Research Article

DEVELOPMENT OF AN INTELLIGENT DEVICE FOR DISINFECTING BOOKS IN LIBRARIES

Yusupov Azamat Alijonovich

Head Of Department, Senior Professor (Phd), Andijan Machine-Building Institute, Uzbekistan, Andijan City, Uzbekistan

ABSTRACT

In this article, based on the analysis of the advantages and disadvantages of disinfection methods and devices, a disinfection device that performs disinfection quickly and efficiently is proposed. In the design of the device, special attention is paid to high-quality disinfection by combining several methods of disinfection, and the main differences and advantages of the proposed disinfection device are given, and the principle of operation of the device is explained in detail.

KEYWORDS

Disinfection of books, disinfectant device, ultraviolet irradiation, microorganisms, risk of infection, cleaning and sterilization of books.

INTRODUCTION

Disinfecting books is important for their long-term effective and safe use. Disinfection is the disinfection of objects in the environment from microorganisms, that is, the fight against microorganisms that are pathogenic for humans and animals by chemical and physical methods [1-3]. As a result of disinfection, various harmful viruses in books are destroyed, as a result, the risk of infection with viral diseases among readers is prevented. The worldwide pandemic situation following the spread of the Covid-19 virus has created the need to observe safety in the use of hand-held items, as well as to constantly disinfect common items. Since books are also common items, it is important to disinfect them. Libraries are the places where the most books are kept and the most book users. Disinfecting books in libraries ensures the safety of users. Disinfecting books is a complex process. In addition to chemical and physical methods, there is

also a method of disinfection using ultraviolet rays. Ultraviolet irradiation is considered one of the best ways to disinfect air, water and surfaces, and has a strong effect on bacterial viruses and single-cell organisms [3]. Disinfecting devices are used to automatically carry out the disinfection process of books. By using the device, the disinfection process is carried out quickly and qualitatively, as a result, book users can be maximally protected from harmful viruses [4]. In order to increase the efficiency of disinfection of books, it is important to improve disinfection devices.

Materials and methods

Book users have become very vigilant after the COVID-19 pandemic. Users are trying to use disinfected and cleaned books as much as possible. This imposes an obligation on those operating in bookstores, libraries and archives to disinfect when giving and receiving books. According to experts, the best method of disinfection is "time", that is, books can be quarantined for a certain period of time. But long-term quarantine of books limits the library's activities. In addition, preservation of books and archival documents in the library in their original state, protection from the effects of various fungi is one of the big problems facing scientists [4, 5]. Fast and high-quality implementation of the disinfection process, as well as continuous implementation of this process, will help to solve existing problems. In practice, manual disinfection is difficult and time-consuming. Disinfection devices are necessary to eliminate this problem. In disinfection devices, the process can be carried out by means of hot air, special disinfection device liquids or with the help of ultraviolet rays. In the device, documents are disinfected by ultrasonic radiation, in this device mainly the upper part of the book or document is disinfected. In [4], in addition to ultraviolet irradiation, hot air is also sent, which allows

to clean the book from dust particles and various pests. In [5], air that neutralizes viruses is sent to books, and ultraviolet radiation is also used. However, these disinfection devices cannot fully satisfy the demand for fast and effective disinfection. Analyzing the above disinfection methods and devices, we would like to propose our own disinfection device, taking into account the many shortcomings.

The purpose of this proposed development is to provide a book cleaning and sterilization device that can easily and quickly effectively remove various bacteria [2, 3] and foreign substances, and can also impart fragrance to books when they are sterilized.

This goal is achieved by the fact that the disinfection chamber is made in the form of a quadrangular square with a reflector, which is located in the inner sides of the chamber, the top cover opens for cleaning the chamber, contactless book transfers are installed, weight is accurate to the milligram, each book is accounted for, a smart control panel is installed and various connectors, a glass drum inside an ultraviolet lamp and a mechanism for turning books, a storage unit for disinfection devices.

