

Design Document for 20241021 Konoha Kai Series of Websites

Konoha Kai Series of Websites

Guangkai Shang

Department of Computer Science, SWJTU-Leeds Joint School

Date: 18-12-2024

Contents

1	Introduction	1
2	Wireframe Model (New features)	1
2.1	Navigation Bar (New features)	1
2.2	Homepage (New features)	2
2.3	Learn Editing Page (New features)	3
2.4	Equipment Library Page (New features)	3
2.5	About page(New features)	4
2.6	Login and Sign up Page (New features)	5
3	Intended Additional Features and Benefits	5
3.1	Updates to the Navigation Bar	5
3.1.1	Pop-up Summary	5
3.1.2	Login Button:	5
3.1.3	Responsive Layout:	6
3.2	Updates to the Homepage	6
3.2.1	Crossfade Carousel:	6
3.2.2	Pop-up Detail Box:	6
3.3	Updates to the Learn-edit Page	6
3.3.1	Side-by-side Comparison:	6
3.3.2	Drag-and-Drop Image for Filter Comparison:	7
3.3.3	Drag-and-Drop Image for Filter Comparison:	7
3.4	Updates to the Learn-eqpt Page	7
3.4.1	Parameter Comparison Module:	7
3.5	Updates to the About Page	8
3.5.1	Card Animation	8
3.6	Added the Registration and Login Page	8
4	Evaluation	8
4.1	Navigation Bar	9
4.2	Homepage	9
4.3	Learn-edit Page	9
4.4	Learn-eqpt Page	9
4.5	About Page	9
4.6	Login and Sign Up Page	10
5	Test Process	10
5.1	Basic Functionality Testing	10

5.1.1	Function Testing	10
5.1.2	Error and Warning Checks	10
5.1.3	New Feature Testing	10
5.2	Testing across Different Browsers	12
5.3	Color test based on WCAG guidelines	13
5.3.1	Color Contrast Assessment	13
5.3.2	Simulating Visual Impairment	14
6	Future considerations for additions	16

1 Introduction

The purpose of this design document is to introduce the new features of the 20241021 Konoha Kai Series of Websites. It will provide an overview of the new features and explain what the new features do to the site. Also provide justification for any design decisions I make. Finally, it provides an assessment of the impact of performance on the network and detailed testing

2 Wireframe Model (New features)

2.1 Navigation Bar (New features)

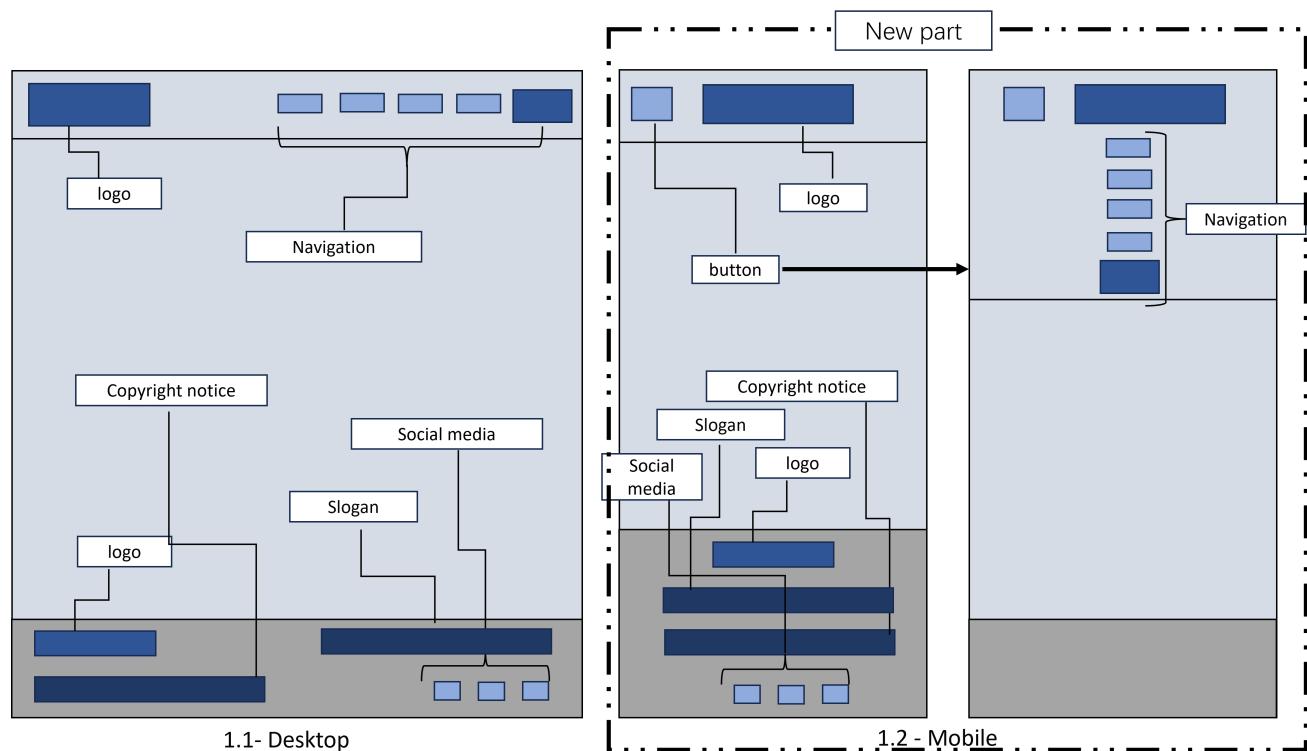


Figure 1: Responsive Navigation Bar (Based on bootstrap)

