INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 4, Issue 5 May 2023

DEVELOPMENT OF AUTOMATIC STORAGE AND INVENTORY MANAGEMENT SYSTEMS IN ENGINEERING

Turaev Tirkash Turaevich
Associate Professor, Fergana Polytechnic Institute,
Republic of Uzbekistan, Fergana
t.torayev@ferpi.uz

Uraimov Muhammaddiyor Bohodir coals
Fergana Polytechnic Institute, 3rd year student

Annotation: The development of automatic storage and inventory management systems in mechanical engineering is a hot topic that attracts the attention of many manufacturing companies. Automation of these processes can greatly improve production efficiency, improve product quality and reduce production costs.
Keywords: Development, automatic, systems, control, mechanical engineering.

One of the key approaches to automation of warehousing and inventory management systems is the use of automatic warehousing systems such as automatic high-rise warehouses, stackers, conveyor belts and other automation systems. These systems allow you to automatically move and store materials and components in the warehouse, which simplifies the inventory management process and reduces the time spent searching for and moving materials in the warehouse.

In addition, automatic planning and inventory management systems are often used to automate inventory management systems in mechanical engineering. These systems allow you to optimize inventory management, taking into account various factors such as product demand, component delivery times, inventory levels, and others. Automatic planning and inventory management systems can also be used to automatically order the required materials and control the amount of materials in stock.

An important aspect of automation of inventory management systems is the integration of all automated systems into a single production management system. This allows you to automatically adjust production processes based on quality control results and other factors. Integration also allows potential problems to be predicted and addressed early in production, improving product quality and reducing production costs.

INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 4, Issue 5 May 2023

Therefore, the development of automatic warehousing and inventory management systems in mechanical engineering can greatly improve production efficiency and product quality, as well as reduce production costs. However, for the successful implementation of automation, many factors must be taken into account, such as software development, staff training, and integration with the production control system.

The development of automatic warehousing and inventory management systems in mechanical engineering is one of the key areas of production automation, which allows you to increase the efficiency and quality of production, as well as reduce production costs. This area combines technical and software solutions that help optimize warehousing and inventory management processes.

One of the main advantages of automating warehousing and inventory management systems is the ability to optimize warehouse performance. Automatic storage systems, such as automatic high-bay warehouses, optimize the use of warehouse space and reduce the time it takes to move materials and components. This reduces the time to find and deliver the necessary materials and components, which can significantly increase production efficiency.

In addition, automating inventory management systems can reduce errors and reduce inventory management costs. Automatic planning and inventory management systems can be used to automatically order the required materials and control the amount of materials in stock. This reduces the risk of overstocking materials and components, as well as reducing warehousing costs.

The development of automatic warehousing and inventory management systems also reduces the risks associated with errors and shortcomings in the production process. Automatic quality control systems allow you to identify possible defects and errors at an early stage of production, which allows you to improve product quality and reduce the cost of correcting it.

Finally, the integration of all automatic warehousing and inventory management systems into a single production management system allows you to automatically adjust production processes based on quality control results and other factors. This improves product quality and reduces production costs.

However, for the successful implementation of automation of warehouse and inventory management systems, many factors must be taken into account, such as software development, staff training and integration with the production management system. However, if implemented correctly, the automation of warehousing and inventory management systems can lead to significant

ISSN: 2776-0987 Volume 4, Issue 5 May 2023

economic benefits and increase the competitiveness of an enterprise in the engineering industry.

In addition, automation of warehousing and inventory management systems can lead to lower costs for warehouse maintenance and personnel. Automatic storage systems reduce the time it takes to move materials and components, which can reduce the need for a large number of staff in the warehouse. This can significantly reduce labor costs and improve labor productivity.

Automatic warehousing and inventory management systems can improve safety in the workplace. Automatic quality control systems make it possible to identify possible defects and errors in the early stages of production, which improves product quality and reduces the risk of accidents in production.

Automated inventory management systems can help streamline manufacturing processes and increase production throughput. Automatic inventory planning and management systems allow you to optimize inventory management, taking into account various factors, such as product demand, component delivery time, inventory levels, and others. This can help speed up the production process and increase plant productivity.

Finally, automating warehousing and inventory management systems can help a business improve the quality of its products and improve customer service. Thanks to automatic quality control and stock management, the company can quickly and accurately fulfill customer orders, increasing customer satisfaction and loyalty.

In general, the development of automatic warehousing and inventory management systems in mechanical engineering has great potential to increase production efficiency, reduce production costs, improve product quality and improve customer service.

