



## CHAOTIC ECHOES

Combining Touch Designer concept programming and sound experimental design, this installation explores the fragmentation of information in an era of digital overload



## P·Y·R·E

Combining installations and digital media to explore speculative design for audience interaction, reflecting on the extremes of the independent female image.



## Tunnel Rescue Rail System

The combination of physical infrastructure and service management enables the rapid transfer of both the rescuer and the injured after an accident.



## Bright Bridge

Promote social interaction between visually impaired and sighted children in outdoor spaces through service and interaction design.

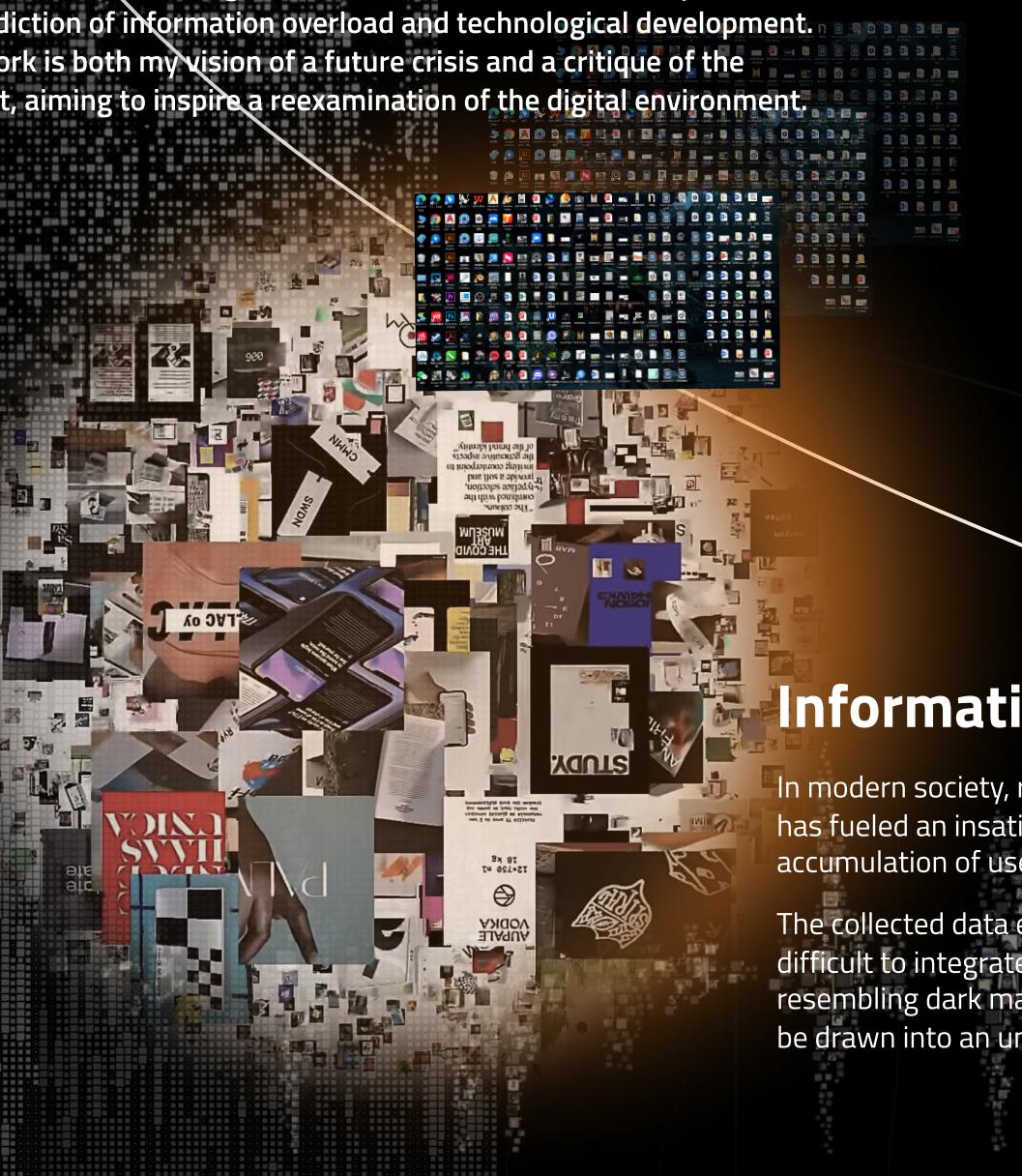


# CHAOTIC ECHOES

TOUCH DESIGNER CONCEPT PROGRAMMING & SOUND EXPERIMENTAL DESIGN

As technology advances and information expands, we are entering an era of information overload and fragmentation, where chaotic data and space debris create an invisible 'noise' that disrupts our cognition, emotions, and attention. This 'noise,' like the 'heat death' of meaningless information, burdens us mentally. Despite awareness of the issue, its expansion is becoming inevitable, leading to the increase in entropy of 'noise' and ultimately plunging us into crisis. This trend reflects a deeper sense of sorrow and helplessness.

Through particle visuals from Touch Designer and experimental sound design, I created the fragmented universe installation to explore the contradiction of information overload and technological development. This work is both my vision of a future crisis and a critique of the present, aiming to inspire a reexamination of the digital environment.



## Information Obesity

In modern society, reliance on digital devices and online platforms has fueled an insatiable collection of information, leading to an accumulation of useless data, termed "information obesity."

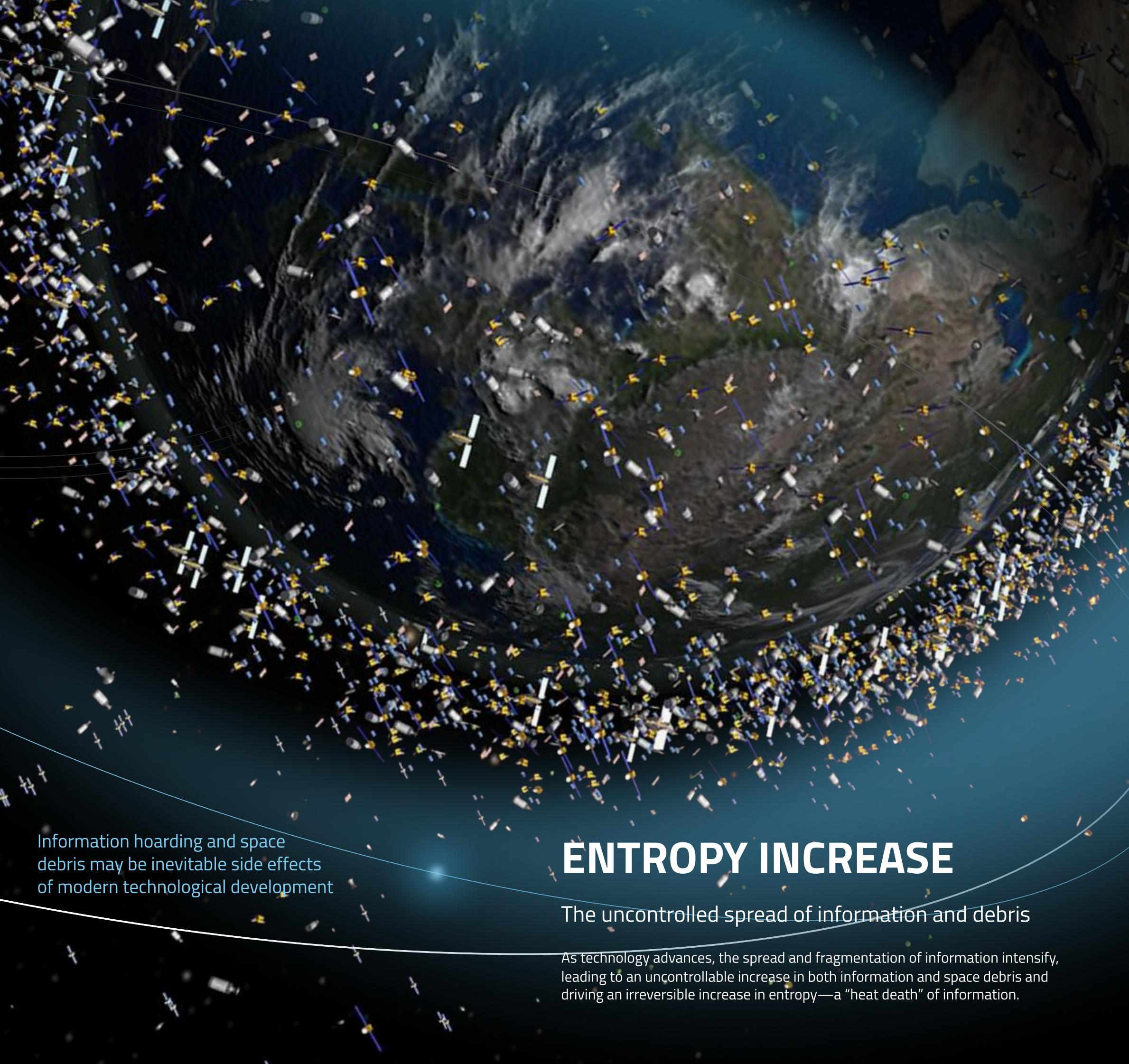
The collected data exists in fragmented virtual spaces, making it difficult to integrate and use effectively due to its complexity, resembling dark matter. Consequently, this information appears to be drawn into an unreachable virtual realm—a digital black hole.

## Interstellar Ruins

Earth's orbit has become a massive junkyard, filled with abandoned satellites, rocket parts, and countless high-speed debris fragments. The European Space Agency estimates there are over 130 million pieces, including around 36,500 larger than 4 inches and about a million between 0.4 and 4 inches. Even the smallest fragments, though less than 0.4 inches, travel at bullet-like speeds and pose serious risks to active spacecraft. This fragmented, unmanageable accumulation has effectively turned Earth's orbit into "interstellar ruins."

**MACROSCOPIC**  
Physical

**MICROSCOPIC**  
Virtual



Information hoarding and space debris may be inevitable side effects of modern technological development

## ENTROPY INCREASE

The uncontrolled spread of information and debris

As technology advances, the spread and fragmentation of information intensify, leading to an uncontrollable increase in both information and space debris and driving an irreversible increase in entropy—a "heat death" of information.

# KEYWORD

## NOISE

The experience of sensory simulation:

TIGHTLY SEALED  
UNABLE TO BREATHE

Information overload and distractions have transformed much of the data into meaningless noise, impacting attention, cognition, and emotions. This excess information, likened to the "breathlessness" of obesity data or the "noise" of too much information, reflects the mental burden of overload.

### MICROSCOPIC

Personal information overload creates a chaotic, suffocating effect, where fragmented data becomes noise, much like a digital black hole.

Noise can be understood as a consequence of information overload, where an excess of disordered and unrelated data accumulates, much like space debris that has nowhere to be contained or organized.

### MACROSCOPIC

Space debris mirrors this fragmentation, where the collision of celestial bodies results in disordered debris, analogous to the accumulation of disordered information in a system.

# REFERENCE

## A sea of data

Hito Steyerl  
2016 (e-flux Journal Issue #72)

## Dream English Kid

Mark Leckey  
1964–1999

## Data-verse 1/2/3

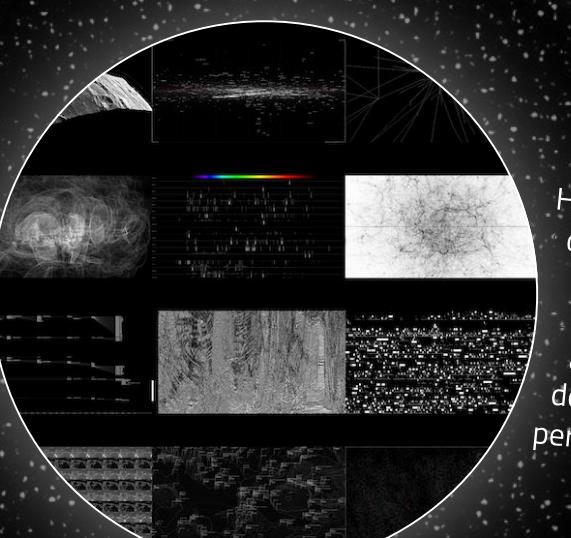
Ryoji Ikeda  
2019–2020

## In Real Life

Stephen Cripps  
1982

She discusses how information overload creates a perceptual crisis, with machine-generated data and signals exceeding human cognitive capacity. Traditional modes of vision and understanding struggle to cope with the ever-growing volume of data. This overwhelming influx of information constantly disrupts cognition, creating an invisible "noise" burden.

By recreating the noise of the digital age and old devices, he expresses the anxiety of being overwhelmed by information, breaking traditional artistic boundaries through this 'chaos of sound.'



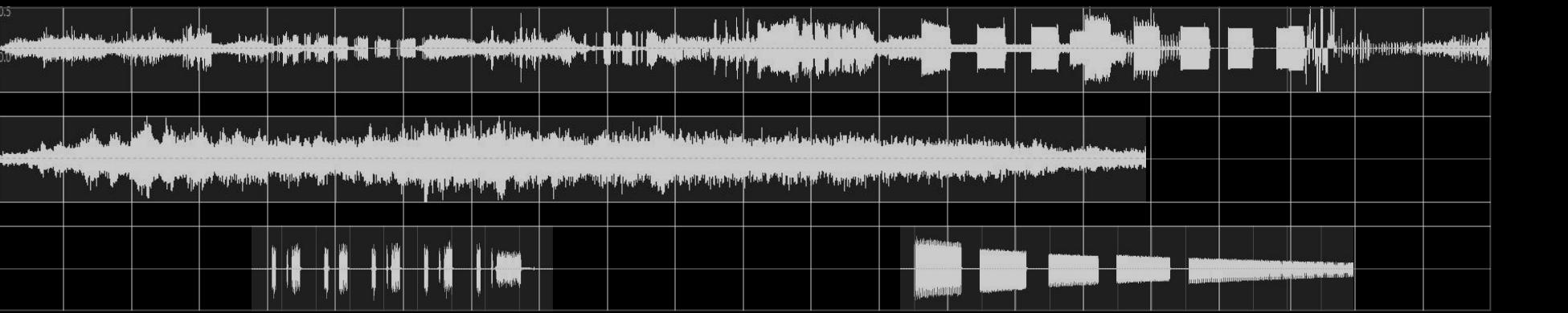
He explores the impact of information overload and technology on human perception by transforming digital data into sound and visual representations, allowing the audience to experience the density of information flow and the permeation of technology.

His work emphasizes the completeness of the moment of creation and multisensory experience. The pieces are often completed through experimentation, showcasing immediacy and exploration. His sketches and collages directly reflect his thinking.

