



JARVIS

DRIVING HUMAN-ROBOT COLLABORATION: FA-EMAT



**Funded by
the European Union**

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Project name

FA-EMAT Development of a Float Arm link with integrated an EMAT sensor for inspection of industrial plants

Introduction

Industrial inspections in sectors such as oil & gas, petrochemicals, and pharmaceuticals often expose workers to hazardous, confined, or elevated environments, while requiring significant time, coordination, and cost due to complex safety and permit procedures. Robotic systems have the potential to eliminate these safety risks, reduce infrastructure needs, and automate data collection, thereby improving efficiency and consistency. The FA-EMAT system leverages Hibot's modular, lightweight Float Arm—a 5 m × 7 m long-reach robotic platform with an integrated sensor EMAT capable of precise, semi-autonomous inspections in constrained environments—offering flexible deployment, 8-hour battery operation, and easy on-site assembly within 30 minutes for accessing otherwise hard-to-reach industrial assets.

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

FA-EMAT will **enhance SME expertise in HRI** by incorporating JARVIS tools which enhance the role of users in the robotic operation, while the developed FA- EMAT solution will have an HRI component which can be made available to SMEs with asset inspection needs. This will also **extend the adoption of JARVIS tools** to new use-cases in European industry. FA-EMAT **stimulates industry engagement** by involving an industrial end-user from the start of the project and validating the solution in an industry environment, to ensure that the solution meets real-world needs and can be viably commercialized.

Upcoming focus or next milestones in the pilot's development:

- Integration of CEA Digital Twin tool into the robotic platform
- Design, development and assembly of a new link integrated with an EMAT sensor

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

FA-EMAT will **enhance SME expertise in HRI** by incorporating JARVIS tools which enhance the role of users in robotic operation. This pilot advances Human-Robot Collaboration by placing the operator at the center of the system architecture. The FA-EMAT pilot, amplifies human capability rather than replacing it—allowing operators to focus on decision-making while the robot executes dangerous tasks. This user-centric approach reduces risk, increases efficiency, and ensures that robotics remain a natural extension of human skill in industrial inspection and maintenance.

Overall, FA-EMAT will contribute to enhancing safety, efficiency, and operator well-being in industrial environments in line with WISE principles, while also supporting JARVIS's mission of democratizing robotics adoption and fostering industrial collaboration across Europe.