

PORTFOLIO

GU YUN
2020–2021

APPLYING FOR ADMISSION TO
THE HONG KONG POLYTECHNIC UNIVERSITY

Gu Yun

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EDUCATION BACKGROUND

9/2017–present

Shanghai Maritime University

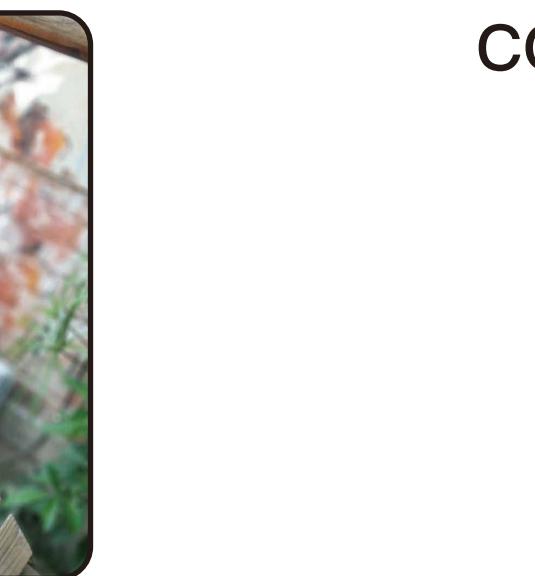
College of Information Engineering

Major: Electronic Information Engineering

SKILLS

Software: Adobe Illustrator, Photoshop, Xcode

Programme Language: C++, HTML5, CSS3, JavaScript



HOBBIES & INTERESTS



Sport



Music



Drawing



Coding



Reading

CONTENTS



01
Pick-up



02
My Little Museum

Safety Training System



04
Other Works

INTRODUCTION

Project1

It is an app designed for people in the art industry.

The design inspiration comes from the ColorCube, a popular open-source project I saw when I visited GitHub at the beginning of the year: intelligently extracting the main colors from photos, which reminds me that I often struggle with color matching when I create. And the functions of many websites or software I used before are relatively single, and most of them are in English. I asked some friends and found they have similar confusion. So I wanted to design a Chinese app, which can be regarded as one of my cross-professional attempts. At the same time, this is my first independently completed app design project, which has improved my proficiency in using Adobe Illustrator to produce high-fidelity interfaces.

Extracting colors is undoubtedly the main function, but it has a wider picture source: photos or gallery or famous paintings;

Besides, a new homepage "Me" is added to help users find past thoughts in time.

Now it seems that many areas can be improved, such as adding social, shopping, and other functions. I will slowly correct them in the future.

Project2

It is a STEAM e-book designed for children.

Inspiration comes from Kindle. Some people say that Kindle is meaningless, and reading on mobile phones is okay, but it is often distracted and inefficient. Therefore, even if many people think that a waste of money, the sales of Kindle are still good. I want to design a child's Kindle and use this handheld to concentrate on their studies.

Through a series of online paid questionnaire surveys, I positioned the design of this handheld device for children when visiting the history museum.

In this project, I used the software Axure for the low-fidelity part, and the high-fidelity is still by Illustrator; I thought about a lot of games. Due to time constraints, I only drew a few game interfaces, but these are all expandable; finally, The TESTING part is hypothetical because there is no physical output, which only expresses my idea of testing the product.

I am a self-taught student. I try my best to complete background research, problem discovery, problem-solving, business model, design presentation, and design reflection.

I would like to thank my friend Bai for helping me complete the hardware modeling and rendering (I designed the sketch, then she helped me make the model by CATIA); and my friend Yong who instructed me to design the Logo (she helped me modify my PSD file); thanks for my sister's colleagues and their children who participated in the interview.

Project3

It is a system redesign for manufacturing safety training.

Inspiration comes from VR glasses. My uncle is responsible for the safety management of the company. He always complains that "Most of the workers who come to this construction site are not well educated, even illiterate, the safety training is always inefficient, therefore cause an accident", "Traditional paper review is too slow, but there is no related software"... I tried to use VR to solve this problem, and designed two clients for different groups according to the situation.

Thank my uncle for letting me enter his company for research.

Project4

These are some hardware/software design combinations during my undergraduate period. I am also learning Arduino by myself. Now I set a new challenge to complete my graduation project in the next few months: design and implement a data visualization APP for wearable EEG devices (MindWave).

Current process: I have completed the high-fidelity design of the app by AI, now coding by Andriod Studio, and learning the wireless communication protocol between wearable EEG devices and mobile phones. **Finally, I will complete the EEG signal collection and visualization based on the APP.**



01

PICK-UP

A color matching learning application
designed for people engaged in the art industry

2021.01–2021.3

Part1 BACKGROUND

Background

Competitor Summary

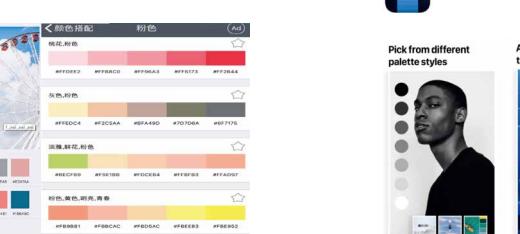
The existing color matching software has a **single function** and cannot meet the individual needs of users.

There is no good platform to provide users with **color schemes in the excellent works of others** for reference and learning.

The user's **pursuit of fashionable and trendy color matching** cannot be solved well in similar applications.



颜色手册



Features:

- ◆ Collection of color matching schemes;
- ◆ The picture can be colored
- ◆ Color value can be specified for automatic color matching;

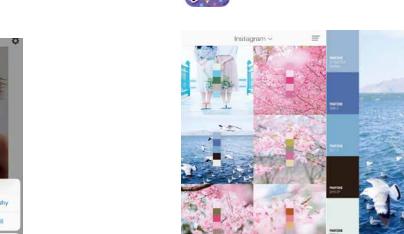
Advantages:

easy to operate;
Automatically capture colors, and more choices of color card templates;

Disadvantages:

There is no template for color card production.

Palette Republic



Features:

- ◆ Can add color palette to photos;
- ◆ The color card has various forms and can be chosen freely;

Advantages:

Automatic recognition of picture color cards, which can be applied to other design fields;

Disadvantages:

Full English interface, many payment options, easy to be deducted.

Palette Cam



Features:

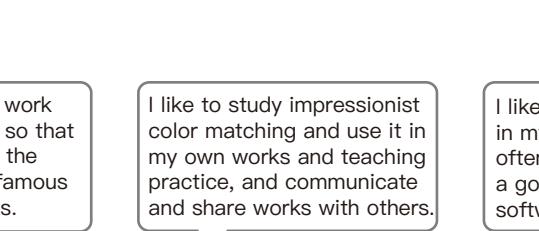
- ◆ Predict popular color cards every year;
- ◆ Automatically recognize the color of pictures in the album;

Advantages:

automatic recognition of picture color cards, which can be applied to other design fields;

Disadvantages:

The content is a bit too much and difficult to use.



Lee
Illustrator



Zhao
Oil painting
teacher



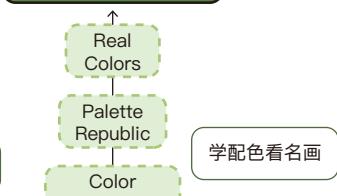
Lan
Graphic Designer

Background

Competitor

Summary

Coloured Paper



Color Extraction

拾色器

Famous Collocation

Single Function

Cannot Share

No Personality

Part2 PROBLEM

Early Target Users

Art learners, enthusiasts, niche artists

- Able to learn and borrow excellent color matching
- Provide color schemes for famous paintings at home and abroad
- Can extract the color of pictures or photos
- Able to share excellent works
- Personalized recommendation

Early Product Demand

- Personalized interface settings
- Recommend corresponding color schemes according to user characteristics
 - Editable extraction color
 - One-click color card generation
 - Provide domestic and foreign famous color schemes

Early Product Positioning

Pre-demand Conversion

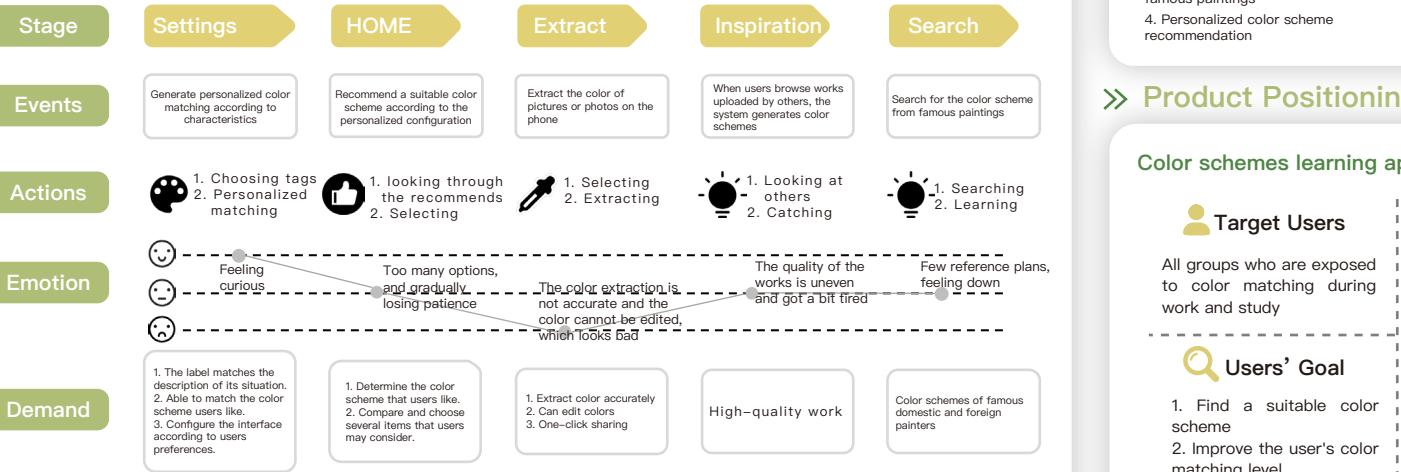
An application that can learn, share, and search for harmonize colours by masters.

- Personalized tags to suit users
- Learn others' excellent color schemes online
- Provide domestic and foreign famous color schemes
 - One-click generation color card sharing

Early Product Highlights

Part3 SOLUTION

User Journey Map



Pain Point and Function Analyse



Cut-in Angle and Solution Direction

Cut-in Angle	Solution Direction
1. Share excellent works online, learn color matching 2. Reference for a good color scheme 3. Reference to the color scheme of famous paintings 4. Personalized color scheme recommendation	1. Find and learn color schemes, authors can publish their works, and the software generates color schemes online for users to browse and learn 2. Provide color schemes of famous paintings at home and abroad 3. Color matching, color card production, and sharing color extraction

