Haoyang Sun's

Portfolio

ka!Bot

Customized Mechanical Keyboard

"Entrepreneurship" Project - Leader & Product Manager

🏆 Project Innovation Award, Top 20 in HK & MO - the 10th "Winning in Guangzhou" College Students' Entrepreneurship Contest

An "entrepreneurship" project about customized mechanical keyboard studio.

This is first project I led and proposed most of the ideas. It is quite meaningful to me.

An Optimization on Sony's Imaging Edge

Group Project - Leader & Prototype Design

An course project worked on optimizing Sony's Imaging Edge app on its UX and functions.

This is the first time I presented ideas about an App like a product manager.

Sheep Diary（小羊日記）

Individual Project - iOS Application

Available in App Store now

An app to record the feelings and reaction for the users getting COVID-19. Some interesting functions will comfort them and help them stay calm.

This is my first step in creating mobile apps.

StomaCloud

Team Project - PM, UI Design & App Development

An app that will provide cooking recipes randomly for users who have no idea about the meals.

This is my another big step in creating mobile apps with a better UX and more mature functions.

ka!Bot

Customized Mechanical Keyboard

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This is the first project I led and participated in the process of proposing ideas, product line, and development plans.

"ka!Bot" will be a studio dedicated in the customized mechanical keyboard for enthusiasts and entry-level users. We hope to make more people enjoy the fun and satisfaction of customization.

Our products will combine the elements of fashion and geek culture together. The unique and innovative modularization design allows users to extend the features of keyboard. Our services will significantly enhance the user experiences of online purchase and customization.

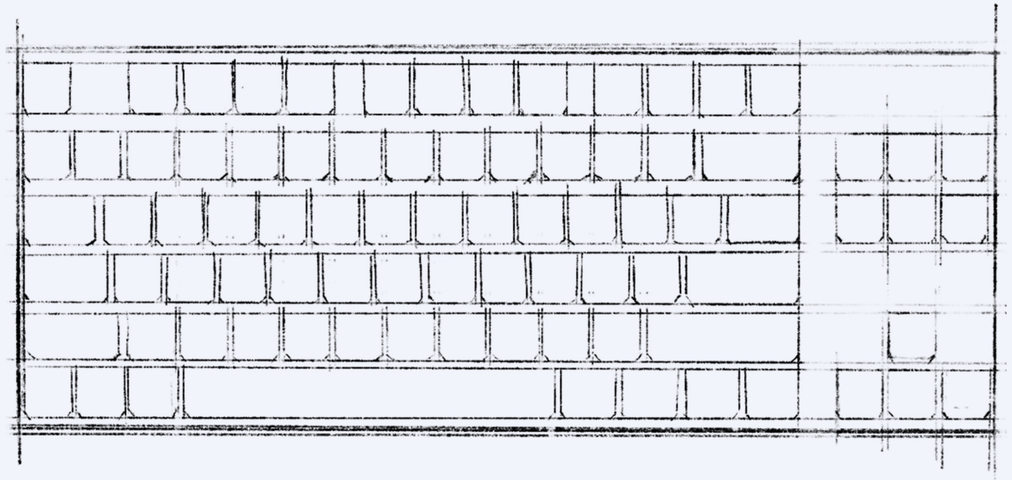
Inspiration

In the first time I decided to have a customized mechanical keyboard, I was confused by lots of problems like “how to choose the switches” or “how to maintain my keyboard in the future”.

As a geek, I hope a customized keyboard will provide the design that fit my preferences, as well as the details of using experience, such as the “feeling of typing” that is suitable for me, and the customizable firmware and hardware with great extensibility. However, it seems hard to find a beginner-friendly guide in this field.

After several tries, my understanding of this product and industry is gradually clear. At that time, I had the initial idea about ka!Bot Studio: combine the elements of fashion and geek culture, providing mechanical keyboards and related services that fit the needs of both entry-level and pro users.

I hope to provide an aesthetically-pleasing and feature-rich keyboard that is highly customizable, and lower the entry threshold of customized mechanical keyboards through innovative products and a well-rounded service system. In this way, we hope to let more people enjoy the “desktop culture”, and the satisfaction of customization.

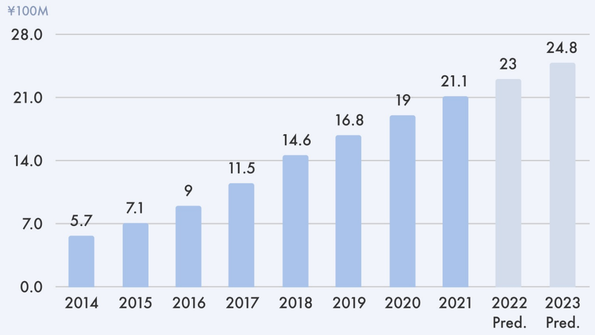


Background

Current Situations
of the market

The scale of mechanical keyboard market is increasing rapidly in recent years.

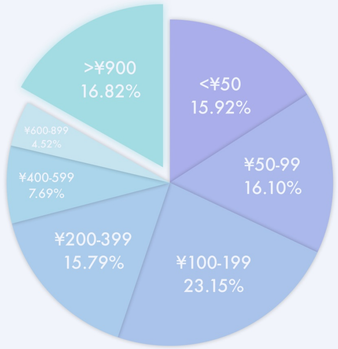
Market Scale of China Mechanical Keyboard Industry



May affected by people's pursuit of individuality and the growing of E-sports activities.

More people are willing to pay for the keyboard over ¥900.

Distribution of the Consumers' Concern in Different Price



The need of customization in keyboard market is growing with consumers' purchasing power.

ka!Bot

Current Problems
of industry

Have requirements on the basic knowledge about circuits, programming and design. It is unfriendly to new users and potential users.

It is hard to describe some subjective feelings like the "hand feeling" of typing. Users will be confused about the actual experience without trying it.

As a niche product, they are usually produced and sold on a small scale with a little supervision and control. Trust issues like merchant disappeared with money or customer quit halfway occurred sometimes.

We hope to bring something different to the keyboard industry!

Target Users

Entry-level Users

They have only a little understanding toward keyboards. Most of the time, they do not have a clear requirements of the product they want. They need a guide to help them choose the keyboard that suitable for them. Compare to other users, they are relatively price sensitive.

Users Familiar with Mechanical Keyboard

This kind of users have some experience on selecting, using or assembling mechanical keyboard. They have some requirements on its function and the feeling of typing. They are willing to spend money on the devices they like. Most of them are programmers, gamers and designers.

Enthusiastic Fans/Geeks

They love the devices that is customizable, and have some related knowledge about design, programing and circuit, so they are able to customized their own device. They have high requirements on the quality of product, also have a higher purchasing power.

Users' Needs

Finding the Suitable Keyboard Easily

We will present subjective using experiences online through multimedia elements.

Customizable Hardware and Software

We will make our product more customizable and satisfy enthusiastic fans' requirements of customization and secondary development.

Better Services

Provide unique pre-sale and after-sales experience that allow users know more about the product. It should be common but missing from this niche market.

Community for Communication

Provide a space for users to share ideas with each other, and the way to contact us quickly. It will be help to recognize users' need.

Our Goals

ka!Bot

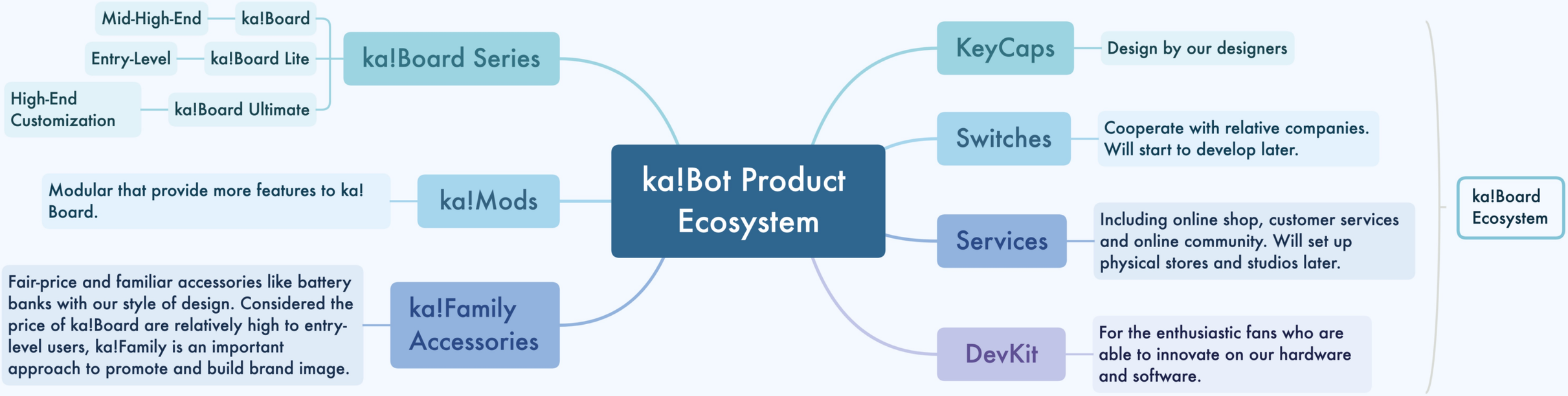
Innovation on Features

Unique Design

Beginner-Friendly Services

Products Ecosystem

ka!Bot



Development Planning

Stage 1
R&D, Promote
Mid-High-End Market

1. R&D stage of ka!Board & ka!Mod
2. Preheat promotion

Stage 2
Sell, Promote, R&D
Entry-level Market

1. Online store on third-party platforms
2. Launch ka!Board and ka!Mod
3. R&D of ka!Board Lite & Ultimate
4. Launch ka!Family series
5. Brand awareness & image building

Stage 3
Online Platform, Services
High-End Market

1. Launch ka!Board Lite & ka!Board Ultimate customization services
2. Building our online shop and community
3. Capture the changing user needs
4. Improving service system & product line

Stage 4
Physical Store, Core Tech
Long-Term Development

1. Set up offline store and studios
2. Core technology autonomy
3. Expand the product line and try new possibilities

ka!Bot

1 In the first stage, we will focus on the mid-high-end market. We plan to start from the most inclusive market, which could lower the risk. If we get the approval of these users, they could be the key to helping our future promotion in the entry-level market.

2 In the second stage, we aim to enter the entry-level market with cost-effective keyboard products. Also, we will launch the ka!Family series, which is a way to attract more users, enhance brand awareness and build the brand image. As an avoidance of risk, it can be the alternative plan if keyboard product line fails.

3 In the third stage, we will focus on building our own online service systems. It is an essential part to enhance the experience of selecting, using, and the after-sales service, which is missing in this industry. I believe it is the key to promote in entry-level market, and will change this industry significantly.

4 The fourth stage is the long-term development stage. We will expand our services to physical stores, which is the last missing part to enhance user experience. That is important when selecting a mechanical keyboard that fit users' requirements, especially the customizable ones. Another big thing is to achieve the autonomy of core technologies.

Main Products

ka!Bot

ka!Board

The 87-key keyboard for the mid-high-end market.

Its appearance and firmware are customizable. It will work together with ka!Mod, the modulars designed for our keyboards.

The price will be around ¥550.

ka!Board Lite

The 87-key keyboard for the entry-level market.

A various thematic design series will be provided to attract more users. Only the appearance is customizable due to the limit of cost.

Price is the key of promotion in this market, so it will be around ¥300.

ka!Board Ultimate

The high-end customized keyboard.

Its appearance, hardware and firmware are highly-customizable. It will work together with ka!Mod, and allows users' secondary development.

The price will be higher than ¥900.

ka!Mod

The modulars that work together with ka!Boards and will expand the functions of keyboard.

The modular will connect to keyboard through magnetic connector.

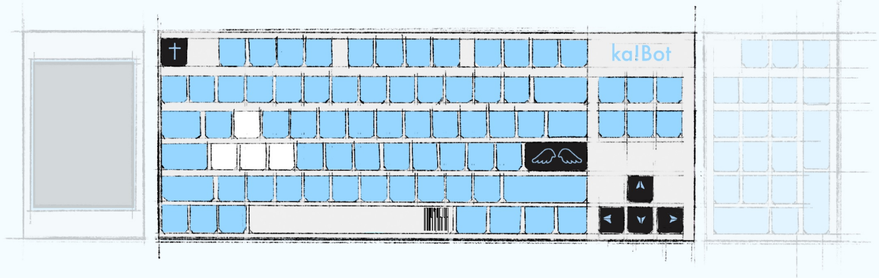
We will produce many modular like screen, numpad and more.

ka!Bot

Design

We follow the principle of Minimalism Aesthetic and bring crisp lines to the design of this product. That allows it to fit into a variety of scenarios.

Our designers will provide some theme series as presets. Users could select the keycap and shell they prefer, or upload proper design materials in our online shop to customize.



Features

87-Key Layout
Balance between utility and size. Can be expand by ka!Mods.

Hot-Plugging Switches Support
Change the switches easily.

Thematic Design Series
Provide more choice for consumers.

