Design and Creation of a Making Platform for Intelligent Media Mobile Phone Pages

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Abstract

The paper analyzes the demands of a making platform for intelligent media mobile phone pages mainly from three aspects: product features, product performance and user experience. Based on the demands, the design style of the page, the design of the structure and the database are introduced. Finally, some modules, such as login module, category management module, reuse template module, editing area module, preview function module and user center module, are designed and implemented. The making platform for intelligent media mobile phone pages can make the user experience the feelings like those of IT developers creating works. Users do not need programming to easily create the page displayed in the browser or mobile phone app only with the mouse, the keyboard and a little creativity.

Keywords

Intelligent media; platform design; Web-pages making; works.

1. Introduction

With the upgrading of mobile phones and mobile applications, such as WeChat, QQ, they have become an essential part of people's lives. Mobile phones are easy to carry, so more and more people directly view the phone browser page. The mobile terminal page forms rich and diverse themes, which can be used for personal recorded mood and can also be used for commercial product promotion. However, only the frontend development of professional staff can make the mobile side of the page, which cannot meet the demand of the market. Therefore, it's necessary to let more non-professionals use tools to make the mobile terminal page through a simple learning. The making platform for the intelligent media mobile phone pages allows non-professionals to create a beautiful mobile terminal page through visual operations, and users can enjoy their free theme and free creation by using their imagination fully. They can also repeatedly use the theme templates provided by the platform resources to recreate new works.

2. Requirement analysis of making platform for intelligent media mobile phones page

The making platform is to do business in the mobile terminal product promotion. The demands for the core functions and the overall framework are analyzed mainly from the following three aspects:

2.1 Product function requirement analysis

In terms of functionality, the making platform for intelligent media mobile phone pages needs to achieve the following functions:

2.1.1 Works editing function

This is the basic functional requirements of the intelligent media platform as a professional mobile phone page authoring tool. The users can make the mobile terminal page meeting the requirements of mobile device hardware and user aesthetic needs in the platform. The platform needs to provide users with free space to create good works, so that users can manage and edit some elements, such like text, pictures, audio, video, slides, background music, etc., to create a complete mobile phone page.

2.1.2   Works management function

Users can create a promotional page with rich themes through the intelligent media platform based on different themes, so the platform needs to provide the function of creating works and deleting works. In addition, when the number of the works is accumulated to a certain degree, the platform needs to provide users with a function that can categorize and classify different types of works. Works can be added to the parent class and the subclass of the parent class, and the subclasses the second level of classification at most.

2.1.3   Reusing template function

In order to save the production cost of users, the template reuse function is provided to make the pages of different themes with same structure and same style for users, saving production time, improving productivity of works, and winning customer satisfaction and enhancing user experiences.

2.1.4   Resource sharing function

Resource sharing is the basic function that every technology open platform must provide to users. It can provide users with a steady stream of creative sources and can enrich the visual effects of works. The intelligent media needs to take resource sharing as a separate module in order to providing readily accessible original materials to users. The platform resource database often includes three pieces of basic materials--page elements, single page templates and multipage templates--to satisfy the specific needs on the platform. These resources may come from platform administrators, and may also come from the users' original works approved. They can be shared by different on the platform.

2.1.5   Works preview function

After finishing making the works and before releasing them, users can further adjust and optimize the works to achieve the best display effects by previewing the effects of pages on mobile phone simulators. Note that previewing the works needs the functions of simulating pages by finger flipping and playing background music, and also needs the function of displaying the real animation effects in pages on mobile phones.

2.1.6   Works publishing function

After the confirmation of works completed, users can release the works, waiting for the auditing of platform administrators. When the auditors confirm that the themes and the contents of pages are positive and healthy, the users will receive the feedback from the auditors and the links to the works in their inboxes. So far, uses finish the whole process from creating works to releasing works. And the users can find their original works in the resource library of the platform.