Product Positioning

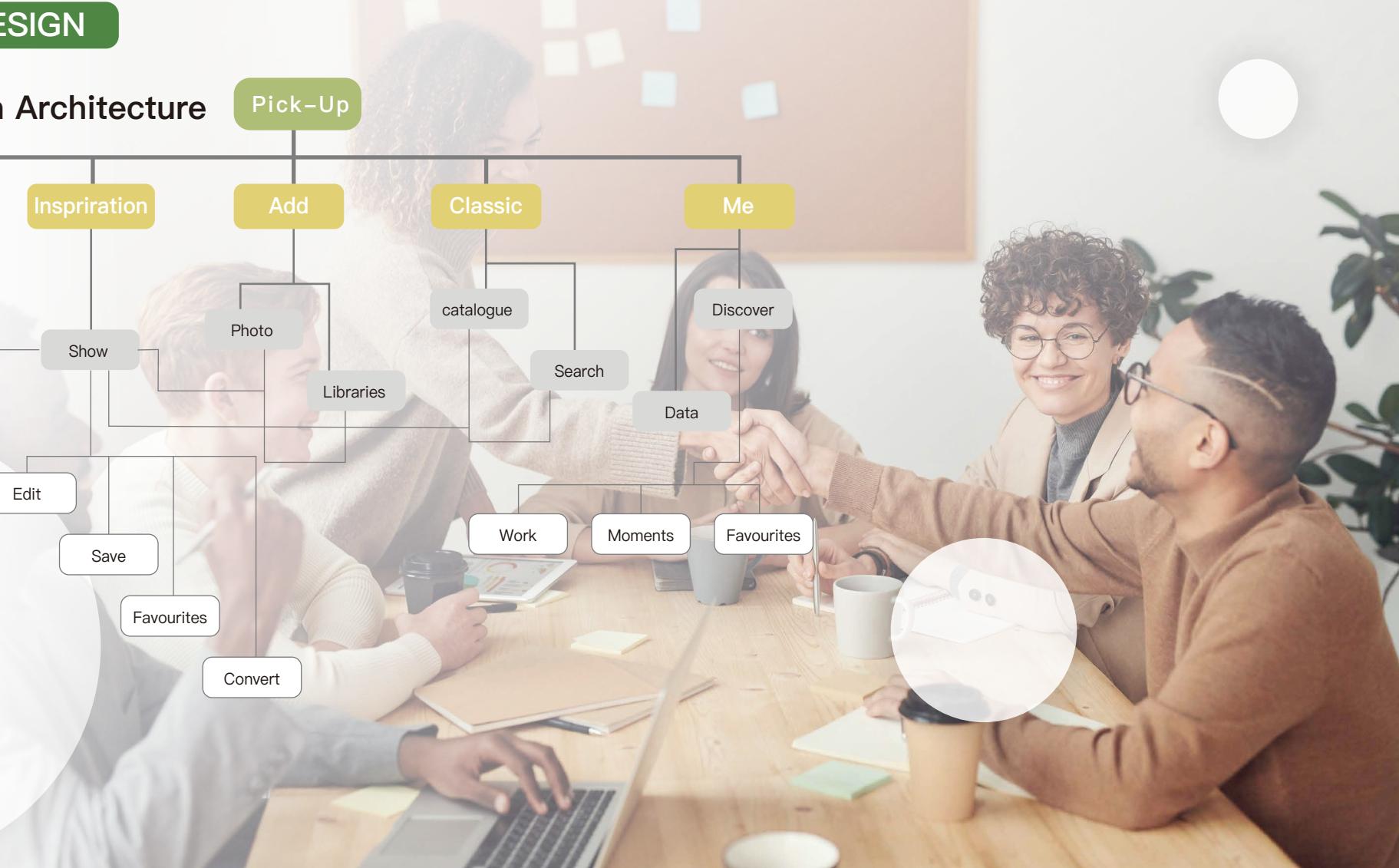
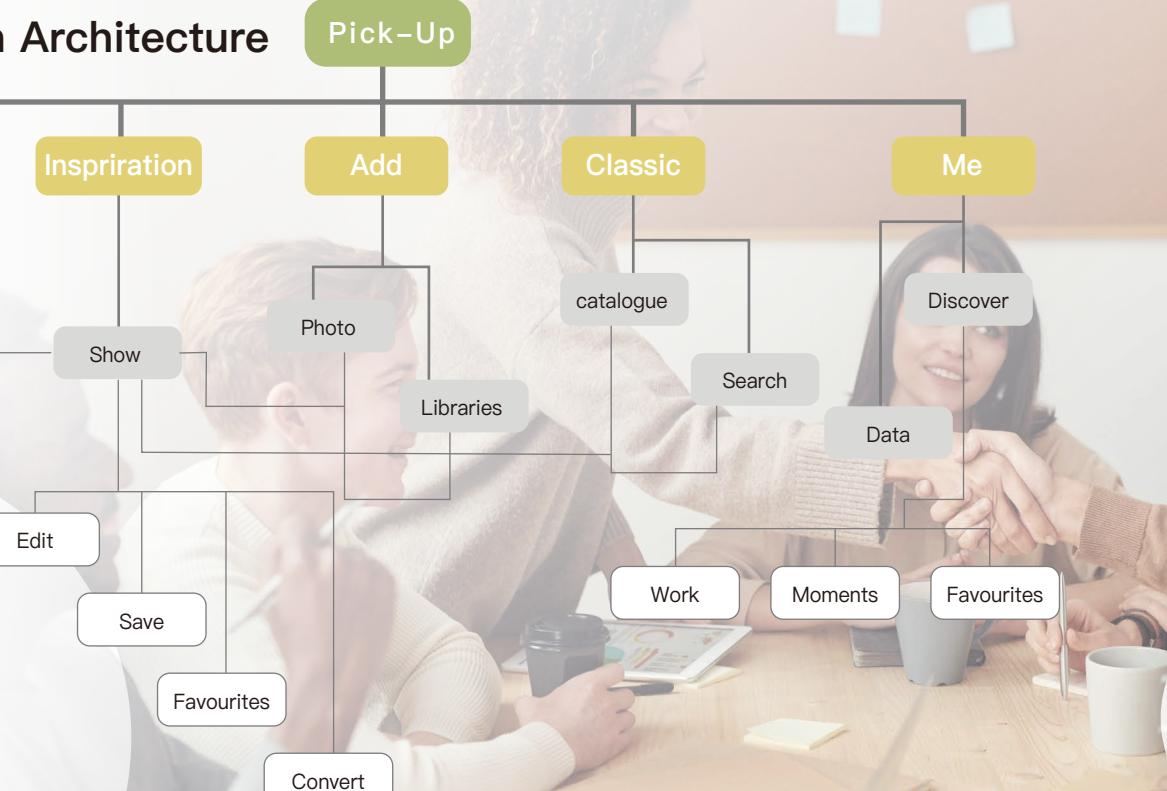
Color schemes learning app for people engaged in the art industry			
Target Users	Main Function	Characteristic	Value
All groups who are exposed to color matching during work and study	Provide color matching according to user characteristics	Share the color matching of others' excellent works online	Improve the color matching ability of art learners
Users' Goal	Scenes		
1. Determine the color scheme that users like. 2. Compare and choose several items that users may consider.	1. Extract color accurately. 2. Can edit colors. 3. One-click sharing.	1. Want to learn from good color matching. 2. Improve the user's color matching level.	

Core Demand Function

Settings	Edit	Reference	Search	Classic
According to personal characteristics and preferences, matching schemes, setting interface.	Extract image/photo color, edit color, generate color card with one click.	Learn others' excellent color schemes online.	Search for the desired color scheme, classification, etc.	Provide domestic and foreign famous color schemes.

Part4 DESIGN

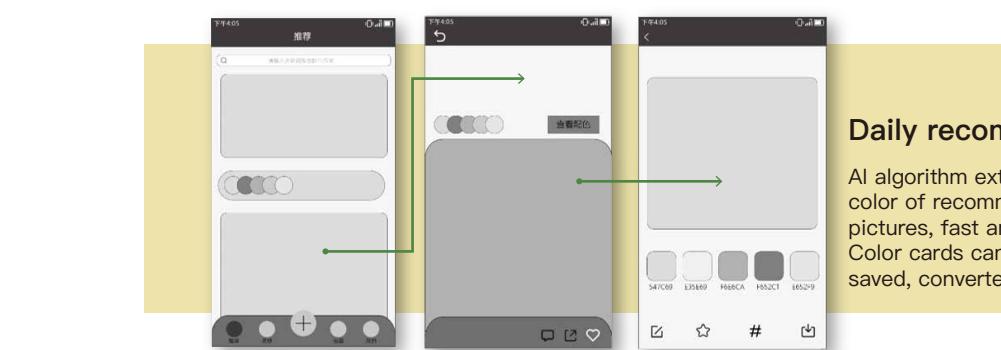
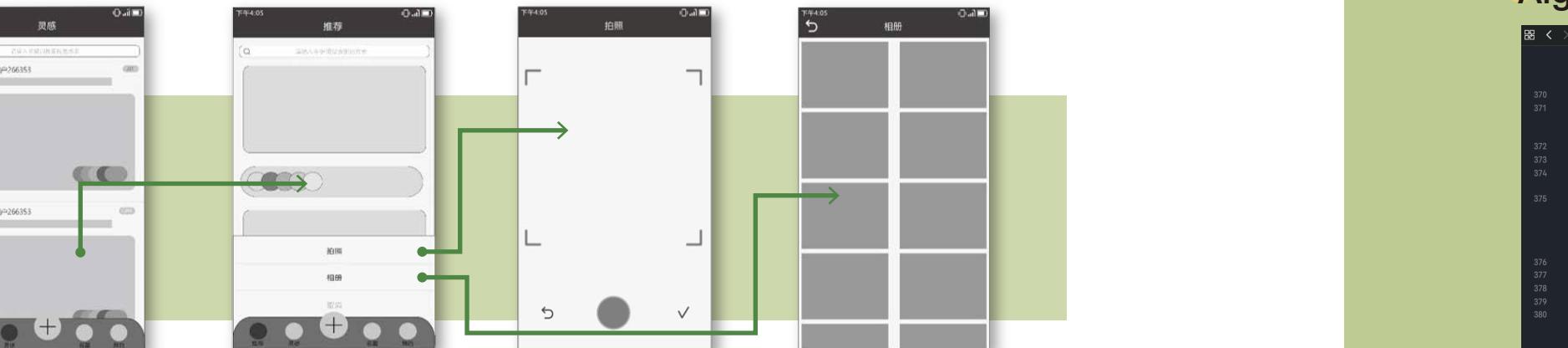
Information Architecture



Low-fidelity design

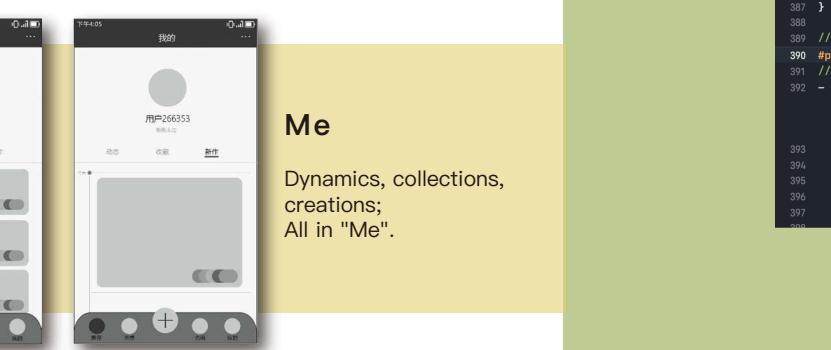
Inspiration collection

Other people's works, photos, photo albums, both can convert the color card, do not miss any flashes of light.



Daily recommendation

AI algorithm extracts the main color of recommended pictures, fast and accurate; Color cards can be edited, saved, converted and saved.



Me

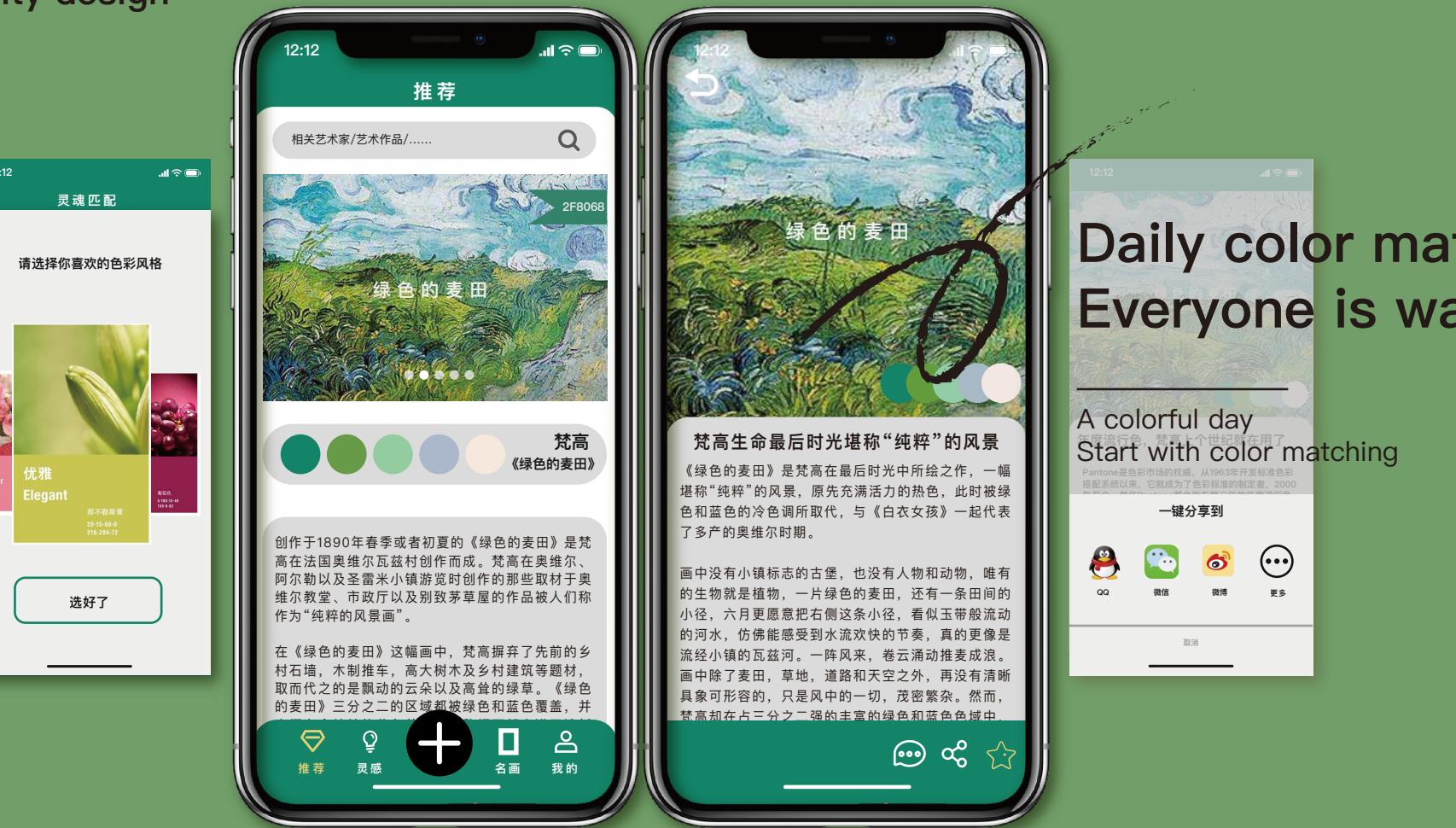
Dynamics, collections, creations; All in "Me".

