Application of Intelligent Laser 3d Visualization Technology in Mobile Terminal (Mobile APP)

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Abstract. Nowadays with the rapid development of mobile terminal, mobile terminal almost completely replaced the various network of our traditional basic life mode, all kinds of network application, people no longer simply need to appreciate the music, games, film and television network, but more needs to be involved in information exchange and sharing all kinds of social activities. The research of 3d image visualization technology is a comprehensive advanced technology which focuses on computer image data processing and image information display. The research purpose of this paper is mainly to provide better Suggestions for the continuous optimization of 3d image visualization technology through the research and application of intelligent laser 3d image visualization technology in mobile APP. This paper mainly analyzes the development of 3d visualization technology in the main application fields and the current status of operation and maintenance system management technology of mobile terminal APP products, and visualizes the product operation and management status of various popular mobile apps on the mobile Internet in 3d. Then, from the current mobile online music APP the application domain of a system verification, the results succeeded in statistical analysis and filter the background user 3 d data volume, its operational efficiency than the daily operational efficiency increased by 30%, background proved that using 3 d data visualization technology can effectively improve the working efficiency of the system and the background, thus effectively improving the efficiency of background management.

Keywords: 3d Visualization Technology, Mobile Terminal Management, Visual Operation and Maintenance, Feature Point Detection

1. Introduction
The wide application of 3d visualization technology not only brings great changes to the product structure of mobile apps in China, but also makes the complex 3d spatial diagram and object structure have a more intuitive and vivid way of information expression. At the same time, various information data integration technologies in the application of 3d visualization technology provide new carriers and effective solutions to various problems in the process of traditional information data processing and delivery, such as numerous information data islands, information asymmetry, information data transfer disorder, and invalid processing work. The design and development of 3d data visualization information application in the operation and maintenance system also lays a solid foundation for the visual information management, data network access, information interaction, information form expression and data analysis application of the APP operation and maintenance data management center. Through the realization of visual security monitoring, the potential security problems can be intuitively and clearly shown, and the potential security risks can be eliminated in advance, and the potential problems can be found and solved as soon as possible.

In order to explore the application value of 3d visualization technology, 3d printing technology and 3d laparoscopic technology in the diagnosis and surgical treatment of liver tumors, FANG Chihua collected 22 patients with liver tumors admitted from November 2013 to January 2015 for abdominal thin-slice CT scan. The CT images were imported into the medical image 3d visualization system (mi-3dvs) for 3d reconstruction. Standard template library files are exported for 3D printing. FANG Chihua used the mi-3dvs system to grade liver vessels and predict liver resection. 3d model was printed and virtual liver resection was performed accordingly. Based on these preoperative surgical plan data, anatomic hepatectomy was performed with three-dimensional laparoscopy, recording intraoperative blood loss, virtual and real hepatectomy, and postoperative hospital stay [1]. Medical imaging is one of the main means to enrich medical science, disease detection and treatment. Computed tomography (ct) is the most widely used imaging method for cancer detection, tumor diagnosis and therapeutic guidance in clinical practice. Recent advances in CT imaging techniques allow high-throughput information extraction of imaging features to quantify differences in tumor tissue presentation. The development of computer-aided detection/diagnosis (CADe/CADx) systems based on imaging biomarkers associated with disease probabilities could be an increasingly attractive area to support clinicians in detecting early disease and identifying risk adaptation therapies. Three-dimensional visualization of the CADe/CADx system could have a significant impact because various imaging patterns are often used in clinical practice to improve medical decision support. Yoshiki Kawata presented some examples of CADe/CADx systems for 3d visualization of chest CT images [2]. Three-dimensional volume rendering is a common method in forensic radiology. Its main function is to explain medical findings to state lawyers, judges or police representatives. The new visualization algorithm allows the generation of an almost lifelike volume rendering of CT data sets. Lars C Ebert's aim is to demonstrate and compare radiological findings to illustrate the differences, advantages, and limitations between current VRT and physics-based film rendering techniques. Materials and methods: ten cases of VRT and CRT were reconstructed in 70 volunteers. They were asked to mark the findings on images and rate them for authenticity and understandability. Results a total of 48 questionnaires were collected and included in the analysis. According to most of the findings presented, CRT appears to be equal to or superior to VRT in terms of authenticity and intelligibility of visual results [3].