2.2 Product performance requirement analysis

The making platform for intelligent media mobile phone pages is an online network editing platform, which needs more stringent requirements on Performance. According to the requirements of platform performance, the analysis is summarized as follows:

2.2.1   Network performance requirements

Online platforms rely totally on the network connections. However, the network states of the user hosts are unknown. In order to give users better production experiences, a local storage mechanism is used in the platform. When first loading some contents and resources, users save them on the local cache (the browser establishes the session and stores the user access information). And thus, the users' browsing experiences are not affected by the network connection interruption due to the network failures caused by reloading the resources or jumping the page.

2.2.2   Smooth operation requirements

The nature of the making platform for intelligent media mobile phone pages determines the nature of users operating frequently when editing the works, which requires that the operation stage provides a smooth experience. At this point, the platform will make full use of the advantages of AngularJS in the construction of web applications to solve the users' operation and display real-time demands perfectly. In fact, AngularJS provides data binding capabilities instead of frequent Ajax requests to ensure that the page displays some effects without page refreshing and skipping. Furthermore, the platform allows users to display their operating results in real time when editing elements on the page or adjusting the property pane.

2.2.3   Data security requirements

When users enter the platform through the account password, the users' account information and data stored in the platform will be saved in the corresponding database tables. For the safety of users and the copyright of works, the platform has made the security processing. On one hand, users send requests to the server by using the POST method. On the other hand, the users' important information in the database is handled with MD5 encryption.

2.3 User experience requirement analysis

The making platform for intelligent media mobile phone pages is a service platform whose tenet is that customer is the uppermost. The core design of the platform should be based on the users' experiences, and its function and structure design should be according to users' needs. The needs of user experiences include the following aspects:

2.3.1 Visual experience requirement

The making platform for intelligent media mobile phone pages strives to achieve a comfortable and relaxed experience. Since the eyes of users are in a state of focus for a long time to cause the eyes train easily, the platform needs to provide the interface to protect the eyes in order to reducing the user fatigue. In addition, the layout style and appearance of the platform must be strictly designed according to the design specification, so as to ensure that the users can correctly identify the prompting information and the specific mark in the platform.

2.3.2 User feedback requirements

After the confirmation of works completed, users can release the works, waiting for the auditing of platform administrators.

After finishing the creating of works, users can publish their works online, waiting for the results of audit. In order to deal with the users' requests to releasing the works as soon as possible, the requests are sent to the platform enterprise e-mail, and then the maintenance personnel handle the mails and feed back to the users' inboxes. In general, the audit time is asked to not exceed 12 hours.

3.   Design of the making platform for intelligent media mobile phone pages

3.1 Interface style design

The interface design of the platform is strict implemented according to the design specifications formulated by UI Designers. Accordingly, a standard interface is designed with a high efficiency and the consistent interface styles of final works are ensued, which provide users with a comfortable and satisfactory visual experience so that the user centered purpose is achieved. The interface style is designed from the two respects: color and layout style.

Color: In the platform, red brown (#8f1e23) is the dominant color, gray is the background color, and prompt boxes are unified with yellow color. In addition to the eye-catching main color, other page elements are used with simple eye-protecting delicate color to reach a comfortable and uniform visual feeling.

Layout style: In order to allow users to easily use the various functions provided by the platform, the layout of the platform is presented in the form of functional branches, such as the top navigation menu, the left and right (some modules do not) management panels, and the middle content area and

operating stage. In addition, the layout style of all elements, such as components, popup windows, prompt messages, or other elements of the page, follow a unified standard. The fact, that the total layout style in the platform is completely unified, is done really.