Algorithm

```
/*findAndSortMaximaInImage:  
 * @param image  
 * @param flags:(NSUInteger)flags {  
 *     image avoidColor:nil  
 *     count:4};  
 * }  
 * //设置view1~view4背景色, 由于每一次  
 * 取出符合要求的颜色可能少于4个  
 * , 故给没有取到颜色的块刷新为白色  
 * if (arr.count == 1) {  
 *     self.view1.backgroundColor  
 *     = arr[0];  
 *     self.view2.backgroundColor  
 *     = [UIColor whiteColor];  
 *     self.view3.backgroundColor  
 *     = [UIColor whiteColor];  
 *     self.view4.backgroundColor  
 *     = [UIColor whiteColor];  
 * }  
 * else if (arr.count == 2) {  
 *     self.view1.backgroundColor  
 *     = arr[0];  
 *     self.view2.backgroundColor  
 *     = arr[1];  
 *     self.view3.backgroundColor  
 *     = [UIColor whiteColor];  
 *     self.view4.backgroundColor  
 *     = [UIColor whiteColor];  
 * }  
 * else if (arr.count == 3) {  
 *     self.view1.backgroundColor  
 *     = arr[0];  
 *     self.view2.backgroundColor  
 *     = arr[1];  
 *     self.view3.backgroundColor  
 *     = arr[2];  
 *     self.view4.backgroundColor  
 *     = [UIColor whiteColor];  
 * }  
 * else if (arr.count == 4) {  
 *     self.view1.backgroundColor  
 *     = arr[0];  
 *     self.view2.backgroundColor  
 *     = arr[1];  
 *     self.view3.backgroundColor  
 *     = arr[2];  
 *     self.view4.backgroundColor  
 *     = arr[3];  
 * }  
 * //在ImageView上添加一个手势, 取得当前  
 * //点击的坐标  
 * //由于ImageView本身默认不响应事件,  
 * //故将interaction属性设置为YES (我在  
 * //storyboard中设置)  
 * UITapGestureRecognizer *tap =  
 * [[UITapGestureRecognizer alloc] initWithTarget:self  
 * action:@selector  
 * (tapAction:);  
 * tap.numberOfTapsRequired = 1;  
 * tap.numberOfTouchesRequired = 1;  
 * [self.ImageView  
 * addGestureRecognizer:tap];  
 *  
 * //寻找局部最大值  
 * #pragma mark - Local maxima search  
 * //在image找到局部极大值  
 * -(NSArray *)findLocalMaximaInImage:  
 * (UIImage *)image  
 * flags:(NSUInteger)flags {  
 * //首先找所有cell  
 * [self clearCells];  
 * //从image获取像素行的信息  
 * unsigned char *pixelCount;  
 * //在image找到局部极大值  
 * -(NSArray *)findLocalMaximaInImage:  
 * (UIImage *)image  
 * flags:(NSUInteger)flags {  
 * 15 /*----利用getPixelColorAtLocation  
 * 方法进行图片相点颜色的提取----*/  
 * 16  
 * 17 @implementation  
 * 18 getColorViewController  
 * 19 - (void)viewDidLoad {  
 * 20     [super viewDidLoad];  
 * 21     self.i = 0;  
 * 22     [self imageColorPickerController];  
 * 23     sortedMaxima = [self  
 * 24         filterDistinctMaxima:sor  
 * 25         tedMaxima  
 * 26         threshold:DISTINCT_COLOR  
 * 27         _THRESHOLD];  
 * 28     - (void)imageColorPickerController {  
 * 29         UIImage *image = [UIImage  
 * 30             imageNamed:[NSString  
 * 31                 stringWithFormat:@"%@  
 * 32                 .jpg", self.i + 1011];  
 * 33         self.ImageView.image = image;  
 * 34     }  
 * 35     //按照鲜艳度的顺序排序结果数组  
 * 36     if (flags & OrderByBrightness) {  
 * 37         sortedMaxima = [self  
 * 38             orderByBrightness:sorted  
 * 39             Maxima];  
 * 40     }  
 * 41     else if (flags &  
 * 42         OrderByDarkness) {  
 * 43         sortedMaxima = [self  
 * 44             orderByDarkness:sortedMa  
 * 45             xima];  
 * 46     }  
 * 47     return sortedMaxima;  
 * 48 }  
 * 49 //寻找局部最大值  
 * 50 #pragma mark - Local maxima search  
 * 51 //在image找到局部极大值  
 * 52 -(NSArray *)findLocalMaximaInImage:  
 * 53 (UIImage *)image  
 * 54 flags:(NSUInteger)flags {  
 * 55     //首先找所有cell  
 * 56     [self clearCells];  
 * 57     //从image获取像素行的信息  
 * 58     unsigned char *pixelCount;  
 * 59     //在image找到局部极大值  
 * 60     -(void)tapAction:  
 * 61     (UITapGestureRecognizer *)tap {  
 * 62         CGPoint point = [tap  
 * 63             locationInView:self  
 * 64             .ImageView];  
