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IMPROVEMENT OF COMPUTER AND AUTOMATION SYSTEM IN LIGHT INDUSTRY ENTERPRISES

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Annotation

This article is to improve the quality and expand the range of products that meet modern requirements, based on the development of production, increasing efficiency through the use of the latest achievements of science and technology. The article indicates the experience of leading experts in industries shows the most promising basis for improving the design process, is the creation and implementation in practice of object-oriented computer-aided design systems (CAD), equipped with modern computers.

Keywords: Clothing industry, computer-aided design (CAD), electronic computing system (ECM), AutoCad product system, computer 3D modeling, digitization, sketch printing.

Introduction

The clothing industry is one of the largest branches of light industry. One of the main tasks facing the employees of the clothing industry is to improve the quality and expand the range of products that meet modern requirements, based on the development of production, increasing efficiency through the use of the latest achievements of science and technology. Reducing the time of technological solutions and reducing the cost of pre-production can be achieved by creating information and computing systems for the mechanization and automation of design processes [1].

Research method

The experience of leading industry experts shows that the most promising basis for improving the design process is the creation and implementation of object-oriented computer-aided design systems (CAD) equipped with modern computers. Computer-based technologies have long been used in all areas of production. Computer and microprocessor technology is being introduced into the clothing industry quite intensively.

The use of computers and the introduction of computer-aided design of technological processes will improve the number of technological decisions made, reduce the time for their receipt, free engineering and technological workers from computational and technical work to solve creative problems aimed at improving production, creating new, progressive processing methods and technological processes generally.

Many stages of clothing creation are automated – from designing, performing technological operations to finishing products. The main goals of computer-aided design are to improve quality, reduce material costs, and reduce design time. Computer-aided design is characterized by the systematic use of computers with a rational distribution of functions between a person and a computer. Computers solve problems that can be formalized, provided that their machine solution is more efficient than manual. Such tasks include the

implementation of many procedures for the preparation of technical documentation, the solution of systems of equations that describe the contours of the patterns of the designed products, etc. [2].

Building patterns for dresses or suits using a tailor's tape measure and a piece of chalk is a way of the past. The modern art of tailoring is born in the bowels of the computer and is called the computer-aided design of clothes or CAD clothes. They usually consist of a computer, printer, digitizer, plotter, which, in combination with software, can automate the design stage and significantly reduce the time for model development

For the first time this concept came into use in the 70s of the last century and was explained as a design carried out by a person with the help of a computer. The very first CAD systems carried out such relatively simple actions as a proportional change in the size of cut details during the transition from one clothing size to another, etc. Cutting machines are widely used in industry to automate cutting. Such installations are controlled with the help of a computer, the memory of which contains information about the layout of the cut details on the fabric and other information about the characteristics of the fabric.

The first versions of CAD were considered versions of Gerber, Lectra, Inverstronika. In such traditional CAD systems, there is practically no design module - ready-made patterns were entered from the digitizer. The purchase and use of such systems brought difficulties for many enterprises. Subsequently, many CAD systems from other manufacturers began to be introduced.

To date, there are many systems for computer-aided design of clothing, developed both in Russia, Belarus and abroad. One of the interesting trends in the development of CAD garments is the use of three-dimensional 3D modeling on a virtual mannequin. The clothing CAD program is designed in such a way that it can be used without special computer knowledge. Its user simply needs to have basic skills in the field of clothing design. However, it must be honestly noted that as of today, CAD with 3D modeling is unreasonably expensive. For small sewing

enterprises, an inexpensive high-performance CAD with conventional two-dimensional modeling is much more preferable, for example, AutoKroy clothing CAD [3].

The most common CAD program is AutoCad. The AutoCad system is the first CAD system for a fashion designer, which offers a holistic, theoretically developed and practically implemented approach to designing clothes using a computer. The system differs from currently used domestic and foreign CAD systems in that it automates the creation of the pattern design. The result of the designer's work in the system is a digitized representation of a set of patterns that can be drawn on a plotter, printer, or can be transferred to other CAD systems.

At present, the light industry in Uzbekistan uses modern computer-aided design systems (Computer Aided Design), 3D modeling, digitalization, printing sketches in real sizes, etc. [4].

A fairly large number of CAD systems of domestic and foreign production are provided on the market. At first glance, functionally all systems are very similar and the differences are caused only by the degree of development of a particular program, but all of them are expensive and are used only at large sewing enterprises.

Gemini CAD Systems is the new generation of clothing computer-aided design. Gemini CAD is a design environment where ideas take shape and turn into precisely built and tested patterns. Gemini CAD has features such as: structural design, automation of pattern gradation, pattern checking and correction, cutting planning, automatic pattern optimization, etc.

Improving the quality of design as a result of the introduction of the design method using a computer is due to the possibility of enumerating all possible options, comparing competing options, increasing the accuracy of calculations, reducing the cost of manufactured products, and accelerating the turnover of working capital [5].

Thus, by applying such programs in manufacturing and especially in light

industry, we can achieve economic efficiency in terms of material consumption, increase labor productivity and reduce waste disposal to the environment.

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