Optional Mute Pack
To reduce the noise if users don't like it.

Programmable RGB Backlight
Customize color, animation and brightness.

ka!Mod Modularization
Expand the functions easily.

The most innovative part is the ka!Mod modularization design.

ka!Board

The Mid-High-End Customized Mechanical Keyboard

An new experience of keyboard interaction.

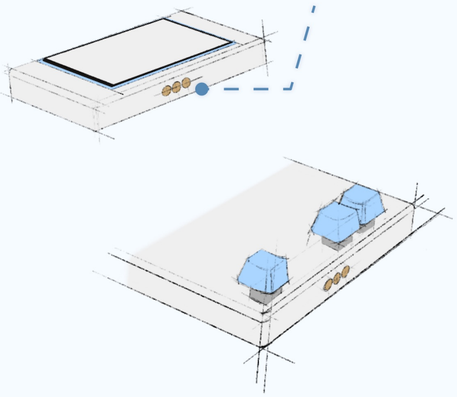
ka!Bot

Magnetic Connector

The idea of ka!Mod is the modulars that build data connection with ka!Board. It means it is an optional device and will not always connect to the keyboard. We hope the aesthetic design of the keyboard will not be influenced by noticeable snap-on connectors when nothing is connected.

Inspired by Apple's Smart Connector on iPad, we decided to use the magnetic connector on ka!Mod. It will ensure the connection's reliability and stability, and keep the keyboard's aesthetic and modular with an elegant way of connecting and disconnecting.

The magnetic connector



Features & Usage

ka!Mod can greatly expand the functions and usage scenarios of ka!Board. For example, the NumPad!Mod, one of the ka!Mod series, will make up for the lack of numpad on ka!Board, and the Screen!Mod can be the control center of both ka!Board and the connected computers. Users can select the ka!Mod that fits their requirements.

More ka!Mods designed for specific scenarios, like video editing or graphic design keyboard, are in our plans. Also, our DevKit is prepared for those who can develop their own ka!Mods.

Proprietary Communication Protocol

Open-Source Platform with DevKit

Allows Secondary Development

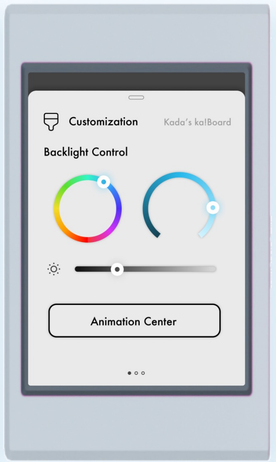
ka!Mod

Modulars Designed for ka!Boards

Screen!Mod

An Example of ka!Mod

Screen!Mod is the module that best represents ka! Mod's innovation on keyboard interaction.

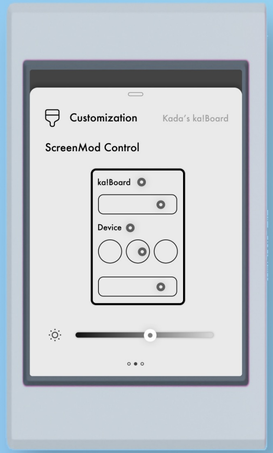


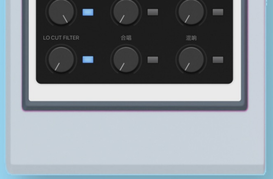
ka!Board's Control Center

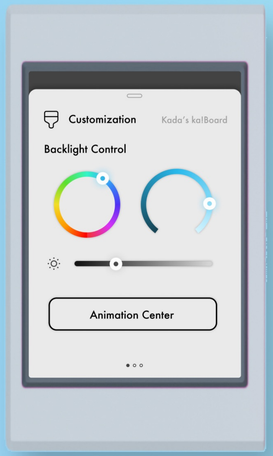
Control the light, connected ka!Mods and devices in one place.

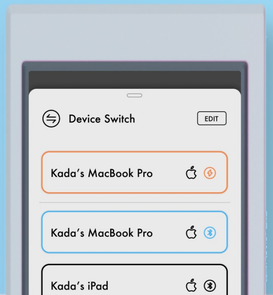
Control the Computer

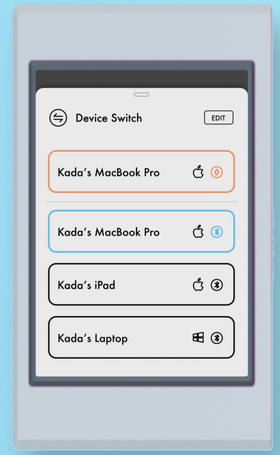
Screen!Mod could be the shortcut panel of computers in supported software.









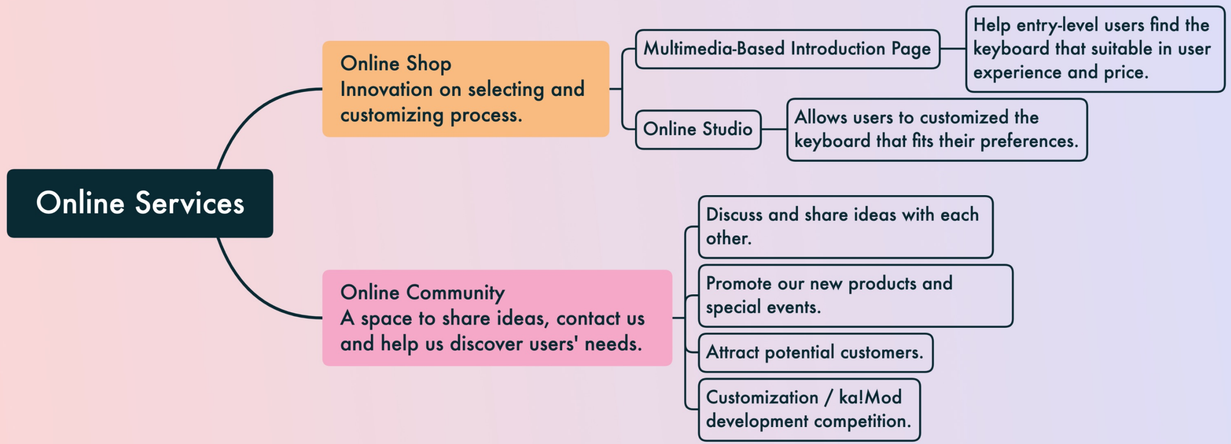


Services

We will provide both online and offline services.

Online Platforms

In the third stage, we will build our own online platforms, including online shop and online community.



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Multimedia-Based Introduction Page

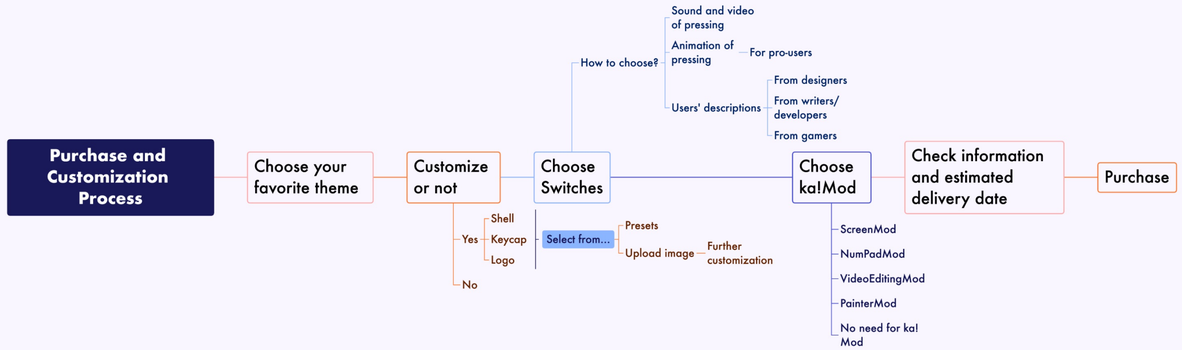
The introduction page will include some multimedia elements that present the subjective experiences of the keyboard, which is important to users' choices.

The problem with selecting a mechanical keyboard online is that it is hard for users to feel the differences in the typing feeling between different switches. For entry-level users unfamiliar with that, it is essential to help them choose a suitable keyboard. That will significantly enhance the user experience and help us build our brand image better.

With this idea, we will use sound, video or animation to present the details that can influence user experience objectively and measurably. We aim to provide an online shopping experience that is as close to a hands-on experience as possible, and help users choose the most suitable product.

Online Studio

We designed a intuitive and convenient process for users to customize their own keyboard.



Online Community

The online community provides a platform for users to share ideas and experiences, find tutorials, or request help.

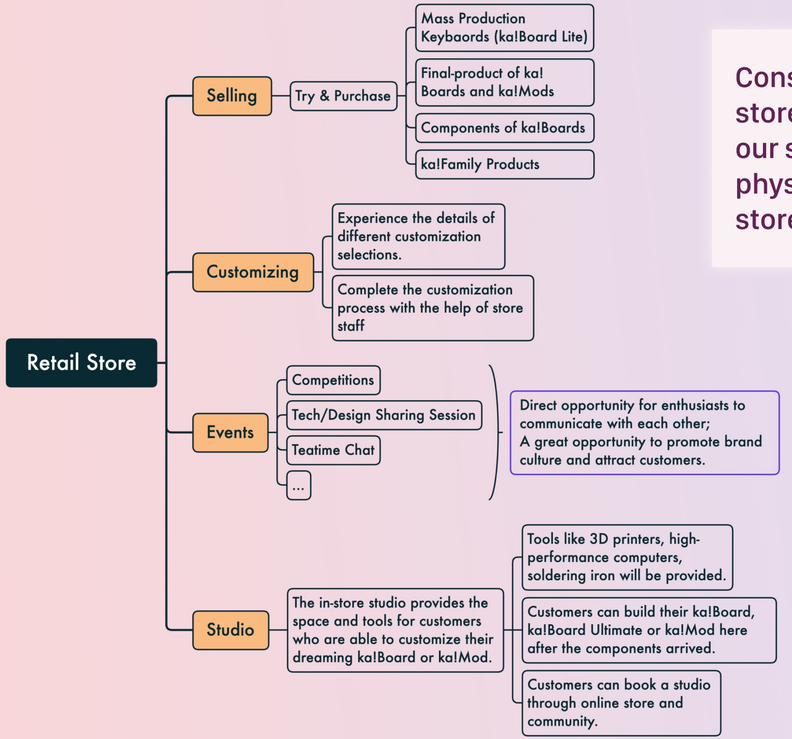
Users of this community, whether our customers or not, could share their ideas on customization and products, discuss techniques, or ask questions. We hope this community will be open and welcome those interested in customized mechanical keyboards.

An important role of this community is the feedback platform. Our users will be able to get in touch with us immediately here, and we can collect users' needs, capture the latest market trend, then make timely decisions with the help of this platform and our users. We hope this could be supervision to us and help us do better.

It is also the platform to promote and attract potential users. They will find our community if they find something about customized mechanical keyboards in search engines. It is an excellent opportunity to attract new users if the information provided in our community is helpful.

Offline Services

In the fourth stage, we will try to build some retail stores and studios offline to provide better services.



Considering the situation of physical stores, awareness of products and our scales, the possibility of building physical stores and the amount of stores will be evaluated carefully.

This project got the top 20 in Hong Kong and Macau areas and won the prize of project innovation in the 10th "Winning in Guangzhou" College Students' Entrepreneurship Contest, 2021.

After that, this project was paused because of the time and cost. As the first "entrepreneurship" project I proposed and presented most of the ideas and concepts, ka!Bot is quite meaningful to me. Also, I have lots of complicated feelings about this project.