 * 65         measure the time of  
 * 66         here.  
 * 67         UIImage *image = [UIImage  
 * 68             imageNamed:[NSString  
 * 69                 stringWithFormat:@"%@  
 * 70                 .jpg", self.i + 1011];  
 * 71         self.ImageView.image = image;  
 * 72         self.Label.backgroundColor  
 * 73         = [UIColor greenColor];  
 * 74         self.Label.text =  
 * 75         @"相同图片";  
 * 76     }  
 * 77 }  
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High-fidelity design



Daily color matching Everyone is watching

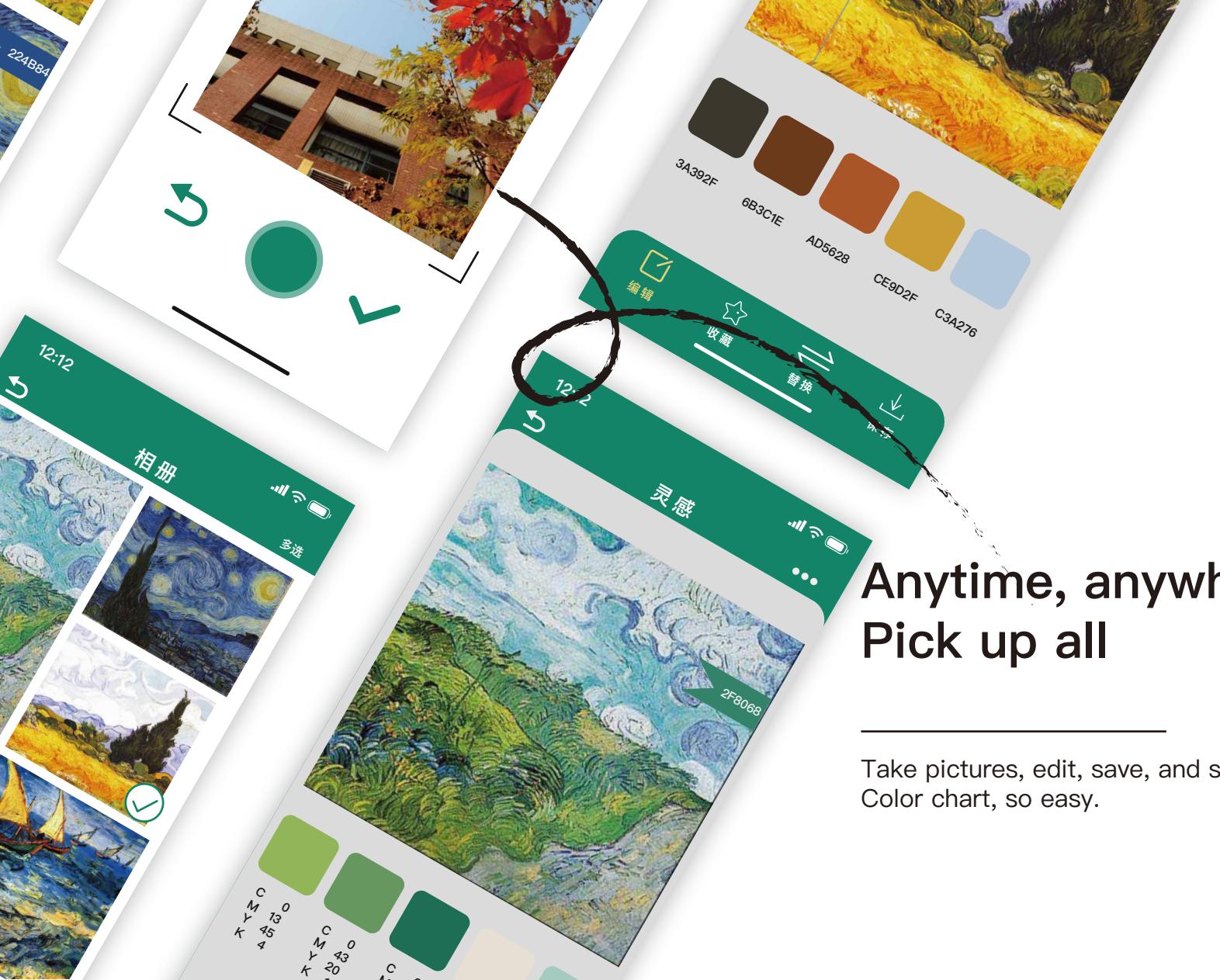
A colorful day
Start with color matching

Pantone是色彩市场的权威，从1963年开发标准色彩搭配系统以来，它就成为了色彩标准的制定者。2000

一键分享到



取消



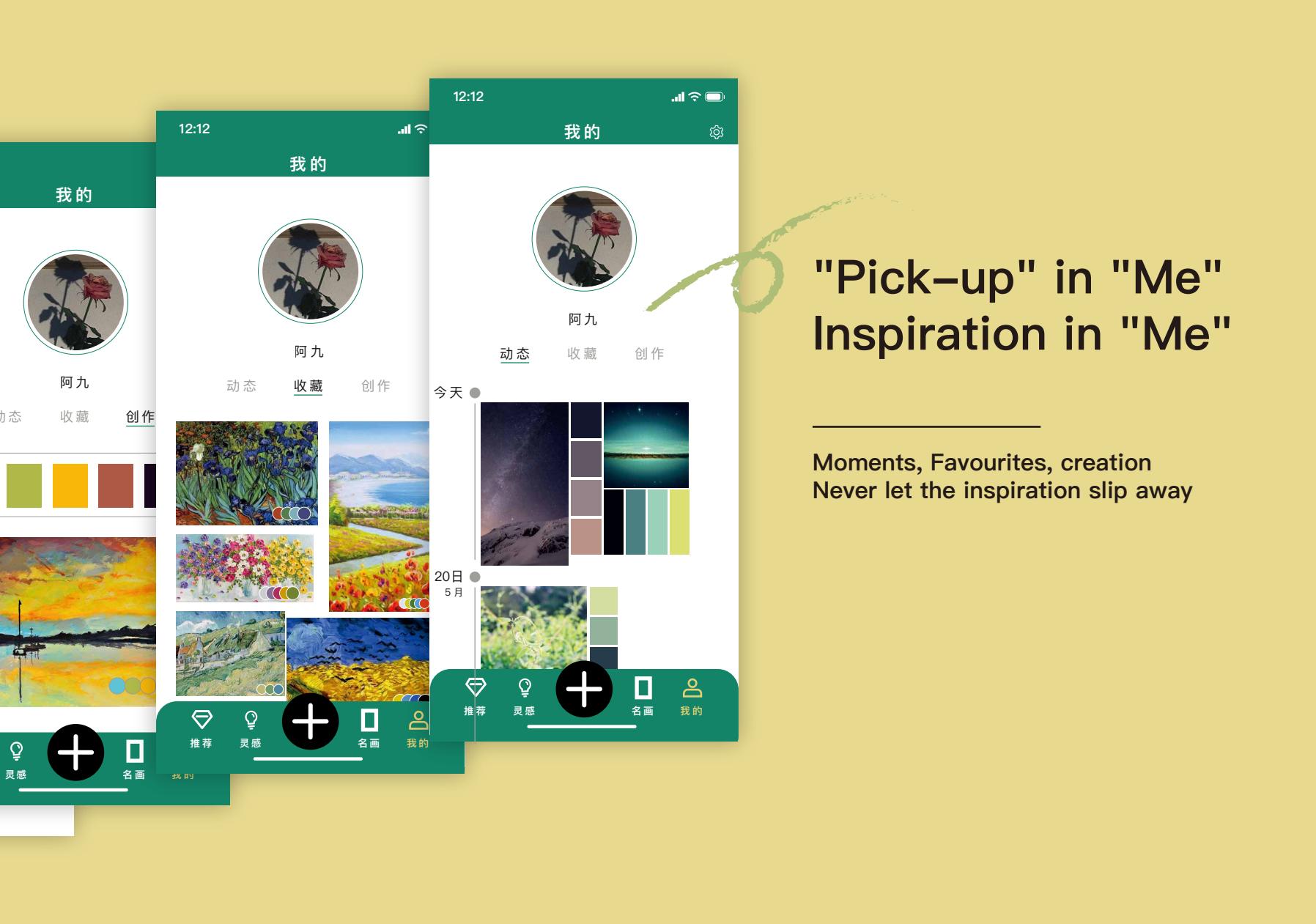
Anytime, anywhere Pick up all

Take pictures, edit, save, and save;
Color chart, so easy.



Follow “Pick-up” Enjoy the classic eternity

Masters, masterpieces
Massive resources for you to learn



"Pick-up" in "Me" Inspiration in "Me"

Moments, Favourites, creation
Never let the inspiration slip away



OPEN

MY LITTLE MUSEUM

A STEAM e-book designed for children

2021.01-2021.3

BACKGROUND

Who is the new focus?



Hot

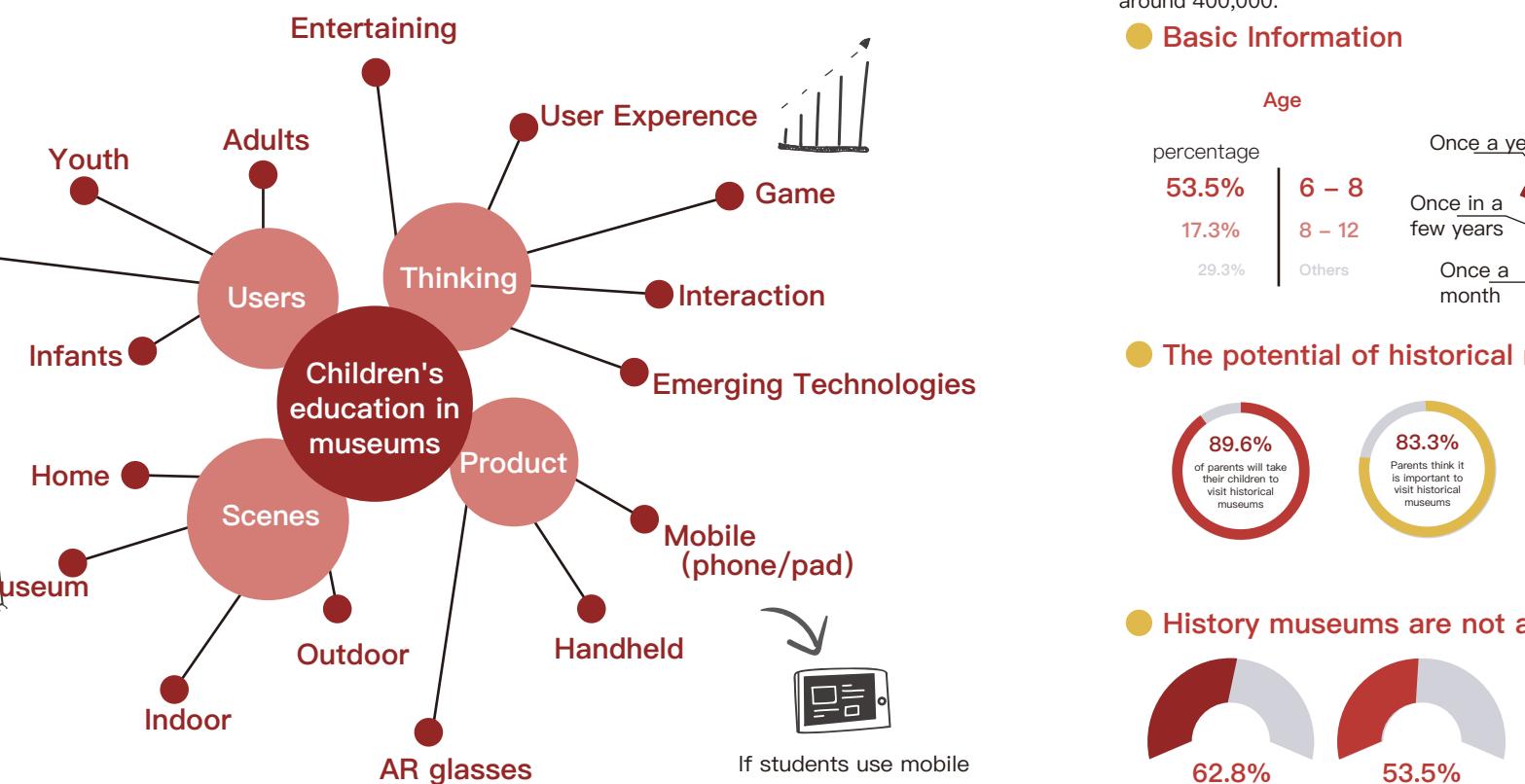


Hard

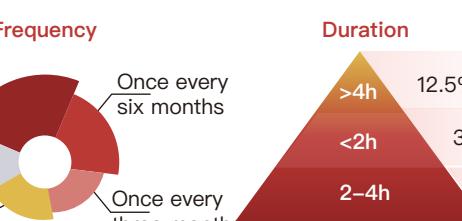


New

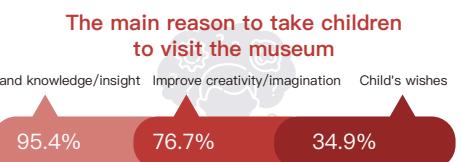
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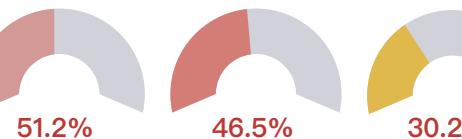
ts of children aged 6–8 are mainly bo
er cities in China, and the annual fam



museums is infinite greatness



Interactive to children



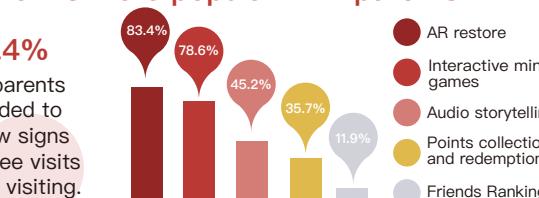
There are no interactive projects in the museum, which is rather boring.

able to answer
children ask
questions about
exhibits

to review
the child
at the end

way of thinking or
experience of entering.
How to make a new
and help museum

● Offline experiential interaction is more popular with parents.



34.9%

Form	face-to-face	Duration	10–15min/period
Date	2021.02.01	Number	5

S



In recent years, the urban and rural coverage of Chinese museums has reached 76%. However, the low

30.2%
visit rate and parents' high expectations for children's education in historical museums have been maintained a balance.
Parents hope that during the tour, they can stimulate their children's ability to learn independently and
way of thinking of tracing history through exhibits. Enhancing the recognition of our country's culture
experience of entertaining and learning, and enhancing understanding and respect.

How to make a new museum experience design based on technology, attract more children to enter the museum and help museum audiences gain cultural enlightenment and emotional edification is what we want to explore.

Personas

-  Persona: Liu Family
 City: Shanghai
 Income: 400k+¥/year



Name: Little Liu
Age: 6
Occupation: student
Hobby: drawing / reading

Attitude to museum:
1. I can't read a lot of text, just look at the pictures;
2. A bit boring, enthusiasm often fades quickly, prefer amusement parks;

- 1. More interesting, increase knowledge while playing;
 - a. Like cartoons;
 - b. There are related games and can be rewarded
- 2. More realistic scenes instead of text.



e: Liu
35
oation: teacher
oy: reading / traveling

ude to museum:
you have time and there
popular museums nearby, I
go to see it;
sometimes without children :

ledge base and cannot understand; o. A bit serious and not retaining enough;

ation:
away from mobile phones,
k, and spend rest days with
ly and friends;

Map

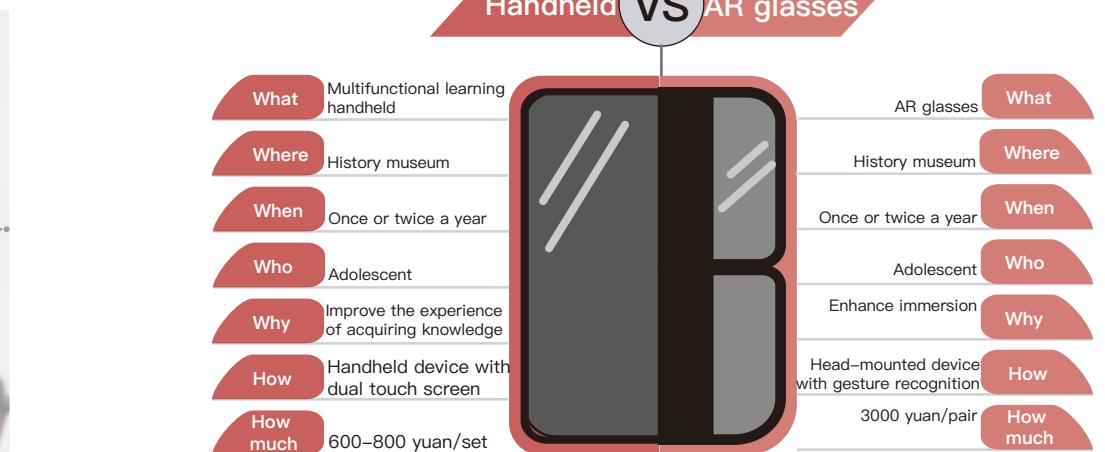
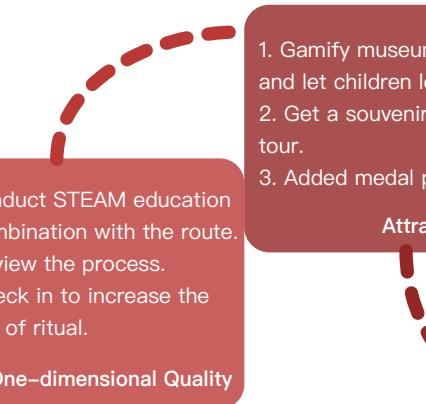
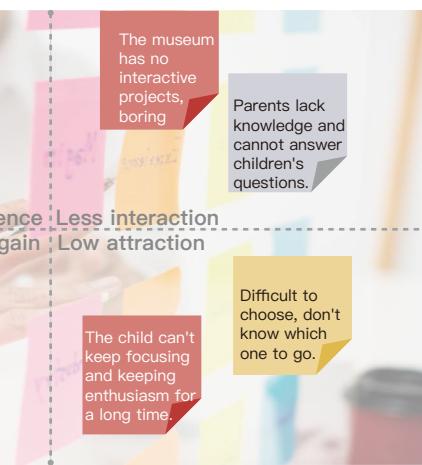
Pain Point

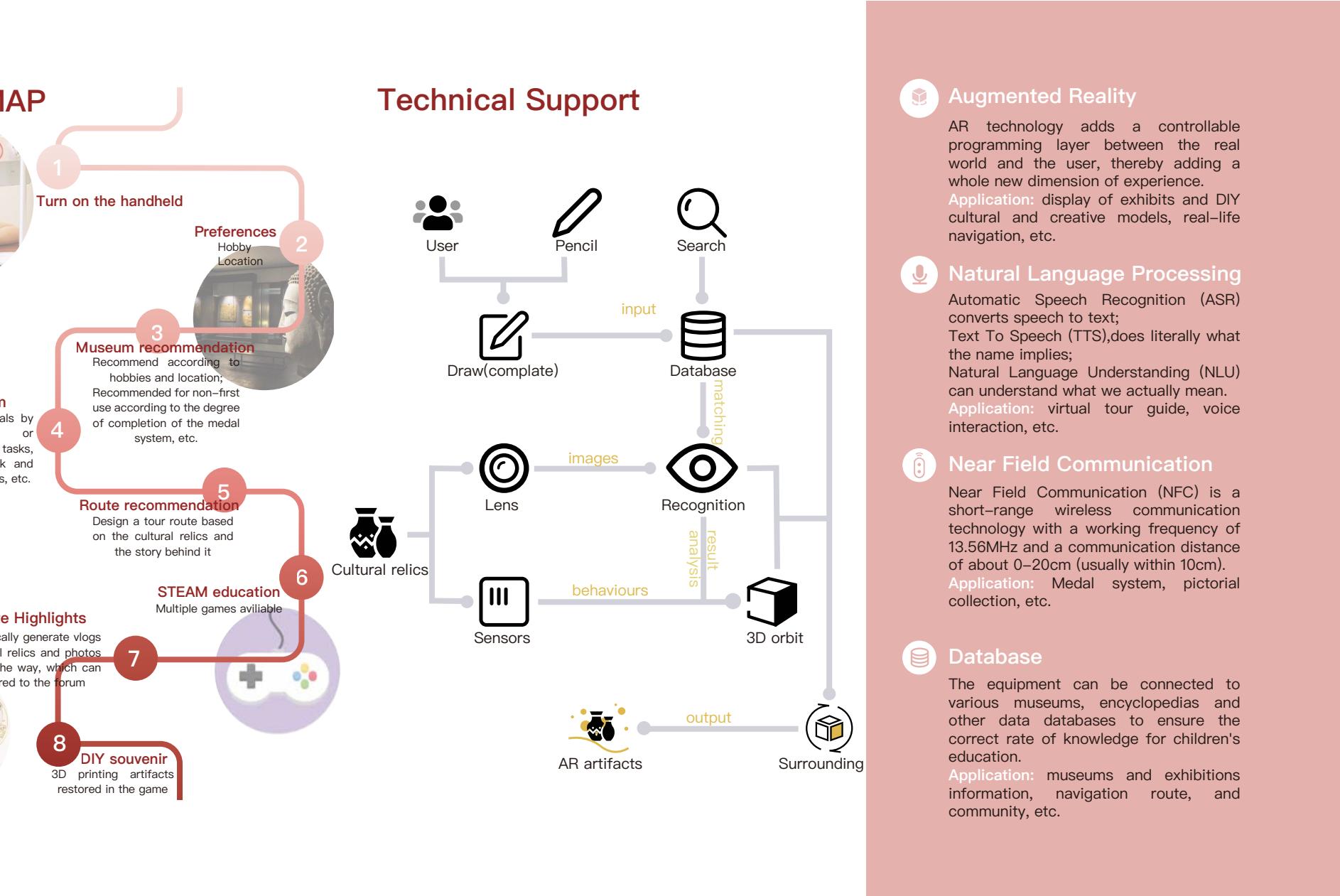
Before	Visiting			After	
Want to spend a fulfilling and happy afternoon together"					
