

**DEVELOPMENT AND INSTALLATION OF AN AUTOMATIC TEMPERATURE
CONTROL SYSTEM IN ROOMS**

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Annotation: The article discusses automated temperature and humidity control systems in production rooms. First, general information about cooling systems, their types and properties is provided, and typical and various designs of temperature and humidity control systems for production rooms are analyzed, and then the implementation of these technologies in such systems is considered.

Keywords: Temperature, humidity, production room, automatic control system.

Annotation: Makolada ishlab chikarish honalari temperaturesi va namligini avtomatlashtirilgan boshkarish tizimiini ishlab chikish usullarini tashkil qilish kʻyrib chikilgan. Boshida avtomatlashtirilgan sovutish tizimini turlari va hossalari tugrisida umumiy malumot berylgan boub, shuningdek ishlab chikarish honalarning temperaturesi va namligini odatiy hamda turli khil boshkarish tizimlarini qurish usullari tahlil qilingan, keyincha lik esa ushbu usullarni shu tisimlarda qʻyullanilishi kʻyrib chikilgan.

Kalit suzlar: Harorat, namlik, ishlab chikarish khonasi, automatic boshkarish tizimi.

INTRODUCTION

In the modern world, namely in the age of high technology, there remains a need for workers and employees to create comfortable working conditions. The main goals of the ventilation system are to provide the premises with a microclimate, as well as purify the air from harmful substances. By supplying a manufacturing plant with clean air at a comfortable temperature for the working personnel, work efficiency increases. As part of this trend, there is a need to automate the ventilation system. Current developments help provide better working conditions.

There are several types of ventilation systems, which are classified as follows:

- Method of air pressure and movement;
- Purpose – supply and exhaust;
- Service area – general and local;
- Design – channel and without channel.

Natural ventilation is the simplest type of ventilation, since ventilation occurs naturally and does not require special equipment.

There are situations when the power of natural ventilation is not enough and then it becomes necessary to install artificial ventilation. The peculiarity of its work is that, the useadditional equipment that facilitates the forced movement of used air, replacing it with clean air, as well as maintaining the specified air parameters. The distinctive quality of such systems is air treatment, namely air purification, heating, cooling and humidification.

The purpose of controlling the ventilation system is to ensure and maintain the required air quality standards in the working area of the room. Local automation is usually used to control the ventilation system. One and the most important disadvantage of such regulation is that it does not take into account the real air and heat balance of the building, as well as weather conditions. Thus, we can say that the ventilation system is not operating optimally.

By implementing optimal control of the ventilation system, you can not only increase operating efficiency, but also reduce the cost of energy resources. But for this it is necessary to use a complex of software and hardware.

Using a computer, you can find the optimal operating mode and determine the appropriate control action. As a result, the computer and the complex, consisting of software and hardware, form an automated ventilation control system. The role of a computer can be either a control panel for the supply ventilation system or a computer with a modeling program, which, based on the data obtained, establishes the optimal operating mode of the ventilation system.

Automatic control system – a set of devices designed to obtain a finished product from initial raw materials by automatically changing one or more parameters of the control object. In the case of a supply ventilation system, the finished product is air with specified parameters (temperature, humidity, etc.) in the production room.

When designing an automatic system, remote control is often provided; this is necessary to change the basic parameters of the system. This control is carried out using converters or sensors, the values of which can be displayed on the control panel or computer monitor.

One of the main functions that needs to be implemented is the “start sequence”. To ensure normal start-up of the supply ventilation system, it is necessary to take into account:

- Preheating of the heater. If you do not start warming up the air heater in advance, cold air can trigger the antifreeze protection. Thus, when starting the system, you should open the supply air dampers, open the water heater valve and warm up the heater. Typically, this function should be activated when the outside temperature is below 12 °C.
- Preliminary opening of air dampers. This is due to the fact that not all dampers, when closed, can withstand the pressure drop caused by the operation of the fan.
- Distribution of electric motor starting moments. This function is necessary in an automated ventilation system since asynchronous electric motors often have high starting currents. If you start the fans and air damper drives at the same time, then due to the heavy load on the electrical network, the voltage will drop significantly and the engines will not start

Many important functions that need to be provided for when designing an automatic control system for supply ventilation are the “stop sequence”. When shutting down the system, the following must be considered:

- Delay for stopping the supply air fan in systems with an electric heater. After removing the voltage from the heater, it should be cooled for some time using a supply air fan.

