Application On the Accidental Vehicle Technology Expertise and Software Development

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Abstract. The current safety performance technical expertise work for accidental vehicles lacks of relevant laws and regulations, technical characteristics of modern cars, workable identification norms to guide this work. For this reason, establishing new technical expertise norms scientifically, is able to control the identification process, so that the identification work quality and efficiency can be greatly improved and enhanced.This paper introduced one of factors causing traffic accidents information. The author developed the computer-aided identification management system software of accidental vehicles' safety performance, compared the two results of the software and experts, pointed out that the two results consistency. Through testing, the software was proved that it can be applied to the actual identification work.

Introduction

The invention of automobile have revolutionized human transportation. Automobile provide more convenient traffic for our society, cut down the time of distance for people contact and transportation on the road. However, automobile also make a negative impact on human society while it is helping our society go forward, and traffic accident is one of them. According to the statics of present, people died from traffic accident per year more than 500~600 thousands of people, which rank the first reason of making human died from abnormal[1].

As a objective evidence for dealing traffic accident, technical expertise work for accidental vehicles play a vital role in checking out the cause of accident and responsibilities identification. Government issued a few relevant laws, regulations, and norms, published some information and tutorials, which play an important part of guiding for indentifying technical condition of accidental vehicles, but all these measures are difficult to apply on actuality for it is not easy to concentrate on and operate[2]. Therefore, establishing new technical expertise norms scientifically and controlling the process of technical expertise for work strictly and precisely, can enhance the workmanship and efficiency of identifying for accidental vehicles , and achieve innovative progress.

In technique expertise work for accidental vehicles, not only need surveyor to familiarize relevant laws, regulations, and norms, but also enable to refer original vehicles ex-factory datum of technique and condition of various brands of vehicles, which can assist surveyors to complete the work of identification precisely and efficiently. However, the brands of automobiles is various in traffic accident, in other words, which means that surveyors should gain enough original vehicles ex-factory datum of technique and condition of various brands of vehicles. Otherwise, it will make the work for referring the datum of identification more complicated , and not conductive to draw a

conclusion quickly. In addition, in the identification of actual work, surveyors verify all the systems and parts for the performance of safety, and the results of verifying will be compared with the laws and regulations of our country and original vehicles ex-factory datum of techniques and conditions, which can be a standardization to judge whether the systems or the parts of the vehicle is qualified or not, so they can identify the moment that the vehicle is with unsafety before being crashed[3]. But the way of identification is not fare and objective because it includes varieties of subjective opinions. In order to solve the problem stated previously, writer developed computer assisted identification management system software for safe performance of accidental vehicles which can help surveyors draw a conclusion of identification quickly and correctly and improve the efficiency.

Computer assisted identification management system software for safe performance of accidental vehicles

Basing on PowerBuilder, writer developed a computer management system software of assisted identification. Satisfying the request of convenient operating and friendly interface, the writer designed the interface elaborately, especially the input and output interface. The system design adopts structural system analysis, establishes logical model of system[4]. The whole process is shown as follows figure 1.

