Study on the Technology of Equipment State Monitoring and Intelligent Evaluation

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Abstract. This paper studies the key technology of the equipment monitoring and intelligent evaluation: the anomaly detection equipment status, the data are processed with Grab J; the transmission of high-definition images and video mode to realize the state matching, using radial basis function neural network and least square method, further processing of data; realize the intelligent evaluation method of equipment state using fault tree analysis, provides a reliable basis for improving equipment performance. The research results of this project will provide theoretical basis and technical application is important for the evaluation of comprehensive detection and intelligent electrical equipment.

Introduction

Equipment state detection technology is a hot field in recent years, computer applications. How effective detection equipment to ensure the safety of the state electrical equipment has become common problems and the urgent need to address the issue. Comprehensive detection technology is to implement a safety inspection of the equipment an important and effective technical means. The current domestic and international research on detection technology has made some achievements. However, due to the limited test data and methods, a lot of technology still needs further improvements, such as a variety of techniques to achieve comprehensive tests to achieve the desired results. In comprehensive testing, the initial state detection processing apparatus includes the status parameter detection equipment, such as; advanced detection technology in high-definition images at completion, including pictures of calibration, synchronization, information fusion, behavior and device status will be described. Comprehensive testing is to improve the state analysis of key technologies, through synchronization, calibration and integration of multi-device information, you can achieve more accurate and reliable analysis than single technology for advanced device detection information judgment and decision making.

Significance and trends research

References are cited in the text just by square brackets [1]. How aquarium farming state to monitor and ensure the healthy growth of dynamic biological farming has become a problem often faced by businesses and users. Dynamic monitoring and intelligent evaluation technology is state of the aquatic environment to implement a dynamic monitoring of the important and effective technical means. Current researches about monitoring technology have made some achievements. However, due to the limited monitoring data and methods, a lot of technology still needs further improvements, such as a comprehensive variety of techniques to achieve dynamic monitoring to achieve the desired effect.

References are cited in the text just by square brackets [2]. In the integrated monitoring, the primary monitoring processing aquatic environment state including state parameters (temperature,

pressure, water quality, humidity, images, video, etc.) monitoring; advanced monitoring technology in high-definition images at completion, including calibration of the picture, synchronized, conduct information fusion, etc., and the state will be described. Although the single technical monitoring of research has been more mature, due to the complexity and diversity of each state, and how to implement and improve integrated monitoring and intelligent evaluation of these features have yet to be studied. This paper use the integrated monitoring technology aquarium condition monitoring, image calibration, synchronization, information fusion, behavioral descriptions, research RBF (Radical Basis Function, RBF neural network), LSM (least square method, the least squares method) FTA (Fault Tree Analysis, Fault Tree Analysis) to achieve environmental status aquarists of integrated monitoring and intelligent evaluation, and provide the basis for the healthy growth of aquatic organisms.

References are cited in the text just by square brackets [3]. Comprehensive monitoring of research, and some units have been carried out based on the model, feature-based, region-based, based on the direction of the active contour, etc. to carry out research, has achieved some results. The project combines MatLab, Grubbs, Dixon and other technologies integrated monitoring aquarists state of the environment, analysis and processing, intelligent evaluation study by FTA technology to achieve state, provide the basis for state security. FTA is a systems engineering analysis methods commonly used at home and abroad in many industries to conduct the trial and promotion. At present, domestic and foreign research institutions and universities using a single technology for the state of the scene monitoring, motion detection and pattern recognition and other aspects of a part of the study, and achieved certain results. However, multi-technology integration for aquatic environment state monitoring and intelligent evaluation of the dynamic aspects of the study less.

Research content and key issues

Research objectives match. Comprehensive target matching essence is comprehensive object matching. It features a selection of objects matching algorithm selection, matching the performance and computational complexity has a significant impact. This project uses as its characteristic spindle looking objects using geometric imaging knowledge of similarity between the monitored spindle is calculated, taking the maximum similarity measure as a matching result. Extraction aquarists status information for the sequence of morphological information currently monitors changes in a dynamic model, the model can Reaction Monitoring feature in a sequence, and use of technologies such as the status of FTA intelligently evaluate, develop intelligent evaluation module.

This project examines the aquarium status (temperature, pressure, water quality, humidity, images, video, etc.) of key technologies integrated monitoring and intelligent evaluation include: to achieve the status of various types of anomaly detection, the use of Grubbs, Dixon etc data processing; the use of high-definition images and video transmission means to achieve matching state, the use of radial basis function neural network (RBF) and least squares method (LSM) and other data for further analysis and processing; the use of fault tree analysis (FTA) realization of state intelligence evaluation, to provide a reliable basis for monitoring the growth of aquatic organisms. Results of this project will provide a comprehensive monitoring and intelligent evaluation of the state of aquatic organisms important theoretical basis and technical applications.

Research Technology

References are cited in the text just by square brackets [4]. Comprehensive monitoring data and processing results unified, complete object matching, objective research project was carried out

for the future target abnormal behavior analysis and the results communicated to the users, to achieve comprehensive monitoring to provide theoretical and experimental basis. Research program described in detail below: state aquarium breeding environment for technical research: The project adopted a Bayesian modeling approach for monitoring moving objects.

