

## USE OF INFORMATION COMMUNICATION TECHNOLOGIES IN MODERN WEAVING MACHINES

**Khurshidbek Imamnazarov**

Assistant, Department of Natural Fibers, Fergana Polytechnic Institute,  
Fergana, Uzbekistan

E-mail: [khurshidbekimomnazarov@gmail.com](mailto:khurshidbekimomnazarov@gmail.com)

**Elmurad Mamatojiyev**

Student, Fergana Polytechnic Institute, Fergana, Uzbekistan

E-mail: [elmuradmamatojiyev17@gmail.com](mailto:elmuradmamatojiyev17@gmail.com)

**Zilola Ergasheva**

Student, Fergana Polytechnic Institute, Fergana, Uzbekistan

E-mail: [ergashevazilola204@gmail.com](mailto:ergashevazilola204@gmail.com)

### **Abstract**

In this article, ways to increase the productivity of the equipment using information and communication technologies in modern machines used in weaving enterprises are aimed.

**Keywords:** Modern, automatic, weaving, technology, rope, electronic

### **Introduction**

Modern communication information technologies have automated the processes of control, adjustment, calculation, analysis and control of technological indicators in the weaving loom. This is the basis for the creation of automated control systems of not only individual looms, but also a complex of looms, technological processes and weaving enterprises. Personal computers installed in modern shuttleless looms collect information about the progress of the technological process, summarize it, and issue it on a display or in print. It shows how many yarns have been produced, the length of yarns and ropes, the reasons for which the machines have been idle, and how long they have been idle. All indicators are compared to the plan. Data can be retrieved at the end of the shift or at other times (depending on demand). They can be issued for the entire enterprise, shop, set of equipment or certain workplaces [1].



Equipping looms with electronic control devices (sensors), electronic thread transmission and tensioning mechanism, electronic fabric adjuster, shea lift carriage and jacquard machines increased machine and labor productivity along with the type of gassing.

Automatic control of various looms is organized taking into account their peculiarities.

For example, on the "JAT 610" pneumatic loom manufactured by a famous Japanese company, the following automatically controls the threading and transmits the data to the computer:

- controller for adjustment of the pneumatic system, which works based on the analysis of histograms displayed on the display;
- the information transfer controller (IFC) controls the movement of the rope thread by means of diagrams on the display in addition to the rope throwing adjustment controller;
- automatic failure notification - identifies obstacles in the rope movement, thread defects and transmits a message or the machine is stopped;
- automatic controller (APC) - automatically adjusts the air pressure in the sprayer and adjusts the movement of the rope thread;
- the autocontroller (main APC) is an addition to the standard APC, which adjusts the air pressure in the entire pneumatic circuit when the diameter of the windings of the rope in the coil changes [2].



Fig. 1. JAT 610 weaving machine of "Toyota" company

The double "TARO" system installed on the "Toyota" machine performs the following actions in the automatic elimination of fabric defects associated with the yarn:

- the warp threads are pulled out from the defective part of the fabric and the machine is restarted;
- the measuring roller measures the length of the defective beam and removes it all;
- the defect is corrected by an electric motor that drives the roller measuring the speed of pulling out the rope thread;

The pressure of the pinch roller is adjusted according to the thickness of the yarn being processed. The period of elimination of one defect of this system is 10-20 seconds. and ensures high productivity of the machine.

The installation of electronic fabric and warp adjusters in weaving looms allows for automatic control and alternation of the processes of pulling the fabric from the formation zone, transferring warp yarns, and tensioning.

In the electronic fabric adjuster, the tasks performed by the adjuster are automated as a result of the motion transfer from the independent micromotor to the fabric pulling shaft.

It is known that the fabric straightener pulls the fabric from the formation zone and ensures the density of the fabric in the desired direction. In the electronic machine, it is achieved by calculating the speed of the electric motor. For this purpose, the value of the desired density of the fabric is entered into the personal computer microprocessor installed in the machine. The change in the density of the fabric produced on the loom changes the tension of the warp threads. The integration of these two parameters is controlled by means of the electronic fabricator and the computer system of the electronic fabricator [3].

Includes the use of computer technology, automated systems and programming in the textile industry. In this field, computer technologies are used in the following areas:

1. Automated Manufacturing: Automation of textile processes using computers and robots.

2. Programming: Creating products and managing processes using programming technologies in the textile industry.
3. Sensor technologies: Monitoring and control of textile processes using computers and sensors.
4. Internet of Things (IoT): The study of information exchange between devices and the integration of computer technology in the textile industry using IoT technologies.

Computer technologies are widely used in the textile industry to facilitate the use of these technologies, facilitate process management, and improve production quality [4].

The application of information and communication technologies to weaving technologies ensures an increase in labor and machine productivity, especially in the production of large patterned fabrics in the artistic decoration of gauzes. Modern shuttleless looms installed on electronic Jacquard machines are widely used in the preparation of large patterned fabric for artistic decoration and improved automatic systems for designing new content.

### **Conclusion:**

Increasing work productivity and accuracy using modern machines in weaving enterprises. Automation of weaving processes using electronic devices. Improvement of the working system of workshops. Equipping looms with electronic control devices (sensors), electronic thread transmission and tensioning mechanism, electronic fabric adjuster, shea lifting carriage and jacquard machines will increase the productivity of the machine and work, as well as increase the type of weaving.

### **References**

1. Decree of the President of the Republic of Uzbekistan on the new development strategy of Uzbekistan for 2022-2026 No. PF-60 of 28.01.2022
2. BX Boymuratov, ADDaminov Weaving technology Tashkent - "Science and technology" - 2016
3. Shohida, K., & Khurshidbek, I. (2022). Investigation of ways to increase the speed of the raw material roller on the ginning equipment. *Universum: технические науки*, (2-7 (95)), 40-42.
4. Abdurakhmanova, Sh. 2023 Strategies for increasing the competitiveness of the textile industry in Uzbekistan. *International Journal of Theoretical and Applied Research*, 3 (03), 31-39.

