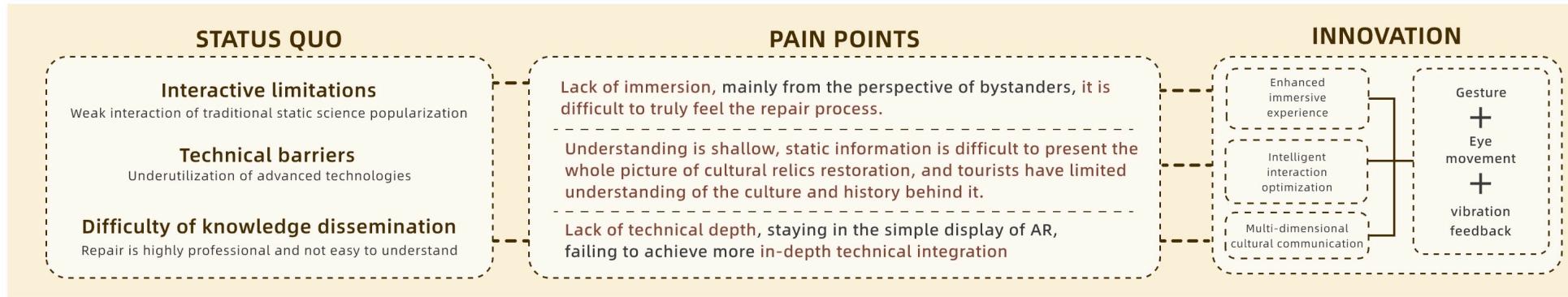


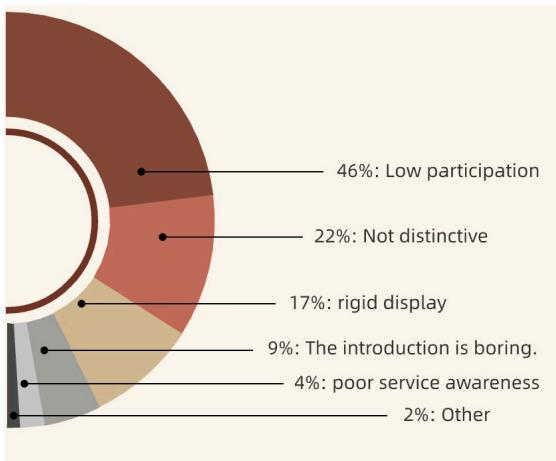
# Museum Multimodal Mixed Reality Relic Restoration Experience

## 01-BACKGROUND

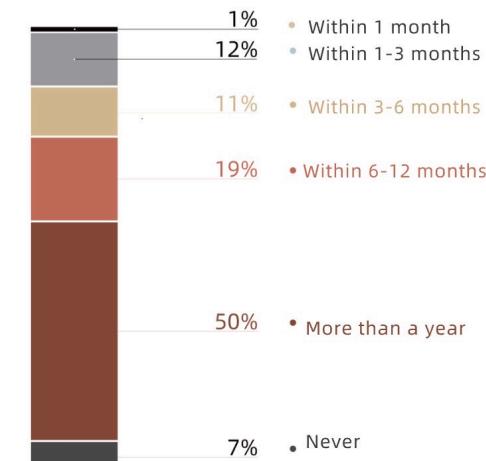
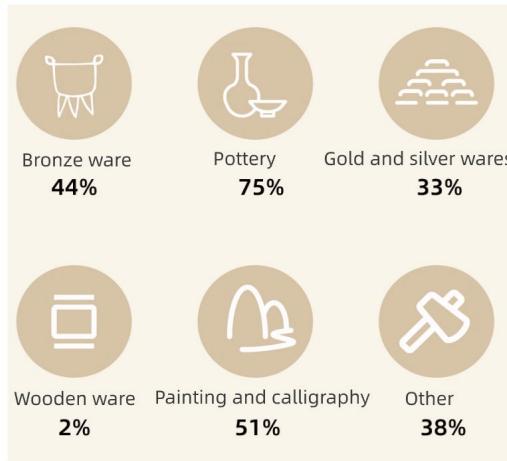