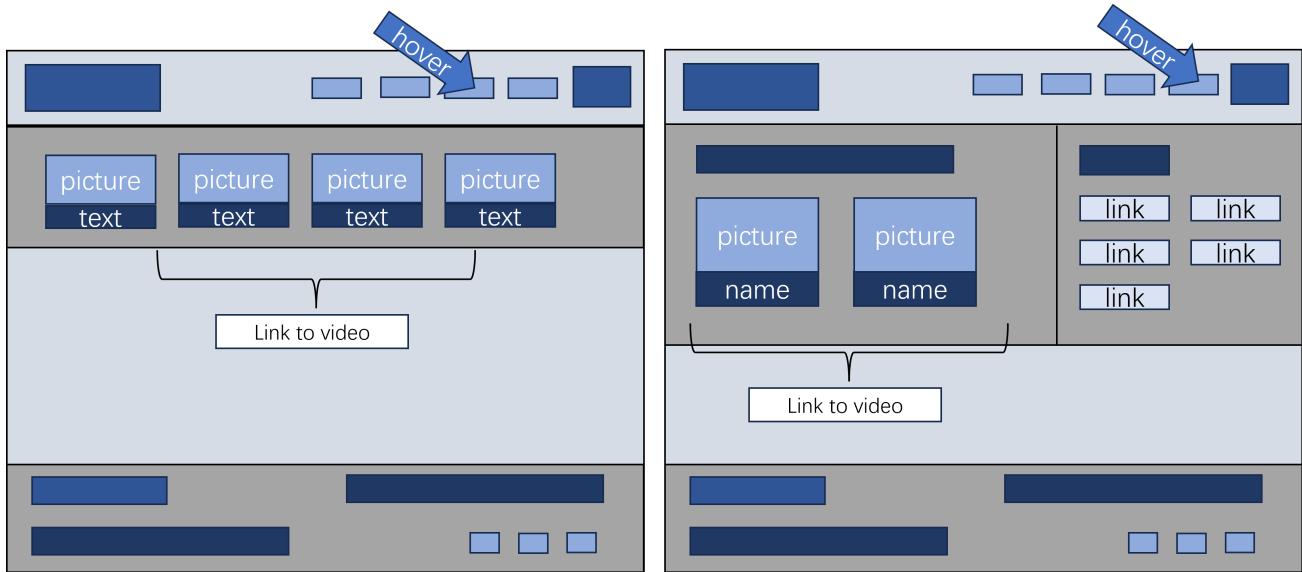


Figure 2: Navigation Bar (Pop up when the mouse is in hover)

2.2 Homepage (New features)

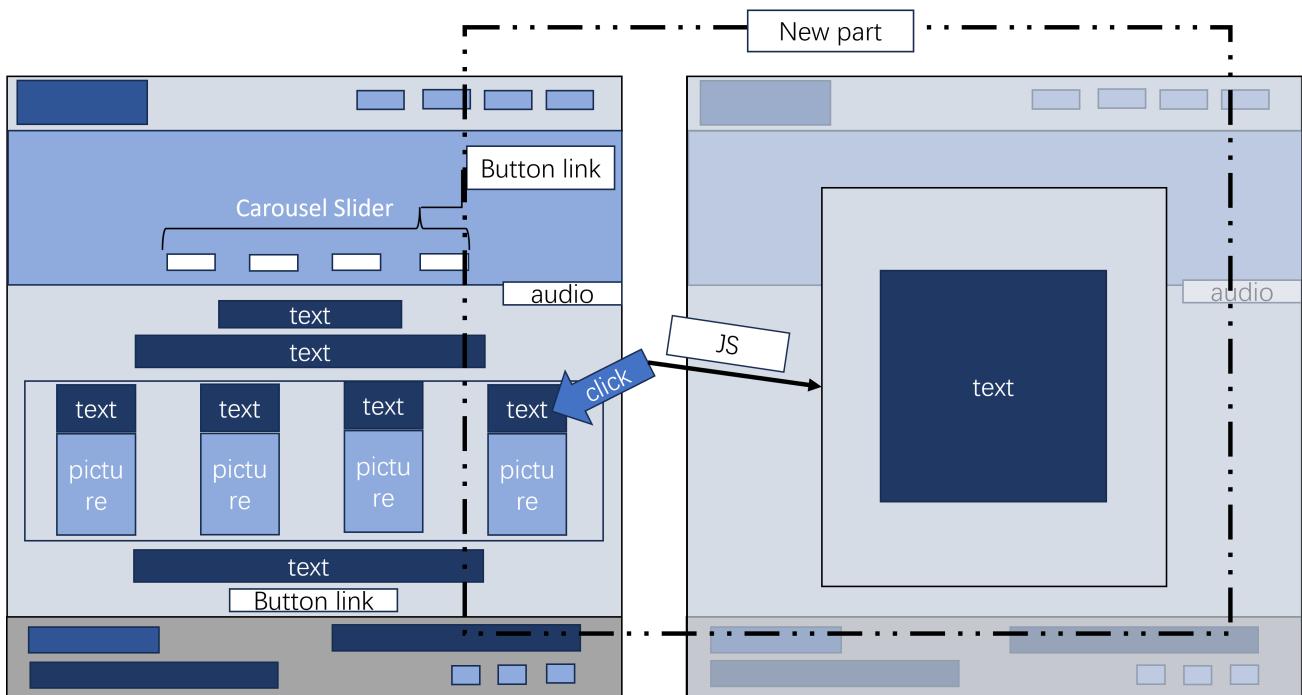


Figure 3: Homepage (Click to pop up details based on JS)

2.3 Learn Editing Page (New features)

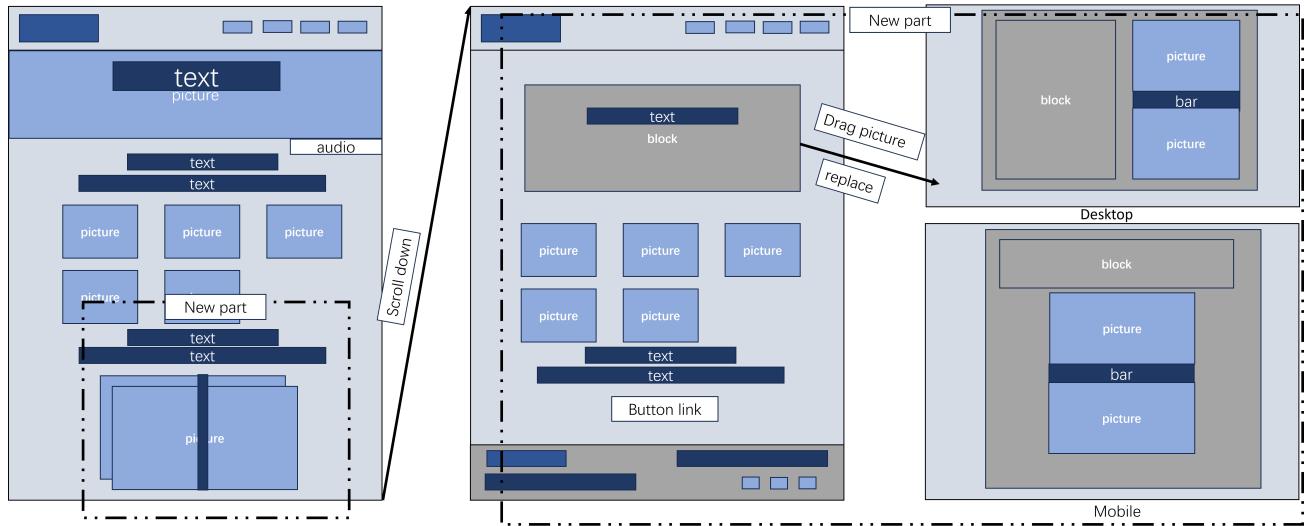


Figure 4: Learn Editing Page (Color Correction Before and After Comparison)

