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The EuRoC project at automatica



Miscellaneous

EuRoC stands for European Robotics Challenges and is a research project funded under the Seventh Framework of the European Commission, started in January 2014 and ending in June 2018.

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What is EuRoC? EuRoC is built around the concept of **three industry-relevant challenges**:

- **Reconfigurable interactive manufacturing cell**
- **Shopfloor logistic and manipulation**
- **Plant servicing and inspection**

These challenges were launched in April 2014 through **open calls for challengers, technology developers, system integrators, and end-users**.

Each challenge was articulated into **three stages** of increasing complexity.

The six finalist challenger teams of the EuRoC project have been invited to automatica fair in Munich to showcase their results. All the demos will be presented in hall **B4, booth 417**, an area of 200 square metres.

Team **PIROS** has developed a cooperative, safe and reconfigurable robotic companion for CNC pallets load/unload stations. The application scenario is the human-robot interaction in operator's stations of Flexible Manufacturing Systems. Operator's stations are the main interface with a totally automatic manufacturing system, dedicated to manual load/unload of materials, machining pallet preparation and quality verification, control and supervision of machining operations.

Team **FLA2IR** has focused on the assembly of car door sealings. A flexible polymer strip with 35 mounting pins has to be attached to the door by pressing the clips into dedicated holes along the door. A two-layered laser scanner-based safety system is used to achieve safe human-robot-collaboration. Clip insertion is achieved through an add-on force control. A software tool ensures quick task set-up and adaption.

Team **RSAIL** has focused on flexible robotized picking in collaborative environments for order preparation in distribution centers, with the aim of developing a hybrid automation solution integrated with a warehouse management system. Multiple references are autonomously picked by the robots and the operator from their corresponding boxes; then, packed orders are composed collaboratively.

Team **TIMAIRIS** has developed a robotized solution for the blank feeding problem, using actual functional packaging machines. The system achieves flexible, collaborative blank loading on industrial shop floors, with the aim of improving the blank feeding process via a multimodal interface, to enable communication adapted to the different environments/users characteristics, and keeping safety as a key issue.

Team **GRVC-CATEC** has focused on aerial robots collaborating with humans in aircraft manufacturing plants to improve operational efficiency and reduce costs in light object logistics operations and detection/localization of missing tools. The developed solution uses novel technologies related to indoor navigation and localization techniques in a real factory environment.

Team **TUM Flyers** has addressed vision-based MAV (Micro Aerial Vehicle) navigation for systematic inspection of large structures (e.g., bridges). Novel vision-based localization, 3D reconstruction, and navigation technologies have been developed to increase the autonomy of MAV inspection systems and the quality of inspections, as well as to foster the use of MAVs in GPS-restricted or GPS-denied environments.

On June 20 at 4.00 p.m., there will be the Award Ceremony of the EuRoC Winner on the stage of the Start-Up Arena (hall B4), with the presence of Dr. Juha Heikkila, Head of the Robotics Unit in DG-Connect, Dr. Bernd Liepert, Chief Innovation Officer of the KUKA group and President of the European robotics association euRobotics aisbl, and Prof. Dr. Bruno Siciliano, EuRoC Project Coordinator. On that occasion, a professional video will be shown to present the results of the project.

Facts & figures

Project coordinator: prof. **Bruno Siciliano**

- Total funding: 16.5 M€ of which 7 M€ grant money

- Duration: 54 months
 - 103 submissions received
 - 26 Teams granted up to 5 K€ each in the first stage
 - 9 Teams granted up to 375 K€ each in the second stage
 - 6 Teams granted up to 585 K€ each in the second and third stages
 - 1 EuRoC Winner
 - EuRoC core Consortium: 5 academic/research institution, 3 companies, 1 SME
 - EuRoC Consortium at-large: 25 academic/research institutions, 12 companies, 9 SMEs
 - Website: euroc-project.eu
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