– firstly, the device evaluates the shape retention of stiffeners only under static conditions, while most deformations can occur in the shoe during exploitation, that is, in dynamic conditions;

– secondly, the technique regulated by GOST 9135-2004 allows to measure the shape retention of stiffeners only in the final product and does not allow to evaluate this indicator for stiffeners and footwear blanks;

– thirdly, in some cases it is impossible to obtain an objective evaluation of the shape retention of stiffeners. This is because of the shape and dimensions of the standard inserts which are used for measurement, often do not correspond to the inner shape and dimensions of the modern models of stiffeners. These models are currently distinguished by a great variety. Also, it is not always possible to rigidly fix footwear with high tops. This leads to distortion of the test results;

– at fourth, the existing method does not make it possible to determine the magnitude of the force acting on the sample, and therefore it is not possible to compare the magnitude of the load and deformation of footwear of different models and designs;

– at fifth, the principle of loading is questionable, since the foot acts on the shoe statically or cyclically from the inside, and external loading is extremely rare.

The foregoing allows us to conclude that there is a need to develop new methods for evaluation the shape retention of stiffeners, footwear blanks, and final footwear not only under static, but also under dynamic conditions. These methods would make possible to compare the magnitude of the load and deformation of footwear of various models and designs.

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THE MECHATRONIC OF JACQUARD WOVEN MACHINE FOR QUALITY OF PRODUCTION

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Keywords: mechatronic, jacquard woven machine, quality, production.

Abstract. High-speed electronic Jacquard woven machine was recognized as a quality of production. It can easily produce any kind of pattern of woven fabrics, while the printing and dyeing cloth technology may produce wastewater, which hardly polluted the environment. A new electronic Jacquard technology has replaced the traditional printing and dyeing technology. A mechatronic control system must be researched to satisfy the high-speed Jacquard woven machine. This article introduced the mechatronic control system structure and the organization of the pattern data, tested the pattern data accuracy by feedback acquisition system, and used mechatronic electronic design automation technology implemented the production of the acquisition mechatronic system, emulated the time sequence accuracy by professional software,

and tested the frequency of the pin selector. The result is that the pattern data organization and acquisition testing and implementation have offered the theoretical foundation for the production of mechatronic control system.

Introduction

Mechatronics, as a discipline, has been around for a long time in textiles industries, applications such as Jacquard woven machine of mechatronics opportunities in textiles the combination of mechanical applications with electronic textiles production used by researchers was a good example of integrated design. Indeed, most early workers in which branch of textiles industries, which was to become electrical engineering were equally at factures with electronic and mechanical artifacts and combined them in various experiments and products. mechatronic design in textile engineering contains a selection of contributions to the advanced search, which took place in the introductory sections on the mechatronics concept and design methodology and the impact of advance in technology on the mechatronics concept; the importance of the mechatronic design in the textile industries is highlighted, together with many examples of Jacquard woven machine[4], these include: mechatronics in the design of textile machinery, such as 3D woven and braiding; Jacquard woven machine and intelligent systems as applications of mechatronics for Jacquard woven machine compensation; texturing; measurement automation and diagnosis, knowledge-based expert systems; automated textiles manufacture and assembly; and apparel manufacture. [3] [4] this article unique in which it brings together many applications of mechatronics in textile machinery and system design. In which respect it will serve as a reference article for inventors and designers as well as for students of textile technology and engineering [4].

Mechatronics of textiles

Textile mechatronics[1, 4], also called mechatronics engineering, mechatronics is an interdisciplinary branch of textile engineering which focuses on the integration of mechanical of textiles with other files such as electronic, and electrical engineering systems, and also includes a combination of mechatronics robotics of textiles, electronics, computer science mechatronics of textiles[1], telecommunications, systems control mechatronics of textiles, and product engineering mechatronics of textiles. [5, 6]. Industrial textiles as technology has advanced mechatronics over time, many subfields of engineering have succeeded in both adapting and multiplying industrial textiles. [1] The goal of mechatronics is to produce a design solution which unites each of these diverse sub-fields as of textiles [4] Jacquard woven machine. Originally, the field of Mechatronics of textiles was intended to be nothing more than a combination of mechanics of textiles and electronics of textiles, hence the name as a carryover of advanced Mechatronics and electronics; however, as the complexity of technical systems continues to evolve, the definition has been expanded to include more technical of textiles areas [2, 4].