The disinfection device contains a square body with a control panel, an air compressor and chambers. Inside the chamber there are book holders, a disinfection device storage unit, air channels and ultraviolet lamps. A conveyor belt with scales, a scanning device, and rubber brushes are attached to the body. Inside the camera there are reflectors, a motion sensor, a manipulator for opening the cover, rotating a glass drum, an ultraviolet lamp is installed inside, a flipping device and a part fixed to the glass drum.

Results and discussion

Below we will analyze the disinfection devices and propose the project of our own device. Device for disinfection. The disinfection device includes a housing 1, inside of which there is a working chamber 2, under which a cavity 3 is formed in the device body, communicating with the working chamber 2 through holes 4 made in the rear wall of the working chamber 2, located with a gap relative to the rear wall of the housing 1. In the cavity 3 and in the upper part of the working chamber 2, sources of ultraviolet radiation 5, 6 are installed. A fan 7 is installed in cavity 3 under the working chamber. Housing 1 contains a control board for 8 operating modes of the device (figure 1, a).

The device is designed for bactericidal disinfection of objects of various shapes using ultraviolet radiation, and can be used, for example, to process books, envelopes, stationery, banknotes for the purpose of their disinfection. The main disadvantage of the device is that it cannot disinfect books by flipping them. As a result, quality disinfection does not take place.

Desktop sterilizer for books. As shown in Figures 1b and 1c, the desktop sterilizer of the present invention includes an openable main body 26, a book holder 28, at least one sterilizing ultraviolet (UV) lamp 30, at least one air discharger 31, a static electricity generating unit 32, at least one aroma generating unit 33, and a control computer 34, The openable main body 26 has a sterilization chamber 24 which is defined by top and bottom surfaces 14 and 16, a rear wall 18 and sidewalls 20 and 22 and is closable by a door 10 So as to be openable through an opening 12. The book holder 28 is provided in the sterilization chamber 24 and holds covers (b) of a book A to be sterilized to maintain the book A in a state of being unfolded. The at least one sterilizing UV lamp 30 is provided in the sterilization chamber 24 to sterilize the book A, the covers (b) of which are held by the book holder 28. The at least one air discharger 31 is provided in the sterilization chamber 24 at a position facing the book holder 28. The air discharger 31 blows air towards the proximal edges of pages (c) bound to a book spine (c) of the book A, the covers (b) of which are held by the book holder 28, thus opening the pages (c) such that UV rays emitted from the sterilizing UV lamp 30 can be evenly radiated onto all of the pages (c) of the book A. The static electricity generating unit 32 is provided on the book holder 28 and charges the book A that is held by the book holder 28 with static electricity, so that the pages (c) of the polarized book A are laid open by static electric repulsive force. The at least one aroma generating unit 33 is provided on an air Supply pipe 46, through which air is Supplied from the air discharger 31 to the book A. The aroma generating unit 33 generates aroma and supplies it into the steriliza tion chamber 24 using the air discharger 31 to fumigate the book using the aroma, thus chemically sterilizing the book A using the anti-virus and anti-bacterial effects of the aroma. The control computer 34 controls the operation of the sterilizing UV lamp 30, the air discharger 31, the static electricity generating unit 32 and the aroma generating unit 33 [9].
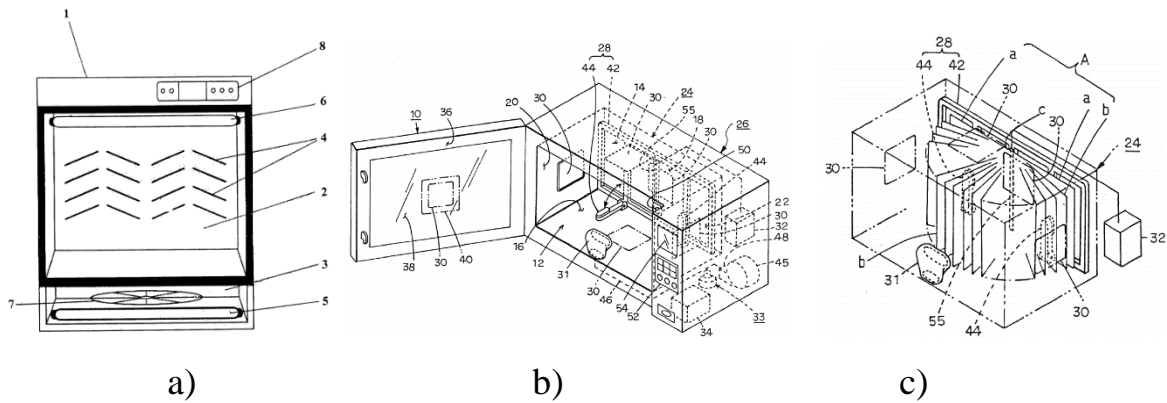
a) b) c)