## 02 - USER RESEARCH

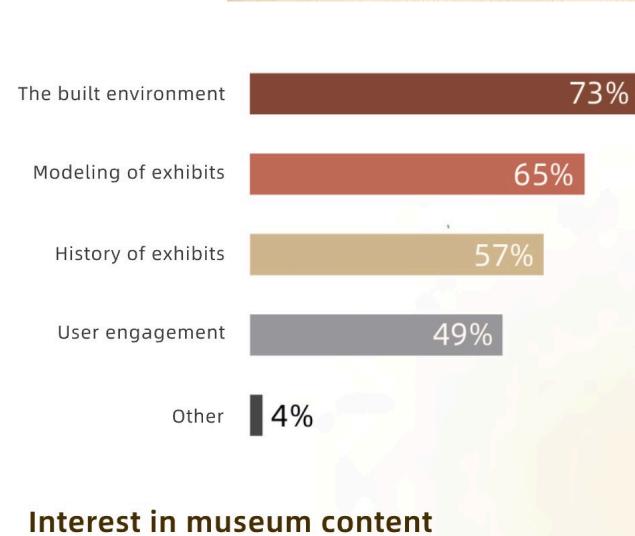
### What needs to be improved



### Interest of various cultural relics



Average frequency of museum visits



Interest in museum content

In the meticulous journey of artifact restoration, we find ourselves embarking on a voyage through two millennia, stealthily drawing back the veil of history. Through our gloves and lenses, we can almost sense the delicate touch of ancient artisans, the warmth of their hands, and the tactile roughness of the surfaces on these aged relics. It feels as though we've transcended time and space, forging a connection with the craftsmen of yesteryears, and immersing ourselves in the legacy of culture and emotion they left behind. By meticulously reviving these ancient artifacts in the manner of our forebears, we open a channel to the hearts of those who came before us, allowing us to experience the timeless resonance that echoes through the ages.

## 03 - PERSONAL



"I hope the museum can display the past and present life of cultural relics more efficiently."

### User information:

Name: Liu Xu  
Age: 21  
Occupation: College student  
Hobbies: travel, reading, digital technology, watching documentaries  
Favorite Documentary: "I Build Cultural Relics in Palace Museum"  
Expectation: to experience traditional culture in a more modern way

### User goals:

Want to learn more about cultural relics in a more interesting way

### User pain points:

The cultural relics displayed in museums show little historical information, do not include the content of cultural relics restoration, and the way of information display is not easy to accept.

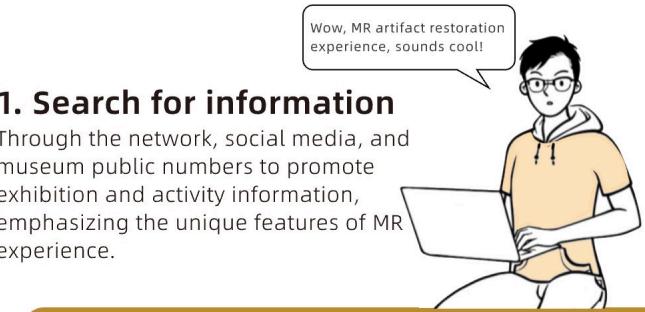
### User insights:

Users need a device to obtain cultural relics information more conveniently, which has achieved the purpose of fully understanding the past and present life of cultural relics and the state before and after restoration.

