

A. JARDÓN, J.G. VICTORES, M. STOELN, S. MARTINEZ, C. BALAGUER. **Experimental evaluation of assistive robots in virtual domestic scenarios.** *Gerontechnology* 2012;11(2):376; doi:10.4017/gt.2012.11.02.489.00 **Purpose** New kinds of robotic-empowered living facilities must provide services to cover sensory, communications, and power requirements of the robotic devices operating inside. Ideally these robots can operate smartly in unstructured indoor environments<sup>1</sup>. An effective robotics tool to assist user needs must behave flexibly, safely, and perform task effectively. Semiautonomous or direct control modes are required under user supervision<sup>2</sup>. Interfaces and interaction mechanisms must be designed to provide intuitive and natural cooperative control schemes to assist efficiently in complex ADLs. When transferring from research environments towards domestic applications, issues such as usability, affordance, mutual adaptation, and task learning must be taken into account. **Method** Part of the ongoing work for the ASIBOT-robotics platform is focused on improving the interfaces and the modes of interaction between the robot and the users<sup>3</sup>. However, as changes are introduced in the interaction, quantifying the change in performance is mandatory, or the specific implementation may not be relevant. Our main efforts were directed to the quick setup and user validation in the first stages of design, gathering user feedback directly by interviews after some brief demonstrations and user testing when available. **Results & Discussion** We will discuss a specific kitchen-related scenario selected for our experimental evaluation focused on 'grasp-a-can task' performance effect of some assistive developed modules over a ASIBOT platform.

### References

1. Correal R, Jardón A, Martínez S, Cabas R, Giménez A, Balaguer C. Human-Robot Coexistence in Robot-Aided Apartment. Proceedings of the 23<sup>rd</sup> ISARC, Tokyo; 2006
2. Jardón A, Victores JG, Martínez S, Giménez A, Balaguer C. Personal Autonomy Rehabilitation in Home Environments by a Portable Assistive Robot. *IEEE Transactions on Systems, Man, and Cybernetics* 2011;99:1-10
3. Jardón A, Gil A, Peña A, Monje C, Balaguer C. Usability assessment of ASIBOT: a portable robot to aid patients with spinal cord injury. *Disability & Rehabilitation: Assistive Technology* 2010; doi:10.3109/17483107.2010.528144

**Keywords:** assistive robots, user trials, evaluation methodologies, task oriented control

**Affiliation:** University Carlos III of Madrid, Madrid, Spain; E: ajardon@ing.uc3m.es

**Full paper:** No

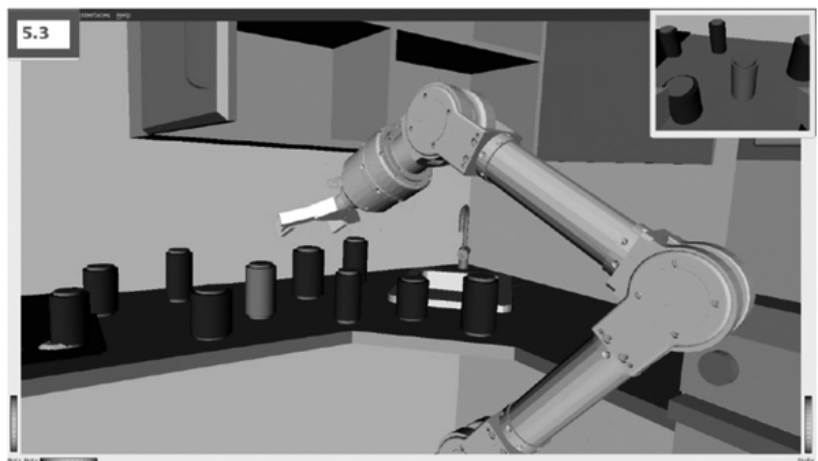


Figure 1. The experimental setup, as seen by the participants; Red indicates current target; Timer shown in the top left corner; end-effector camera view in the top right corner