Figure 1. Desktop sterilizer for books: a- Device for disinfection, b – the state before placing the book on the device; c – the state of the book being placed on the device.

The present devise provides a desktop sterilizer for books. The sterilizer includes an openable main body which has a sterilization chamber therein and is closable by a door so as to be openable through an opening, and a book holder which is provided in the sterilization chamber to maintain the covers of a book in a state of being unfolded.

The disadvantage of the device is that it requires the user to manually insert the disinfecting book into the chamber and fasten the book cover. In addition, the efficiency of disinfection by scrolling in the device is not high.

Device for disinfecting books. This device is designed to effectively remove various bacteria and foreign substances present in books and to add fragrance to books during disinfection.

The device for sterilizing books includes a housing 2 with a space inside the housing, a chamber 4 installed inside the housing and equipped with a door 14 that can be opened and closed from the front side, and a book holder 20 installed inside the chamber 4 and configured to stand and support books to be disinfection (Figure 2).
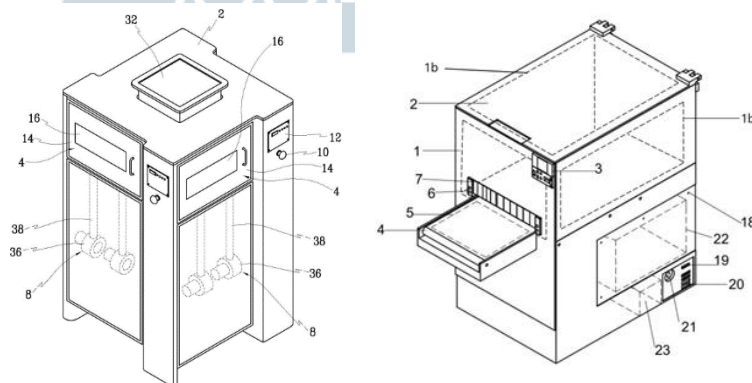

Figure 2. Device for disinfecting books.

The disadvantage of this device is that the device does not ensure complete destruction of viruses; ultraviolet rays do not penetrate well between each page of the book, since viruses can remain between the sheets of the book; in addition, for the same reason, it takes a lot of time to disinfect books, which reduces the efficiency of the device for disinfection of books.

The disadvantages of s were studied in depth when designing our disinfection device. Special attention was paid to the elimination of existing defects in our

device. Notable differences from the proposed disinfection device are as follows:

- sensitive scales installed under the belt, weighing books against tearing out pages;
- a conveyor belt has been installed;
- use of a scanning device, book identification;
- riveted rubber brushes, cleaning dust covers;
- use of a reflector, enhances ultraviolet rays;
- equipped with a glass drum, ultraviolet lamps installed inside;
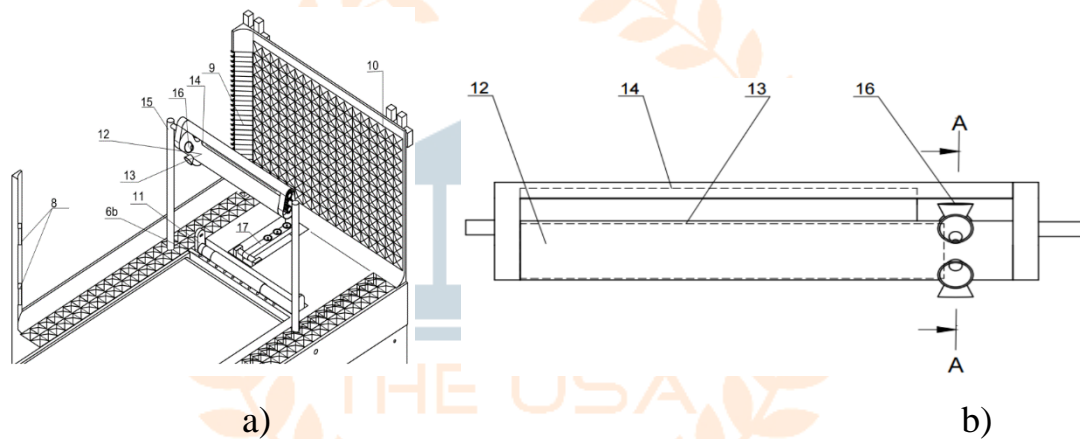- a manipulator is attached to open the book cover;

