



JARVIS

DRIVING HUMAN-ROBOT COLLABORATION: CO-HAND



**Funded by
the European Union**

This project has received funding from the European Union's
Horizon Europe programme.

Project name

CO-HAND – Collaborative Handling of Yarn Cones in Dynamic Textile Environments

Introduction

The CO-HAND pilot addresses one of the most demanding and repetitive tasks in textile manufacturing, the manual handling of yarn cones. At CETRIKO's facility, operators must lift and replace hundreds of cones daily in narrow, cluttered aisles, exposing them to physical strain and inefficiency. Through the project, PAL Robotics is deploying an AI-powered TIAGo Pro mobile manipulator equipped with a custom adaptive gripper, perception and navigation. The robot will safely collaborate with operators, automating cone handling while improving ergonomics, safety and workflow continuity.

How does your work align with the goals or methodology of JARVIS?

CO-HAND directly contributes to JARVIS Challenge 2 on agile collaborative robotics for logistics. The pilot integrates key JARVIS tools together with PAL's modular grasping pipelines in a real industrial setting. Co-HAND will do on-site evaluation of the selected JARVIS's tools, benchmark against baselines, and provide iterative feedback. By following a user-in-the-loop and co-design approach, the project ensures that technological development is guided by operator feedback. This approach perfectly embodies JARVIS's mission: developing human-centric, AI-enhanced, and multimodal Human-Robot Collaboration (HRC) solutions that are both adaptable and industrially scalable.

Upcoming focus and next milestones in the pilot's development

After identifying key workflows and user requirements through on-site visits, interviews, and ergonomic analysis, the next six months will focus on designing and integrating the robotic solution according to these findings. This includes integration of the JARVIS tool and the development of the adaptive gripper, modular grasping pipeline and operator interface. The prototype will then undergo validation tests in CETRIKO's real environment, with refinements guided by user feedback to reach TRL7 validation.

How does your solution advance Human-Robot Collaboration in a user-centric manner?

CO-HAND embraces a human-centered, iterative design process. The robot is not replacing workers but assisting them through intuitive and safe collaboration. The solution is co-developed with CETRIKO staff through iterative pilots on the factory floor, ensuring requirements come directly from real workflows. This approach ensures that the robot's actions are transparent, predictable and aligned with operators' needs, setting a new standard for trustworthy, human-robot collaboration in dynamic industrial environments.