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Application of X optical intelligent detection technology in the field of electronic production

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Abstract. With the rapid development of information technology, the application of electronic technology is more and more extensive, rapid detection of electronic production needs of the field has become increasingly strong. Based on this, research on the application of X optical intelligent detection technology in the field of electronic production was carried out. In this paper, the electronic production in the field of traditional security model was introduced firstly, and then the principles and characteristics of application of X intelligent detection technology in electronic production in the field were discussed, finally the application of X intelligent detection technology in electronic production in the field was introduced. The test results show that the application of X optical intelligent detection technology in the field of electronic production is more realistic and reasonable. It has a broad application prospects, can provide researchers with a new way of thinking.

Key words. X light, intelligent detection technology, electronic production, security model.

1. Introduction

With the rapid development of X technology, the application of X based optical technology is more and more extensive, but this makes it necessary for people to quickly and effectively detect electronic products. Especially in the last century in nineties, the rapid development of technology has greatly accelerated the pace of social information. However, the openness of technology also provides convenience for the technical application. Therefore, it becomes a big problem to be solved in the field of electronic production for the application of X optical intelligent detection technology in the field of electronic production. Based on this, we have carried out research on the application of X optical intelligent detection technology in the field of electronic production. In this paper, the electronic production in the field of traditional security model was introduced firstly, and then the principles and characteristics of application of X intelligent detection technology in electronic production

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in the field were discussed, and finally the application of X intelligent detection technology in electronic production in the field was introduced. The test results show that the application of X intelligent detection technology in electronic production in the field are more realistic and reasonable, it can better meet the requirements of electronic engineering optimization, so this method has very strong practical value. There is strong evidence that some X light can recognize and respond to stimuli [1]. Research shows that X light can reflect timely after stimulating the signal [2]. In this paper, an effective exponential model is established to prove the application of X in computer [3]. In this paper, we mainly study the construction process of the specific substance detection in the field of electronic production [4]. In this paper, the detection method can be used to detect the biological virus derived from the base [5].

2. State of the art

Optoelectronic information technology is a kind of high technology, which combines optical technology, electronic technology, computer technology and material technology. Photoelectric detection technology is the most important part of optoelectronic information technology. The characters conclude high precision, fast speed, non-contact, high bandwidth and large information capacity, high efficiency of information, high degree of automation. Technology is one of the most important means and methods to promote the development of information science and technology. It is widely used in industry, agriculture, military, aerospace, and everyday life, including light conversion technology, optical information acquisition and optical information measurement technology, optical processing technology measurement information, image detection technology, optical scanning detection technology, optical fiber sensing detection technology and system. X ray technology has been widely used in the national economy, national defense, scientific research and other fields, it has become an important technical support for the new technological revolution and information society. Optical detection technology and electronic technology achieve a variety of products, the combination of detection is the leading science in twenty-first Century, and the whole technology development has played a huge role in promoting the development. Because it covers a large number of science and technology, so its development has led to the development of much science and technology, and in the process of communication and development, a huge photoelectric detection industry is formed. Many foreign scholars and experts have been particularly concerned with the research of analog electronic circuit testing and fault diagnosis. In 1962, Berkowitz first proposed the concept of analog electronic circuit to solve the problem, and opened the research of analog electronic circuit fault diagnosis. In 1979, Navid demonstrated sufficient conditions for the solution of the linear resistive element, which laid a theoretical foundation for the fault diagnosis of analog electronic circuits. In eighties, researchers from the actual situation of the fault, the focus of all parts of the solution will be transferred to the diagnostic part of the value of the parts to determine the fault area or failure parts. During this period, the typical method is the method of fault element delimitation and node failure. From

