



# JARVIS

## **DRIVING HUMAN-ROBOT COLLABORATION: FA-EMAT**

**Development of a Float Arm link with integrated an EMAT  
sensor for inspection of industrial plants and assets**



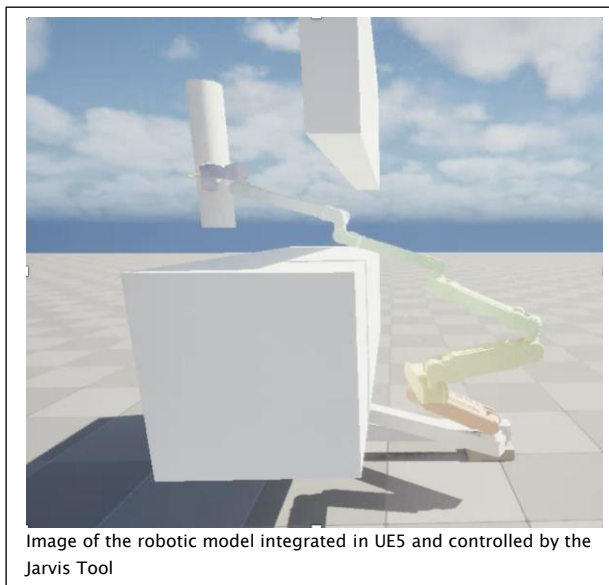
**Funded by  
the European Union**

The project has received funding from the European Union's Horizon Europe

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

The FA-EMAT project will develop a new link for the Float Arm robot, with integrating a new electromagnetic acoustic transducer (EMAT) that detects corrosion or damage without the need for surface preparation and improve user experience by integrating the Jarvis digital twin tool. This will enable operators to easily guide a multi-degree-of-freedom robotic arm through complex industrial environments via an intuitive human-robot interface.

Sprint 2 has seen substantial progress on all fronts. On the software side, the UE5 model integration has advanced with strong support from JARVIS team. The JARVIS Digital Twin tool is going to play a central role for trajectory-based control: operators define guided lines in virtual space with a few clicks, choosing between segment, prismatic, or circular guide types depending on the geometry of the inspection target, and the robot follows those paths precisely — we expect this to make inspection tasks significantly easier and more intuitive. The team has also established a full communication pipeline between the JARVIS tool and the robot's user interface, enabling seamless exchange of joint configurations and trajectory data.



On the hardware side, mechanical assembly of the new end effector is well advanced: the wrist box and roll joint, tail box mechanism, camera unit, and sensor housing are all assembled and wired.

The embedded firmware and sensor interface software are under active testing, and sensor control has been already confirmed. Field demonstrations have been planned in detail with the partner BASF Antwerp and will be carried out, as scheduled, in sprint 3 at the BASF Antwerp plant. Tests will be performed across three industrial targets — a pipeline, a pipe rack area, and a storage tank. Each trial will compare the new JARVIS-assisted approach directly against the

traditional inspection method, recording execution times and measurement results to quantify the benefit.

JARVIS mentoring and ecosystem support have been key in orchestrating the support among the partners and in navigating the integration challenges with the definition of the robotic model within the JARVIS tool. In addition, Jarvis mentors have been supporting also in disseminating our efforts within the ecosystem.