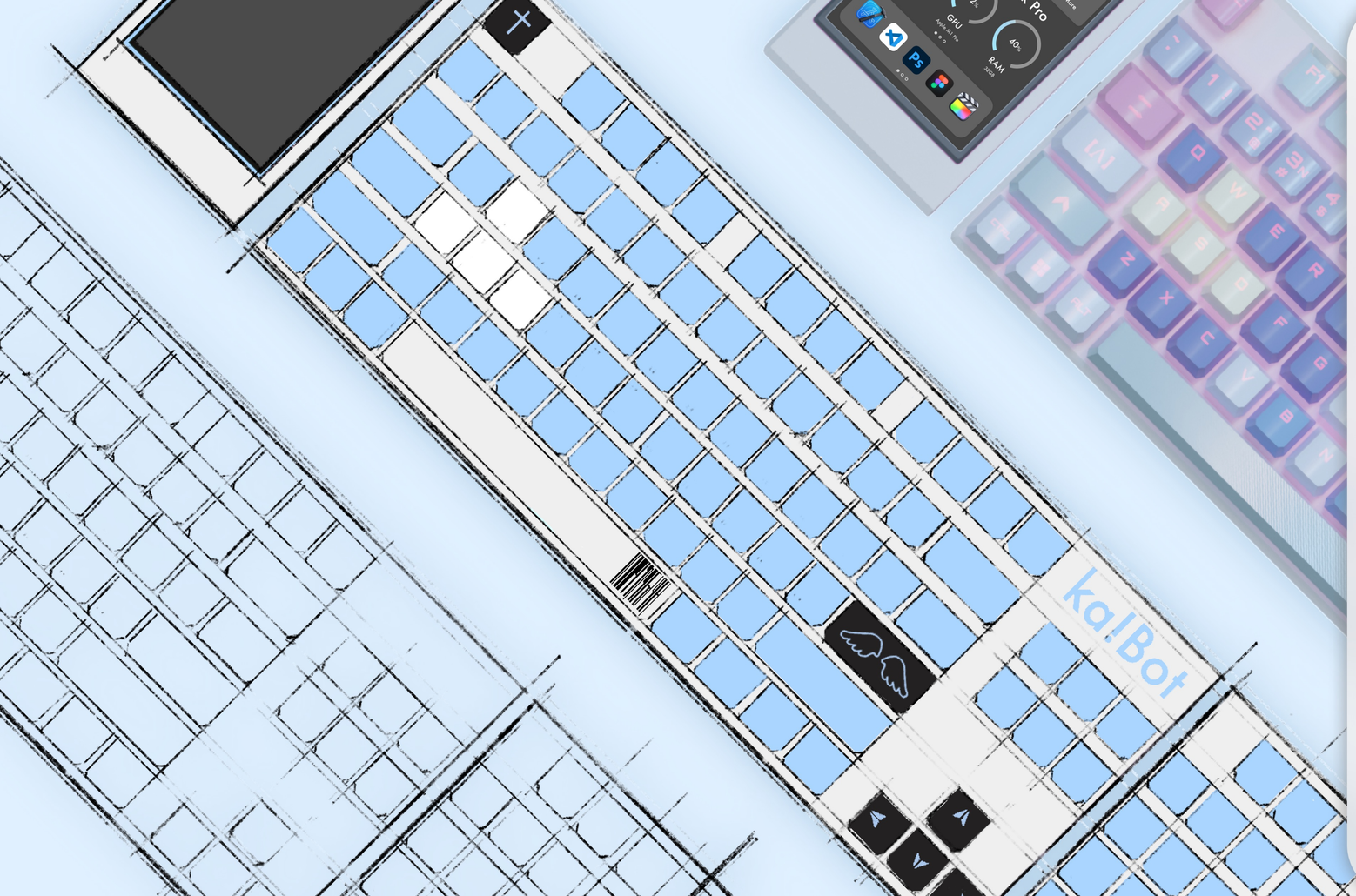
It is a pity that my idea of ka!Bot is finally only an idea. This project is technically feasible, but challenging to implement and commercialize by us. Due to practical constraints, I had to pause this project. That is why I put the word "entrepreneurship" in quotation marks.

In the summer of 2022, a modularized mechanical keyboard was made by Zhi Hui Jun, a talented geek called "Wild Iron Man". His idea about the modularized keyboard is similar to mine, and people's reactions to this product, especially those unfamiliar with this industry, also acted as my previous prediction. That made me realize the importance of resources and execution to entrepreneurship profoundly.

This is the first solid step toward my dream of "creating something". I will continue on this way, consider more about the feasibility from more perspective, and do it once I am sure it is worth trying.

Later, I found that creating mobile apps might be suitable for me to move closer to my dream. With my love of programming and presenting ideas, I started my adventure in app development. It is ideal on cost and easy to see the result. My new projects about mobile apps are on the way!

Summary & Reflections



Fonts

Futura

San Francisco Compact Display (Apple)

ka!Bot

An Optimization on Sony's

Imaging Edge

Group Project - Leader & Prototype Design

Imaging Edge is an app to transfer photos or remotely control the camera with a smartphone. Currently, its user experience is not friendly enough to the new users of Sony's cameras.

Our final project of the System Analysis and Design course is to optimize a mobile app on functions and user experience by making prototypes. As a photography lover and user of the Sony Alpha camera, I suggested choosing this app as the object of our optimization.

We aim to provide a friendly experience for entry-level users, who are the primary users of this app. With the idea of making camera photography easier, I improved the UI and functions, introduced Computational Photography based function to simplify the process of taking a nice photo, then made the prototype to show our ideas.

Inspiration

Before the project began, I was interested in Computational Photography technology. This machine-learning-based technology takes advantage of smartphones' growing performance and breaks through the hardware limitations of smartphone cameras.

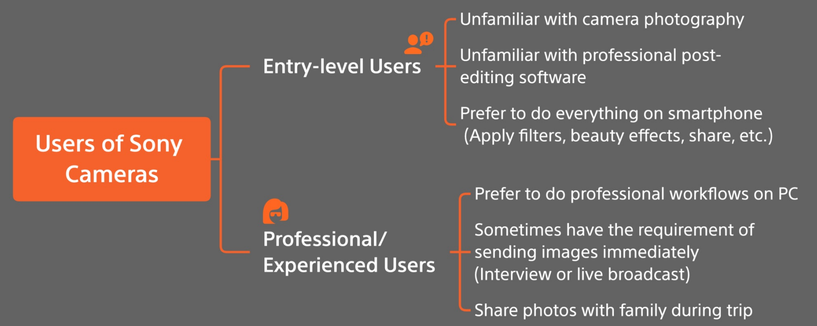
When we had the idea about optimizing Sony's Imaging Edge for entry-level users, I noticed the possibility of bringing Computational Photography to cameras with this app. Though it is hard to give cameras a high-performance SoC, how about combining the performance advantage of smartphones and the imaging advantage of cameras? That will help photography beginners get amazing photos without complicated workflows, and share the images immediately like what they do on the smartphone camera.

With the theme of "Easy Photography for Beginners", we improved most of the features that can be optimized and simplified for them and introduced new features that will help them take great photos as easily as they do on smartphones, including the one based on Computational Photography.

Preparation

Target Users

We segmented the original target users to two groups: entry-level users and pro users. Considering pro users prefer to do the post-editing workflows on PC, we focused on entry-level users who are unfamiliar with camera.



Current Disadvantages

✕ Lack of beginner-friendly functions.

✕ Confusing connection guide and unstable connection.

✕ Some professional functions are too complex and “put the cart before the horse”.

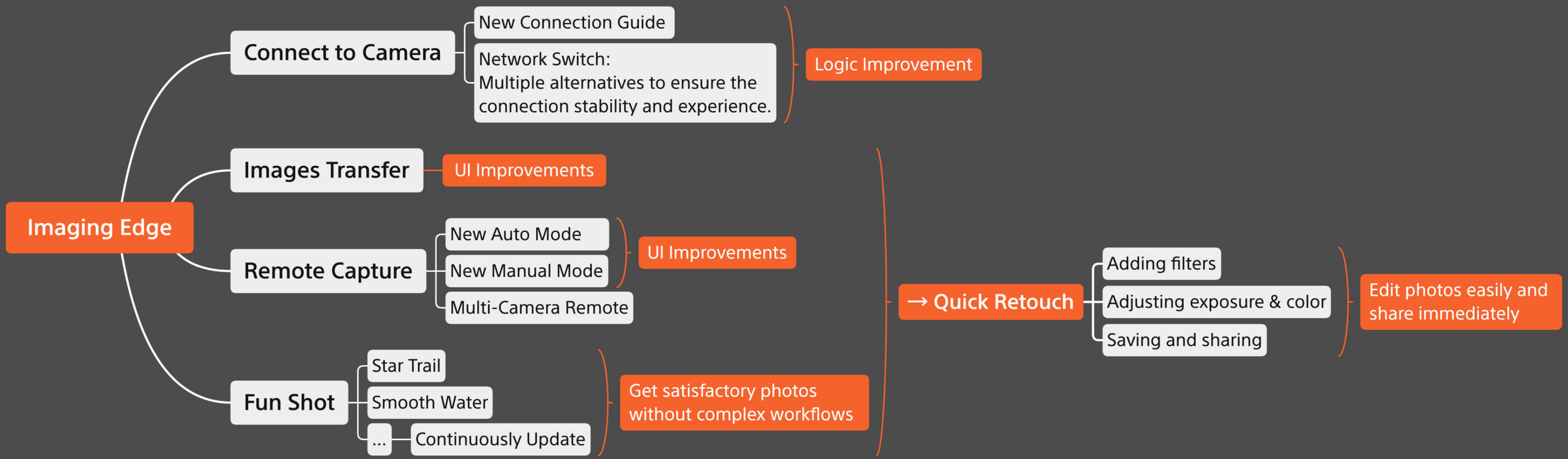
Our Goals

✓ A user-friendly one-stop photography app.

✓ Minimize the complex operations for entry-level users and help them get great photo easily.

✓ Professional photographers can transfer and edit photos efficiently.

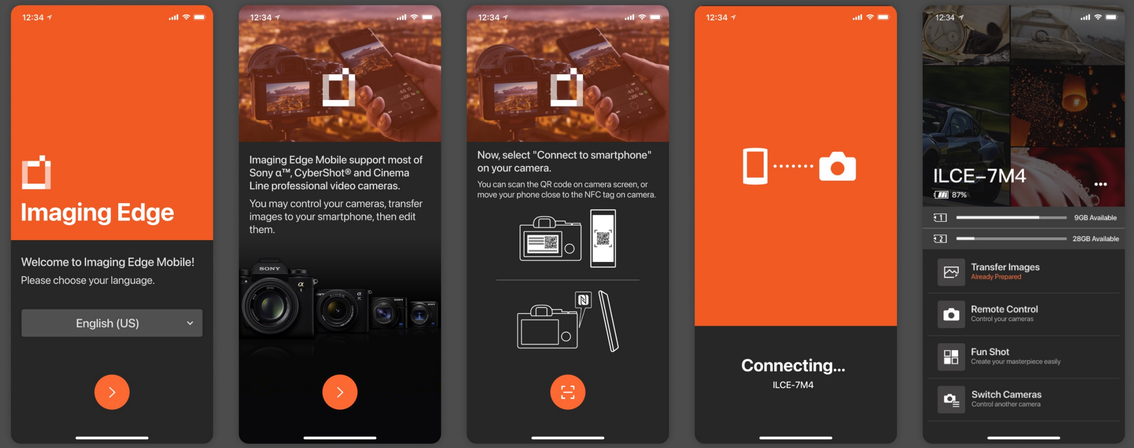
Features Planning



Connect to Camera

Re-designed Connection Guide

We have designed a user-friendly connection process that guides users connect to their cameras step by step.



Network Switch

Up to the end of 2021, this app will connect to camera's WiFi hotspot during photo transfer or remote control process.

However, the camera's hotspot have no access to the Internet, and some smartphones will disconnect from this kind of WiFi. Some other smartphones will connect to the hotspot normally and disable the cellular network, which means users will lose connection with the Internet and miss important notifications.

To solve this problem, we introduced a new feature called Network Switch. It provides several alternative connection methods to ensure the stability of the connection, and prevent losing the Internet connection when connected to the camera.

The first step is to scan QR Code on camera's screen or tapping camera's NFC tag.

The Bluetooth connection will build in this process for exchanging network information.

1st Choice

Both devices are on the same WLAN...

Connect Directly via WLAN

The remaining process will continue through the connected local network, including image transfer and remote control.

2nd Choice

If only smartphone connects to WiFi...

Share WiFi Information via Bluetooth

The app will share the SSID and password of connected WiFi to camera. Camera will connect to this WiFi.

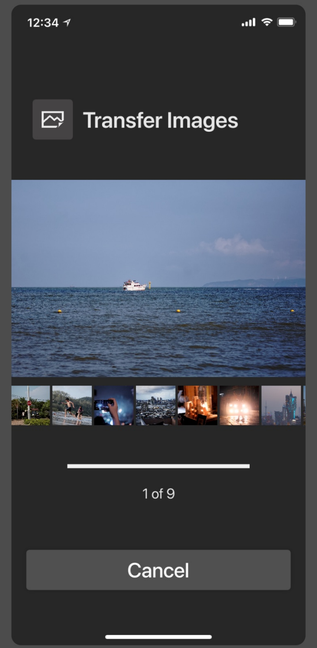
3rd Choice

If smartphone do not connect to WiFi...

Turn Smartphone's/Camera's Hotspot On

The app will try to turn smartphone's hotspot on and send its information to the camera. If it fails, the app will ask camera to turn the hotspot on and connect to camera by that. All the connections will be built on local network.

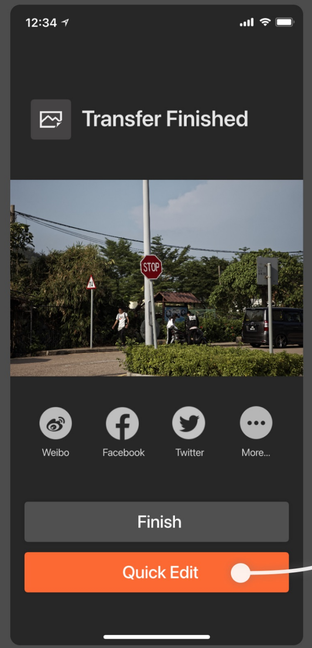
Image Transfer and Edit



Re-designed Transfer UI

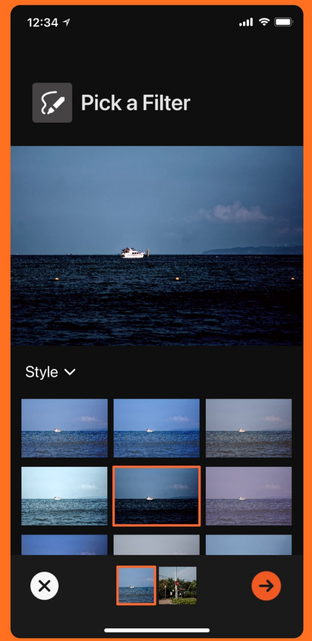
Our new transfer UI will show the thumbnails of images waiting to be transferred.

