

Autonomous cobot for handling and assembly operations

MASCOT project

IRT
JULES
VERNE

This project is aimed at developing a mobile cobot designed to carry out handling and assembly operations at production facilities within different industries: automotive, energy, aerospace and naval. The aim of the developments in question is to combine safety for operators with productivity and flexibility concerning the operations to be performed.

Technical and economic impacts

- ▶ Improved working conditions (ergonomics of workstations, safety, etc.)
- ▶ Increased productivity of assembly cycles
- ▶ Improved flexibility of production tools

Keywords

Coactivity // Handling
Assembly // Cobot
Mobility // Compliance



INDUSTRIAL CONTEXT.....

In manufacturing facilities, many repetitive tasks are today carried out manually, with the operator providing no real added value (screw tightening, assembly, etc.). Competitiveness of factories as well as improved working conditions for operators may be achieved by automation of such tasks, through the development of robotic solutions, a field that is currently developing thanks to the emergence of collaborative robots or “cobots”. Their introduction and utilisation in factories requires further progress in terms of the productivity and flexibility that these means can provide.

INNOVATIVES FEATURES.....

- ▶ Design/creation of a safety system specifically ensuring operator safety and continuous production.
- ▶ Development of automatic referencing systems for positioning of the cobot in relation to the object on which it is operating.
- ▶ Development of systems to merge effort controls (compliance) and sensor-based controls.
- ▶ Development of a mobile cobotic platform (innovative sensors and algorithms).

INDUSTRIAL APPLICATIONS

The outcome of the project will be industrial demonstrators to enable validation of the bricks developed (navigation, perception, safety, etc.), as well as the generation of new industrial applications in numerous production facilities to carry out assembly operations, in various areas of activity, while ensuring improved safety for operators and allowing them to focus on higher added-value tasks.



Partners

- ▶ IRT JULES VERNE
- ▶ AIRBUS
- ▶ FAURECIA
- ▶ RENAULT
- ▶ GE RENEWABLE ENERGY
- ▶ STX FRANCE
- ▶ DESOUTTER
- ▶ SNEF
- ▶ CENTRALE NANTES (LS2N)
- ▶ INRIA

Equipment

- ▶ Mobile cobotic platform
- ▶ Robot arm and associated safety algorithms

Budget

- ▶ 1 670 K€

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