ETHIOPIAN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

STATIC ANALYSIS OF POWER AND ENERGY VALUES BY IMPROVING THE ELECTRICAL CONTROL UNIT USED IN THE PACKAGING SHOP

Shaymatov Bobokul Kholmurodovich
Associate professor of the Department of "electrical mechanics and technologies" of the Bukhara Institute of engineering and technology, candidate of technical sciences.
Chorshamov Shakhzad Hikmat ugli
Master of the Department "electrical mechanics and technologies" of the Bukhara Institute of engineering and technology.

Abstract: By improving the electrical control unit used in the packaging department, maintaining a moderate humidity level of the product, in order to bring the quality of the product to the level of the current demand, to produce the product according to the current demand and for export. Analyzing the packaging shop and systematically solving the problems that may arise when preparing the product for 100% export.
Key words:microprocessor, processor, mechanism, adaptive, metasubject, analog, function, component.
Replacing any solid — state devices and systems with microprocessor (MP) control gives the following advantages: the MP-system has the property of elasticity. MP the work of the system is determined by the program stored in the memory of the logical exposure. This allows you to significantly change the system description only at the expense of changing the program beradi.MP systems built on the basis of which cost a lot cheaper. A single processor typically replaces around 75-200 small to medium-sized integrative integrated circuits. As a result of this, the number of connections is sharply reduced. The above advantages will be the basis for the widespread use of MP Systems and will allow you to switch to controlling 85-90% of electrical drive systems through an MP system for 5-10 years. Electrical engineering belongs to the lower level of auto maturation of production processes. Currently, in the management of Electrical Drives, analog adjusters with a certain degree of adjustment are used, mainly in the system of Buoy capacitive adjustment. Digital systems are distinguished from analog systems by their accuracy and the possibilities of its implementation, their preservation from the influence of the external environment, their lack of susceptibility to changes in voltages. But due to the sequential implementation of information processing in digital systems, their speed is somewhat lower than that of an analog system. The radical improvement of the electrical control system can be carried out taking into account the above features and only when modern methods of control theory have effectively used adaptive control, optimization, programmatic control.
The functional functions of electric drives MP control systems can be described as follows;
- formation of strong static switch control pulses;
- implementation of proportional (P), proportional-integrative (PI) and proportional-integro-differentiating (PID) control algorithms;
- perform non-linear functions such as multiplication, division, square root extraction;
- another rish in an efficient way, such as optimal, adaptive.

Future tasks are associated with the transfer of relay-contactor control types to logical control. Traditionally, such devices of electrical drives were salts in relay-contactor or discrete elements. For each machine or machine, its own control system was created. The position of the mechanism and its fragments was determined depending on the indicator lamps on the control remote control. In this, various relays, logical parts were used, which in the process of use would be much more difficult to correct, analyze. This would reduce the efficiency and reliability of the equipment. MP-control

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

allows you to eliminate the above-mentioned shortcomings in traditional systems.Therefore, the tasks of MP management are as follows.
- reception of parallel falling information and distribution to executive elements;
- real-time scale processing of information according to the machine operation algorithm; - be able to control signals to executive elements;
- transporting device status;
- introduction of control system;
- provide setting mode.

Under the production (system) of packaging and packaging, the technology and equipment for its production, the placement of products in it (packaging) and the formation of a transport unit understand a certain design set.The concept of packaging system includes a complex of production processes aimed at the production of packaged products. In the process of designing a product, the designer must take into account the features of technology and equipment for production and packaging.

