Coroma

CORO-NEWS N5

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CONTACT

INTELLIGENT, FLEXIBLE AND SAFE ROBOT FOR THE MANUFACTURING OF METAL AND COMPOSITE PARTS

INDEX

3 Years

7 Countries

16 Partners

Disseminating COROMA

"Great activity of dissemination of the COROMA project to different industrial sectors in the last quarter"

With the aim of making the robot become an autonomous system, some results have been obtained with COROSENSE, the module that recognizes the scene and the workpiece, COROHAND, which is able of dexterous grasp of multiple tools and objects, and COROMOB, responsible for mobility and navigation in semi structured environment. A selection of new videos has been upload to COROMA project Youtube

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channel about the different developments carried out in the scope of these 3 CORO-modules.

Robotic assited milling

The video shows the preliminary results of COROMA project partner, University of Sheffield with robotic assisted milling. There can be seen the milling process without assistance and with robot assistance.

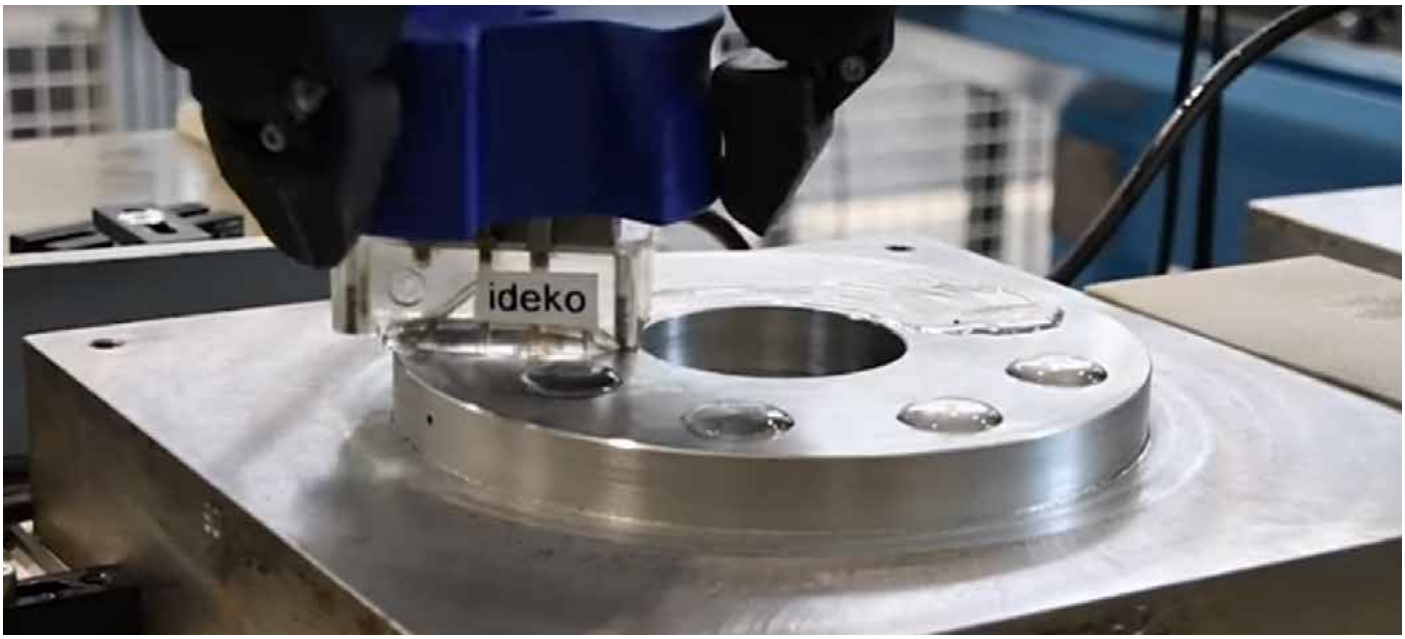
Testing Testing Stäubli robot on a BA Systèmes AGV

Stäubli robot is assembled with its functional mobile base and robotic arm. The telescopic mast is reaching several meters above the ground to make the robot reach for highest spots in the working area. Currently driven manually by BAS' main engineer on the project, it will soon be automated with the software technologies under development at COROMA.

Robot performing ultrasonic testing of metal parts

A robotic system of inspection of metal parts has been developed in the frame of COROMA Project. This system uses a robotic hand with the ability to handle multiple objects. The piece is from ENSA (Equipos Nucleares SA), the hand is from Shadow Robot Company and the robot is from Staubli, while the team working on the ultrasonic technology and the setup is from IDEKO Research Centre. When applied to the inspection of large pieces, artificial intelligence allows the system to learn from previous similar inspections, predict the probable location of defects in the workpiece, and optimise the inspection path accordingly.