CONCLUSION

The presence of a ventilation system is necessary to ensure air exchange inside the building by removing excess moisture, heat, and harmful substances. Its presence is one of the main conditions for ensuring life. If there are no types of ventilation systems in the room, this is harmful to the human body, harmful substances are not removed, and leads to the formation of fungi, since condensation forms in the absence of air exchange.

BIBLIOGRAPHY

1. Vladimirov V.S., Zharinov V.V. Equations of mathematical physics. - Moscow: FIZMATLIT, 2004. - 400 p.
2. Voronin A. Yu. Theory of automatic control: Textbook. - Stavropol: NCFU, 2017. - 252 p.
3. Ikromovna, A. Z. (2023). USING THE USEFUL ASPECTS OF THE MOODLE SYSTEM AND ITS POSSIBILITIES. *American Journal of Public Diplomacy and International Studies (2993-2157)*, 1(9), 201-205.
4. Axmedova, Z. (2023). MOODLE TIZIMI VA UNING IMKONIYATLARI. *Development and innovations in science*, 2(11), 29-35.
5. Zulxumor, A. (2022). IMPLEMENTATION OF INTERACTIVE COURSES IN THE EDUCATIONAL PROCESS. *ILMIY TADQIQOT VA INNOVATSIYA*, 1(6), 128-132.
6. Муродов, О. Т. (2023). РАЗРАБОТКА АВТОМАТИЗИРОВАННОЙ СИСТЕМЫ УПРАВЛЕНИЯ ТЕМПЕРАТУРЫ И ВЛАЖНОСТИ В ПРОИЗВОДСТВЕННЫХ КОМНАТ. *GOLDEN BRAIN*, 1(26), 91-95.
7. Murodov, O. T. R. (2023). ZAMONAVIY TA'LIMDA AXBOROT TEXNOLOGIYALARI VA ULARNI QO'LLASH USUL VA VOSITALARI. *Educational Research in Universal Sciences*, 2(10), 481-486.
8. Murodov, O. T. (2023). INFORMATIKA FANINI O'QITISHDA YANGI INNOVATSION USULLARDAN FOYDALANISH METODIKASI. *GOLDEN BRAIN*, 1(34), 130-139.
9. Sharopova, M. M. qizi . (2023). JAVA TILI YORDAMIDA OB'JEKTA YUNALTIRILGAN DASTURLASH ASOSLARI BILAN TANISHISH. *GOLDEN BRAIN*, 1(34), 111-119.
10. qizi Sharopova, M. M. (2023). RSA VA EL-GAMAL OCHIQ KALITLI SHIFRLASH ALGORITMI ASOSIDA ELEKTRON RAQMLI IMZOLARI. RSA OCHIQ KALITLI SHIFRLASH ALGORITMI ASOSIDAGI ELEKTRON RAQAMLI IMZO. *Educational Research in Universal Sciences*, 2(10), 316-319
11. Sharipova, M. P. L. (2023). CAPUTA MA'NOSIDA KASR TARTIBLI HOSILALAR VA UNI HISOBLASH USULLARI. *Educational Research in Universal Sciences*, 2(9), 360-365.
12. Sharipova, M. P. (2023). MAXSUS SOHALARDA KARLEMAN MATRITSASI. *Educational Research in Universal Sciences*, 2(10), 137-141.
13. Madina Polatovna Sharipova. (2023). APPROXIMATION OF FUNCTIONS WITH COEFFICIENTS. *American Journal of Public Diplomacy and International Studies (2993-2157)*, 1(9), 135-138.
14. Madina Polatovna Sharipova. (2023). Applications of the double integral to mechanical problems. *International journal of sciearchers*, 2(2), 101-103.
15. Sharipova, M. P. L. (2023). FINDING THE MAXIMUM AND MINIMUM VALUE OF A FUNCTION ON A SEGMENT. *American Journal of Public Diplomacy and International Studies (2993-2157)*, 1(9), 245-248.

