Service Design | User Interface Design | Interaction Design

MY FIREWORKS

Let’s start the AR tour in SSTM !

Group Work
User Experience & User Interface Designer & Model Designer
2021.08 — Ongoing

The project is based on the concept of STEAM education, combined with AR technology to provide an innovative solution for visiting the Shanghai Science and Technology Museum.

https://youtu.be/uBntKQ-6IJg

In Collaboration With

Shanghai Science & Technology Museum

DISCOVER

Background

Shanghai Science and Technology Museum was built by Shanghai government to implement the strategy of **rejuvenating China through science and education**, and opened to the public in 2001.

It is about to receive its first major closure in 20 years. Its **2 primary problems and demands** need to be solved urgently.

Unchanged
exhibits

Innovative
experience

Online
expansion

Research

HOW TO HELP SSTM ATTRACT AUDIENCES?

1

Comparing the top 3 science & technology museums in China in terms of exhibit format, **SSTM is heavily homogenised**.

CHINA SCIENCE & TECHNOLOGY MUSEUM

static ●●●●● dynamic ●●●●○ interactive ●●●●◐

GUANGDONG SCIENCE CENTER

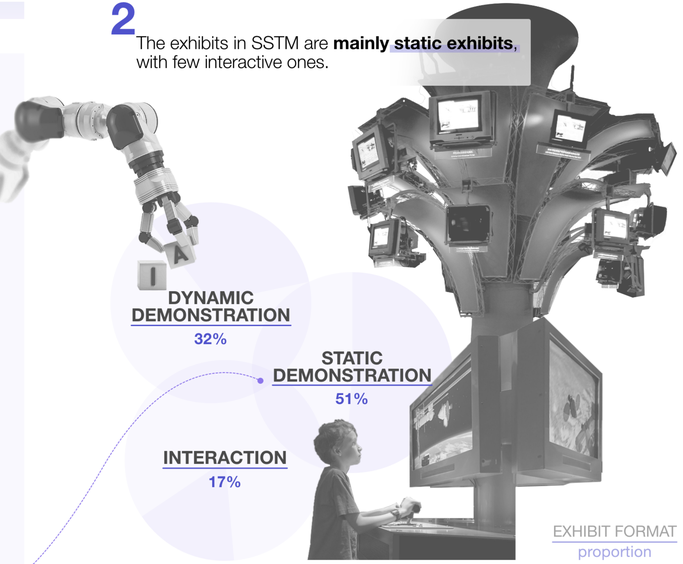
static ●●●●● dynamic ●●●◐○ interactive ●●●●○

SHANGHAI SCIENCE & TECHNOLOGY MUSEUM

static ●●●●○ dynamic ●●●◐○ interactive ●●●○○

2

The exhibits in SSTM are **mainly static exhibits**, with few interactive ones.



3

Exhibits are less interactive, and **display methods** are outdated and not updated for a long time. The update rate is less than **10%** (including repairs and upgrades).

Persona

Visitor | *learn knowledge*

Jack
9-year-old
primary school
total visits : **1**

"I like to do some handwork and am curious about inventions.So my parents took me to visit the science museum."

Visitor | *do homework*

May
14-year-old
junior high school
total visits : **3**

"I often deepen knowledge in the museum. So I came to take part in the theme activities organized by SSTM."

Companion | *teach the child*

Jane
36-year-old
with a 4-year-old son
total visits : **2**

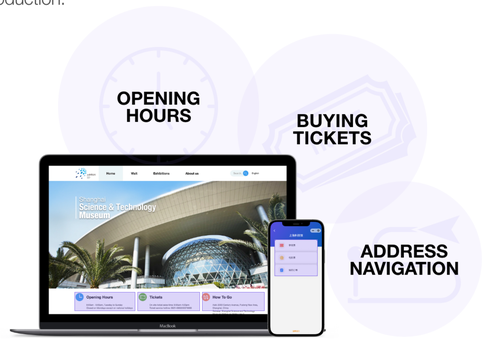
"I hope to nurture my son's interest in science. But the exhibits did not change during the two visits."

DESIGN OPPORTUNITY

How to meet different visitors'needs on the basis of retaining the original equipment?

HOW TO HELP SSTM EXPAND ONLINE?

The existing online platforms have few functions and lacks of exhibition introduction.