Textiles Implementations

Mechanical modeling requires the physical modeling and simulation of complex phenomena of textiles within the scope of the multi-scale and physical textiles

approach. This means implementation in textiles and management of modeling and optimization methods and tools, which are combined into a systematic approach. The major is aimed at students in textile mechanics who wish to open their minds to systems engineering, able to integrate different physics or techniques, as well as students in textile mechatronics who wish to further develop their knowledge in interdisciplinary optimization and simulation techniques in textiles [4].The major teaches students in robust for improved visualization methods of structures or many technological systems of textiles, and into key textile modeling and textiles simulation tools used in research and development in Mechanical modeling of textiles. Special courses for indigenous textiles applications (textiles machine in multi-material composites, innovative transducers and actuators, integrated textile systems,) are also proposed to prepare students for the next breakthrough in areas covering materials and textile systems. For some textiles mechatronic systems, the main issue is no longer how to implement a textiles control system of fields of Jacquard woven machine and apparel lines, but how to implement the actuators. In the field of mechatronic textiles, two basic techniques are used to produce Mechanical modeling motion/motion in textiles [2, 6].

Problems [4]:

- The curricula are empty in the faculties of engineering, specializing in textile engineering, from studying these modern types of specializations in many countries of the world, which makes the graduate weak and does not keep pace with the local or international labor market.
- Similarly, the curricula are empty of textile engineering applications in faculties of artificial intelligence
- Many countries import modern machinery and equipment, sometimes used in the field of textiles.
- And it does not have the capabilities and elements of maintenance, repair, development and innovation. This puts it at the bottom of the industrialized countries.

Objectives:

- To develop innovations for the textile industry the easy way and this throw:
- Experienced experts in this sector understand your requirements and the tasks you are faced with Innovative hardware and software for the implementation of energy
- Efficient solutions
- Reliable drive systems for typical textile applications
- Use of open standards
- Global production based on uniform quality standards
- Worldwide efficient logistics concept
- Global service network and training courses

For the leading specialists in drive and automation technology with extensive know-how and a worldwide network of experts in the textile industry, Department of Textiles Engineering must work with you to devise the very best solution for your needs; for setting technical ideas in motion. Irrespective of whether to optimize existing equipment or develop a new textile machine, in line with individual requirements and

aims, and provide with support for all aspects and in all phases of production projects, and cooperating in these projects is also useful to implement an innovative overall concept

Results and Discussion

The subjective decisions during Mechatronics of textiles and garment manufacture are mimicked and implemented in the next generation of intelligent apparel manufacturing environments. Mechatronics of textiles Integrated Environment has been devised which consists of three mechatronic systems: the waving Prediction System, which can automatically predict material problems and advise correction of properties prior to manufacture; the Intelligent Jacquard woven machine System, which can automatically set the optimum static and dynamic Jacquard woven machine parameters of the Mechatronics of textiles machinery; and the Safeguard Quality System to ensure high quality and consistency.

These Mechatronics of textiles systems are integrated to form an on-line intelligent environment which is capable of self-learning (automatic updating). These Mechatronics of textiles systems have been designed and developed to enable on-line, automatic measurement of fabric properties such as tension, bending, thickness and compression as well as Jacquard woven quality, which are all interconnected with each other. Two different paradigms are implemented: seam pucker, as it is mostly found in Jacquard woven fabrics, and textiles damage, found in densely woven fabrics. The operation of these environments is Mechatronics robust and should not require special operational skill. Pilot industrial trials have identified improvements from implementing such systems in production efficiency, flexibility of manufacture quality and design enhancements of products. It can rely on every aspect of high-quality standards. From extensive range of services to our consistent product portfolio, for outstanding product quality and service, the service modules must have specifically set up to guarantee the reliability of your machine and increase its performance. From inspections and preventive maintenance, as a tailored process chain, in the future based on the data recorded over a longer period of time, you can derive predictive data models and obtain insight into what will happen.

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DEVELOPMENT OF THE CAPACITIVE SENSOR FOR MONITORING THE QUALITY OF INDUSTRIAL OILS FOR TEXTILE MACHINES

РАЗРАБОТКА ЕМКОСТНОГО СЕНСОРА МОНИТОРИНГА КАЧЕСТВА ПРОМЫШЛЕННЫХ МАСЕЛ ДЛЯ ТЕКСТИЛЬНЫХ СТАНКОВ

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Keywords: dielectrometry, nondestructive testing, IDS sensors, degradation, industrial oils.
Ключевые слова: диэлькометрия, неразрушающий контроль, IDS-сенсор, деградация, промышленные масла.

Abstract. The article discusses the design and characteristics of the interdigitated dielectrometry sensors (IDS). Investigation of the effect of interelectrode gaps on the deviations of the dielectric constant, sensitivity, and working capacity of the sensor. It is established that sensors must be shielded to reduce the level of interference. A sensor design with high metrological characteristics is proposed. The developed design of the IDS sensor is advisable to be used in quality monitoring systems for industrial oils for textile machines.