Conclusion

The development of automatic storage and inventory management systems is an important direction in the development of production in mechanical engineering. Automation of these processes can greatly improve production efficiency, improve product quality and reduce production costs.

One of the key approaches to automating warehousing and inventory management systems is the use of automatic warehousing and inventory management systems. These systems allow you to automatically move and store

materials and components in the warehouse, optimize inventory management and reduce the time spent searching for and moving materials in the warehouse.

The development of automatic warehousing and inventory management systems also reduces the cost of warehouse and personnel maintenance, improves safety in production, optimizes production processes and increases production throughput.

However, for the successful implementation of automation, many factors must be taken into account, such as software development, staff training, and integration with the production control system. When properly implemented, automation of warehousing and inventory management systems can lead to significant economic benefits and increase the competitiveness of an enterprise in the engineering industry.

Thus, the development of automatic warehousing and inventory management systems in mechanical engineering is an important step in the development of production, which can lead to increased efficiency, reduced costs and improved product quality.

References

1. Тураев, Т. Т., Акрамов, М. М., & Мадаминов, Б. М. (2023). ИЗУЧЕНИЯ ЭНЕРГЕТИЧЕСКОГО БАЛАНСА ПРИ ИСПОЛЬЗОВАНИЯ МЕТОДА ОБРАБОТКИ ПОВЕРХНОСТНЫМ ПЛАСТИЧЕСКИМ ДЕФОРМИРОВАНИЕМ. European Journal of Interdisciplinary Research and Development, 14, 290-295.

2. Тураев, Т. Т., & Мадаминов, Б. М. (2022). ПОВЫШЕНИЕ ТЕХНОЛОГИЧЕСКОЙ ВОЗМОЖНОСТИ СТРОГАЛЬНЫХ СТАНКОВ ПРИ ИНТЕГРАЦИИ РЕЗАНИЯ И ПОВЕРХНОСТНОЙ ПЛАСТИЧЕСКОЙ ОБРАБОТКЕ. Universum: технические науки, (11-2 (104)), 36-39.

3. Turayevich, T. T., Adiljonovich, E. D., & Mirodilovich, M. B. (2022). IMPROVING THE DURABILITY OF COMPRESSOR EQUIPMENT PARTS IN THE CHEMICAL AND PETROCHEMICAL INDUSTRIES. Global Book Publishing Services, 01-124.

4. Тураев, Т. Т., Батиров, Я. А., & Мадаминов, Б. М. (2021). Повышение эффективности разделения листовых материалов за счет снижения времени приработки инструмента. Universum: технические науки, (3-1 (84)), 70-73.

5. Turaevich, T. T., Anvarxodjaevich, B. Y., & Mirodilovich, M. B. (2021). Choosing the Optimal Processing Method to Improve the Productivity of

Machine Tools and Machine Systems. International Journal of Multicultural and Multireligious Understanding, 8(5), 490-494.
6. Тураев, Т. Т., Батиров, Я. А., & Мадаминов, Б. М. (2021). Сравнительной оценки технического уровня станков и станочных систем. Збірник наукових праць ΛΌГОΣ.
7. Turaevich, T. T., Mirodilovich, M. B., & Abdulhakim O'g'li, T. B. (2020). Physical Foundations Structural-Formation, Surface Layer Of Parts. The American Journal of Engineering and Technology, 2(09), 71-76.
8. Yulchieva, S. B., Mukhamedbaeva, Z. A., Bozorboev, S. A., Rubidinov, S. G., & Madaminov, B. M. (2022). Research of the Chemical Resistance of Anti-Corrosion Composite Materials Based on Liquid Glass. Journal of Optoelectronics Laser, 41(6), 750-756.
9. Medatovna, Q. Z. (2023). Methods of Manufacturing Models From Polystyrene Foam. Central Asian Journal of Theoretical and Applied Science, 4(5), 11-15.
10. Medatovna, Q. Z., & Ogli, U. M. B. (2023). ROUGHNESS PARAMETERS DURING MECHANICAL PROCESSING ACCORDING TO INTERNATIONAL STANDARDS. European International Journal of Multidisciplinary Research and Management Studies, 3(04), 148-157.
11. Косимова, З. М. (2022). Анализ Измерительной Системы Через Количественное Выражение Ее Характеристик. Central Asian Journal of Theoretical and Applied Science, 3(5), 76-84.
12. Рубидинов, Ш. Ғ. У., Қосимова, З. М., Ғайратов, Ж. Ғ. У., & Акрамов, М. М. Ў. (2022). МАТЕРИАЛЫ ТРИБОТЕХНИЧЕСКОГО НАЗНАЧЕНИЯ ЭРОЗИОННЫЙ ИЗНОС. Scientific progress, 3(1), 480-486.
13. Улуғхожаев, Р. С. (2021). Ишлов берилаётган деталнинг аниқлигини ошириш учун метал қирқиш дастгохларини бошқаришда виброакустик сигналлардан фойдаланиш. Scientific progress, 2(6), 1241-1247.
14. Улуғхожаев, Р. С. (2021). КЕСИШ ЗОНАСИДА ҲОСИЛ БЎЛУВЧИ ВИБРОАКУСТИК СИГНАЛЛАРДАН ДЕТАЛНИНГ АНИҚЛИГИНИ НАЗОРАТ ҚИЛИШДА ФОЙДАЛАНИШ. Oriental renaissance: Innovative, educational, natural and social sciences, 1(11), 114-123.
15. Улугхожаев, Р. С. (2022). Методы контроля точности при резания металлов. Science and Education, 3(11), 591-598.
16. Qosimova, Z. M., & RubidinovSh, G. (2021). Influence of The Design of The Rolling Roller on The Quality of The Surface Layer During Plastic Deformation

