



at AUTOMATICA 2008
June 10-13, 2008
Neue Messe München
Hall B2, Booth 538

Press release

SMErobot™ is an Integrated Project within the European 6th Framework Programme (NMP2-CT-2005-011838). In line with the needs of small and medium-sized manufacturing businesses, SMErobot™ is developing fundamentally new automation solutions towards a new generation of industrial robot systems. These new helpers will be of assistance to a large number of businesses, either for the working of wood, metal, rubber, ceramics or plastics, or for drilling, milling, assembling or handling operations. Therefore, this consortium of leading European robot manufacturers, system integrators, producers of industrial IT solutions and research institutions has set itself three ambitious innovation goals, which it intends to achieve within the space of four years:

1. The new robot should be able to understand easy-to-learn, "intuitive" commands, so that it can be shown what to do even by a computer layman.
2. It should satisfy all safety requirements, so that it can share a workplace with human colleagues.
3. And it should be capable of being installed and taken into operation within three days.

Project coordination

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SMErobot™: A new generation of robots for small and medium-sized manufacturing productions at AUTOMATICA 2008

European research project presents new prototypes of cost-effective, modular and interactive automation solutions for small and medium-sized enterprises

Since its launch in 2005, SMErobot™ has brought together a number of leading European robot manufacturers, system integrators, research institutes and partners from the field of Industrial IT in the search for future automation solutions aimed at small and medium-sized manufacturing businesses. One year before the end of the project, the first results will be presented at a joint stand at the trade fair AUTOMATICA 2008 in Munich from 10 to 13 June 2008 in hall B2, booth no 538.

Automation makes a business competitive – this has long since been true also of small and medium-sized enterprises (SMEs). However, for many SMEs, the standard commercially available solutions are often too inflexible, too big or too expensive. SMErobot™ now promises to give new impetus to the introduction of robot technology in small and medium-sized businesses: this EU project is developing an entirely new, modular and interactive generation of robots which, in addition to being quick to install and easy to operate, will also help to make European SMEs more competitive thanks to their cost-effective design. Scheduled to last four years, the EU project is being coordinated by the Fraunhofer Institute for Manufacturing Engineering and Automation IPA in Stuttgart.

The robot cells on show at AUTOMATICA 2008 will present examples of automation solutions for small and medium-sized enterprises in various branches of industry:

- An all-new robotics system based on parallel kinematics, simultaneously combining the advantages of high stiffness, low cost and modularity, all of which makes the system especially suitable for machining operations in casting foundries, forges and metalworking shops.
- A cost-effective and easy-to-relocate robot cell designed to be used in the narrowest of spaces for general handling tasks (such as picking up randomly arranged components) or for loading machines with components.
- The robot as the worker's "third hand" in cooperative assembly and handling tasks or for operations at a manual workplace.

- The woodworking assistant as a versatile tool for a joiner or carpenter in a crafts joinery.
- The welding robot, which the worker himself can set up for a new workpiece in just five minutes using intuitive user interfaces such as the use of language, graphical symbols or programming by demonstration.

The project is also giving rise to technologies and tools aimed at helping industrial robotics to make a breakthrough into small and medium-sized enterprises: in future, the previously used, complex cables and wires will be replaced by modern plug-and-play technologies that can quickly configure machines and systems and put them into productive operation. Electric actuators with an extremely high power-to-weight ratio will be presented. They form the basis for new high-performance robot kinematics. Compared with the systems normally used at present, microsystem-based force sensors can be realized at a fraction of the cost, thereby broadening the range of application for robots, especially in connection with delicate production operations.

Costing and profitability assessments are carried out by means of a user-friendly, computerized life cycle costing tool for automation solutions in small and medium-sized enterprises. The *SMErobot*TM toolbox offers a variety of self-explanatory training modules and checklists that support the development and implementation of the new generation of *SMErobot*TM technology.

The new generation of robots developed by *SMErobot*TM is intended to meet three objectives so as to address the specific needs of small and medium-sized businesses:

1. the robot should be able to understand easy-to-learn, “intuitive” commands,
2. it should satisfy all safety requirements, so that it can share a workplace with human colleagues, and
3. it should be capable of being installed and taken into operation within three days.

Through the flexible combination of individual modules, the aim is to lower the investment and operating costs to one-third in comparison with present-day solutions.

Nor is *SMErobot*TM confined to developing the hardware and software. The project also involves the development of new, SME-compatible investment and financing models as well as the integration of robot technology into manufacturing processes and process chains. Pilot trials in small and medium-sized enterprises from the fields of casting, mechanical engineering and metal- and woodworking are planned for after AUTOMATICA 2008. In addition, through the exchange of ideas and information with both potential users and manufacturers at AUTOMATICA 2008, it is hoped that the robots will be optimized and made fit for real-world use in a wide range of future applications and industries.

An entertaining video film illustrates the innovations that are being developed within *SMErobot*TM: two hard-worked machine operators dream of having a robot that can help them carry out their day-to-day workload. One idea follows another. And, in this way, they develop new applications and types of robot which are part of the research project. Many of the presented innovations can now be experienced in real life by visitors to AUTOMATICA 2008.

More information on *SMErobot*TM is available at:

www.smerobot.org

The video film can be downloaded from: <http://www.smerobot.org/download/#video>

More information on AUTOMATICA 2008 at:

www.automatica-munich.com

More information on the project partners:

- ABB Robotics
www.abb.com
- ABB Corporate Research Centre
www.de.abb.com
- Casting technology International
www.castingstechnology.com
- COMAU Robotics
www.comau.com
- University of Coimbra/ADDF
www.dem.uc.pt
- DLR e.V.
www.robotic.dlr.de
- GPS GmbH
www.gps-stuttgart.de
- Güdel AG
www.gudel.com
- Fraunhofer IPA
www.ipa.fraunhofer.de
- Fraunhofer ISIT
www.isit.fraunhofer.de
- Fraunhofer ISI
www.isi.fraunhofer.de
- ITIA-CNR
www.itia.cnr.it
- KUKA Roboter GmbH
www.kuka-roboter.de
- Lund University
www.robot.lth.se
- Prospektiv GmbH
www.prospektiv.de
- Pro Support B.V.
www.prosupport-nl.com
- Reis Robotics
www.reisrobotics.de
- Rinas ApS
www.rinas.dk
- Visual Components Oy
www.visualcomponents.com