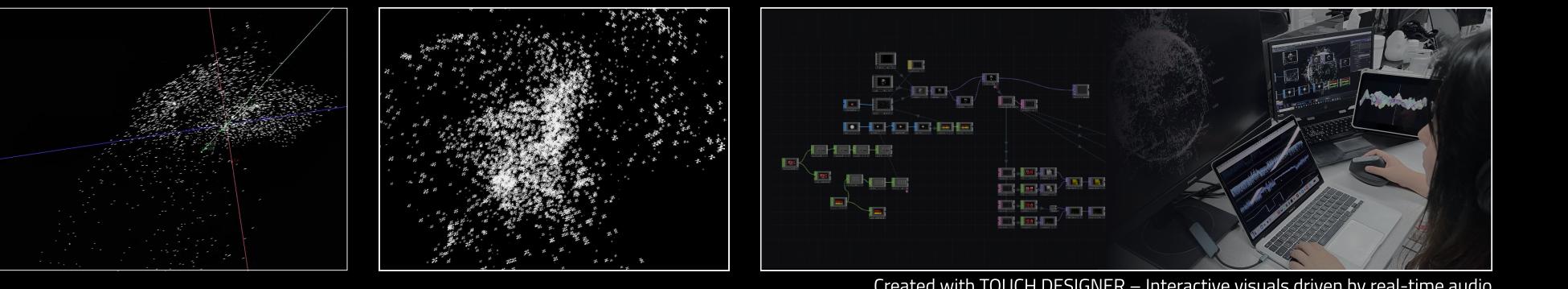
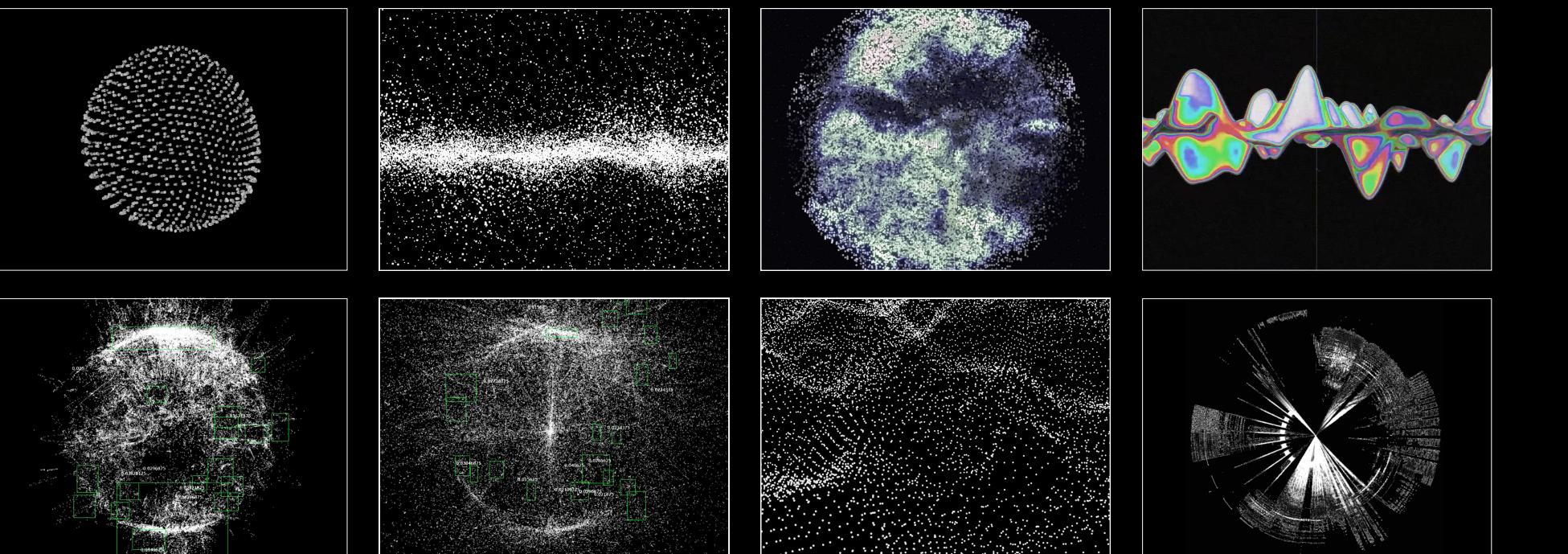


# EXPERIMENTAL

# SOUND



# VISUALIZATION



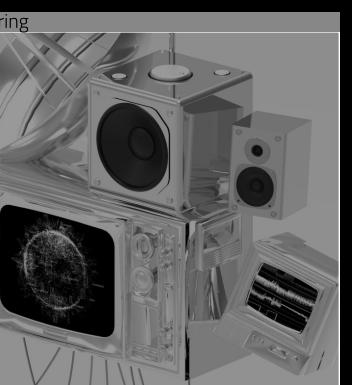
---

Created with TOUCH DESIGNER – Interactive visuals driven by real-time audio

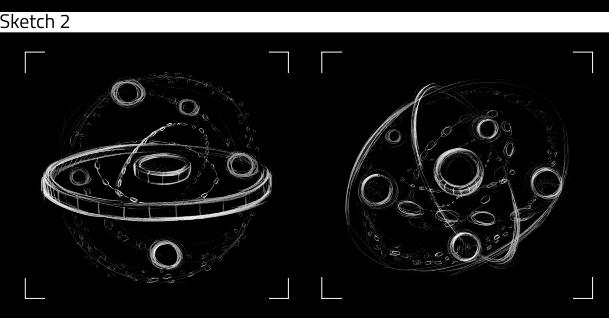
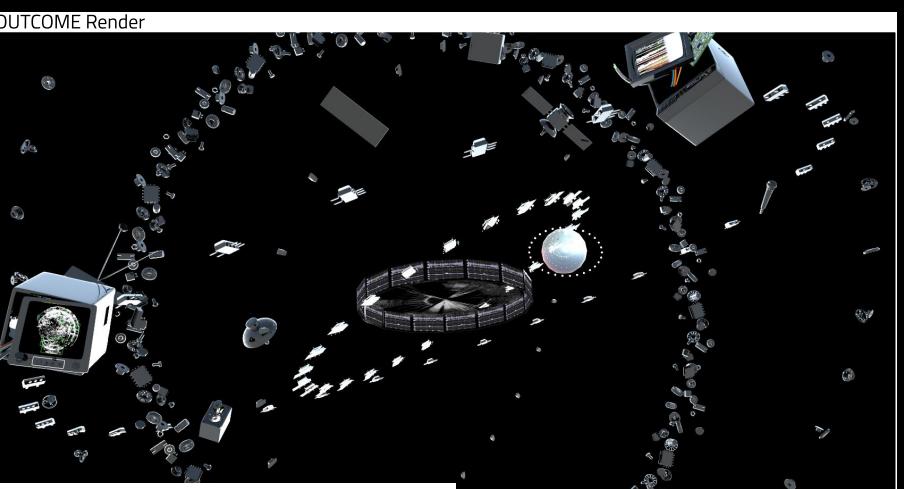
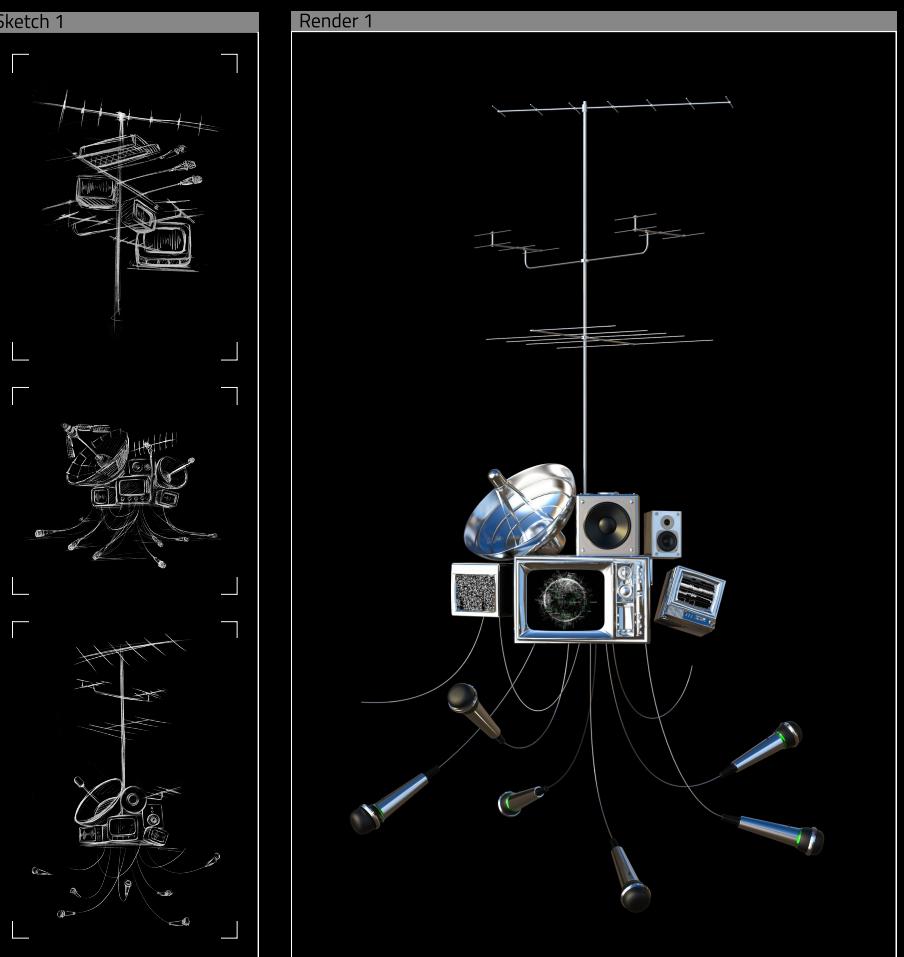
## PROCESS

# Noise Monster

"monster" is a concrete image of future information overload. It is a towering e-waste, made up of corrupted data and e-waste. It symbolizes the chaos and "noise" of the information explosion, with its tentacles continuously capturing and amplifying the noise.



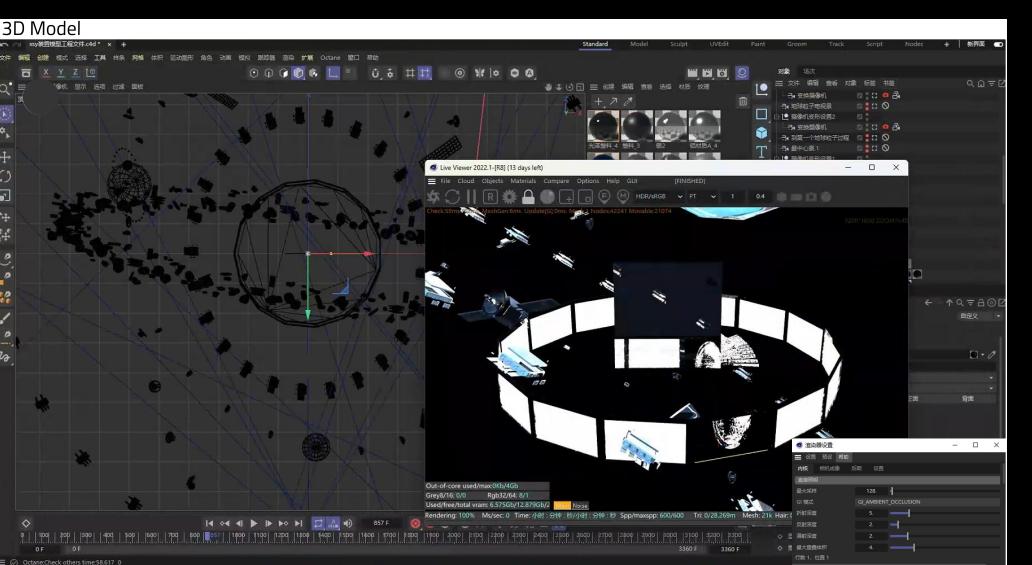
Rendered with Octane Render  
OC Render



A detailed black and white sketch of a futuristic space station. The central feature is a large circular hub with a complex internal structure and a bright light source at its core. Radiating from the hub are several cylindrical modules, some oriented vertically and others horizontally, each with various ports and equipment. The exterior of the station is covered in a grid-like pattern of panels and thermal insulation. Numerous small, circular objects, resembling satellites or debris, are shown orbiting around the station in elliptical paths.

# CHAOTIC ECHOES

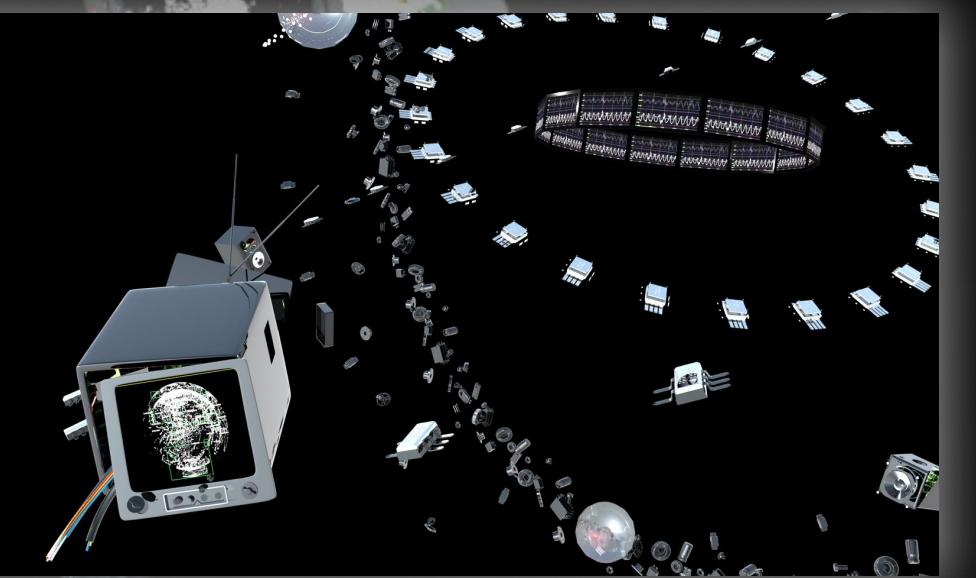
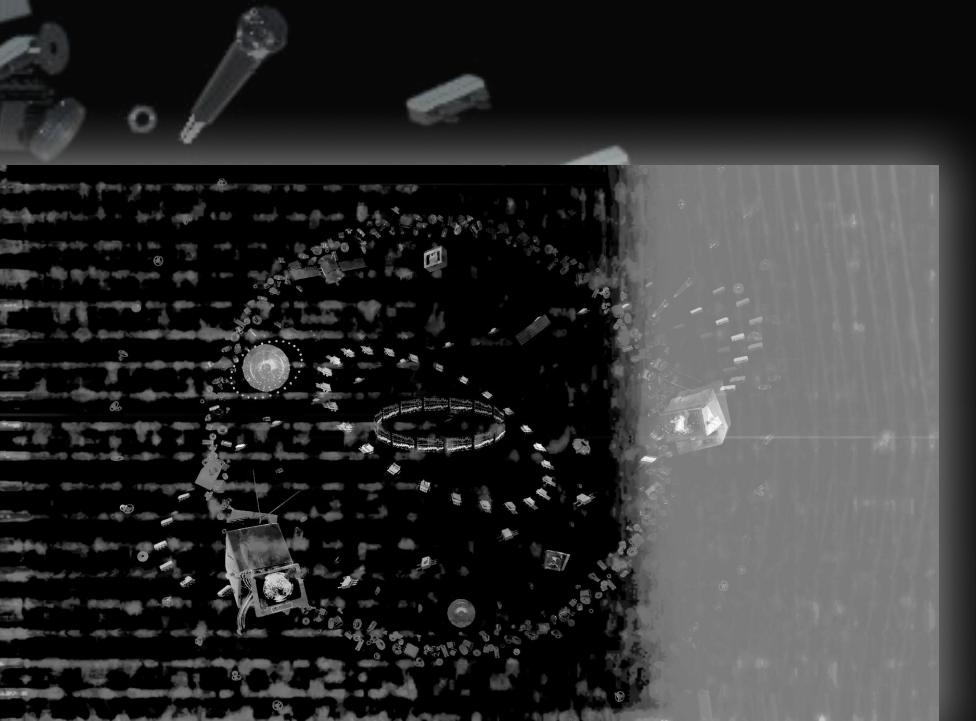
This artwork showcases the chaotic accumulation of information, noise, and waste. The visuals construct a fragmented universe with intersecting, rotating tracks and broken screens, where digital noise waves flicker constantly, and speakers emit a cacophony of sounds, conveying an inescapable sense of “information noise.”



# FINAL

VIDEO LINK : <https://vimeo.com/1035238096>

This video explores the paradox of information overload and technological development, using electronic and space debris as metaphors to depict the crisis of future society drowning in chaotic data. The real-time sound wave visual effects pulsate in the background, emphasizing the uncontrollable entropy brought by technology. The overall style of the video is digital and sci-fi, with glitchy elements hinting at a future on the brink of collapse, provoking deep reflection on the information society.



## FUTURE PLANS

*I hope to develop this project into an interactive multimedia installation that uses AI and VR technologies to provide an immersive experience of the mental burden and environmental crises caused by information overload, data expansion, and space debris. By collaborating with relevant institutions, I aim to transform it from a conceptual art piece into a cross-disciplinary educational tool, sparking deeper reflection and public discourse.*

# P·Y·R·E

## Sound Installation & Moving Image

This project reflects on the extremism of the independent woman image, exploring the misogynistic structure rooted in patriarchal society.