on the Workpiece. International Journal of Human Computing Studies, 3(2), 257-263.
17.Косимова, З. М., & Акрамов, М. М. Ў. (2021). Технологические особенности изготовления поршней. Scientific progress, 2(6), 1233-1240.
18.Medatovna, K. Z., & Igorevich, D. D. (2021). Welding Equipment Modernization. International Journal of Human Computing Studies, 3(3), 10-13.
19.Tursunovich, M. E. (2022). ROBOTLARNING TURLARI VA ISHLATILISH SOXALARI. Educational Research in Universal Sciences, 1(7), 61-64.
20.Mamurov, E. T. (2022). Diagnostics Of The Metal Cutting Process Based On Electrical Signals. Central Asian Journal of Theoretical and Applied Science, 3(6), 239-243.
21.Mamurov, E. T. (2022). Study of the Dependences of Specific Energy Consumption on the Elements of the Cutting Mode as an Informative Parameter of the Cutting Process. Middle European Scientific Bulletin, 24, 315-321.
22.Eldor, M. (2022). CONTROL OF METAL CUTTING PROCESS BASED ON VIBROACOUSTIC SIGNAL. Universum: технические науки, (6-6 (99)), 63-67.
23.Тожибоев, Ф. О. (2023). ИЗУЧЕНИЕ ПРОЦЕССА ПОЛИМЕРИЗАЦИИ ПОЛИМЕРОВ И ЗАЩИТНЫХ МЕТАЛЛИЧЕСКИХ ПОКРЫТИЙ ОТ ЭЛЕМЕНТОВ. Gospodarka i Innowacje., 35, 41-50.
24.O‘G, R. S. G. A., Obidjonovich, T. F., Oybek O'g'li, O. A., & Bahodirjon O'g'li, L. A. (2023). ANALYSIS OF THE MILLING PROCESSING PROCESS ON THE SHAPED SURFACES OF STAMP MOLDS. European International Journal of Multidisciplinary Research and Management Studies, 3(04), 124-131.
25.O’G’Li, S. G. A., & O’G’Li, J. G. A. (2022). Ishlab chiqarish va sanoatda kompozitsion materiallarning o’rni. Science and Education, 3(11), 563-570.
26.O'g, R. S. G. A. (2022). Classification of Wear of Materials Under Conditions of High Pressures and Shock Loads.
27.Рубидинов, Ш. Ғ. Ў. (2021). Бикрлиги паст валларга совуқ ишлов бериш усули. Scientific progress, 1(6), 413-417.
28.Рубидинов, Ш. Ғ. Ў., & Ғайратов, Ж. Ғ. Ў. (2021). Штампларни таъмирлашда замонавий технология хромлаш усулидан фойдаланиш. Scientific progress, 2(5), 469-473.
29.Рубидинов, Ш. Г. У., & Ғайратов, Ж. Г. У. (2021). Кўп операцияли фрезалаб ишлов бериш марказининг тана деталларига ишлов беришдаги