2.4 Equipment Library Page (New features)

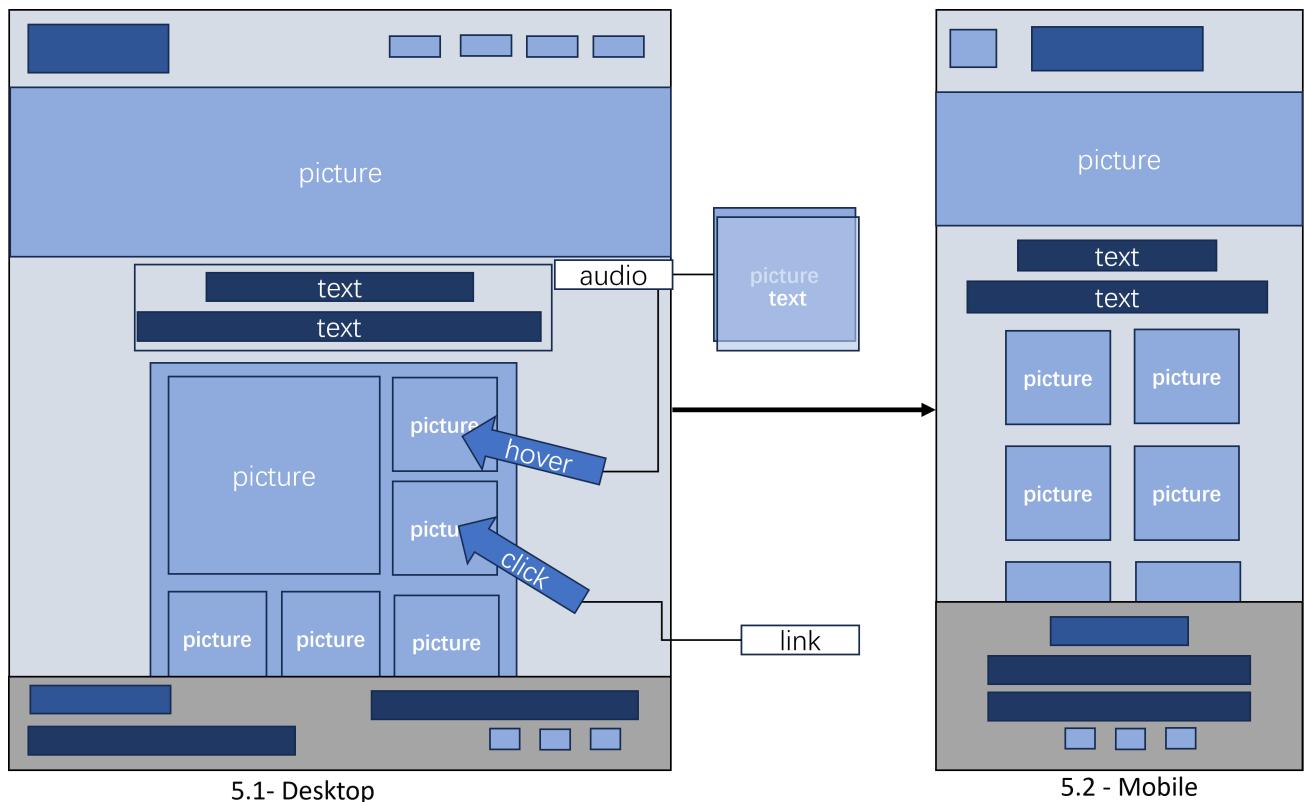


Figure 5: Equipment Library Page (Use grid formatting)

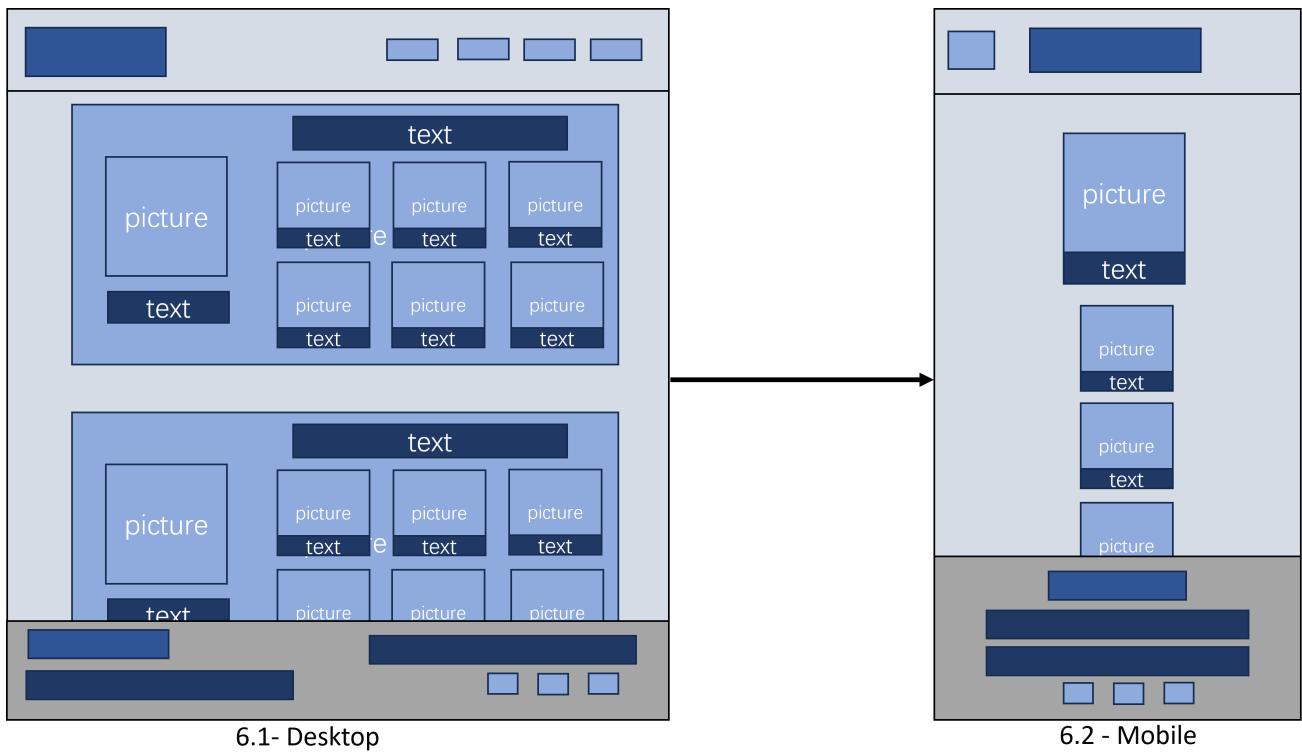


Figure 6: Equipment Library Page (Use bootstrap-grid formatting)

