

Research on the design of animation design System based on visual communication

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Abstract. In order to scientifically solve the problems existing in the application of traditional advertising animation design, researchers put forward to optimize the advertising animation design system with visual communication as the core in their research, which can not only solve the problems existing in the traditional visual communication design, but also provide multiple application functions for the system users. In this paper, on the basis of understanding the visual communication technology and the research status of the animation design system, using IE8-Chromel mainstream controller, image encoder, processing chip, etc., to optimize the hardware structure of the advertising animation design system configuration, gradually improve the advertising animation remote design processing port, to ensure the stability and effectiveness of the system operation. At the same time, according to the principle of visual communication, the steps of advertising animation design are simplified, the three-dimensional coordinates of advertising animation are accurately calculated, and the advertising animation is effectively designed. The final results show that the advertising animation design system with visual communication as the core has a high smoothness, which meets the needs of practical research.

Keywords: Visual communication; Animation design system; Three-dimensional coordinates; Software Functions

1. Introduction

In the traditional sense, the advertising animation design system will optimize and innovate according to the 3D animation operation technology, but the overall technical operation is complicated. It needs to use the network structure platform to input and design the background drawing structure data, and transfer the design results to the front-end browser, and use the third-party plug-in or flash to play. In the process of data transportation and transmission, this method is very prone to the problems of damage and loss.[1-3] At the same time, because the design system operation module is redundant and complex, there are problems such as excessive waste of information resources. Therefore, research scholars put forward a visual communication as the core of the advertising animation design system in practice exploration, will use the web network platform to scientifically layout the animation structure image, introduce visual communication algorithm in the HTML5 advertising design platform, and fully standardize the latest version of IE8-Chromel mainstream controller and Firefox4.0 browser. In order to improve the advertising animation design platform, collect the features of advertising animation elements according to the Canvas recording device, complete the later operation of animation design and production, draw the network interior page design script compiled by computer, and use JavaScript functional software to set animation special effects and animation patterns in the Canvas recording device. To complete the reasonable design of advertising animation. From the perspective of scientific research, the art of animation belongs to the scope of art visual communication design, but there is no deep research on the proposition of "animation visual communication design" in the field of animation. This is because the animation theory is too cliché, and the animation theory system constructed by our country has defects. Therefore, the scholars proposed to study the animation design system in the field of visual communication.

In essence, animation belongs to a comprehensive art category, including literature, photography, comics, film, digital media and other forms of artistic expression. In the work of visual communication design of animation, the most critical is visual symbol and communication form,

which contains multiple fields of visual art expression, so comprehensiveness is one of the most critical characteristics of animation art. From the overall point of view, animation is composed of multiple still pictures. When it is played continuously at a certain speed, the human eye will have an illusion because of the visual residue, and mistake the picture for dynamic changes. From a medical point of view, human vision is transient, so the human eye does not disappear for 1/24 of a second after viewing a picture or an object. Using this principle to quickly play multiple images will create a smooth visual effect. Visual communication refers to the technical means of communication between people by the way of looking, which can realize expression and communication by visual language. Generally speaking, visual communication includes two concepts, one is visual symbol, the other is communication. The former refers to the symbols that human visual organs can see to express certain properties of things, such as buildings, plastic arts, movies, television, etc. The latter is the process in which the sender uses symbols to transmit information to the receiver. In the development of modern technology, visual communication design refers to the design of using visual symbols to convey various information. Among them, the designer refers to the sender of information, and the object of communication refers to the receiver of information. Nowadays, visual communication design has undergone several stages of evolution such as commercial art, printing design, graphic design and tooling art, and finally formed a design system that takes visual media as the carrier and uses visual symbols to express and convey information. As a new academic concept emerging in the new era, visual communication is proposed on the basis of the common visual physiological function of human beings. Both the designer and the receiver should accept and recognize it unconditionally.[4-6]

The visual communication in the Internet era has the characteristics of mass media, fully showing the characteristics of people's life ideas, and its value far exceeds the simple sense of information transmission. Traditional visual communication design system can only study a single element, and it lacks visual order relation in time continuation, and cannot reconstruct information content. In order to effectively solve this problem, researchers proposed in the research that visual communication design module should be added to the software design and suitable development platform should be selected to further improve the application performance of the system. Due to the poor performance of the traditional visual communication design system and the lack of visual order relations, researchers have put forward a visual communication as the core of the animation design system in the research and discussion, not only put forward a number of application functions, but also improve the internal software and hardware of the system in practice. On the basis of understanding the current research status of visual communication and animation design, this paper mainly discusses the structure diagram of animation design system based on visual communication under the background of the Internet, and uses practical cases to study and analyze the system functions. The final results show that the overall system design is more in line with the new era of animation visual communication design requirements.