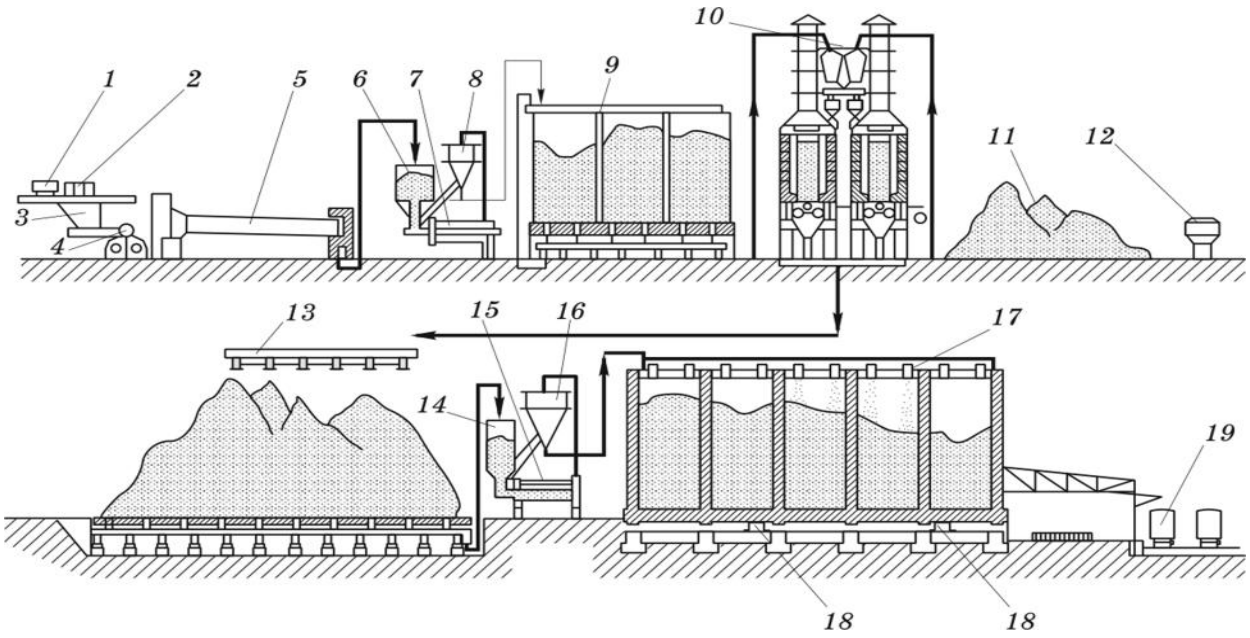

Figure 1 technological view of the packaging shop.

The characteristics of the design and technology for the production of packaged products determine the technology for the formation of a transport unit. At the same time, the development of modern automated high-performance equipment for packaging and packaging of products is based on a system of combining and standardizing packaging design. Thus, the concept of packaging production (system) combines the natural relationships of the processes of production of packaged products. Design packaging production can be divided into four projects implementation: design packaging design, packaging production, packaging (packaging) production and transportation unit formation. Microprocessor control can be applied at the level of the engine, adjuster, adjusting supply source, powerful switch, transmission device module. In this case, MP is used to solve logical and computational problems of management at the modular level. When they are integrated into the system, an MP — network is generated that is controlled by a common computing device. Part of the matter can be solved using a solid logical device. The MP — control structure of the electrical circuit can have different views. Figure 1 shows a typical system of electrical circuit with MP control.

The MP-electric drive structure consists of the following blocks and devices:

1-High hierarchical exposure or operator communication device (AQ).

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

2 is a controller computing device (BHQ) consisting of hardware (AV)and software (DT). Hardware is a functional part consisting of an automaton with strict switching, which has its own application at the expense of the use of special programs. Control tizi mida BHQ takes a central place producing signals and control signals coming from messengers installed on devices in system 3-8 based on instructions descending from EHM through AQ.A strictly logical device (QMQ) constitutes a system where certain blocks of control apparatus are strictly connected. These apparatus serve to independently control the process when the exposure fails. In most cases these blocks or their parts are involved in automatic operation mode if higher acceleration is required from the system. Qmq's output signals are fed to supply source (TM) and strong Switch (KO‘) inputs. Controlled strong supply source (TM). For frequency-controlled electrical drives, a transistor or transistor-driven control ladigan Switch is used as a TM. In a width pulse switch (KIO‘) fixed current engine (OATD) system, or in a valve bearing, the TM is usually implemented as another non-rillable rectifier. Controlled rectifier-combined according to the functions of TM and KO in the engine system. A strong Switch (KO') provides strong chains with the required parameters. Typically, a co-controller consists of a rectifier, a width-pulse switch, a voltage, or a variable frequency current source. In Co, the electric energy flow is two-way, depending on the mode of operation of the engine. Control signals come from QMQ and BHQ, while in reverse direction diagnostic and information signals are sent. The electric motor (D) consists of a module consisting of the speed, the temperature messengers of the road bulbs and the engine itself.Transmission device (UQ): consists of a connection coupling, a reducer and the necessary messengers. The control device of some UQ, such as the slip coupling, can be complex to some extent, and the information flow is bilateral. The working body of the mechanism (IO) (e.g. cutting tool, robot holder, drive wheel, etc.k.) with suitable messengers. Constructively, some devices can merge into a single module. For example, the module of the wheel of an engine-transport industrial robot will consist of KO‘, d, UQ and IO as well as an MP system that controls them. The module may not have UQ in some hardware, such as constructively coupled with IO. To understand cross-functional linkages, we consider the passage of information. The main information component of Ti Zim is BHQ, where micro exposure or programmable controller is applied. Information comes from the adjacent EHM at the entrance of BHQ. When BHQ is located at a distance of several meters or more from EHM, this instruction is transmitted in the form of a sequential code of information. But at the same time BHQ works in parallel code (with8 or 16 outputs). A gripping device is used to change codes. The connection (connection) of BHQ with 3-8 devices of the system is carried out using analog, digital and pulse signals. To do this, bhq wished to include Analog-Digital, number-pulse (RIO‘), pulse-digital (IRO‘) switches. An input-output device is used to communicate with the Operator. As a device, a remote control with a display, a printing device, etc.are used. Information is received from messengers about the state of the parameters of BHQ and TM and KO and the course of the process. This information processing capability is used to control and correct control signals. The engine, intermediate device and working bodies are also provided with status messengers, and information from them is constantly or when required is given to BHQ. There, these information are used for reverse link signals or diagnostic information.