унумдорлигини тахлили. Oriental renaissance: Innovative, educational, natural and social sciences, 1(9), 759-765.
30.Nomanjonov, S., Rustamov, M., Sh, R., & Akramov, M. (2019). STAMP DESIGN. Экономика и социум, (12 (67)), 101-104.
31.Рустамов, М. А. (2021). Методы термической обработки для повышения прочности зубчатых колес. Scientific progress, 2(6), 721-728.
32.Файзиматов, Ш. Н., & Рустамов, М. А. (2018). Аэродинамический эффект для автоматизации процесса перекачки химических агрессивных реагентов. Современные исследования, (6), 112-115.
33.Akbaraliyevich, R. M. (2022). Improving the Accuracy and Efficiency of the Production of Gears using Gas Vacuum Cementation with Gas Quenching under Pressure. Central Asian Journal of Theoretical and Applied Science, 3(5), 85-99.
34.Файзимтов, Ш. Н., & Рустамов, М. А. (2017). ПРИМЕНЕНИЕ ПРОГРЕССИВНЫХ МЕТОДОВ ДЛЯ ОРИЕНТАЦИИ И УСТАНОВКИ ЗАКЛЕПОК В ОТВЕРСТИЕ С ГОРИЗОНТАЛЬНОЙ ОСЬЮ. In НАУЧНЫЙ ПОИСК В СОВРЕМЕННОМ МИРЕ (pp. 44-45).
35.Таджибаев, Р. К., Турсунов, Ш. Т., Гайназаров, А. А., & Сайфиев, Б. Х. (2023). КОНТРАФАКТНАЯ ПРОДУКЦИЯ. ДЕШЕВАЯ ПРОДУКЦИЯ ИЛИ ГАРАНТИЯ БЕЗОПАСНОСТИ. CENTRAL ASIAN JOURNAL OF MATHEMATICAL THEORY AND COMPUTER SCIENCES, 4(2), 81-88.
36.Tadjibaev, R. K., & Tursunov, S. T. (2022). Scientific Research and Study Behavior of Curved Pipes Under Loads. Central Asian Journal of Theoretical and Applied Science, 3(3), 81-86.
37.Таджибаев, Р. К., Турсунов, Ш. Т., & Гайназаров, А. А. (2022). Повышения качества трафаретных форм применением косвенного способа изготовления. Science and Education, 3(11), 532-539.
38.Таджибаев, Р. К. (2022). МОДЕРНИЗАЦИЯ ТОКАРНО-ВИНТОРЕЗНОГО СТАНКА МОДЕЛИ ДИП-500 ДЛЯ ПОВЫШЕНИЯ ВОЗМОЖНОСТЕЙ (ГАБАРИТОВ) ОБРАБОТКИ ДЕТАЛЕЙ ДО ВОЗМОЖНОСТЕЙ СТАНКА МОДЕЛИ ДИП-800. Universum: технические науки, (7-1 (100)), 35-39.
39.Таджибаев, Р. К., Гайназаров, А. А., & Турсунов, Ш. Т. (2021). Причины Образования Мелких (Точечных) Оптических Искажений На Ветровых Стеклах И Метод Их Устранения. Central Asian Journal of Theoretical and Applied Science, 2(11), 168-177.

40.Гайназаров, А. Т., & Абдурахмонов, С. М. (2021). Системы обработки результатов научных экспериментов. Scientific progress, 2(6), 134-141.
41.Gaynazarov, A. T., & Rayimjonovich, A. R. (2021). ТЕОРЕТИЧЕСКИЕ ОСНОВЫ РАЗРАБОТКИ КЛЕЯ В ПРОЦЕССЕ СВАРКИ НА ОСНОВЕ ЭПОКСИДНОГО СПЛАВА ДЛЯ РЕМОНТА РЕЗЕРВУАРОВ РАДИАТОРА. Oriental renaissance: Innovative, educational, natural and social sciences, 1(10), 659-670.
42.Акрамов, М. М. (2022). Краткая Характеристика Горячих Цинковых Покрытий. Central Asian Journal of Theoretical and Applied Science, 3(5), 232-237.
43.Turayev, T. T., & Akramov, M. M. (2022). MASHINA DETALLARIGA ISHLOV BERISHNIG OQILONA USULINI TANLASH MULOHAZALARI. Oriental renaissance: Innovative, educational, natural and social sciences, 2(2), 864-870.
44.Акрамов, М. М. (2021). Повышение физико-механических свойств стальных деталей при пластической деформационной обработке. Scientific progress, 2(6), 129-133.
45.Акрамов, М. М. (2021). ДЕТАЛЛАРНИНГ ЮЗАЛАРИНИ КИМЁВИЙ-ТЕРМИК ИШЛОВ БЕРИШГА ҚАРАТИЛГАН ТАКЛИФЛАР. Scientific progress, 2(6), 123-128.
46.Akramov, M. M. (2021). Metallarni korroziyalanishi va ularni oldini olish samarodorligi. Scientific progress, 2(2), 670-675.
47.Abdullayev, B. B. O. G. L. (2021). ZAMONAVIY ISSIQLIK ELEKTR MARKAZLARIDA QO ‘LLANILADIGAN ISSIQLIK IZOLYATSION MATERIALLAR VA ULARGA QO ‘YILADIGAN ASOSIY TALABLAR. Scientific progress, 2(8), 36-40.
48.Таиров, Ш. М., & Абдуллаев, Б. Б. У. (2020). Чрезвычайные и критические изменения климата в странах центральной Азии. Universum: технические науки, (2-1 (71)), 5-6.
49.Munavvarhonov, Z., & Khakimov, R. (2021, April). GYPSUAL MATERIALS BASED ON LOCAL AND SECONDARY RAW MATERIALS FOR CONSTRUCTION PURPOSES. In International Scientific and Current Research Conferences (pp. 10-14).
50.Sarvar, I., & Zokirxon, M. (2021). ROAD TRANSPORTATION ACCIDENTS WITH PARTICIPATION PEDESTRIANS. Universum: технические науки, (5-6 (86)), 62-65.