References are cited in the text just by square brackets [5]. The total target matching: Based on total target area and feature points matching process is complicated and susceptible to noise. The project intends to use to find the moving target to match the target spindle. In the case of individuals without shelter, the spindle can be calculated by the principle of minimum distance and point. Intelligent evaluation technique: to be achieved through the establishment of intelligent evaluation model and combine FTA technology. Binary image sequence current detection sequence modeling, parameter and model of learning. According to prior art use .net software development, dynamic monitoring system, the interface shown in Figure 1. Specific modules of the system shown in Figure 2. The detection module is shown in Figure 3.
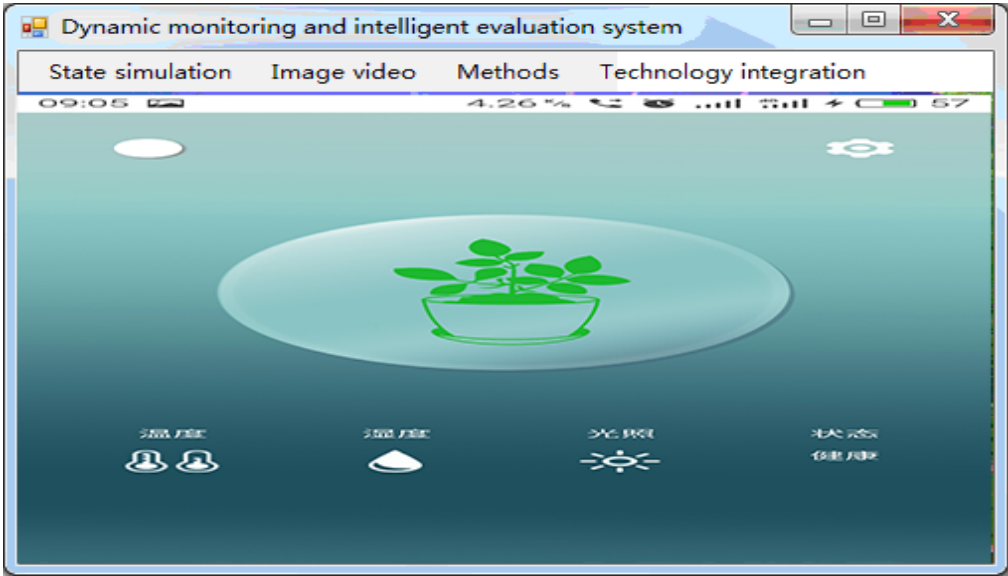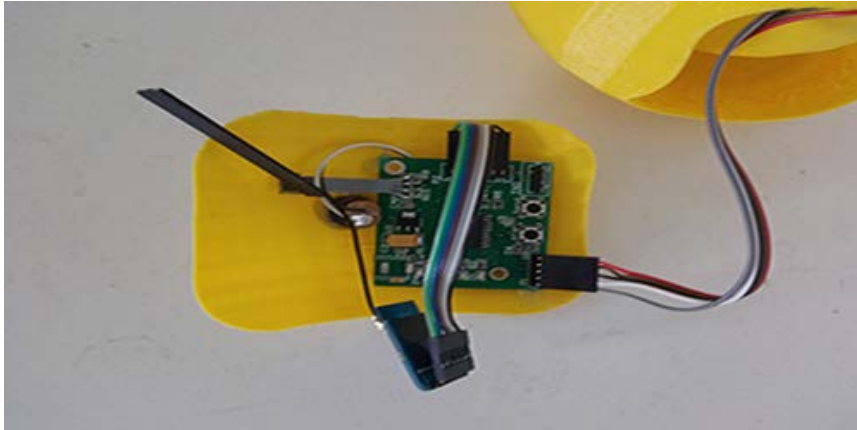

Fig. 1 Main interface

Fig. 2 Each modular system

Fig. 3 Detection module

Industrialization

Continue to develop monitoring technology makes a lot of research data analysis as a priority, a comprehensive analysis of technology also have a deep theoretical foundation. Many areas of the state need to be monitored, the user is able to keep abreast of the operation and troubleshooting. Therefore, this project needs a wider market. These findings are of research in this project has a good reference value. The project study was to achieve industrialization in the following areas: obtain accurate state. Using Grubbs, Dixon and other criteria to search for an abnormal state cycle data and automatically reject the like. Goals match. Breakthrough inadequate regional and traditional target matching method based on the point-based matching method using target-based spindle, combined with the color histogram, will feature fusion to achieve an exact match. The status of the detection sequence intelligent evaluation results evaluation grade.

Conclusion

In this paper, a reasonable comprehensive testing technology, focused on solving the device status acquisition, the key question object matching and intelligence evaluation, and using a variety of advanced techniques for the abnormal behavior of a device for analysis, identification and evaluation. To solve the following problem: The device status acquisition technology, using a Bayesian, Grubbs, Dixon and other modeling and process; based on a single plane of the device should sexual relations proposed device target matching method. The method is simple, and is not sensitive to occlusion. Combined histogram, fused to achieve an exact match; the establishment of the model and using the model of forecasting techniques combine device status FTA intelligent evaluation.

Acknowledgements

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