3.2 Overall structure design

The overall structure design of the making platform for intelligent media mobile phone pages fully takes into account of the users' behaviors and the function sorts. The integrity of functions is ensured and the clearness of module divisions is as far as possible to be made simultaneously, which help the users quickly recognize the module functions and quickly find the corresponding operations. On the other hand, the overall structure design can save the later maintenance cost and the later extension function development cost greatly. The overall structure of the platform is shown in Figure 1.
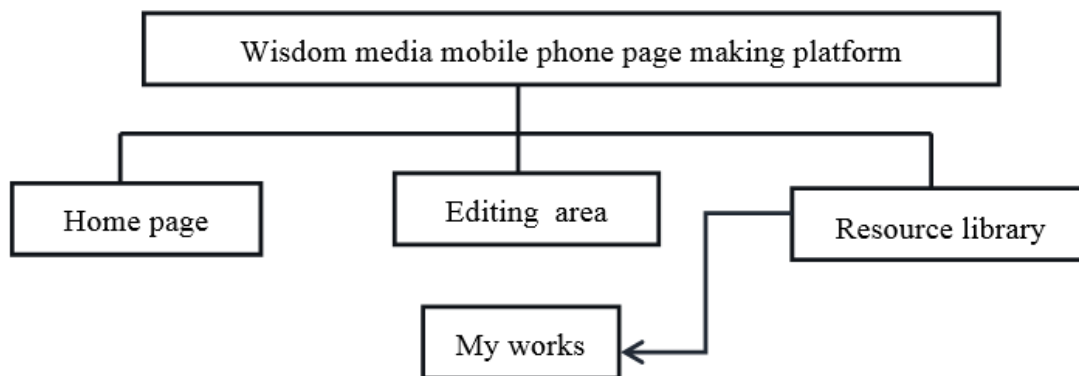

Figure 1: Overall structure of platform

3.2.1 Home page

When visiting the website of the making platform for intelligent media mobile phone pages, users first need to enter the login page. If doing not register on the platform, users can choose to register or login the third party platforms, such as WeChat and QQ, which are supported to login as the third-party platforms by the intelligent media platform. Users must fill in user names, passwords and emails, and agree with the use agreement written by the intelligent media. After the completion of the registration should return to the login page, the users can choose to log in to remember the passwords (for security reasons, do not recommend password-less login). If losing the password, the user can enter the "forgotten password", and then reset the login password through the mailbox validation.

3.2.2 My works

After a successful login, a user enters the module of my works, which is divided into six parts as shown in Figure 2.The sub-module about my works stores the user created pages and the reuse single page templates, and the sub-module about the single page templates and my elements stores the materials used to make pages. When editing pages, users can select the appropriate resources from the material library. Users click on the right bottom of the collection in the platform resources, and then the source material can be deposited in my collection. When the users edit the pages and click on the release button, the release status of the works will be displayed in my push, and the page displays works push state based on the system administrators' audit progress. The inbox is used to receive system messages within the platform and feedback messages from the system administrators.
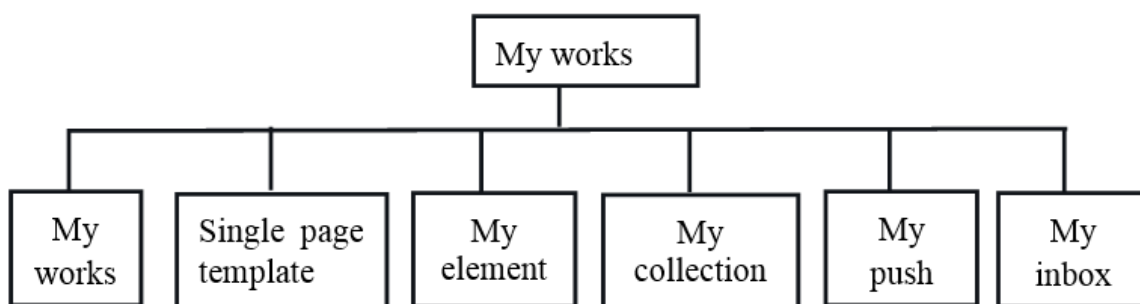
Figure 2: my works module structure

3.2.3 Resource library

The design of the resource library mainly aims at providing users with reference template resources and page element resources, which are carefully designed by professional UI designers. Users can preview, collection and reuse template resources freely. In the element library, ordinary users can only view the big picture and only system administrators can add, delete and modify the contents on the platform.