2.5 About page(New features)

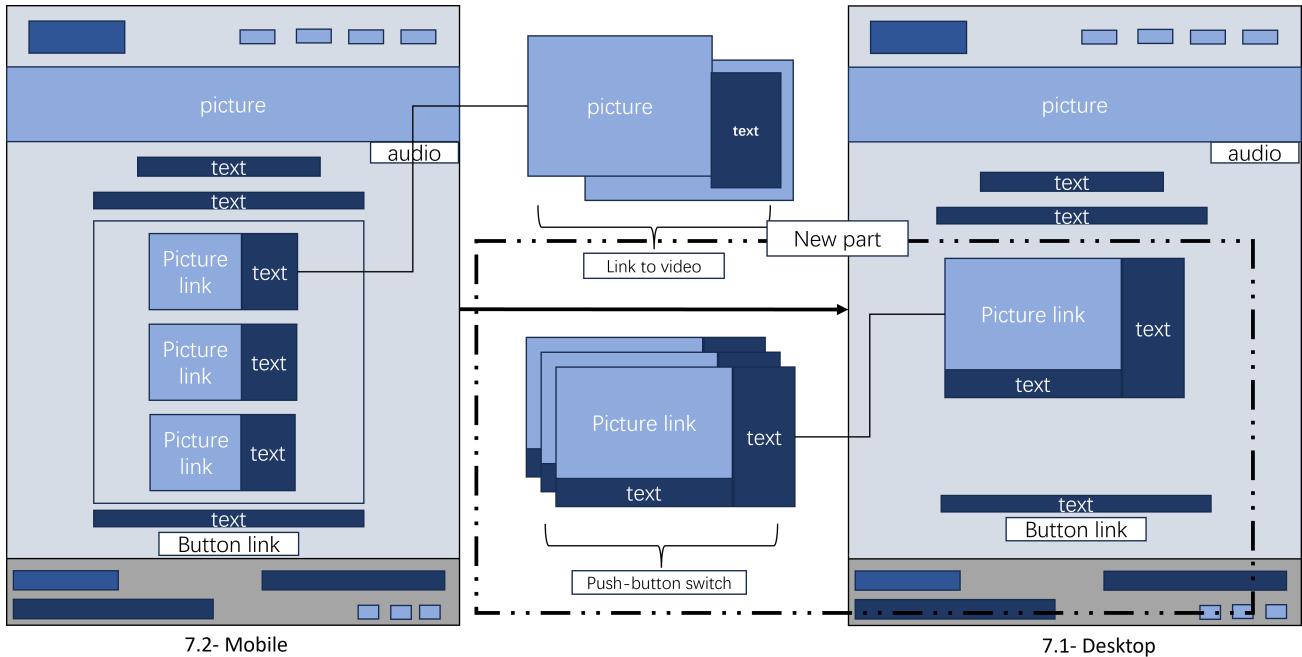


Figure 7: About Page(Card-animation)

2.6 Login and Sign up Page (New features)

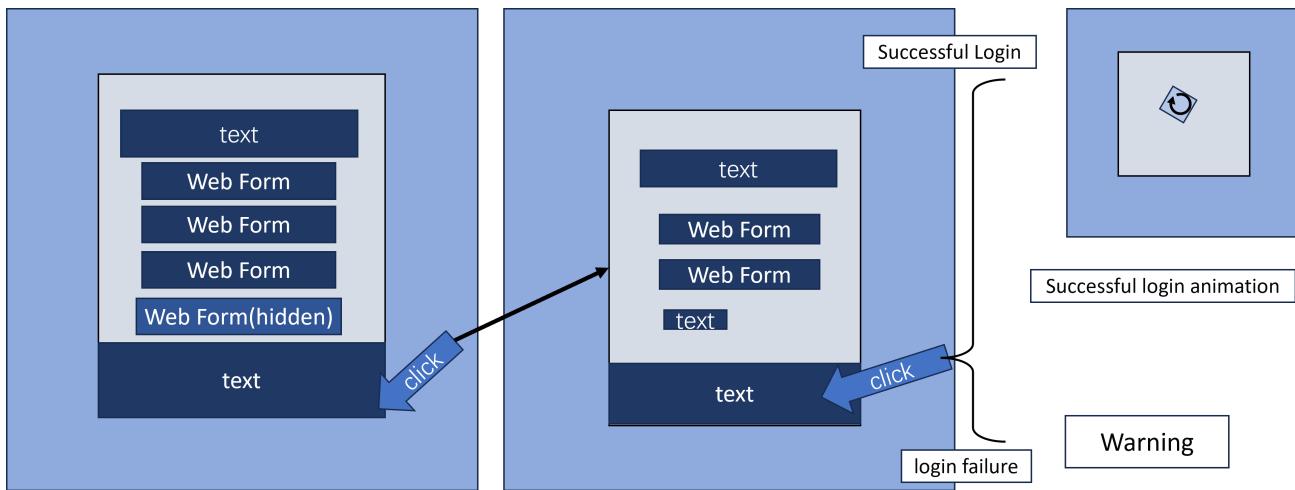


Figure 8: Login and Sign up Page

3 Intended Additional Features and Benefits

3.1 Updates to the Navigation Bar

3.1.1 Pop-up Summary

New technology: **JavaScript & jQuery, Bootstrap**

- **Justification:** The web summary that pops up in the navigation bar allows users to preview the webpage they are about to visit, giving them a clearer understanding of the structure of the webpage. The original navigation bar was entirely made with CSS and HTML, which sometimes led to unexpected effects. Using new technologies like JavaScript and jQuery can make the animations more in line with expectations, ensuring that the animations meet the desired outcomes.
- **Benefit:** The new navigation bar can make animations smoother, avoiding the discomfort in web interaction that was caused by the inability to linger when calling up the navigation bar with hover in the past.

3.1.2 Login Button:

- **Justification:** Considering that login and registration pages will be added in the future, it is advisable to consider adding a login button.
- **Benefit:** A new login button has been added, making it clear for users to see the composition of the entire website's web pages.

3.1.3 Responsive Layout:

New technology: **JavaScript & jQuery, Bootstrap**

- **Justification:** Although solutions were previously provided for mobile users and narrower screens, the limited technology available at the time resulted in a somewhat peculiar interaction logic. Additionally, when users interacted with the navigation bar, the web page would always automatically scroll to the lower half of the page. Therefore, it is necessary to modify the navigation bar to better conform to the interaction logic of mobile devices.
- **Benefit:** After rewriting with Bootstrap and JavaScript, the new navigation bar can better adapt to screens of different widths. When the screen width decreases, the navigation bar's style will change to a layout that is more user-friendly for mobile users with narrower screens, which helps to improve the user experience.

3.2 Updates to the Homepage

3.2.1 Crossfade Carousel:

New technology: **JavaScript & jQuery , Bootstrap**

- **Justification:** Placing the carousel at the forefront of the webpage can capture users' attention. Users can directly understand the main content of the webpage through the images in the carousel and quickly find the sections that interest them. However, the original version could only use CSS, which made it difficult to create an automated carousel, and the original version only allowed switching to the next image by clicking buttons, which is not conducive to user experience. Therefore, the webpage urgently needs an automated carousel solution that enables users to see different rotating images directly without any operation.
- **Benefit:** Unlike the previous version of the carousel, this one uses crossfade, and by leveraging JavaScript and Bootstrap's built-in components, the transition between images is smoother.

