



# ROBO-PARTNER Project | Newsletter Issue 2

January, 2015

## MOTIVATION

## COVER OF ROBO-PARTNER PROJECT SECOND SEMESTER

Human skills are the main driver that enables producing high added value products in Europe. Thus the manufacturing processes are based on utilizing these skills. ROBO-PARTNER aspires the integration of the latest

industrial automation systems for assembly operations in combination with human capabilities, combining robot strength, velocity, predictability, repeatability and precision with human intelligence and skills.

## Message from the Coordinator

Dear Readers,

On behalf of ROBO-PARTNER Consortium, it is a pleasure to present our 2nd newsletter. In this and future newsletters, we will update the readers about the progress in the project outcomes and strengthen the connection between the consortium and the interested parties worldwide through dissemination events.

2014 has been pinnacle for the design activities. We have started discussions on full throttle giving consideration to industry needs and mid-term exploitation opportunities. Setting up the common taxonomy and clear distinction for the frequently confused terms in hybrid production with human operators and robots initialized determining rational KPIs for our design work-packages. The main goals were set to achieve very detailed simulations of the 'before-and-after ROBO-PARTNER' shop floors in the major industries to be demonstrated (automotive, white goods and heavy parts measuring) within 2017Q1. Innovative topologies for the occupational safety automation and user-friendliness were always the highest prior aspects and of the essential foci.

Endeavoring on new approaches beyond StoA, implementing on the demonstration cases and passing over two GA meetings conducted in Tekniker and LMS premises and several technical board teleconferences, the

simulation results were eventually presented in our 1st review meeting, held in Fraunhofer IPK Institute and combined with GA5 meeting, with participation of our PTA.

For the following year, we are enthusiastic on implementing and testing the initial prototypes of H/R hybrid fenceless production cells and our concept of intralogistics mobile assistant units, which we acronymed as IMAU. Our consortium will show utmost dedication and commitment towards the project objectives, which can be briefed as "Introducing hybrid production solutions involving the safe cooperation of operators with autonomous and adaptable robotic systems through a user-friendly interaction."

We invite all interested people, organizations, companies and institutions to visit our project portal and our social media channels for details...

Best Regards,

ROBO-PARTNER Coordinator



### 3<sup>rd</sup> General Assembly meeting

TEKNIKER has hosted the third ROBO-PARTNER Project general assembly, in Eibar, Spain. The whole consortium gathered to overview past activities and plan the project's definitions, focusing on constraints, both from the end-users and solutions designers point of view. The consortium visited TEKNIKER, TRIMEK and JATORMAN's facilities.



### 4<sup>th</sup> General Assembly Meeting

The fourth ROBO-PARTNER general assembly meeting took place in Patras, Greece, from October 15<sup>th</sup>, through the 17<sup>th</sup>, 2014. The host (LMS) led the consortium through their facilities, demonstrating all the research work the group is involved in. Everyone got better acquainted with the area which will house the first testing stage for both the automotive (TOFAS) and white goods case (Electrolux) scenarios' solutions.



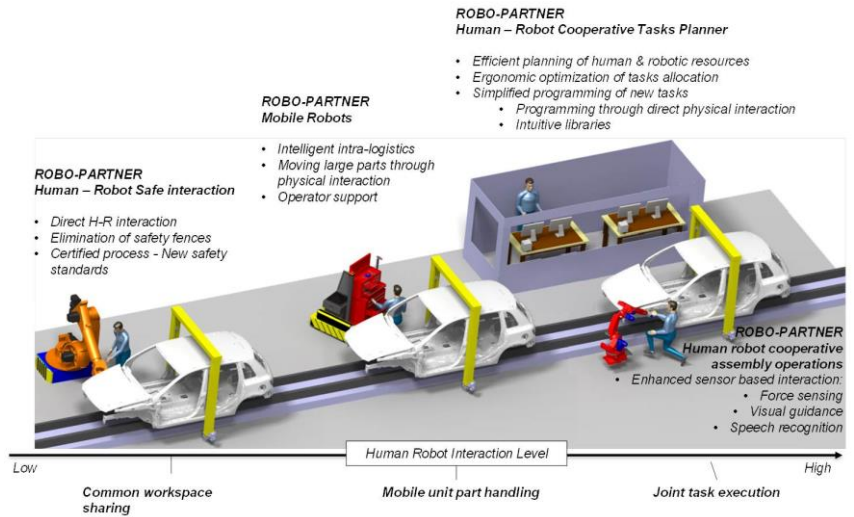
### ROBO-PARTNER 1<sup>st</sup> Review Meeting

By January 15<sup>th</sup>, the ROBO-PARTNER project had its 1<sup>st</sup> review meeting, with the project's technical advisor, attending to an exposition of the projects' first developments. Fraunhofer IPK hosted this event, which coincided with the project's 5<sup>th</sup> General Assembly.