a)   b)

Figure 3. a – internal part of the device: 8 – air channels; 9 – air sucking channels; 10 – ray reflector; 11 – book holder; 12 – glass drum;13 – ultraviolet lamp; 14 – storage unit for disinfection devices; 15 – pneumatic driving mechanism; 16 – air suction cup for leafing through a book; 17 – manipulator for opening the book cover; 6b – motion sensor; b – drum: 12 – glass drum; 13 – ultraviolet lamp; 14 – storage unit for disinfection devices; 15 – pneumatic driving mechanism; 16 – air suction cup for leafing through a book.
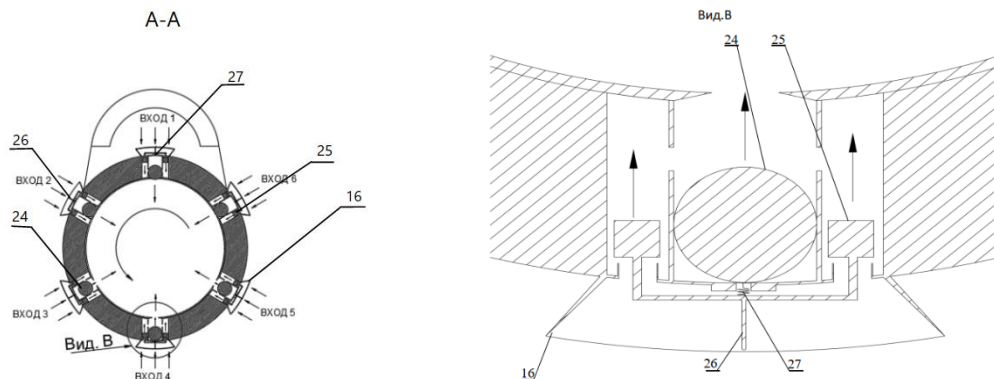
a)

Figure 4. a – section along section A–A in Fig. 7: 16 – air suction cup for leafing through a book; 24 – metal ball; 25 – valves for air suction; 26 – head for opening the valve; 27 – spring; b – mechanism for turning pages of a book: 24 – metal ball; 25 – valves for air suction; 26 – head for opening the valve; 27 – spring.

Thus, the proposed book disinfection device allows you to effectively kill various viruses and bacteria, reduces the risk of developing various diseases between people, increases the safety of transferring a book from hand to hand, and allows for quick accounting of books.

CONCLUSION

The neural network model was built using the Neural Networks Toolbox package of the Matlab system based on the results of the experiment to determine the drying productivity of sunflower seeds. Such modeling, built on the basis of typical algorithms, does not require long calculations. Adequacy of the built model to the experimental values can also be seen in the graphical representation. It is desirable to use neural network modeling in the Matlab system to quickly and easily perform discovery modeling based on experimental results.

REFERENCES

1. Storozhenko J., Volynsky V., Zaitsev V. Neural Network Model of Linen Material Thermal Treatment in Tenter Drier. "Modern science-intensive technologies. Regional supplement" No. 1 (33) 2013.

2. TohidI M., Sadeghi M., Mousavi S. R., Mireei S. A. Artifcial Neural Network Modeling of Process and Product Indices in Deep Bed Drying of Rough Rice. Turk J Agric 36 (2012) 738-748. © TÜBİTAK. doi:10.3906/tar-1106-44.