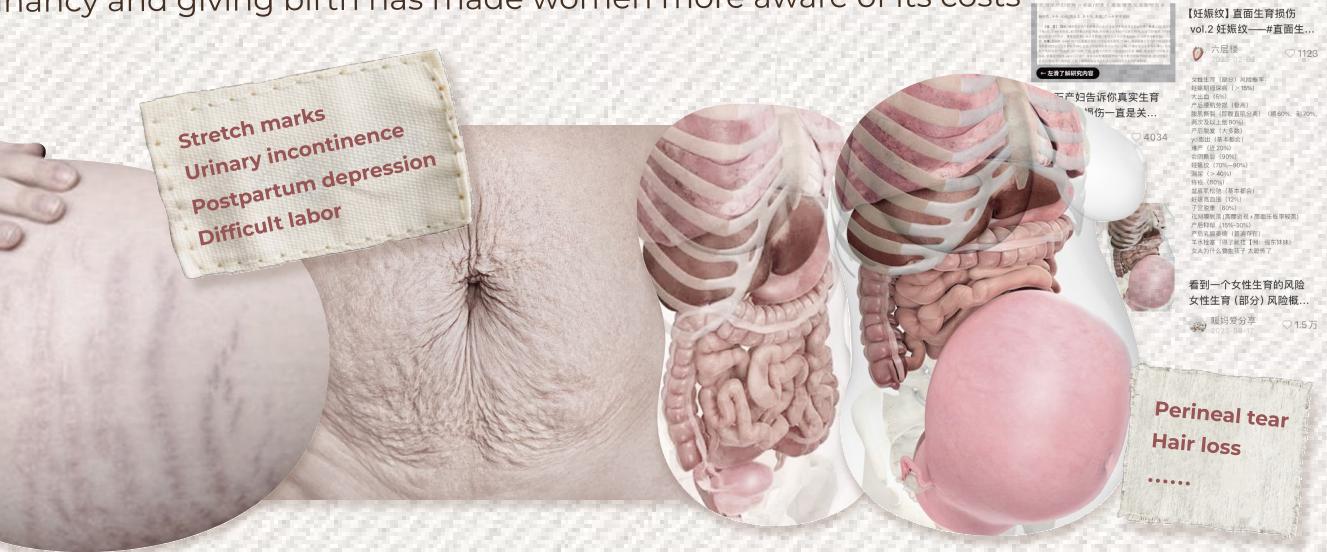
While the rise of online feminism has promoted the independent woman as a symbol of breaking free from constraints, it also reveals internal divisions and new forms of oppression. The rigid demands placed on women reflect the same patriarchal, misogynistic underpinnings.

Using a listening installation, I created an immersive bonfire experience paired with dual channel voice recordings of independent women, aiming to deconstruct the tension between societal expectations and the true essence of "modern independent women." The work seeks to provoke public reflection on this phenomenon and question the hidden structural oppression behind the ideal of female independence.

# Why I Do This Project?

## Why are women afraid of having children?

In the age of information sharing, social media's induced anxiety of pregnancy and giving birth has made women more aware of its costs



## What is the current state of childbirth in China?



## Symbolic Dilemma



### Naive and sweet female lead

Ordinary  
Desires love  
Incompetent  
Relies on the male lead  
Kind and innocent  
Traditional female traits

### Independent and strong female lead

Confident and self-reliant  
Professionally successful  
Decisive and resilient  
Unmarried, child-free  
Doesn't depend on others  
Non-traditional female traits

These labels have become the new social expectations and standards for women.



NOW

## What does a perfectly independent woman look like?

The 'XIAOYI' figure, admired for her elegance, financial independence, and childfree, unmarried lifestyle, has become a symbol of independence on social media.



But this limits the definition of an independent woman to a narrow set of traits



Rich



Beauty



Childfree



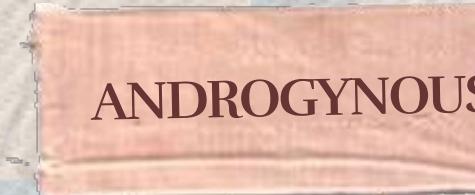
Unmarried

The "XIAOYI" standard seems free but imposes new societal pressure, creating invisible constraints for women

Has the discourse struggle truly led to the awakening of women's self-awareness?

# Visual Research

Modern films and TV often portray "Independent Women" in a stereotypical and formulaic way



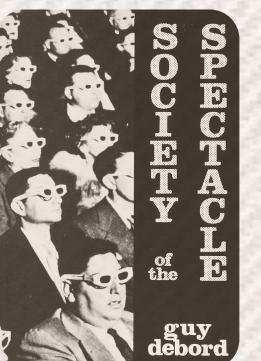
# Reference



She uses photography of different constructed identities to illustrate the limiting stereotypes people have of women and critique the rigidity of gender roles.



The book explores the impact of misogyny on women, revealing how internalized patriarchy perpetuates oppression, which makes me realize that the stereotyping of independent women stems from this internalization.



The book critiques how capitalism maintains power through spectacle. I realized that the "independent woman" is also viewed as a spectacle, seemingly a feminist victory but possibly driving a return to traditional views on reproduction.



# China's Self-comb Women

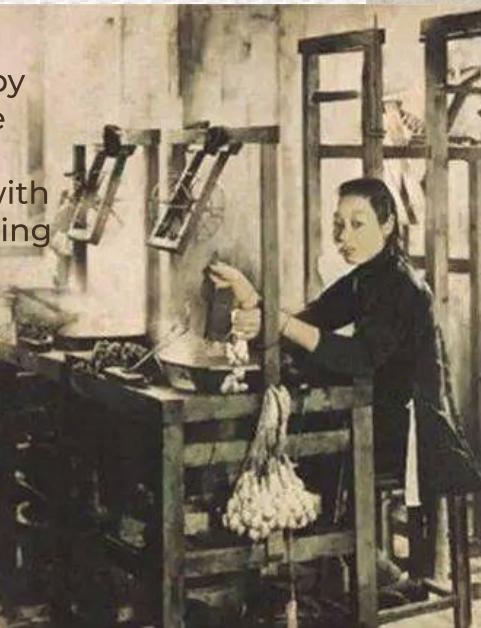
## Escape

The self-comb women were a group of women in ancient southern China who resisted feudal teachings and arranged marriages by styling their hair into a bun as a vow to remain unmarried for life.



## Self-sufficiency

They sought economic independence by working outside their home and lived together with other self-combing women.



## Mutual aid community

They fought against the traditional marriage system at great personal cost, symbolizing a courageous resistance by women in their pursuit of autonomy and dignity.

## Braids

Paraphrase:  
Female power

## Sewing

Paraphrase: One of the survival skills of women

## Extreme punishment

They would publicly vow to remain unmarried and childless, and those who broke their vows faced severe punishment, including being subjected to "JingZhuLong" (a punishment involving being locked in a cage and drowned).



## Burning

They are subjected to harsh punishments like burning.



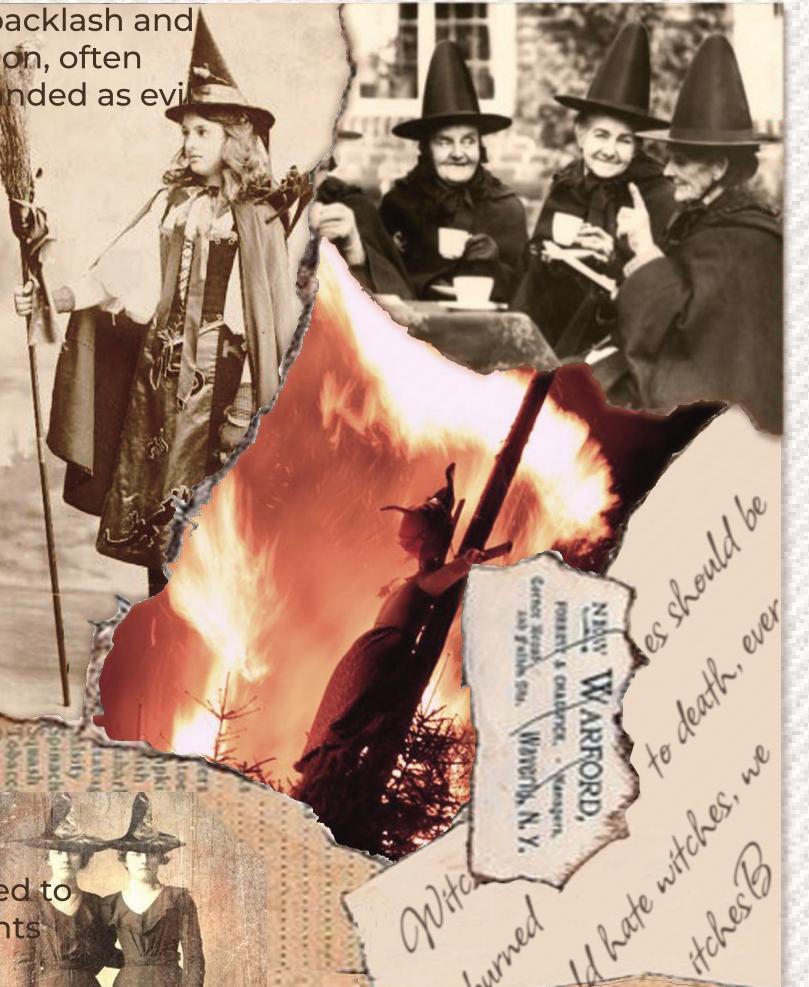
## Transcending men

They are not controlled by men, and challenged male dominance, risking their lives for autonomy and dignity.

## The price of rebellion

Witches, as symbols of resistance, faced severe societal backlash and persecution, often being branded as evil.

West Country's witch



# Reflection

If the **extreme image of a perfect independent woman** continues to develop, it may lead to more women **feeling confused and powerless**, which in turn fosters a reliance on men, thereby weakening women's awareness of their own rights and sense of self-worth.

## This could potentially be a trap

### Pressure on Women

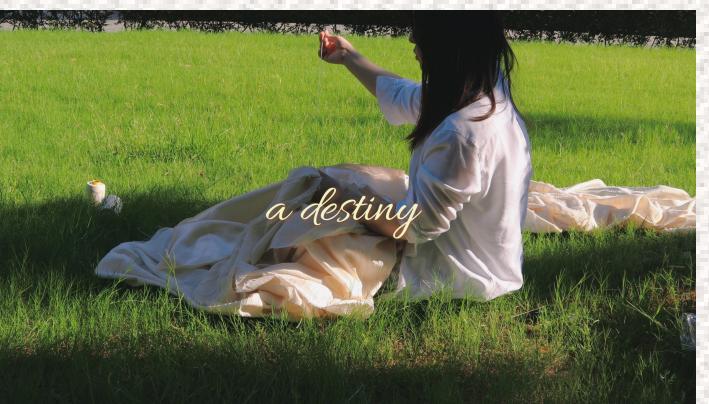
Women face pressure from careers, appearance, and family, leading to exhaustion and anxiety in their pursuit of independence.

### Social Division

A division forms as those who adapt to the independent role may criticize others, creating value clashes, while those who struggle may feel frustrated and revert to traditional roles.

Paraphrase: Celebration, Punishment, Rebellion

# PROCESS



This artwork is a tent installation symbolizing the struggles of female independence. The tent's body is composed of stitched fabrics, incorporating braids, lace, and other feminine symbols to represent the diversity of female identity. The chrome-plated shafts and aluminum alloy frame signify both strength and constraint. Inside the tent, headphones play the audio "I AM AN INDEPENDENT WOMAN," inviting the audience to participate and experience the tension between a declaration of independence and inner repression.

# Movie Image Design



In the left audio channel, extreme statements from Chinese media or online platforms are delivered in an authoritative tone, as if spoken by teachers or influencers. In the right channel, a group of women repeats these lines, mimicking the tone and rhythm, creating the effect of an oath or declaration. The two voices combined suggest a leader guiding a group of impressionable young women in a ritual-like indoctrination.



**Title**  
I AM AN INDEPENDENT WOMAN

**Year**  
2024

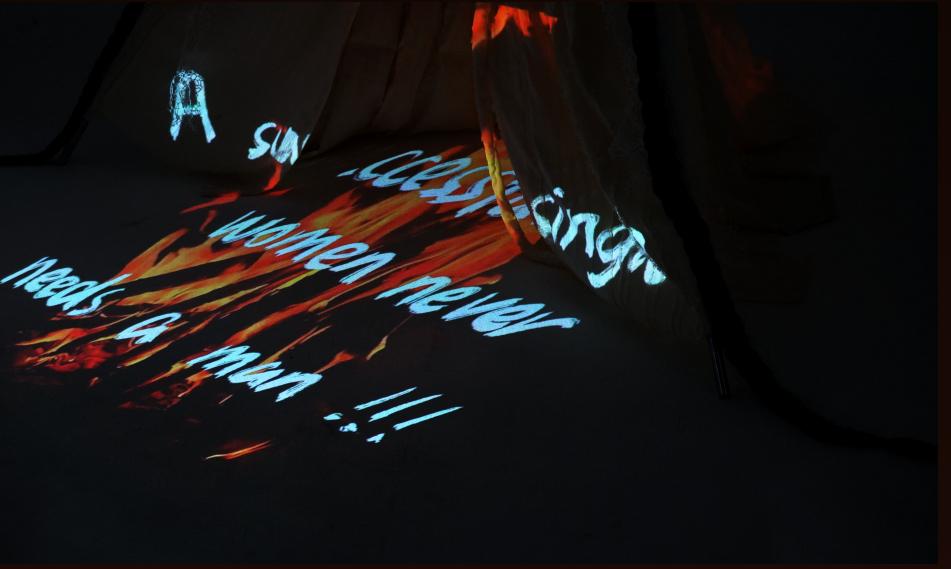
**Duration**  
1 minute 57 seconds

**Medium**  
Color video, Stereo sound

**Description**  
This video critiques radical ideas of female independence by highlighting the potential for these views to be delivered in a dogmatic, almost brainwashing manner, resembling slogans.

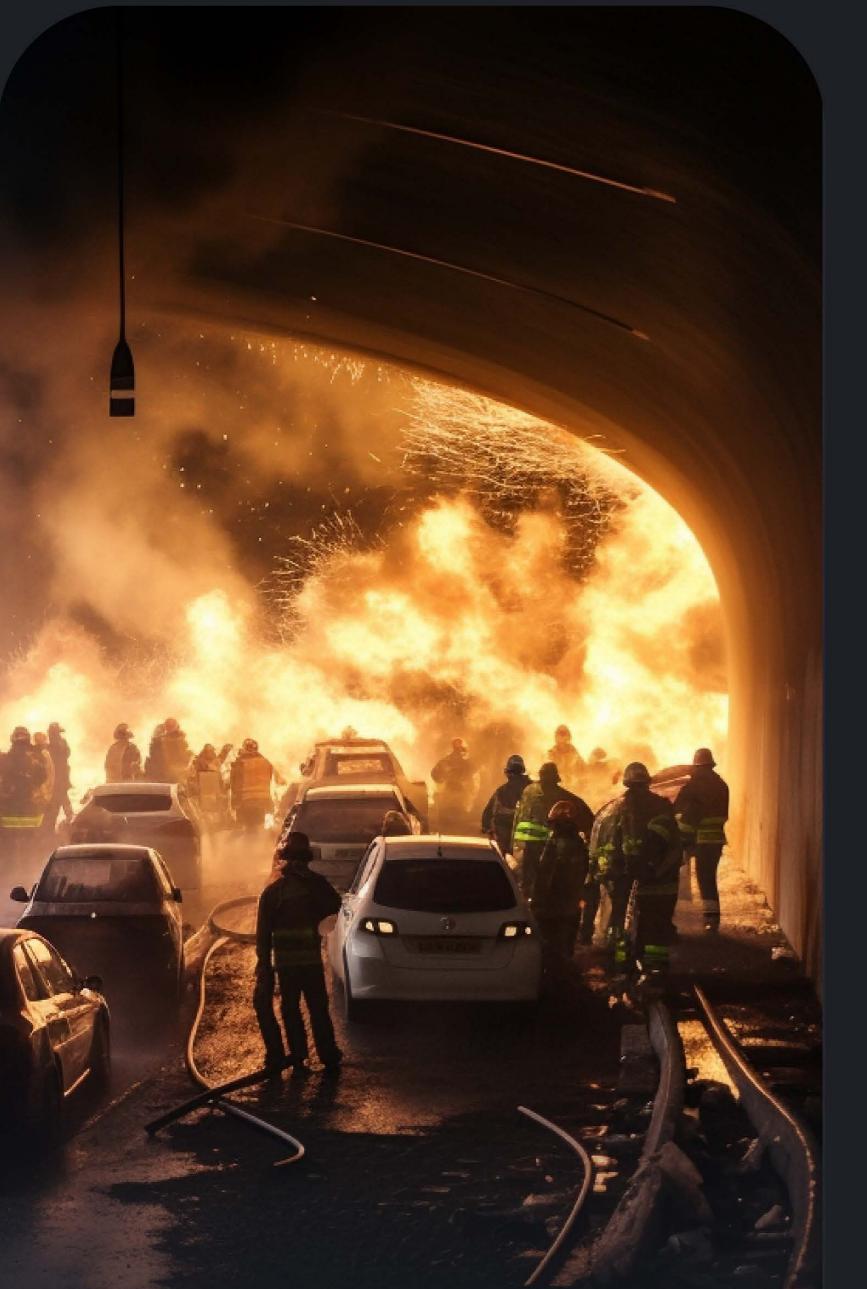
MOVING IMAGE PART LINK : <https://www.youtube.com/watch?v=XLlprfGWYms>

# OUTCOME



FINAL VIDEO LINK : <https://vimeo.com/1017805697>

Through projection mapping, the exterior of the tent creates an immersive experience, transforming the installation itself into a burning bonfire. The soft textiles, like an innocent young girl, embody a force of rebirth emerging from destruction.