## 04 - USER JOURNEY MAP

Phases	Before the experience			In the experience			After the experience		
Behavior	Learn about the restoration experience		Make an appointment	View the How-to Guide	Wear the device	Immersive interaction	Review the repair results	Buy souvenirs	Upload experience to social media
Point of contact	Social networking		APP reservation system	Video of equipment operation	MR glasses	Glove tactile feedback	Voice prompt	MR experience results display	Share the experience
Emotional curve									
Pain points	<ul style="list-style-type: none"> <li>Lack of understanding of the immersion experience</li> <li>The operation is not clear, and the use of equipment causes anxiety.</li> </ul>			<ul style="list-style-type: none"> <li>The interaction is not natural enough and the learning curve is high, leading to user confusion</li> <li>Device wear or control is not intuitive, the experience is interrupted, and the user is anxious</li> </ul>			<p>After the end, the user may feel that the short experience lacks continuity or that the content of the shared experience lacks interest.</p>		
User requirements	<ul style="list-style-type: none"> <li>Stimulate users' interest by previewing experience videos online</li> <li>Provide detailed guides in applets and on site to set up easy-to-understand tutorials</li> </ul>			<ul style="list-style-type: none"> <li>Simplify the operation process and make gesture control more intuitive for users.</li> <li>Add a guide to provide immediate adjustment service. If you encounter any issues, you can quickly restore the experience.</li> </ul>			<ul style="list-style-type: none"> <li>Users can choose to continue the experience through personalized souvenirs.</li> <li>Include feedback mechanisms to enable users to share their regrets or expectations, aiming to enhance the content of future experiences.</li> </ul>		

# 05- SERVICE FLOW



## 1. Search for information

Through the network, social media, and museum public numbers to promote exhibition and activity information, emphasizing the unique features of MR experience.



## 2. Reservation and admission

Users make an appointment for the experience time through the small program, and after arriving at the museum, they scan a code and sign in to enter the experience.

## 3. Visit cultural relics

Before the experience, browse the cultural relics in the museum or small program to understand the historical background of the restoration of cultural relics.



## 5. Immersive MR heritage restoration

Users wear MR equipment, and the system guides them to complete the repair operation step by step, experiencing every step of the repair process.



## 4. Guidance of experience regional

Users are guided to enter the experience area, and after the device is bound, the commentator introduces the operation and carries out simple interaction.



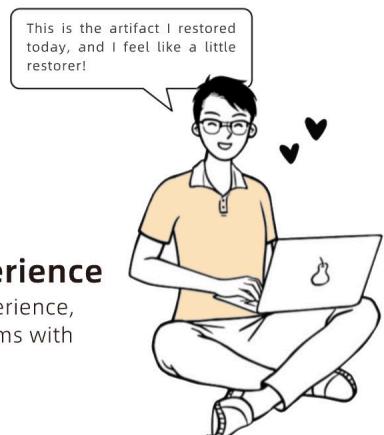
## 6. Display of restoration results

After the repair is completed, the system displays the contrast effect before and after the repair, and the user views the details of the repair in an all-round way.



