

INTERNET OF THINGS

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Анотація

У цій статті досліджуються можливості інтернету речей, способи його впровадження в повсякденне життя, плюси та мінуси пов'язані з цим, вплив штучного інтелекту на розвиток інтернету речей. Дві основні теми дослідження: інтеграція інтернету речей для розумних домів, що може покращити якість життя та оптимізувати використання енергії, та використання інтернету речей на підприємствах, що може автоматизувати виробництво, покращити його швидкість та якість.

Ключові слова: Інтернет речей, розумні будинки, безпека, штучний інтелект.

Abstract

This article explores the possibilities of the Internet of Things, how it can be implemented in everyday life, the pros and cons associated with it, and the impact of artificial intelligence on the development of the Internet of Things. The two main topics of the study are the integration of the Internet of Things for smart homes, which can improve the quality of life and optimize energy use, and the use of the Internet of Things in enterprises, which can automate production, improve its speed and quality.

Keywords: Internet of things, smart home, security, artificial intelligence

Introduction

The Internet of Things is a modern technology that allows you to connect physical things to the Internet, allowing you to effectively collect and analyze data. This technology can have a positive impact on many different areas, such as healthcare, agronomy, education, and industrial production, and improve the quality of life of society as a whole. [3]

Research results

One of the most obvious and popular ways to use the Internet of Things [1] at the moment is smart homes. They use thermostats to regulate temperatures, smart lamps to control lighting, surveillance cameras and motion sensors for security, automatic lawn watering systems, and more. All of this can work automatically through predefined settings, using AI [2] or manually, remotely via a smartphone.

If we talk about the industrial sector, IoT is actually leading the fourth industrial revolution [4]. By connecting machines, sensors, and control systems into a single network that can work perfectly, twenty-four to seven, eliminating human error and improving the quality of production. Sensors monitor the condition of equipment and prevent problems before they happen, reducing downtime. The IoT can also work on logistics, minimizing the time it takes to deliver goods. Automated robots can perform basic physically demanding and routine work, increasing efficiency and saving businesses money.

The Internet of Things is also gradually changing the education industry. Smart classrooms are already quite common not only in projects but also in real life. Nowadays, you can often see smart boards, advanced testing and automatic grading systems in the classroom, which allow teachers to spend more time on teaching itself rather than on routine tasks like checking tests.

In medicine, IoT offers a variety of devices for tracking indicators in real time. Smartwatches, rings, fitness bracelets, and sensors can track heart rate, blood oxygen saturation, blood sugar, analyze sleep, and draw conclusions on how to improve it. Critical data can also be automatically transmitted to doctors to prevent emergencies.

Nevertheless, the Internet of Things faces a number of challenges, such as personal data privacy, standardization, and security vulnerabilities. For IoT to work properly as we envision it, too much personal data needs to be provided for analysis, which may cause distrust among some people. Even though strong

encryption keys are now used, connected devices can still be hacked or vulnerable to cyberattacks. The problem of standardization is also acute. Different devices and generations of devices use different standards, making it almost impossible for them to work stably as a whole.

Conclusion

In general, the Internet of Things is a powerful technology that can change society for the better. From smart homes to industrial automation, IoT is pushing the boundaries, increasing efficiency and endurance. But issues such as privacy and security are currently preventing the technology from reaching its full potential. But with the development of artificial intelligence and the application of the latest technologies (possibly quantum computers), the Internet of Things will grow and improve.

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