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THE FUTURE BELONGS TO ROBOTS

A robot is a programmed machine that can perform a number of actions, and in most cases autonomously. The robot can independently carry out production and other operations, partially or completely replacing human labour, while communicating with the operator, receiving commands.

In information technology, "robots" may also mean some autonomous programs, such as bots or search robots. The development of robotics will largely depend on related areas: the science of materials and advances in computer technology.

There are such basic types of robots as: industrial robots, medical robots, household robots, security robots, battle robots, robot scientists, robot teachers. Robots are already bringing enormous benefits to humanity. Machines can do any job

many times better than humans can, which is proven by the latest advances in robotics. For example:

1. Da Vinci SP Intuitive Surgical Platform, which is capable of inserting three instruments into the body through a single 2.5 cm tube, gives a whole new meaning to minimally invasive surgery.

2. Artificial Muscle is a self-healing, hydraulically reinforced actuator. In an effort to find a way to power soft robotics, last year scientists of University of Colorado developed a series of extremely inexpensive artificial muscles capable of lifting 200 times their own weight and even healing themselves.

3. Self-assembled nanoscale DNA robot which is a piece of tightly bound DNA molecules created to act as a manipulator and is attached to the base of the DNA using a flexible joint. Because the DNA carries charge, they were able to make the arm rotate like the hand of a clock, applying voltage and changing direction by changing the voltage. It is hoped that this hand can eventually be used to craft materials piece by piece at nanoscale.

And simpler, but no less useful is the winged robot DelFlyRobotics that not only borrows from biology – it sometimes pays back debts. The new winged robot designed by Dutch engineers to mimic a humble fruit fly did just that, showing how animals perform their maneuvers while dodging predators. After almost 20 years of hiatus, the robotic dog Aibo by Sony is back, and this time with some very interesting updates. In addition to improving its appearance, the new robot pet takes advantage of artificial intelligence, better understands the environment and commands, and develops a unique character through interaction with its owner.

Nowadays there is a focus on two promising materials: gallium nitride (GaN), which can successfully replace silicon for transistor manufacturing; and graphene, a super-thin and super-strong material from which it is possible to produce actuators for robots, new batteries and much more.

No less important are new sources of energy, technologies for its collection and storage, for example, the improvement of the current lithium batteries, the creation of new batteries based on hydrogen, etc. Also, we must not forget about alternative, renewable energy sources. Finally, a technology can be implemented to remotely recharge robots, for example, from energy sources built into the floor or walls.

Interaction between robots and people is also possible. We are talking about unmanned traffic management systems. To avoid incidents and accidents, transport robots must have a channel of communication with both humans and each other.

As you can see, robots can not only replace a person with a robot, help achieve rapid and significant progress in all branches of science, but also simplify our life, make it easier, and even more fun. Adhering to the following trends in the development of robotics will enable humanity to preserve the ending natural resources and many human lives.