## 7. Customized souvenirs

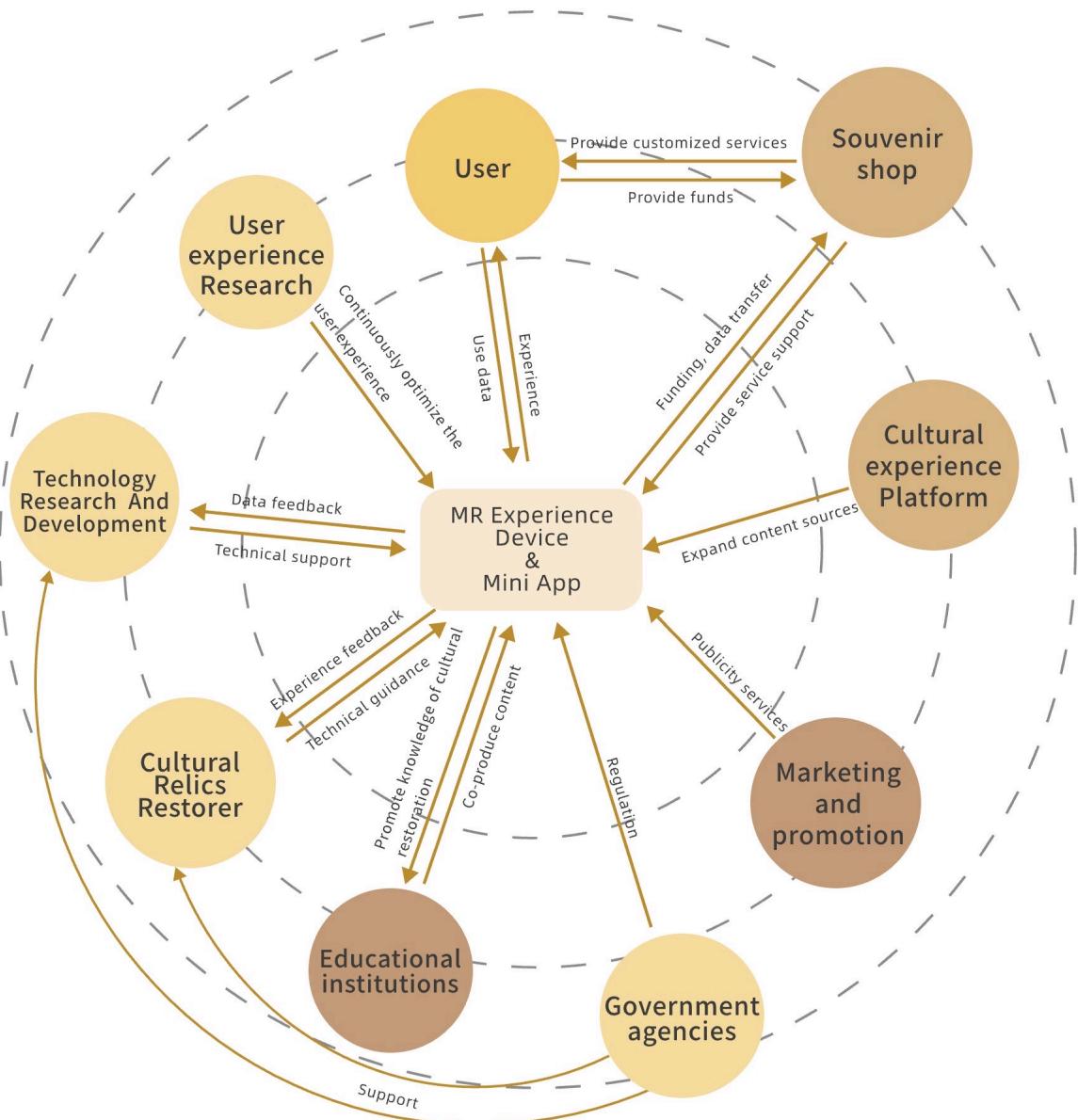
Users can customize the repaired 3D models into souvenirs and place orders through small programs.



