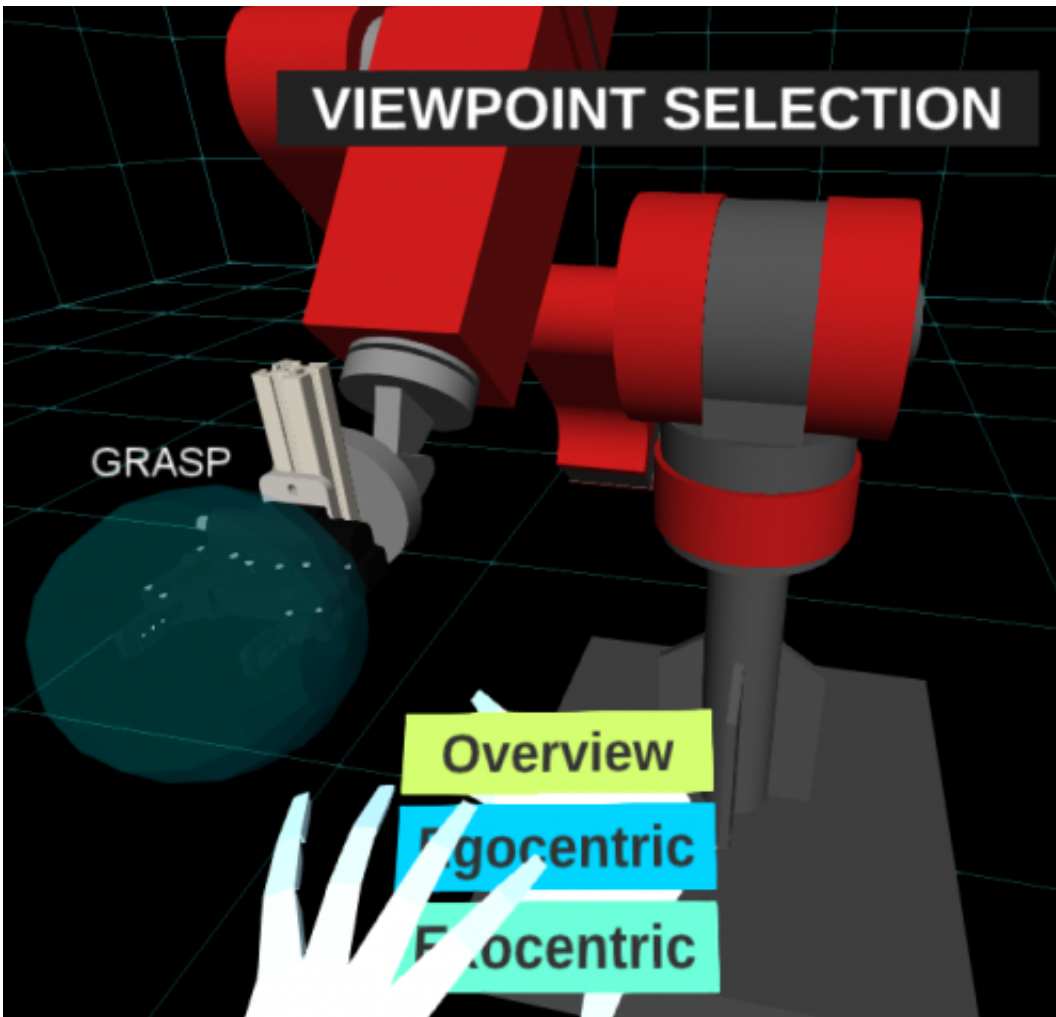


Johns Hopkins researchers interact with industrial robots (w/ video)

March 12 2014, by Nancy Owano



Credit: Johns Hopkins Computational and Interactive Robotics Laboratory

(Phys.org) —Researchers at Johns Hopkins Computational and

Interactive Robotics Laboratory are working on an Immersive Virtual Robotics Environment (IVRE). The goal is to generate ways for users to safely interact with industrial robots without fear of the robots doing harm to humans or of exposure in dangerous environments. Kel Guerin, Johns Hopkins University, said in a video about their work that "We are developing innovative techniques for programming and interacting with industrial robots using immersive virtual reality." He called immersive virtual reality a powerful tool for robot programming, monitoring and collaboration.

At the Johns Hopkins lab, a user gets to move and program a simulation of the robot or use the simulation as a proxy to control the robot live.

Funding for the lab work has come from the National Science Foundation National Robotics Initiative (NRI). The latter wants to realize "co-robots" acting in direct support of individuals and groups, in other words robots that work beside or cooperatively with people.

The researchers want to understand more about how [virtual reality](#) can be used for robotic systems. They now have a prototype system for programming and interacting with an [industrial robot](#) using an immersive virtual interface. They hope the technology will make it easier for small businesses to program industrial robots faster and with less waste.

These researchers use the Oculus Rift for stereo display and head tracking. To explore virtual reality for robotics, the lab created a sandbox environment where they can use the Oculus Rift to interact with Merlin, their industrial robot. "For those of you who have an Oculus Rift, we will be posting a version of this video without the overlays so you can see the raw stereo view," the researchers said. "We will be posting more videos soon which go into further detail about the tools and ideas shown in this video."

According to a US Department of Labor note on industrial robots from OSHA (Occupational Safety and Health Administration), studies indicate that many robot accidents occur during non-routine operating conditions, such as programming, maintenance, testing, setup, or adjustment. During many of these operations the worker may temporarily be within the robot's working envelope where unintended operations could result in injuries.

More information: www.osha.gov/SLTC/robotics/cirl.lcsr.jhu.edu/research/hum...rative-systems/ivre/

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