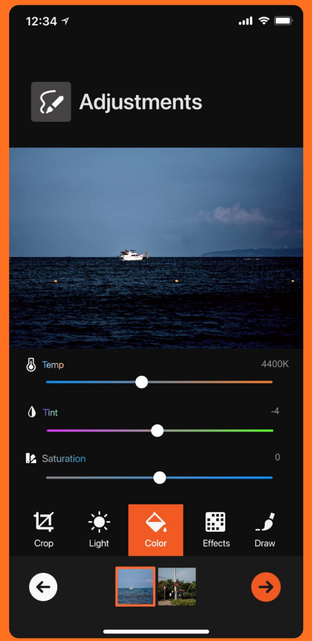
When the transfer finished, users can to share photos or edit them with the new feature Quick Retouch.

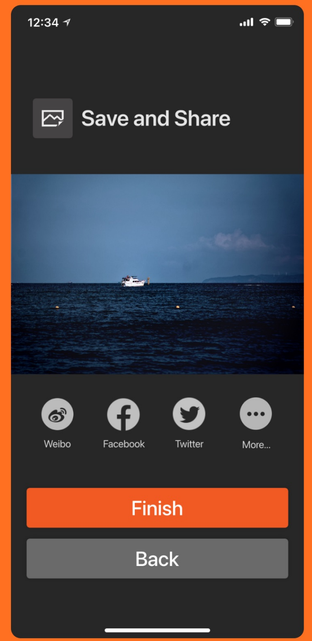


Quick Retouch

This new feature allows users to edit lots of photos easily once the transfer is finished. They can simply apply a filter, or adjust the parameters manually. After that, the options for sharing will appear again.







Remote Capture

Re-designed Camera UI

The current camera UI is simple enough, but some important controllers are hided into secondary menus. In horizontal view, it is even less controllable options than vertical view.

Another problems is, auto mode and manual mode share the same UI, which means the UI of auto mode may be complex.

Inspired by the Photo Pro app on Sony's Xperia smartphones, we re-designed the UI of remote capture.

We hope the auto mode can be as simple as possible, and the manual mode can be more controllable. Also, they should fit different views.

The new UI of auto mode is similar to smartphones camera, and most of controllers are placed on the area that may fit to photographer's habits.

Photo Pro on Xperia

Multi-Camera Control

In Imaging Edge, multi-camera control only support the RX0 series cameras, and its operation is too complex.

We want to make this feature more practical and supports more cameras. The process of connecting new camera will be the same as first-time connected. The app will ask smartphone to turn hotspot on as local network then connect cameras.

The re-design multi-camera monitor UI allows users to manage several cameras together. It will be helpful in multi-camera video recording.

Fun Shot

Fun Shot is a Computational-Photography-based feature helping entry-level users to capture amazing photos without complex and professional workflows.

Inspiration

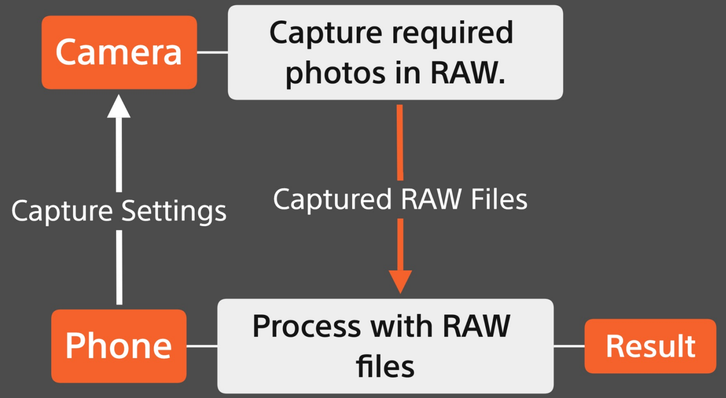
Ten years ago, Sony added an Android subsystem into their camera's Linux-based OS. They provided a lot of camera apps that allow users to create directly on the camera, without the post-editing process on the computer.

However, the Android subsystem brought problems like lagging or slow cold-boot speed to these poor-performance devices. With these problems and the professionalization of their mirrorless cameras, Sony removed this feature a few years ago.

Sony is still promoting their cameras to entry-level users nowadays, but many of them complain about the difficulty of using cameras. Now, with the increasing performance of smartphones and the technologies like machine learning, we hope to bring these features back to Imaging Edge.

How It Works

The app will control the camera to capture photos in RAW, send them to the smartphone, then process them and apply selected effect with the technologies like machine learning. The entire process is automatic. Users are allowed to adjust the intensity of effects, and pro users can control all the available parameters in manual mode.



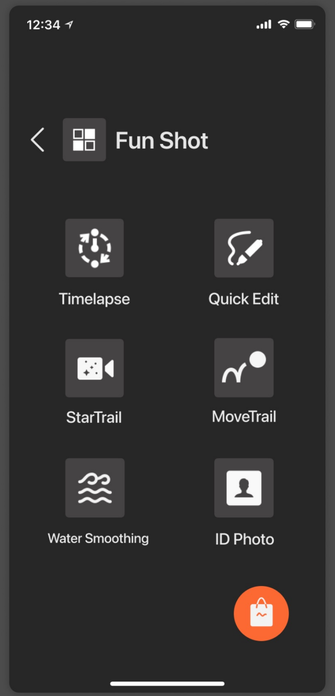
Builtin Functions

Most of these functions come from Sony's original camera apps. They will be improved with modern Computational Photography technology, such as the ML-based white balance correction, noise reduction, advanced SteadyShot, and HDR algorithm.

The effect of these algorithms will be controlled to ensure that the original texture and color of photo will not be destroyed by that.

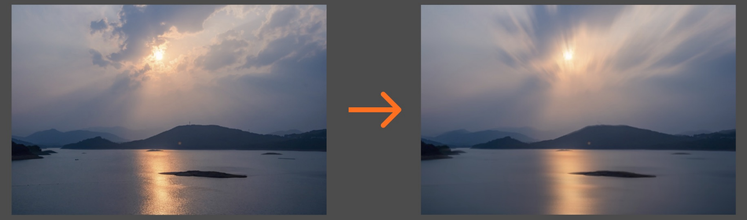
Users can choose the function they want to use and follow the instructions.

Algorithms and machine learning models in these functions can be updated in the shop, where the entrance lies in the lower right corner. More functions will be provided in the shop.



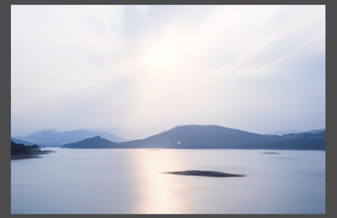
Introduction

This function will smooth the water surface, such as lake or sea.



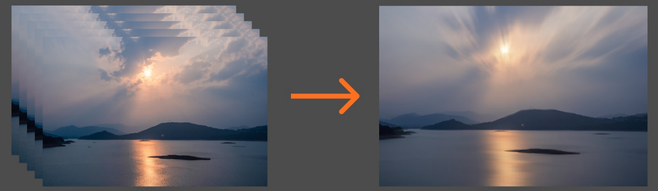
Normally, we will use long exposure technique to get the photo with this effect.

However, this method is not that suitable in day time without any accessories because it will cause over exposure.



To prevent over exposure, an ND filter is needed to reduce the amount of light entering.

Another method is to take a series of photos, then import to Photoshop and perform a task called “stack”.



However, both of them are difficult to entry-level users.

Water Smoothing in Fun Shot will solve this problem by stacking and processing captured photo on smartphone. With the help of HDR algorithm, situations like over exposure will be avoid as much as possible.

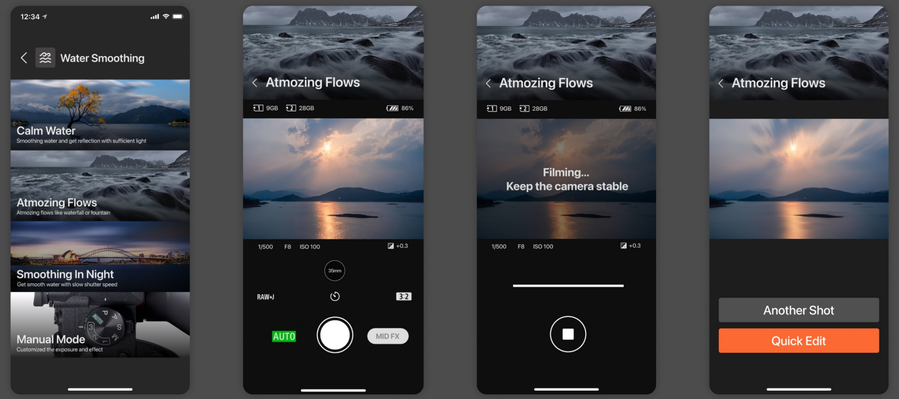
Usage

① Choose a proper mode. Every mode has its own algorithm for the corresponding scenario.

② Users can preview and adjust effect or detailed parameters manually.

③ Camera will burst for a while. Photos will be taken in different shutter speed, and all the captured RAW files will be sent to smartphone.

④ The app will process these RAW files, then export the final photo.



Water Smoothing

An Example of Fun Shot

Summary & Reflections

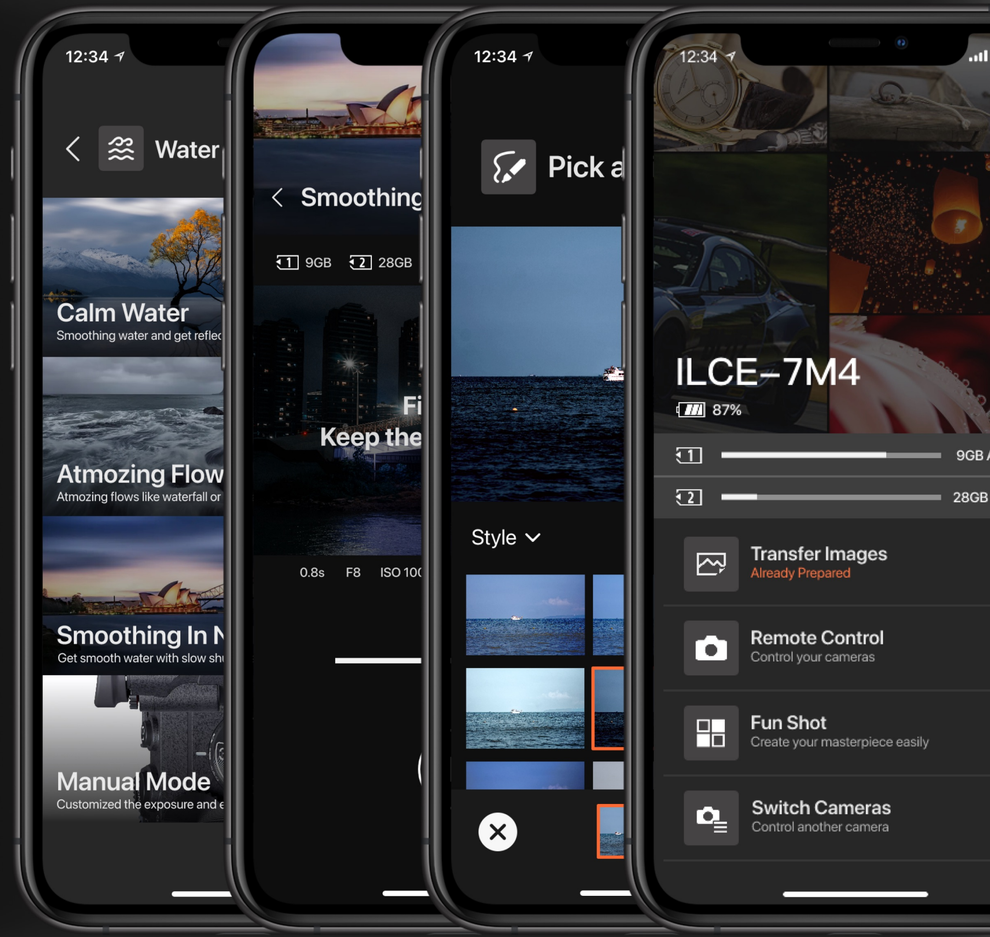
This is the first time I presented ideas about an App like a product manager. As the project leader, I planned the framework of the project, presented the core ideas of "Easy Photography for Beginners", and worked with the team to refine the details.

