

METHODS OF AUTOMATING CONTROL OF PROCESSES IN THE RAILWAY AUTOMATION AND TELEMCHANICS SYSTEM

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Abstract: *The article describes the stages of automation of processes in the automation telemchanics system. By automating all technological processes, control of the systems operation processes is ensured. By keeping technical documents electronically, automation of processes is achieved in the automation system. Several stages of combined device data are considered. In an automated process, information exchange is described in a systematized state in three stages, and all processes are designed from the lower level to the higher level.*

Keywords: *electronic document management system, information, record, software, signaling communication distance.*

МЕТОДЫ АВТОМАТИЗАЦИИ УПРАВЛЕНИЯ ПРОЦЕССАМИ В СИСТЕМЕ ЖЕЛЕЗНОДОРОЖНОЙ АВТОМАТИЗАЦИИ И ТЕЛЕМЕХАНИКИ

Аннотация: *В статье описаны этапы автоматизации процессов в системе автоматизации телемеханики. За счет автоматизации всех технологических процессов обеспечивается управление процессами работы систем. За счет ведения технических документов в электронном виде достигается автоматизация процессов в системе автоматизации. Рассмотрены несколько этапов комбинирования данных устройства. В автоматизированном процессе информационный обмен описывается в систематизированном состоянии в три этапа, и все процессы проектируются от нижнего уровня к высшему.*

Ключевые слова: *система электронного документооборота, информация, запись, программное обеспечение, дистанция сигнальной связи.*

INTRODUCTION

Existing document management systems do not allow changing the processing schemes and the structure of documents. The information that is stored in the database does not make it possible to change their structure during the processing of documents and creates a threat of interference in this system. Internal capabilities do not allow creating a high-quality automated document management system.

At present, in signaling, centralization and blocking devices, the above problems do not make it possible to fully implement an electronic document management system. An automated electronic document management system can provide an automated system for the design, manufacture and operation of the created document management system. The urgency of this issue is beyond doubt. Solving it is the main task of re-equipping the entire signaling, centralization and blocking industry [1,2].

MATERIALS AND METHODS

Creation, storage, exchange of technical documentation is possible only with the transition to new innovative information technologies. It is based on the automation of large volumes of technical documentation at all stages of design with numerous of participants and their heterogeneity. The introduction of this technology makes it possible to exchange technical documentation. In addition, it has the ability to return to various design stages, make changes, additions and approve documents. The main principles of building a unified electronic system are the main task. Only on modern principles is an effective electronic document management system

created. All this makes up a unified information system for the entire signaling, centralization and blocking industry.

Solving many other problems of introducing information technologies: maintaining a dynamic model of technical equipment, recording failures, building a method for remote monitoring of the mechanical condition of devices can be established only on a computerized scheme for maintaining mechanical documentation. While filling in the corresponding databases, the technical equipment model is automatically turned on, which provide the relationship of failures with a specific object, method and devices, and also creates a functional model of automation and maintenance procedures [3-5].

The created database makes it possible to introduce automation of the procedures of development of production and construction in railway transport schemes. The principle of interconnectedness of all technological documentation is a combination of all the principles of combination and involves the formation of automated workstations in the design of objects. The automation process must have functional completeness, software compatibility and economic feasibility of the solutions are being developed.

Theoretical studies performed by the producer are the result of the introduction of executive records and program material into the technical documentation for the improvement and transmission of notification flows, as well as the formation of a common database in an automated information processing system [6].

A concept for the improvement of an automated record operation method was proposed, which includes the combination of the processes of maintaining technological documentation, the improvement of design plans and the operation of devices in railway transport and takes into account standards for design documentation [7].

RESULTS

The concept of principles for integrating all workflow processes includes various stages:

1) The principle of protection and special access to technical documentation.

The above principle determines which users have access to which information. The method can protect information. The control scheme must be able to provide secure access, maintain the context of the special data in the database.

2) The principle of combination and automation of the operation of technical documents.

The strategy for managing electronic technical documentation should be managed as part of the content, and not as having discrete stages in the life cycle.

3) The principle of adding, marking and version control. The electronic document management system (EDMS) must allow users to add documents to the system and execute the document as a report. It should also automatically assign the correct version designation.

4) Principle of collection, use of data and point of storage. The EDMS must be capable of capturing and using data. This principle will allow you to store documents in the EDMS or centrally manage an additional storage system [8].

5) The principle of free text search. This principle allows users to explore for every word in the entire record as well as in a specified group of reports.

Figure 1 shows the scheme of information exchange between the created bases of technical documentation in various organizations, i.e. databases of technical documentation created in various design organizations, at distances and in management, in other organizations that develop and manufacture signaling devices, in addition, an industry-specific database of technical documentation for projects and real devices.

