

The New Brooker Laboratory for Intelligent Embedded Systems.

The Department has installed a new facility to support practical work in **intelligent embedded systems**. It is available to students taking a wide variety of courses ranging from hardware to Artificial Intelligence.

Intelligent Embedded Systems

Embedded systems are products which have computers integrated into them. Robots, air & spacecraft, undersea exploration vehicles are typical of this type of system as are such domestic items as mobile telephones, video systems and even washing machines.

Intelligent embedded systems use Artificial Intelligence techniques to give them the ability to carry out sophisticated tasks unaided and in a changing environment.

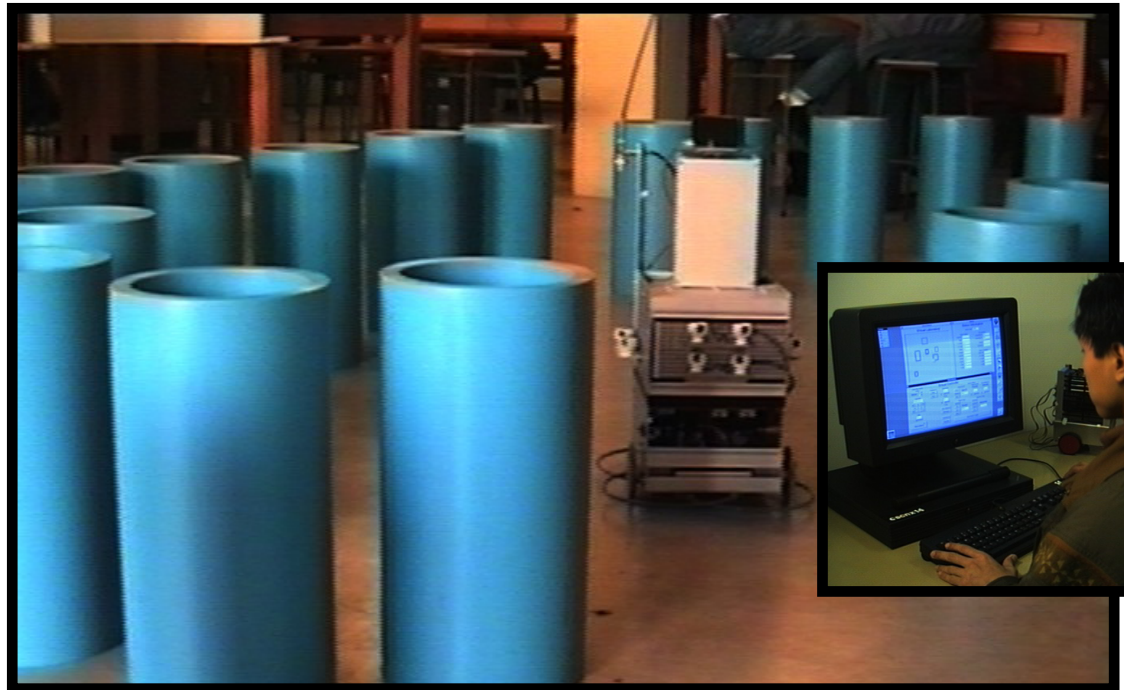
The new Laboratory

The new facility provides an integrated environment for the development of intelligent embedded systems. As a part of many of their courses, ranging from hardware, via software to Artificial Intelligence, students can opt for practical projects using the new facilities.

In this way students gain invaluable experience of implementing in the real world the ideas they learn about as theories in the lectures.

Industry Sponsorship

Our industrial partners, Altera Corp (of San Jose, California), Wind River Systems Inc. (of Alameda, California), HM Computing Ltd. (of Worcester) have



made software & hardware gifts totalling some £326,000. These products are used widely in organisations such as NASA, British Aerospace, The French TGV high-speed railway and Ford Motors.

The Robots

Some systems are mounted on mobile platforms to form simple robot vehicles (see photo). The robots can communicate with each other (and with other computers) using the university ethernet network or a wire-less radio link.

Hardware Development

Hardware is built, tested and debugged using a traditional workbench. Boards may then be plugged into the robots to see how they behave in a working system.

Thanks to generous support by our industrial partners students

have access to state-of-the-art CAD software which enables them to design and use the latest programmable logic devices.

Programming

Software is developed on powerful workstations and downloaded to the workbench systems or the mobile robots for testing. Testing can also be done via simulators.

Once programmed, the real robots are able to operate "intelligently", independently and without reference to the workstations and the network cable can be detached if necessary

Student Competition

As a climax to the year's work in this laboratory, we organise a competition which attracts a prize of £250 which has been generously donated by Wind River Systems Inc.