

in domestic conditions, this factor is usually much lower.

A significant effect in such cases can be achieved by simple replacement of equipment (motors) or introduction of automation systems, but the correct solution of such a problem requires rather high qualification of the personnel. The applied computer programs may be rather effective if they're oriented on a wide range of specialists, connected with electric drive, and support taking rational decisions. The experience of creation of such programs has shown that in spite of high expenses, efficiency of such an approach is rather high: specialists have a powerful, convenient, very easily mastered tool, which allows solving rather complicated tasks quickly.

Taking everything into account, there are many strategies to save energy by means of the electric drive. All we need is to choose the optimal one and put it into practice.

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## **DIRECTIONS OF MODERN ROBOTICS DEVELOPMENT**

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Throughout its existence, humanity has evolved, introducing new technologies to build a comfortable life. For this purpose, robots were designed to help people perform monotonous or dangerous tasks, mainly in industrial areas.

Scientific and technological progress, the emergence of new technologies, the rapid development of robotics and artificial intelligence have made it possible to

integrate intelligent robots into other areas of human life nowadays. Modern leading companies in the United States, Japan, South Korea, Great Britain, and Germany conduct research and integrate robots in such fields as agriculture, industry, logistics, unmanned vehicles, medicine, astronautics, etc. The development of high-tech intelligent equipment for production continues. These are new machines that not only perform repetitive tasks but learn by imitation and interaction with people, working together as partners.

The UN estimates that the world's population will reach 10 billion by 2050, which will increase the demand for agricultural products, so now the demand for agricultural workers, who directly help in farming to obtain a larger and higher quality crop, has been cut and robots can help to solve this problem. Furthermore, with the development of online commerce and the increasing turnover of goods, there was a need for the robotization of warehouses to monitor the movement of goods and deliver them to the user. Drones and unmanned civil and military vehicles are being developed at a rapid pace. To perform dangerous tasks (demining, reconnaissance, hostilities) to save lives, military robots are used.

For the medical field, robots are being created to help doctors establish or confirm a patient's diagnosis, to perform complex surgical operations with greater accuracy, and exoskeletons and prostheses with robotic functions are being developed.

One more important area of the development of robotics is the space industry. Robotic surveillance systems provide meteorological information, key data for monitoring and forecasting air pollution. Satellite communication systems and global navigation satellite systems are being designed.

Artificial intelligence is currently being improved (development of computer vision technology, development of tools for recognizing text, moving objects, and faces). However, when endowing robots with artificial intelligence, they should be limited by certain laws which they have to obey. Similar ideas were raised by many writers, for example, Isaac Azimov in his work "I am a robot" developed three laws:

- the first law - the robot can not harm a person or by its inaction allow a person to be harmed;
- the second law - the robot must obey human commands if these commands do not contradict the first law;
- the third law - the robot must take care of its safety, as it does not contradict the first and second laws.

In my opinion, Ukraine has great potential in the development and integration of robotics soon. The main areas can be: introduction of unmanned vehicles, development of robotics in the military industry, use of robots in medicine and the social sphere.

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## **PROSPECTS OF ARTIFICIAL INTELLIGENCE**

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Today the entire innovation community is talking about artificial intelligence and its potential. The introduction of technologies based on it opens up new opportunities not only for leading corporations, but also for entire states. More and more disruptive solutions are emerging that can change entire industries.

Artificial intelligence is the ability of machines to programmatically analyze