3. LI H., Chen S. A Neural-Network-Based Model Predictive Control Scheme for Grain Dryers. Drying Technol., Volume 38, 2020 - Issue 8. DOI:10.1080/07373937.2019.16115984.

4. Yusupov, A. A., Sabirov, U. K., Begijonov, M. S., & Valiyev, D. H. (2023). Analysis of common errors and methods of calibration of ultrasonic level meter. In E3S Web of Conferences (Vol. 402, p. 03051). EDP Sciences.

5. Yusupov Azamat, & Dadajanov Muzaffar. (2023). UZ-METER TECH CO KORXONASIDA AVTOMOBIL EHTIYOT QISMLARINI QUYISH JARAYONIDA SUV BILAN SOVUTISH TIZIMINI AVTOMATLASHTIRISH. Innovations in Technology and Science Education, 2(9), 1999–2012. Retrieved from https://humoscience.com/index.php/itse/article/view/946

6. Xolmatov Oybek Olim o'g'li, & Xoliqov Izzatulla Abdumalik o'g'li. (2023). QUYOSH PANELI YUZASINI TOZALOVCHI MOBILE ROBOTI TAXLILI. Innovations in Technology and Science Education, 2(7), 791–800.

7. URL:https://humoscience.com/index.php/itse/article/view/424

8. Xolmatov Oybek Olim o'g'li, & Vorisov Raxmatulloh Zafarjon o'g'li. (2023). KALAVA IPI ISHLAB CHIQARISHDA PAXTANI SIFATINI NAZORAT QILISH MUAMMOLARINING TAXLILI. Innovations in Technology and Science Education, 2(7), 801–810.

9. URL: https://humoscience.com/index.php/itse/article/view/425

10. Холматов Ойбек Олим угли, & Иминов Холмуродбек Элмуродбек угли. (2023). ЭКСТРАКЦИЯ ХЛОПКОВОГО МАСЛА С ИСПОЛЬЗОВАНИЕМ ТЕХНОЛОГИИ СУБКРИТИЧЕСКОЙ ВОДЫ.ЭКСТРАКЦИЯ ХЛОПКОВОГО МАСЛА С ИСПОЛЬЗОВАНИЕМ ТЕХНОЛОГИИ СУБКРИТИЧЕСКОЙ ВОДЫ. Innovations in Technology and Science Education, 2(7), 852–860.

11. URL: https://humoscience.com/index.php/itse/article/view/432

12. Холматов Ойбек Олим угли, & Хасанов Жамолиддин Фазлитдин угли. (2023). АВТОМАТИЧЕСКАЯ СИСТЕМА ОЧИСТКИ СОЛНЕЧНЫХ ПАНЕЛЕЙ НА БАЗЕ ARDUINO ДЛЯ УДАЛЕНИЯ ПЫЛИ. Innovations in Technology and Science Education, 2(7), 861–871.

13. URL: https://humoscience.com/index.php/itse/article/view/433

14. Xolmatov Oybek Olim o'g'li, & Jo`rayev Zoxidjon Azimjon o'g'li. (2023). MACHINE LEARNING YORDAMIDA IDISHNI SATHINI ANIQLASH. Innovations in Technology and Science Education, 2(7), 1163–1170.

15. URL: https://humoscience.com/index.php/itse/article/view/477

16. Холматов О.О., Муталипов Ф.У. "Создание пожарного мини-автомобиля на платформе Arduino" Universum: технические науки : электрон. научн. журн. 2021. 2(83).

17. URL: https://7universum.com/ru/tech/archive/item/11307

18. Холматов О.О., Дарвишев А.Б. "Автоматизация умного дома на основе различных датчиков и Arduino в качестве главного контроллера" Universum: технические науки : электрон. научн. журн. 2020. 12(81).

19. URL: https://7universum.com/ru/tech/archive/item/11068

20. DOI:10.32743/UniTech.2020.81.12-1.25-28

21. Холматов О.О., Бурхонов З.А. "ПРОЕКТЫ ИННОВАЦИОННЫХ ПАРКОВОК ДЛЯ АВТОМОБИЛЕЙ" Международный научный журнал «Вестник науки» № 12 (21) Том 4 ДЕКАБРЬ 2019 г.

