COROMA - Cognitively enhanced robot for flexible manufacturing of metal and composite parts

COROMA project proposes to develop a cognitively enhanced robot that can execute multiple tasks for the manufacturing of metal and composite parts. COROMA will therefore provide the flexibility that European metalworking and advanced material manufacturing companies require to compete in the rapidly evolving global market. The main output of COROMA project will be a modular robotic system that will perform multitude of different manufacturing tasks in an autonomous way to adapt to the production requirements. The robot will be capable of performing drilling, trimming, deburring, polishing, sanding, non-destructive inspection and adaptive fixturing operations. Using a simple interface the robot will receive basic commands that require a minimum programming effort from the human operator. The robot will autonomously navigate in the workshop and will automatically perceive the manufacturing scene and locate the part that must be manufactured and even handle some of the required tools. Learning from previous experiences during displacement, tool grasping, part localisation and the manufacturing process itself, the robot will improve its performance. It will be able to interact with other machines in the shop floor and to work on a part even while other manufacturing operations are being performed by these other machines.

Safe human-robot and machine-robot collaborations will be paramount and the robot will automatically react to the presence of both humans and other machines. The modularity of the COROMA robot will permit to customize it to meet specific requirements from different manufacturing companies.

These challenges require a project consortium where the latest robotic technologies meet knowledge from manufacturing experts, including both industry and academia. COROMA project consortium presents a perfect balance between manufacturing and robotics sectors' players.

UNIPD Team Leader: Ghidoni Stefano

Department: Information Engineering (linked thirdy party, art. 14 MGA)

Coordinator: Ideco S Coop- IDK (Spain)

Other Participants:

The University of Sheffield (United Kingdom)

Université de Nantes (France)

Kungliga Tekniska Högskolan (Sweden)

Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany)

Staubli Faverges SCA (France)

IT+Robotics Srl (Italy)

Convergent Information Technologies GmbH (Austria)

BA Systèmes SAS (France)

The shadow robot company Limited (United Kingdom)

Soraluce S. Coop. (Spain)

Europe Technologies SAS (France)

Equipos Nucleares SA (Spain)

SPBI S.A. (France)

Aciturri Metallic Parts SLU (Spain)

Din Deutsches Institute für Normung E. V. (Germany)

Total EU Contribution: Euro 5.979.444,99

Call ID: H2020-FOF-2016

Project Duration in months: 36

Start Date: 01/10/2016

End Date: 30/09/2019

Find out more: https://cordis.europa.eu/project/rcn/205399_en.html