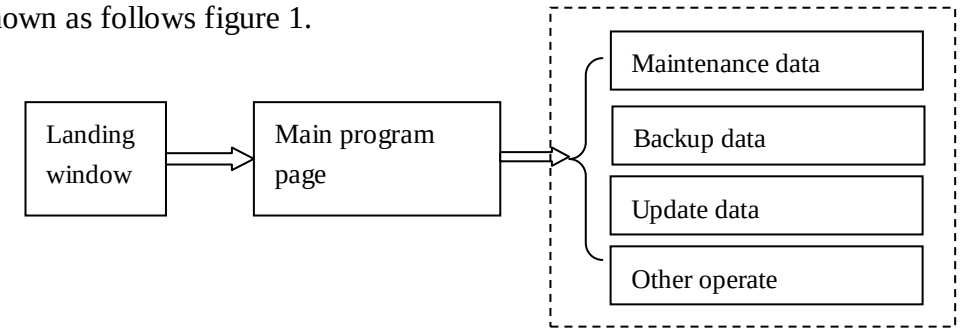

Fig 1. the whole program image

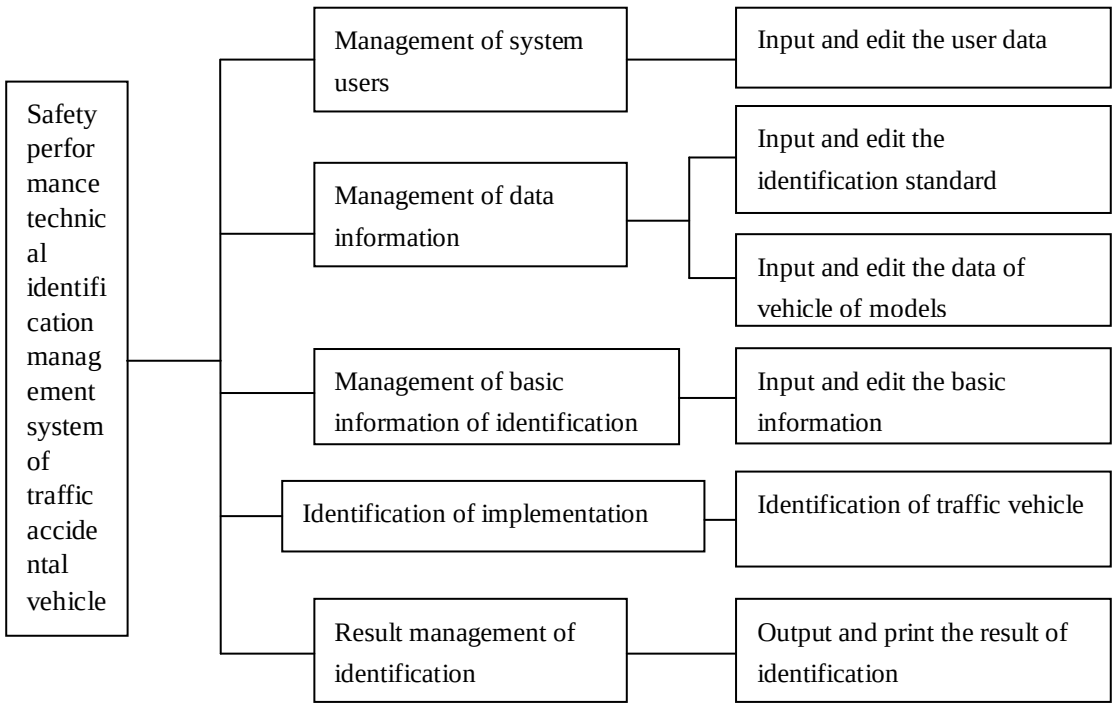

Fig 2 Divided picture of the system module function

From the view of function to achieve, the main operating module in the main interface has maintenance module of operator, identified data and standard maintenance module, the accidental

information input module, identification module of implementation. Divided picture of the system module is shown in figure 2.

Management of system users

If we click the maintenance module of operator in the main interface, it will display the management interface of system users. In the interface, you can add new users and change users' name and set permission.

Management data information

Safety performance technical identification of traffic accidental vehicle demands quantities of datum such as the national standards, specific data of industry standard, only through computer can we manage so many information and data effectively. Basing on SQLServer2000, the writer established the database of entire vehicles identification and industry data and the maintenance data of main vehicles. Surveyor can get the data of software aided identification by updating, referring, and comparing the database.

(1) The standard information interface of identification

We can enter the standard information interface of identification in the main interface by choosing identification data maintenance.

From the interface we can know the module includes many functions such as adding and editing identification standard, deleting and saving data and so on. When adding identification standard, it will entry the first layer data(parent layer), for example, GB7258-2004braking system data, and when choosing the braking system, it will entry the editing of the second layer(the first sub layer), and when selecting the service braking system, it will entry the editing of the third layer(the second sub layer).

(2) The identification of vehicle data management interface

Due to the accidental vehicles is various, it requires we can get enough original ex-factory technical condition data of vehicle which can be managed effectively through computer. Also, it can do some simple calculation. In the main interface selecting identification data maintenance, enter the interface of vehicle data management, and click the button of selecting vehicles enter the vehicle selecting interface which can select one vehicle and add a new vehicle, then return to the window of vehicle identification data maintenance to entry and modify data.

Basic information input interface of accidental vehicle identification

In Safety performance technical identification of traffic accidental vehicle, we need to know many basic information which includes all the things condition about the accident, people condition, road condition and traffic environment and so on. Clicking the basic information input interface of accidental vehicle identification, we can input new identification or modify the old identification basic information. Selecting one serial of identification work order, opening the accidental basic information about the serial of identification work order.

Identification information management interface of implementation

When enough data such as identification standard, vehicle technical condition, accidental basic information are inputted in system, we can use the software to help our identification. Clicking the identification module can entry the identification information management interface of

implementation. Open the identification work order window by clicking the work order; select accidental basic information input module to ensure the serial of identification work order; open the window of safety performance technical identification of traffic accidental vehicle.

In the window of safety performance technical identification of traffic accidental vehicle, the first layer(parent layer) is item of the whole systems; click sub layer to open the second identification item, and the second layer(the first sub layer) is assembly device item of the whole system; click the second layer to open the third identification item which is the spare part of the whole assembly device.

Selecting the identification item, comparing the relevant safety technical data for accidental vehicles such as braking, steering, lighting etc with the standard saved in the software and the request of original vehicle technical condition, so we can ascertain the failed items, and then save the results of identification for all items. Due to the data is large, it will take more than ten seconds to save the data. Especially telling, identification items of first layer is qualified depending on the second one has been qualified; similarly, the second one is qualified depending on the third one has been qualified.

Identification result interface

After all the items of identification is saved, back to the main interface window and open the interface of identification report . When the window becomes to the window formed to the section 2.3, you should select the identification order number saved, and then it will appear the interface of identification result which includes many basic information such as the staff, road condition, vehicle condition, and the safety expertise performance condition for vehicle itself etc. it can save and print the identification result for its simple design for interface.

Conclusion

According to the safety performance technical identification for traffic accident, the writer developed the software of computer aided identification management system. Relying on the software, worker can get the result of identification and draw the conclusion conveniently and quickly, which provide the direct evidences for solving justly and objectively the traffic accident and finding out the reasons to responsibilities confirmation.

According to the study, though the writer get a little fruits, the study is an advanced study so it is necessary to study and improve gradually. As far as the writer concerned, the study should be continued in these ways shown as follows:

(1)Keep improving the software in software development. At present, the software only can be installed in single computer to identify and assess the safety performance technical condition, so updating the software that can be used in online is the direction to study.

(2)The vehicles data inputted into the software and the relevant standard information only can be inputted into the computer by men. So the function of the software should be improved in the future study.

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