16. Sharipova, M. P. (2023). FUNKSIYALARNI KOEFFITSIENTLAR ORQALI FUNKSIYALARNI YAKINLASHTIRISH HAQIDA MA'LUMOTLAR. *GOLDEN BRAIN*, 1(34), 102–110.
17. qizi Latipova, S. S. (2023). KASR TARTIBLI HOSILA TUSHUNCHASI. *SCHOLAR*, 1(31), 263-269.
18. qizi Latipova, S. S. (2023). RIMAN-LUIVILL KASR TARTIBLI INTEGRALI VA HOSILASIGA OID AYRIM MASALALARNING ISHLANISHI. *Educational Research in Universal Sciences*, 2(12), 216-220.
19. qizi Latipova, S. S. (2023). MITTAG–LIFFLER FUNKSIYASI VA UNI HISOBLASH USULLARI. *Educational Research in Universal Sciences*, 2(9), 238-244.
20. Shahnoza, L. (2023, March). KASR TARTIBLI TENGLAMALARDA MANBA VA BOSHLANG'ICH FUNKSIYANI ANIQLASH BO'YICHA TESKARI MASALALAR. In " *Conference on Universal Science Research 2023*" (Vol. 1, No. 3, pp. 8-10).
21. Latipova, S. S. qizi . (2023). BETA FUNKSIYA XOSSALARI VA BU FUNKSIYA YORDAMIDA TURLI MASALALARNI YECHISH. *GOLDEN BRAIN*, 1(34), 66–76.
22. Jurakulov, SZ (2023). NUCLEAR ENERGY. *Educational Research in Universal Sciences* , 2 (10), 514-518.
23. Oghly, JSZ (2023). PHYSICO-CHEMICAL PROPERTIES OF POLYMER COMPOSITES. *American Journal of Applied Science and Technology* , 3 (10), 25-33.
24. Oghly, JSZ (2023). THE RELATIONSHIP OF PHYSICS AND ART IN ARISTOTLE'S SYSTEM. *International Journal of Pedagogics* , 3 (11), 67-73.
25. Oghly, JSZ (2023). BASIC PHILOSOPHICAL AND METHODOLOGICAL IDEAS IN THE EVOLUTION OF PHYSICAL SCIENCES. *Gospodarka i Innowacje.* , 41 , 233-241.
26. Jalolov, T. S. (2023). SPSS YOKI IJTIMOY FANLAR UCHUN STATISTIK PAKET BILAN PSIXOLOGIK MA'LUMOTLARNI QAYTA ISHLASH. *Journal of Universal Science Research*, 1(12), 207–215.
27. Jalolov, T. S. (2023). THE MECHANISMS OF USING MATHEMATICAL STATISTICAL ANALYSIS METHODS IN PSYCHOLOGY. *TECHNICAL SCIENCE RESEARCH IN UZBEKISTAN*, 1(5), 138-144.
28. Jalolov, T. S. (2023). PROGRAMMING LANGUAGES, THEIR TYPES AND BASICS. *TECHNICAL SCIENCE RESEARCH IN UZBEKISTAN*, 1(5), 145-152.
29. Jalolov, T. S. (2023). PYTHON TILINING AFZALLIKLARI VA KAMCHILIKLARI. *TECHNICAL SCIENCE RESEARCH IN UZBEKISTAN*, 1(5), 153-159.
30. Jalolov, T. S. (2023). PYTHON DASTUR TILIDADA WEB-ILOVALAR ISHLAB CHIQUISH. *TECHNICAL SCIENCE RESEARCH IN UZBEKISTAN*, 1(5), 160-166.
31. Jalolov, T. S. (2023). SUN'IY INTELLEKTA PYTHONNING (PYTORCH) KUTUBXONASIDAN FOYDALANISH. *TECHNICAL SCIENCE RESEARCH IN UZBEKISTAN*, 1(5), 167-171.
32. Jalolov, T. S. (2023). WORKING WITH MATHEMATICAL FUNCTIONS IN PYTHON. *TECHNICAL SCIENCE RESEARCH IN UZBEKISTAN*, 1(5), 172-177.
33. Jalolov, T. S. (2023). PARALLEL PROGRAMMING IN PYTHON. *TECHNICAL SCIENCE RESEARCH IN UZBEKISTAN*, 1(5), 178-183.
34. Турсунов, Б. Ж., & Шомуродов, А. Ю. (2021). Перспективный метод утилизации отходов нефтеперерабатывающей промышленности. *ТА'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 1(6), 239-243.
35. Bakhodir, T., Bakhtiyor, G., & Makhfuza, O. (2021). Oil sludge and their impact on the environment. *Universum: технические науки*, (6-5 (87)), 69-71.