3.2.2 Pop-up Detail Box:

New technology: **JavaScript & jQuery**

- **Justification:** The original pop-up only used CSS, which made the pop-up and its content relatively isolated, necessitating a rewrite.
- **Benefit:** The pop-up detail box was rewritten using js to make it more adaptable to responsive layout.

3.3 Updates to the Learn-edit Page

3.3.1 Side-by-side Comparison:

New technology: **JavaScript**

- **Justification:** Users often find it difficult to understand the significance of color grading based solely on verbal descriptions. Therefore, users need a visual comparison to see the differences before and after color grading to better comprehend the importance of color grading.
- **Benefit:** I have incorporated a feature that allows for a side-by-side comparison between the before and after effects of color grading, making the contrast more striking. Users can drag a white vertical line to compare different areas of the image. Considering users with small screens, I have specifically changed the way users compare images when the screen size is reduced. Instead of dragging a white line, users can now click to switch between images for comparison. At the same time, bootstrap was used for adaptation processing in different screen sizes, which is one style in the especially small screen and another style in the small and above screen

3.3.2 Drag-and-Drop Image for Filter Comparison:

New technology: **JavaScript & jQuery , Drag and Drop API**

- **Justification:** It might be difficult to discern the significance of these parameters for color grading just by looking at the images we provide. Therefore, we need to involve users in practice. We can allow users to drag their own local images to the corresponding position and provide relevant parameter options so that users can see the impact of setting different saturation parameters during color grading on the images. This will help them to better get started.
- **Benefit:** Users can now drag their own original images onto the webpage for comparison, enhancing customization. They can intuitively see the differences between the original and adjusted images, which is more conducive to understanding the significance of color grading. This feature utilizes the advanced web functionality - Drag and Drop API. Such responsive design is beneficial for user experience.

3.3.3 Drag-and-Drop Image for Filter Comparison:

New technology: **Bootstrap**

- **Justification:** In the original website, there was a dedicated page to introduce my favorite content creators, but in order to make the website's focus clearer, I removed that page. However, I still need to encourage users to learn from outstanding video creators, so to make the presentation more vivid, I added images.
- **Benefit:** In order to make the layout of photos and text more harmonious, I utilized Bootstrap's responsive layout. This allows users to navigate the website more comfortably.

3.4 Updates to the Learn-eqpt Page

3.4.1 Parameter Comparison Module:

New technology: **Bootstrap**

- **Justification:** Although many photography equipment have been mentioned above, to get started, one still needs a camera that suits oneself. Therefore, this section can help you find a more suitable camera by comparing parameters.
- **Benefit:** In order to facilitate users to choose a more suitable camera, I made a parameter comparison module using bootstrap, so that users can intuitively see different parameters of different cameras for their own purchase. At the same time, the responsive layout using the bootstrap grid increases usability for mobile users.

3.5 Updates to the About Page

3.5.1 Card Animation

New technology: **JavaScript & jQuery**

- **Justification:** The previous paragraph layout lacked interactivity, requiring a more vivid way to attract users to watch.
- **Benefit:** The card animation presentation method has been adopted. Users can click a button to switch to the next image or click on a card to expand detailed information. Users can choose to browse quickly or watch the story behind the video in detail according to their needs. At the same time, Bootstrap is used for layout design, adopting the initial presentation method on small screens to facilitate user viewing.

3.6 Added the Registration and Login Page

New technology: **JavaScript & jQuery , Bootstrap , Web Storage API , Web Forms**

- **Justification:** A comprehensive website must have a user login interface to facilitate personalized recommendations later on.
- **Benefit:** Users can register for an account on this page by filling in their username, password, email, and the device they use. After successful registration, they will be redirected directly to the login page. The website stores this data through a form. This allows for the registration of user information, preparing for future personalized recommendations. After successful registration, a form can be generated to store the account and password. Upon logging in, if the password matches the account, a successful login JavaScript animation will play, and the user will be redirected to the homepage. This design makes the feedback for a successful login more pronounced.

4 Evaluation

The performance mentioned in the previous text has basically met expectations.

4.1 Navigation Bar

The navigation bar is now very comprehensive, capable of summarizing all web pages together and providing a preview of the content of the web page that users are about to visit.

The responsive design makes it more comfortable for mobile users. In particular, the new design of the navigation bar pop-up makes the web page more practical.

4.2 Homepage

The homepage serves to promote the website and guide users through their browsing experience.

The addition of the new automatic carousel feature allows images to switch automatically, enhancing the website's appeal. This makes it easier and faster for users to understand the content of the website, thereby increasing its attractiveness.

The newly added JavaScript pop-up design enhances interaction with users. Users can click on the content that interests them to learn more details. Alternatively, they can choose not to click and simply browse the website.

4.3 Learn-edit Page

This page effectively teaches users the basic knowledge needed to get started with video editing.

The original web page only provided learning videos, lacking in interactivity. In the new web page, we have added two comparison charts that intuitively teach users about the commonly used concepts of "saturation" and color grading in video editing. These two features meet the expected effects very well.

4.4 Learn-eqpt Page

This page effectively teaches users about the commonly used equipment in the film and television industry, and the interactive layout enhances interactivity. It attracts users to learn through interaction.

Its new features also provide camera selection for users who want to get started. The responsiveness of this page is well done, and the layout is very conducive to users comparing different photographic equipment. Users have a good experience on both mobile and PC ends.

4.5 About Page

This page introduces the video production experience of the web creator (me). Originally, the content was simply listed, but now the addition of card displays can increase user interest in reading through interaction. Additionally, the page has been made responsive for mobile devices. On mobile devices, due to the greater screen space required by cards, the content will be displayed in the same way as before.

4.6 Login and Sign Up Page

The webpage has successfully implemented the login functionality for registered accounts by utilizing advanced web features—such as localStorage. This is beneficial for:

- Personalized Services: The website can provide personalized content and recommendations based on the user's login status.
- Data Persistence: User preferences can be maintained across different sessions, enhancing the persistence of data.

Through these methods, web storage not only enhances the convenience of user login but also offers more room for functional expansion on the website, making the website services more comprehensive and refined.

