

Help Software Design of NDT Instrument Based on FLASH Cartoon

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Abstract

Operation and using of NDT instruments is an important factor to affect testing result. In allusion to intelligent operation characteristic of NDT instruments produced by Eddysun CO., multimedia exploitation software Flash and Captivate is used to design operation cartoon emulation software of the instrument. Volume of the visual and intuitionist help software is small and it's useful for inspector to study ways to operate the instrument.

Keywords: Flash cartoon; NDT; instrument; help software

1 Introduction

To meet the production testing at the scene to control the quality of products needed, NDT instrument is the product of combining multiple technologies, including the NDT, electronics technology, software technology and network technology. Detections of Eddysun CO.'s NDT products involve vortex, magnetic flux leakage (MFL), metal magnetic memory, ultrasonic, and other NDT methods. Its friendly software interface, hotkey tips to help, can be realized intelligently foolproof operation. However, the manual of the instrument using the traditional paper brochure that cannot vividly described the operation of equipments; It is very difficult to fully grasp the operation of equipment alone operating manuals. With the development of network and multimedia technology in the world of electronic products, computer cartoon in the promotion of a product cannot be ignored, because of their unique form of expression. Flash cartoon is shown a unique advantage, painting is simple and easy to operate, compact and easy to learn and use, and so on. We can use Flash 8 and Captivate to make simulation cartoon of operation process. It can make up for the paper version brochures boring abstract shortcomings, a multiplier effect.

2 The characteristics and classification of NDT instruments

On the premise that the performances of targets were not damaged, NDT gives an evaluation of their continuity, integrity, security and reliability of certain physical properties, by a variety of physical and chemical phenomena with effective inspection and testing of various engineering materials, components and structure. NDT instrument is the product of combining multiple technologies, including the nondestructive testing technology, electronics technology, software technology and network technology. It can meet the needed that the production testing at the scene and products quality control.



Eddysun (Xiamen) Electronics Co., Ltd. specializes in the research and production of NDT instrument, and provides application services, they have had the video, Eddy, spectral analysis, multi-frequency eddy current, remote field eddy current, magnetic memory, ultrasound and NDT Intelligent Network as the representative series of proprietary technology, and developed NDT instrument with advanced world standards. The main characteristic of instruments: multi-functional, easy to operate, agile response and, data analysis, storage and communication, etc.



Fig. 2 the appearance of portable equipment

According equipment styles and methods of operation, these NDT instruments can generally be divided into three categories: desktop, portable and handheld. Desktop is made up of industrial control computer and DOS or Windows operating system, hardware and software of NDT embedded in them, the input devices are a keyboard and mouse, and display is larger CRT or LCD monitors. Fig.1 shows the desktop appearance of EEC-39 eddy current testing. Portable equipment is mainly made up of the micro-computer and the DOS operating system. Its main input device is a keyboard on the instrument panel, and display integrated in the instrument is a small EL screen or LCD monitors. Fig.2 shows the appearance of portable equipment SMART-2005 Detector. Palmtop equipment is mainly made up of Single Chip Micryoco (SCM) or other micro-controller; its input device is a keyboard on the instrument panel, the display which integrated in the instrument is a Smaller LCD monitors.

3 Development and characteristics of Network Multimedia Technology and Flash

cartoon

3.1 Shortage of NDT instruments operation Help

Although Eddysun CO.'s NDT instrument software interface and method of operation had a "fool"-human nature of the design, the detection personnel who learn their operation and use still need some clarification and guidance on account of equipment variety, powerful and complex. Because of Manual is a traditional paper version, it cannot give a vivid description of the instrument operation, but only on equipment interface.

3.2 Characteristics of Network Multimedia Technology and Development of tools

Be different from other methods, the network multimedia technology is an emerging technology in recent years, which is an integration of computer technology, audio-visual technology and network communication technology. It has become a new kind of media to promote products, due to advanced digital recording and transmission and the characteristics of human-computer interaction, and has been widely used in advertising and so on.

3.3 Flash software and Captivate software and the characteristics of Cartoon.

Flash software and Captivate software are two interactive multimedia cartoon design tools which are launched by the Macromedia Company in USA, and are very active on the global network of professional cartoon software. Flash software, which is the creation of the two-dimensional cartoon design software, can import other forms of material; can also draw directly by the software. Captivate is a kind of software which captures screen display or keyboard and mouse input or moves and transfers into the Flash cartoon. The Flash cartoon which are designed by these two kinds of software has the following several advantages.

