

Visualized Information Graphic Design of Intangible Culture Heritage

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Abstract: In order to construct a convenient, interesting information graphic design and user interaction system, based on Visualized enhanced display technology, a life application system is development. The system integrates Visualized interactive service module, mobile user terminal module, Web communication service module, and information recording module. The user turns on the mobile user terminal and obtains functional services such as Visualized interactive mode and navigation area introduction. The service information is enter into the information-recording module, and the user selects and records the information via the Web to exchange and share. Experiments display that the application system is convenient and interesting. The results display that the application of the proposed system can satisfy the daily needs of cultural heritage.

1. Introduction

The advent of Visualized technology has brought the real world into a virtual world. Visualized technology refers to the superposition of virtual images generated by computers and target objects in the real world, thus enhancing cultural heritage' understanding and experience of the real world [1]. The combination of virtual reality, the construction of "reality - virtual continuous system" [2] has become a new topic. Combining the increasingly mature Visualized technology with Attractions technology, the real environmental effect and virtual graphics are superimpose on the same visual or perceptual space [3], so that people experience a new attractive display and attractions awareness. It is a new direction of thinking for the application of Visualized technology [4]. 2016 is known as VR/Visualized first yeVisualized [5]. In recent years, several Head-Mounted Displays (HMDs) have set off on the market. However, HMD devices are still very heavy and huge, which has a negative impact on user experience.[6] Therefore, the future evolution of Visualized products will tend to be simplistic and lifesaving, so that even an inexperienced novice can learn to quickly operate procedures, greatly reducing training time, and improving operational efficiency and accuracy. [7] Realizing the application of Visualized technology to life, how to solve the space-time modeling of photogrammetry and computer graphics [8] is an important breakthrough point. On the Visualized interaction module, there are various ways of modeling. Reference can make to [9] [10]. There are many types of interactive systems where are the most important. For example, the IntelliSense interaction model [11] [12], which recognizes human behavioral intent based on bioelectrical signals and translates the recognition results into machine instructions, is a current hot spot resolution direction. For example, reference is made to the environmental awareness and information proposed in [13] Modeling of Complex OIOT Control Systems from a Security Perspective.

Based on the previous work, we combined the Visualized application of augmented reality technology with the interactive system under the framework of the Internet of Things [12] to establish a convenient, fast, and interesting information graphic design and user interaction system. The second part introduces the system architecture. The third part introduces the Visualized interactive service module. The fourth part gives the mobile user terminal module. The fifth part gives the Web communication service module. The sixth part introduces the information-recording module. The seventh part is the conclusion.

2. System architecture

The proposed system divides into four modules: Visualized interactive service module, mobile user terminal module, Web communication service module, and information recording module. The Visualized interactive service module is divided into an Visualized augmented reality module, a user interaction system, a basic service integration module, and an external application program interface module. The purpose of the mobile user terminal module is to provide the user with a service item and Visualized character image selection, record the user use information, and log the user information into the Web server. The function of the Web communication service module is to provide a service framework for the function development of the mobile user terminal module, provide a platform for cultural heritage to communicate and share experiences. The information record module plays an important role in the proposed system. This module provides information records for the mobile user terminal module, obtains service records from the Network communication service module, and provides visualization services for the administrator.

The proposed system is an innovative system that includes two key components. The first key part focuses on providing Visualized interactive services, graphic design introduction services, and creating user communication sharing platforms. The second key section focuses on providing service visualization for administrators. Figure 1 shows its architecture. Visualized augmented reality module architecture is shown in Figure 2.