The target	Queuing up	Select line	Visiting	Ready to leave	Back home
Communications	Ticket verification	Follow the navigation	Watch alone	Check belongings	Have a rest
Fulfilled	Excited	Disappointed	Bored	Improved	Tired
(Yellow line with smiley faces)	(Yellow line with smiley faces)	(Yellow line with smiley faces)	(Yellow line with smiley faces)	(Red line with sad faces)	(Red line with sad faces)
No sense of ritual	The line is not completely suitable	Lack of features and fun	No sense of ritual	Inconvenient to review	
Check in	Line analysis	Interact with exhibits	Review process	Keep souvenirs	
Medal system – admission – task distribution	GPS live navigation	STEAM Education	Medal System – Complete Medal 3D printed souvenirs	Community	

KANO Model

1. Develop a route and connect the exhibits in sequence
2. Recommend a museum
3. Animation or voice interaction

Must-be Quality





Augmented Reality

AR technology adds a controllable programming layer between the real world and the user, thereby adding a whole new dimension of experience.

Application: display of exhibits and DIY cultural and creative models, real-life navigation, etc.

Natural Language Processing

Automatic Speech Recognition (ASR) converts speech to text;
Text To Speech (TTS), does literally what the name implies;
Natural Language Understanding (NLU) can understand what we actually mean.
Application: virtual tour guide, voice interaction, etc.

Near Field Communication

Near Field Communication (NFC) is a short-range wireless communication technology with a working frequency of 13.56MHz and a communication distance of about 0–20cm (usually within 10cm).

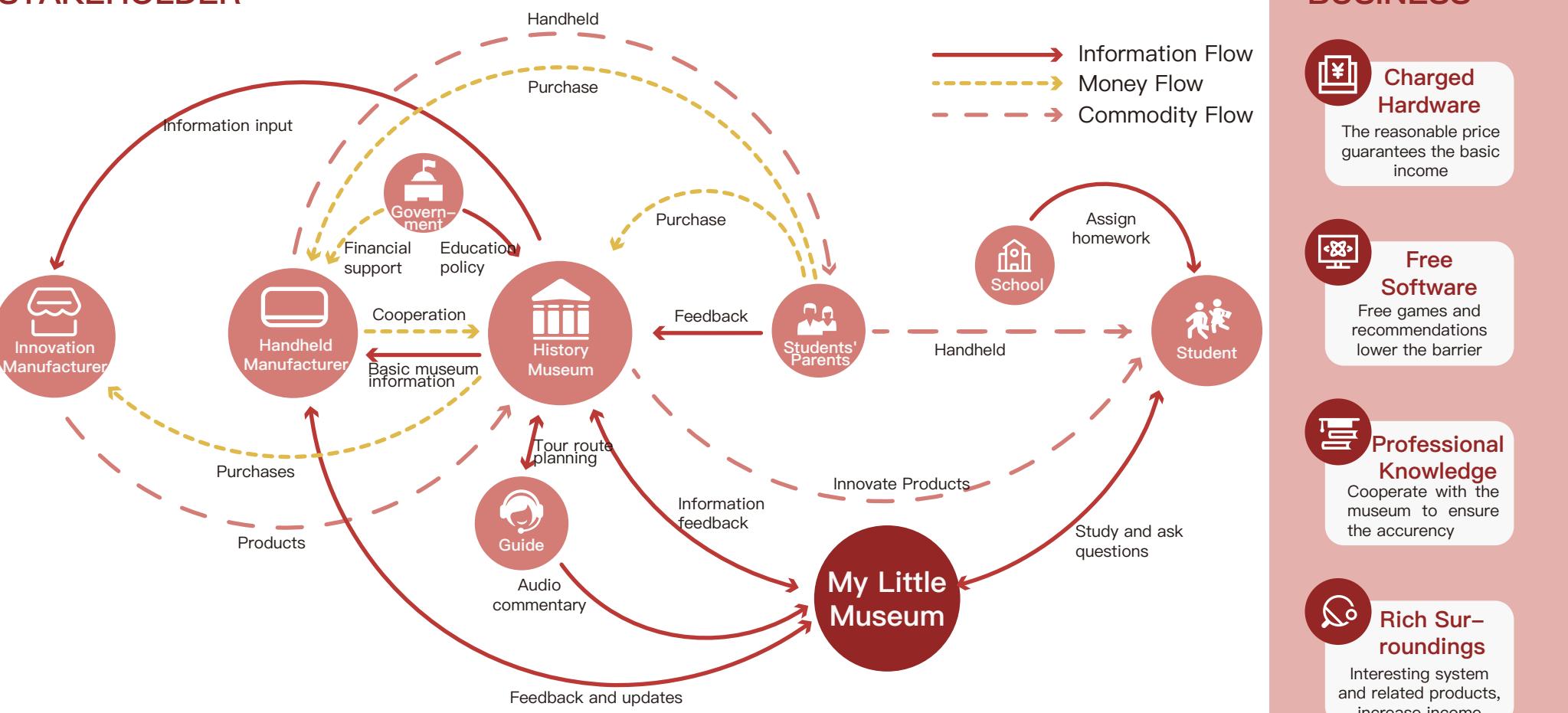
Application: Medal system, pictorial collection, etc.

Database

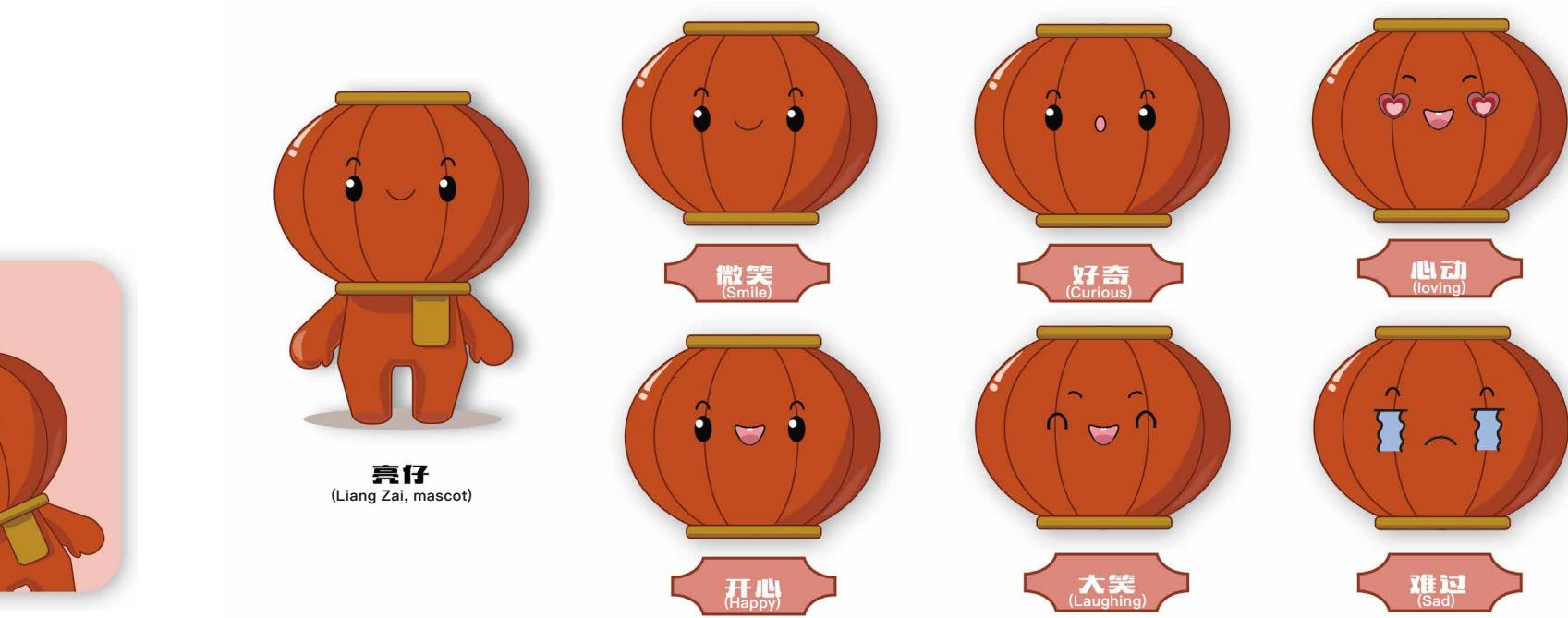
The equipment can be connected to various museums, encyclopedias and other data databases to ensure the correct rate of knowledge for children's education.

Application: museums and exhibitions information, navigation route, and community, etc.

STAKEHOLDER



UI DES

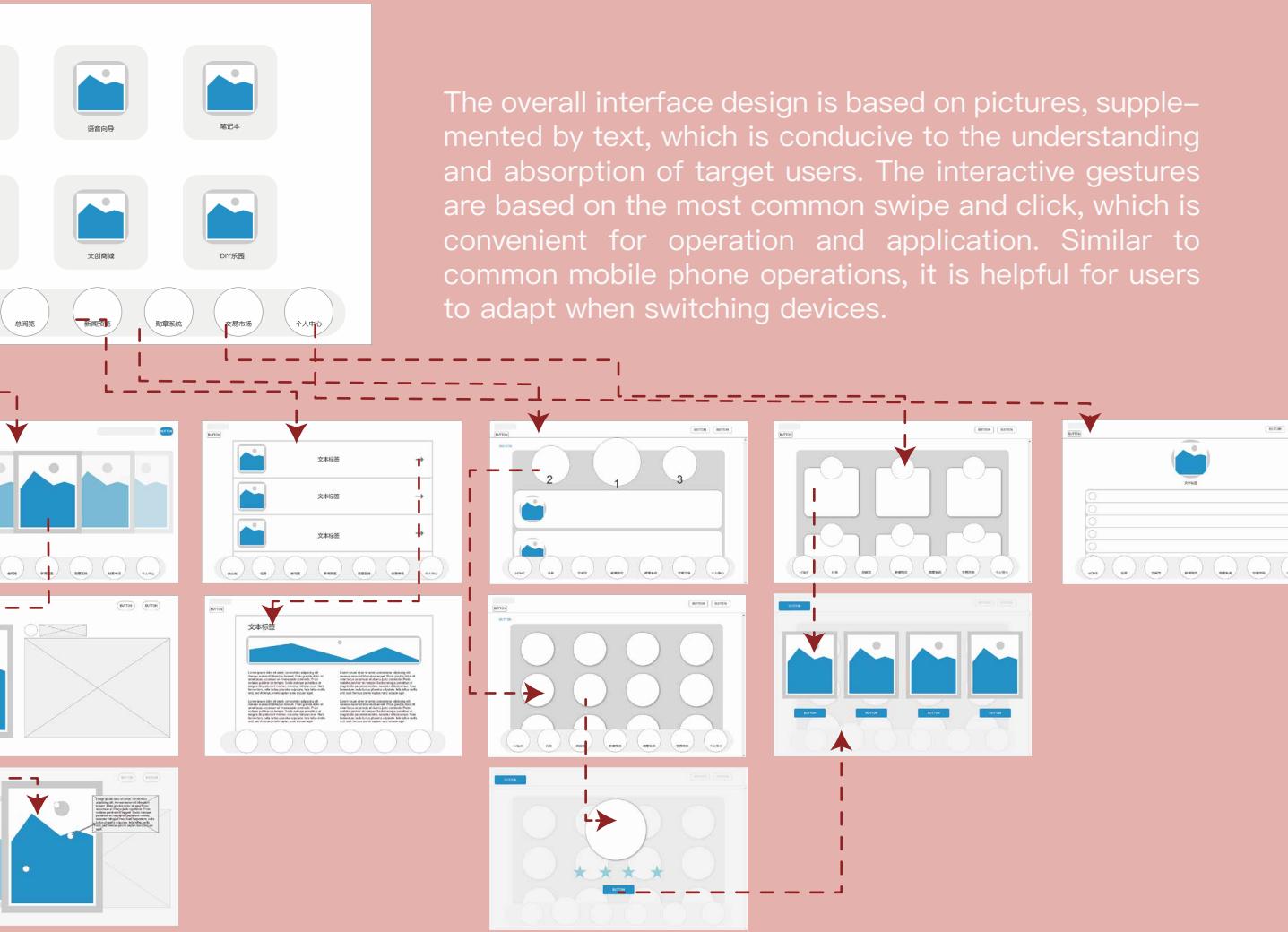
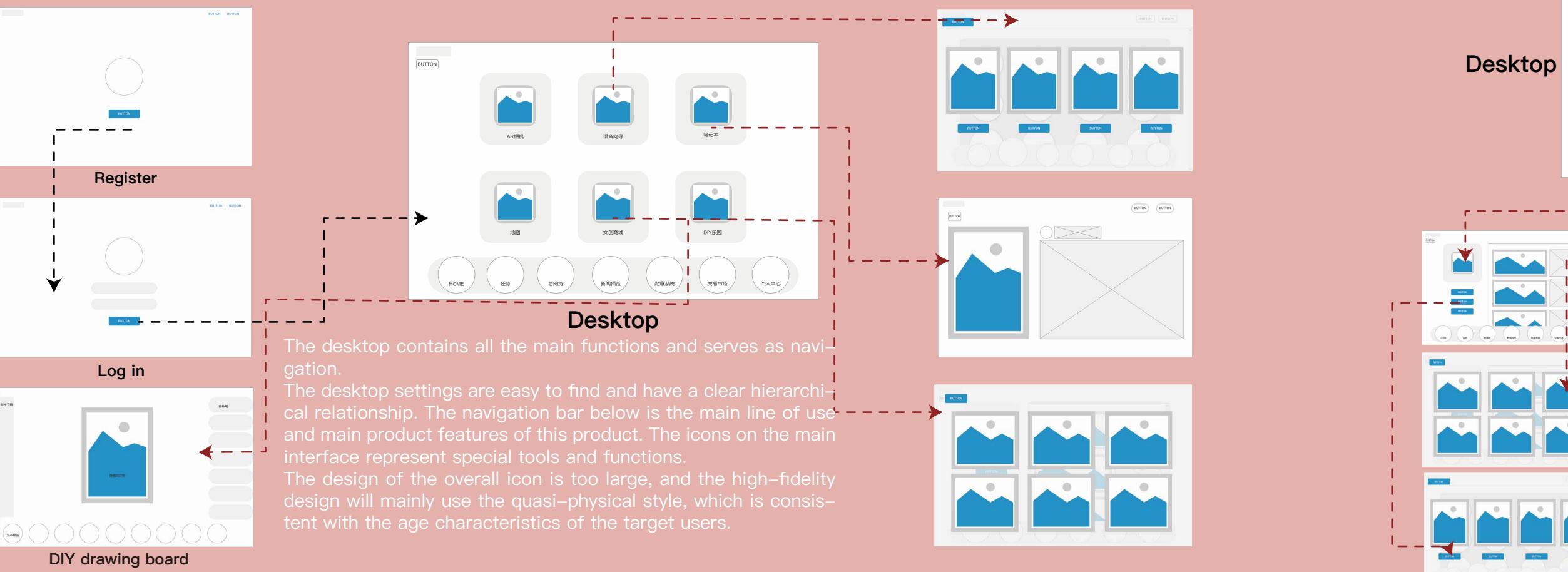


Chinese lanterns are an ancient Han traditional handicraft, used to illuminate the road ahead and symbolize the beautiful reunion.

His name is Liang Zai, pronounced the same as leng3 zai2 (handsome guy) in Cantonese. At the same time, he was given an arduous task—as a beacon for children to learn on the long road to preserving traditional Chinese culture.

I hope that this cute AI voice assistant for children can help children learn to use this product

LOW-FIDELITY FLOW CHART



HIGH-FIDELITY FLOW CHART

STEAM Mini Games—Creative Workshop



It is one of the small games of STEAM education, mainly showing the aspects of T-technology. Through the mastery of materials, shapes and heat conditions, children can learn the craftsmanship of pottery, and use different materials to make different finished products. Finally, you can create your own cultural relics, and can be 3D printed in the museum to make your own souvenirs. Or show it on the personal homepage.

News



After logging in, enter the main interface. Enter the knowledge news related to cultural relics through the "News" button.

In the news preview interface, you can see various related information about cultural relics, and you can click to view the news details for each news brief.

HIGH-FIDELITY FLOW CHART

Medal System



The medal wall will display all the medals collected, including punch-in medals, collection medals and rare medals. Click on the medal to view its details.

Medal Ranking



From the personal information page, you can see the current situation and ranking of the medals collected by friends, which is used to motivate children to learn traditional culture.