3.2.4 Editing area

The module design of the editing area is the core design of the intelligent media platform since the editing area is the most frequent part of the users' access to the platform. The tool menu bar is on the top of the edit area, as shown in Figure 3.
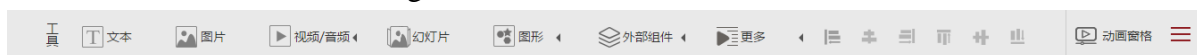

Figure 3: Editing Toolbar

The menu bar includes a variety of editing tools and a number of convenient controls provided to users. The left side area of the window is an area of single page settings and layers property settings, and the relevant parameter setting panel of pages and elements is on the right side of the window. The rich functions of the editing area can only meet the basic needs of user editing and more complex functions need to be developed and expanded later.

3.3 Database design

The database plays a very important role in the platform, and the design of the database structure directly determines the fluency of users' access and viewing data. Reasonable database structure can greatly improve the efficiency of data storage. In order to ensure the integrity and unification of data [1], the making platform of intelligent media mobile phone pages uses MmongoDB database and MySQL database, making the data query function to be enhanced greatly.

3.3.1 Analysis of database structure functions

When the database system is established, the current demand and the increased demand in the future are analyzed, which are summarized as the following points:

① The type of users includes system administrators and editors. The system administrators are responsible for the audit of users' works and the management of the resource library, but they cannot enter the editing area and my works. The editors are ordinary users and are able to manage the works and edit the page, whereas have the right to use the resources in the platform and have no the management right.

② The resources uploaded by users need to be stored in the database, so that users can use them for a long time.

③ The status of releasing the users' works is divided into the adoption and rejection based on the system administrators' audit progress.

④ A user can create a number of works, including the user's proprietary works and the works provided by the platform resource library.

⑤ The resources in the platform are divided into pictures, videos and audios which are found and used by users.

3.3.2 Design of database logical structure

After the database needs are analyzed, the logic structure of each data table and their relations are needed to be sort out in order to establishing their reasonable primary-foreign key relationships, so that the complete function requirements are achieved by using the most simple table relationships. It is necessary to clarify the function and significance of each data table before the design of the database logic structure. The key data tables are shown in Table 1.

Table 1: Main data table function of intelligent media platform

Table name	Function
sys_user	Record the user informationincluding system administrator information and general editor information
sys_log	Record the operation logs of user upload resources
page_push	Record the status of user push works, including no handling, passing and rejecting
resource	Record the resources in the intelligent media platform, including public resources and user resources

The key field sets for the above data sheets are as follows.

The table structures of sys_user, page_push and resource are shown in Tables 2, 3 and 4, respectively.

Table 2: Table field description of sys_user

Field name	Data type	Explanation
USER_ID	bigint	User ID
login_name	varchar	Login name(Support Chinese name)
user_name	varchar	User name
user_pass	varchar	Password (MD5 encryption)
user_type	int	User type 1: System management 2: Edit
EXPIRATION_TIME	datetime	User expiration time

Table 3: Table field description of page_push

Field name	Data type	Explanation
PUSH_ID	bigint	Push ID (Primary key)
PUSH_DATE	datetime	Push time
STATUS	Int	Push state
CHECK_DATE	datetime	Administrator audit time

Table 4: Table field description of resource

Field name	Data type	Explanation
RES_ID	bigint	Template ID
RES_TYPE	Int	Element type: 0: Picture, 1: Audio, 2: Video
RES_URL	varchar	Element save path
IS_SHARE	Int	A public resource or not: 0: Yes, 1: no

4. Implementation of making platform for intelligent media mobile phone pages

4.1 Realization of function of login registration

The only access to the platform is registration and login, which are verified in foreground and are checked in background by using database. When users input the information, the foreground checking can detect the characters which do not meet the requirements of the format, and then display the input prompts. After the foreground input checking is successful, the button state can be activated. When the users click on the registration, the system will check whether the registered account or mailbox has existed. If it does not exist, the newly registered user information can be inserted into the user table in the database, so does the login process. Login interface is shown in Figure 4.

Figure 4: Home login interface

4.2 Development and implementation of works classification management

When the number of users increases, it is necessary to classify the works and elements. The users can manage and classify them according to their own habits. There are two ways to add the classification. One is that the users click the right mouse button to select the option "add another category" in the classified management area. The other is that clicking on the plus button on the bottom ofthe classified management area adds new classification. At the same time, the users can delete and rename them. Classification management interface is shown in Figure 5.