22. URL: https://www.elibrary.ru/item.asp?id=41526101

23. Kholmatov O.O., Burkhonov Z., Akramova G. "THE SEARCH FOR OPTIMAL CONDITIONS FOR MACHINING COMPOSITE MATERIALS" science and world International scientific journal, №1(77), 2020, Vol.I

24. URL:http://en.scienceph.ru/f/science_and_world_no_1_77_january_vol_i.pdf#page=28

25. Холматов О.О, Бурхонов З, Акрамова Г "АВТОМАТИЗАЦИЯ И УПРАВЛЕНИЕ ПРОМЫШЛЕННЫМИ РОБОТАМИ НА ПЛАТФОРМЕ ARDUINO" science and education scientific journal volume #1 ISSUE #2 MAY 2020

26. URL: https://www.openscience.uz/index.php/sciedu/article/view/389

27. Кабулов Н. А., Холматов О.О "AUTOMATION PROCESSING OF HYDROTERMIC PROCESSES FOR GRAINS" Universum: технические науки журнал декабрь 2021 Выпуск: 12(93) DOI - 10.32743/UniTech.2021.93.12.12841

28. URL: https://7universum.com/ru/tech/archive/item/12841

29. DOI - 10.32743/UniTech.2021.93.12.12841

30. Холматов О.О., Негматов Б.Б "РАЗРАБОТКА И ВНЕДРЕНИЕ ИНТЕЛЛЕКТУАЛЬНОЙ СИСТЕМЫ УПРАВЛЕНИЯ СВЕТОФОРОМ С БЕСПРОВОДНЫМ УПРАВЛЕНИЕМ ОТ ARDUINO" Universum: технические науки: научный журнал. – № 6(87). июнь, 2021 г.

31. URL:https://7universum.com/ru/tech/archive/item/11943

32. DOI-10.32743/UniTech.2021.87.6.11943.

33. Холматов О.О., Негматов Б.Б "АВТОМАТИЗАЦИЯ ПРОЦЕССА ОБРАБОТКИ ЗЕРНА" Universum: технические науки: научный журнал. – № 3(96). Часть 1. М., Изд. «МЦНО», 2022 г.

34. URL: https://7universum.com/ru/tech/archive/item/13235

35. DOI - 10.32743/UniTech.2022.96.3.13235

36. Холматов Ойбек Олим угли "АВТОМАТИЗАЦИЯ СИСТЕМЫ ЗЕРНОВЫХ ОСУШИТЕЛЕЙ С ПОМОЩЬЮ ПЛК" Universum: технические науки: научный журнал. – № 3(96). Часть 1. М., Изд. «МЦНО», 2022 г.

37. URL:https://7universum.com/ru/tech/archive/item/13234

38. DOI - 10.32743/UniTech.2022.96.3.13234

39. Холматов Ойбек Олим угли, & Негматов Бегзодбек Баходир угли. (2022). МЕТОДЫ ОРГАНИЗАЦИИ ЛОГИСТИЧЕСКИХ УСЛУГ С ИСПОЛЬЗОВАНИЕМ ИНТЕЛЛЕКТУАЛЬНЫХ СИСТЕМ ОРГАНИЗАЦИИ ГРУЗОВ. E Conference Zone, 219–221.

40. URL:https://econferencezone.org/index.php/ecz/article/view/196

41. Kholmatov Oybek Olim ugli, & Negmatov Begzodbek Bakhodir ugli. (2022). OPTIMIZATION OF AN INTELLIGENT SUPPLY CHAIN MANAGEMENT SYSTEM BASED ON A WIRELESS SENSOR NETWORK AND RFID TECHNOLOGY. E Conference Zone, 189–192.