During the feature planning stage, we focused on the issues that affected the experience of non-expert users, and proposed some feasible solutions to optimize their user experience. I presented most of the ideas about functions and their logic, also participated in drawing the data flow diagram.

I presented the idea of integrating computational photography technology into this app innovatively. I believe this feature will stimulate entry-level users' interest in photography, help them take amazing photos easily, and guide them to learn more professional photography knowledge and fully use their camera to create.

There are still some parts of this project that I should reflect on. As the leader, I needed to express my ideas more clearly to my teammates. Some of them misunderstood my thoughts, leading to communication and collaboration desynchrony.

Another mistake is inconsiderate thinking during the feature planning process. Though we designed the function Network Switch as error handling for connecting progress, we neglected it in Remote Capture and Fun Shot, which require real-time data transfer between camera and smartphone. This mistake made me realize that as a product manager, I should consider as many situations as possible that could affect the user experience, whether the project needs to be implemented by me or not.



Color Scheme

Font

SST (Sony)

San Francisco Pro Display (Apple)

An Optimization on Sony's

Imaging Edge

by Team Opt. Imaging Edge & Haoyang Sun 2022

Sheep Diary（小羊日記）

Individual Project - iOS Application

Available in App Store now

Sheep Diary is the first mobile app I create.

The app is designed for Chinese users to record their symptoms, feelings, and reactions when they get COVID-19. They can save these experiences as images, send them to the doctor as references if they need medical help, or share them with those in need.

The app also has some simple but relaxing functions to reduce the negative emotions of users. They can touch the sheep on the screen to relax if they are nervous or anxious.

The name of this app comes from homophones in Chinese. Considering the user experience and language barrier problems, there is no English version for this app. Screenshots of this app will be presented in Chinese.

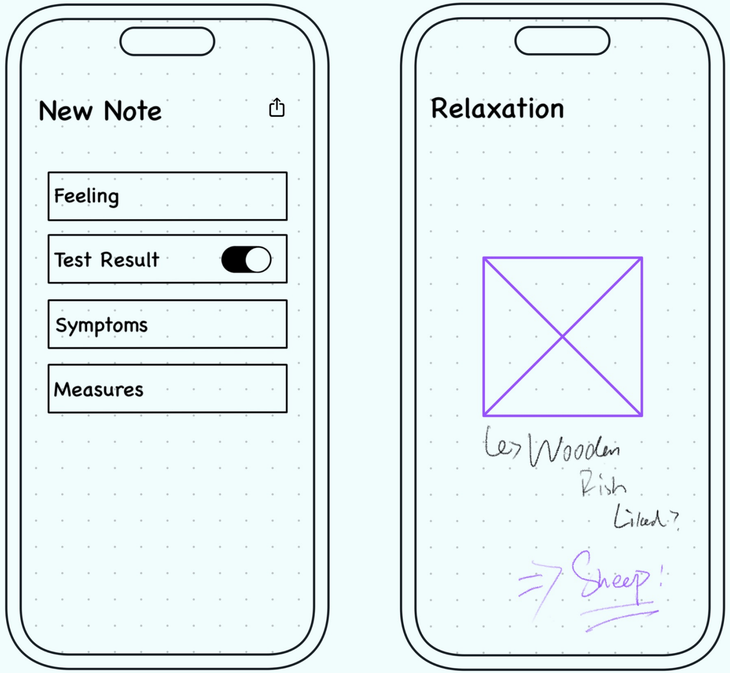
Inspiration

With the loosening of COVID-19 curbs in China, the virus spread quickly among the country again. Most of us are getting COVID-19 for the first time. Living in uncertainties makes nervousness, anxiousness, and other negative emotions come with the COVID-19 problem.

Thanks to social media and the ones willing to share their experience of COVID-19, we can find information about protection and medical measures easily and immediately from these platforms. The initial idea of “Sheep Diary” is to create a standardized memorandum for sharing COVID-related experiences and information.

Another feature of this app is to help users get out of their negative emotions about COVID-19. It should strike a good balance between the seriousness of the COVID-19 topic and the entertainment of user experience. Inspired by the wooden-fish apps popular on the Chinese Internet recently, I decided to make it as the prototype of relaxation features.

The name of this app comes from homophones in Chinese. In Chinese, the word “Sheep” （羊）shares the same pronunciation ”Yang“ with “Positive” （陽）. To have a relaxed tone in social media, people prefer to use “羊 “when they talking about the result of COVID-19 tests with each other. So, Sheep Diary（小羊日記）can be considered as “Diary of COVID-19 patients”.



Features Planning

Goals

Experience Recording Pressure Relieve

Features

Memorandum
Record and share the experiences of getting COVID.

Users can record the experience about getting COVID, including symptoms, measures and more.

It is possible to share these records as an image if they want. A detailed reference and measures will help those who are worrying about getting COVID to be calm.

Relaxation
Tapping sheep on the screen for relaxation.

When users are tapping sheep, the words such as “Stay calm” or “You’ll be well” will show on the screen.

The app will also guide users to be calm with the frequency they tap. Some restriction will be applied to control the frequency of tapping.

Relaxation Scenarios

Four scenarios are designed for users in different statuses, such as healthy, illness or sleeplessness.

Before Positive
“别羊”
Don’t be “positive”

- For the users who are still healthy.
- The sheep image will zoom from small to large repeatedly; users need to keep it small by tapping it in proper frequency.
- The scoring system is introduced to notice users keep the sheep small by tapping slowly. Users will receive a message about keeping calm when they lose scores by tapping too fast.
- Users are allowed to share the tapping counts and score as an image.

Positive Illusion
“幻羊”
Illusion of “being positive”

- For users who are still healthy but confused about whether they get COVID.
- The sheep will jump randomly on the screen when tapping it. The jumping sheep might be the reflection of the users' uncertain minds. Focus on catching the jumping sheep will be help to let users calm.
- Users are allowed to share the tapping counts as an image.
- Need to be improved. I am finding the way to calm these users effectively.

Being Positive
“羊了”
Getting COVID-19

- For users that already getting COVID-19.
- The frequency of tapping sheep is controlled by the delay of touching. The sheep will have no response when users tap too fast.
- The encouraging words will be displayed on the screen to comfort users.
- Users are allowed to share the tapping counts as an image.

Insomnia (Coming Soon)
“數羊”
Counting Sheep with white noise when sleeplessness

- As a symptom of COVID-19, the sleeping quality of patients might decrease.
- Users who are sleepless could count sheep by tapping it. The tapped sheep will jump out of the screen, and the new one will jump in.
- Users are allowed to share the tapping counts as an image.
- This feature is still in planning. It may be able to work with the white noise app I decide to develop later.

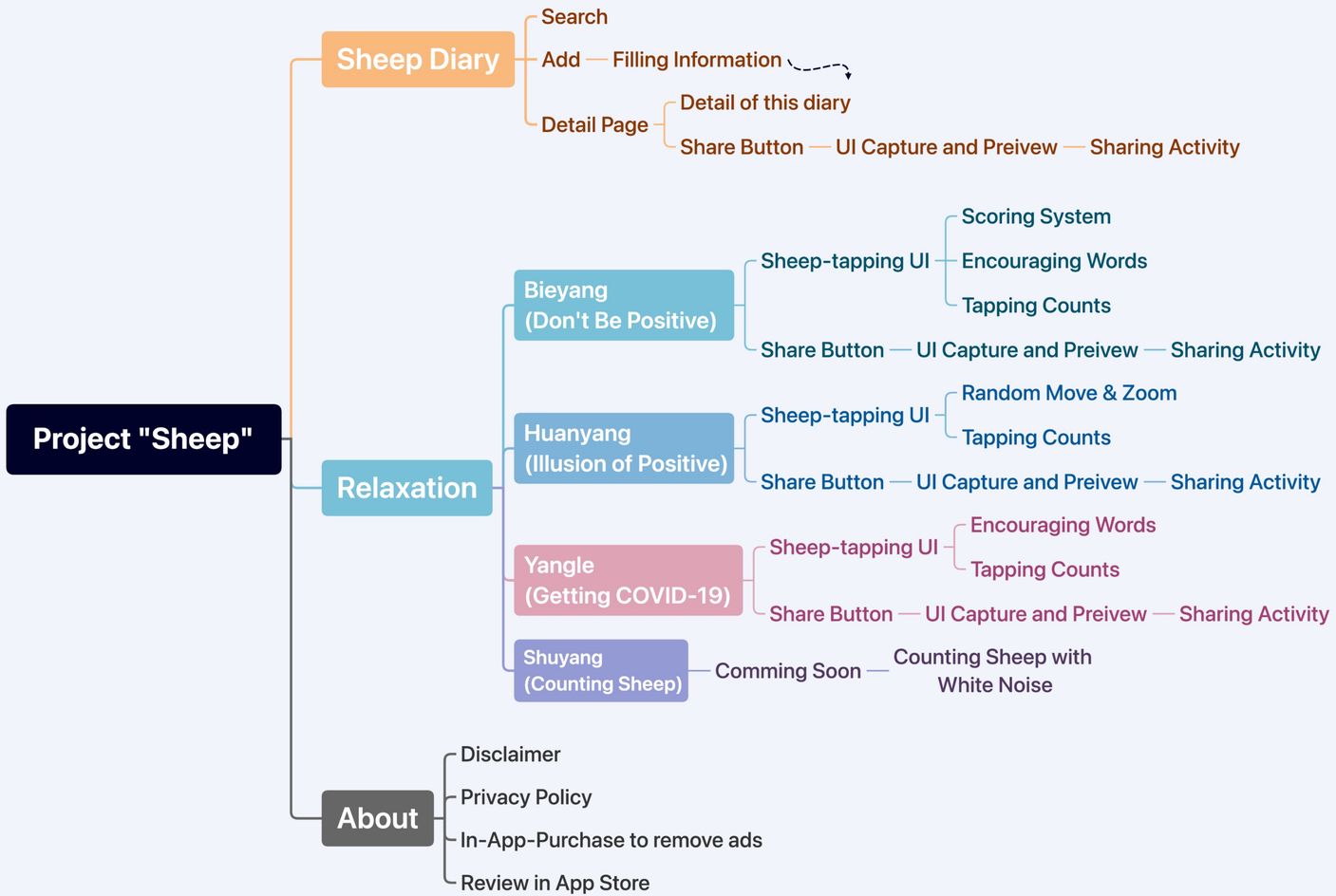
Development Planning

This app is developed with Apple's SwiftUI. It is a beginner-friendly declarative programming framework. Most of the time, developers can build cross-platform apps for all of Apple's products easily with one set of code.

1. In the first stage of development, I transferred my idea into simple prototypes, and then finished most of the main functions, including sheep tapping, diary and content sharing.

2. During the second stage of development, I complete the remaining functions and details, such as the in-app-purchase to remove ads, and fix bugs like UI misalignment.

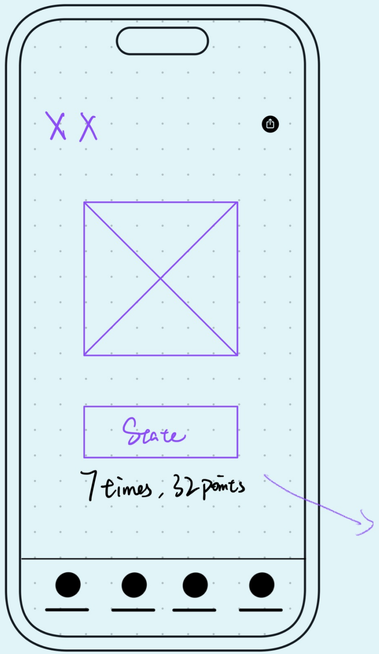
3. The third stage of development is also the long-term completing stage. The functions will be modified and improved according to further feedback from users.



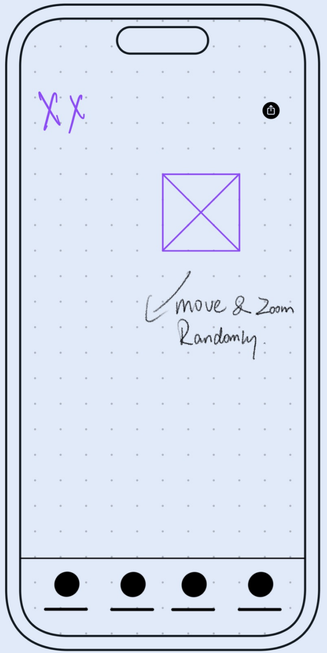
Prototype Design

小羊日記
Sheep Diary

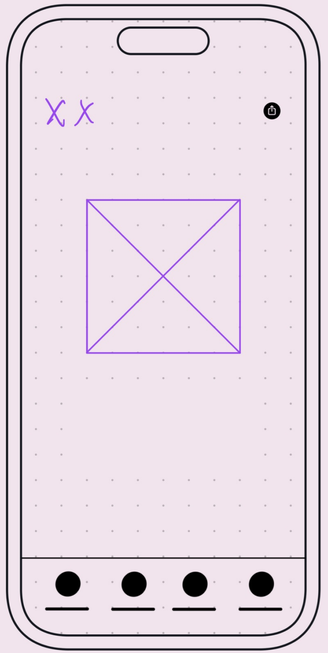
別羊 Bieyang
Don't be "Positive"



幻羊 Huanyang
Illusion of "Being Positive"



羊了 Yangle
Getting COVID-19




6:28
小羊日記
搜尋
1月19日 头好晕
1月20日 身上开始痛了
1月21日 退烧了
1月22日 感觉好多了
1月23日 终于转阴 还有点咳
小羊日記
放鬆
關於


6:28
別羊
但是小羊還是很可愛的！
這裡的「羊」僅僅指「陽」
別怕，會沒事的
慢慢戳羊，保持距離！
戳羊 34 次，鎮定值 310
別羊
幻羊
羊了
小羊日記
放鬆
關於


6:29
幻羊
應該只是幻覺啦～
戳羊 36 次
別羊
幻羊
羊了
小羊日記
放鬆
關於


6:32
羊了
那就擼擼小羊放鬆一下吧
可以記錄一下身體狀況和應對措施哦
可以去小羊日記里寫一寫感受
擼羊 39 次
別羊
幻羊
羊了
小羊日記
放鬆
關於

小羊日記 Sheep Diary

The Record of COVID-19 Experience

Sheep Diary will help you record the process of getting COVID until you fully recover.