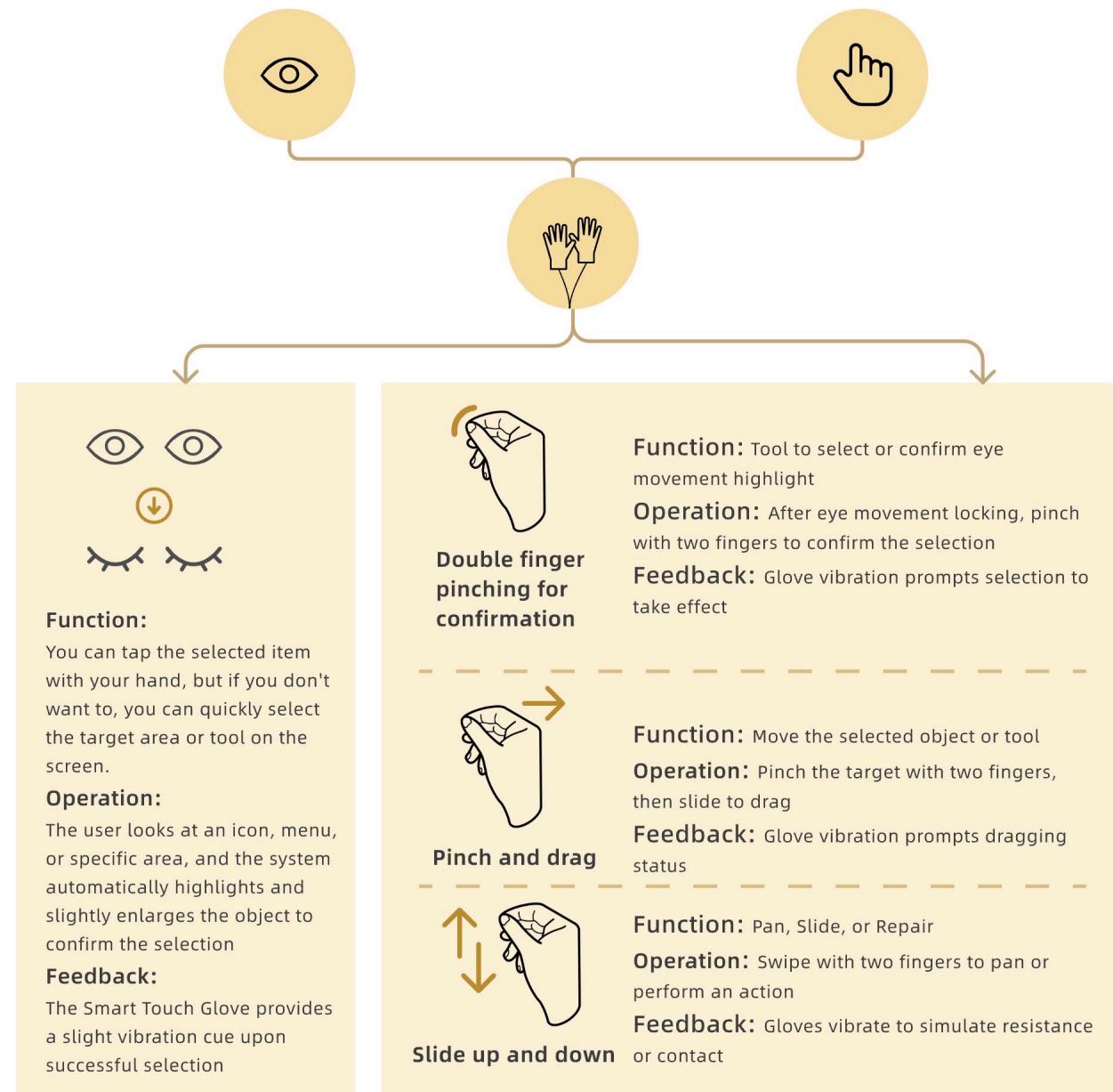
## 8. Recall and share the experience

Generate short videos or photos of the experience, and users can share them on social platforms with one click.