Information Architecture of Existing Online Platforms

Web

- home
  - opening hours
  - tickets
  - how to go
- visit
  - facilities
- exhibition
  - permanent exhibitions
  - special exhibitions
  - activities
  - science theaters
  - photo & text descriptions
- about us

Mobile

- tickets
  - visit
  - movie
- order information

Journey Map

STAGE	BEFORE THE VISIT	DURING THE VISIT	AFTER THE VISIT
	• Browse the exhibition introductions *web* • Find out how to get to SSTM *web* • Buy tickets *mobile*	• View the official recommended routes *web* • Visit the SSTM • Search social media for popular pavilions *mobile*	• Buy a souvenir • Share the visiting experience • Recall the visit at SSTM
EMOTION&COMMET	"It is very convenient to purchase tickets online on phones, though the exhibition descriptions and navigation need to be viewed on the web."	"It is not user-friendly to view the route recommendations on the web, so I have to search for popular pavilions on social media while visiting."	"The only connection with the SSTM is the souvenir purchased and I can't recall any related visits."
NEED	1. Exhibition information is also available on phones.	1. SSTM can provide descriptions of recommended paths and popular pavilions on the platform. 2. The route guide can be more targeted.	1. SSTM's viewing experience could have been more distinctive and memorable. 2. Connections are not only built through souvenirs.

DESIGN OPPORTUNITY

1. **Functions are scattered across mobile and web, which is inefficient.**
2. **SSTM does not provide a more targeted recommended path.**
3. **More unique connections should be made.**

DEFINE

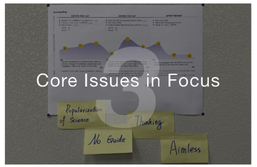
Insight

Compared with improving the original facilities, exhibits, and display formats, **the mobile platform** can be exploited for exhibition viewing and promotion.

SSTM can provide **more targeted routes** to the exhibition for the main visitor groups, such as elementary and middle school students.

The visitor's connection to SSTM can **go beyond** the existing souvenir format and become **more innovative and easy to promote**.

Co-Create Workshop



KEY INSIGHT

The **integration of path recommendations** into the visit can help to enhance the educational and scientific significance of the SSTM.

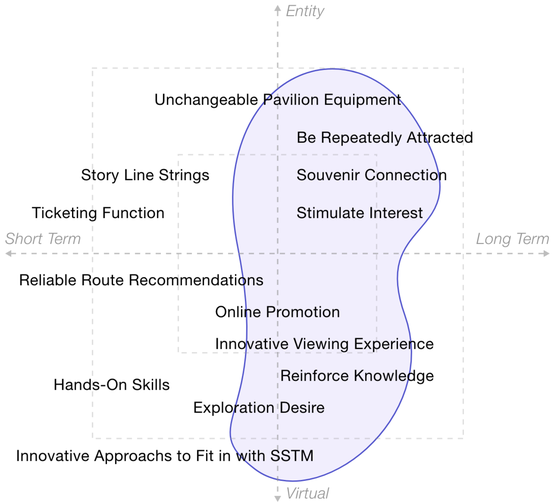
——Ye

Souvenirs can also be used as an opportunity for **online promotion**.

——Yang

OPPORTUNITY

We used the KJ method to induce design opportunity points.

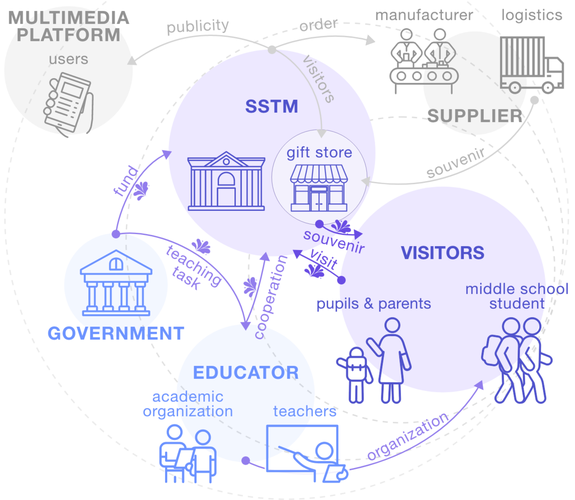


DESIGN OPPORTUNITY

Design appealing virtual viewing solutions to meet online promotional needs and lasting connections with SSTM.

