

Unique exhibit provides glimpse of robotic future

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Picture a computer with no keyboard, mouse or monitor... just projected light, and a space that behaves like magic. But this is no figment of the imagination. It is Robot Ships, a unique exhibit, designed and produced by the Department of Electronics at the University of York, which will be unveiled this week at Connect, the new science and technology gallery at the Royal Museum in Edinburgh.

Robot Ships, which goes live on 16 February 2006, uses the technology of Video Augmented Environments to create a tabletop ocean. Simply by touch, users can help or hinder robotic boats to work together to clean up oil spills, caused by virtual ocean tankers running aground on islands in the tabletop ocean.

The autonomous seeker robots search for toxic spills which are then cleaned by cleaning ships. The exhibit illustrates how robots of the future will co-operate in a way that is based on the behaviour of living things.

Connect forms part of National Museums of Scotland's 15 year vision for the development of its flagship Edinburgh site. It will be a free and permanent addition to the Royal Museum and uses a unique blend of iconic historical objects, multimedia and interactive exhibits to cover topics ranging from energy and power, space technology and transport to robots and genetics. It has been designed to have wide appeal, particularly for families and schools as an important new educational resource.

Robot Ships was commissioned by Connect Gallery project manager, Lyndsey Clarke, following the success of earlier Video Augmented Environments produced in the Electronics Department at York.

The York project team - Justen Hyde, John Mateer, Dan Parnham, John Robinson and Steve Smith - created the exhibit, working with a furniture designer, a graphic designer, a learning consultant, audio-visual professionals and the museum.

Professor Robinson said: "The technology behind Robot Ships is computer vision - a video camera watches everything that happens on the table and real-time processing works out how the boats' world is affected.

"Earlier public 'video augmented environments' have been in carefully controlled lighting, usually in darkened rooms. But Robot Ships must work continuously in a gallery whose ceiling is mainly a large skylight. This meant we had to devise new video analysis methods to adapt reliably to changing illumination and shadows."

Creating Robot Ships has provided new research insights that the team is already using in other video augmented environments. Robot Ships also relies on "OpenIllusionist", an Open Source programming library invented by team members Dan Parnham and Justen Hyde.

Connect is at the Royal Museum, Chambers Street, Edinburgh. For more information go to www.nms.ac.uk/connect

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