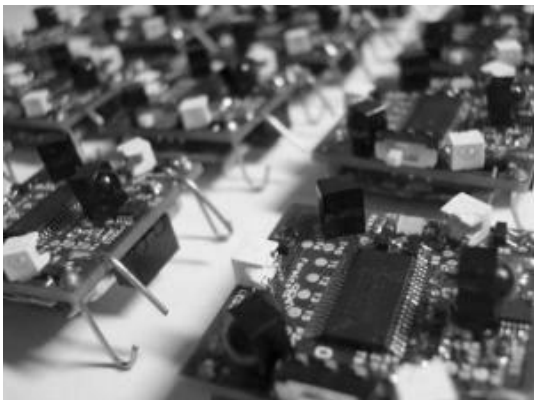
In the Spotlight

■ Robot for less than £24



At the first European conference on Artificial Life in Winchester Alexis Johnson from the University of Southampton's School of Electronics and Computer Science (ECS) described how he and his fellow students developed a platform of 25 (£24 each) robots capable of more than two hours of autonomy and with sufficient code capacity and processing power to run complex algorithms. The team employed motors normally used to vibrate mobile phones that are designed to be attached to circuit boards in the standard manufacturing process (by removing the need for manual assembly of the robots and bringing the cost of a swarm of robots within reach of a typical research project).

Swarm robotics platforms are used for the investigation of emergent behaviour. They permit the study of swarm behaviour by physical simulation: providing real world constraints and experimental scope unattainable in software simulation alone.

Long-term possible applications for swarm robotics are in earthquake scenarios, environmental monitoring, and the field of space science.

Source: For further information about ALIFE XI, visit: http://www.alifexi.org/ Based of ScienceDaily.com

■ Crash Avoidance Robotic Car

Based on joint research with the Research Center for Advanced Science and Technology at University of Tokyo, Nissan has built the Biomimetic Car Robot Drive (BR23C).

This inspired by flight of the bumblebee robotic micro-car recreates bee characteristics with the goal of producing a system that prevents collisions altogether.

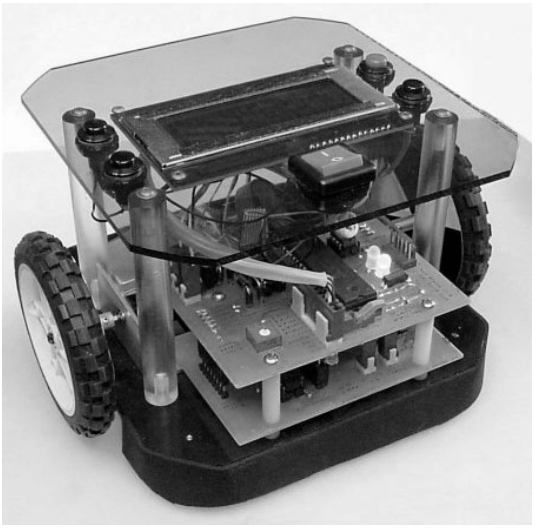
Unveiled at CEATEC 2008 Biomimetic Robot Car is equipped with a prototype collision avoidance system. The next-generation safety technology is modelled after the way that bees avoid crashing into each other. "The BR23C robotic car is positioned as the inner-most layer of this shield. We are expecting that this robotic car will support the development of future collision-avoidance technologies" said Mitsuhiko Yamashita, Executive Vice President in charge of research and development.

Source:
http://www.nissan-global.com/EN/NEWS/2008/_STORY/080926-01-e.html

Nissan BR23C Biomimetic Robot Car

■ Robot in a Maze

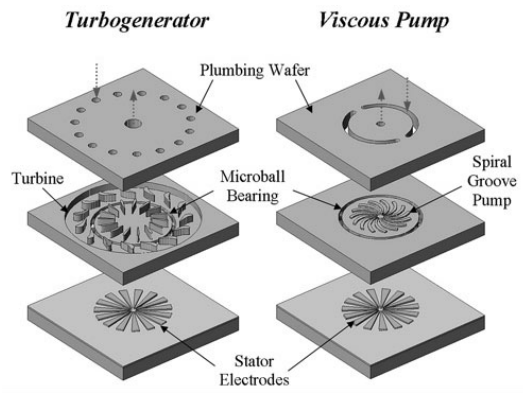
The robot is named "All Right", because it solves the maze using right turns - writes its creator, David Cook. All Right robot has a very single-minded approach to navigation, powered by LiPoly (lithium polyester) batteries and an assortment of sensors including 9 photo detectors for floor sensing and line following, 4 more photo detectors used as quadrate encoders, a battery voltage sensor and an assortment of pushbuttons. While the robot can turn left when it wants to, it solves line-following mazes by making right turns whenever possible. The robot is approximately 18 cm wide x 15 cm deep x 12 cm tall; it weighs 725 grams.



Source: http://www.robotroom.com/Maze-Solving-Robot-All-Right.html

■ Micro Turbines are becoming to reality

The University of Maryland's A. James Clark School of Engineering MEMS Sensors and Acturators Lab developed a micro scale pump and turbo generator. In press release researcher Reza Ghodssi wrote, "***for the first time, we have achieved a level of miniaturization for machines like that achieved over the last decades in electronics***". The tiny turbine achieves rotational speeds of 87,000 RPM, supported on micro-ball bearings so small they are almost invisible to the naked eye. Funding the research, US Army hopes that micro-turbines will replace the 20lbs of bulky lithium ion batteries now carried by soldiers. The tiny generators could also power micro air vehicles (MAV), small UAVs, and other pint-sized robots.



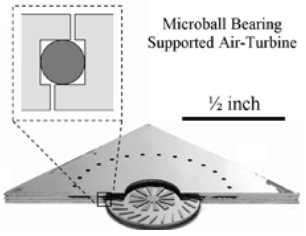


Image: courtesy of University of Maryland

Source: More information, including a paper design, fabrication, and characterization of a Rotary Micromotor Supported on Microball Bearings and video of the turbine in action at: http://www.eng.umd.edu/media/pressreleases/pr092208_bearings.html