3 additional videos show COROSENSE module applications: 3D robot vision part localization and path adaptation with 3 end user cases. The first one shows the learning process of an industrial workshop environment. The robot understands its surroundings, recognises and maps the scene, and learns what a mould is by processing data. This work has been carried out between Università degli Studi di Padova and IT+Robotics with the end user BENETEAU. The second video shows part-scanning and localisation and trajectory planning with EyeT+ vision system in a workpiece of ACITURRI. In the last video, it can be seen a 3D rack weld reconstruction using 3D vision system based on laser triangulation technology, this one in the scope of ENSA use-case



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INTERVIEW TO PARTNERS:

Saskia Maresch, from the German Institute of Standardization (DIN), talks about the standardization activities within COROMA

Why did DIN decide to be part of the consortium of the COROMA project?

We develop together with our experts standards for the economy, state and community. Since a couple of years now we are also active in research projects on topics like for example robotics, environment and aging societies. We therefore created the concept of "R&D-phase standardization", which covers any activity with the aim of an early identification of standardization potentials of products and services, initiation of CEN Workshop Agreements (CWA) or roadmaps and the publication of these documents. We are part of COROMA, because modular multifunctional robots are enhancing and the knowledge exchange with experts is essential for the standardization of innovations.
We consider COROMA as a promising opportunity to discuss and initiate with experts outside of the standardization system future standardization topics.

What is the work carried out by DIN in the project?

First of all we did a research of standards to get an overview of the standards that are under development and currently on the market. This was the baseline of our work, because we do not envisage to develop a standard on content that already exists. To identify if there are standardization potentials and needs for standardization activities within the COROMA project, a workshop was conducted.
During this workshop the project partners were asked, if they face challenges that could be overcome through the formulation of a standard. The creative workshop ended with the evaluation of the ideas by every project partner and in the end 15 scopes for future standardization topics were developed. Together with the project partners we decided to initiate a CEN Workshop Agreement (CWA) on one of the 15 topics – the one where we have the most expertise. The kick-off meeting was in October in Santander and currently we are working on a draft CWA on the following topic: Articulated industrial robots – elastostatic compliance calibration. The CEN Workshop is open to project externals and therefore interested parties are welcome to join the development (contact person details: saskia.maresch@din.de)

What is a CEN Workshop Agreement (CWA) and what are the benefits for a research projects like COROMA?

A CWA describes requirements of products and services, which have not yet reached the state-of-the-art. This is the only type of document, in the European standardization system, which can be developed by a group of experts that is not part of any standardization committee. Therefore a CWA does not have the status of a European Standard and its development is only possible, if a national standardization body like DIN supports the process. One benefit for our project partners is that they get an easy access to the standardization system. Furthermore they can contribute to the European standardization and transfer their research results to the market in a sustainable way.

Which results do you expect from the COROMA project?

We envisage publishing the CWA on "Articulated industrial robots – elastostatic compliance calibration" next year with the end of the project. Furthermore the standards research and the identified standardization potentials will be described in a paper to the European Commission and spread in the robotics standardization community.

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COROMA's engagement

24 MONTHS

7.599 WEBSITE VISITS

211 FOLLOWERS

Meetings

COROMA general meeting & Industrial Advisory Board

The General Meeting corresponding to month 24 of COROMA was held in Santander, hosted by our partner ENSA.
26 representatives of our 16 partners attended the meeting to discuss the situation of the developments and agree on a common work plan for the next months.
The integration phase is quite advanced, but coordinating efforts to get practical results is always a difficult task.

The exploitation and dissemination of the results were also on the agenda: with one year remaining until the end of COROMA, it is time to face the final steps of get products transferable to industry beyond COROMA demonstrators; to provide the scientific society with a good legacy is also our mission, both with our dissemination activities and with our commitment to build an Open Research Data Pilot.

Finally, the general meeting also provided the opportunity to launch a "CEN Workshop Agreement" that, hopefully, will be the origin of a new standard: an interesting activity normally alien to researchers.

The chosen subject: "Articulated industrial robots – elastostatic compliance calibration". 5 partners will be active in this agreement (University of Nantes, KTH, IDEKO, University of Sheffield and, of course, DIN). The kick-off meeting was the beginning of a series of meetings that will run parallel to COROMA

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to develop the workshop agreement.

With the beginning of the third year of COROMA, its Independent Advisory Board (IAB) has reserved a day to review the progress of the work so far. The advisory work carried out at this meeting, scheduled between the official reviews with the European Commission, is important for the project to receive an expert opinion that focusses on practical application and exploitation of results.
The meeting was held at the facilities of ENSA, our partner specialised in manufacturing of nuclear equipment, and was attended by the WP leaders of COROMA project and a representative of Roboconsul and BAE Systems as members of the IAB. Even though the project is fully immerse in the integration phase of the technical modules that make up the final system, and is already heading towards the preparation of the final demonstrators, the previous work developed to reach this stage has been presented: it is never too late to make small corrections that lead the project to the path of success.

Upcoming events

- March 20th - 22th, EUROPEAN ROBOTICS FORUM 2019, Bucharest, Romania
- Apil 1st - 5th, Home of Industrial Pioneers, Hannover, Germany
- June 13th-14th, CIRP Conference 2019, Sheffield, UK

Project consortium

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