## Tunnel Rescue Rail System

So far, China is the country with the largest mileage and largest scale of tunnels in the world.

The resulting tunnel accidents have become a major challenge for emergency rescue. In recent decades, there have been many cases of road tunnel accidents in China.

## BACKGROUND

### Motorway accidents in China



The fatality rate is 3.3%

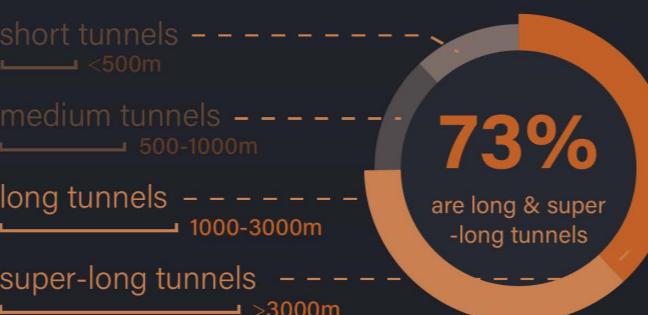


The fatality rate is 8.2%

### Motorway tunnels in China



As of 2023, China has a total of **24,850** motorway tunnels with a combined length of **26,784.3 km**.



Influence weight of Tunnel length on casualties

In motorway tunnel traffic accidents, the frequency of incidents rises with the length of the tunnel. Accidents in long and super-long tunnels are more likely to result in casualties.

## Motorway tunnel Characteristics & Accident Types

### Characteristics of motorway tunnel



Closed environment



Narrow space



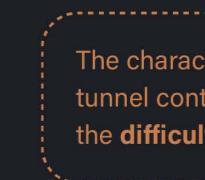
Low visibility



Remote mountainous areas



Difficult to detect and locate



Far from water source

The characteristics of the tunnel contribute directly to the **difficulty of the rescue**.

### Accident Types of motorway tunnel



Rollover



Fires



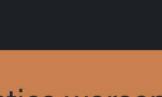
Collision wall



Rear-end



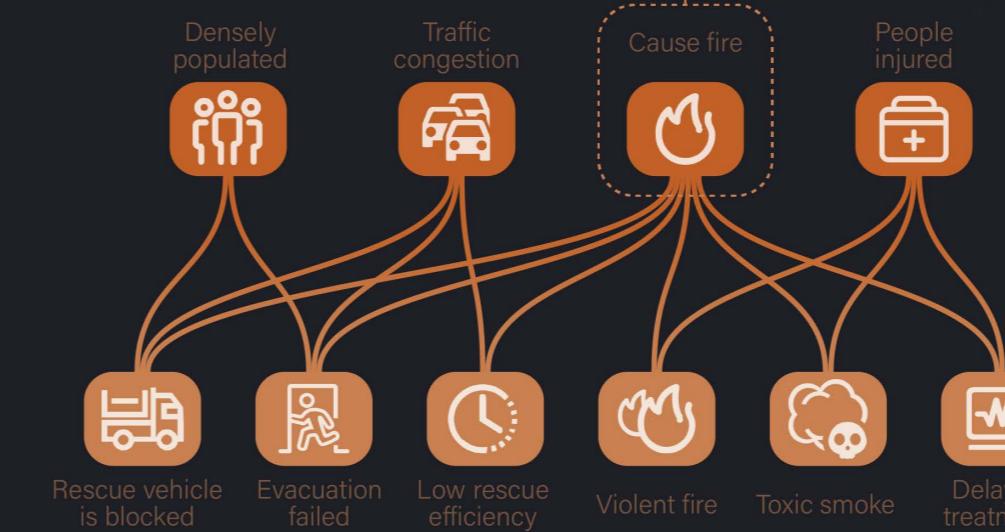
Flat tires



Collapse



### Concurrency phenomena and consequences



This is why road tunnel fire accidents have the highest fatality rate.



Tunnel characteristics worsen fire accidents, leading to challenges in rescue operations, low efficiency, and delayed responses, resulting in a high mortality rate. Among them, longer tunnels are associated with higher casualty rates.

I want to design a solution for long tunnels in China through system design, incorporating both industrial and interactive means. The objective is to enhance the efficiency of rescue units in evacuating, firefighting, and rescuing people during tunnel accidents, particularly fires, thereby reducing the mortality rate of casualties in tunnel fire accidents.

## PERSONA

**EXPERIENCED TUNNEL ACCIDENT**  
The PengShuiGuan Tunnel  
Chongqing CHINA 25.04.2017

**WHAT DID HE DO WHEN ACCIDENT HAPPENED?**

- Field analysis
- Evacuate people
- Set up a cordon
- Treat the injured
- Put out fire
- Transport the injured

**WHAT PROBLEMS DID HE ENCOUNTER?**

- "Ambulance and fire trucks were unable to arrive at the scene timely due to the tunnel congestion."
- "It took too much time to evacuate people and vehicles in a long tunnel."
- "Delayed the golden rescue period for the injured."
- "It is difficult to store enough water in tunnels to meet the required volume and pressure for fire extinguishing."

**Mr. Zhan**  
33 Years of working over 10 years

**EXPERIENCED TUNNEL ACCIDENT**  
The FuTuYu Tunnel  
Hebei CHINA 23.05.2014

**Surveillance Operator**  
12 Years of working over 6 years

**WHAT DID SHE DO WHEN ACCIDENT HAPPENED?**

- Dispatch rescue team
- Turn on the alarm
- Watch the surveillance
- Enable lane control

**WHAT PROBLEMS DID SHE ENCOUNTER?**

- "Monitors can only provide limited information."
- "I can't take action until the reconnaissance team arrives at the tunnel and confirms the situation at the scene."

**Ms. Li**  
53 Years of working over 10 times a week

**EXPERIENCED TUNNEL ACCIDENT**  
The WuZhiShan Tunnel  
Guangdong CHINA 26.12.2014

**Office clerk**  
8 to 10 times a week

**WHAT DID HE DO WHEN ACCIDENT HAPPENED?**

- Call the police
- Escape
- Hiding in the shelter
- Waiting for rescue

**WHAT PROBLEMS DID HE ENCOUNTER?**

- "I wasn't aware of a fire ahead when the tunnel was jammed."
- "I couldn't find the tunnel shelter."
- "I couldn't see clearly through the smoky road."

**Mr. Yu**  
33 Years of working over 10 years

## USER DEMAND



### Flexibility

Move freely and swiftly in narrow area without limitations, to improve rescue efficiency.



### Transportability

The efficient transfer of rescuers, injured individuals, and necessary supplies is crucial and can improve survival rates.



### Guidance

Proper guidance can help individuals find safe exits or shelters, enhancing survival rates and evacuation efficiency, and alleviating anxiety.



### Real-time Information

Tunnel sensors swiftly synchronize information fire details with the command center, simplifying the reconnaissance process.



### Pre-Fire suppression

Pre-fire suppression can swiftly extinguish fires at the onset, curb their progression, and lower casualties resulting from fire.

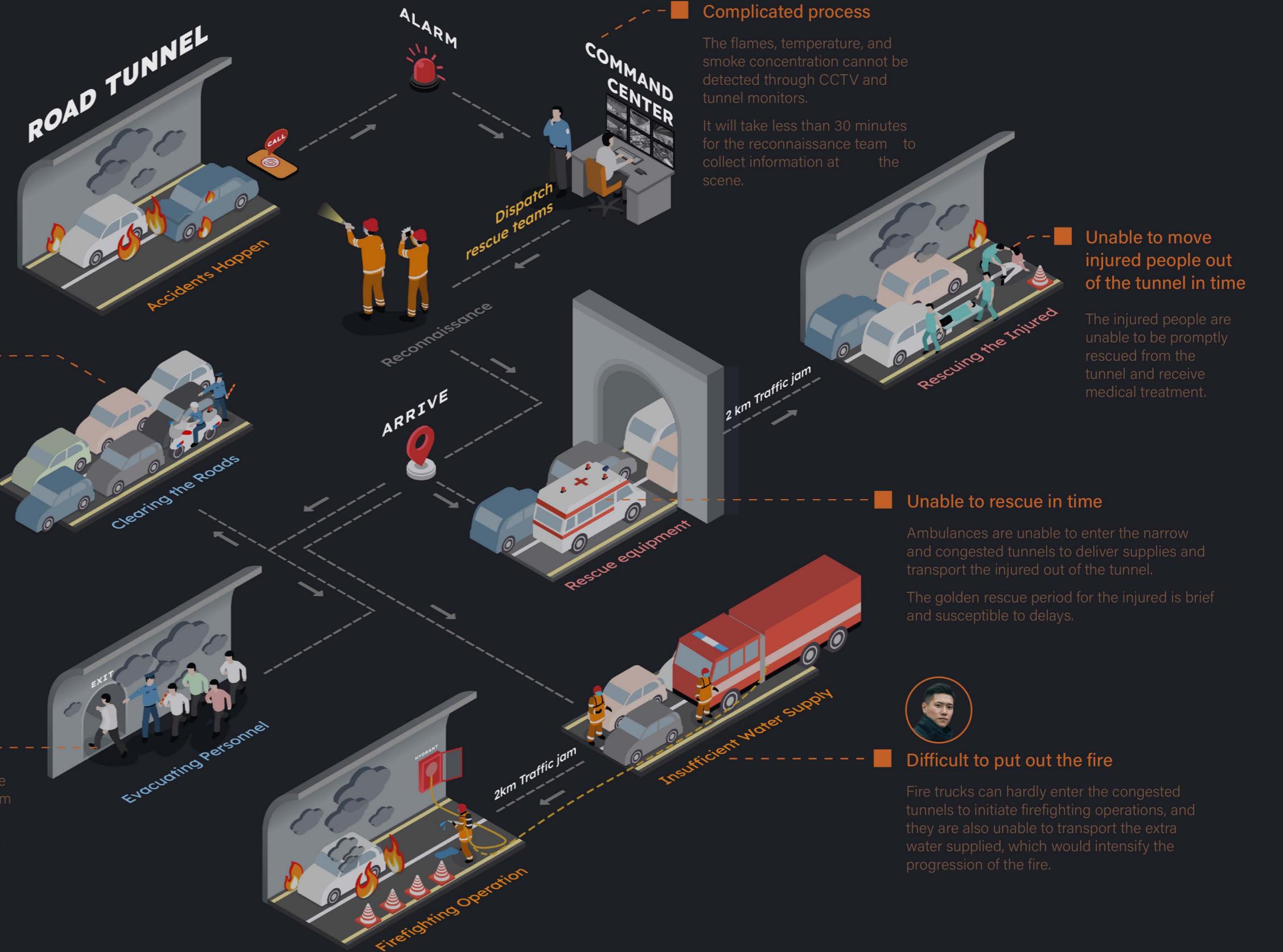


### Lost direction

People are unable to determine whether it is a regular traffic jam or fire.

It is hard to find exits or tunnel shelters without any guidance before the police arrive.

## JOURNEY MAP



## CASE STUDY

### Track Inspection Robot



This monitor moves, lifts, and rotates freely. Equipped with built-in sensors, it detects the operational status of objects.

Pros: Comprehensive monitoring  
Cons: Difficulty adapting to new situations

### RSW UNICAR



This narrow UNICAR can smoothly and quickly transport up to six people on the track.

Pros: Transport efficiently and smoothly  
Cons: Inconvenient for getting on and off

### Colorful Signage System



Large-area, brightly colored signage systems enable people to obtain useful information more quickly.

Pros: It can enhance visibility  
Cons: May lead to visual confusion

### Tunnel Surveillance



The image and data from the motorway tunnels can be displayed on the surveillance screen in real-time.

Pros: It can provide instant information  
Cons: Less interactive functionality

## Cases Experience Analysis



## SWOT Analysis

### S

The **flexible track mode** enables movement, lifting, and rotation that are free, efficient, and smooth.

**Proper signage** can enhance the **information of visibility**.

### W

The **limited interaction** and controls will be difficult to cope with emergency situations.

### O

Monitoring combines **sensors** and technology to efficiently and accurately **convey information**.

### T

The **space** inside the tunnel is **small and narrow**, thus limiting the available measures.

## BRAINSTORM

Fiber Optic Communication

Electronic Sensors

AI-assisted Decision

Communication Network

Reconnaissance Robots

Flexible Monitoring

Guidance for Rescue

Assist in Rescue

Remote

Emergency Response

Early Warning

Remote Guidance

Regional AI Prediction

Rapid Deployment

Surveillance Management System

Intelligent Guidance

Guide Evacuation

Guidance

Lamp

Group First Aid

Evacuation System

Efficient Evacuation

Holographic Navigation

**Flexible Tunnel Rescue**

Automated Equipment

Transporting Medical Rescuer and Injured

Transport Cabin

Rescuer Operations

AR Technology

Transporting Medical Equipment

VR Technology

Flexible Ambulance

Underground

Aerial Flight

Vertical

**Personnel Rescue**

Aerial Suspension

Tunnel Rail

Transporting Firefighters

Situation Awareness

Transporting Equipment

## My Design

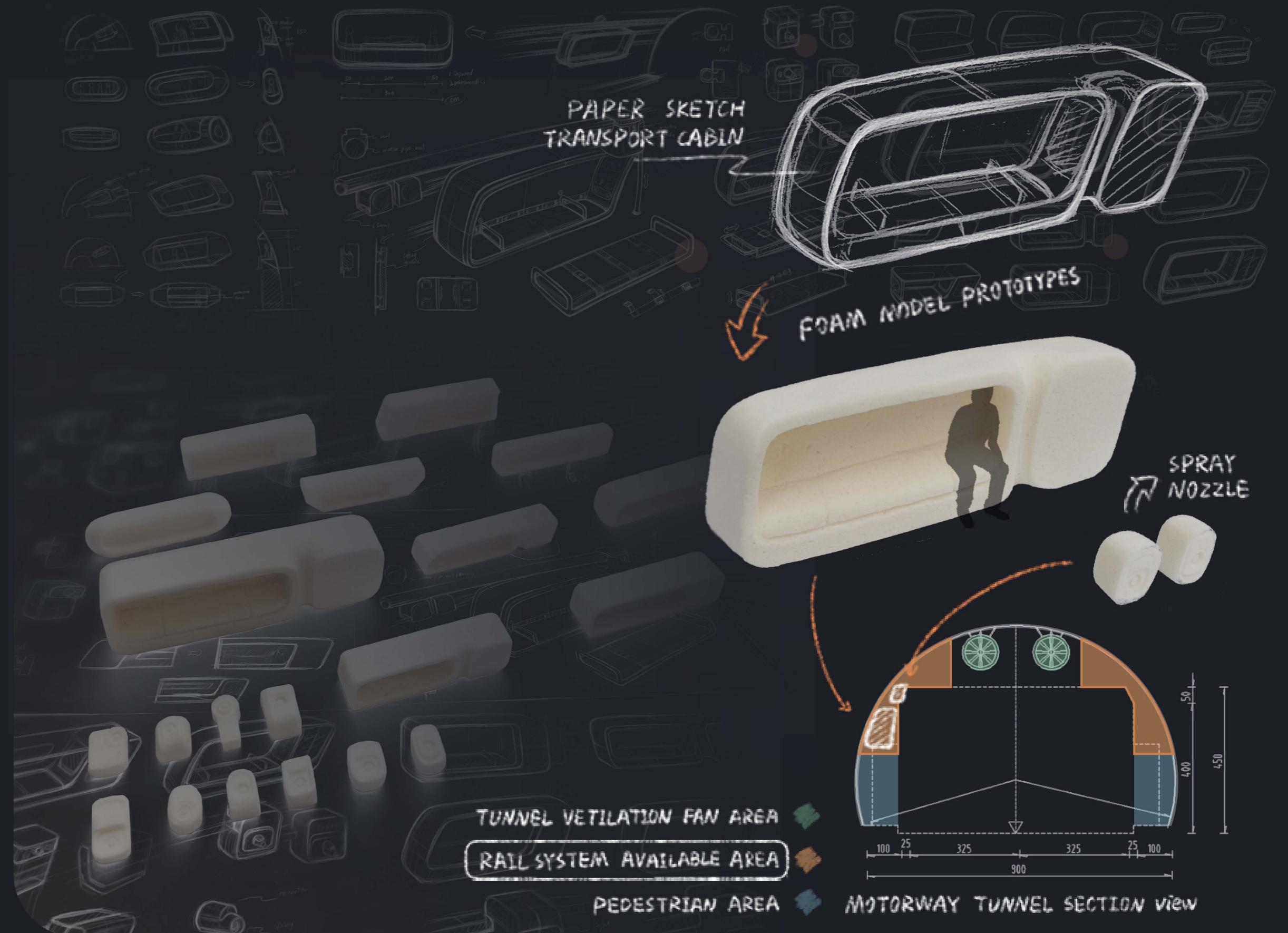
I hope my solutions can provide efficient rescue operations, improve flexibility in movement, make more accurate detection data, guide people in evacuations efficiently, and enhance interactive monitoring.



