

# On the Present Situation and Future of Digital Image Intelligent Processing System

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**Abstract**—Computer technology is widely used in various industries. Since the digital image processing technology is realized based on computer technology, its future development space is very large. For some users who are new to digital image processing technology, the theoretical knowledge of this technology will be more difficult to understand. For the purpose of better solving this problem, the system is based on the Windows processing system in the design period so that it can further process images and import or export them. Thus, this system can be easier to understand and operate for people.

**Keywords**—Digital Image Processing, System, Image Editing

## I THE METHOD SUMMARY AND APPLICATIONS OF DIGITAL IMAGE PROCESSING

### A. The Summary of Processing Methods

Image processing methods can be generally divided into image conversion, image restoration and so on. (1) If the image is processed directly, the computer will calculate too much relevant information. After the image conversion, it can effectively reduce the amount of computer computation, and then the staff can better complete the corresponding processing [1]. The main content of conversion is to transform the nature or characteristics of the image. For image enhancement, different ways can be used to convert the target of the image to further improve its clarity degree, thereby directly showing the target to be highlighted in the image. This can not only improve the efficiency of image processing, but also enhance the model processing. (2) Due to certain defects in the system or related equipment, the image quality decreases sharply, which can be called image degradation. The reflection of image degradation is its blurred content. For image restoration processing, its surface layer needs to be processed to make it clear. (3) Image compression coding is mainly a process of permutation and combination of digital images in accordance with certain procedures. In the process of image processing, the image data is so large that it often needs huge memory as support, which consumes a lot of time during image transmission. Thus, before processing the image, special processing is needed to reduce the amount of memory, which is called image compression coding [2]. In the process of image compression, its clarity needs to be ensured and also the clarity cannot be changed after compression. The compression of the image in the form of coding is the original way to process it. (4) Image segmentation is one of the digital image processing technologies. This technology is different from others, and has some special meanings, which can also help us to analyze the edges of the image. Though many methods of image edge processing have been developed at present, they are difficult to be applied to different kinds of images. Thus, it is necessary to conduct a deeper research on image segmentation technology [3]. Only

by constantly improving the image segmentation technology can we better ensure the image clarity, which also requires the relevant staff to conduct constant in-depth analysis and research.

### B. The Application of Image Processing Technology

Image processing technology is involved in various fields in China. Among them, the use of this technology in the medical field can help doctors observe the actual situation of patients more clearly, so as to analyze and judge the disease more quickly. For example, in the medical field, B-ultrasound, X-ray and so on can intuitively observe the physical condition of patients, so that doctors can perform diagnosis and analysis quickly [3]. Thus, this technology is widely used in the medical field. The use of this technology in the industrial field can help employees inspect products and ensure production quality. As more and more production enterprises have gradually developed toward automation, image processing technology can help employees to improve work efficiency, ensure the quality of industrial products and further improve the benefits of enterprises. Text is the main tool for data transmission and communication, and it is the most basic processing method of image processing technology. The text recognition function is mainly to scan and recognize the written text, or to recognize the text on the image accordingly [4]. Most of the scanned text presented in the computer is stored in the form of graphics. At present, with the continuous development of science and technology, scanning the text on the image can be automatically converted into a text document in the computer. With the continuous research on this technology, it is now mature and can also recognize images mixed with pictures and text.

## II THE DESIGN OF DIGITAL IMAGE PROCESSING SYSTEM

### A. The Original Intention of Digital Image Design

With the change of the times, digital image technology is gradually involved in various fields, and the scope of using this technology is gradually expanding. When using this technology, many people do not pay attention to the specific internal structure of the system, how the image processing is completed. Instead, they only care about whether the displayed picture can get the desired result. The essence of displaying images is to allow customers to observe images more intuitively. To provide users with better senses, this requires staff to optimize the system. For some people who just start to learn data image processing, the use of digital processing system can better help them learn relevant theoretical knowledge so that they can observe and learn more intuitively.

a) *Image Input.* Image input includes digital image, image scanning and video image input. Firstly, the digital image input is to transfer the image directly to the computer

in the form of digital image file, and then the computer performs corresponding processing. Secondly, image scanning input method includes two kinds. One is to use an electronic scanner to convert pictures into digital images and then transfer them to the computer. The other is to use the digital camera to shoot. Thirdly, the video image input is mainly to transmit the TV image signal in the video recorder to the computer, which can be divided into two kinds. One is to use digital cameras, etc., to transmit in digital form of photography equipment. The other is ordinary photography equipment, which uses a video capture card specially configured for ordinary equipment to transmit the signal to the computer, and then process the video image [5].

### B. Image Processing Analysis

Image processing can also be called the image processing technology. This technology can be divided into image restoration, segmentation and other processing methods and it usually performs processing and treatment for digital images.

a) *The Design Framework of Image Processing System.* In the design of digital image processing system, Windows technology is mainly used to make an optimized human-computer interface. With the continuous progress of science and technology, the requirements for system functions are gradually increasing. Thus, the research on digital image control system is deepening gradually [6].

b) *The Design of File Module.* In the digital image processing system, the most basic one is the file operation, which mainly scans, opens, prints and modifies the text in the image. When designing the file module, it can be processed in many ways to ensure the compatibility of the system to a certain degree.

c) *The Design of Image Editing Module.* Image editing mainly includes the following aspects. One is to copy and paste images and insert text; In image editing, users copy and paste images and other operations; The third is to paste and save the copied file in other files, so as to save the image. Users can also write the corresponding text below the text to interpret the image.