Medal Ranking

The medal ranking can see the current situation and ranking of the medals collected by friends, which is used to motivate children to learn traditional culture.

Medal Exchange Market



Since some rare medals have been set up, the post replacement function has been added, and medals can be exchanged with friends. This social system can train children's communication skills.

Basic Skills



After logging in successfully, enter the desktop. The main interface consists of a navigation bar at the bottom, a bright UI brand image, etc.

The personal homepage contains basic personal information, settings, favorites, and social functions. You can see personal collection information and display your favorite collections.

HARDWARE



OVERVIEW





SCENES

● Cultural relic restoration



AR cultural relics creative restoration

This is one of the small games of STEAM education. It uses AR to take pictures of damaged cultural relics and carry out the innovative restoration. Children can use their imagination to fill in and color damaged cultural relics. Finally, you can create your cultural relics and can be 3D printed in the museum to make your souvenirs. Or show it on the personal homepage.

TESTING

● Thinking

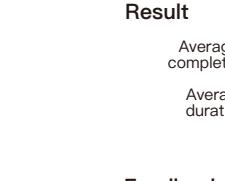
Purpose Verify whether there are ergonomic problems in one-handed operation?
Method Use eye tracker and observation method when users use it
Location Simulation laboratory
Object Children aged 6-10, male to female ratio 1:1
Content When children hold the handheld in one hand and draw pictures with a pen in the other hand, can they input more stably?

● Preparation

Each person draws 3 pictures with one hand and observes whether the writing lines are smooth and whether there are breakpoints.

● Check & Test

Check List
 Video equipment
 Recording equipment
 User face
 Smooth process
Task List
 Open the handheld and take out the stylus
 Click the drawing button
 One-handed operation in the drawing area
 Draw a designated pattern



● Statistical analysis

Result

Average completion
73.2%

Average duration
8.5min

Fatal error rate
9.8%

Other error rate
21.3%

Feedbacks

My line is always not straight! It would be great if the line can be straightened automatically.

HIGHLIGHTS



智能设计

Smart Design

- GPS
- BLE&Wi-Fi
- NFC
- HD camera
- Multi touch
- Gesture interaction



智能系统

Smart System

- STEAM education
- New UI layout
- AI algorithm
- Massive data



智能生态

Smart Ecology

- 3D printing
- Expandable

EVALUATION

ART

HUMAN

Human-computer interaction, teach in fun, and improve self-learning ability.

TECHNOLOGY

It is an innovative integration of existing technologies, and the technologies involved are relatively mature.

CULTURE

The user interface is designed according to the child, and combined with STEAM education to improve children's comprehensive ability in various ways.

BUSINESS

This design follows the country's requirements for cultural industries and increases the connection between the museum, schools, and students.

03



SAFETY TRAINING SYSTEM

An immersive safety training system
designed for manufacturing contractors

2021.01–2021.3

背景分析

- China is one of the world's largest manufacturing countries



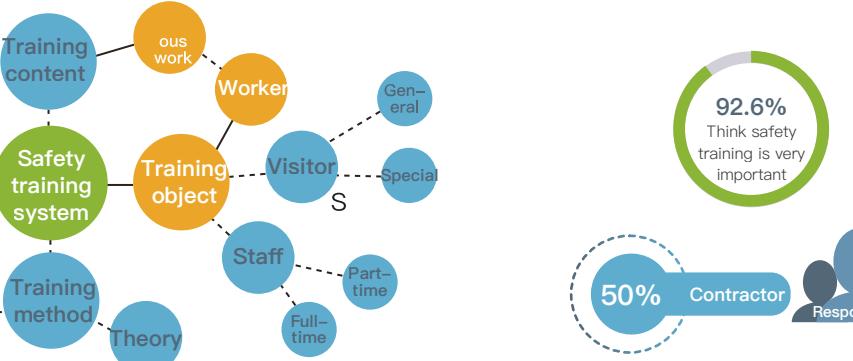
In 2020, China's industrial added value have reached to **31.31 trillion yuan**, ranking first in the world as the world's largest manufacturing country for 11 consecutive years.



The state has increasingly strengthened corporate **safety requirements**, but the effectivenes of safety training is **not so good**, Security accidents still occur frequently.

- General Electric High Voltage Equipment (Wuhan) Co., Ltd.

