COLROBOT: Collaborative Robotics for Assembly and Kitting in Smart Manufacturing

Leading European companies and research groups have launched ColRobot, a project aiming at developing collaborative robotics in the field of smart manufacturing in automobile and aerospace.

Manufacturing competitiveness depends largely on its productivity, flexibility and agility to react to market demands. Robots are a key element to achieve such competitiveness, especially if they are able to collaborate with humans in a shared workspace in the shop-floor, creating a co-working partnership. The paradigm for robot usage has changed from a situation in which robots work with complete autonomy on one specific task behind fences to one whereby robots collaborate with humans, assisting and helping them with heavy and non-value-added tasks. This means taking the best of each partner, human and robot, by exploring the cognitive and dexterity capabilities of humans (focus on value-added tasks) and the capacity of robots for high accuracy during repetitive tasks. Thus collaborative robots are being introduced to provide assistance with the final aim of improving the quality of the workplace for the humans.

ColRobot combines cutting-edge European robot technology and end-user requirements for complex automotive and aerospace assembly processes to create an integrated system for collaborative robotics. A mobile robot acts as a "third hand" assistant by delivering kits, tools, parts, and holding work pieces while the operator works on it. ColRobot will provide technological solutions that will allow humans to cognitively and physically interact with their robots assistants using gestures, touch commands and demonstrations. Thanks to ColRobot, robots will be able to navigate autonomously in the factory floor to pick up the

Visit of ENSAM's Lab in Lille

required parts and tools, and prepare kits for assembly. Furthermore, since ColRobot technological innovations will open the way to new and existing safety standards to assure better and safer workplaces for the factories of the future.

ColRobot Project scientific and technical innovations will be developed with a high technology readiness level (TRL), which means that it will provide real-world industrial applications. In particular, it will demonstrate the benefits and improvements in automotive assembly processes within a reference industrial case provided by RENAULT, and in space satellites assembly within a reference industrial case provided by THALES ALENIA SPACE.

The ColRobot Consortium

The ColRobot Project will be carried out by a Consortium of 11 partners, chosen to provide the best scientific, technical and industrial competences needed to achieve such ambitious goals, and it is coordinated by Ecole Nationale Supérieure d'Arts et Métiers campus of Lille.

"I am very excited to start this ambitious project: we will have to face great scientific and technical challenges to provide real world industrial solutions, which will improve the quality of the workplace and the competitiveness of the European factories of the future".

Prof. Olivier Gibaru, Coordinator of the ColRobot Project

The project activities started formally by a consortium meeting hosted by the coordinator ENSAM in Lille the 18th and 19th February 2016. This consortium includes 11 European partners composed by Universities, RTO's, high-tech SME with diverse ICT competences, robot technology integrators and large companies that ensure the exploitation and validation of the project.

ColRobot Project is funded by H2020, the biggest ever European Framework Programme for Research and Innovation programme with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market.

About the ColRobot Project

Acronym /Grant Agreement number	COLROBOT / 688807
Title of the Project	Collaborative Robotics for Assembly and Kitting in Smart Manufacturing
Starting date / End date	01/02/2016 31/01/2019
Estimated Project Costs	€ 4,338,412.50
EC Contribution	€ 3,914,493.38
Project Coordinator	Olivier GIBARU: Olivier.gibaru@ensam.eu

ColRobot Consortium

(Project coordinator)
Ecole Nationale Supérieure d'Arts et Métiers – LSIS UMR CNRS

University of Coimbra

University of Modena and Reggio Emilia

Fraunhofer IFF

Asociacion de Investigacion Metalurgica del Noroeste

INESC TEC

Technaid

CITC – IoT Cluster and Centre of innovation in Contactless Technologies

AKEO Plus

Renault

Thales Alenia Space France