



## ★ FIRST ROBOT-STAFFED RESTAURANT

Robot Kitchen in Hong Kong, China, opened in July 2006. It has two robot staff members capable of taking orders from customers and delivering their meals to them. A third robot is being constructed that should be able to perform simple culinary tasks, such as preparing omelettes and flipping burgers.

## LONGEST DISTANCE BETWEEN PATIENT AND SURGEON

Madeleine Schaal (France) had her gall bladder removed by a robot in an operating room at Strasbourg, France, while her surgeons – Jacques Marescaux (France) and Michel Gagner (USA) – remotely operated the ZEUS robotic surgical arms on a secured fibre-optic line from New York, USA, a total distance of 6,222 km (3,866 miles) apart, on 7 September 2001. The operation lasted 55 minutes and Madeleine went home after 48 hours.

## ★ MOST ADVANCED MEDICAL MINI ROBOT

In March 2007, researchers from Japan's Ritsumeikan University unveiled a prototype robot (pictured above) measuring just 2 cm (0.78 in) long and 1 cm (0.39 in) wide, with a mass of only 5 g (0.17 oz). It is



**ACTUAL SIZE**

designed to be implanted into a person, after which it can travel inside the body equipped with various tools such as arms, a camera and a device to deliver medication to specific parts of the body. Previous medical mini robots only carried cameras.

## CHEAPEST ROBOT

Walkman, a 12.7-cm-tall (5-in) robot, was built from the remains of a Sony Walkman for a cost of just \$1.75 (£1.15) at the Los Alamos National Laboratory in New Mexico, USA, in 1996. In tests, the insect-like "junkbot", as such creations are called, struggled to get free when its legs were held – without it being programmed to do so and without making the same movement twice.

## ★ FIRST ROBOT SOMMELIER

NEC System Technologies and Mie University, Japan, have developed a robot capable of tasting wine and recognizing the differences between a few dozen varieties. To "taste", the "wine-bot" fires an infrared beam through the wine and analyses the various wavelengths of light that are absorbed. A built-in speaker is used to announce the variety of wine selected.



## ★ MOST DEGREES OF FREEDOM ON A ROBOT ARM

In December 2006, OC Robotics (UK) announced it had designed and built a snake-like robot arm with 27 degrees of freedom. It is designed to be able to reach inside very restrictive enclosed spaces during the construction of large aircraft.

## MOST GENDER-AWARE ROBOT

The Intelligent Earth company has developed visual gender-recognition software for its robotic head, *Doki*. Based on visual data alone, it can recognize the gender of women with an accuracy of 100%, and men with an accuracy of 96%.

## LARGEST ROBOT DOG

Roboscience's RS-01 Robodog measures 82 x 67 x 37 cm (32 x 26 x 14 in) and is strong enough to lift a five-year-old child.

## ROBOT HISTORY

- **350 BC** Greek mathematician Archytas of Tarentum builds a steam-driven mechanical bird.
- **1738** Jacques de Vaucanson (France) builds three life-like automata.
- **1801** Joseph Jacquard (France) builds an automated loom that is controlled by punch cards.
- **1921** Karel Čapek (Austria-Hungary) introduces the word "robot" in his play *R.U.R.* (*Rossum's Universal Robots*).
- **1962** First robotic industrial arm introduced.
- **1966** ELIZA, the first artificial intelligence program, created.
- **1989** "Genghis", the first walking robot, developed at Massachusetts Institute of Technology (MIT), USA.
- **1999** Sony releases the AIBO robotic pet dog.
- **2000** Honda unveils ASIMO, the humanoid robot.
- **2001** Cyberknife, a robotic surgeon, is cleared for use in American hospitals.
- **2005** Researchers at Cornell University, USA, build a self-replicating robot.