## SYSTEM MAP INSIGHT



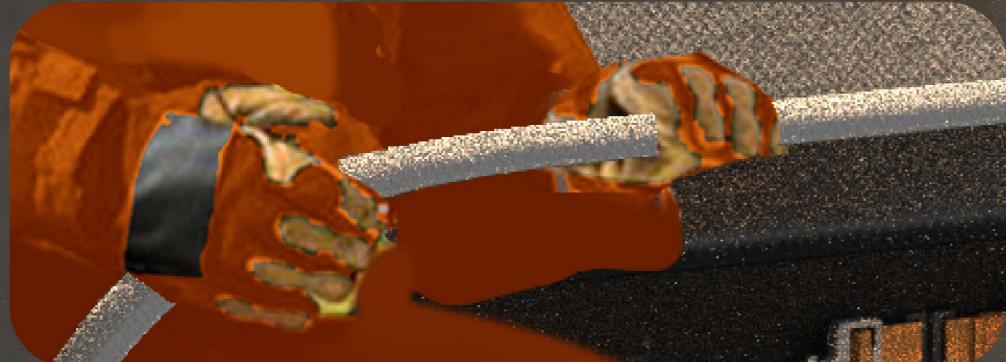
## SKETCH & PROTOTYPE



# TRANSPORT CABIN DETAILS

## Liftable Safety Barrier

When the cabin is ready to depart, the safety barrier will come down to ensure the safety of the passengers.



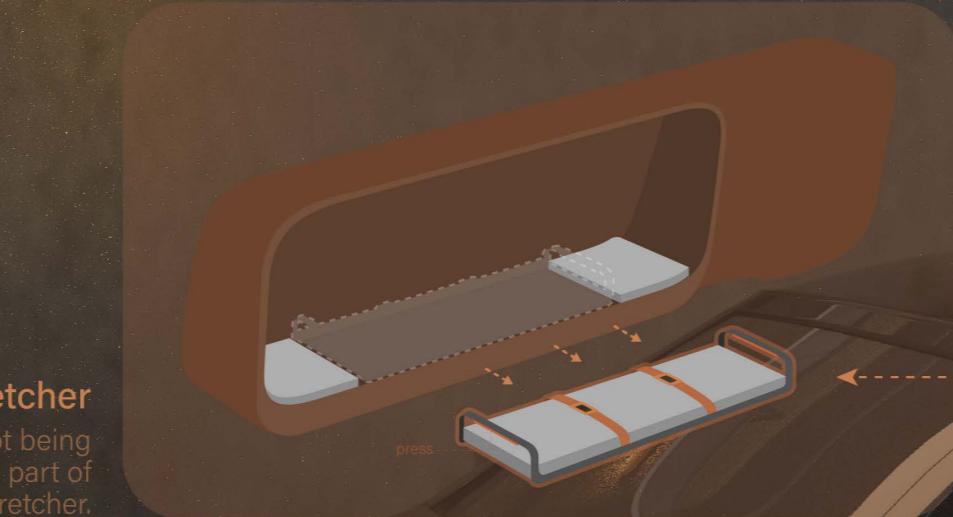
## Fire Hydrant System

Connected to the rail's water pipes and supplies water to the Spray Nozzle.



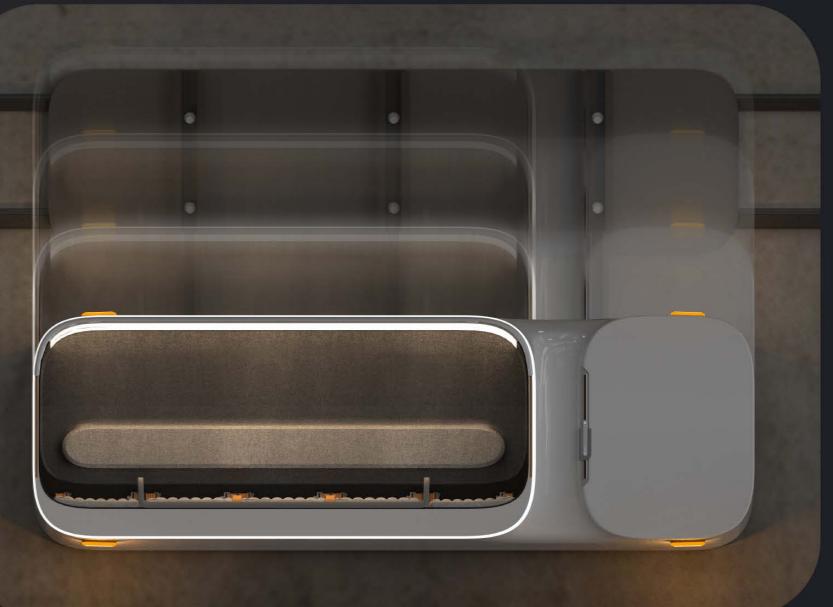
## Modular Stretcher

Can be used like a seat when it is not being removed. Rescuers press the orange part of the handle to disassemble the stretcher.



## Liftable Cabin

The transport cabin is liftable, making it convenient for people to board.



## Seat Belt



## Trunk

Installed with medical and firefighting equipment such as Fire water gun. Additionally, there is ample space for rescuers to place specialized equipment.



## Calling Nozzle

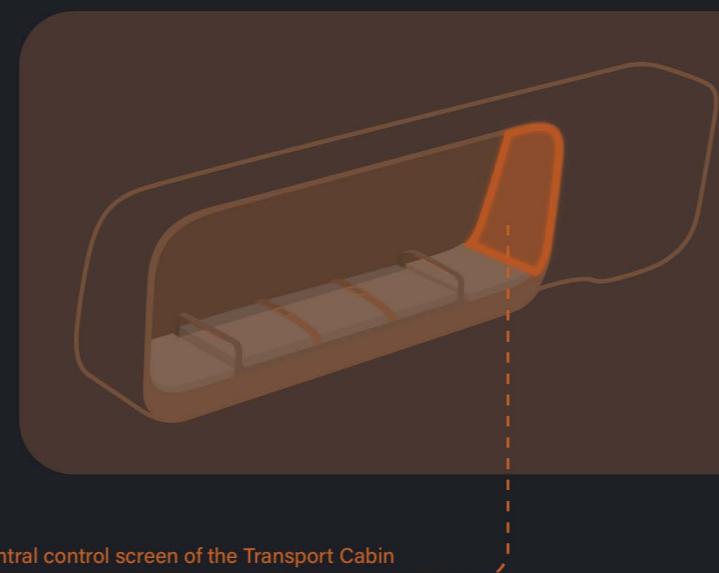
After reaching the destination, rescuers can use the central control panel to call the spray nozzles. The adjacent pair of spray nozzles will then move along the rail to reach directly above the transport cabin.



# SMART SPRAY NOZZLE DETAILS

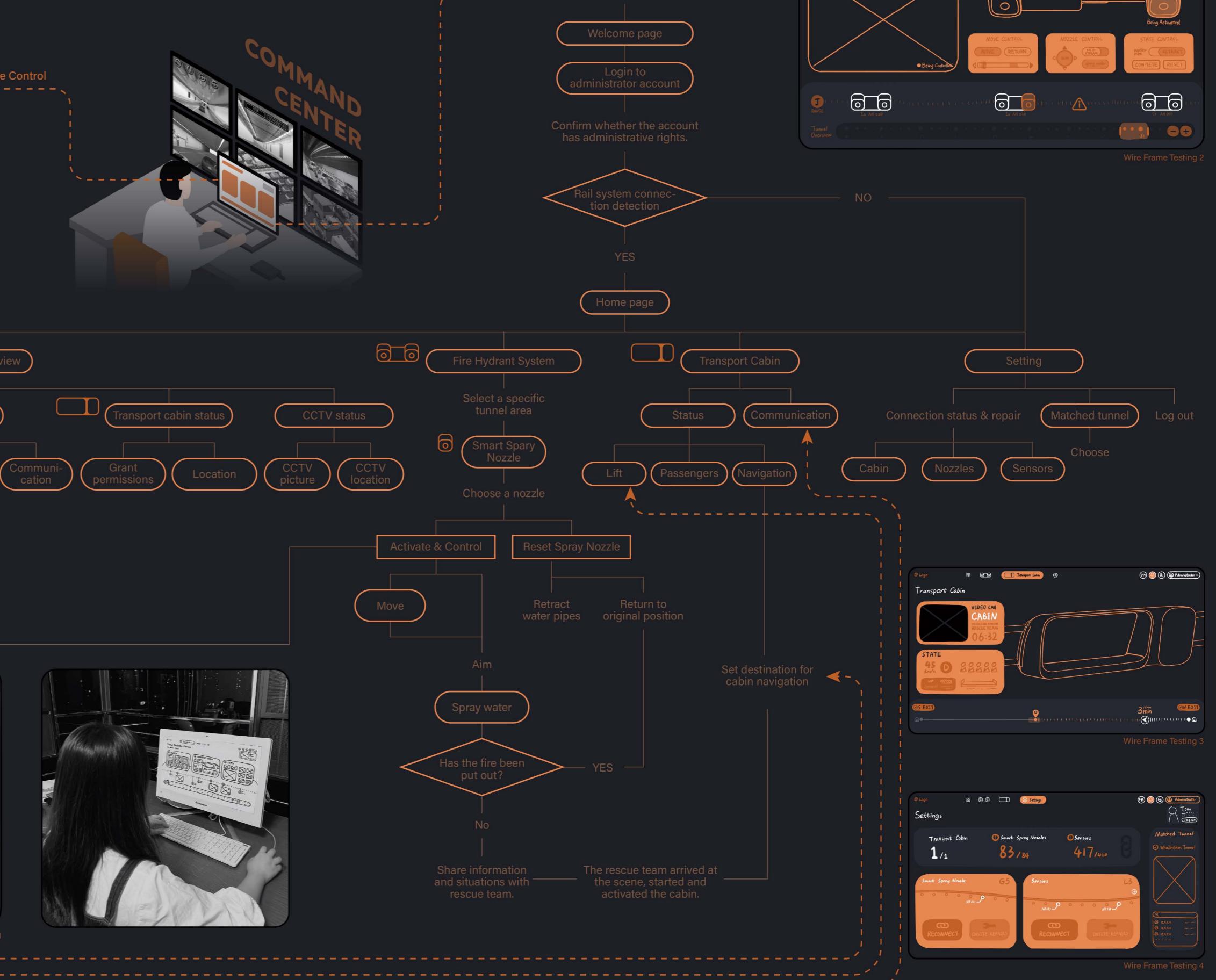


# CENTRAL CONTROL SCREEN



# MANAGEMENT FLOW

MANAGEMENT FLOW is a management portal that coordinates with the transport of motorway tunnels.



# UI DESIGN

## Logo Design

"Ultra" represents the fastest speed to arrive and the highest rescue efficiency. Combining "Ultra" for beyond and "Capsule" for transport cabin. Ejected like a "Capsule", with fast movement without stopping.



The shape of the capsule and the cabin was used as inspiration for the creation of the logo. The color gradient represents speed and also blends the two shapes into one.

## Color & Typography

# ABC

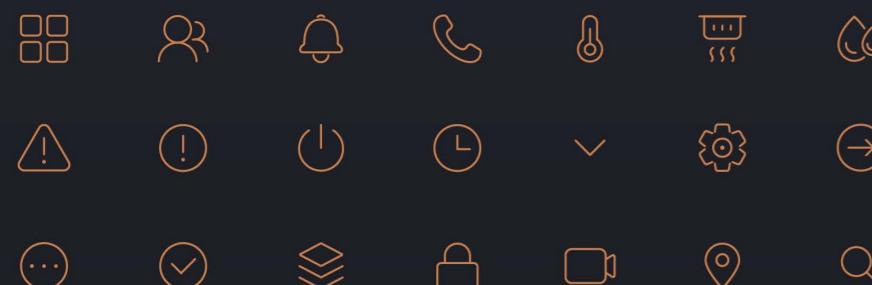
1234567890 abcdefghijkl  
mnopqrstuvwxyz ABCDEF  
GHIJKLMNOPQRSTUVWXYZ

Light

Regular

Medium

## UI Icons



## Home Page

This page continuously monitors tunnel safety and status using smoke, heat, and humidity sensors, and also manages nozzle positions and cabin status.

When abnormal sensor data is detected, the alarm page prompts the administrator to activate emergency mode.

The applicant's information appears on this page. After click "YES," they can ride and control the cabin.

Use the mouse or keyboard arrow keys to aim the spray position.

Toggle to control the rolling and unrolling of the fire hose.

## Fire Hydrant System

When a fire occurs, the nozzle can be moved to extinguish it, and the administrator can view the monitor picture. If the fire is too large, they can call for a rescue team.

When rescuers remove the modular stretcher, this icon will light up.

The green icon indicates that the cabin has arrived.

## Transport Cabin

The page provides all status information of the cabin, including its operational state, current position, and real-time monitor picture.

After clicking the "reconnection" button, this progress pop-up will appear.

The connection failed pop-up.