5 Test Process

5.1 Basic Functionality Testing

5.1.1 Function Testing

All web pages have been tested, and it has been found that all web page functionalities are operating normally. The screenshots of the web pages are as follows:

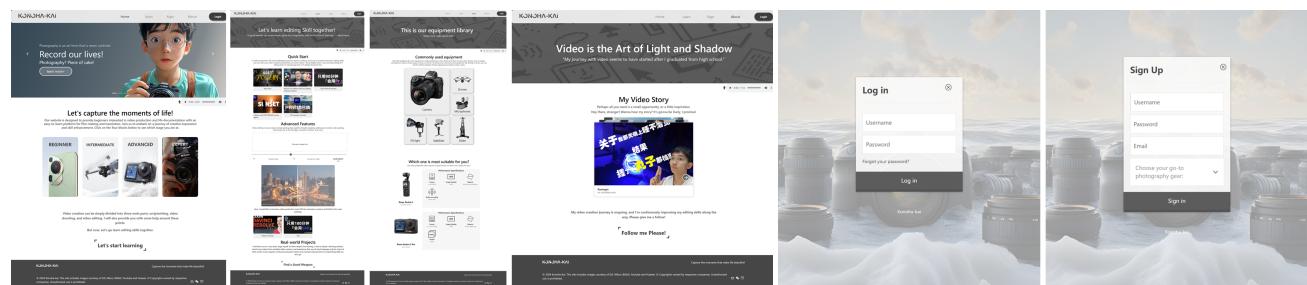


Figure 9: Overview of all Web Pages

5.1.2 Error and Warning Checks

Here, I have used Edge browser and Firefox browser for issue checking. After troubleshooting, there are no warnings or errors in the console terminal.

5.1.3 New Feature Testing

I have tested the responsiveness and functionality of all the web pages in sequence.

- **Navigation Bar:** After testing, the navigation bar's login button, pop-up animation, and responsive layout are all functioning normally.

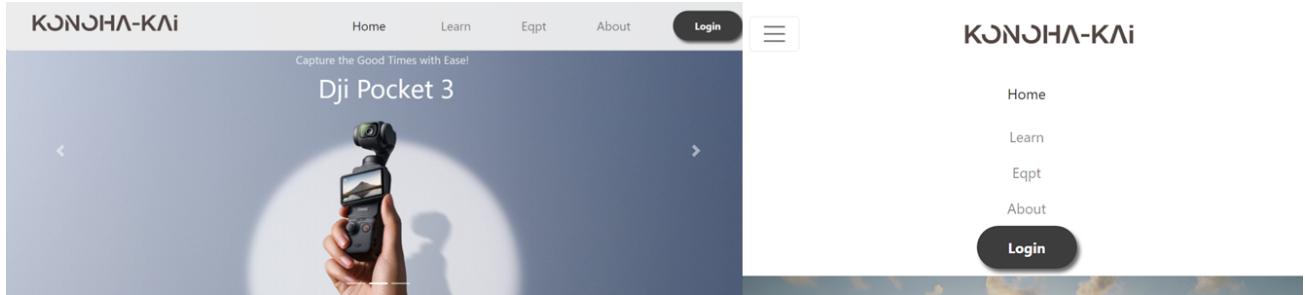


Figure 10: Test navigation bar

- **Homepage:** After testing, the homepage's carousel and pop-up detail box are both functioning properly.



Figure 11: Test carousel and pop-up detail box

- **Learn-edit Page:** After testing, both comparison images are normal, and it is possible to drag local files onto the webpage as well as use the comparison feature normally.



Figure 12: Test Comparison Images

- **Learn-eqpt Page:** After testing, the newly added parameter comparison layout is normal, and the layout remains normal after the response.

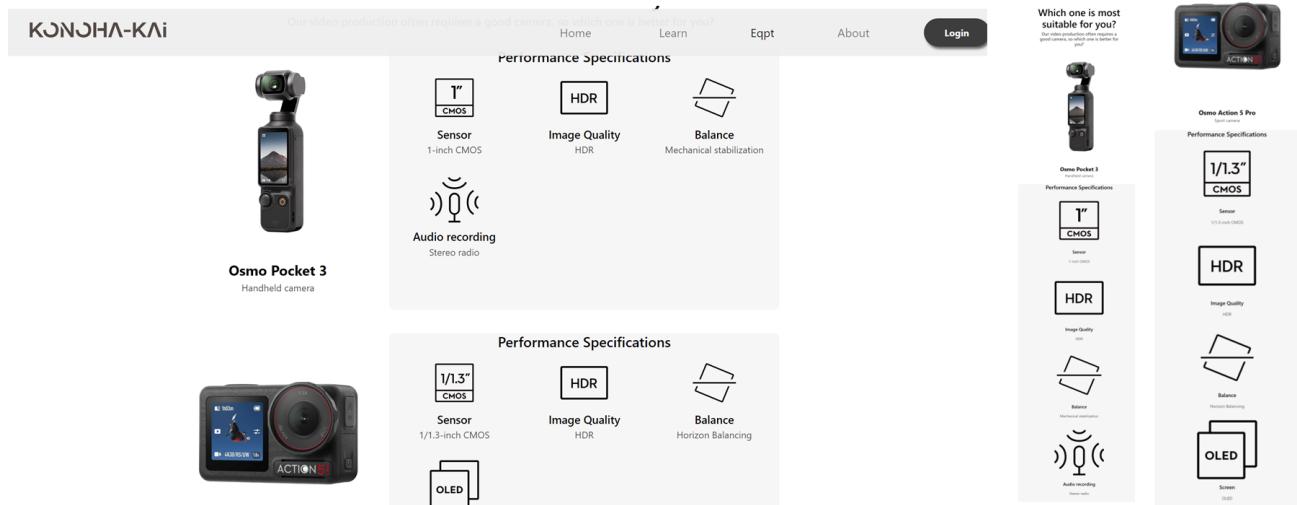


Figure 13: Test Parameter Comparison Layout

- **Login and Sign up Page:** After testing, it is possible to log in successfully using the registered password and account.

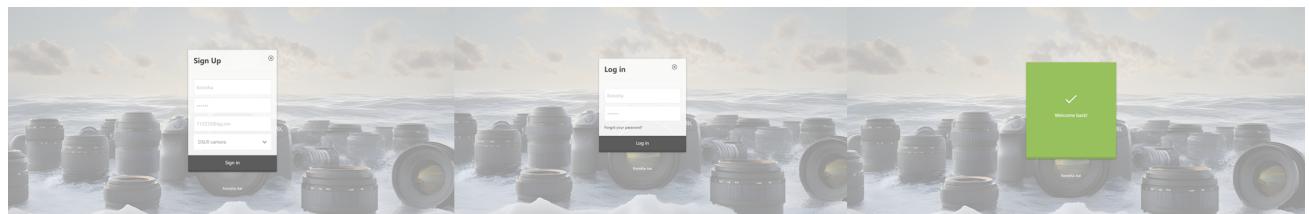


Figure 14: Test Sign up and Login

5.2 Testing across Different Browsers

Tests were conducted across a spectrum of prevalent web browsers, encompassing Microsoft Edge, Google Chrome, Sogou, Mozilla Firefox, and Tencent QQ Browser.