36. Турсунов, Б. Ж. (2021). АНАЛИЗ МЕТОДОВ УТИЛИЗАЦИИ ОТХОДОВ НЕФТЕПЕРЕРАБАТЫВАЮЩЕЙ ПРОМЫШЛЕННОСТИ. *Scientific progress*, 2(4), 669-674.
37. Турсунов, Б. Ж., Ботиров, Т. В., Ташпулатов, Д. К., & Хайруллаев, Б. И. (2018). ПЕРСПЕКТИВА ПРИМЕНЕНИЯ ОПТИМАЛЬНОГО ПРОЦЕССА РУДООТДЕЛЕНИЯ В КАРЬЕРЕ МУРУНТАУ. In *Инновационные геотехнологии при разработке рудных и нерудных месторождений* (pp. 160-164).
38. ТУРСУНОВ, Б., & ТАШПУЛАТОВ, Д. (2018). ЭФФЕКТИВНОСТЬ ПРИМЕНЕНИЯ ПРЕДВАРИТЕЛЬНОГО ОБОГАЩЕНИЯ РУД В КАРЬЕРЕ КАЛЬМАКИР. In *Инновационные геотехнологии при разработке рудных и нерудных месторождений* (pp. 165-168).
39. Jalolov, T. S. (2023). PSIXOLOGIYA YO ‘NALISHIDA TAHSIL OLAYOTGAN TALABALARGA SPSS YORDAMIDA MATEMATIK USULLARNI O ‘RGATISHNING METODIK USULLARI. *Educational Research in Universal Sciences*, 2(10), 323-326.
40. Jalolov, T. S. (2023). PYTHON INSTRUMENTLARI BILAN KATTA MA'LUMOTLARNI QAYTA ISHLASH. *Educational Research in Universal Sciences*, 2(10), 320-322.
41. Jalolov, T. S., & Usmonov, A. U. (2021). “AQLLI ISSIQXONA” BOSHQARISH TIZIMINI MODELLASHTIRISH VA TADQIQ QILISH. *Экономика и социум*, (9 (88)), 74-77.
42. Sadriddinovich, J. T. (2023). Capabilities of SPSS Software in High Volume Data Processing Testing. *American Journal of Public Diplomacy and International Studies* (2993-2157), 1(9), 82-86.
43. Sadriddinovich, J. T. (2023, November). IDENTIFYING THE POSITIVE EFFECTS OF PSYCHOLOGICAL AND SOCIAL WORK FACTORS BETWEEN INDIVIDUALS AND DEPARTMENTS THROUGH SPSS SOFTWARE. In *INTERNATIONAL SCIENTIFIC RESEARCH CONFERENCE* (Vol. 2, No. 18, pp. 150-153).
44. Jalolov, T. S. (2023). TEACHING THE BASICS OF PYTHON PROGRAMMING. *International Multidisciplinary Journal for Research & Development*, 10(11).
45. Jalolov, T. S. (2023). Solving Complex Problems in Python. *American Journal of Language, Literacy and Learning in STEM Education* (2993-2769), 1(9), 481-484.
46. Jalolov, T. S. (2023). PEDAGOGICAL-PSYCHOLOGICAL FOUNDATIONS OF DATA PROCESSING USING THE SPSS PROGRAM. *INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION*, 2(23), 220-223.
47. Jalolov, T. S. (2023). ADVANTAGES OF DJANGO FEMWORKER. *International Multidisciplinary Journal for Research & Development*, 10(12).
48. Jalolov, T. S. (2023). ARTIFICIAL INTELLIGENCE PYTHON (PYTORCH). *Oriental Journal of Academic and Multidisciplinary Research*, 1(3), 123-126.