



# PROJECT Newsletter

October, 2017

## OVERVIEW OF THOMAS PROJECT'S FIRST YEAR

## Message from the Coordinator

Dear Readers,

It is our pleasure to present you with the 1<sup>st</sup> issue of the THOMAS Project newsletter. We hope that the periodical issues of this newsletter will offer multiple opportunities for reaching a wider audience, and sharing the news, knowledge and experiences gained in this project. More importantly we hope that it will spark the interest of the industrial and research community to inquire on the challenges addressed by the project and to engage in dialogue with our partners on the technological solutions that we provide.

THOMAS is an EU funded project under the topic Machinery and robot systems in dynamic shop floor environments using novel embedded cognitive functions (FoF-02-2016). Starting on October 1<sup>st</sup>, 2016, the project has brought together 8 partners from 5 EU Countries with a common vision:

*"to create a dynamically reconfigurable shopfloor utilizing autonomous, mobile dual arm robots that are able to perceive their environment and through reasoning, cooperate with each other and with other production resources including human operators".*

This ambitious goal requires overcoming several challenges, not only technical ones. Performance of mobile robotic coworkers, human operator safety and acceptance, robustness of autonomous decision making, complexity in commissioning and maintenance are some of them. As an Innovation Action, THOMAS is driven by the end user pilot cases where the project results

will be demonstrated and validated under real life conditions in two sectors: the automotive assembly and aeronautics production.

After one year of the project, the analysis of requirements coming from the project end users is complete and the design of our technological solutions is now mature enough and the first prototypes are starting to take shape.

In this issue you will have the chance to obtain an overview of the concepts underlying the production paradigm that is pursued by THOMAS as well as the scenarios addressed by the project pilots.

The industry driven approach requires that all developments are of benefit and interest to a cross sectorial market and therefore a lot of effort is being put to achieve high visibility of the project results and activities.

In the coming six months the project partners will focus their effort in rolling out the first prototypes of the THOMAS solutions. To extend our outreach, we are preparing several exciting events and we invite all readers to stay tuned for our updates.

Our project web site as well as our social media channels are open for all interested parties to visit and acquire a first idea of the produced material. Any contribution, comment or opportunity for dialogue and cooperation are encouraged and welcome.

Best Regards,

THOMAS Project Coordinator



### THOMAS Kick-off Meeting in Brussels

On the 20<sup>th</sup> of October 2016, THOMAS consortium had its first meeting for launching project's activities. The meeting took place in Brussels. Project's Officer, Dr. Jan Ramboer, together with the project's partners, had the chance to review THOMAS objectives and discuss on the two THOMAS industrial pilot cases from the automotive and the aeronautics sector.

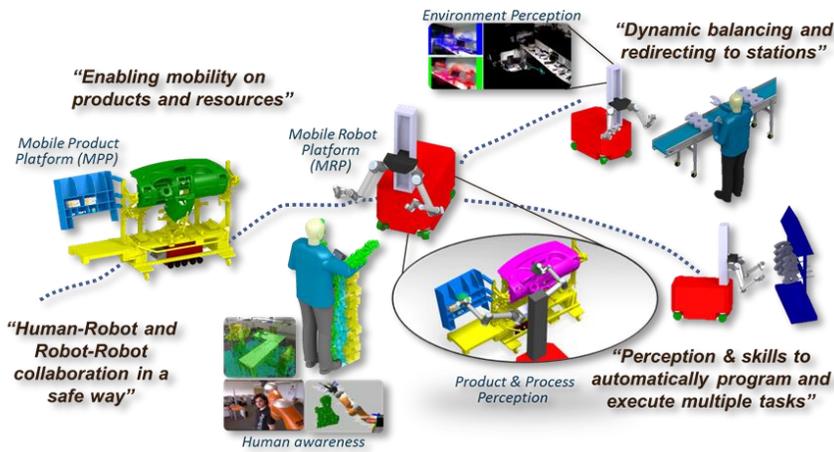


### Use case Workshops @ THOMAS end user's premises

The main characteristic of THOMAS applications is that they are inspired by real industrial requirements. The THOMAS consortium, from the early beginning of the project organized dedicated workshops in the two end user premises: On the 17<sup>th</sup> of November 2016 the partners visited AERNNOVA facilities in Alava (Spain) while on the 22<sup>nd</sup> of November 2016 they visited PSA's plant in Mulhouse (France). Both workshops, focused on the analysis of the pilot cases current status while defining the shortcomings and the challenges that need to be addressed by project solution.