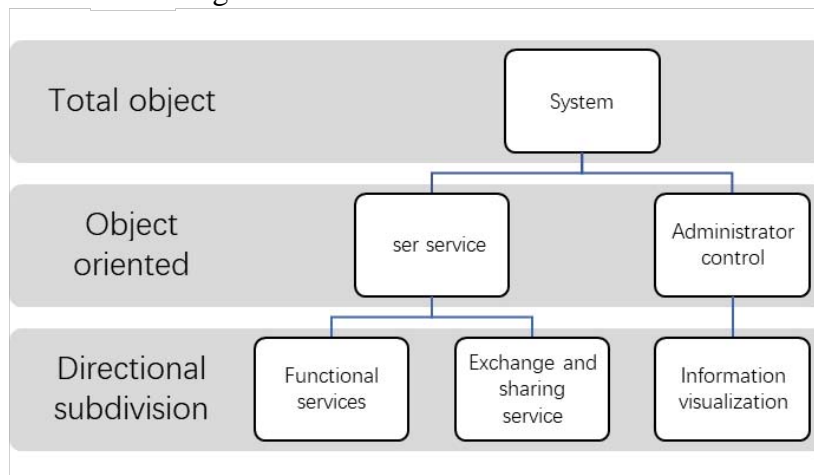


Figure 1. System Architecture

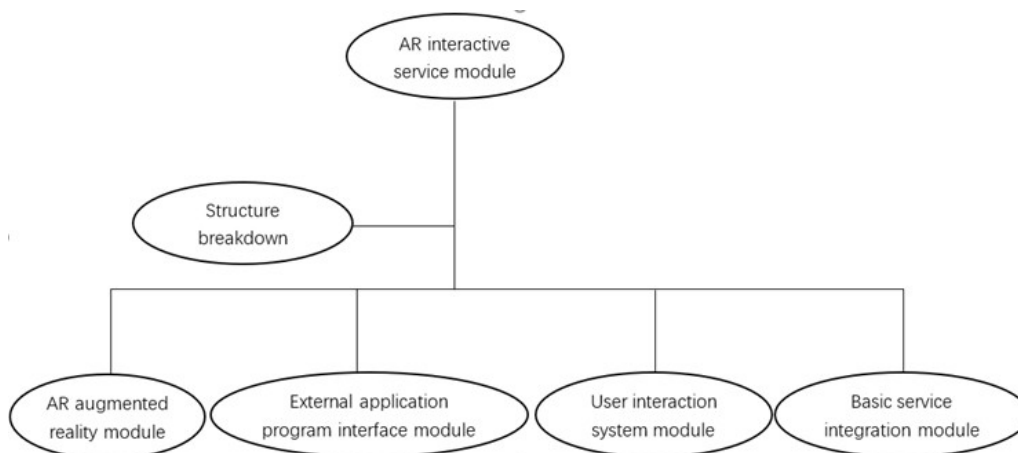


Figure 2. Visualized augmented reality module architecture

As shown in the above figure, the check-in workflow module can be divided into the following four sections:

Visualized augmented reality module: This module provides corresponding Visualized services

based on the character image selected by the user. The user's Visualized augmented reality module: This module provides corresponding Visualized services based on the character image selected by the user. The user's mobile phone camera is employ by the mobile user terminal module to present the Visualized augmented reality technology to the user.

External Application program interface module: This module provides service interfaces such as mobile sign-in terminal interface, administrator interface, service selection interface, and exchange sharing.

User Interaction system module: This module is used to control the movement of Visualized character image, ensure that the Visualized image responds after user interaction, and ensure the smooth operation of Visualized augmented reality module.

Basic service integration module: In this module, the basic service required by the user are integrated, and the services such as the scenic spot introduction, navigation area navigation and Visualized image selection is arranged and arranged, and the external application program interface module is connected to the mobile terminal module, to support their work. Figure 3 shows the working model of the Visualized augmented reality module. Figure 4 shows the functionality of the basic service integration module.

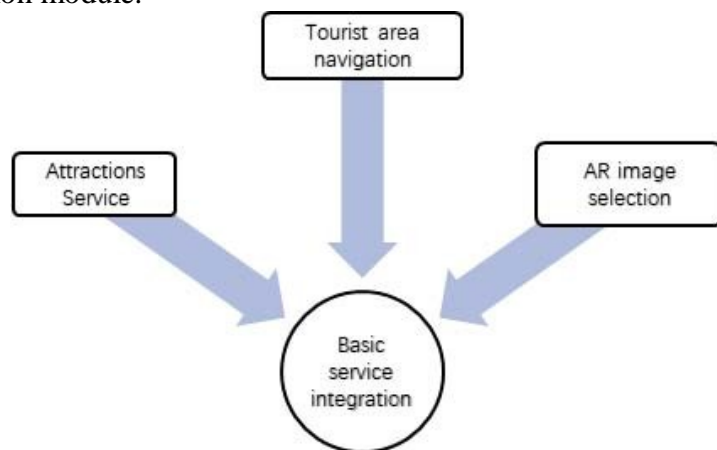


Figure 3. Working model

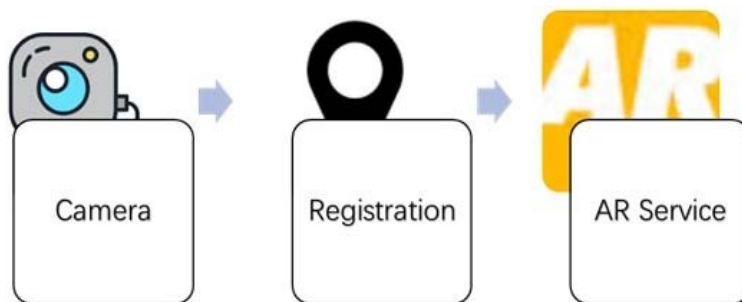


Figure 4. Basic service integration module functions

In the overall operation of the Visualized interactive service module, each part plays an important role. Figure 5 shows the linkage of the entire module. Figure 6 shows the conditions required for the operation of the Visualized interactive service module.

The user logs in to the account to verify the identity. If the login account is successful, goes to step2, otherwise go to step 10.

Apply to the Web server, go to step3 for service settings, go to step4 for sharing and exchange, and go to step6 to enter the Visualized interactive service system.

Visualized image settings, scenic spot mode settings, Web server response, go to step2.

Enter the information-recording module, select the required information, select and go to step5.

Enter the Web communication service module to share and communicate with other cultural heritage. After use, go to step2.

The Web server sends a request to start the camera capturing and positioning function of the

user's mobile phone to the mobile user terminal, and the request passes to step7 but fails to go to step2.

Get service information from the Web server; provide attractions, navigation, Visualized interaction and other services. After use, go to step8.

Use information record to transfer to information record module, go to step9.

The user filters the content of the activity, chooses whether to share, share goes to step5, not share go to step2.

3. Information recording module

In order to facilitate user sharing, the proposed system completed the information-recording module. The module is based on the Android mobile phone platform and connected to the mobile user terminal in APP mode. The user requests a Web exchange server, and the application displays the query result in the form of a picture that the user autonomously photographs on the Web server. Cultural heritage with different identities can obtain different levels of results. For example, the top administrator can only obtain the total results such as total usage, but cannot obtain detailed information, and the mobile terminal user can obtain detailed information.

4. Conclusions

This paper uses Visualized interactive service module, mobile user terminal module, Web communication service module and information recording module to construct a convenient and interesting graphic design introduction and user interaction system based on Visualized augmented reality technology. Through the application in daily work, it finds that the proposed system can achieve higher working efficiency, and the application of the proposed system can meet the needs of cultural heritage' daily travel.

Acknowledgments

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