STAKEHOLDER MAP

We sorted out the stakeholders involved in the design concept of combining a virtual visit to help enhance the audience experience and connection with SSTM.



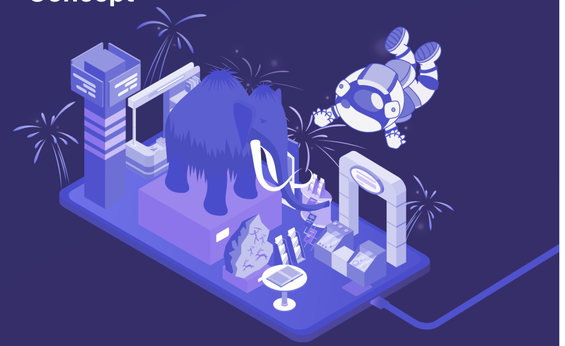
SSTM ❀ VISITOR

Pre-visit: Attracting visitors to SSTM
Duration: Combining virtual tours to help link the visit
Post-visit: Creating connections with hybrid souvenirs

Effective *Competitiveness* ❀
More *Government* Resources
❀ Better Fulfillment of *Teaching & Learning* Tasks

DESIGN

Concept



AR-BASED SERVICE DESIGN FOR VISITING SSTM

exhibition guide
Inspired Exploration

fireworks experiment
Augmented Reality

hybrid souvenir
Creative Connection

online gallery
Effective Expansion

Interaction Logic

Stimulating Interest in the Exhibition

Creating Connections & Promoting Online

Exhibition Guide

AR Fireworks Experiment

Hybrid Souvenirs

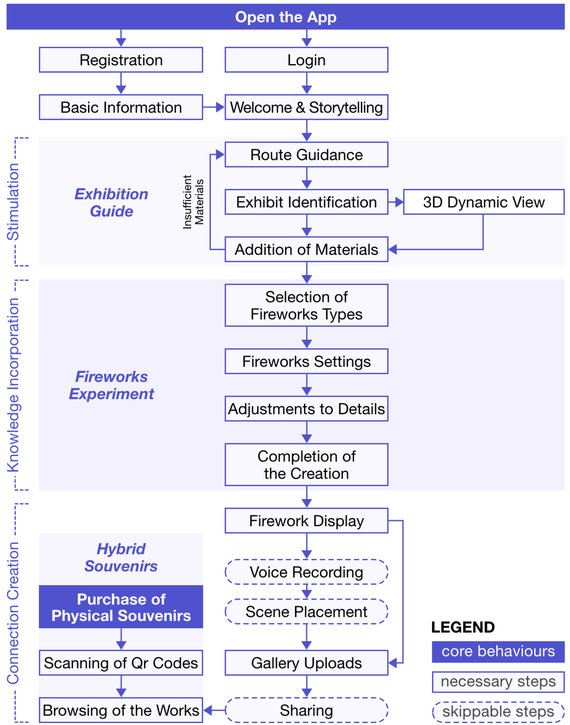
Incorporating Key Physical & Chemical Knowledge from Primary & Secondary Schools

Knowledge Covered in the Fireworks Experiment

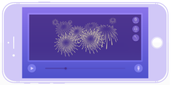
- Chemistry
  - metal combustion
  - flame effect
  - oxidizer-assisted combustion
- Physics
  - speed & angle
  - parabola
  - internal structures of fireworks

AR and visualization helps users (especially students) to better compare and observe unrecordable experimental phenomena and understand abstract concepts.