then on, analog electronic circuit fault diagnosis develops towards the direction of more practical multiple faults. For large integrated electronic circuits, Salama, who first proposed the network level network decomposition diagnosis method in 1984. However, the method requires that all the nodes in the network are reachable, and all the related nodes are removed. The tear of the electronic circuit is destructive and is not allowed in the actual diagnosis. Since then, many scholars have perfected and complemented this approach. However, most of the KCL equations are based on the large amount of calculation, slow diagnosis, application is very limited. Intelligent information processing technology continues to develop and in-depth, and solve the traditional diagnostic methods of analog electronic circuits in the component tolerances and nonlinear, electronic circuit diagnosis and other problems to provide a powerful tool. Since nineties of last century, neural network, expert system, fuzzy theory has been used to simulate the fault diagnosis of electronic circuits. Expert system fault diagnosis method is mainly reflected in the following points: analog electronic circuit fault and the relationship between the symptoms is easy to express through the intuitive and modular rules. The expert system based on production rules allows to add, delete or modify some rules to ensure the real-time and effectiveness of the diagnostic system. To a certain extent, it solves the problem of uncertainty, and can give the conclusion of the human language habit and has the appropriate explanation. In this paper, the detection of electronic products is accomplished by generating a detector [6]. In this paper, there are two main methods of detection, respectively, on behalf of the two models. The research of this paper is of high accuracy. Single electron detection method has high accuracy. At present, the use rate of electronic products in our country is greatly increased, and there is a great demand for electronic testing methods. This report describes some of the characteristics of the monitoring system, explores some of the basic model. Detection of mine construction is difficult to fully describe the soft tissue sometimes. Some experimental results show that the detection of computer is especially difficult to control, but it can be overcome by special methods. The current detection of electronic products mainly focuses on several aspects. This paper is mainly about the characteristics of some special light on electronic production.

3. Methodology

3.1. Security model in the traditional field of electronic production

A security model for the field of electronics production is used to describe the core part of the security environment in the system environment. The basic components of the security model in the field of electronic production are: entity and access control. Entities are further divided into subject and object. All of the electronic security products, no matter how complex, they can be abstracted from the basic model of security in the field of electronic production, it follow some basic principles and basic, join the I & A subsystem and audit subsystem in the object access on the basic constitute of electronic products, the traditional security model, as shown

in Fig. 1.

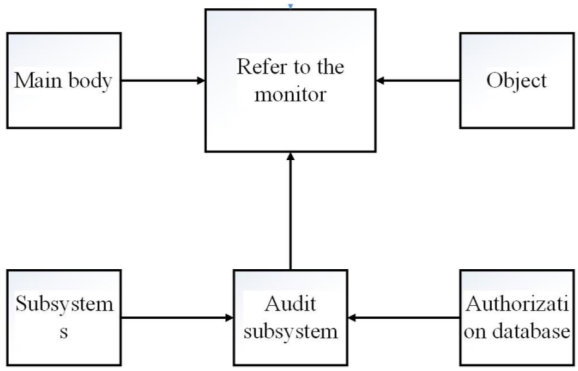

Fig. 1. Traditional security model

Among them, the control monitor is also known as a security kernel, is the main body. The control monitor is primarily used to control the subject's only way to access the object when it makes a request to access the object. The control monitor has two main functions: the first is a comparison function used to calculate and evaluate the access request issued by the main one. When the subject issues an access request, the control monitor will refer to the authorization database to determine whether to accept or reject the received request; the second is the authorization function to control the change to the authorization database. Control monitor not only controls the subject how to access the object engine, but also controls the change of access rules. In addition, the security kernel, identification and verification system (I & A) can identify and verify the subject and object. Audit subsystem, the need to monitor the activities of the control monitor, it can determine whether the control monitor operating normally; the need to store the access control rules, which indicates that the access is acceptable or object or deny the authorized database. By adding the subject, object and the I & A, based on safety kernel, three parts enhanced audit and authorization database, security model security of electronic production areas have stronger. Among them, the security kernel and enhance the components to each other trust each other. The traditional security model in the field of electronic production defines the interaction between entities and entities and controls the rules to achieve confidentiality, integrity and availability of security objectives. Figure 2 is the actual application of X light in the field of electronic production.

3.2. Research on the principle and characteristics of the application of X optical intelligent detection technology in the field of electronic production

According to Stefan-Boltzmann's Law, any object whose temperature is higher than the absolute zero exhibits X - ray radiation and the radiated power W is proportional to its absolute temperature T of the four power. In the case of electronic equipment in the work of the normal circumstances, each component will pass a cer-