42. URL: http://www.econferencezone.org/index.php/ecz/article/view/467

43. Мацко Ольга, Холматов Ойбек, & Думахонов Фуркатбек. ПРОЕКТИРОВАНИЕ РОБОТА МАНИПУЛЯТОРА С ОГРАНИЧЕННЫМИ УГЛАМИ ПЕРЕДВИЖЕНИЯ НА ПРИНЦИПЕ РАБОТЫ СЕРВОДВИГАТЕЛЯ В ПРОГРАММНОМ ОБЕСПЕЧЕНИИ ARDUINO И PROTEUS. UNIVERSAL JOURNAL OF TECHNOLOGY AND INNOVATION, 1(1), 28–40.

44. URL: https://humoscience.com/index.php/ti/article/view/1174

45. Мацко Ольга Николаевна, Холматов Ойбек, & Думахонов Фуркатбек. РАЗРАБОТКА СИСТЕМ АВТОМАТИЧЕСКОГО УПРАВЛЕНИЯ ДЛЯ ТЕПЛИЧНЫХ СООРУЖЕНИЙ НА ПОГОДНЫХ УСЛОВИЯХ СЕВЕРНОГО ПОЛЮСА. UNIVERSAL JOURNAL OF ACADEMIC AND MULTIDISCIPLINARY RESEARCH, 1(1), 75–88.

46. URL: https://humoscience.com/index.php/amr/article/view/1115

47. XOLMATOV, O. (2022). AUTOMATION OF GRAIN PROCESSING. Universum: технические науки. https://doi.org/DOI - 10.32743/UniTech.2022.96.3.13235

48. XOLMATOV, O. (2022). AUTOMATION OF GRAIN DRYER SYSTEM USING PLC. Universum: технические науки. https://doi.org/DOI - 10.32743/UniTech.2022.96.3.13234

49. Z.O. Eshmurodov, M. Abdusalomov. KO'TARISH MOSLAMALARING ELEKTR YURITMALARI UCHUN RAQAMLI BOSHQARUV

TIZIMLARI VA ULARNI QURILISH HUSUSIYATLARI. Eurasian Journal of Academic Research 2 (6), 630-636. 2022.

50. Abdusalomov, M. B., & Asranov, X. K. (2023). SUTNI QURITISHNING ZAMONIY TEXNOLOGIYASI HAMDA MAXSULOTNING XOZIRGI KUNDAGI AHMIYATI VA UNING AVZALLIKLARI. UNIVERSAL JOURNAL OF TECHNOLOGY AND INNOVATION, 1(1), 20-27.

51. Asranov, H. K., Abdusalomov, M. B., & Sh, T. H. (2023). Automation of quality control at oil factories (improvement of oil quality). Texas Journal of Engineering and Technology, 20, 75-78.

52. Tokhirov, A. I. (2021). USING THE GRAPHICAL EDITOR" КОМПАС 3D" in teaching computer engineering graphics. Universum: технические науки: электрон. научн. журн, 7(88), 8-3.

53. Tokhirov, A. (2021). Application procedure CAD/CAM/CAE-systems in scientific research. Universum: технические науки, (6-5), 16-19.

54. Tokhirov, A. (2021). Writing control programs for computer numeral control machines. Universum: технические науки, (5-6), 15-17.

55. Tokhirov, A. (2021). WRITING CONTROL PROGRAMS FOR COMPUTER NUMERAL CONTROL MACHINES. Universum: технические науки, (5-6), 15-17.

56. ugli Tokhirov, A. I. (2021). Technological process development using CAD-CAM programs. Science and Education, 2(6), 288-291.

57. Tokhirov, A. I. U. (2021). Technological process development using CAD-CAM programs. Science and Education, 2(6), 288-291.

58. TOKHIROV, A., & MARASULOV, I. (2021). Control models and information system of cotton storage in the claster system. UNIVERSUM, 12-18.

59. Ogli, I. M. R., & Ogli, T. A. I. (2021). A Role of Mechanical Engineering in Mechatronics. JournalNX, 824-828.

60. Djurayev, A. D., Tokhirov, A. I., & Marasulov, I. R. (2022). CLEANING COTTON FROM SMALL DIRTY. Universum: технические науки: электрон. научн. журн, 3, 96.

