



X-act



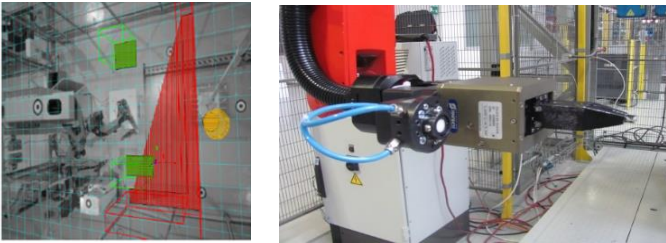
Expert cooperative robots for highly skilled operations for the factory of the future

X-act news

X-act EU Project Newsletter
Issue 4- February 2015

X-act Smart Dual Arm Robot cells- final enhancements before demonstrators

a) Automotive industry- Hydraulic pump assembly
Integration of fenceless supervision system for safety, as well as force sensor and control schema or the screw tasks.

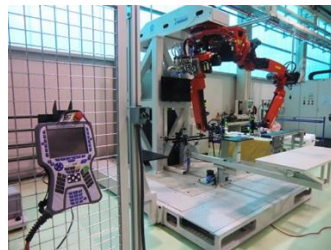


b) Automotive industry- Dashboard assembly
In this stage the fenceless supervision system is integrated in LMS premises. Minor adaptations in the cell will take place until the final demonstrator (September 2015).



c) Rework of electrical appliances- Sewing machine disassembly

Final experiments and tests before the final demonstrator at TEKNIKER. An initial prototype of the cell was recently presented in review meeting.



In this issue:

- **X-act** Smart Dual Arm Robot cells- final enhancements before demonstrators
- **X-act** dual arm simulation modules
- **X-act** dual arm robotics library
- **X-act** Human Robot Interaction mechanisms
- **X-act** Intuitive Interfaces for programming
- **X-act** validation of User centered design process for interactive systems

X-act dual arm simulation modules

Current status: Tecnomatix 12.0 [20th November 2014]

Siemens PLM presented new capabilities for modelling dual arm robot during the 2nd review meeting. Concurrent operations modelling is possible now allowing synchronized and cooperation motions.



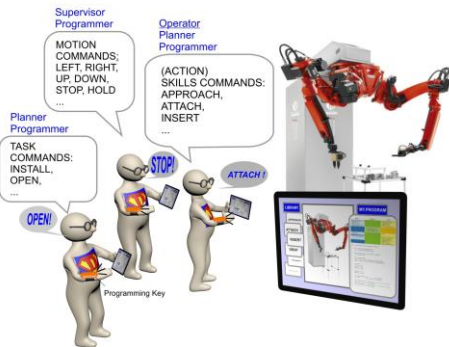
The Consortium



X-act dual arm robotics library

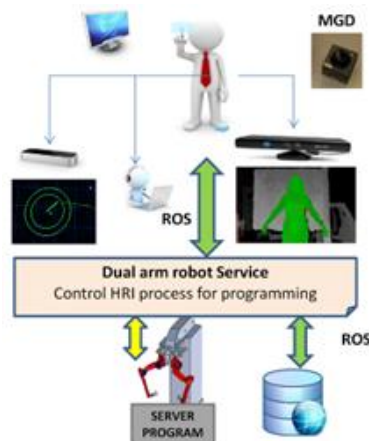
An interactive programming framework for bi-manual operations is the focus of IPK in X-act, based on the development of a dual arm robotics library called CURL++.

Interactive Programming of Dual-Arm Robots



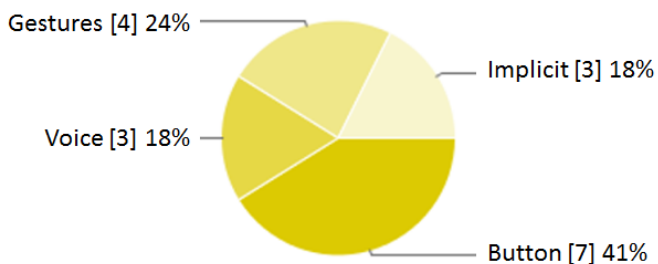
X-act Human Robot Interaction mechanisms

Different interaction mechanisms (depth sensors, finger trackers, microphones, MGD etc.) are used for X-act collaborative tasks execution, as well as for programming. LMS integrates these mechanisms under a ROS based architecture for communication.



X-act validation of User centered design process for interactive systems

Experiments were designed and performed in TEKNIKER premises in order to study human perception/attitude and identify the most acceptable robot behavior in terms of safety and selection of interaction mechanisms.



X-act news and recent events

- ✓ 20 November 2014: 2nd review meeting, TEKNIKER, Eibar, Spain



X-act upcoming events

- ✓ Participation in ERF 2015, Vienna
- ✓ 7th General assembly- May 2015
- ✓ Final review meeting- September 2015

Next steps

- ✓ Test beds finalization and cases evaluation
- ✓ Safety strategy implementation in dashboard case
- ✓ HRI tools integration and test in the demonstrators

Contact:

Project Coordinator:

Dr. Sotiris Makris

Laboratory for Manufacturing Systems & Automation (LMS)

Director: Professor George Chryssolouris

Department of Mechanical Engineering & Aeronautics

University of Patras, GREECE



<http://www.xact-project.eu/>

email: makris@lms.mech.upatras.gr