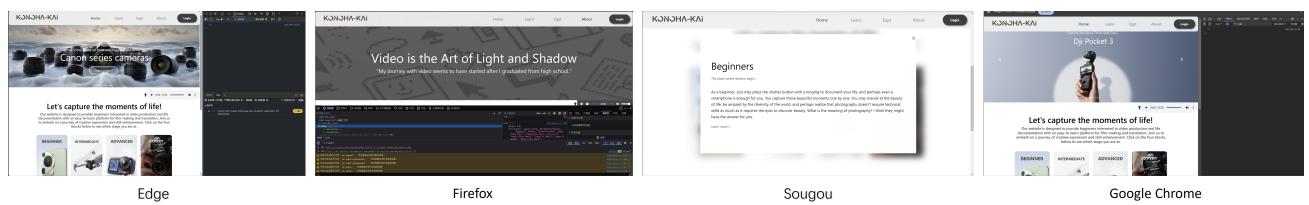


Figure 15: Test Browsers

The test results are as follows:

Table 1: The number of Error and Warning Messages in Different Browsers

Browser Name	Edge	Google Chrome	Sogou	QQ Browser	Mozilla Firefox
CSS Warning	None	None	None	None	None
CSS Error Adjacent Text	None	None	None	None	None
Console Warning	None	None	1	1	1
Console Error	None	None	1	None	None

- The error reported by Sogou Browser is "Unchecked runtime.lastError: Could not establish connection. Receiving end does not exist." Upon researching, it was discovered that this issue stems from conflicts caused by an excess of built-in plugins within Sogou Browser, yet it does not impede the normal functionality.
- The common warning in QQ Browser, Firefox, and Sogou Browser is "DevTools failed to load source map." There is no corresponding SourceMap file in the project, hence this exception is thrown, but it does not affect usage, so no action is taken.

All reported errors and warnings are **NOT** related to **JavaScript or CSS errors or warnings**.

5.3 Color test based on WCAG guidelines

5.3.1 Color Contrast Assessment

In the preceding discourse on chromatic elements, the concept of color was broached. A rigorous assessment of color contrast has been executed, employing the WCAG (Web Content Accessibility Guidelines) as the benchmark for measurement. The tabulated data below delineates the findings of this evaluation:

Table 2: WCAG Standards Compliance

Text Element	Foreground	Background	Contrast	WCAG Text	WCAG Headlines
Main Heading	#FFFFFF	#5C5C5C	6.6	AA	AAA
Main Heading Adjacent Text	#F3F3F3	#5C5C5C	6.0	AA	AAA
Subheadings	#000000	#F0F0F0	18.4	AAA	AAA
Text Content	#494949	#F0F0F0	7.9	AAA	AAA
Copyright	#FFFFFF	#464646	9.4	AAA	AAA

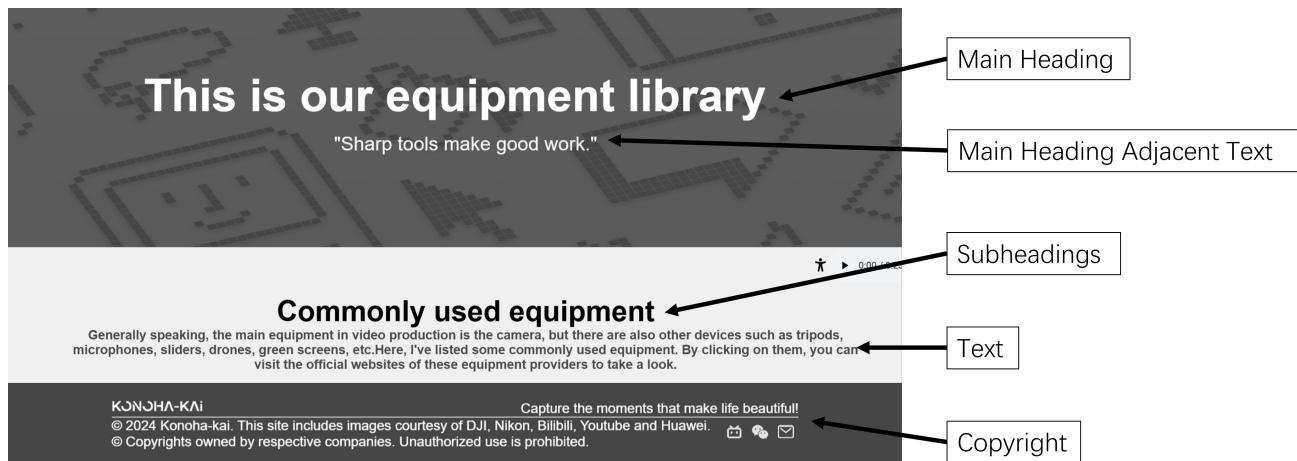


Figure 16: Font Size and Color Display on the webpage

We observe that the textual content on the webpage conforms to at least the AA criteria of the Web Content Accessibility Guidelines (WCAG), signifying that the webpage is accessible to users with visual impairments.

In light of the filter modification discussed in the Evaluation, I have conducted corresponding tests. Given that the background is an image-based, I elected to assess the area with the minimum contrast. The outcomes of these tests are delineated in the subsequent table.

Table 3: WCAG Standards Compliance(Pictures as Background)

Text Element	Foreground	Background	Contrast	WCAG Text	WCAG Headlines
The first image	#FFFFFF	#494950	8.9	AAA	AAA
The second image	#FFFFFF	#525357	7.6	AAA	AAA
the third image	#FFFFFF	#78746E	4.6	AA	AAA

The analysis reveals that the chromatic properties of the font continue to adhere to the established guidelines.

5.3.2 Simulating Visual Impairment

The simulation of blurred vision, red blindness, green blindness, and blue blindness was conducted utilizing Edge's rendering components. The findings indicate that the website is accessible to individuals with these specific visual impairments.



Figure 17: Simulated Blurred Vision

Detection of Simulated Blurred Vision The figure illustrates the simulation of visual impairments, revealing that titles are clearly visible, but the rest of the content is challenging to read for this demographic. The accessibility button, previously designed, is crucial here; it enables the auditory presentation of web content, assisting these users in reading and navigating the webpage.