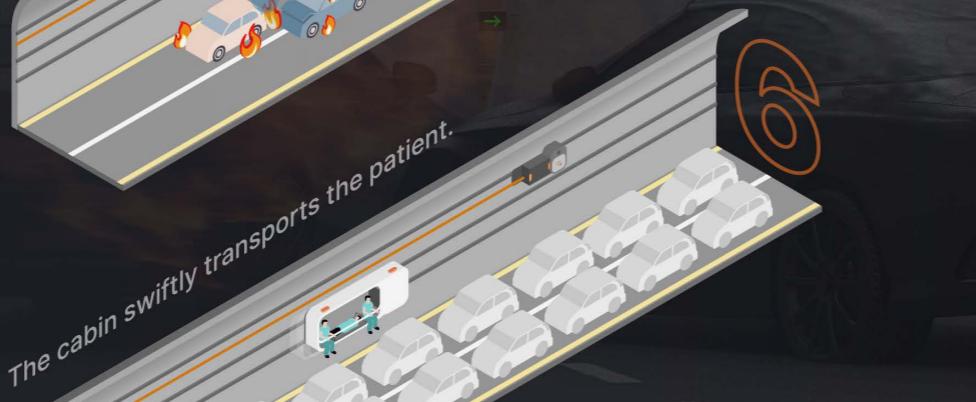
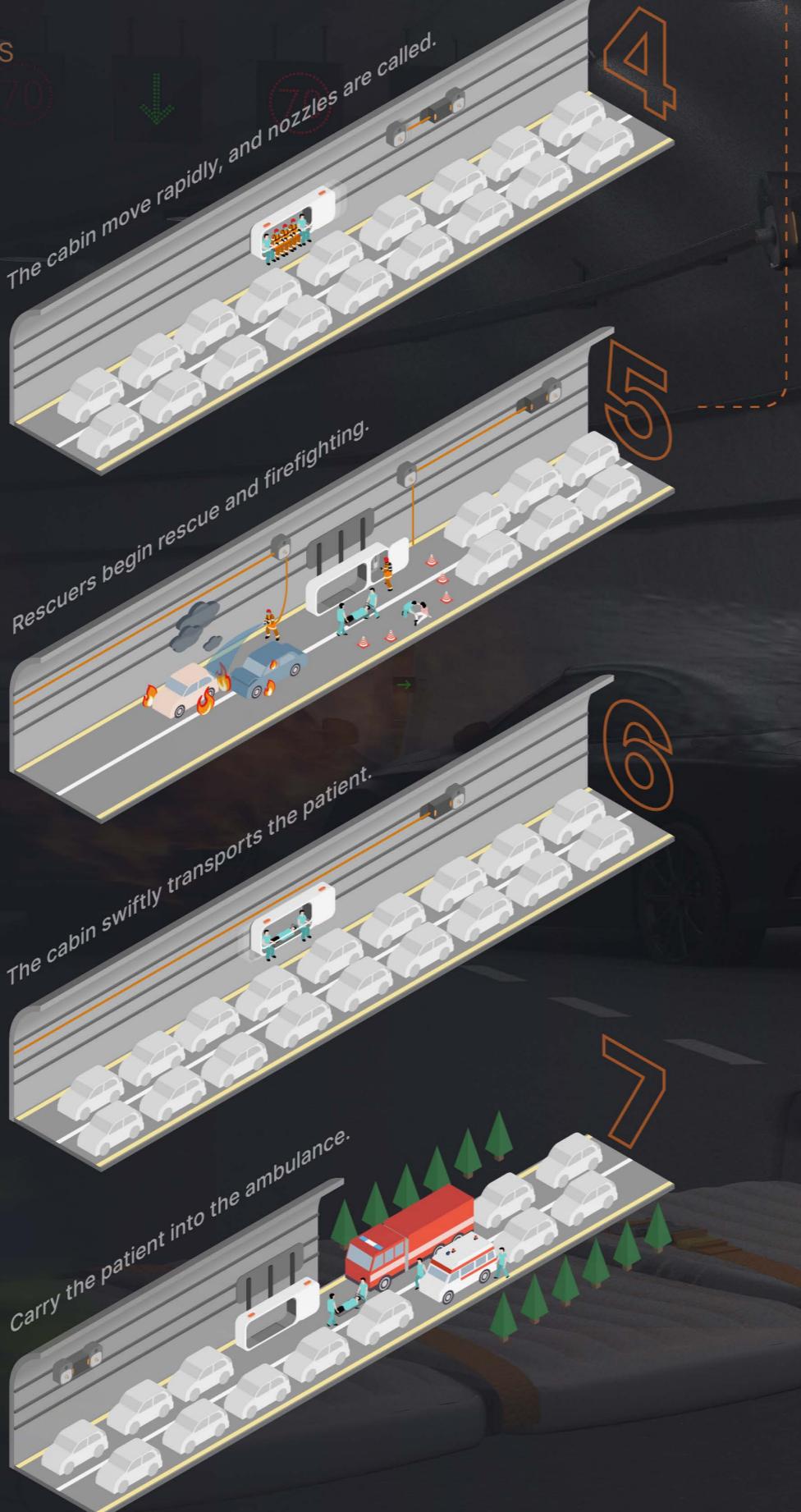
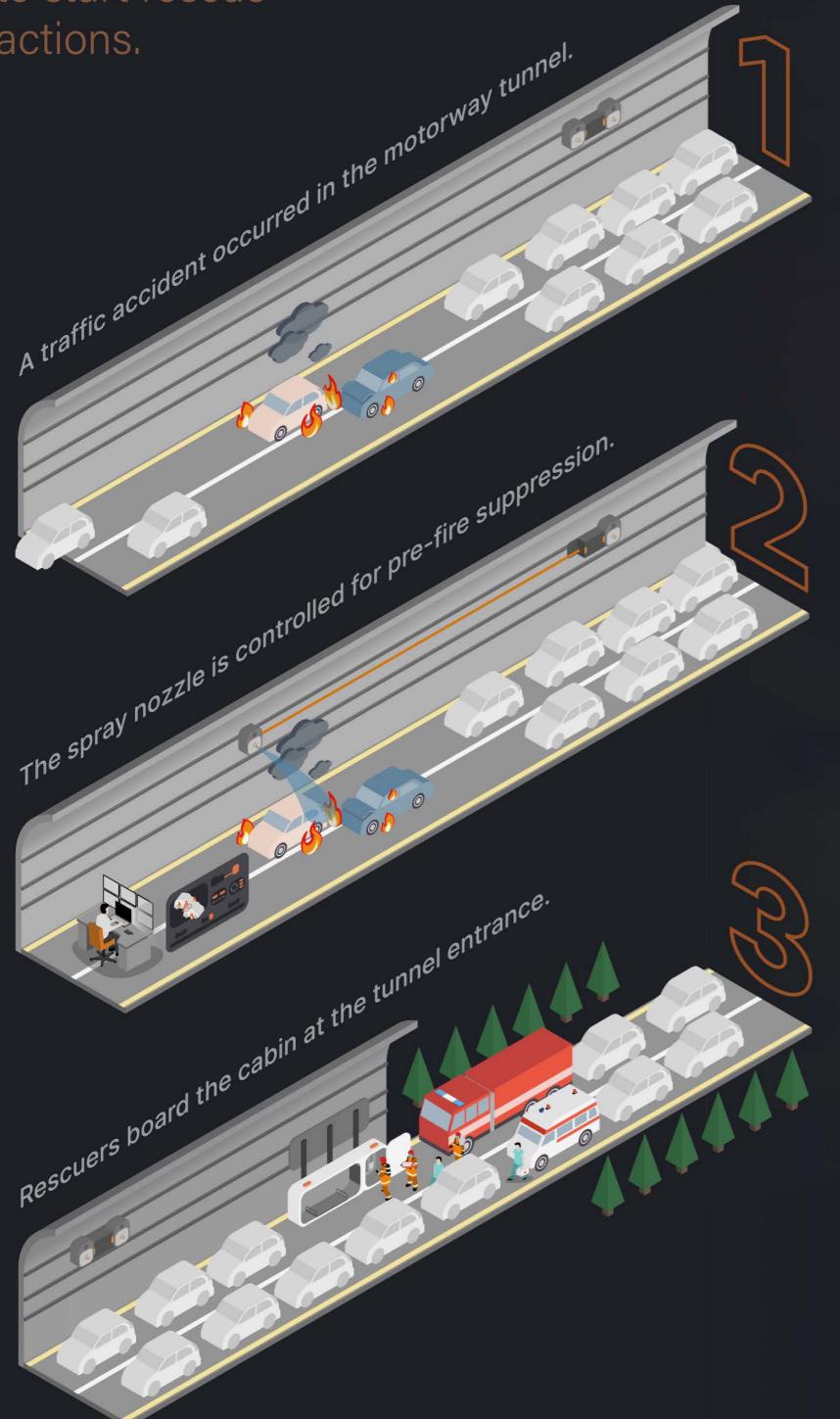
If all sub-devices are successfully connected, this icon will light up in orange.

## Setting & Connection

It shows the connection status of all sub-devices, allowing reconnection or management if necessary. It can also view tunnel information and change the matched tunnel.

## STORY BOARD

"UltraCapsule" is a tunnel rescue system that detects accidents promptly, allows administrators to remotely perform pre-fire suppression, and enables rescuers to avoid tunnel traffic jams, arriving smoothly at the scene to start rescue actions.



## USER SCENARIO



 UltraCapsule

## Personal Project

Apr 2024 - Aug 2024

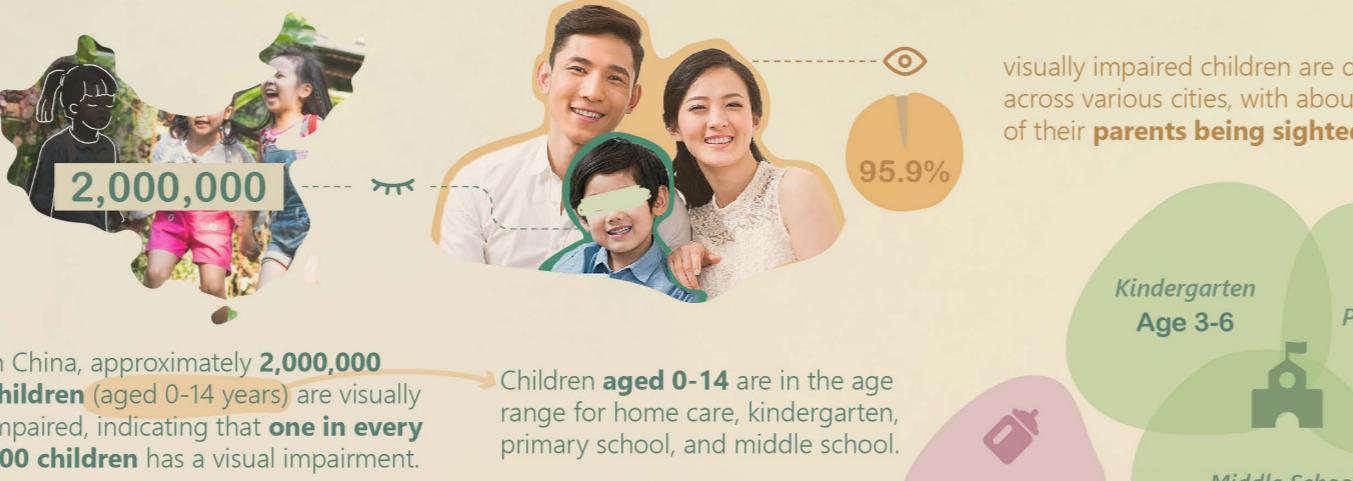
# BRIGHT BRIDGE

## Interaction, Service, Environment, Product and Coding Design

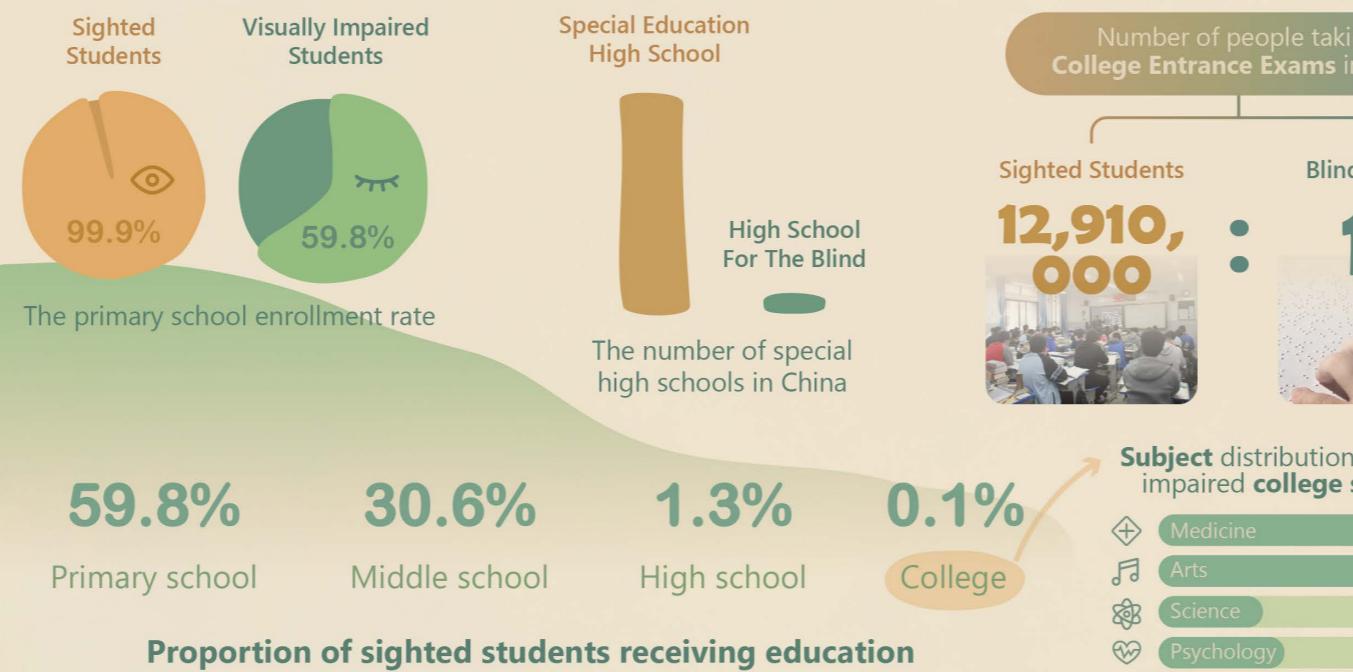
This project builds a bridge to support the psychological health and social development of visually impaired children by designing third social spaces. It aims to promote equal interaction and healthy social behavior with sighted peers, helping visually impaired children to integrate better into society in the future, so they are no longer 'isolated islands'.

## BACKGROUND

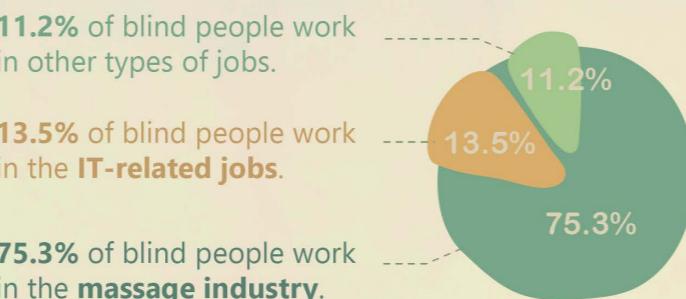
### Visual impairment in Chinese children



### The education level among the visually impaired is low



### What jobs will they do when they grow up?



"Blind massage" has long been popular in China, leading to stereotypes about careers for the blind. However, visually impaired children often have their personal interests and desires overlooked by society, schools, and parents, limiting their choice in majors and careers.

### The Negative effects of visual impairment on children

#### Emotional Development Obstacles

They find it challenging to understand others emotions through facial and body language, impacting their emotional communication and healthy personality development.



#### Delayed Social Skills

They lack social opportunities to learn and understand social cues, leading to difficulties in communication and social interaction.



Visually impaired children in China exhibit a higher incidence of psychological issues.

Emotional development obstacles, delayed social skills, and difficulties in social adaptation both contribute to and result from these psychological problems.

#### Difficulties in Social Adaptation

They often grow up with limited social interaction, leading to more withdrawn personalities and difficulties in integrating into society later in life.



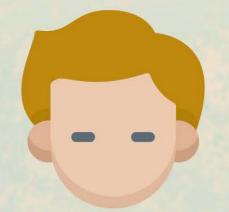
## SUMMARY

Many visually impaired children in China receive limited education, have few career options, struggle to integrate into society, and face various psychological challenges.



# SOCIAL ANALYSIS

- Differences in educational methods between Western countries and China



Western Countries

## Parents' Educational Concepts

- Encourage independence
- Explore actively



Kindergarten

## Inclusive education in mainstream schools

Western parents of Visually impaired children encourage independent exploration and believe in learning and growth through setbacks and failures.



Blind children learn with their peers in mainstream schools, receiving extra support to integrate into the regular educational environment.



Mutual understanding without barriers with signed peers



Live together



More extroverted



Development of empathy among sighted children



Positive perception



Develop social skills

Age

0



China

1

## Parents' Educational Concepts

- Overprotection
- Fear of harm
- Low expectations



Kindergarten

## Specialized education in schools for the blind

Chinese parents of Visually impaired children often overprotect their kids, fearing for their safety and reluctant to expose them to setbacks and failures.

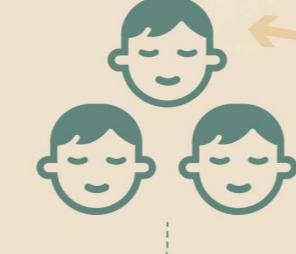
4

5

6

7

This stage is crucial for developing social skills and establishing social relationships, which will significantly influence future personality development and social character.



Visually impaired children usually go to schools for the blind, which are the only places providing braille materials and assistive devices.

More introverted



Social isolation



Lack of self-confidence



Think they are different



Limited career paths

**What Should We Do outside of kindergarten?**

Visually impaired children can integrate well into society, interact positively with others.

20

Visually impaired children often find it difficult to integrate into society when they grow up.

Compared to Western countries, China's educational philosophy tends to isolate visually impaired children for separate instruction. This directly prevents them from engaging with society and other non-disabled children.

# USER RESEARCH



Source: APP (Xiao Hong Shu)

- "The school for the blind is isolated, and I can only learn about the outside world through the internet. Otherwise, I would be cut off from it."
- "I spent most of my childhood at home and in schools for the blind. As I grew up, I didn't enjoy going out and developed a fear of socializing."



- "When I was a child, other kids often mocked me. Since then, I stopped playing with other children."
- "I didn't have any sighted friends. There were only blind children at my school."
- "I don't know how to socialize with sighted people, and worry they might misinterpret my expressions, so I'm used to speaking with my head down."



Source: The World of Blind Children --- Wanyue Liu

# PERSONA

**Ms Zhao**

age 33 child age 4

kindergarten for the blind  
Beijing China



## Expectation

- ✓ Ensure children are safe
- ❑ Promote children's growth
- ❑ Enjoy taking the child out

**Si Chen**

child age 6

kindergarten for the blind  
Beijing China



## Expectation

- ❑ Need blind-friendly playgrounds
- ❑ Have equal interaction opportunities
- ❑ Make myself more popular

# DESIGN OPPORTUNITY

## Society

Engaging visually impaired children with sighted peers to build positive social relationships.



## Outdoor

Enhancing their connection with nature and society through outdoor games and exploration.