3.3.1 Flash cartoon using a vector graphics and streaming broadcast technology. Vector graphics have nothing to do with the resolution, zoom can be arbitrarily size without affecting the quality of graphics, at the same time the vector graphics ensure the clarity of the screen; streaming technology allows players edge cartoon while downloading something, and at any time the players may watch the details on the Flash screen.

3.3.2 Flash cartoon can be released to load protection settings; to prevent others freely modified works.

3.3.3 Flash cartoon is made of using the key frame and the issue of the graphics technology and it make the cartoon document very small, easy to carry and transmit.

3.3.4 Flash cartoon can make music, cartoon and sound together, and create wonderful cartoon. Not only Flash cartoon sets up uniquely the voice, but also editing cartoon can design the interact one.

3.3.5 Flash cartoon can generate cartoon files (the format ".swf") or an executable file (the format ". Exe"), the latter format of the players can run directly without relying on any player.

It can be seen from the characteristics of the Flash cartoon, the design, which is based on the nondestructive testing aidant software, can describe abstract character as the concrete image of the cartoon, simulate the equipment at the scene detection, and it is convenient for the technical staff to understand and master the design.

4 Development of NDT Instrument Flash cartoons Help Software

4.1 The technical requirements of Flash cartoon design

To design NDT Instrument Help Software with Flash software and Captivate software, it should emphasize that the design is reasonable, in addition to follow the principles of product applications. Firstly, the software should be maintainability, revisability and extensibility;

therefore modular design can be used. Secondly, the interface should be simple and friendly Windows interface, it must be interactive, focused, and little of text description. Users can easily control software, operation, pause and exit; it should be used according to tips by the user has little knowledge of computer. Thirdly, the software should be adapted to the different operating platform, and run without special players on the common operating system. Finally, the requirements of hardware should be as low as can. Hardware requirements should be targeted to the lower configuration system.

4.2 Overall design of NDT Instrument Flash cartoon Help Software

Overall design is the process of a general design idea come into being. It determines all aspects of the follow-up. The principles of design to be followed should be fully reflected at this stage. Operation manual in paper version as the basis of design, Software is divided into three types according to the different types of equipment. Software desktop runs on Windows operating system platform, the input devices are a keyboard and mouse, then the captivate software can be used to capture the graphic display on the screen keyboard and mouse movements in testing. As for portable and handheld devices, because of its operation key on screen and the panel are not standardized like the desktop, we can only use Flash mapping and detection equipment host interface, probe and test pieces, and then design the operation cartoon with cartoon editing features. After the completion of cartoon, commentaries were recorded by recording procedures, and embedded help software as the basic dubbing in MP3 format.

4.3 Multimedia material preparation and Flash cartoon production

Multimedia material refers to all kinds of hearing and visual materials used in the Flash cartoon, including images, sound, cartoon and video. Material can be collected through various channels, such as drawing by paint tools of Flash software or by Captivate software; images can be collected using scanners, digital cameras; voice recording with the microphone, or in a multimedia material CD.

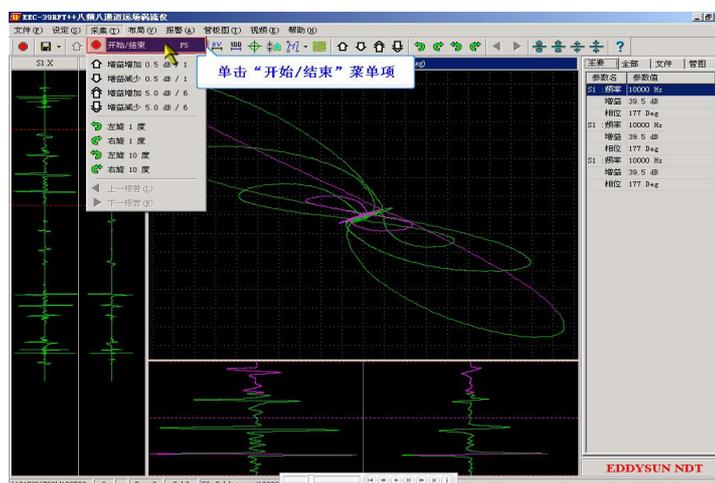


Fig. 2 FIG. 20. Detection interface

Scene layout and design of special effects action can be completed by Flash cartoon software convenient features and Captivate software powerful graphics capture, at the same time, dubbing were recorded in chronological order to ensure that the voice and picture perfect combination. And then the documents called the suffix ".Fla" and ".Cp" were generated.

