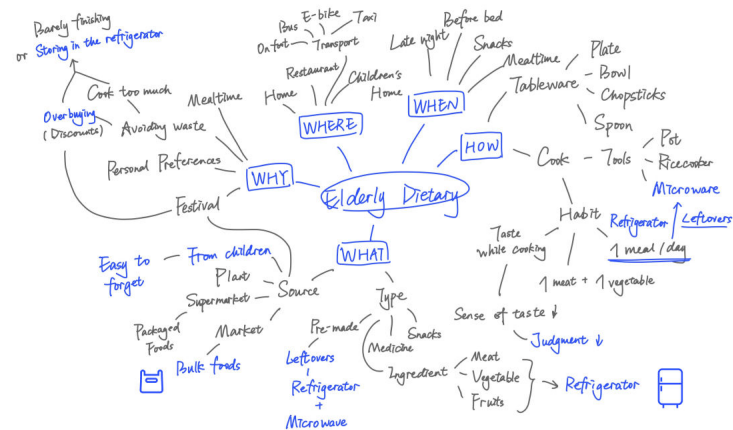
Grouping & Organizing



I categorized the observed phenomena into two aspects: spiritual and material conditions. Through this process, I identified **dietary health** as an excellent entry point for addressing these issues.

03 RESEARCH

Brainstorm



We found that the **refrigerator plays a crucial role** in the dietary lives of the elderly. Due to specific habits or declining abilities, such as memory loss, frequent consumption of leftovers, and a preference for bulk foods without expiration labels, they rely heavily on the refrigerator but often forget what's inside.

● We narrowed our research focus to the issue of "fridge forgetting."

Desktop Research

Physiological Perspective

- **Memory Decline:** Aging reduces working memory, making it harder to recall fridge contents.
- **Taste Decline:** Difficulty judging spoiled food worsens fridge forgetting.



Current Solutions

I visited appliance stores and IKEA to explore existing solutions for **fridge organization and usability**, aiming to identify gaps and inspiration for improving elderly-friendly designs.

Electronic Retailer



Many fridges focus on advanced technology (e.g., smart features), but **few address visibility or ease of organization for elderly users**.

IKEA



IKEA offers **modular storage solutions** that improve item visibility and access, but they **rely heavily on user initiative** for implementation.

04 ON-SITE RESEARCH

Market

Location: Hengjie Wet Market, Suzhou, China
Date: March 19, 2023
Research Objective:

1. **Items bought:** type, quantity, traits
2. **Shopping behavior:** actions, tools carried



05 INTERVIEW

Home of Elderly Living Alone

Participants: Mr. and Mrs. Deng
Research Objective:

1. Fridge Contents and Organization
2. Fridge Usage
 - How do they interact with the fridge? Usage and management habits?
3. Why does forgetting frequently occur with the fridge?

Basic Info



Living Situation: The couple has been living alone without their children for over 15 years. They have two children who live in the same city.

Key Findings

Often cook only one meal a day and habitually eat leftovers.

During New Year, children give them large amounts of food, storing it in the freezer to eat gradually.

Refrigerated Section	
Canned food	
Leftover meals	
Pickled food	
Fruits	Vegetable

Freezer section	
Frozen meat	
Pre-prepared foods (dumplings)	
Frozen goods bought during Chinese New Year	



06 CONCLUSIONS

What's in the fridge?

- Long-term storage (>6 months)**
→ Prone to being forgotten.
- Short-term storage (<2 weeks)**
→ Freshness changes quickly.

How to use the fridge?

- Open → Observe → Choose**
Requires clear organization inside the fridge. If items are not visible, they are "forgotten."
- Recall → Target → Search**
Long-term stored items are easily forgotten; if not remembered, they are not searched for.

Why does "forgetting" happen in the fridge?

- The fridge is a **closed, high-density** storage space.
- **Freshness and expiration** dates of food are not easily visible.
- **Bulk foods** look similar and lack expiration labels.
- Elderly people **overly trust** the fridge, assuming items in the freezer won't spoil.

07 FUTURE WORK

Problem-Solving Directions

- **Fridge Organization Optimization:** Explore layouts and storage techniques that enhance visibility and access.
- **Memory Support Systems:** Investigate methods to help users track and recall stored items, such as labels, reminders, or digital tools.