Basic principles of energy saving.

Energy conservation through automated electrical drives is of great scientific and technical and practical importance, due to the universal energy crisis and a long rise in energy prices all over the world. It is written on the basis of many years of scientific and technical and practical activity on the issues of energy conservation by means of automated electric drives. Ways to ensure the operation of industrial devices and technological machines in an energy-efficient mode are indicated. The theoretical basis for the operation of a controlled electrical circuit in an energy-efficient mode is described. New technical solutions have been proposed for the development of automated electric drives with high economic performance for applications in the fields of national economy.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

Currently, there are the following principles of energy saving in an automated electric drive:
1The correct choice of power of the electric drive motor by improving the method of engine selection, depending on the change in the load of the production mechanism. When the power of the engine is smaller than the load capacity, its speed decreases, overheating quickly fails, when large, the engine ineffectively changes energy, and when operating, it significantly increases the power consumed in itself as well as in the transfer of energy.
2.Increase the values of the FIK and power coefficient due to increasing the active mass (copper and iron) of automated electrical drives in production mechanisms and the use of energy-saving electric motors.
3The transition from non-adjustable electric drives to rostla Nigan electric drives, which leads to the fact that not only in the automated electric drive system, but also in the production mechanism, resources (water, heat, etc.)to save.
4The development and creation of special technical solutions with a minimum energyrequirement in cases when the load is variable in non-adjustable electrical drives, as well as in cases where the change in the coordinates of the electrical drives on demand occurs in controlled electrical drives. The choice and implementation of one of the above principles of energy saving depends on the muay yan conditions caused by the technological mechanism, each of which has its own specific advantages and disadvantages. Taking into account the increase in energy crisis and energy carriers, the principle will be of particular importance, which will ensure that the electrical operation will save most of the energy required, due to the improvement of other risers. The fourth principle, in our opinion, is istiq bolli, in which the improvement of the automated electrical operation control algorithm allows you to save an average of 30-40% of energy.

LITERATURE:

1. B.X.Shaymatov, B.S.Abdullaeyva, M.Q.Jo‘raev, “Elektr mashinalari”, Buxoro: BMTI, 2022 y.-209 b.
2. M.Q.Jo’rayev, F.J.Xudoynazarov “Elektr mashinalari” fani taraqqiyotining ustuvor yo‘nalishlari Maqola. Academic Research in Educational Sciences VOLUME 2 | ISSUE 11 | 2021 ISSN: 2181-1385 Scientific Journal Impact Factor (SJIF) 2021: 5.723 Directory Indexing of International Research Journals-CiteFactor 2020-21: 0.89 DOI: 10.24412/2181-1385-2021-11-1184-1190
3. Jo‘rayev M. Q. ”Oliy ta’lim muassasalarining elektr energetika yo‘nalishi talabalariga elektr mashinalari fanini hozirgi kunda o‘qitish tahlili”. Toshkent 2021 1–son 18 bet
4. Jo‘rayev M. Q. “Elektr yuritmalari tezligini rostlash usullari” Ilmiy-nazariy va metodik jurnal Buxoro 2021, № 5 114 bet
5. Development of teaching methods in the field of "electrical machines" using new pedagogical technologies 1Jorayev M. K, 2Husenov D. R, 3Sharopov F.K. International Engineering Journal For Research & Development 584-586 p
6. Jo’rayev, M. Q., & Xudoynazarov, F. J. (2021). “Elektr mashinalari” faniTaraqqiyotining ustuvor yo‘nalishlari. Academic Research in Educational Sciences, 2(11), 1184-1190. doi:10.24412/2181-1385-2021-11-1184-1190 bet
7. Jurayev Mirjalol Kahramonovich “Software analysis of electric machine science” ISSN:2776-0960 Volume 3, Issue 1 Jan., 2022 143P a g
8. Jo’rayev M.Q. Dunyoda yadro energetikasi taraqqiyoti rivojlanishini amaliy ahamiyatining inavasion texnologiyalardagi bosqichlari.Maqola №12(79) soni (dekabr, 2020).
9. Жўраев М.Қ. Электр юритмалар тезлигини ростлаш усуллари Педагогик маҳорат Илмий-назарий ва методологик журнал Бухоро 2021, №23, 114-118 б,(13.00.02)

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

10. Jo‘rayev M. Q. Scientific methodical bases of the science of electric machines academicia: An International Multidisciplinary Research Journal ISSN: 2249-7137Vol.12,Issue09,September 2022 SJIF 2022=8.252 A peer reviewed journalhttps://www.indianjournals.com
11. 4. Jo‘rayev M. Q. Ilmiy konferensiya “Elektr mashinalari fanini o‘qitish didaktik takomillashtirish jihatlari” INTERNATIONAL CONFERENCE ON DEVELOPMENTS IN EDUCATION SCIENCESAND HUMANITIES International scientific-online conference 4nd part, 2-124 pages Part 4 September 29 CANADA https://zenodo.org/record/7146065
12. 5. Jo‘rayev M. Q. Ilmiy konferensiya “Elektr mashinalari fani rivojlanish ginezisi va mazmuni” INTERNATIONAL CONFERENCE ON DEVELOPMENTS IN EDUCATION SCIENCESAND HUMANITIES International scientific-online conference 4nd part, 2-124 pages Part 4 September 29 CANADA https://zenodo.org/record/7146065
13. Жўраев М.Қ. “Олий таълим муассасаларининг энергетика йўналиши талабаларига электр машиналари фанини ўқитилиши” “Замонавий таълим ва тарбия: муаммолар, ечимлар ва ривожланиш истицболлари республика илмий анжумани” Термиз. 2021-й, 205-207 б.
14. Jo‘rayev M. Q. Ilmiy konferensiya “Elektr mashinalari fani o’qitishda 6x6x6 ta’lim metodi” «Ta'limda raqamli texnologiyalarni tadbiq etishning zamonaviy tendensiyalariva rivojlanish omillari » mavzusidagi Respublika miqyosidagi ilmiy-amaliy, masofaviy konferensiya materiallari (27 yanvar 2022 yil) Farg’ona 2022 y avgust 9-to’plam 49-51b.
15. Жўраев М.Қ, Хусенов Д.Р // “Elektr mashinalari” fanini o‘qitishda talabalar mustaqil fikrlashlarini shakllantirish manbalari Journal of New Century Innovation Journal 2022. 2 April WSR Journal.com, 264-270 b. WSRJournal.com
16. Жўраев М.Қ., Software Analysis of Electric Machine Science, Research Jet Journal of Analysis and Invertions IF-7.6, ISSN 2776-0960 https://reserchjet.academiascience.org/index.php/rjai/article/view/414
17. Жўраев М.Қ, Электр машиналари фанини ўқитишда инновацион мулоқотдан фойдаланиш методикаси, Бухоро муҳандислик-технология институти “Ёшлар қўллаб-қувватлаш ва аҳоли саломатлигини мустаҳкамлаш йили”га бағишланган профессор-ўқитувчилар, илмий изланувчилар, магистрлар ва талабаларнинг илмий-амалий анжумани тезислар тўплами, Бухоро 2021-й, 28-29 май.
18. Jo‘rayev M. Q. “Elektr yuritmalari tezligini rostlash uslublari” Образование и наука в 21 веке. Научно образовательный электронный журнал. № 15 (том 3) июнь 2021г. дата 30.06.2021. https://docs.yandex.ru/