## Playability

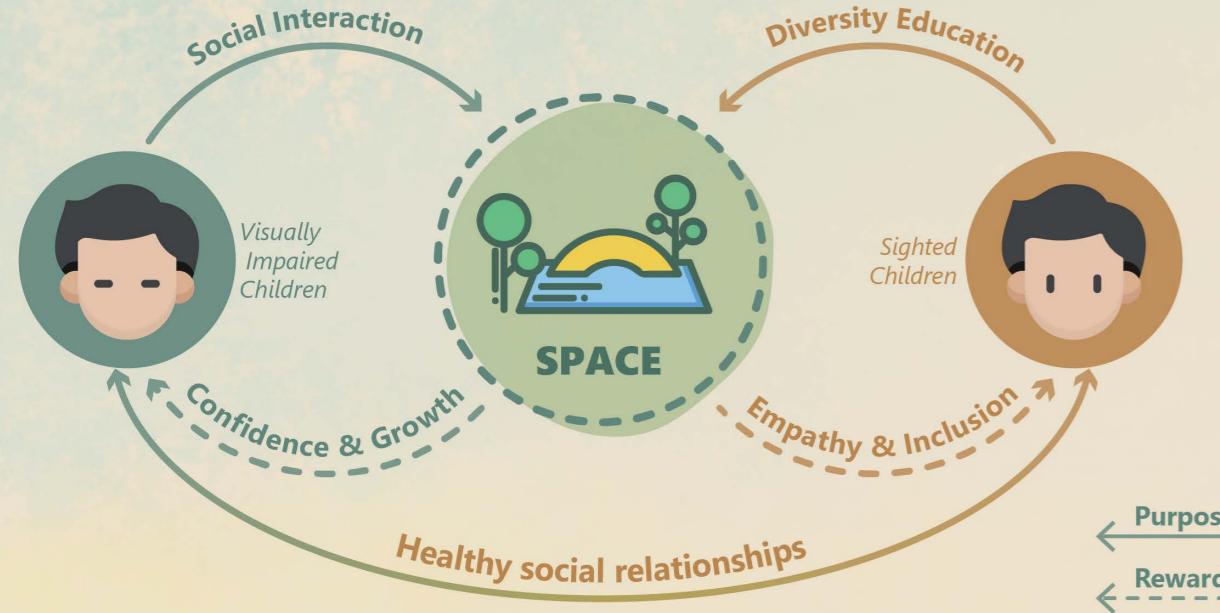
Combining fun and educational elements to keep children interested and engaged.



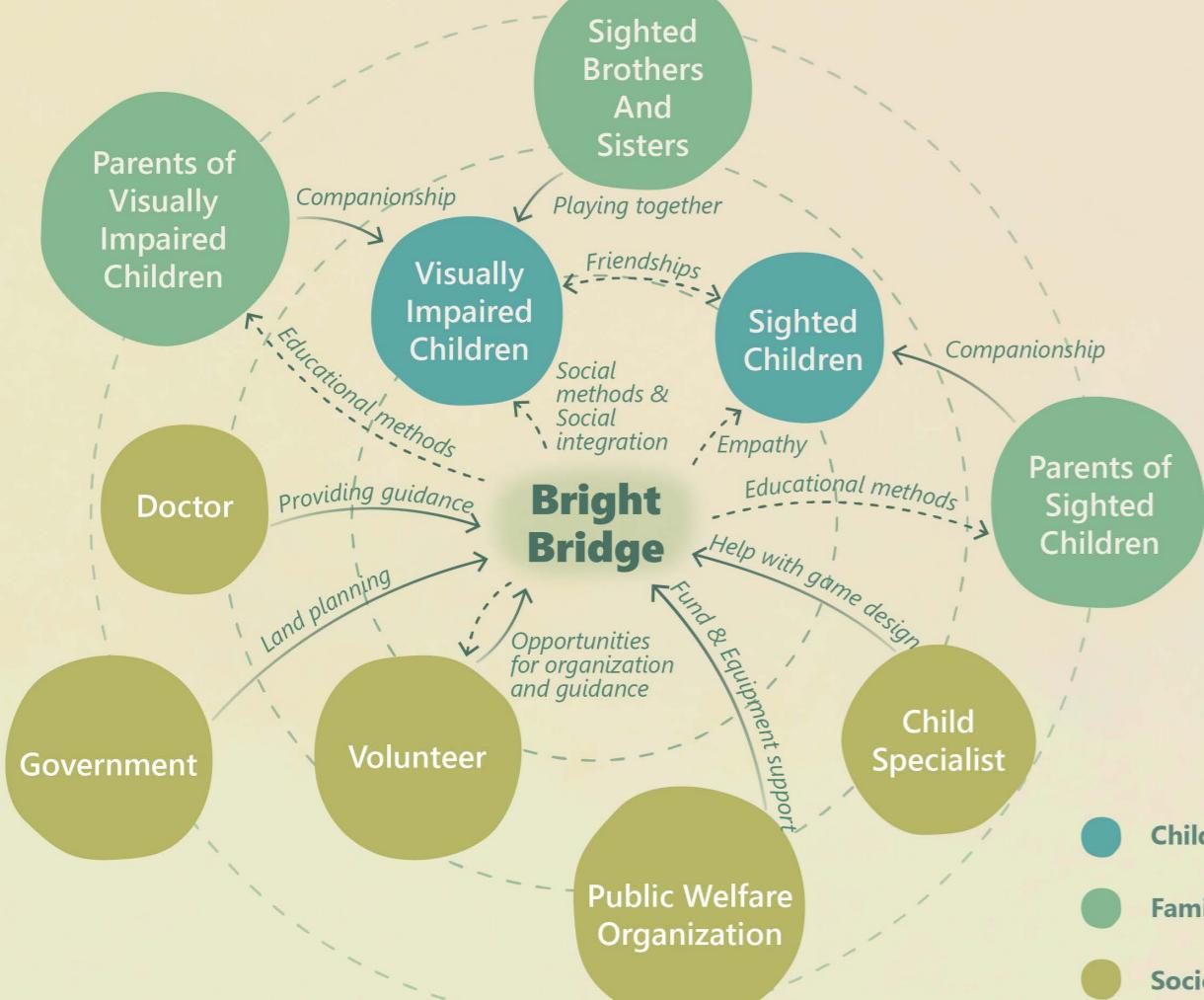
## SYSTEM MAP

### Design Purpose

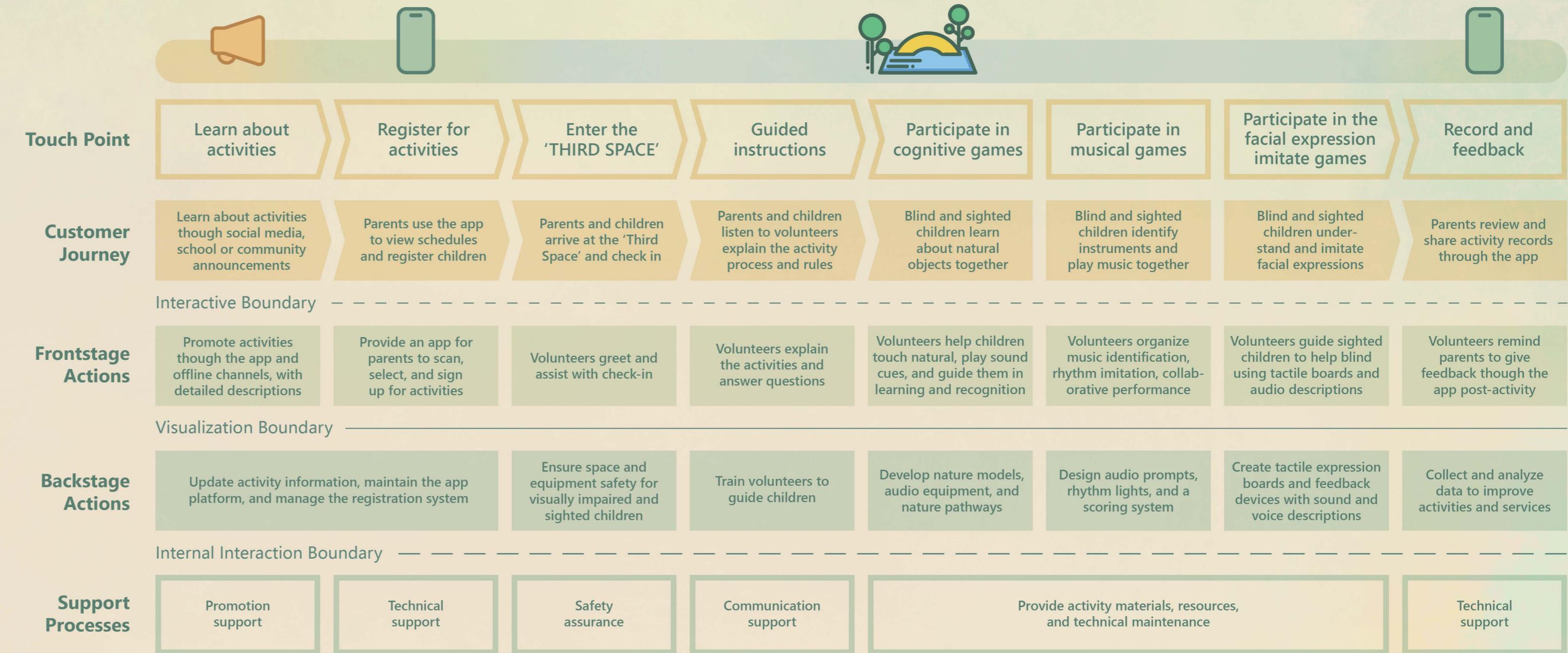
I want to create a 'THIRD SPACE' that fosters social interaction between visually impaired and sighted children.



### Stakeholders Map



## SERVICE BLUEPRINT



## SERVICE WORKFLOW

### CONCLUSION

The stakeholders in the entire outdoor social system for visually impaired children consist of three parts: children, families, and society. Currently, sighted children do not naturally connect with visually impaired children. I aim to create a 'Bright Bridge' to link all these parts together into a complete service chain, promoting harmonious and healthy social interactions between visually impaired and sighted children.



# OFFLINE DESIGN

## District Analysis



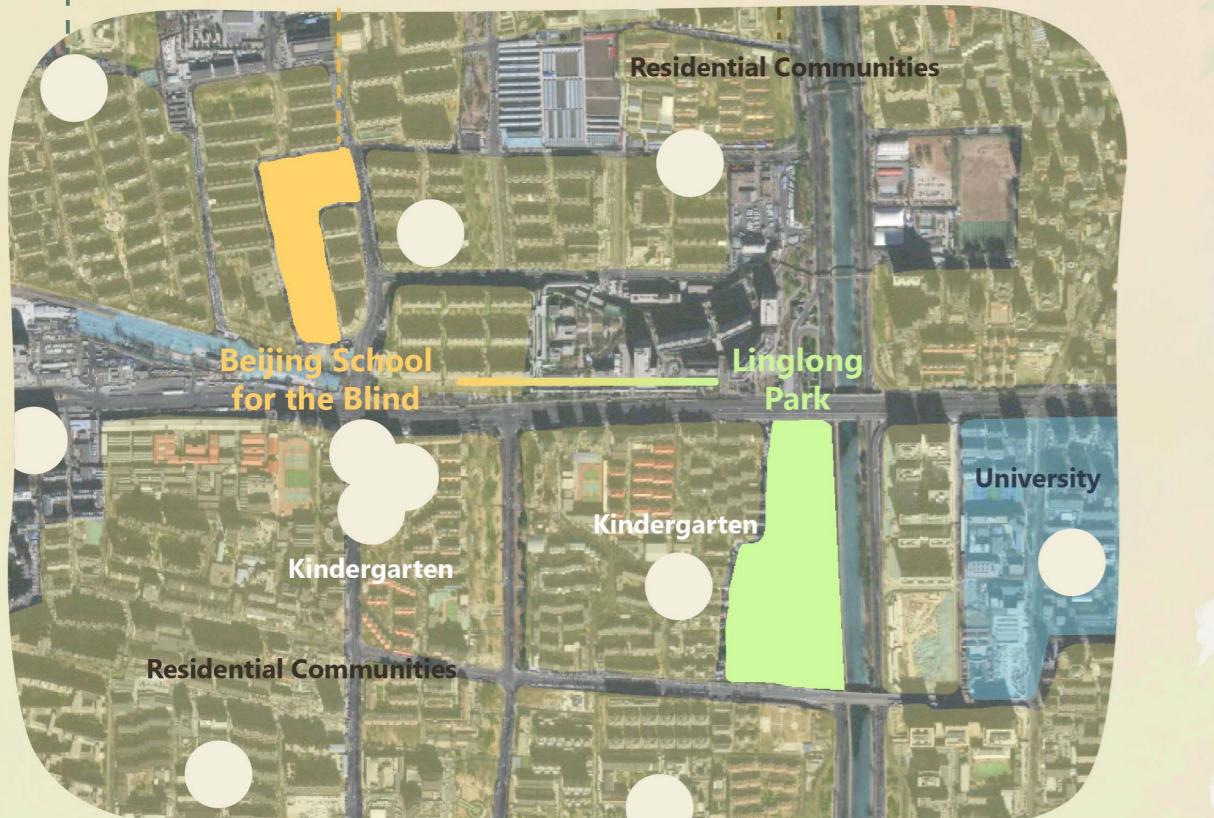
Beijing, the capital of China, has rich educational resources, strong policy support, an inclusive social environment, and the presence of a large school for the blind, making it an ideal city for the design.



Linglong Park has ample open space for the 'Bright Bridge'.

## Why is it suitable to set up the 'Bright Bridge' in this park?

- There are many **kindergartens** nearby
- This park is very close to the **Beijing School for the Blind**, making it convenient for the children to get there
- This area has many **residential communities**, so the target user base is large



## Aerial View of the 'Bright Bridge'

### Interactive Music Zone

The center of the zone is equipped with various instruments that trigger light effects when played, displaying each instrument's corresponding color on the large screen in front, creating a colorful, flowing light show.



### Central Zone

It is the central hub for the three game zones, serving as both a volunteer station and a resting spot.



### Expression Experience Zone

Tactile expression boards allow users to create expressions by adjusting the eyebrows and mouth, and can detect emotions and produce sounds (like laughter) and descriptions. The central space is designed for interaction between sighted and visually impaired children.



### Nature Exploration Zone

There are 4 different tactile paths (forest, grassland, ocean, and desert) that guide sighted and visually impaired children to explore various natural element zones together. Each zone contains corresponding models and natural items, equipped with audio devices that play related natural sounds when touched.

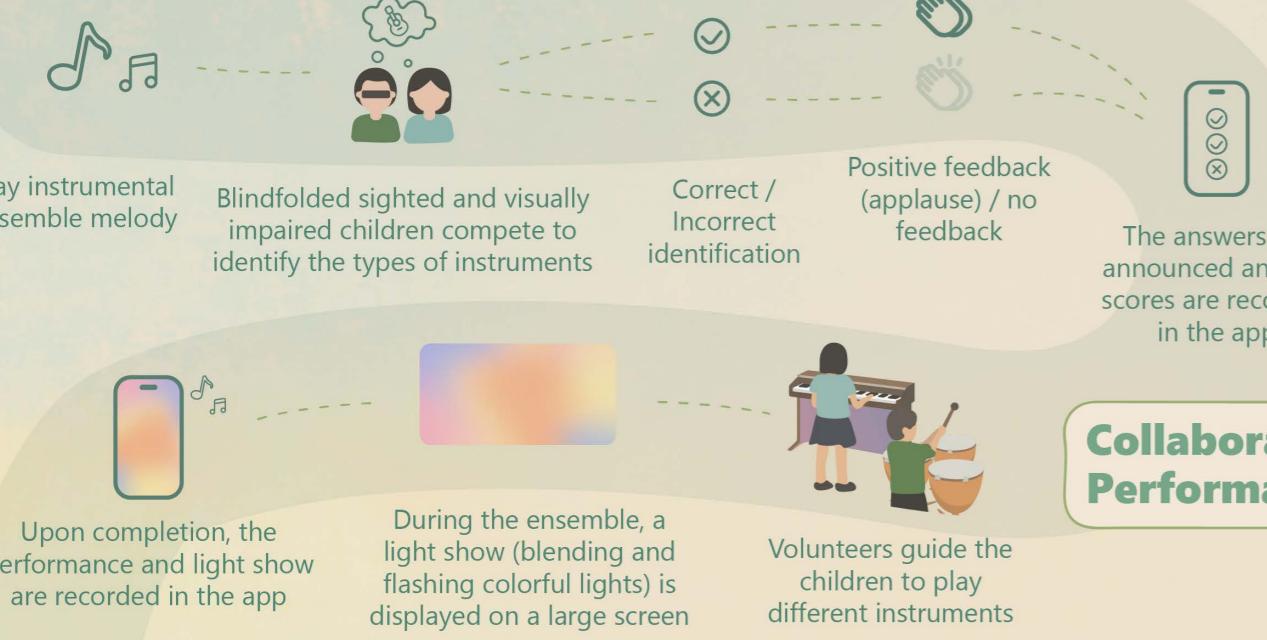


## GAME DESIGN

### Interactive Music Zone

Showcase visually impaired children's musical and auditory strengths through interactive music games, fostering respect and appreciation from sighted children.