General Electric (GE) is a global digital industry company dedicated to transforming traditional industries. The company's business scope includes: **design, manufacturing, assembly, testing, and sales of various high-voltage and ultra-high-voltage electrical equipment products and their parts; provision of commissioning and after-sales service, as well as related technical support and consulting services.**



2020 National Safety Incident

Safety incident

38000+

death toll

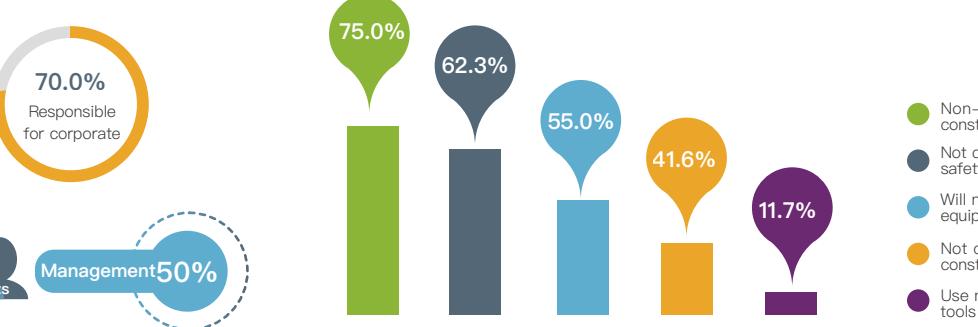
27400+

调研

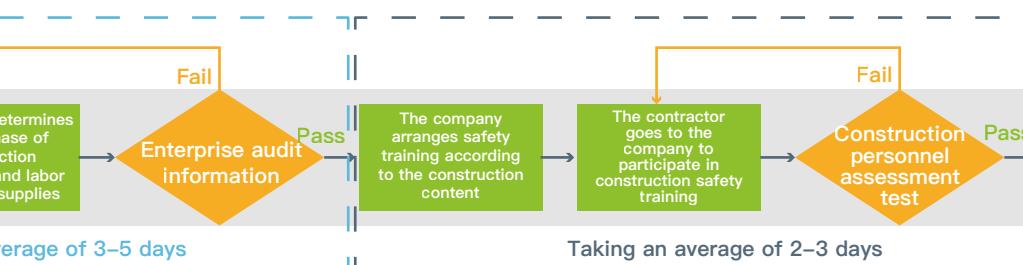
In this survey analysis, 50% of the samples come from wholly foreign-owned enterprises, 20% from state-owned enterprises, and 12% from private enterprises. Most of the enterprises are **medium-sized and large-scale manufacturing**.

- Basic Information

- Common violations of suppliers



- Traditional safety education and training service process



The traditional safety education and training service process is divided into two parts: **data review** and **construction personnel training and testing**. Contractors usually spend more time in the data review stage. At the same time, if the construction personnel fail the safety training, they need to reschedule the training time, conduct re-training and testing. In this way, the preparation period for the entire construction will reach **8 days**, which will bring **time and money losses** to both the enterprise and the contractor.



In the workplace

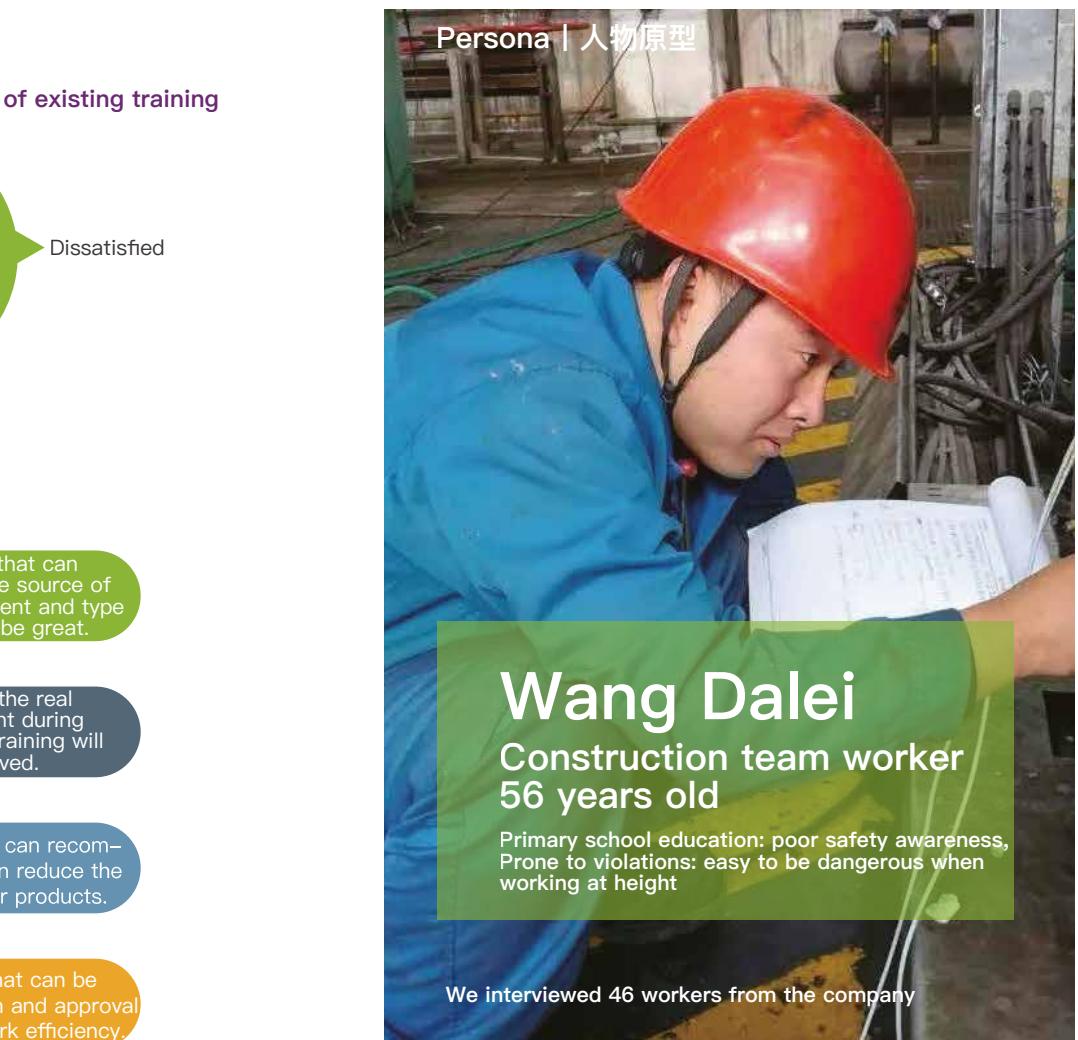
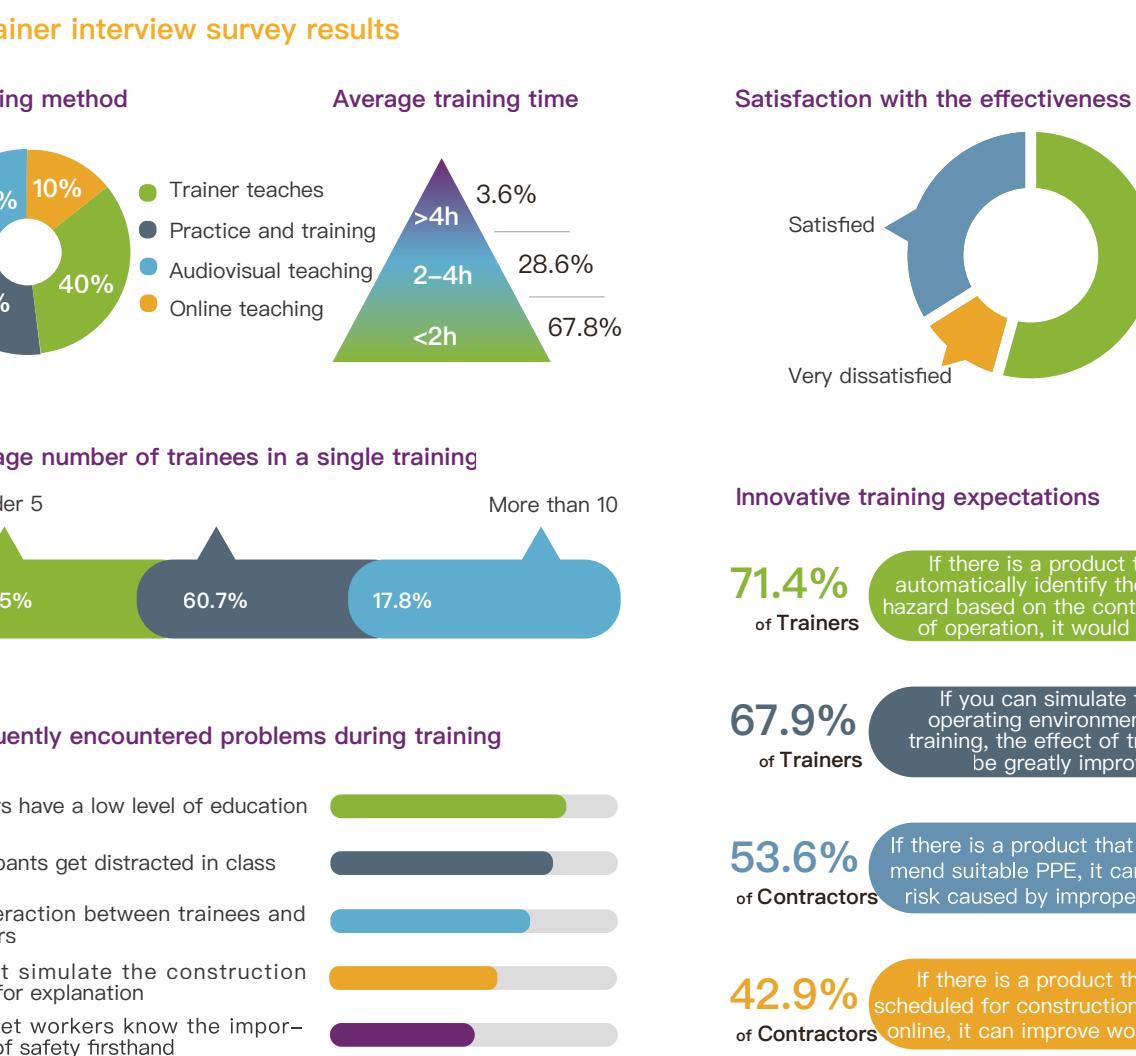
Persona | 人物原型

Li Qiang
Safety trainer
for 10 years

Responsible for the company's safety production and arranging training business

We interviewed 22 trainers from the company

Persona | 人物原型



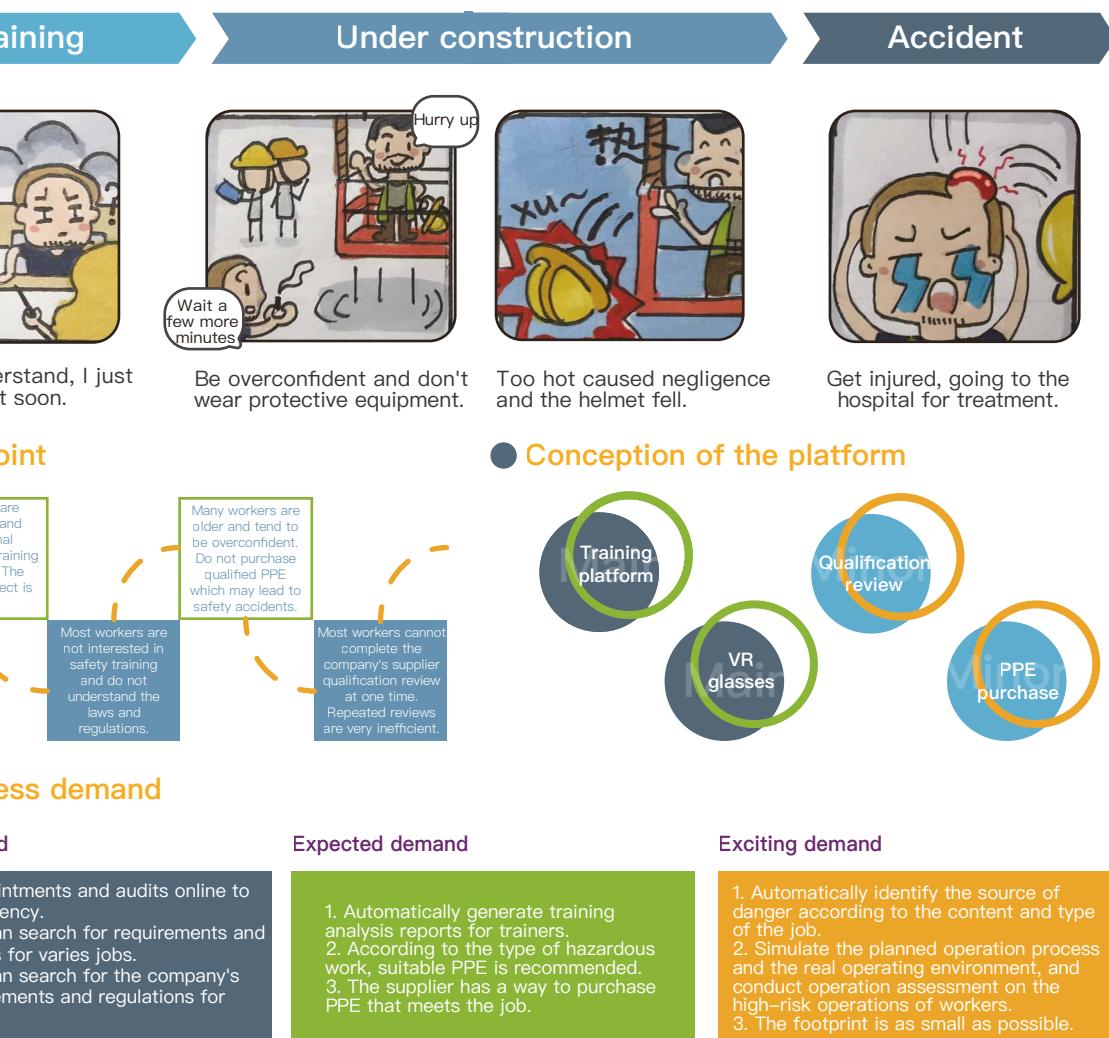
Persona | 人物原型

Wang Dalei
Construction team worker
56 years old

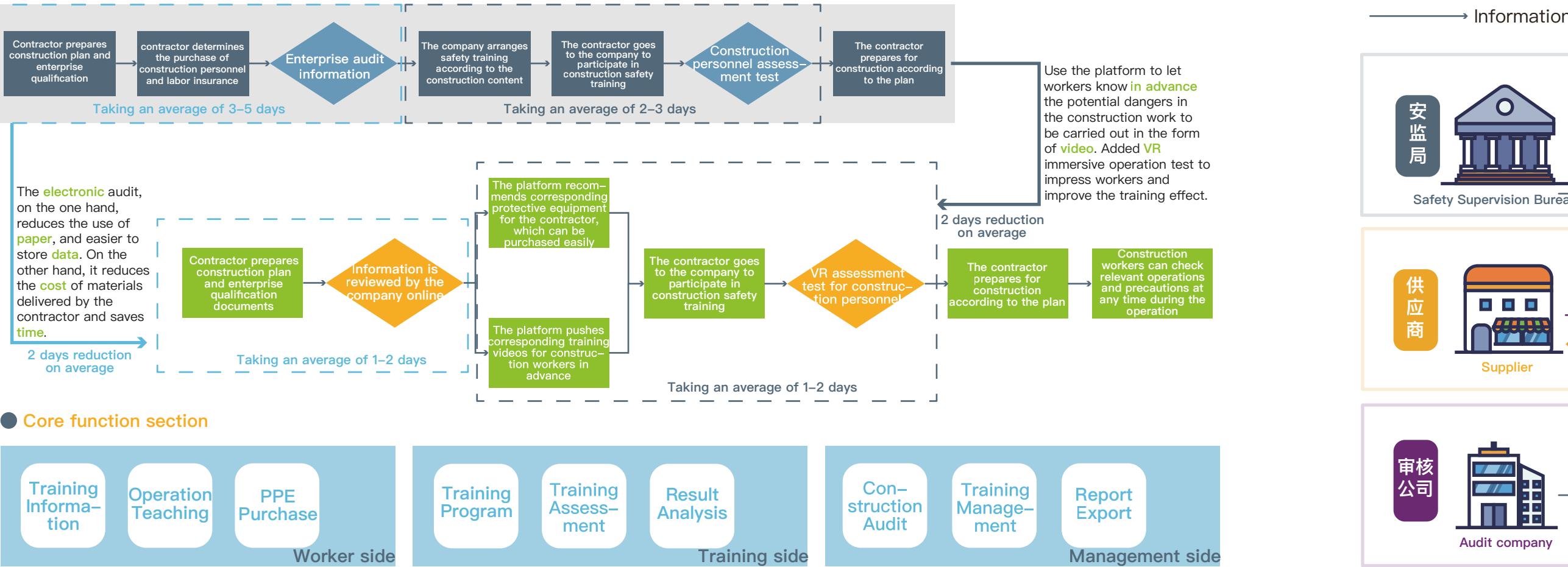
Primary school education: poor safety awareness, Prone to violations: easy to be dangerous when working at height

We interviewed 46 workers from the company

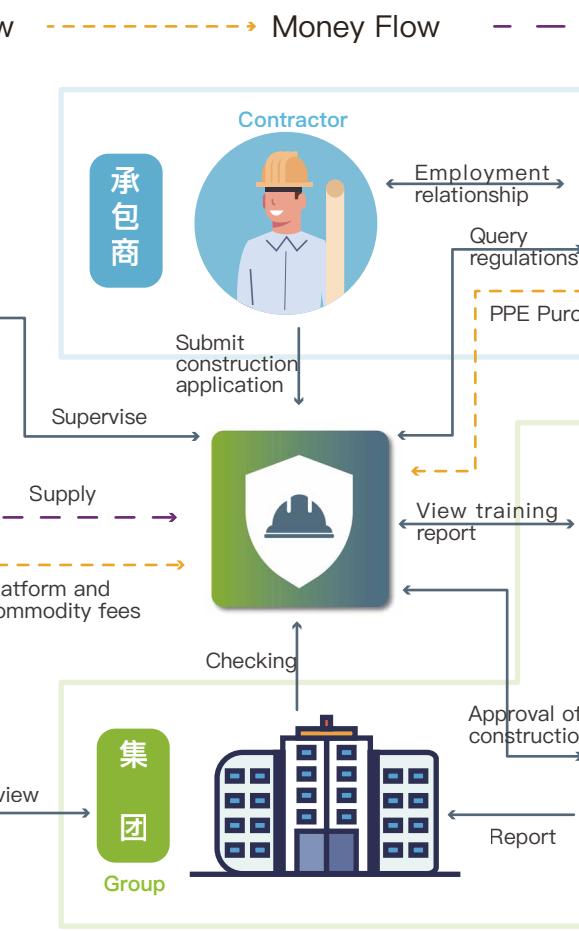
Persona | 人物原型



WORKFLOW REDESIGN



SYSTEM MAP



BUSINESS DESIGN



APP FOR TRAINERS

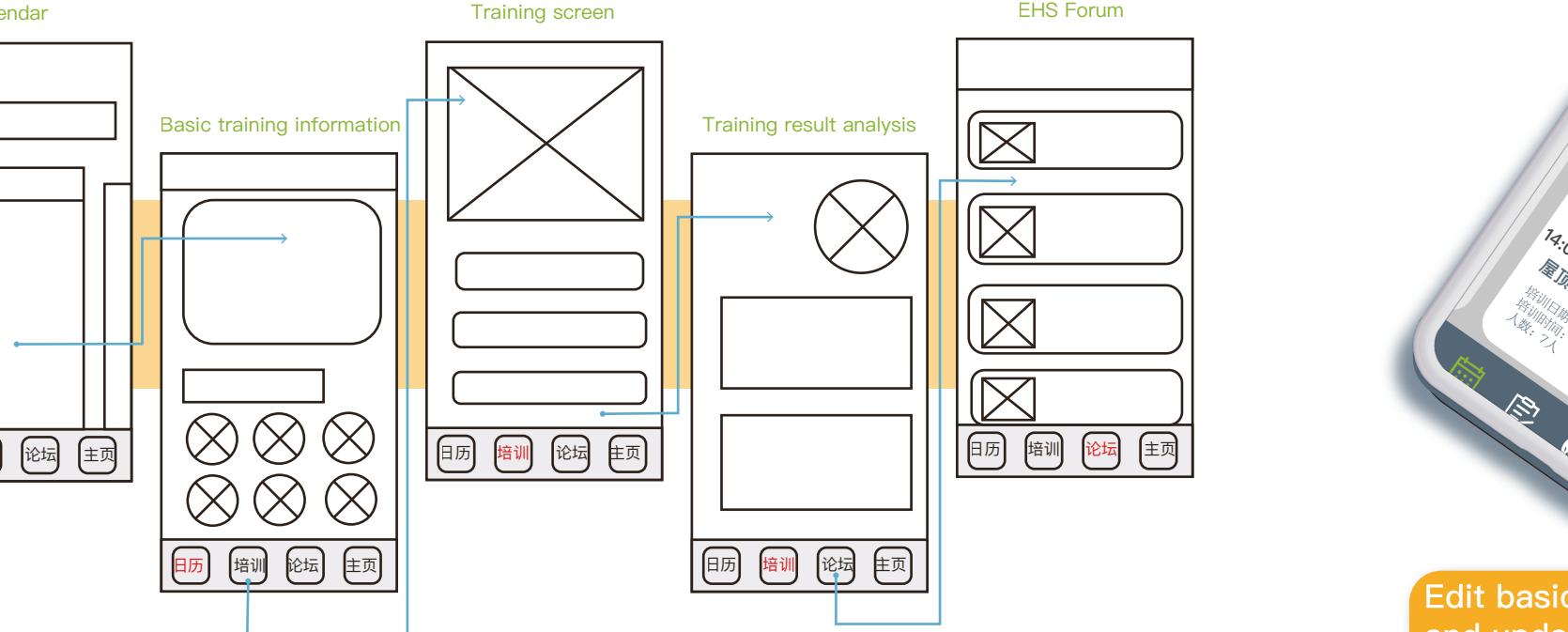
Information Architecture



Low-fidelity prototyping

The interface users on the trainer side are mainly engineers, trainers and management. The interface design is simple and generous, and the data is clear and clear.

The training screen is consistent with the VR glasses interface of the contractor, and the trainer can see the operation status of the testee and make a score.



TRAINER INTERFACE

Convenient communication

simple and clear

Edit basic information
and update informa-
tion synchronously



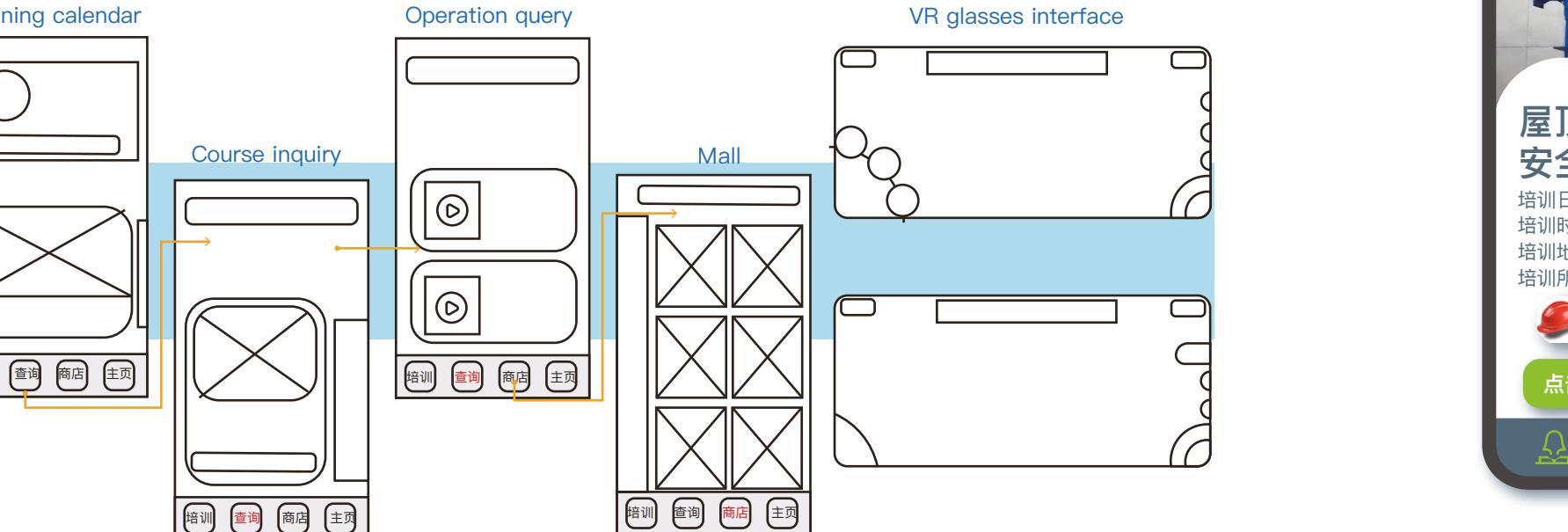
APP端APP设计 FOR WORKERS

● Information Architecture



● Low-fidelity prototyping

The main users of the contractor's interface are construction workers. According to the survey results, this type of user has a **low level of literacy**, so when designing the interface, we try to **use pictures and use less text information**. And users in this category are generally older, the **voice input** method is added to the input information column to facilitate information input.



WORKERS INTERFACE





OTHER WORKS



4

NO.1



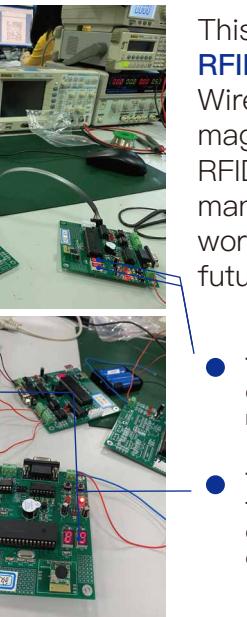
● Superheterodyne Radio

This is my first time making **electronic products** by myself. I understand the general knowledge and basic skills of electric craft, and master the general debugging method of electronic products.

- Components
- Welding Technology
- Debugging

PS: All welding and debugging processes were done by myself (both NO.1 and NO.2).
The reference circuit diagram was given by the teacher. I can't design it but I can understand it.

NO.2



● Design of RFID Reader System