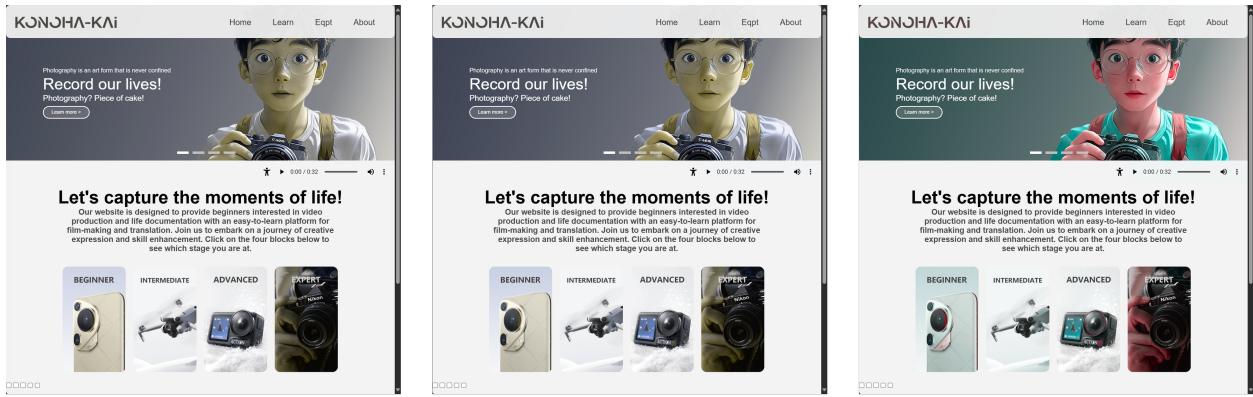


Figure 18: Simulated Monochromacy

Detection of Simulated Monochromacy In this experiment, three forms of color blindness were simulated. As the website's text is exclusively in white and black and color is not used to convey information, reading is not impacted by these conditions.



Figure 19: Simulated Monochromacy

Detection of Simulated Total Color Blindness In this analysis, complete color blindness was simulated. Given that the website's text is restricted to white and black, and color is not a medium for information, reading comprehension remains unaffected. The contrast ratios and adherence to WCAG standards under this full-color blindness scenario are detailed below:

Table 4: WCAG Standards Compliance

Text Element	Foreground	Background	Contrast	WCAG Text	WCAG Headlines
Main Heading	#FFFFFF	#5C5C5C	6.6	AA	AAA
Main Heading Adjacent Text	#F3F3F3	#5C5C5C	6.0	AA	AAA
Subheadings	#000000	#F0F0F0	18.4	AAA	AAA
Text Content	#494949	#F0F0F0	7.9	AAA	AAA
Copyright	#FFFFFF	#464646	9.4	AAA	AAA

Because the color scheme of the text is all gray or white, the simulation test results are consistent with the normal situation.

The test results for the text on the image are as follows:

Table 5: WCAG Standards Compliance(Pictures as Background)

Text Element	Foreground	Background	Contrast	WCAG Text	WCAG Headlines
The first image	#FFFFFF	#494949	8.9	AAA	AAA
The second image	#FFFFFF	#525252	7.8	AAA	AAA
the third image	#FFFFFF	#5D5D5D	6.5	AA	AAA

The test outcomes indicate that the contrast has been enhanced from the perspective of complete color blindness, thereby enabling individuals with this condition to perceive the content with clarity.

6 Future considerations for additions

Below are the features that can be added in the future to enhance the user experience on the website.

- - Consider adding a community to help more photography enthusiasts learn from and understand each other.
- Consider the security of passwords and require users to set complex passwords.
- Consider saving accounts and passwords on the backend to make logging in truly meaningful.
- Consider adding email password recovery.
- Consider increasing the more detailed parameter comparisons, as the current comparison categories are limited.
- On the comparison panel, add the ability to drag in an image for simple automatic color adjustment, preferably using a consistent structure with the slider comparison below.

References

- [1] Dji mini 4 pro. <https://www.dji.com/cn/camera-drones?site=brandsite&from=nav>, 2023. Accessed on: 2024-10-21.
- [2] DJI. Dji mavic 3 pro. <https://www.dji.com/cn/camera-drones?site=brandsite&from=nav>, 2023. Accessed on: 2024-10-21.
- [3] DJI. Dji mic 2. https://www.dji.com/cn/mic-2?site=brandsite&from=landing_page, 2023. Accessed on: 2024-10-21.
- [4] DJI. Dji mic 2. https://www.dji.com/cn/mic-2?site=brandsite&from=landing_page, 2023. Accessed on: 2024-10-21.
- [5] DJI. Osmo action5 pro. <https://www.dji.com/cn/products/handheld-imaging-devices#action-series>, 2023. Accessed on: 2024-10-21.
- [6] DJI. Osmo pocket 3. <https://www.dji.com/cn/products/handheld-imaging-devices#pocket-series>, 2023. Accessed on: 2024-10-21.
- [7] Genji. Learn pr in 90 minutes. <https://www.bilibili.com/video/BV1K64y1r7pp/>, 2021. Accessed on: 2024-10-21.
- [8] S. Guangkai. Ai and the world. <https://www.bilibili.com/video/BV1W64y177BB/>, 2023. Accessed on: 2024-10-21.
- [9] S. Guangkai. Rasengan. <https://www.bilibili.com/video/BV14N4y1o78g/>, 2023. Accessed on: 2024-10-21.
- [10] S. Guangkai. Run with wind. <https://www.bilibili.com/video/BV1Ab4y1g7hK/>, 2023. Accessed on: 2024-10-21.
- [11] D. Heliyunduan. Rule of six. <https://www.bilibili.com/video/BV1sf4y1X7AD/>, 2020. Accessed on: 2024-10-21.
- [12] Nikon. Z8. https://www.nikon.com.cn/sc_CN/product/mirrorless/z-8, 2023. Accessed on: 2024-10-21.
- [13] M. Storm. Davinci or pr. <https://www.bilibili.com/video/BV1Gt411m7qE/>, 2023. Accessed on: 2024-10-21.
- [14] M. Storm. We have purchased a domestic satellite! <https://www.bilibili.com/video/BV1Ec411z7j2/>, 2023. Accessed on: 2024-10-21.
- [15] M. Storm. iphone 16 pro review. <https://www.bilibili.com/video/BV1yXtjeSEDZ/>, 2024. Accessed on: 2024-10-21.
- [16] M. Storm. The most interesting drone? hands-on with the dji neo drone. <https://www.bilibili.com/video/BV1JTp3e7Eok/>, 2024. Accessed on: 2024-10-21.

-
- [17] M. Storm. We interviewed apple's ceo. <https://www.bilibili.com/video/BV1t64bepEkr/>, 2024. Accessed on: 2024-10-21.
 - [18] H. Tongxue. 5g is how fast? <https://www.bilibili.com/video/BV1f4411M7QC/>, 2019. Accessed on: 2024-10-21.
 - [19] H. Tongxue. I've made a product that apple has given up on. <https://www.bilibili.com/video/BV19v411M7Rs/>, 2021. Accessed on: 2024-10-21.
 - [20] H. Tongxue. Mate 60 series experience. <https://www.bilibili.com/video/BV1H84y127ym/>, 2024. Accessed on: 2024-10-21.
 - [21] A. tutorials. Pr transition tutorials. <https://www.bilibili.com/video/BV13V411a7t5/>, 2020. Accessed on: 2024-10-21.
 - [22] A. tutorials. C4d tutorials. <https://www.bilibili.com/video/BV1Xm4y1b75z/>, 2023. Accessed on: 2024-10-21.