ROBOTISED WELDING OF RIBS AND FRAMES

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The aim of the "SmartRobot" feasibility study was to investigate the feasibility of robotising the welding of ribs and spars on ships, using a flexible, innovative system that can be programmed directly at the foot of the machine, reducing the need to handle parts.

11 Months 438 K€

COMPLETED PROJECT

PROJECT RESULTS

The feasibility study enabled us to gain a precise understanding of the case study, its specific features and the industrial context, to evaluate existing solutions, to imagine several scenarios and finally to identify the associated technological obstacles.

The IRT Jules Verne and NAVAL GROUP worked together on the scanning, relocation and robotics programming, while CETIM contributed its expertise on the robotisation of the welding process to support the change.

GEBE2 defined a cell architecture and specific, modular supports for an installation that would enable the operations targeted in the industrial context to be carried out while complying with the health and safety recommendations studied with the support of an ergonomist.

Lastly, a technical and economic study carried out by NAVAL GROUP was used to assess profitability.

TECHNICALS & ECONOMIC IMPACTS

- Productivity gains to absorb the increase in production rates
- Reducing the arduous nature of work and musculoskeletal disorders

INDUSTRIAL APPLICATIONS

The targeted applications mainly concern industrial welding in small series and markets with high added value or with particular constraints (e.g. absence of CAD), such as naval and land defence. The digital chain for programming automation, scanning and automatic planning of robot trajectories could be of interest to various industries.

"We joined forces with IRT Jules Verne, EUROPE TECHNOLOGIES and CETIM in this study to boost our competitiveness in the manufacture of small-series parts, such as spars and ribs. These components, designed to meet the stringent requirements of the naval sector, are welded by hand, which limits our capacity for automation. Our aim is therefore to adapt the robotic systems to the variability of the parts and improve the ergonomics of the workstations," says Naval Group.