61. A'zamjon, T. (2022). ROBOTOTEXNIKA MAJMUALARINING AVTOMATLASHTIRILGAN ELEKTR YURITMALARINI QO'LLANILISH SOHALARI. Involta Scientific Journal, 1(6), 3-9.

62. A'zamjon, T. (2022). ROBOTOTEXNIKA MAJMUALARINING AVTOMATLASHTIRILGAN ELEKTR YURITMALARINI QO'LLANILISH SOHALARI. Involta Scientific Journal, 1(6), 3-9.

63. Marasulov, I. R., & Toxirov, A. I. (2021). A role of mechanical engineering in mechatronics. Journal NX–A Multidisciplinary Peer Reviewed Journal, 824-828.

64. Tokhirov, A. I. Methodology of teaching three-dimen modeling using the program «KOMPAS 3D». Eurasian Journal of Academic research Innovative Academy Research Support Center/[Электронный ресурс].–Режим доступа: https://doi. org/10.5281/zenodo, 4718298.

65. Tokhirov, A. (2021). APPLICATION PROCEDURE CAD (No. 6, p. 87). CAM/CAE–SYSTEMS IN SCIENTIFIC RESEARCH//Universum: technical sciences: a scientific journal.

66. Ibrohim o'g, T. A. Z. (2022). Robototechnics And Technical Sets Application Of Automatic Electric Power Supplies Fields. Open Access Repository, 8(6), 92-96.

67. Джураев, А. Д., Далиев, Ш. Л., & Тохиров, А. И. У. (2022). РАЗРАБОТКА ЭФФЕКТИВНОЙ КОНСТРУКТИВНОЙ СХЕМЫ ОЧИСТИТЕЛЯ ХЛОПКА-СЫРЦА ОТ МЕЛКОГО СОРА.

Universum: технические науки, (9-2 (102)), 26-28.

68. Anvar, D., Azamjon, T., & Islombek, M. (2022). CLEANING COTTON FROM SMALL DIRTY. Universum: технические науки, (3-7 (96)), 9-14.

69. Azamjon, T., & Islombek, M. (2021). CONTROL MODELS AND INFORMATION SYSTEM OF COTTON STORAGE IN THE CLASTER SYSTEM. Universum: технические науки, (11-6 (92)), 12-18.

70. Azamjon, T. (2021). WRITING CONTROL PROGRAMS FOR COMPUTER NUMERAL CONTROL MACHINES. Universum: технические науки, (5-6 (86)), 15-17.

71. Ugli, T. A. I. (2021). USING THE GRAPHICAL EDITOR" КОМПАС 3D" IN TEACHING COMPUTER ENGINEERING GRAPHICS. Universum: технические науки, (7-3 (88)), 38-43.

72. Azamjon, T. (2021). APPLICATION PROCEDURE CAD/CAM/CAE-SYSTEMS IN SCIENTIFIC RESEARCH. Universum: технические науки, (6-5 (87)), 16-19.

73. IR, D. A. T. A. M. CLEANING COTTON FROM SMALL DIRTY.

74. Hokimbek Eshonxodjayev. (2023). ULTRASONIC BATHS EQUIPMENT FOR VARIOUS LABORATORIES. FAN, JAMIYAT VA INNOVATSIYALAR, 1(1), 30–34. Retrieved from https://michascience.com/index.php/fji/article/view/6

75. Oqilov Azizbek, Oripov Shoxruxmirzo, Eshonxodjayev Hokimjon Xotamjon o'g'li, & Sobirov Anvarjon Sobirov. (2022). Remote Control of Food Storage Parameters Based on the Database. Texas Journal of Engineering and Technology, 9, 29–32. Retrieved from https://zienjournals.com/index.php/tjet/article/view/1872

76. Daliyev Shuxratjon, & Xokimjon Eshonxodjayev. (2023). PAXTANI MAYDA CHIQINDILARDAN TOZALAGICH ISHCHI ORGANLARINI TAKOMILLASHTIRISH ASOSIDA TOZALASH SAMARASINI OSHIRISH. Innovations in Technology and Science Education, 2(8), 609–615. Retrieved from https://humoscience.com/index.php/itse/article/view/626