It will be a detailed reference if medical treatment is needed, as well as the well-organized experiences for social media sharing, which might help more people pull through composedly and confidently.

Experience Recording

Users can record their feeling, COVID-19 test result, symptoms, medicine they have, other measures, and the diary of that day. It is also available to set a notification for medication.

Content Sharing

The content of the diary could be shared as an image. A notice about “do not share inappropriate content” will show on the sharing page to prevent the sharing of inappropriate content.

Shared contents may not be suitable for everyone, so the notice about “only as a reference” and “distinguish right from wrong” will display on the shared image.

別羊 Bieyang

Encouraging Words

```
var wordList = ["冷静呀","记得做好防护",
    "慢慢点击有助于放松哦", "别怕，会没事的",
    "不能慌乱呀", "试着做个深呼吸", "保持平和的心情"]
```

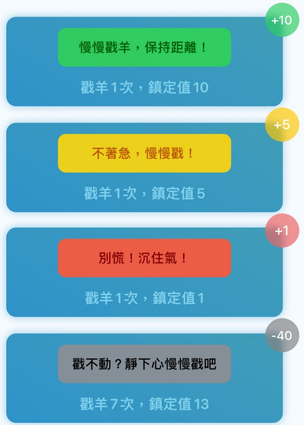
The encouraging words will display alternately on the screen. According to my experience, positive words will provide a positive psychological hint. I hope it will be adequate to help users calm down.

Scoring & Keep Calm

The scoring system is designed to help users control their tapping frequency, focus on tapping, and then calm down as much as possible.

The score is called Calm Value（鎮定值）and will be calculated according to the size of the sheep on tap.

The goal is to keep the sheep small by tapping slowly. The larger the sheep, the lower the Calm Value users get. When users tap too fast, which might reflect their anxiety, the sheep's size will be hard to control. Once the sheep is large enough, 40 points will be deducted, and users will be told to keep calm and tap slower.



Sharing Page

This feature will export an image for sharing on social media. It is designed to satisfy the users who desire to share. Tapping counts and score will be presented in this image.

It is also a way to promote this app. A brief introduction about this app and the QR Code link to App Store are provided.

幻羊 Huanyang

Moving Randomly

The sheep will move and zoom three times on the screen when users tap it. The moving track and the size of the sheep are all random.

During this process, iPhone's high-quality haptic feedback will provide a feeling of sheep jumping in users' hands.

Sharing Page

This feature will export an image for share. Tapping counts, introduction, and QR Code for download will be presented on this image.

羊了 Yangle

“Touch sheep to relax!”
“You can record symptoms and response measures in Sheep Diary.”

Share Button

Light Mode

Dark Mode

Tap here

Haptic feedback is available when tapping. The comfortable haptic effect of the iPhone will satisfy users.

Encouraging Words

Tapping Count

Relaxing by Touching Sheep

Considering that patients may be tired of adapting to complicated things, the sheep tapping feature here was designed as simple as possible.

Encouraging Words

Same as Bieyang, the encouraging words will also display in this scenario and help users to calm.

```
var wordList = ["冷静呀", "慢慢点击有助于放松哦",
    "可以去小羊日记里写一写感受", "如果累了就休息一下吧", "别怕，会没事的",
    "你可以的", "不能慌乱呀", "试着做个深呼吸", "保持平和的心情"]
```

Sharing Page

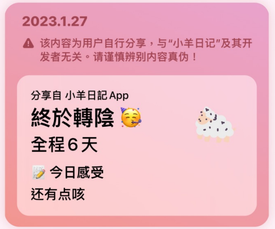
This feature will export an image for share. A notice about “do not share inappropriate content” will show on this page.

Content for Sharing

There are three kinds of sharing content in this scenario. They will change with the status you record in Sheep Diary. To prevent inappropriate content sharing, a notice about “distinguish right from wrong” will appear on the top.

When nothing is recored, “Hard to escape from ‘sheep’” will appear on top.

When user record “positive” in Diary, a glance of today’s record will appear on top.



When user record “negative”in Diary, “finally recovered” and today’s feeling will appear on top.

Summary & Future Works

This is my first step in creating mobile apps. During the planning and development process, I found that there is still a long way for me to analyze users' psychology better.

I believe the diary feature is greatly helpful to the society. However, I am not so confident about the effect of relaxation features. I will try to communicate more with users, learn more about their thought on pressure relief in the post-COVID era, and provide better relaxation features for them.

I will maintain this app continuously to complete the features and improve the user experience with a better understanding of their needs and psychology.

Color Scheme

Font

San Francisco Pro Display (Apple)

Supported OS

iOS 15+ / iPadOS 15+

Download on the App Store

Sheep Diary（小羊日記）

StomaCloud

Team Project - PM, UI Design & App Development

StomaCloud is an iOS app that provides cooking recipes randomly for users who have no idea about the meals. We hope this app will support users in cooking and encourage them to cook healthy and delicious dishes by themselves.

In this app, users can get advice about what to cook when they have no idea about it. The app will randomly choose a dish in the database, then provides the ingredients checklist and video about how to cook. The cooking timer is also provided. After cooking, users can take a photo of their masterpiece in this app and share it with others.

I designed the UI of this app, and now I am working on its development. Later, I will sort the data of dishes with my teammates, and try to find the most convenient way to manage them with our data-processing experiences.

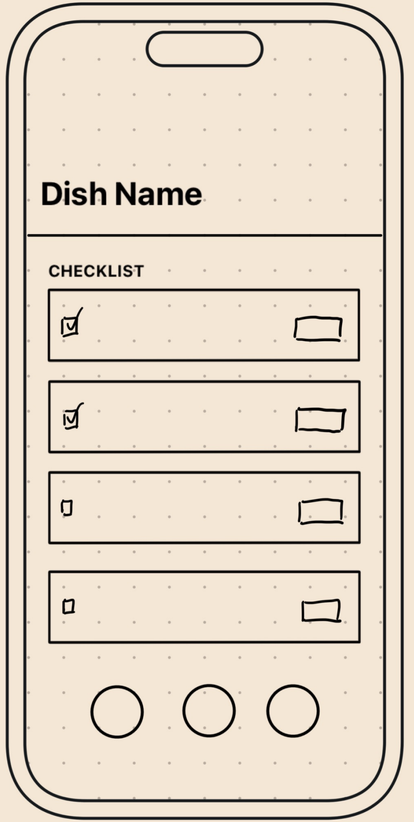
Inspiration

The initial idea for this application emerged when I cooked with my friends. We have no idea on what to eat for many times. When we were searching for recipes, I had the idea of an app that randomly provides opinions about cooking. With some discussion, we just start to think about the details of this app.

The reason of "random" is that I think it is a surprise when finding and cooking a new delicious dish. Life is full of surprises! This is not only the opportunity to discover and master new dishes, but also a catalyst to inspire the passion for life. What's more, the food cooked by oneself will be healthier than some instant food or take-outs.

StomaCloud = Stomach + Cloud. The cloud means share. We share recipes with our users, and they can submit their recipes to enlarge our database, and let more people can enjoy this dish.

Actually, this project was started before the "Sheep Diary", which was the app already available on the App Store, but due to our personal schedules and the difficulty of obtaining and organizing recipe data, the project was paused for a few months. Now everything goes well, and the development of this app will continue soon!



Features Planning

Goals & Target Users

Help the users who are able and willing to cook by themselves decide on the cooking recipe, and motivate their passion on cooking.

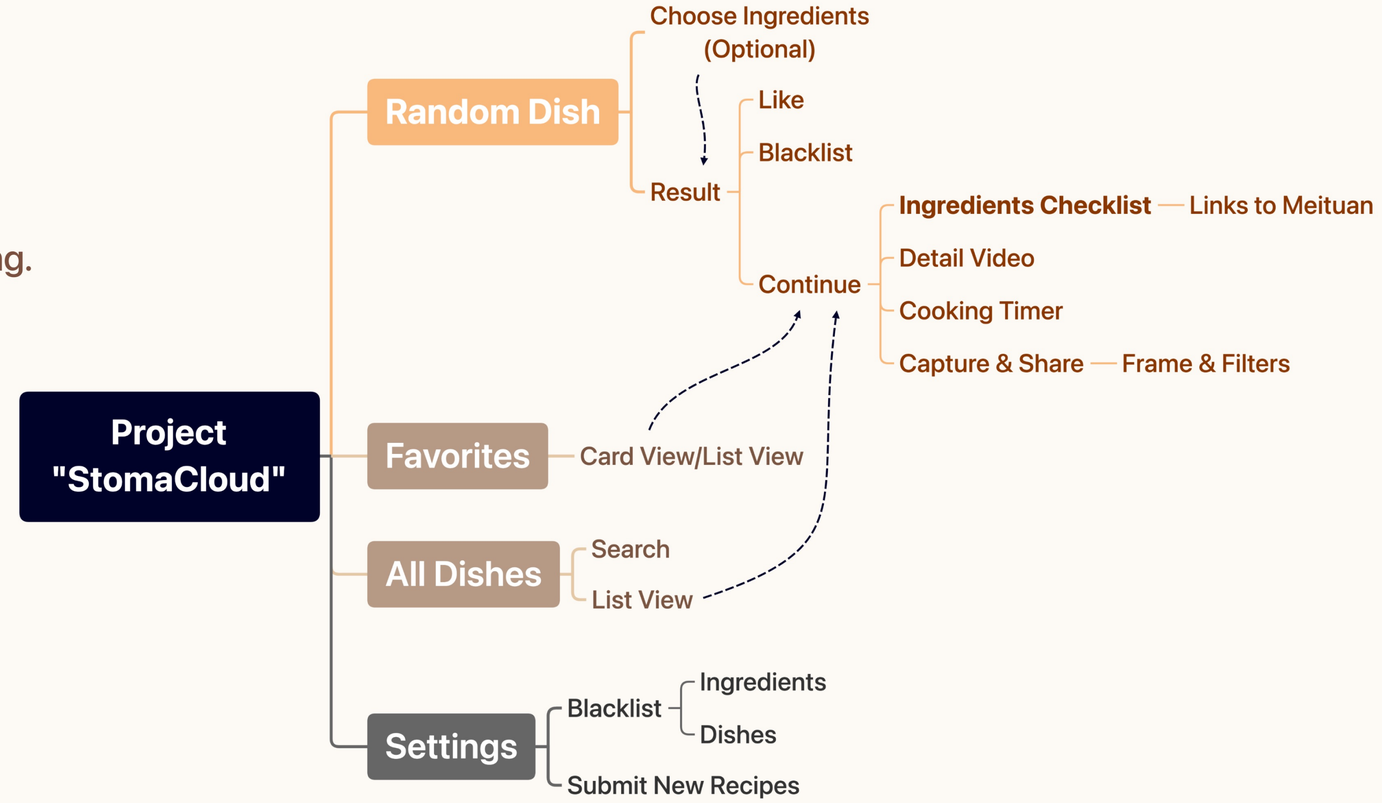
Main Features

Random Suggestion
Give the recipe randomly from database

Users can simply press the button and randomly get the recipe in the database. They can select the specific ingredients as the filter, and the app will randomly give a recipe that meets the condition. Users can add a particular dish to their favorite list, as well as the blacklist if they don't like it.

Ingredients Checklist
Help users checking the needed ingredients.

After the recipe is provided, the ingredients checklist will be shown. Users can follow this checklist when they are shopping for ingredients, and we will also provide the bottom that links to food delivery platforms such as Meituan in Mainland China.