With the continuous progress of information digital management technology, the use of 3d
visualization technology for data management of various mobile terminal operation and maintenance systems will also become the future development trend. Based on intelligent laser 3 d visualization technology, this paper analyzes the data integration system based on mobile end operational business management objects, and operations management characteristics, put forward the operational business management data information integration solutions, and respectively in the operational management system software for data display and the realization of the business information data integration and so on, make its operations on the mobile end business management more intuitive, efficient and more intelligent, boosted its operational information digitization of business management and business intelligence fusion level, enhances the working efficiency of operational management.

2. Proposed Method

2.1. 3d Visualization Technology

(1) Classification

1) Laser scanning technology can obtain high-precision point cloud by means of high-speed laser scanning measurement, obtain 3d data of mobile APP, and provide accurate and detailed visual surveying and mapping data.

2) GIS is a new spatial technology combining geospatial data and computer, which has been developing rapidly in recent years. It organically combines the spatial position and related attributes of real objects to satisfy the management of spatial information, and makes various auxiliary decisions with the help of spatial analysis function and visual expression.

3) BIM technology USES information technology to express and store the geometric, physical and functional information of a project in its full life cycle, featuring visual design and decision-making, parametric design, associated modification design, performance analysis, collaborative design, and three-dimensional delivery [4-5].

(2) Visual data information conversion

In the period of data transfer and data access of communication system, the visual text data processing carrier should fully meet the technical requirements of the lightweight text data carrier and the generation, automation and conversion of digital coding data. The lightweight of data sources is mainly due to the information diversity of the entire data source and the different requirements for the visual data platform and other mobile data applications in the data operation and maintenance development stage, which ensures the smooth use of the entire data source. On the basis of various visual data models, the model database is established, and various models and corresponding data files are seamlessly linked among the data. The user information and network related service information linked to each other are expanded according to the needs of network operators and maintainers in different stages to gradually optimize and enrich all kinds of website information [6].

(3) Visual model information query

Visibility optimization integration model of virtual model not only have the graphics and the shape of model space at the same time, also has the model orientation, material, type and specification and so
on the many kinds of attribute data information, this part of the attribute information data model can be directly used for query and statistics, to all the needs of the comprehensive model of information filtering, auxiliary model operations and technical personnel familiar with the field information system, the model of virtualization, at the same time, under the integrated visualization model state information encoded data such as the model for system review and data validation [7-8].

(4) Map file information access

Image file information data access mainly includes the enterprise design drawings, construction drawings, related enterprise communication, summary of the image file information access, mainly for image file will be scattered data with data visualization management data is stored as information carrier, to file and make a comprehensive classification coding for data identification body, in the image file database in order to image file data structured information integrated management, make originally belonged to the scattered disorderly image file data according to the business operations manager the orderly way for data storage and management of visualization integrated management, Improve the operation and maintenance management staff real - time query or retrieval of file data work efficiency.

(5) Visual data of standing account information

The visualized data of the standing account information are mainly for electromechanical equipment and safety monitoring instruments, etc., and the basic information such as their coding, design results, inherent size, installation location, and factory setting are recorded [9].

(6) State information visualization data

The status information is mainly the real-time measured value, measured value results and operation status information of base-point equipment and safety monitoring instruments [10].