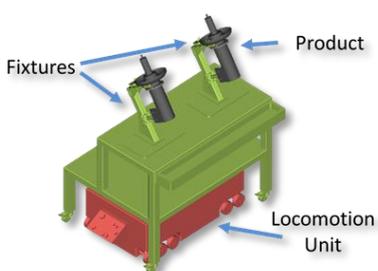
# THOMAS Concept

The overall concept of the THOMAS project is presented in the following figure:

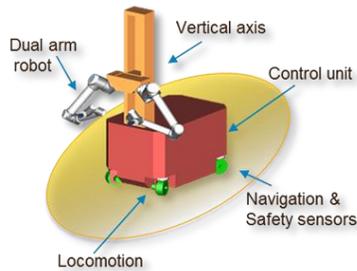


The objectives of this concept have been conceived to address the following requirements:

- **Layout reconfiguration of the production system** by enabling mobility of products and resources using mobile platforms able to navigate in the shopfloor, equipped with dexterous tools that allow it to perform more than one assembly or logistics operations.



Mobile Product Platform (MPP)



Mobile Robot Platform (MRP)

- **Awareness of real world uncertainty** by introducing perception capabilities to the robot resources for the task and the environment. Using a) the individual resource's sensors to adjust its operation to the real process and b) combination of sensor input from multiple resources or from shopfloor stationary sensors to collectively plan and execute tasks.
- **Adaptation to non-expected situations** by dynamically balancing the workload and redirecting the resources to the different stations. A common network will be used by the resources to communicate while robot skills will be applied over the perceived environment to determine required task adaptation actions and to generate the robot program.
- **Flexibility to combine different resource types** such as human and robots, ensuring safe collaboration between them and eliminating physical barriers (fences, enclosures etc.) by introducing cognitive capabilities.



## 1<sup>st</sup> General Assembly meeting @ TECNALIA (Spain)

The first THOMAS General Assembly meeting took place in San Sebastian (Spain) between the 29<sup>th</sup> and 30<sup>th</sup> of March. This meeting involved a visit at TECNALIA premises where the first prototype of the Mobile Robot Platform (MRP) is already under testing. The project meeting also served the need for analyzing in depth the needs and issues for each industrial pilot case. In addition, the initial structure of the overall reference architecture of THOMAS application has been set down and analyzed by the development partners.



## THOMAS in Hannover Messe 2017

THOMAS project was represented in Hannover Messe that took place between the 24<sup>th</sup> and 28<sup>th</sup> of March 2017. This year the trade fair had around 225,000 visitors and ROBOCEPTION had the opportunity to disseminate THOMAS concept focusing on the Environment and Process Perception application for mobile robots. The stereo camera prototype (rc\_visard) that is developed by ROBOCEPTION and will also be used for THOMAS was presented. The live demonstrator involved a robotic application using rc\_visard for real time object position and pose identification.

# The Project's Consortium



## 2<sup>nd</sup> General Assembly Meeting @ SICK (Germany)

The second General Assembly meeting of the project took place at the premises of the project Safety Expert, SICK in Hamburg (Germany) between the 13<sup>th</sup> and 14<sup>th</sup> of September 2017. Upon the completion of the design phase of the project (M12), the technology developers shared their methodologies for each individual technology involved in THOMAS application. In addition, initial prototypes of the technologies were demonstrated and the discussion for the modules integration has been initiated.

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### Next meeting:

3<sup>rd</sup> General Assembly Meeting:  
February 2016 @ LMS, Greece

<http://www.thomas-project.eu/>  
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## THOMAS at PSA Booster Day 2017

THOMAS project was invited to attend PSA Booster Day 2017 that took place in Poissy (France) – 20/9/2017. Many visitors from PSA's Group national-international departments and from companies inside PSA's cooperation network visited the booth. LMS held a dedicated booth where over 60 visitors had the chance to view a live demo of the Human Robot Interaction modules and the THOMAS world model.

## Upcoming Events

THOMAS 1<sup>st</sup> Integration Workshop @ TECNALIA (Spain)

## Contact us

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