Figure 5: Classification management interface

The implementation of this module needs to use ztree-core.js and ztree-exedit.js. Adding and deleting nodes will call the bootstrapQ.dialog() method. When a new classification is established, the database query operation will be proceeded to avoid duplicate name classification. Moreover, the classification level is limited by using control statement, and the second level of classification is added at most.

4.3 Development and implementation of reuse template function

The reuse template function is more common in the platform and the users can see the button of reuse template when the mouse cursor is moved to the area covered by the works. The reuse means that the existing works can be reprocessed. This process includes two steps: The name, path and related data of the original works are saved as a new path, and then the edit state of works in the new path is jumped to. The two operations use querying and inserting operations to the database, respectively. The interface of the reuse template is shown in Figure 6.

Figure 6:Reuse template Icon

4.4 Development and implementation of editing area

The editing area is the main operating area in which users make mobile pages in the platform, and is also the core area. The middle part of the editing area is the making stage to display page making effect. If you have making experiences in computer software, such as Photoshop, Flash, PowerPoint, etc., you get the operation quickly. The toolbar is at the top of the editing area and you can select the corresponding operations in the toolbar to insert texts, pictures, slides, videos and audios and other components into the pages. The area on the left is the page area, which is the management area of the layer and is used to manage the thumbnails of the page and edit the layer. The right area is the property panel area, including the property settings of elements, animation effects and document basic information settings. In this area, users can set the related attributes and animations of elements or backgrounds in the stage. After the page is finished, users can choose to save, preview or release it in the upper right area. Clicking the previewing button will jump to the preview page, and users can scan the code on the phone to view the display. After determining the correct effect page, you can save it to "My works" and can also return to view it. In addition, by clicking on the release button, users' works will be sent to the server mailbox. After the audit (mainly to avoid unhealthy contents spread on the network) is passed, the users' works can be viewed in the mobile terminal through the UPL address. The editing area interface is shown in Figure 7.

Figure 7: Editing area interface

4.5 Development and implementation of preview function

The preview area is for displaying works effects and users can click the analog mobile phone screen or the page flip button on the right side to view works. In addition, users can scan the two-dimensional code on the top right of the preview area to preview the display effects on the phone. If some parts of the works are not satisfied, users can click on the "return edit" button to return to the edit area to modify the works. The preview area interface is shown in Figure 8.
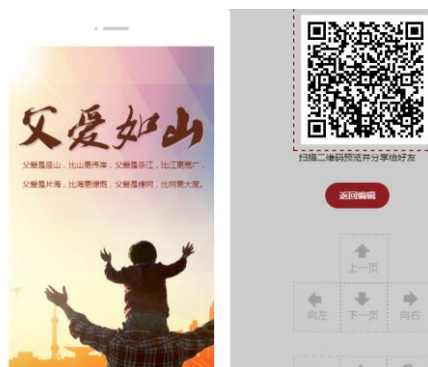
Figure 8: Preview area interface

4.6 Development and implementation of "user center"

Users can click on the user name principle on the top right corner of the page to edit the personal information, to change their images and to choose to reset the login passwords. The revised information is saved by clicking the save button after the completion of the modification. The "user center" interface is shown Figure 9.

Figure 9: User center interface

The verification of this function is similar to that of the login and registration functions on the home page, which is no longer specific described.

In a word, the making platform for intelligent media mobile phone pages can provide users with convenient and efficient page making services. Since there are many omissions and deficiencies in the design and development process, we will try to provide more quality services for users under the condition of ensuring the normal operation of the platform.

5. Conclusion

Compared with the rapid development of Internet front-end technology, the academic research on the front-end popular frameworks is still delayed. The paper discusses the research background of the platform and introduces the development process of the making platform of mobile phone pages in detail. With the rapid pace of the development of mobile Internet, mobile pages as a new kind of information media has been inextricably linked with our lives. With the improvement of the platform functions, more people will be drove to participate into this development so that people get more comfortable, richer browsing experiences.

Acknowledgements

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