2. Methods

2.1 Hardware Structure

According to the analysis of the system hardware architecture diagram shown in Figure 1 below, the visual detection module mainly detects the target object, makes pictures of the target object, makes the pictures containing the target object into a test set, and then uses YOLOv2-Tiny to modify the training set, so as to ensure the final detection accuracy.[7-8]

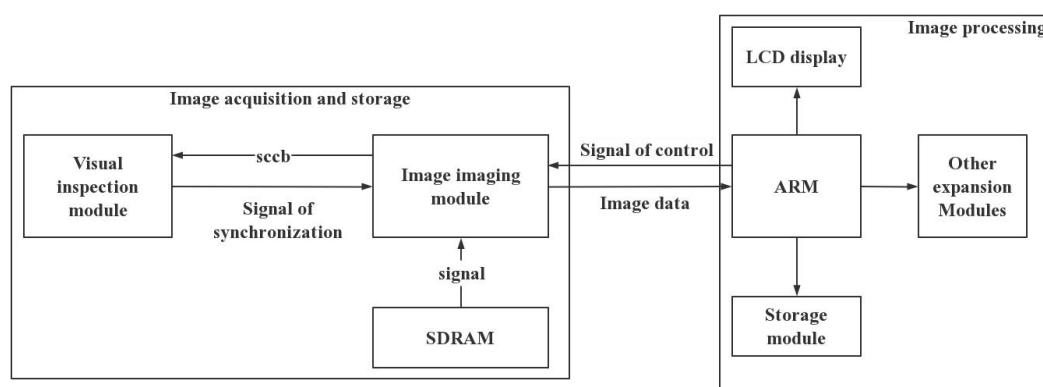


Figure 1 Architecture diagram of the system hardware

In the image molding module, the color image sensor can support the maximum resolution of 664×452 pixels, and the maximum number of needles can reach 30, which can truly realize the working targets of signal processing and automatic gain. Among them, the interface circuit principle of image acquisition is shown in Figure 2 below:[10-12]

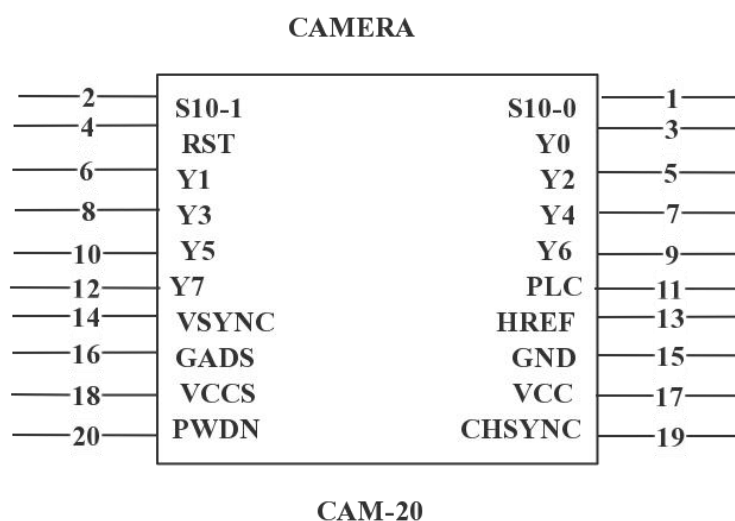


Figure 2 Schematic diagram of the circuit of the image acquisition interface

Image storage module is mainly used to store high-speed image data. On the one hand, FPGA is used to save the image, on the other hand, ARM is used to read the image data in the memory. The visual processing module is mainly used for data collection, image recognition and processing, voice communication, etc. The specific structure is shown in Figure 3 below:

