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COMMUNITY

Robot takes museum to students

Posted on Thursday 04 April 2013 by [Chris Niesche](#)

Jonathan Roberts came up with the idea for a museum robot during a chance encounter with a curator in the lunch queue at a museum cafeteria.

The pair started talking about how museums could make use of robotics, "and by the end of the lunch queue I'd come up with a concept", says Roberts, Research Director of the Autonomous Systems Laboratory in CSIRO's ICT Centre.

The result of that conversation in May 2010 is the museum robot launched this month at the National Museum of Australia.

The robot allows people all over Australia to experience a visit to the museum through images and sounds sent from the robot to their homes or schools via high speed broadband connections such as those the National Broadband Network provides the infrastructure for.

Students can choose what they look at and ask questions of the educator - or guide - who moves around the museum with the robot.

At the launch students from Townsville in North Queensland and Kiama south of Sydney were given a tour of the museum. Among other exhibits they were shown Pharlap's heart, and in a demonstration of the robot's capabilities, the tour seamlessly switched to Melbourne Museum so the students could also see the famous racehorse's skin and ask questions of the museum's Pharlap expert and curator Michael Reason.

The robot consists of six cameras, five in a ring look horizontally from the "head" and a sixth camera looking up at the ceiling. An on-board computer stitches the six video feeds into one huge live image that shows the entire world around the robot.

That massive image is then streamed out to all of the remote students via broadband and they can use a virtual camera in their browser to look at anything they want to around the robot.

The result is that the students feel as if they are personally controlling what the camera points and zooms in on. In reality, any number of students in different locations can have the same experience at the same time, all using the one robot.

The robot follows the museum educator, who can interact with the remote students and answer their questions. The robot has its own screen (in its "chest") showing all of the remote students' faces and the educator can have a live conversation with any individual while the other students watch and listen.

When it's time to move on to the next exhibit, the educator presses a button on the robot's screen and it guides itself to the next pre-programmed point of interest. Roberts says the Robot fascinates physical visitors to the gallery and has to navigate its way around them. "Often there are hundreds of people in the gallery, so it's quite a challenge," he says.

The number of physical visitors to museums has plateaued over the past few years, so museum managers need to find new ways of engaging the public. While museum websites are getting more visitors, this doesn't allow the users to interact with the experts and tap their knowledge.



Roberts says he's always enjoyed the guided tours at museums, so that he could learn more about the objects on display and ask questions about them. "We thought it would nice to be able to do that remotely, so you could go on a guided tour of a museum without actually physically having to go," says Roberts.

The CSIRO is currently working out how much bandwidth is required for a high quality experience.

Roberts says a test linking the robot to the NBN-connected Digital Hub at Kiama Library on the NSW South Coast provided a "a great experience, with fantastic quality".

To help keep costs down and to make it easy to replicate, the robot was built from off the shelf components - including an off the shelf robot base.

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By [Chris Niesche](#), NBN Co Blog Contributor

Christopher Niesche has been a journalist for nearly two decades, first with The Australian, then Dow Jones Newswires and ultimately as a deputy editor at The Australian Financial Review. He lives in Sydney with his wife and son.

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