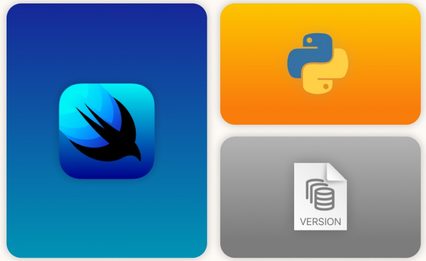
Development Planning

1. In the preparation stage of development, there are two important things: UI design and getting the data of recipes. I have finished the UI prototype design and found a suitable open-source and continuously updated dataset

2. During the second stage of development, I will start building the app and work together with our teammates to process the data in detail and adapt it to our needs. All the main functions need to be finished in this stage.

3. The third stage of development is the testing and long-term completing stage. The functions will be modified and improved according to further feedback from users. Also, we will develop an automation tool with Python to help us collect and complete the needed information, then update the database easily.

Techniques We Use



This app will be developed with Apple's SwiftUI. It is a beginner-friendly declarative programming framework.

We will process the recipe data and automated the content updating process with Python.

In the app, Apple's CoreData framework will be used to manage the recipe database and users' data, and keep them sync with users' personal iCloud account.

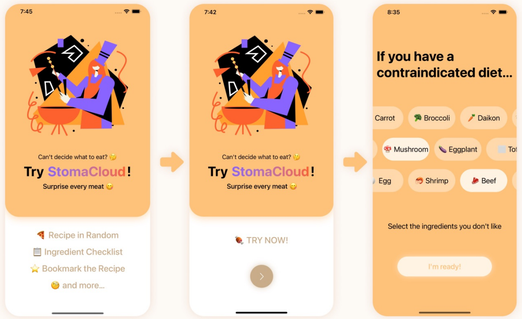
Technical Difficulties

Creating a SwiftUI-based app with a customized design is one of the challenges for me. Most of the UI elements and animations designed for StomaCloud are quite different from the ones Apple prepared in SwiftUI. I need to find a proper way to create customized elements in SwiftUI.

Another challenge is the management of recipe data. Firstly, we need to make the database work together with the app. We have to build a relationship with ingredients, dished, and user preferences. Secondly, an automated content updating tool is needed. The detailed explanations of cooking in the dataset we use are the videos from Bilibili, but the preview images still need to be included. We need to build a tool that can automatically download and crop the cover of videos as the preview image and allow us to check them conveniently.

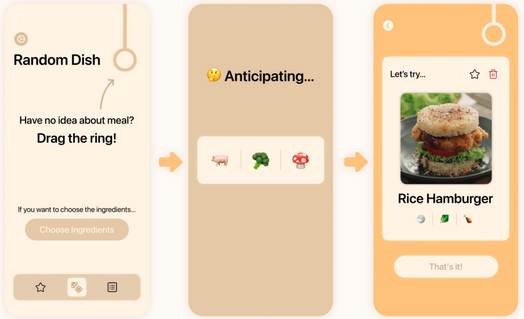
I believe these difficulties will be solved soon with our exploration in these fields!

Features Overview

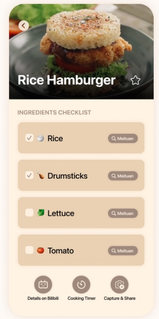


Welcome Page & Preferences Choosing

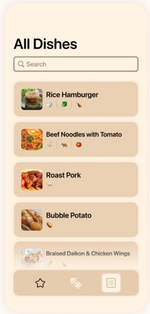
Rolling like a slot machine



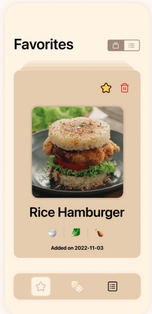
Home Page & Random Selecting



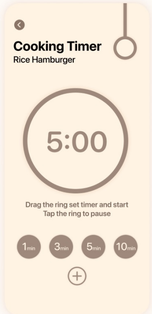
Ingredient Checklist & Other Features



List of All Dishes



Favorite Dishes



Cooking Timer

Photo Capture & Share

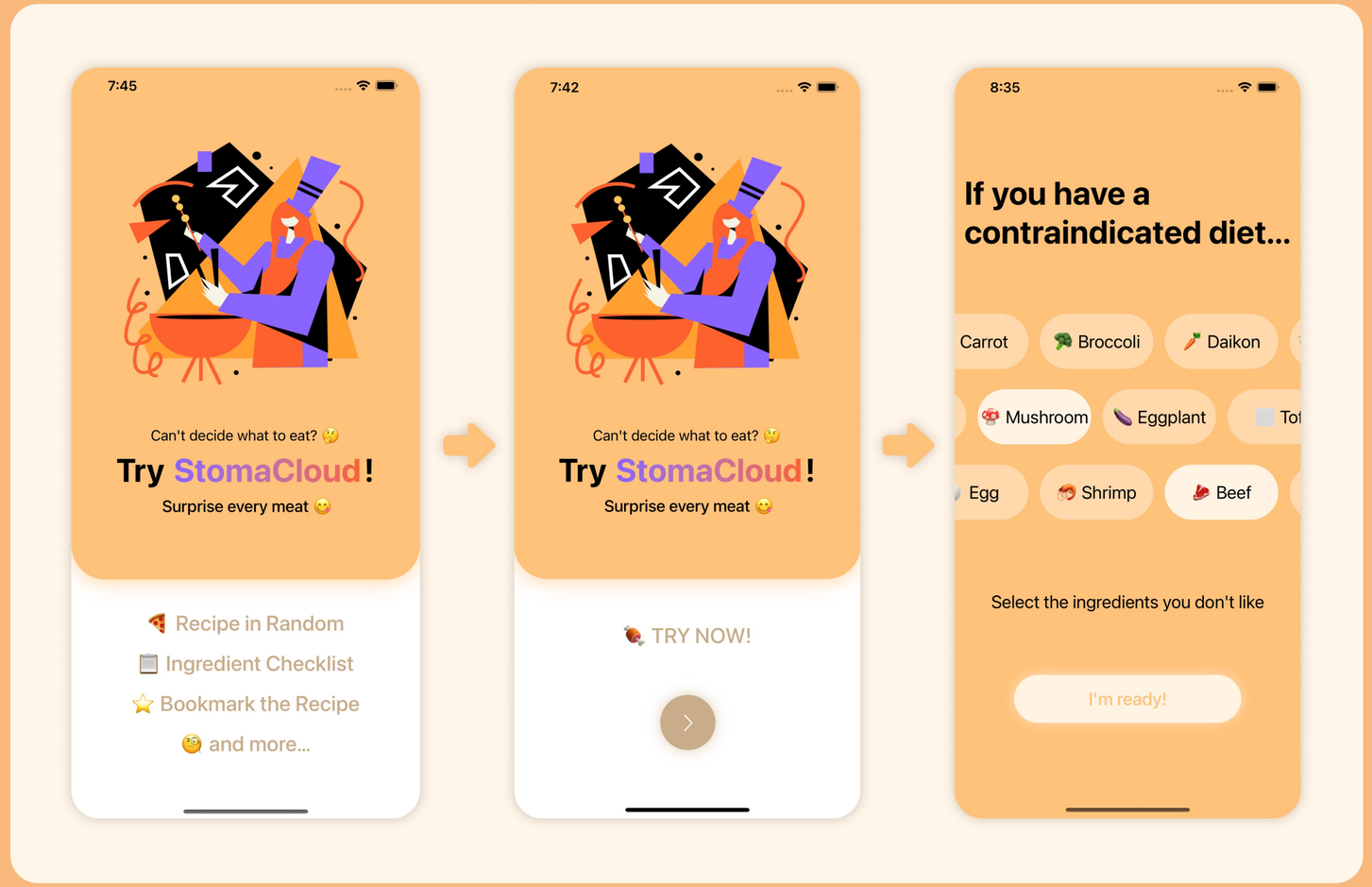
Welcome Page

Features Introduction

When users open this app for the first time, the description of main features will display on the screen.

Preferences Choosing

Users can choose their contraindicated ingredients here. The selected ingredients will not appear in subsequent uses. Users can change this in blacklist settings later.



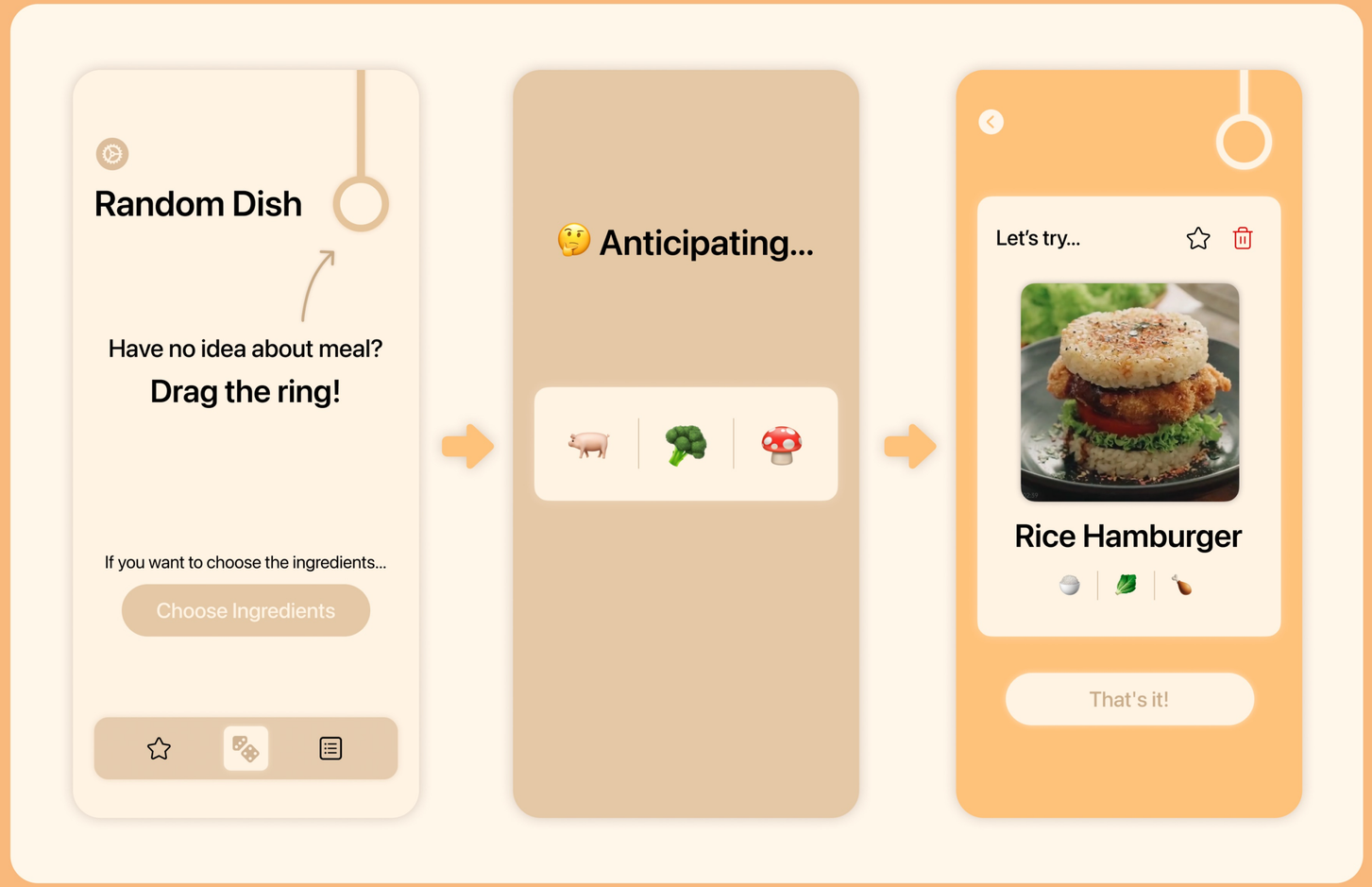
Home Page & Random Selecting

Random Selecting

Users can drag the ring to start the random selecting process. The slot-machine-liked animation will appear for seconds, and the final result of dish will be shown. Users can press the star bottom and collect it, or press the trash and send it to the blacklist if they don’t like the dish.

Choose Ingredients

Users can choose the ingredients they want to have in the dish before dragging the ring. This will be the condition of selecting dishes from database.



Recipe Page

Ingredients Checklist

Users can check the general list of ingredients needed here. We provide buttons that link to food delivery platforms, so they can search for the ingredients they want immediately. The checklist will support Live Activity in iOS 16 and Dynamic Island on iPhone 14 Pro so that users can check this list in any app without going back to StomaCloud.