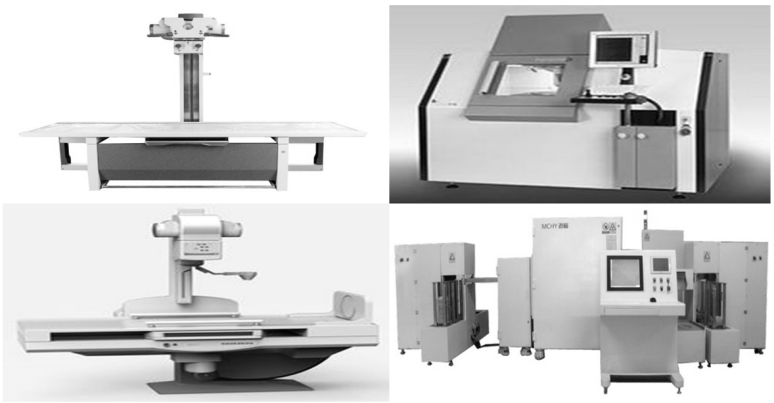

Fig. 2. X-ray in the field of electronic production of the actual application

tain current, and consume a certain amount of power, to achieve thermal balance; there is a clear working temperature. When the temperature of the component exceeds the ambient temperature, there will be three kinds of heating processes: conduction, convection and radiation, in which the heat radiation is expressed as X - ray radiation. The power of dissipation and the power of the radiation or the absolute temperature of the object are proportional to the two. Measuring the temperature of the radiating element can provide all the information which is required to determine the thermal and thermal stress characteristics of the element. Thermal interactions in electronic devices are very complex. The electronic components only heat when the temperature is higher than the ambient temperature. Due to the heat conduction, convection, radiation, X - ray radiation components may be much more complex, the surface temperature range of the component must be measured using X - ray equipment.

Resistance is the power element. In electronic equipment, a large number of resistive elements form the main source of X - ray radiation. Through its own dissipation of 20 % of the resistance of the heat, the remaining 80 % of the heat from the lead ends (each 40 %) by conduction away, So the heat distribution of the measured X - ray shows that the center temperature is the highest, and the direction of the gradual descent toward the two ends. So when the resistance itself is defective, or turns off, welding, heat distribution symmetry change of semiconductor devices is very sensitive to the temperature component, the higher the temperature, the X radiation emission contains non coherent radiation and compound radiation of two. The center of the transistor temperature is the highest, gradually reduced to the surrounding. The shell temperature of the transistor increases linearly with the increase of power consumption. The same type of different transistors have different emissivity, different surface temperature, different lead length and good substrate to substrate welding quality, but also the temperature of the device has an impact on it. The general power of 5∼10 minutes can rough measurement of transistor temperature, accurate measurement needs power 0.5 h to reach thermal equilibrium. Before reaching the peak temperature of second, the transistor can be

used to measure the peak value of the X - ray measurement device, which can be used to measure the peak temperature of the X - ray radiation. Integrated circuits in scale and large scale integrated circuits, it has complex internal structure, a number of resistance and semiconductor devices, the resulting in X - ray radiation is also more complex. The power consumption of IC is different from that of the actual working state, and the temperature of the integrated circuit package of different models is sometimes significantly different. From the testing point of view, the thermal distribution of the integrated circuit is mainly concentrated in the middle, and the temperature of each component of the same type of integrated circuit under the same operating conditions is high because of the difference between the packages.

3.3. Application of X optical intelligent detection technology in the field of electronic production

Electronic equipment design, including electrical design, component selection, product design, and many of these problems are related to heat, the thermal design of equipment must be considered. X ray technology can be used to solve many conventional detection technology which is cannot find the hidden dangers, while these problems lead to premature failure of equipment, it mainly due to the circuit design of the circuit design, according to the equipment reliability requirements, the assignment of each component of the working load of the size allows the working temperature. If the component is fully loaded or overloaded, premature failure may occur, and the heat sink must be fitted with a larger load of components, all of which must be considered by the designer at the design stage.

Once the design is completed, the designer must check the rationality of his design, using X ray detection technology can quickly provide all the components of the working temperature, help the designers to check the change, help us eliminate the hidden dangers in the radar design repository backup board, we found that although we use the same number of printing plates and the same component manufacturers in the same types of power supply, there still some big difference in temperature difference and individual temperature, especially the integrated circuit, complete function, high temperature is bound to shorten the service life of the components. In order to optimize the design, the assembly must be screened to remove more power consumption components, namely, the overheated. This work with the traditional detection is very troublesome, and is difficult to do, but with X ray detection is very easy to design the circuit, so product designers need design the circuit board, layout of all elements and connections.

With the miniaturization of product requirements, more and more intensive components will come out, designers often view things only from an aesthetic angle, when the component neatly, the individual space constraints, the radiator may not be used, finally the following questions will appear: Large components, high temperature and heat radiation will affect the power consumption of adjacent components in a low way, so the load and temperature of these parts is increased; Because the power consumption of the component is not installed in the radiator, the heat radiation is not very good, and the component life is shortened greatly. Using X ray technology can help designers to change the design to achieve the best calculation method,

calculation of stress components are comprised by components of the calculation of current and power, and then according to the ambient temperature, the size of the internal components of the working temperature is calculated. This method is not accurate enough. Other methods of direct temperature measurement are cumbersome, not only subject to many limitations, but also do not work. In addition, due to the limited data available at the measurement point, sometimes severe points are missed. X ray detection technology without any restrictions and any risk, we can quickly get the temperature information of all parts, can accurately measure the actual surface temperature, it can be used to calculate the stress components, provide accurate thermal parameters, which is a valuable tool for stress analysis.