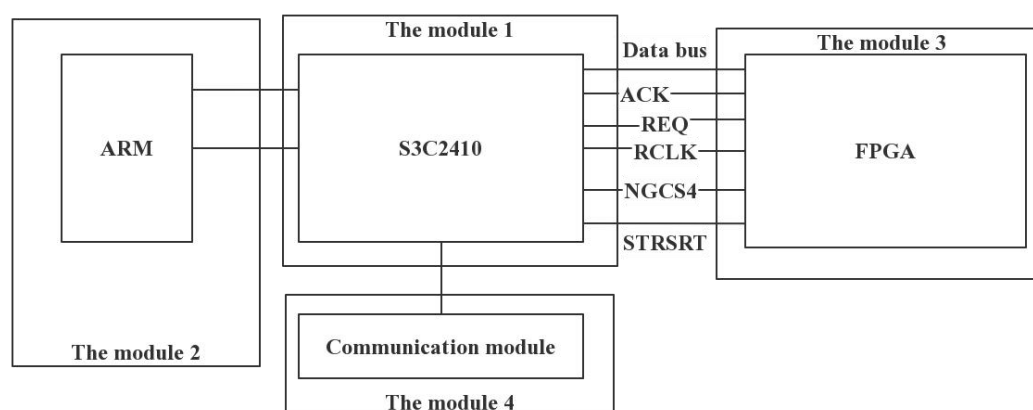


Figure 3. Structure diagram of visual processing module

2.2 Software Functions

The system software design includes three parts: visual image acquisition driver, hardware driver and analysis program. In order to ensure that the whole system can run normally, using the size of 1KB boot program assembly system's important programs. Among them, background communication program includes PC and window, mainly used to obtain detection target, which is an important basis for analysis and decision. The son program is the basis of visual image processing and analysis. It will complete the collection of an image data from RAM and open up two partitions in order to get a complete image. After processing the original image data, the pixel matrix of the image should be transformed into the target parameter information related to the visual communication design. The threshold image segmentation method is used to treat the image as a binary function, and the calculus of the function is used to show the shape characteristics of the image. The overall system operation process is shown in Figure 4 below:[13-15]

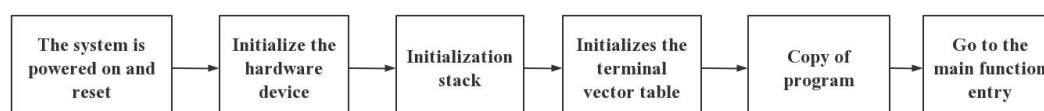


Figure 4 System operation flow chart

Based on the analysis of the figure above, it is found that the actual operation involves the following points: First, the first execution program will be placed in the area of abnormal reset vector, which can effectively modify different configurations. This program will be connected to the system hardware. During the system boot process, the internal memory will remain in an unknown state after power-on and reset, and will not respond to any interruption. Second, in the initialization process, the packet is set to the default value. Third, set the stack of various processors in different modes. Fourth, S3C2410 processor should set the corresponding undefined exception mode and management mode stack; Fifth, after program initialization copy from FLASH to RAM, jump to C language. The basic function of visual communication is implemented from the processing execution of the MAIN function.

3. Result analysis

In order to verify the application effect of the research system in this paper, we choose to design HTML5 software and Matlab module for animation Settings. The memory is 5000 GB, the experimental operating platform is windows2007 system, and the hardware is 246 GB memory. In this environment, it is necessary to accurately record the final test results, among which smoothness is an important parameter for testing the operating effect of the system. Compared with the results of advertising animation design in the traditional sense, the animation design system with visual

communication as the core proposed in this paper has more perfect functions, higher actual smoothness, and can better meet the research needs in different fields. At the same time, in order to better test the unique advantages of the application system in this paper, the texture clarity of the advertising animation presented by the three systems is mainly discussed in comparison with the animation AD production system assisted by 3DS as the core and the production intelligent delivery system centered on Flash animation. The specific results are shown in Table 1 below:

Table 1 Comparison results of texture clarity of advertising animation in different systems

Main body of design Means of	System of text	Design animation advertising production system based on 3DS	Based on FLASH animation advertising production and intelligent delivery system
transportation	88.58	81.25	82.36
building	88.58	81.22	82.58
animal	88.23	81.58	83.25
mechanical	88.24	81.35	83.01
figure	88.25	81.56	83.28
plant	88.23	81.22	82.05
The river	88.21	81.25	83.28
Mountains and rivers	88.25	81.55	82.85

Based on the analysis of the above table, it is found that the definition of the advertisement animation presented by the research system in this paper exceeds 88% after the research of eight different types of design subjects. Although the clarity of the other two systems has reached more than 80%, the clarity is lower than that of the system studied in this paper. By comparing the satisfaction of the three system design effects, the results shown in Table 2 below can be obtained:

Table 2 Comparison results of satisfaction with design effects of different systems