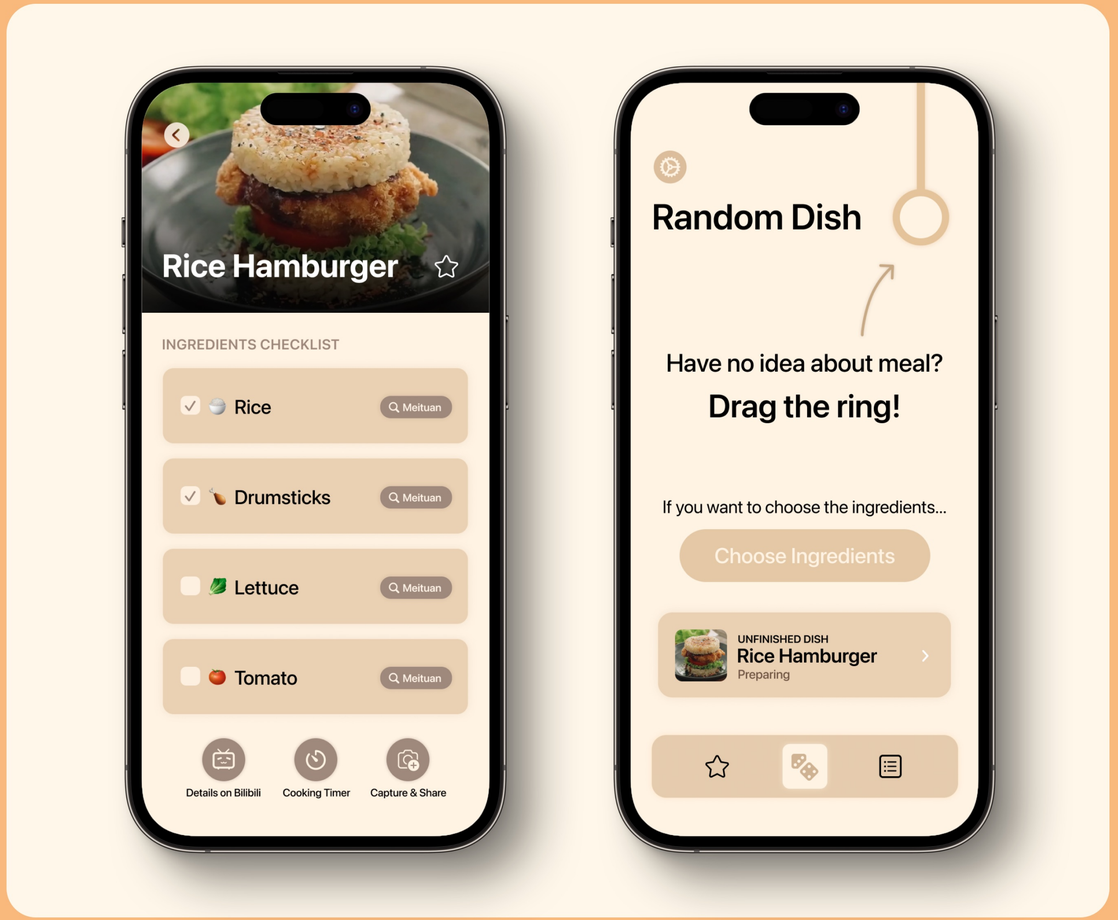
If StomaCloud is terminate before finish the cooking, users can back to the recipe page immediately with the entrance on home page.

Details on Bilibili

It is hard for us to provide thousands of detailed recipes, so we provide the corresponding video from Bilibili to let users know more about this dish, including the detailed ingredient list and cooking method.

Other functions

We also provide another two functions, the cooking timer and the camera designed for picturing the food users make. I will introduce them on the next page.



Other Features

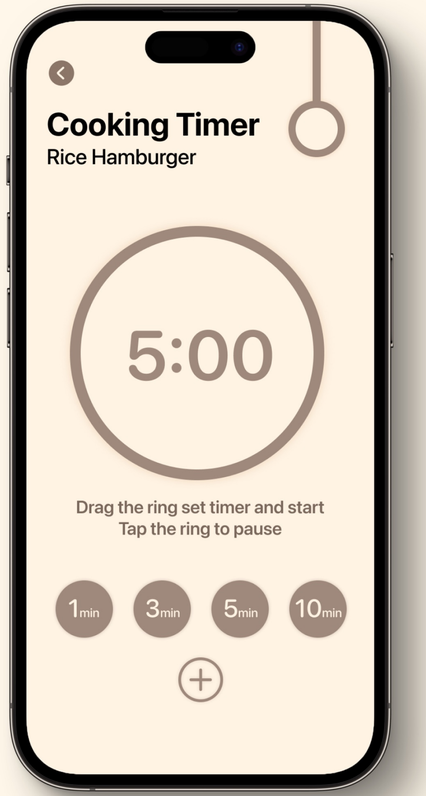
Cooking Timer

The cooking timer allows the user to set a countdown timer while cooking, such as frying a steak. Users can tap the number in the center or drag the ring to set the timer. Several time presets are provided, and users can also add some customized time presets. The timer will remember the settings for every dish users have cooked, so when users want to cook that dish again, they can start with their last setting immediately.

The Camera

We provide a camera for users to take photos of the food they cook. They can select the filter and frame that applies to the photo, capture it, then share it on social media.

The name of the dish, the main ingredients, the time, and the QR Code that links to the App Store page of StomaCloud will show at the bottom of this photo. This is an approach to promote this app.



All Dishes & Favorite Dishes

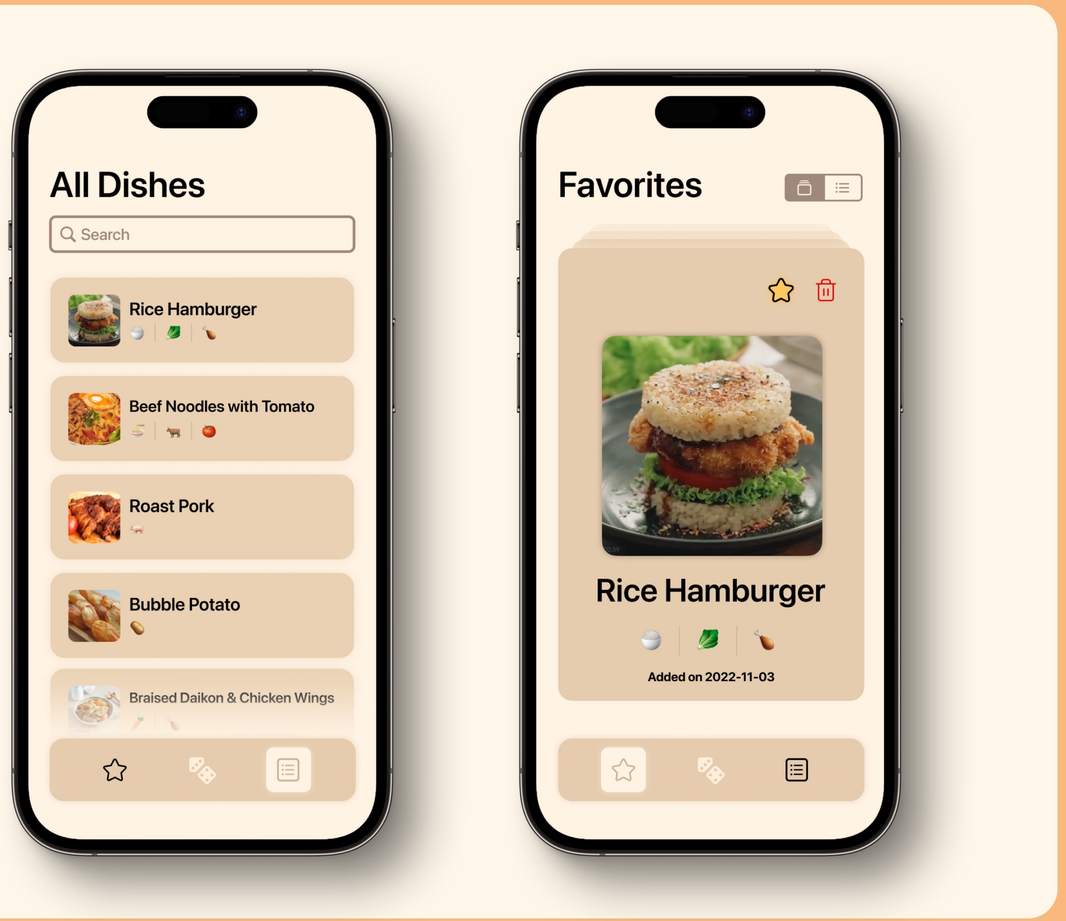
These are the another two main page of this app. Users can find the entries on the tab bar.

All Dishes

All the dishes in our database will be listed here. Users can search by name or ingredients to find the specific dish.

Favorite Dishes

The dishes users liked will be shown here as cards. Users can swipe to view the next or previous card. They can switch to the list view if they like.



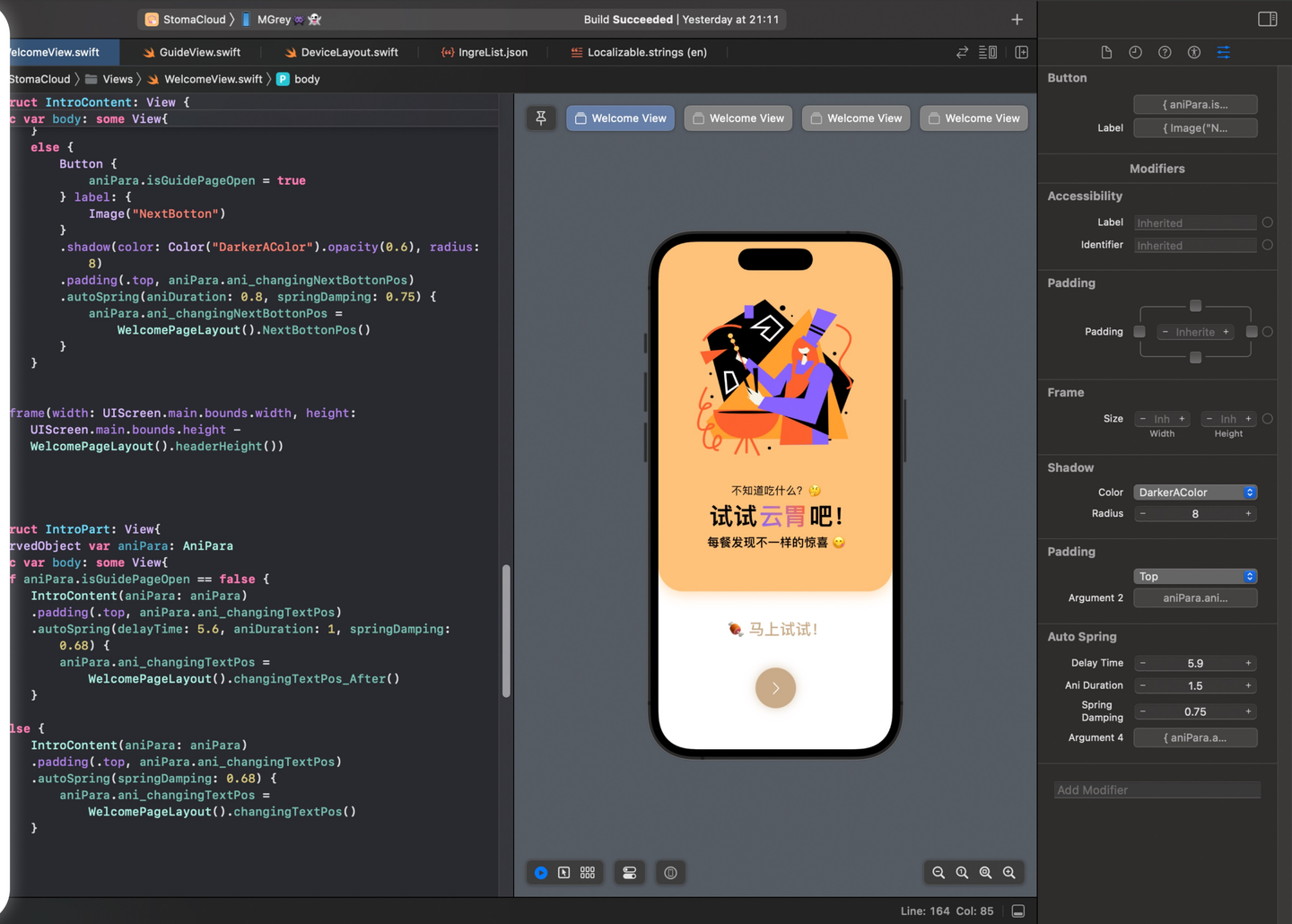
Summary & Future Works

StomaCloud is another big step on my road of app development, also the first time I create an app that needs content operation.

From the aspect of product manager, I try to manage the resources better with the gained experiences during the internship. We have many ideas about this app's functions at the beginning. Based on the positioning and goal of this app, as well as our ability in app development and data processing, I filtered out the features that users most need and within our development ability. The simplification of functions and usage logic will greatly enhance the user experience and help them focus on the core functions without causing too much distress to our development.

From the aspect of development, this is the chance to challenge myself. I start to create more delicate UI and animations by coding with SwiftUI, and I try to integrate more mature functions into my app, such as database processing.

In the future, we will make more tools to help us automatically process the information and data, just like what I've done in the internship. Our plan includes developing the tools that automatically complete the user-submitted recipe information by finding related videos on Bilibili. What's more, we will contribute these tools, and the user-submitted recipes to the original dataset, as our appreciation to this open-source project that helps us greatly.



Color Scheme

Font

San Francisco Pro Display (Apple)

Supported OS

iOS 15+ / iPadOS 15+

StomaCloud

Haoyang Sun's

Portfolio