## 06- STAKEHOLDERS



## 07- INTEROPERABILITY SPECIFICATION



# 08 - MINI PROGRAM INTERFACE

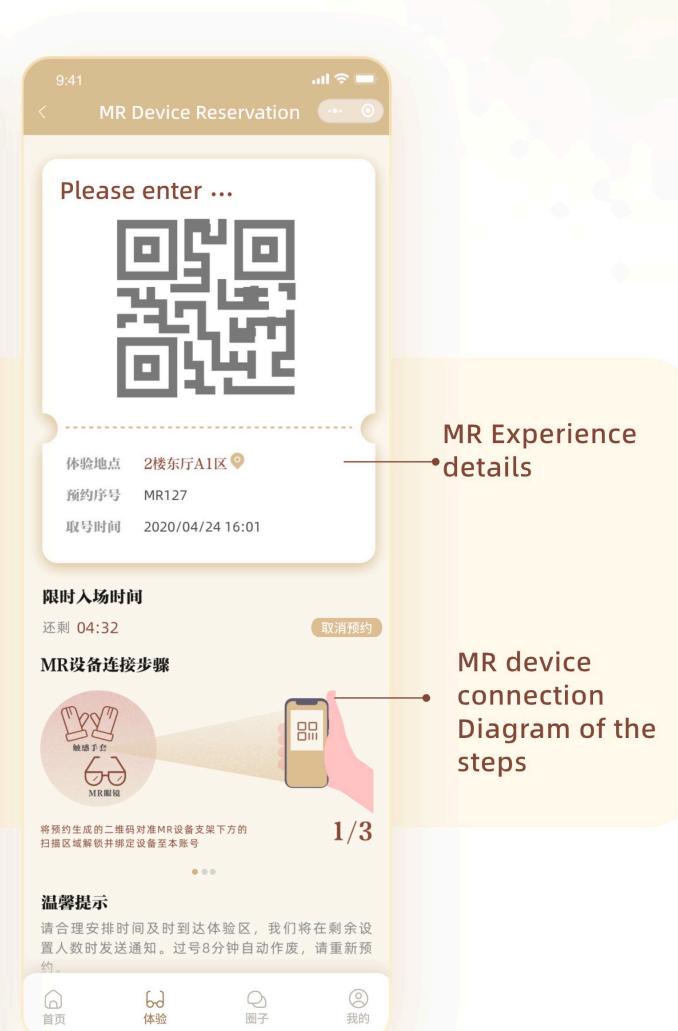


Home page

Museum event  
announcement area

Click to make an  
appointment

Quick view of  
cultural relics to  
be restored



Mr Experience Reservation



view own historical travel notes  
Quickly create a new travelogue

My travel notebook

## 09 -INTERACTIVE DEVICE

The interactive device consists of three parts:

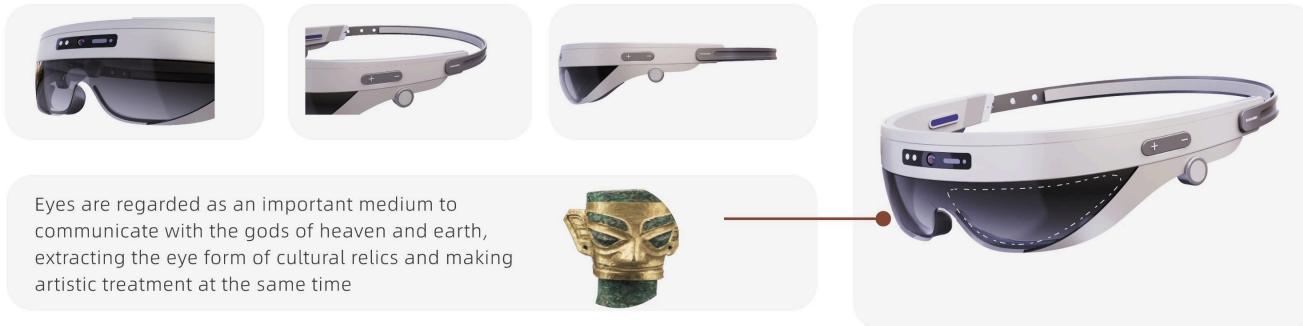
MR Glasses, tactile gloves, and a wireless charging station.

Sanxingdui is a famous cultural site in China, which confirms the existence of the ancient Shu State, and the eyebrow and eye shape of the cultural relic is highly recognizable, and it represents the ancient Shu's worship of the eyebrow and eye. The design inspiration is the curve of the eyebrow and eye, which is intended to express the shock of Sanxingdui after sleeping for thousands of years



