Robotics and AI as Enablers for Greener Dismantling, Remanufacturing and Recycling

-ROB4GREEN-

PRESS RELEASE

ROB4GREEN is a European research project funded under the Horizon Europe program, focused on developing AI-enabled collaborative robotic solutions to support greener remanufacturing and recycling processes. By enhancing flexibility and cognition in robotic systems, ROB4GREEN will enable industries to adopt more sustainable practices aligned with the objectives of the European Green Deal.

The ROB4GREEN consortium, coordinated by the Laboratory for Manufacturing Systems and Automation (LMS), brings together 11 partners, including research institutes, technology developers, and major industrial stakeholders. Through pilots in the automotive, electronics, and renewable energy sectors, the project aims to demonstrate how AI, Data and Robotics can boost circular economy strategies.

ROB4GREEN is building intelligent, easy-to-use robotic systems for end-of-life product processing. Our goal is to make industrial robotics more accessible, sustainable, and impactful for real-world circular economy applications.

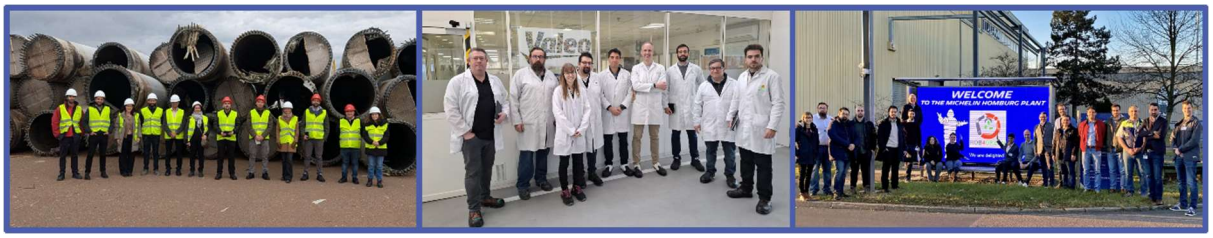
ROB4GREEN has officially started its activities, with the design of its reference architecture and the specification of its pilot use cases. The first results are expected to contribute to the digital and green transitions of European manufacturing.

This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. **101189665**.

Industry-Driven Pilots: Shaping Circular Manufacturing Innovation

ROB4GREEN aims to address real-world industrial needs, with pilot cases in wind turbine blade recycling (ACCIONA), tyre retreading (MICHELIN), and remanufacturing of automotive electronics (VALEO). These demonstrators form the foundation for validating AI-powered robotic systems in diverse and demanding end-of-life product scenarios.

By working with industrial end users, the project defines key challenges in circular processes - capturing essential process knowledge and environmental constraints. This industry-driven approach ensures that ROB4GREEN technologies meet practical requirements for performance, sustainability, and safety.



Smart Robotics & AI as Enablers for Sustainable Manufacturing

To address the complexity of circular economy operations, ROB4GREEN combines cognitive robotics, advanced perception systems, and AI-based decision-making. The technical framework enables robots to:

- Adapt and reconfigure dynamically based on unexpected inputs or changes in the environment.
- Understand product condition and structure through multi-sensor inputs.
- Collaborate with humans via natural language interfaces and immersive AR/XR tools.
- Learn continuously from operator demonstrations and historical data to improve skills.

Expanding Impact Beyond the Consortium

To extend its impact and accelerate innovation across sectors, ROB4GREEN will launch two Open Calls aimed at supporting projects that contribute to greener remanufacturing and recycling. Funding of up to €300,000 will be provided to consortia of 2 or 3 entities along with mentoring and guidance for deploying innovative solutions of significant added value.

Selected third-party teams may benefit from:

- Financial support
- Access to pilot infrastructure and toolkits
- Mentorship and technical assistance
- Integration opportunities with ROB4GREEN AI robotics framework.

Through this initiative, ROB4GREEN aims to extend its technological impact beyond the original consortium and to create new opportunities for collaborative innovation in circular manufacturing across Europe.

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