Main body of design Means of	System of text	Design animation advertising production system based on 3DS	Based on FLASH animation advertising production and intelligent delivery system
transportation	0.88	0.85	0.81
building	0.88	0.86	0.83
animal	0.88	0.85	0.84
mechanical	0.88	0.86	0.85
figure	0.88	0.85	0.86
plant	0.88	0.84	0.88
The river	0.88	0.86	0.84
Mountains and rivers	0.88	0.86	0.85
The mean	0.88	0.85	0.85

Based on the analysis of the above table, it is found that an enterprise has obvious differences in the satisfaction of the application effect of these three systems, among which the application effect of the system studied in this paper is better and the final feedback information obtained is more. Therefore, in the process of social economy and technological innovation and development, in the face of the great changes in the world, graphic design should clarify its own application function in continuous innovation. In the future, visual designers should master more knowledge and skills, gradually get rid of the restrictions of traditional concepts, and learn to integrate and apply knowledge and skills in various fields in the design and creation. To present more valuable and meaningful design concepts to the public, in order to meet the needs of residents at the same time, show more distinctive visual communication animation design effects. At the same time, it is

necessary to increase the training of professional and technical talents, learn from the research experience of foreign visual communication and animation design systems, and then create system functions and application software with more local characteristics according to China's basic national conditions and industry development needs, which can not only accelerate the pace of science and technology development in China, but also show the technical characteristics of visual communication design in the new era.

Conclusion

To sum up, the development speed of visual communication is getting faster and faster. A good visual communication design work should not only show a variety of elements and styles, but also fully satisfy the visual psychology of the public, and truly realize that the information receiver is not mechanical and passive, but a subject with active driving force. Especially in the era of big data, facing the new social environment, the study of animation design system with visual communication as the core becomes more and more important, which marks the development of Chinese visual communication design technology has entered a new stage.

References

- [1] Qiyuan CAI. Research on Visual Communication Design System under the Background of "Internet +" [J]. Leisure, 2021, 000(008):P.1-1.
- [2] Xiaojun ZHAO. Research on Visual Communication Design System under the Background of "Internet +" [J]. China International Communication, 2021, 028(004):1285-1286.
- [3] Wei Wu. Educational Research and Teaching Practice of Visual Communication Design Specialty -- Review of Principles of Visual Communication Design [J]. Educational Development Research, 2021(18):1.
- [4] Hong Chen. Research on Talent Cultivation of "Internet +" Visual Communication Design Major [J]. Educational Research, 2022, 5(3):184-186.]
- [5] Jiang Qian. Design of Web Interface Visual Communication System Based on User Experience [J]. Modern Electronic Technique, 2021, 044(020):142-146.
- [6] Zhe Chen,Hui Li . Teaching Reform of Practical Training Project of Visual Communication Major under Studio Model: A Case study of VI Design [J]. Economic and Social Development Research, 2020(4):1.
- [7] Xiaotang Wei. Research on the development trend of visual communication design in the new media era [J]. Rural Staff, 2020, No.648(05):221-221.
- [8] Changning Ji . Research on visual communication design of Network Media [J]. Modern Education Forum, 2020, 3(8):13-15.
- [9] Xiaoqian Zhu. Innovative design of visual communication system for Animated character graphics in Virtual reality environment [J]. Modern Electronics Technique, 2020, 43(10):3.
- [10] Xiaoyan He . Research on Teaching Reform of Packaging System Design Course for Visual Communication Design Major Based on "Gender One Degree" [J]. Gakuen, 2022, 15(4):3.
- [11] Li Ma . Practice and Research of Ideological and Political Recessive Education Model Based on Visual Communication Design Course -- A Case Study of Illustration Design Course [J]. Chinese and Foreign Footwear Industry, 2021, 000(011):52-54.
- [12] Mingde Lu,li Go. Research on Illustration Design Teaching Reform of Visual Communication Design Major in Colleges and Universities in the Era of Internet and New Media [J]. Chinese Character Culture, 2020(2):3.
- [13] Xiaoyun Min. Research on the Green Development Direction of Visual Communication Design Based on the Concept of Ecological Protection -- Comments on the Art of Ecological Design in the Post-Modern Context [J]. Environmental Engineering, 2021, 38(1):1.

- [14] Wei Bian . Discussion on "Industry Case" Teaching Method for Visual Communication Design Major [J]. Artist, 2020, 000(006):P.73-73.
- [15] Rui Wang. Research on Teaching Reform of Visual Communication Design Major in New Media era [J]. Fine Arts Education Research, 2021, 000(004):128-128.