51.Munavvarkhanov, Z., Soliyev, R., & Boydadayev, M. (2021). The chemical reagents influence on the regulation of the powder composite materials setting time for construction purposes. In E3S Web of Conferences (Vol. 264, p. 02006). EDP Sciences.
52.Мадаминов, Б. М., Юлчиева, С. Б., Негматова, К. С., Кучкаров, У. К., Рубидинов, Ш. Г. У., Негматов, С. С., ... & Мамуров, Э. Т. (2021). АНТИКОРРОЗИОННЫЕ КОМПОЗИЦИОННЫЕ СИЛИКАТНЫЕ МАТЕРИАЛЫ ДЛЯ ЗАЩИТЫ ОБОРУДОВАНИЙ ХИМИЧЕСКОЙ ПРОМЫШЛЕННОСТИ. Universum: технические науки, (10-3 (91)), 61-66.
53.Юлчиева, С. Б., Негматов, С. С., Негматова, К. С., Мамуров, Э. Т., Мадаминов, Б. М., & Рубидинов, Ш. Г. У. (2021). Повышение коррозионностойкости композиционных материалов с добавлением полимерных добавок. Universum: технические науки, (10-1 (91)), 48-52.
54.Юлчиева, С. Б., Мухамедбаева, З. А., Негматова, К. С., Мадаминов, Б. М., & Рубидинов, Ш. Г. У. (2021). Изучение физико-химических свойств порфиритовых жидкостекольных композиций в агрессивной среде. Universum: технические науки, (8-1 (89)), 90-94.
55.Тураев, Т. Т., Акрамов, М. М., & Мадаминов, Б. М. (2023). ИЗУЧЕНИЯ ЭНЕРГЕТИЧЕСКОГО БАЛАНСА ПРИ ИСПОЛЬЗОВАНИЯ МЕТОДА ОБРАБОТКИ ПОВЕРХНОСТНЫМ ПЛАСТИЧЕСКИМ ДЕФОРМИРОВАНИЕМ. European Journal of Interdisciplinary Research and Development, 14, 290-295.
56.Tadjikuziyev, R. M. (2022). Technology of repair of press molds for production of machine parts from steel coils, aluminum alloys. American Journal Of Applied Science And Technology, 2(04), 1-11.
57.Tadjikuziyev, R. M. (2022). Analysis of Pollution of Automobile Engines Operating in the Hot, HighDust Zone of Uzbekistan. Eurasian Journal of Engineering and Technology, 7, 15-19.
58.Tadjikuziyev, R. M. (2022). Texnologik payvandlash jixozlari, vosita va uskunalari turlaridan ishlab chiqarish korxonalarida maxsulot ishlab chiqarishda foydalanish tadbiqlari. Science and Education, 3(11), 512-522.
59.Файзиматов, Ш. Н., Улуғхожаев, Р. С., & Абдуллаев, Б. И. (2022). ДЕТАЛЛАРГА ЮҚОРИ ТЕЗЛИКДА ИШЛОВ БЕРИШ БИЛАН УНУМДОРЛИКНИ ОШИРИШ. Scientific progress, 3(5), 96-103.

ISSN: 2776-0987 Volume 4, Issue 5 May 2023

60.Ulugxodjaev, R. S., Gafurov, A. M., & Rakhmatdinov, K. S. (2022, June). OPTIMIZATION OF THE TECHNOLOGICAL PROCESS BASED ON THE HEAT PHYSICAL PHENOMENON. In E Conference Zone (pp. 5-12).