

DEVELOPMENT OF THE RUKHIV VIVALENNA SYSTEM AT NEARBY ENTERPRISES

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Annotation: This research paper explores the development and analysis of a motion detection system in enterprise premises. The advantages, including precise personnel tracking and energy optimization, are discussed, alongside the system's drawbacks such as high costs and privacy concerns. A comparative analysis with alternative methods and a risk assessment are presented, ultimately emphasizing the system's potential as a robust solution for enhancing security and efficiency in enterprise environments. The expanded research provides a comprehensive understanding of the motion detection system, its development process, benefits, drawbacks, and comparison with alternative methods. It concludes with an analysis of potential risks and a summary of the system's potential as a powerful tool for ensuring safety and efficiency in enterprise premises.

In the global context of rapid technological development, the development of motion detection systems in the premises of enterprises is becoming an important aspect of ensuring security and optimizing energy consumption. Aimed at highlighting the key aspects of this issue, this research paper covers the process of system development, the basic principles of its operation, and a comparison with the use of alternative motion detection methods. It is important to note that the implementation of a motion detection system in the premises of an enterprise can have a significant impact on its productivity and efficiency. This may include reducing energy costs, improving security, and increasing employee comfort.

Modern requirements for security and optimization of enterprise resources cannot be imagined without the use of advanced technologies. The development of an indoor motion detection system is the answer to these requirements. When it comes to innovation, it is important to consider not only hardware but also software components, as they interact to achieve the best results. A motion detection system can use different technologies, such as infrared sensors, radio frequency identification (RFID), or video surveillance. It is important to choose the technology that is best suited for a particular enterprise [1-4].

One of the key advantages of a motion detection system is its ability to detect motion in real time. This means that the system can immediately respond to motion, including turning on or off lighting or air conditioning systems. Motion detection has a number of significant advantages. First, it allows you to accurately determine the number and location of people in the room, providing access control. Recognition of authorized and unauthorized persons helps to identify employees and visitors, as well as to detect potential intruders [5-8].

A motion detection system can significantly reduce energy costs by automatically turning on or off lighting and air conditioning systems depending on detected motion. One of the key advantages of the system is its ability to interact with the enterprise infrastructure. Turning on and off lighting and air conditioning depending on motion detection reduces energy costs and maintains an optimal microclimate.

One of the main disadvantages of a motion detection system is its high cost. However, given the potential energy savings, this cost may be justified. In addition, possible privacy concerns can be addressed through appropriate policies and procedures. One of the main disadvantages of a motion detection system is its high cost. However, given the potential energy savings, this cost may be justified. In addition, possible privacy concerns can be addressed with appropriate policies and procedures. For example, motion data can be anonymized or encrypted to prevent misuse [9-10]. Other methods of motion detection exist, such as the use of pyrometers or radar. However, these methods may be less accurate or more expensive compared to a motion detection system. In addition, they may not have the same flexibility or ability to integrate with other enterprise systems.

When implementing a motion detection system, it is important to consider potential risks, such as privacy violations or incorrect motion detection. However, based on the findings of this paper, we can conclude that motion detection is a powerful tool for ensuring the safety and efficiency of enterprise

premises. It is also important to note that a motion detection system can be used not only to ensure security, but also to increase the productivity and efficiency of an enterprise [11-12].

CONCLUSIONS. The research findings emphasize the importance of integrating monitoring and data analysis technologies to ensure security on the territories of enterprises. The use of motion detection systems allows for the timely detection of possible threats, providing a prompt response to potential violations. The introduction of such systems increases the level of automation of security processes and reduces the risk of unauthorized intrusions, which is an important step towards creating modern cyber-physical production environments.

References:

1. An introduction to using RFID technology in your library [Електронний ресурс]. - Режим доступу до ресурсу: An introduction to using RFID technology in your library | RFID card, Proximity Card of Huayuan RFID, The RFID manufacturer (rfidhy.com).
2. Датчики руху: принцип роботи та можливості [Електронний ресурс]. -Датчики руху: принцип роботи, переваги, параметри (svetum.com.ua)
3. Yuri Diogenes, Erdal Ozkaya (2020). Cybersecurity – Attack and Defense Strategies. Видавництво Packt Publishing Ltd.
4. Nevliudov, I., Yevsieiev, V., Maksymova, S., Demska, N., Starodubcev, N., & Klymenko, O. (2023, September). Monitoring System Development for Equipment Upgrade for IIoT. In *2023 IEEE 5th International Conference on Modern Electrical and Energy System (MEES)* (pp. 1-5). IEEE.
5. Yevsieiev, V., Maksymova, S., & Starodubcev, N. (2023). An Automatic Assembly SMT Production Line Operation Technological Process Simulation Model Development. *International Science Journal of Engineering & Agriculture*, 2(2), 1-9.
6. Automated Monitoring and Visualization System in Production / Lyashenko V., Abu-Jassar A. T., Yevsieiev V., Maksymova S. // *Int. Res. J. Multidiscip. Technovation*, 5(6), 09-18.
7. Yevsieiev V. Comparative analysis of the advantages and disadvantages of collaborative robot control methods within Industry 5.0 / V. Yevsieiev, D. Gurin // *Progressive science and achievements : proceedings of the 3rd International Scientific and Practical Conference, Doha, Qatar, September, 26-28, 2023 / comp. by LLC SPC "InterConf". - Doha : Katara, 2023. - Scientific Collection «InterConf». - № (172), - P. 211-214.*
8. Attar, H., Abu-Jassar, A. T., Amer, A., Lyashenko, V., Yevsieiev, V., & Khosravi, M. R. (2022). Control System Development and Implementation of a CNC Laser Engraver for Environmental Use with Remote Imaging. *Computational intelligence and neuroscience*, 2022(1), 9140156.
9. Abu-Jassar, A. T., Attar, H., Yevsieiev, V., Amer, A., Demska, N., Luhach, A. K., & Lyashenko, V. (2022). Electronic user authentication key for access to HMI/SCADA via unsecured internet networks. *Computational intelligence and neuroscience*, 2022(1), 5866922.
10. Abu-Jassar, A. T., Attar, H., Amer, A., Lyashenko, V., Yevsieiev, V., & Solyman, A. (2024). Remote Monitoring System of Patient Status in Social IIoT Environments Using Amazon Web Services (AWS) Technologies and Smart Health Care. *International Journal of Crowd Science*.
11. Web site reliability analysis using the python parsing method / D. Gurin, S. Maksymova, V. Yevsieiev, Ahmad Alkhalaileh // *Journal of Universal Science Research*. – 2024. – Vol. 2(5). – P. 113-126.
12. Methods for parameters controlling and regulating the industrial premises microclimate / I. Holod, V. Yevsieiev, S. Maksymova, Ahmad Alkhalaileh // *Technical science research in Uzbekistan*. - 2024. – Vol. 2(6). – P. 46-57.