d) *The Design of Image Processing Module.* The image processing module design is mainly to deal with the grayscale of the image. Grayscale has its own particularity, so when using grayscale image, users need to calculate and change the points and geometry of the image instead of considering the problem of palette.

e) *Image Point Calculation.* Image point operation is a relatively simple and effective form of all operations [7]. It

can not only help users to change the grayscale of the data, but also make the image in a specific order into a more intuitive display. Image grayscale is a simple and effective image processing tool among all image processing technologies. It is to display the image in the form of curve graph, which changes correspondingly according to the change of function.

f) *Image Geometric Operation.* The geometric transformation in the image is mainly to transform its size, which is also the most basic operation in image processing and can simplify the processing method. There are two ways to transform the image position. One is to mirror the image and the other is to rotate the image directly. Then, the mirror image is divided into horizontal and vertical types. The horizontal mirror image mainly transforms the left and right sides of the image with the center position as the axis, while the vertical one transforms the image up and down with the horizontal central axis as the center.

g) *Image Orthogonal Transformation.* The image orthogonal transformation of the image is mainly to strengthen and restore the image. The image signal is transformed from the spatial domain to the frequency domain, and the image is processed and analyzed in the frequency domain, which can improve the speed of point operation [8]. The image orthogonal transformation helps to extract image eigenvalue and can achieve deeper compression.

h) *Image Enhancement.* It eliminates interfering factors of the image and content in the image to be processed and optimizes the visual effect, or enhances the picture for identification by computer or equipment [9].

i) *Image Restoration.* The degraded part of the image is restored and transformed into the original one. For instance, when the image is defocused, the inverse filtering technology can be used to eliminate the defocus of the image.

### C. Image Output

Image data transmission module is mainly used in image frame information description. Alternatively, the module describes the information provided by the image, and transmits the data stored in the queue in the data block according to the preset form [10]. The image output and display provide people or computers with data images that are easy to recognize and understand. The image output includes soft copy and hard copy.

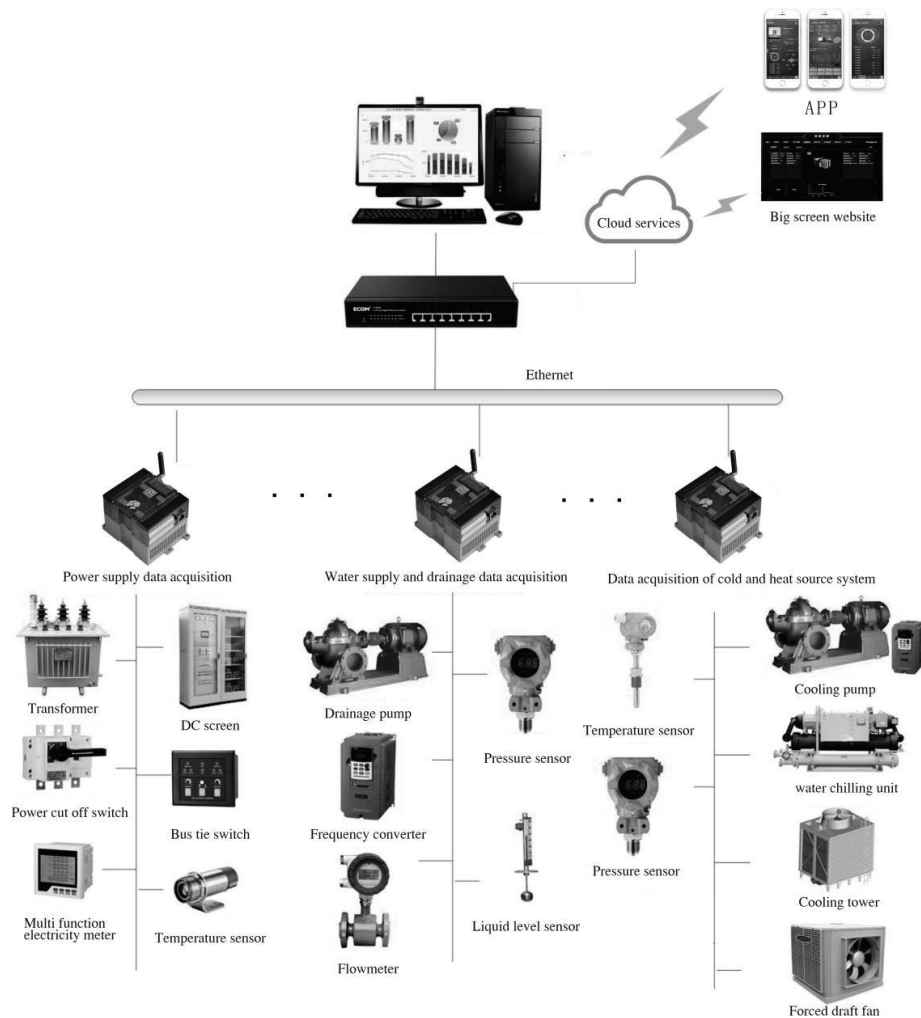


Figure 1. Design of digital image processing system

### III CONCLUSION

To sum up, the design of digital image processing system is mainly to better serve the needs of digital enthusiasts. According to the actual situation of users, the digital image processing system needs to be continuously optimized so that it can help users observe the content of the image more intuitively. When using the system, users do not need relevant professional skills, because the system has its own image processing functions. As a result, the system can process a large number of images in a short period of time. Digital image processing technology is mainly developed to meet the needs of photography enthusiasts and digital product enthusiasts, and has a higher usage value.

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