# THE WORLD'S MOST USEFUL ROBOTS

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**Eco Bot.** The robot, developed at the University of Bristol, is designed to power itself by eating flies. Feed the EcoBot a dead bluebottle every so often, and it will digest the insect in one of its eight microbial fuel cells, each filled with sewage slurry teeming with bacteria. A sugar compound in the fly's exoskeleton is extracted and metabolised by the bacteria to generate energy, which is turned into electricity. 'The idea is that it could go places we don't or can't go and send back information,' says Ioannis Ieropoulos of the EcoBot team. It might take temperature readings, or toxic gas measurements. For now EcoBot's achievements seem modest. In endurance tests, eight flies lasted the bot for 12 days, but it only moved for a few seconds every 14 minutes. And its developers aren't sure how it will attract its food. It's not yet WALL-E, nor is it autonomous, but it's on the way.

**Big Dog**. It may be the best known kick on the internet. A man in a car park kicks a strange, spooky, headless thing with four legs. The thing staggers, then it rights itself. The thing is a robot; the humming noise, the engine that powers it. Made by Boston Dynamics and partly funded by the Pentagon outfit that brought us the internet, Big Dog is designed to be a military pack animal. It is powered by a gas engine, has a ball for each foot, and can walk or trot at a maximum of four mph. It can distinguish terrain, carry 165lb and cross ditches.

**Robonaut**. It's either an advanced piece of space robotics, or Boba Fett on a skateboard. Robonaut, with its 'centurion-inspired' helmet, is Nasa's star robot. Its torso is meant to look human, but not too much: research shows that humanoid robots can only look so human before humans freak out. 'Robonaut was designed to work with the same tools and interfaces that have been built for an astronaut's gloved hand,' says Ron Diftler, project manager at Nasa's Johnson Space Centre in Houston. Eventually, it will 'assist astronauts with tasks the same way a nurse helps a doctor, and provide maintenance on lunar or Martian bases between astronaut visits.'

**Neuro Arm**. Last month, a Canadian woman became the first person to have a robot's hands inside her head. Controlled by a neurosurgeon at a computer workstation, neuroArm worked for nine hours to remove a tumour from Paige Nickason's head. Neuro Arm, developed at the University of Calgary, has a sense of touch, a necessity in brain surgery, where surgeons judge how to proceed by how soft the brain is. And for precision, the two robotic arms are peerless.

**Wakamuru**. This rotund, yellow, black-eyed robot, launched by Mitsubishi Heavy Industries in 2005, was the first properly useful helper robot for the home. It can talk to its elderly owner; recognise faces and voices; download from the net and relay the news out loud; and send an urgent call to a hospital or police station.