

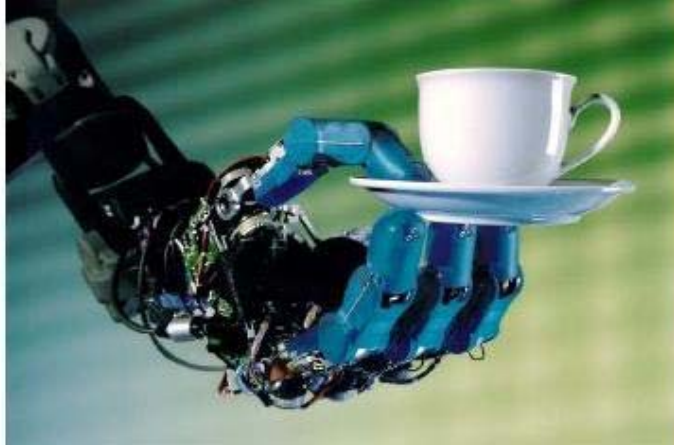
Emerging Tech Roland Piquepaille

September 9th, 2008

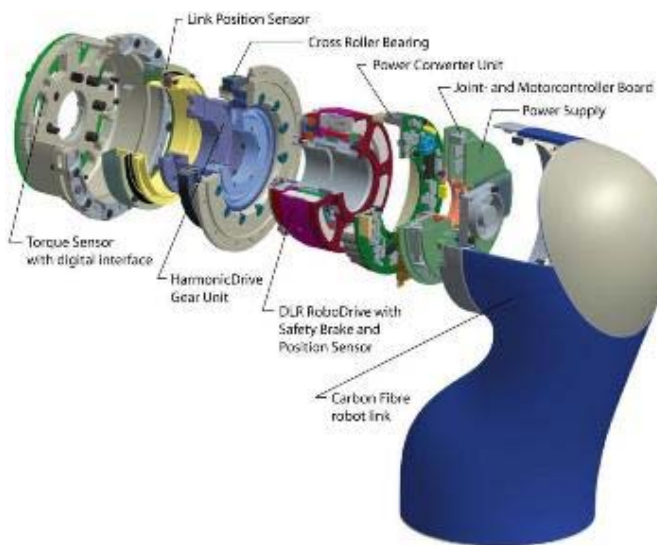
Can robots become our 'phriends'?

Posted by Roland Piquepaille @ 9:09 am

A friendly collaboration between humans and robots is not always easy. Either robots work efficiently and far from humans in controlled environments, or they're equipped with lots of sensors to work along humans and not harm them. Now, a EU-funded project, Phriends — short for **Physical Human-Robot Interaction: DepENDability and Safety** — has started to force robots to respect Asimov's laws. In a nutshell, these laws say that robots cannot cause harm to humans and that they have to obey us. This 3-year project will end next year and has received € 2.16 million from the EU. The technology developed for the Phriends project will be used in industrial robots, but also in sports training and physical rehabilitation. But read more...



One of the members of the Phriends consortium, the Institute of Robotics and Mechatronics at DLR, the German Aerospace Center, has developed a robotic hand that you can see above holding a cup of coffee. (Credit: DLR) The Phriends website has a page linking to several videos. You should watch the "The skeleton algorithm for self-collision avoidance of a humanoid manipulator" movie to see a robot equipped with two hands like the one above.



And you can see above the mechatronic joint design of the full arm. (Credit: DLR) Both of the images above have been extracted from a presentation given at the FESTO Robotics Workshop held in December 2007 at Esslingen, Germany, "Soft Robotics – Design and Control Strategies for Robots Interacting with Humans" (PDF format, 36 pages, 2.83 MB). You'll find these pictures respectively on pages 4 and 9.

Here is a quote of the coordinator of the project, Antonio Bicchi, of the University of Pisa's Faculty of Engineering. "Despite the scenarios science fiction has been depicting for decades of concrete human-robot interactions, we are still a long way from that reality. Most robots today can only work safely if segregated from humans, or if they move very slowly. The trade-off between safety and performance is the name of the game in physical human-machine interactions."

The goal of the Phriends project is to "create a new generation of robots which is both intrinsically safe and versatile enough to interact with humans. 'The most revolutionary and challenging feature of Phriends is designing and building robots capable of guaranteeing safety in physical human-robot interactions (pHRI),' the robotics specialist explains."

And obviously, "safety means ensuring no accidents occur, even in the event of programming bugs, sensor glitches, or hardware and software failure. But creating a robot that is both completely safe and can perform useful functions requires what Bicchi calls a 'paradigm shift' in approach. This involved going back to the drawing board and rethinking how robots are designed and function. 'The classical robotics approach is to design and build robots with a specific task in mind,' Bicchi notes. 'The robots developed by Phriends will be intrinsically safe, since the safety is guaranteed by their very physical structure, and not by external sensors or algorithms that can fail.'"

This project will end on September 30, 2009. So let's wait until next year to see more results.

Sources: *ICT Results, September 8, 2008; and various websites*

You'll find related stories by following the links below.

- Engineering
- Human Computer Interface
- Robotics
- Sensors
- Technology

Roland Piquepaille lives in Paris, France, and he spent most of his career in software, mainly for high performance computing and visualization companies. For disclosures on Roland's industry affiliations, [click here](#).

Popular on CBS sites: [Jennifer Aniston](#) | [Fall TV](#) | [Spore](#) | [MLB](#) | [iPhone 3G](#) | [GPS](#) | [Recipes](#) | [Shwayze](#) | [NFL](#)

Visit other CBS Interactive Sites

[About CNET Networks](#) | [Jobs](#) | [Advertise](#)

© 2008 CNET Networks, Inc., a CBS Company. All rights reserved. | [Privacy Policy](#) | [Terms of Use](#)