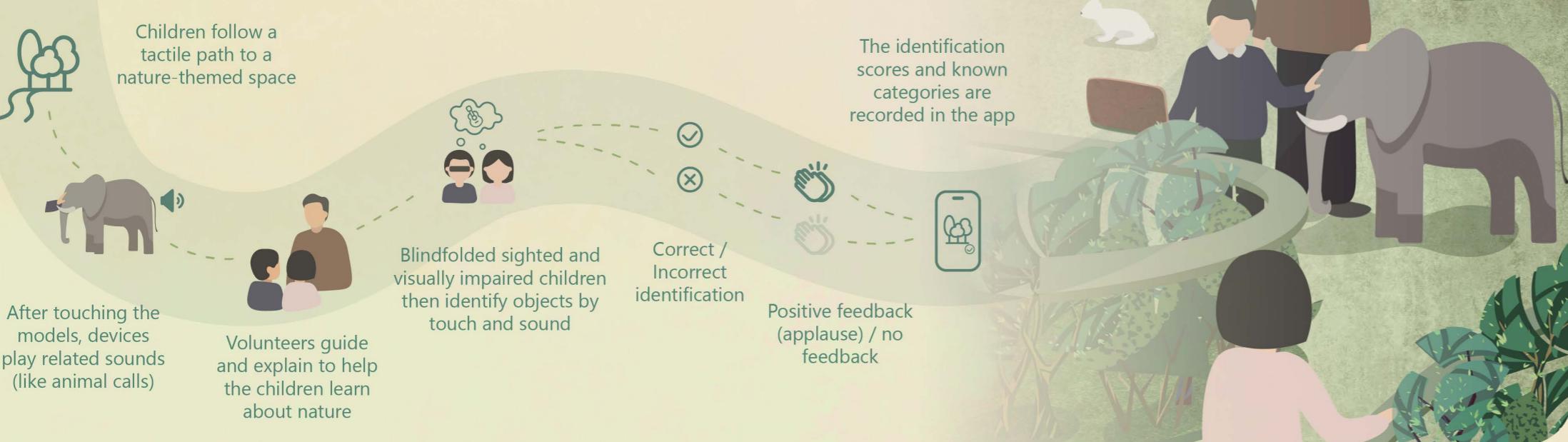
#### Sound Recognition



### Nature Exploration Zone

Help visually impaired and sighted children understand and become familiar with the natural world through nature exploration games.

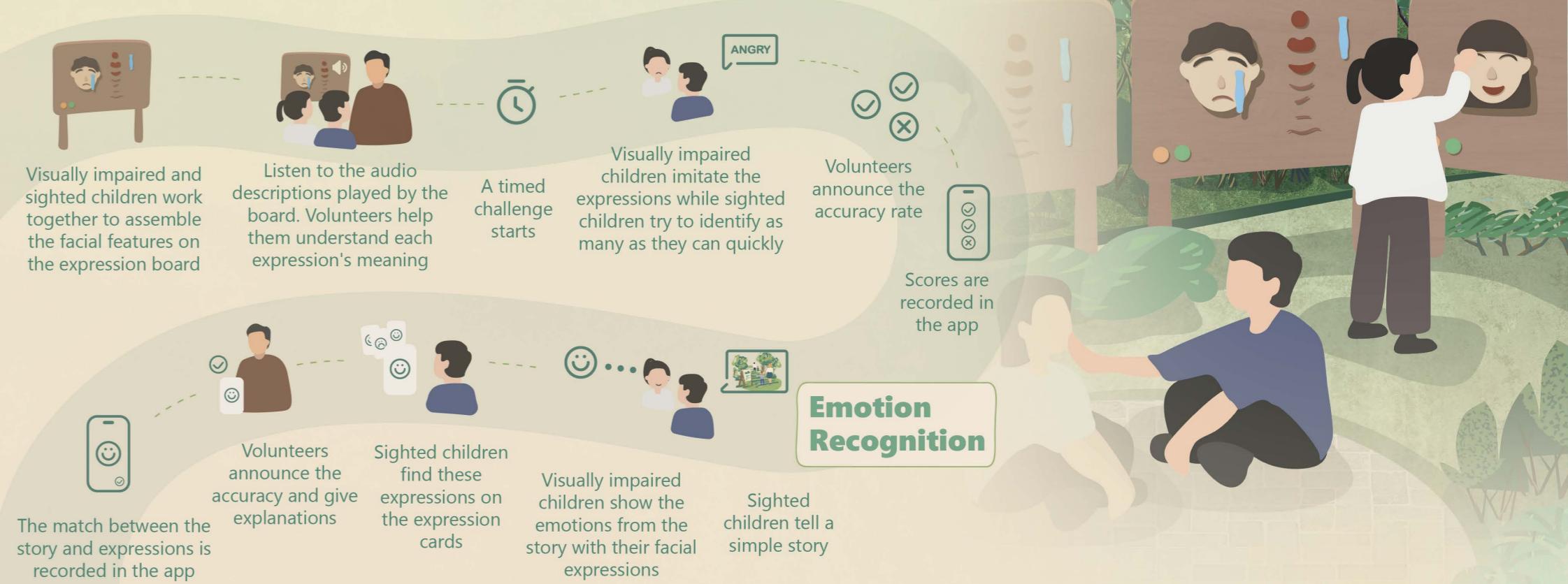
#### Natural Objects Recognition



## Expression Experience Zone

Help visually impaired children understand and imitate expressions using tactile and auditory feedback through Expression Experience games.

### Facial Expression Puzzle

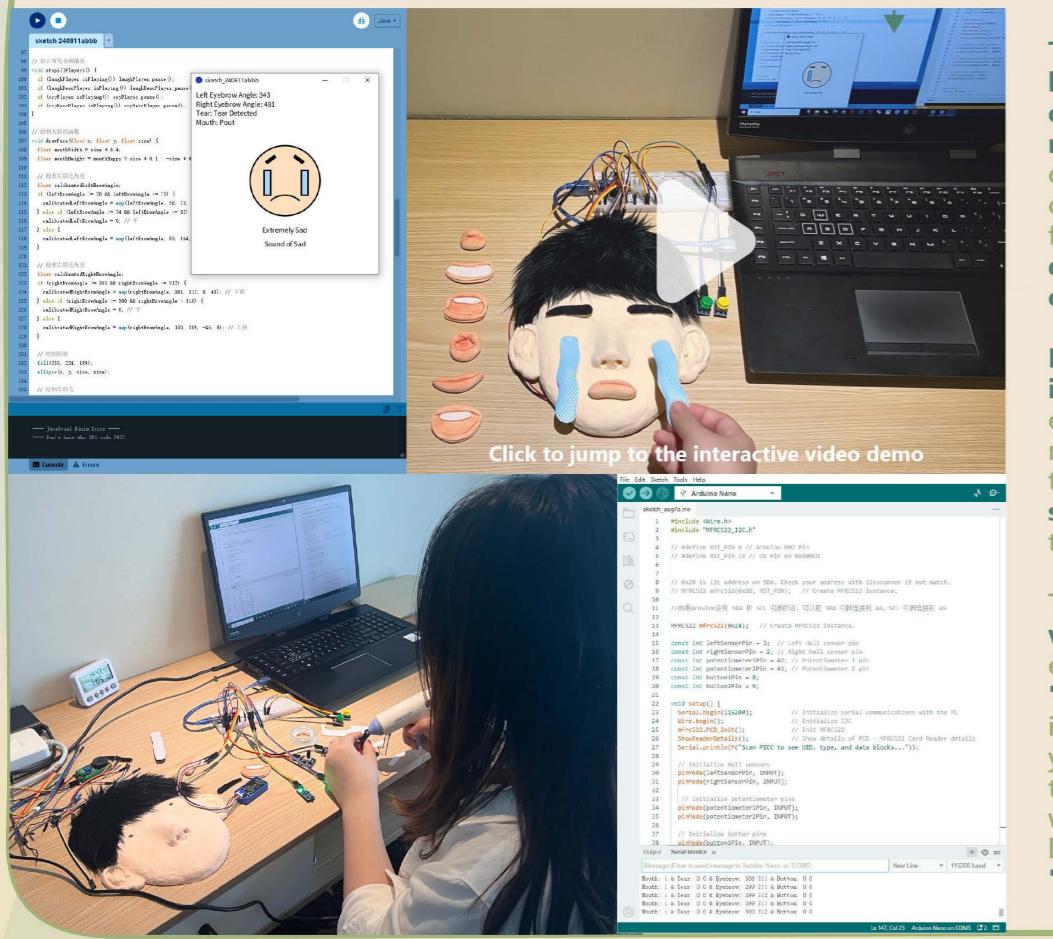


## EXPERIMENT

### Model Making



## Electronic Component Assembly



## USER TESTING

I found some blind children from a blind kindergarten and let them experience the tactile expression boards. Then, I interviewed them to share their feelings.



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

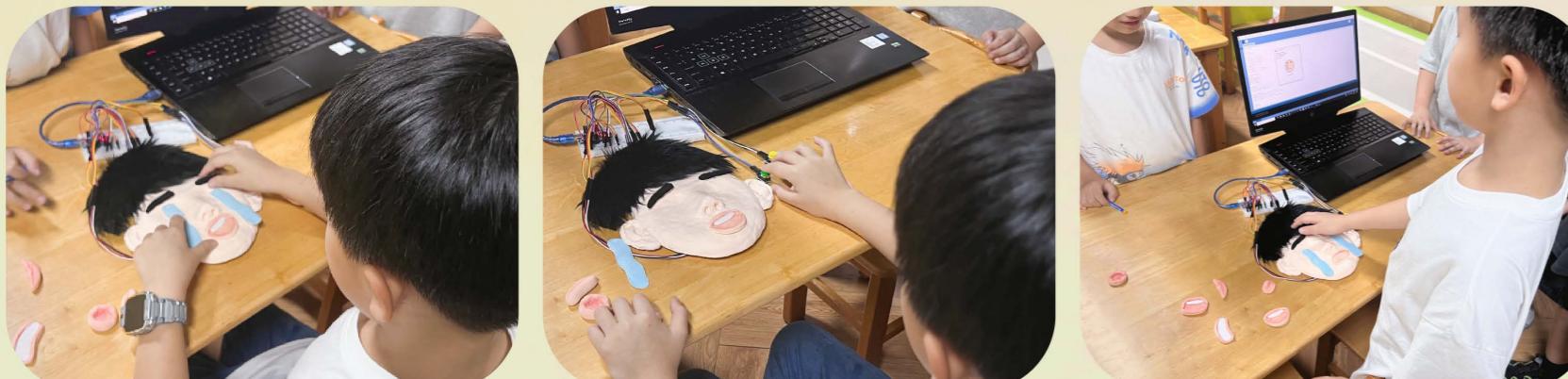
0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

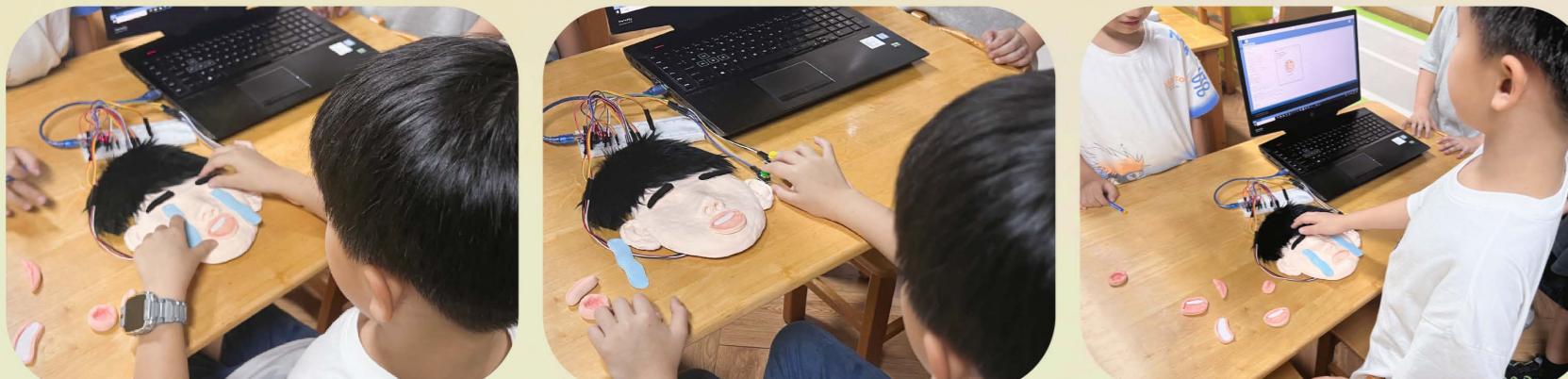
0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

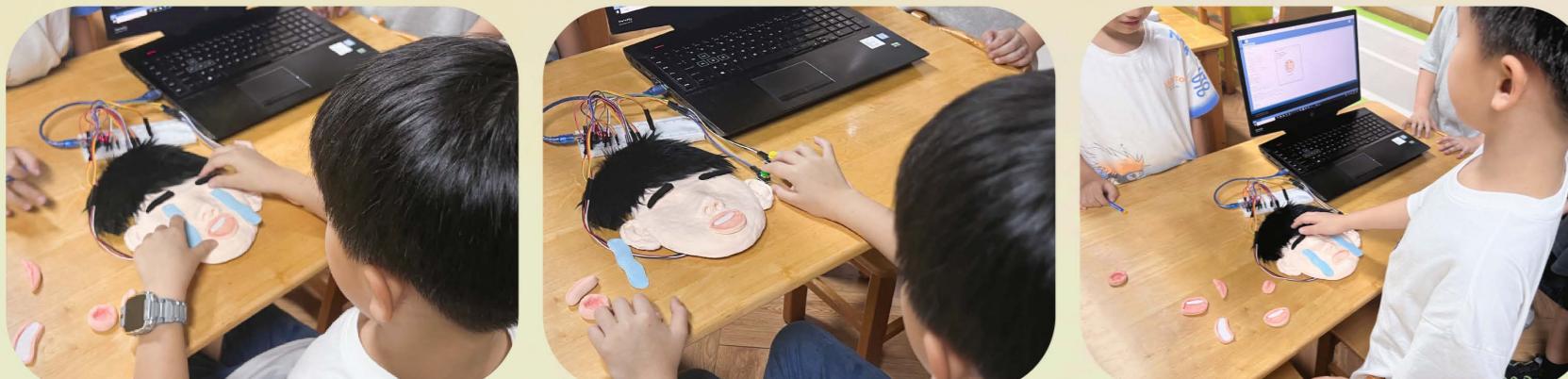
0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

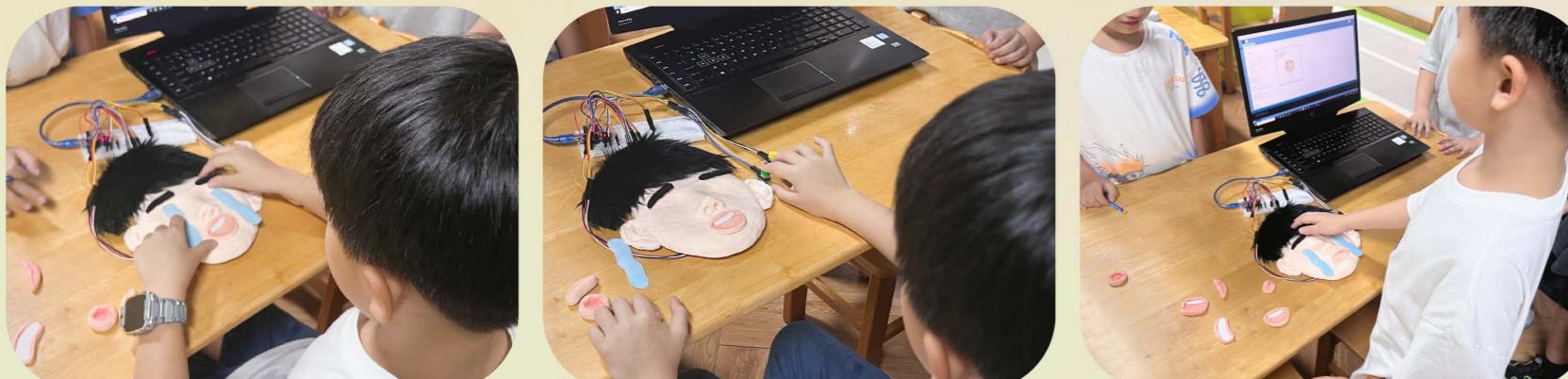
0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
**Fun**  
**Tactile**  
**Interactivity**  
**Usability**

10

0 Scores



**Understandability**  
Audio  
<b