We assume that the variation range of I or U of the electronic circuit is small, normal and large, and the symbol L, N, M, is used. Therefore, according to the failure mode of each component, the sample data is specific as shown in Table 1 and Table 2.

Table 1. The first group pickup

L	N	M
0.02	0.95	0.12
0.03	0.84	0.15
0.04	0.93	0.14

Table 2. The second group pickup

L	N	M
0.08	0.95	0.11
0.05	0.85	0.19
0.06	0.94	0.09

According to each value of the first or second group of each component, the corresponding circuit frequency response curve is sampled once, and as a neural network input. Network output status uses two states: 0 (fault) 1 (normal). If both L and M are equal to 1, the component is normal.

Fault diagnosis and location of analogue circuits based on classical two- layer perceptron. BP algorithm is used in the sigmoid transfer function, the output layer neurons using linear transfer function. Set up

$$y = g\left(\sum_{i=1}^{n}\left(K_i F_i - \theta\right)\right). \tag{1}$$

Here, K_i is the weight and F_i is the input. Symbol θ is the limit value and $g(x)$ is the transfer function.

4. Result analysis and discussion

When the index system is set up, we need to reestablish the weight of each index. First invite experts to score, and then sort the results. Second, the sort after the results of the 22 comparisons has a distribution of an index of scale. The relative weight of the index and calculation of the weight of the index, of course, here the object is a qualitative indicator. We invited six experts scoring; six were mentor, off campus tutor, electronic Chief Engineer, electronic engineering project chief engineer, electronic engineering project manager, and electronic engineering technology person in charge. They all have professional theoretical knowledge and rich experience in electronic engineering operation, they have a profound understanding of the various types of viruses, so I chose six experts to explore the importance of indicators. Figure 3 is the results of the two items.

The test results show that the application of X intelligent detection technology in electronic production in the field of are more realistic and reasonable, it can better meet the requirements of electronic engineering optimization, so this method has very strong practical value.

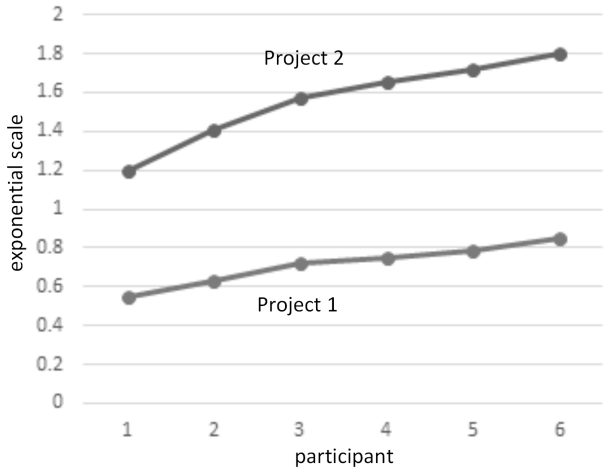

Fig. 3. Results of two projects scoring

5. Conclusion

X optical intelligent detection technology in the field of electronic production has a very important practical significance; it has become one of the new ways to get rid of the current field of electronic production detection difficulties. Based on this, we have carried out research on the application of X optical intelligent detection technology in the field of electronic production. In this paper, the electronic production in the field of traditional security model was introduces firstly, and then the principles and characteristics of application of X intelligent detection technology in

electronic production field were discussed, and finally the application of X intelligent detection technology in electronic production in the field was introduced. The test results show that the application of X optical intelligent detection technology in the field of electronic production is more realistic and reasonable. In a word, we have made an encouraging step in the field of application of X optical intelligent detection technology in the field of electronic production, and have found a new way to detect the current dilemma. In the future, we will further expand the research and application in order to eventually build a strong, powerful testing system. Due to the limitation of time and my ability, there are some deficiencies in the research of this paper. For example, due to uneven development between regions, the various regions of the X optical intelligent detection technology application development level is not the same, the results of this study may not be suitable for other regions. In addition, the object of this study does not address the poor basis of the electronic industry, for this type also need to be further explored and studied.

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