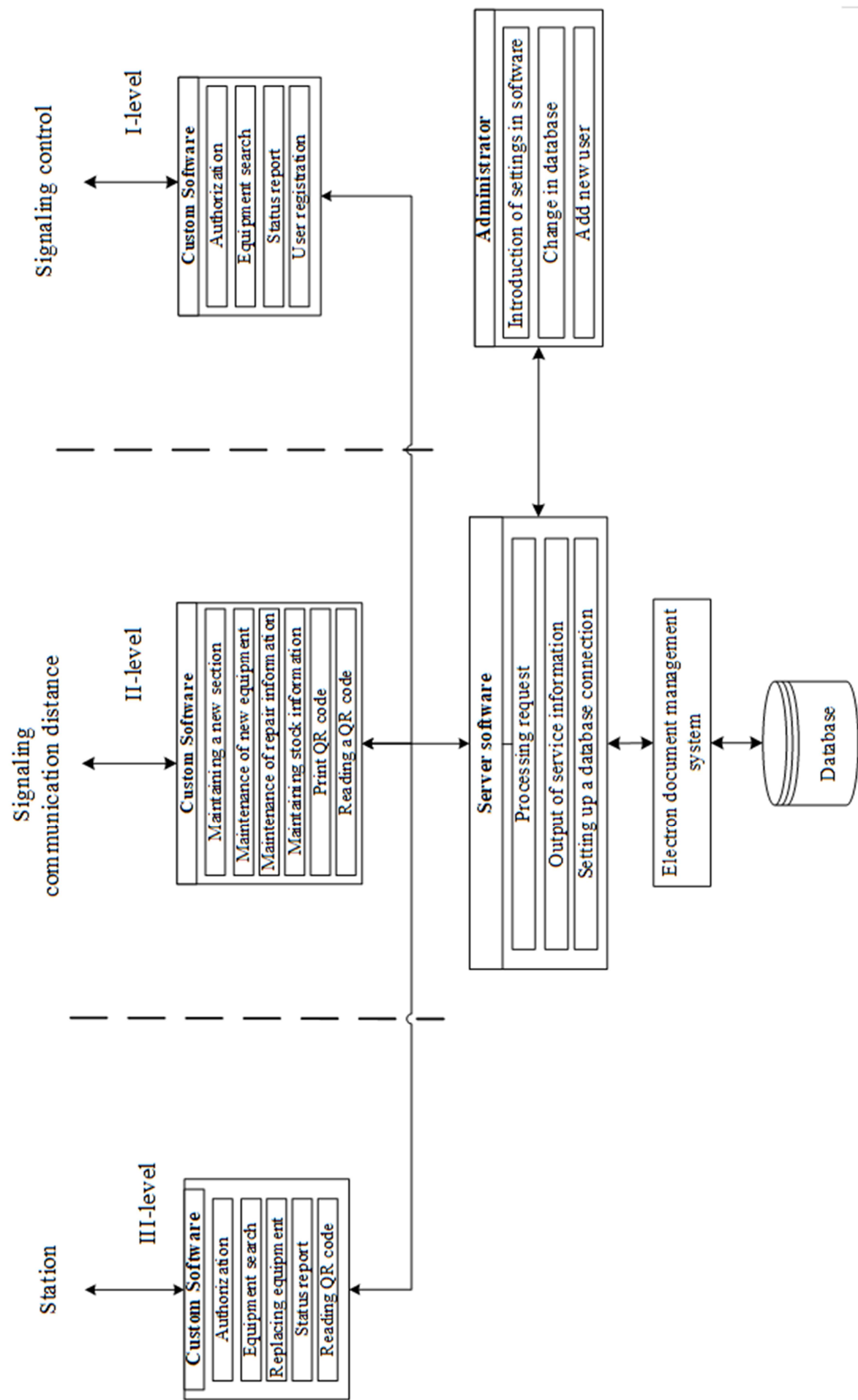


Fig.1. Scheme of information exchange in the automation process

6) The principle of automatic conversion - in accordance with this principle, one file format is automatically converted to another for further processing (or at another specific point in the workflow).

7) The principle of integrated document management. Compound documents are managed according to this principle. Composite documents are separate documents containing several elements (for example, schematic and two-line plans).

8) The principle of connected agreement with executive demands. The demands include the existence of special supervisions to make sure that indicates are (relevant, understandable, up-to-date, authentic and truthful), protected and recoverable [9].

DISCUSSION

Evolution aforementioned report world has often been unmanageable, and securing that we can face such kind of demands in real time is also complicated applying file resources. Electron document of technical documentation contributes full mechanical manipulates namely: examination footprints, reserves and safety to ensure compliance.

All the above features must be implemented in the computerized record operation method.

CONCLUSIONS

The proposed eight principles make it possible to create a general concept of structures for mechanization the procedures of maintaining technological documentation of signaling, centralization and blocking devices and must be used as the basis for the criteria for comparing proposed projects for the formation of such systems.

Through automation, the problems of controlling many devices in the automation system have been solved. As a result, a convenient and reliable process control system was created. An automated system was used instead of manual labor, which was considered one of the most basic processes. Therefore, this system is considered reliable and safe, increasing the speed and efficiency of work.

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