When producing the desktop Flash cartoon help software, we must install the software of

NDT Instrument in computer to simulate detection equipment at the scene, and then enter the screen capture interface of Captivate software. In this interface, you can use the mouse or keyboard operation desktop detection software, at the same time Captivate software in the background on the monitor automatically capture and record all images of display and all the action of input devices, then save them as slides with the suffix name ".Cp".

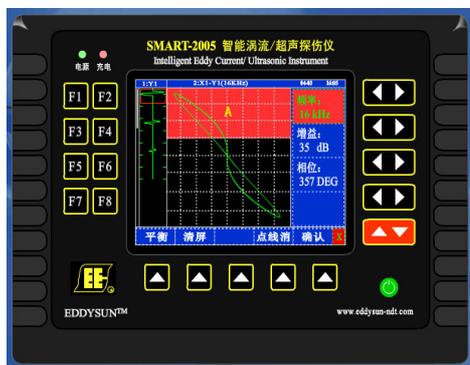


Fig.4 Flash graphics of instrument front panel

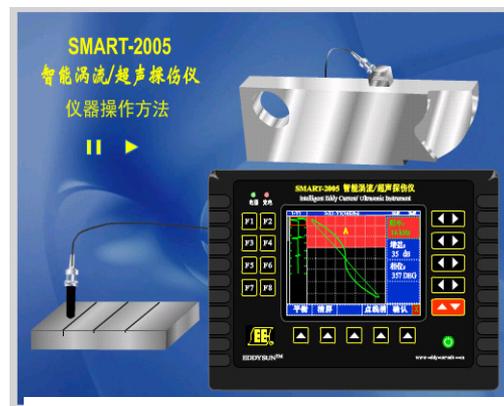


Fig.5 SMART-2005 detector Flash

In the production of portable and handheld detection equipment Flash cartoon Help software, we should set the screen background at first with blue bitmap picture and adjust it to 1024 × 768 pixels. The font of the words is Song, the color is dark yellow. In accordance with the function and role, the graphics and buttons in cartoon are divided into more than 10 layers, and some of some features of layers are set to be mask layer or guidance layer to achieve changes in different graphics. The cartoon introduced that the appearance and panel of Host, how to launch equipment and choose procedures, detection System Help and so on. In aspect of special effects achieved, the approach includes frame-by-frame, Shape meeting between cartoons, Inter-action cartoon. Figure 4 is the Flash graphics of instrument front panel.

4.4 Synthesizing, debugging and Web releasing

Upon completion of the software produced, debugging and testing should be done in accordance with the requirements of software engineering. The complete files are very big; some has reached more than 12,000 frames, and file size has reached around 20M. But the documents with file format of ".fla" and ".Cp" cannot directly use; they should be released in ".swf" or ".exe". After released the file size reduces much, only a few hundred Kb; then it is very suitable for dissemination by the network and portable memory. And, that acts in responses, CPU and the memory occupancy are very small during the period of the ".swf" or ".exe" document works, they can work on a low computer configuration completely. Figure 5 is ".swf" SMART-2005 detector Flash cartoon demo graphics.

5 Conclusions

The NDT instruments which are produced by Eddysun CO, is an integrated, intelligent highly detection equipments. The interface of the software is user-friendly, and they have intelligent human-computer dialogue and operation. Flash software based on the design function of the vector cartoon and the powerful screen capture of Captivate, you can create a beautiful image of the simulation interface, which has the effect to approach the real scene

detection. The help software design of NDT instrument based on Flash cartoon adapts to the demand of the development of the current multi-media and network technology. After the watching and using by the technical personnel, it is downloaded by technical personnel on internet, and makes them realize the vivid image of the equipment at the scene operation. It is proved that the software can quickly learn to operate equipment, rapidly put into use, and reduce training costs and time

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Biographies

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