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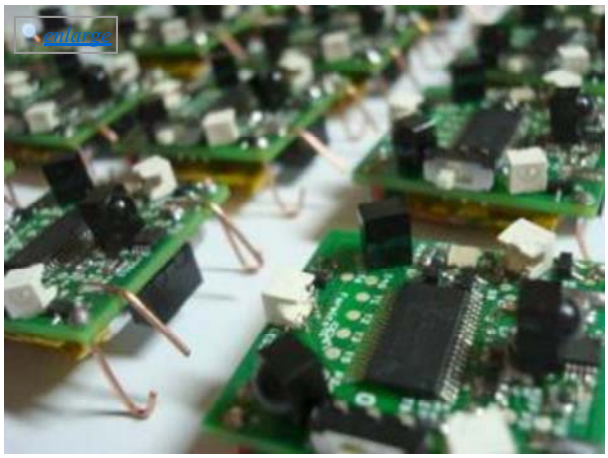
Mobile Phone Technology Brings Robot Swarm To Research Labs

ScienceDaily (Aug. 5, 2008) — A new low cost platform for swarm robotics research which makes it possible to produce robots for as little as £24 each is being presented at the first European conference on Artificial Life which will be held in Winchester from 5-8 August.



A robot swarm. (Credit: Image courtesy of University of Southampton)

The robots will be at a press preview of a special robot demonstration tomorrow Wednesday 6 August at 4.30pm.

At a presentation entitled Strategies for maintaining large robot communities on today, 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 robots capable of more than two hours of autonomy and with sufficient code capacity and processing power to run complex algorithms. The other students were Stephen English, Jeffrey Gough, Robert Spanton and Joanna Sun.

The team employed motors normally used to vibrate mobile phones. These motors are designed to be attached to circuit boards in the standard manufacturing process---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.

'This is truly exciting: now we can order robots from the same UK companies that regularly make circuit boards for our projects---for them it is just a circuit board they can mass-produce like any other, but actually it is a complete functional robot.' said Dr Klaus-Peter Zauner who teaches Biorobotics at ECS.

'This also poses important research questions: how can we maintain and control thousands of robots,' he added. 'The students have made first steps to answer this using software tricks inspired by the way bacteria exchange code for drug resistance.'

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.

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