# Progress

At the end of Year1, ROBO-PARTNER has achieved the below milestones

- The scenarios for the three demonstration fields have been selected from a pool of ideas in accordance with the weighted impact criteria. They are defined in detail and SMART KPIs have been set to input design WPs.
- Robot platforms, H/R interaction and collaboration sensing technologies and mobile units have been selected and customized.
- Instruction libraries for human-centered programming language, the algorithms for simplifying the generation of robot programs, the communication and integration modules were developed.
- The tasks planner's input and output, format and properties, the data repository, the methodology for planning of human robots shared tasks and intra-logistics, the user interface, the hardware and software architecture were designed.
- Generic risk assessment was documented and countermeasures were taken for each scenario.
- Ergonomics, resource utilization and safety will be the prevailing criteria for designing the hybrid production process.



## ROBO-PARTNER in RTEX



September 28<sup>th</sup> RTEX 2014 in Dubai, UAE, served to introduce Robot Technology for the forthcoming exposition, scheduled for September 28<sup>th</sup>.



UNINOVA made an extensive presentation of the ROBO-PARTNER project's main concepts and objectives.



## ROBO-PARTNER in INDIN 2014

As announced on this newsletter's previous issue, Porto Alegre, Brazil, played host to IEEE Conference INDIN's 12<sup>th</sup> edition, on July 27<sup>th</sup>. Here, as part of the organizing committee, UNINOVA set up a stand exposing the project's roll-up poster, and distributed printed versions of the flyer and of the newsletter's earliest issue.



# Special Focus: Safety

ROBO-PARTNER developments take safety under serious consideration, aspiring to provide complete production solutions that are aimed toward industrial practice. In the first 6 months of the project all different standards, legislations and directives that are applicable in Human Robot Collaboration have been identified and reported:

### EU Directives

2006/42/EC	Machinery Directive (MD)
2004/108/EC	Electromagnetic compatibility Directive (EMC)
2006/95/EC	Low Voltage Directive (LVD)
2009/104/EC	Use of Work equipment Directive (UWED)



### Robot Standards

EN ISO 10218-1	Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots
EN ISO 10218-2	Robots and robotic devices - Safety requirements for industrial robots - Part 2: Robot systems and integration
ISO/TS 15066	Robots and robotic Devices – Collaborative Robots

### EU Directives

EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN ISO 13849-1	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
EN ISO 13849-2	Safety of machinery - Safety-related parts of control systems - Part 2: Validation
EN 60204-1	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 15011	Cranes - Bridge and gantry cranes
EN 1525	Safety of Industrial trucks – Driverless trucks and their systems

# The Project's Consortium

Project coordinator:



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Project Manager:



**Electrolux**

**GIZELIS  
ROBOTICS**

**INTRASOFT**  
INTERNATIONAL

**TRIMEK**  
METROLOGICAL ENGINEERING

**pilz**



**IK4** **TEKNIKER**  
Research Alliance

**UNINOVA**



**Fraunhofer**

**Jatorman**



## ROBO-PARTNER in LETS 2014

LMS made ROBO-PARTNER represented on LETS 2014 (Leading Enabling Technologies for Societal Challenges) from October 29 to September 1st by reserving a space where the project's roll up version was exposed, inserted in the Lab's research orientation.

## Upcoming Events

A presentation of the first project concepts and results will be done during the European Robotics Forum 2015 ([www.erf2015.eu](http://www.erf2015.eu)) between 11-13 March in Vienna, Austria. ROBO-PARTNER is represented by LMS that is in the organizing committee of the workshop "Hybrid Production Systems". More information is available on the project portal ([link](#)).

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Next meeting:  
6th General Assembly Meeting :  
June 2015 @ Turin, Italy

<http://www.robo-partner.eu/>  
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## Contact us

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