3. Experiments

3.1. Experimental Background

Mobile music technology has changed the online transmission and experience of traditional music, making it possible to store massive electronic music data in real time. Thanks to its technological advantages such as fast online transmission and convenient appreciation, the global mobile electronic music industry is booming and has entered a music era with rapid and healthy growth. The main FaZhanDian in intelligent mobile end wireless mobile music on demand in the market, it ends up making the intelligent mobile client wireless music on demand products from the initial propagation mode single, indirect, and it is difficult to directly get a mobile user feedback in time a few characteristics, such as gradually gradually developed into a multimedia platform service pattern, among the "go" by transmission and direct timely access to mobile users feedback the music information; In particular, it is mainly manifested in the growing number of all kinds of smart mobile wireless music on-demand applications and active users of all kinds of mobile wireless music on the mobile smartphone client.

3.2. Experimental Design
When 3d visualization technology is used to measure the background data of a mobile music APP, the measurement data will inevitably introduce errors due to the influence of system and human factors. When the original data is fitted, the "bad points" in the data will affect the fitting effect of the curve (plane) of the point and its vicinity, resulting in a certain deviation between the fitted model and the original model. Therefore, the initial data must be preprocessed to eliminate interference.

1) The operator manually removes the relatively abnormal points, but this is obviously not scientific when the measured data is extremely large. So it doesn't make a lot of sense.

2) Average, median or gaussian filtering algorithm. The average filtering algorithm takes the average value of all point cloud data points in the window as valid data. The median filtering algorithm calculates the median value of each point in the window, which can effectively eliminate the burr of point cloud data. The gaussian filter algorithm sets the weight of gaussian distribution to the specified region according to its characteristics, and then averages the set data.

Data bands of 12 time points were selected for the test, and the results are shown in Table 1.

| Table 1. Test results |
|-----------------------|
| X | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Y | 0 | 0 | 91.247 | 296.346 | 303.748 | 430.231 |
| X | 7 | 8 | 9 | 10 | 11 | 12 |
| Y | 96.231 | 262.019 | 283.324 | 44.972 | 0.881 | 22.392 |

4. Discussion

4.1. Application Analysis Based on Intelligent Laser 3d Visualization Technology in Mobile Terminal

As shown in Figure 1, the screening results of the database of background users of a music APP show that background users are firstly screened in terms of age, and most of them are between 23 and 26 years old. The results of data analysis and screening show that there are graphic media designers, UI web designers, corporate public administrators, freelance media photographers, and students in the occupational category. Besides art and music, they also have different cultural interests such as sports, reading and traveling. Almost all of the user after every time they hear their favorite live music can add the collection or sudden, thumb up or comment, share, or recommended by the strong desire, then their favorite live music collection directly to their personal playlists, or recommend to share out can make society more others can hear, but the less thumb up comments, they generally believe that APP for mobile live music community in the social circle is unfamiliar, comment or not actually.
4.2. Suggestions for Application of Intelligent Laser 3d Visualization Technology in Mobile Terminal

Broad prospects, and the application of 3 d visualization technology in the system integrated with visual inspection, and inspection personnel positioning in the system, the basic information input, hydropower station, managers can quickly adjust the inspection record, timely access to checking status, type of information can be used to query and statistics according to certain rules and achieve the visual management. When the fault is found in the process of patrol inspection, the fault registration can be conducted through the mobile terminal, and the information of equipment properties, inventory spare parts and so on can be inquired in the system. The visual model is related to the asset management system, which can directly query and manage the contract information, cost information, drawings, equipment status, etc. By clicking on the visualization model, can consult the relevant parameter information, in the visual system according to the code, name of the query and management, can quickly locate compared with the traditional way, and can visualize how carries on the analysis and decision-making, such as all kinds of statistics, including equipment assets TAB, equipment damage analysis table, table, maintenance spare parts situation table, etc.

5. Conclusion

This paper systematically studied the data processing of intelligent laser 3d visualization technology and the application of 3d visualization technology in mobile APP, and realized the model design of intelligent laser 3d visualization technology in mobile music APP. On this basis, the background user data at scattered time points of an APP is extracted, and the relevant data is successfully analyzed and processed, which is conducive to the mobile terminal's management and monitoring of the huge user data and improves the operation efficiency of the APP.

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