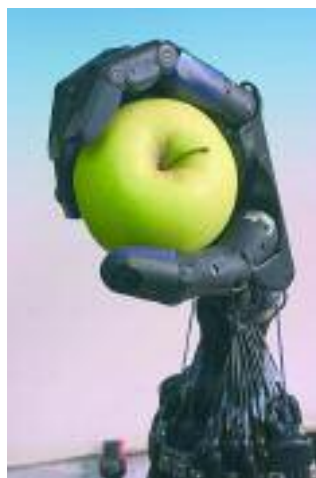


A ROBOTIC HAND FOR DISABLED PEOPLE

Getting a glass of water in the night could soon be far easier for disabled people - a robot could do it for them. A UK company is developing a robotic arm which fully mimics a human hand. It is hoped the programming needed to make a prototype arm which can fetch¹ a drink could be completed within a year. Even though the arm can already pick up a glass and hold it, the Shadow Robot Company, based in north London, hopes eventually to develop a robot that can perform a wide variety of tasks for disabled people.

The company has just received an invention and innovation award² of £75,000 to help develop the robot from the National Endowment for Science, Technology and the Arts (Nesta). Richard Greenhill, managing director of the Shadow Robot Company, told BBC News Online the grant³ would allow work on the complex navigational and knowledge program needed.



"It has to know everything such as where the cupboard is and how to open the door. Our robot is different from other devices in that it's got all the movements of a human hand. NASA's robot has got a hand with 12 movements. We have done all 24, so we're a significant step ahead⁴."

The secret of the robot is the use of air muscles rather than of electric motors to power the movements.

All the air muscles can fit into a forearm. They are a rubber tube inside a special braiding⁵. If the tube inside gets fatter, the braiding gets shorter. This means more muscles to control movement can be fitted into the forearm⁶ than if electric motors were used, increasing the range of movements the hand can perform.

It will have a hand and arm on a moving base, with remote control and camera systems, so the user can guide the robot through simple tasks and eventually computer software will allow the robot to perform tasks automatically.

• Social benefits

Richard Walker, technical advisor at the company, said: "The aim of this is to make a robot that's helpful to a person that needs assistance on a daily basis, things that they could feel were too trivial⁷ or embarrassing to ask a person to help with." He said the robot could provide a safer and more convenient alternative to a person carrying out a task themselves. A complete robot assistant could be just two to three years away. Jeremy Newton, chief executive of Nesta, said: "The robot has real commercial potential for the assistive aids markets as well as offering substantial social benefits by empowering and enabling both the disabled community and an increasing ageing population⁸."

On the other hand David Colley, chairman of the British Council of Disabled People, told BBC News Online: "It's unfortunate that disabled people are constantly used as a reason for inventing new gadgets. A robot is can't replace for flexible, human, personal assistance."

1. *fetch*: portare (alla bocca).

2. *award*: riconoscimento, premio.

3. *grant*: finanziamento.

4. *ahead*: avanti.

5. *braiding*: intreccio di fibre.

6. *forearm*: avambraccio.

7. *trivial*: futile.

8. *increasing ageing population*: popolazione anziana in aumento.