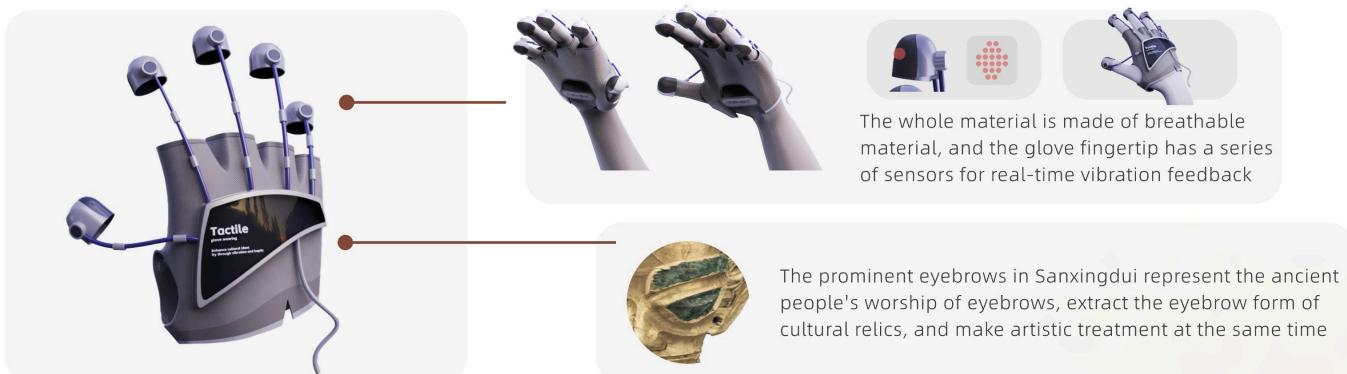
### MR GLASSES

The frame consists of ultra-clear visual interactive glasses and bone conduction headphones, which extract the eyes of Sanxingdui relics as the design of the glasses. The glasses are equipped with a TOF sensor and use skin-friendly materials to enhance user comfort and create conditions for an immersive experience. As the restoration process changes, so does the lighting.



### TACTILE GLOVES

The top of the glove mimics the eyebrow line design of Samsung's heritage, the fingertip pad array can simulate the tactile sensation of various textures, the high-double-oriented flexible piezoelectric nanofibers, and the vibration simulator is equipped to simulate the real tactile experience. The open design is suitable for different sizes of hands, and the hand movement is more natural.



# 10 - MIXED REALITY INTERFACE



Bronze

Pottery

Jade Articles

Stone Artifacts



Shang Dynasty Bronze Beast Mask

Renowned For Its Exaggerated Features Of "thousand-mile Eyes" And "wind-hearing Ears," With Protruding Cylindrical Eyeballs And Extremely Extended Ears, It Stands As A Pinnacle Of Artistic Expression And Imagination In The Ancient Shu Civilization.

Tap To Try



Shang Dynasty Gold-masked Bronze Head

The Bronze Head Of Sanxingdui, Adorned With A Gold Mask, Features A Hairstyle Distinctive To The Local Culture. The Gold Mask, With Its Intricately Hollowed-out Eyes And Eyebrows, Showcases Exquisite Craftsmanship, Exuding An Aura Of Sacred Authority And Unique Aesthetic Appeal.

Tap To Try



Shang Dynasty Bronze Standing Figure

The Largest Bronze Statue In The World From The Same Period, Wearing A High Crown, Hands Clasped In A Circular Gesture, Barefoot And Standing On A Beast-shaped Pedestal, Resembling A Divine Leader Performing Sacred Rituals To Connect With The Heavens.

Tap To Try

# 10 - MIXED REALITY INTERFACE

**Step Selection**  
Select repair step

清洗去污  
揭裱  
补缀修复  
全色接笔  
前后对比

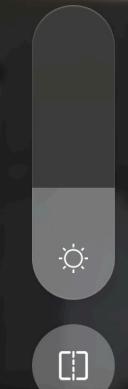


The cultural relics are restored here and the situation is checked in real time.

**Restoration Area**



**Control Panel**  
Control volume, brightness, and detect before-and-after differences.



**Tools area**  
Select a tool to repair the artifact



## 10 - MIXED REALITY INTERFACE

**5 Minutes**  
Light Experience

Suitable for children and users  
who want to experience the  
repair process quickly.

**15 Minutes**  
Deep Experience

Suitable for adult users who  
want to explore the repair  
process in depth

青铜  
Bronze



陶瓷  
Ceramics



书画  
Painting



雕塑  
Sculpture



漆器  
Lacquerware



织绣  
Embroidery



### Gesture Guide Lines

Gesture prompts and guide lines  
make the process more  
convenient and easy.



Notebook  
Price: 6 USD

Buy it

Canvas bag  
Price: 9 USD

Buy it

3D printing  
Price: 15 USD

Buy it

### Souvenir Purchase

Purchase the customized mementos  
repaired by the user after completion.

### Cultural Relic Restoration Selection

Six categories of cultural relic  
restoration options available.