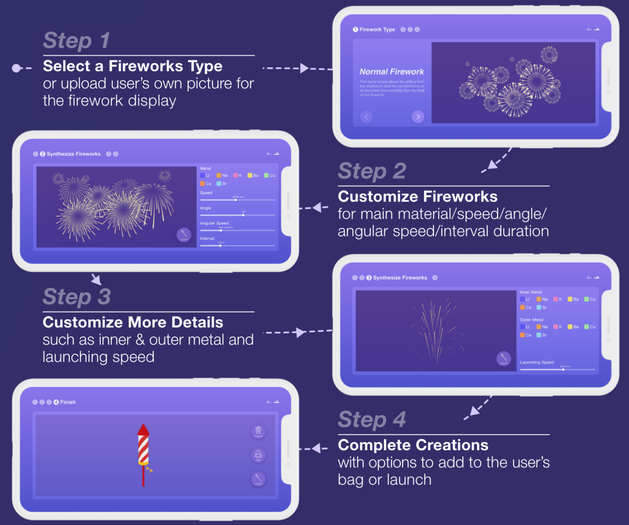
User Flow



Service Blueprint

		Stimulation *Exhibition Guide*	Knowledge Incorporation *Fireworks Experiment*	Connection Creation *Hybrid Souvenirs*	
TIME	2-3 min	65-100 min		15-20 min	5-12 min
TOUCH POINT	Promotional Posters Application	Cartoon Images Ar Exhibit Models	App Interface	App Interface	Qr Code on a Physical Souvenir App Interface
CUSTOMER JOURNEY	View Poster Information Download the App	View the Exhibition Be Guided by Cartoon Images Scan to Identify Exhibits	Add Materials to the Bag Experiment with Materials	 Record Sounds Place Scenes Upload to the Gallery	Buy Physical Souvenirs Share View the Scene & Gallery
		Line of Interaction			
FRONTSTAGE	Promotional Information App Available in App Store	Attractive Cartoon Images Recognizable Exhibit Contents	Experimental Interfaces & Models	Audio Recording Flat Recognition	Qr Code from the Database Shared Gallery
		Line of Visibility			
BACKSTAGE ACTIONS	Publish Promotion Publish App in App Store	Record Pavilion Information Identify the Exhibit	Record Firework Models	Upload Scenes	Upload Scenes Share Users' Creations
		Line of Internal Interaction			
SUPPORT PROCESSES	Formulate Promotion Plan	SSTM provides its exhibition information and professional introduction to exhibits	Schools emphasize key knowledge points with re-inforcement of relevant content.	Variety of Scenes and Materials	The database backend provides QR codes to SSTM's souvenir shops.

Fireworks Experiment Display



CODING

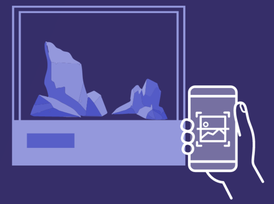
I worked with another member with coding skills to design a firework editor to implement the fireworks experiment.

Visualization | Parameter Adjustment | Fireworks Sharing

Storyboard

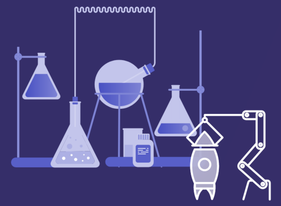
1 Download *My Fireworks*.

2 Be guided by the cartoon image.



3 Scan the exhibit index with the phone.

4 Manipulate the model and add it to the bag.



5 Experiment with materials for fireworks.

6 Save the scene and upload it to the gallery.

7 Purchase a physical souvenir in the shop.

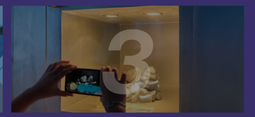
8 Scan the QR code to get a hybrid souvenir.

9 View the work in the gallery and share it.

Usage Scenario

Download the App
Users download the app by scanning the posters posted in SSTM.

Welcome & Storytelling
Visitors get informed about the story, inspiring them to visit the exhibition.



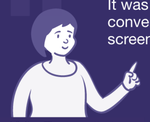
Scan the Exhibit Index
Users scan the exhibit index via phones to fulfill the tasks in the app.

3D Dynamic View
After scanning, users view the 3D model in the imaging space.

Fireworks Experiment
After collecting materials, users create fireworks and can record sounds.

View the Hybrid Souvenir
Users scan QR codes on actual souvenirs to view the hybrid ones and share them.

FEEDBACK



"It was interesting. However, it is a bit inconvenient to keep operating the phone screen. Is there an easier way to use it?"

Visitor Zhu (*a mother*)

"*My Firework* attracts a large number of visitors. Do such hybrid souvenirs have to **be limited by the QR code** on the gift box?"

Employee Wu (*SSTM*)

FUTURE PLANNING

More Possibilities for Interaction

Research & Analyze
the friendliness of various interaction gestures to users.

Learn More
about interaction suitable for various age groups.

More Explorations of the Medium

Test
which medium is more popular with the merchants & users.

Explore
the feasibility and opportunities of physical scanning technology.