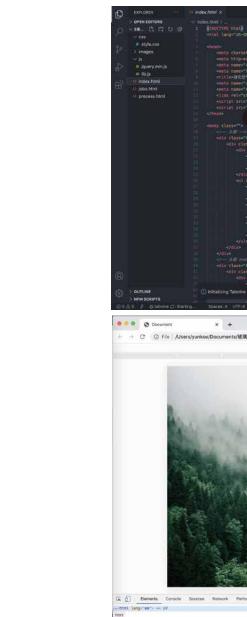
This is my first time making **RFID-related products**. Wireless transmission is so magical. RFID can also be used in many other places, which is worth my exploration in the future.

- The number on the second digital tube changes with the number on the first one.

- The number on the digital tube will change with the change of the number on the computer.

Radio Frequency Identification(RFID) is a non-contact automatic identification technology that recognizes target objects and obtains relevant data through radio frequency signals.

NO.3



● Responsive Web Demo

In the summer of my junior year, I worked as an intern at a human recruitment company and was responsible for **the development of the recruitment website**. But now I find that those links are all invalid. Due to the company's confidentiality rules, I cannot release all the codes.

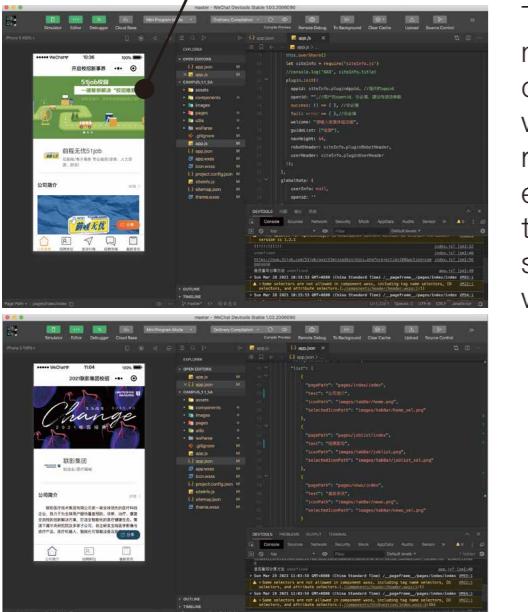
- HTML5
- CSS3
- Javascript

I often spend my spare time following the online tutorial to complete some beautiful pages (just for fun).

STATEMENT

NO.4

● WeChat Mini-program



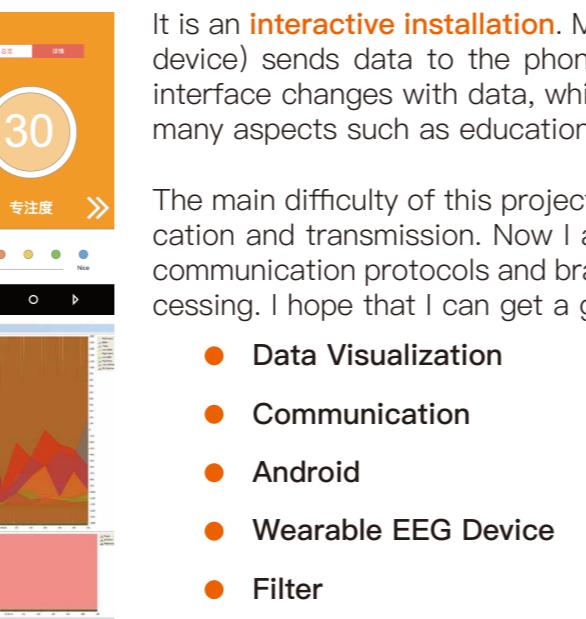
The **WeChat mini-program** does not need to be downloaded and can be shared with social software. It has become popular in recent years. Our product manager suggested that we should use this form to help recruiters. So I started to learn WXML and WXSS which were developed by Tencent.

- WXSS
- WXML
- Javascript

This experience gave me the idea of being a product manager: seize the front-line trends and use them in business.

NO.5

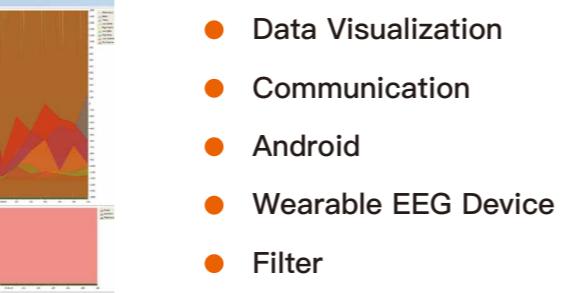
● Graduation Project



It is an **interactive installation**. MindWave (an EEG device) sends data to the phone, and the phone interface changes with data, which can be used in many aspects such as education and health.

The main difficulty of this project lies in communication and transmission. Now I am mainly reading communication protocols and brainwave filter processing. I hope that I can get a good app in May.

- Data Visualization
- Communication
- Android
- Wearable EEG Device
- Filter



The MindWave given by the teacher is a first-generation product, which cannot be connected to iOS and Mac, so I have to start learning a new technology: XML and Java (IDE is Android studio).

I guarantee the originality of the above works.

Here is my learning route in recent years:

Freshman: Join some campus organizations and adapt to university life.

Sophomore: Read widely to find interest and accumulate inspiration;

Junior: Learn web front-end(HTML5, CSS3, JavaScript) and data analysis(Python), participated in two related internships, and found disadvantages;

Senior: make up for weaknesses: learned C++ and data structures and algorithms(September–December); learned Adobe Illustrator(AI) and complete portfolio(January–March; I only took three months for projects 1–3. However, most of the inspiration and information came from my past accumulation. I just rearranged them into a complete electronic version of the work within these months.) and will complete the graduation project from March to May.

During the internship, I met many designers and product managers. And I am very interested in the position of product manager. They can use AI, Office MS, and grasp many business skills. So I plan to use this opportunity to spur myself to learn AI and other software to turn my past accumulation into a new project. Of course, this is one of the reasons why I want to continue studying. I hope to get more professional guidance and learn several new things, such as emerging technology and business.

Received much help from many friends and family members, I feel so happy. I will keep calm and going on.

Thank you for watching.