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share work

Safe and effective human-robot cooperation towards a better competiveness on current automation lack manufacturing processes

A smart modular software and hardware integrated solution for an effective adoption of Human Robot Collaboration (HRC) with no fences

share work

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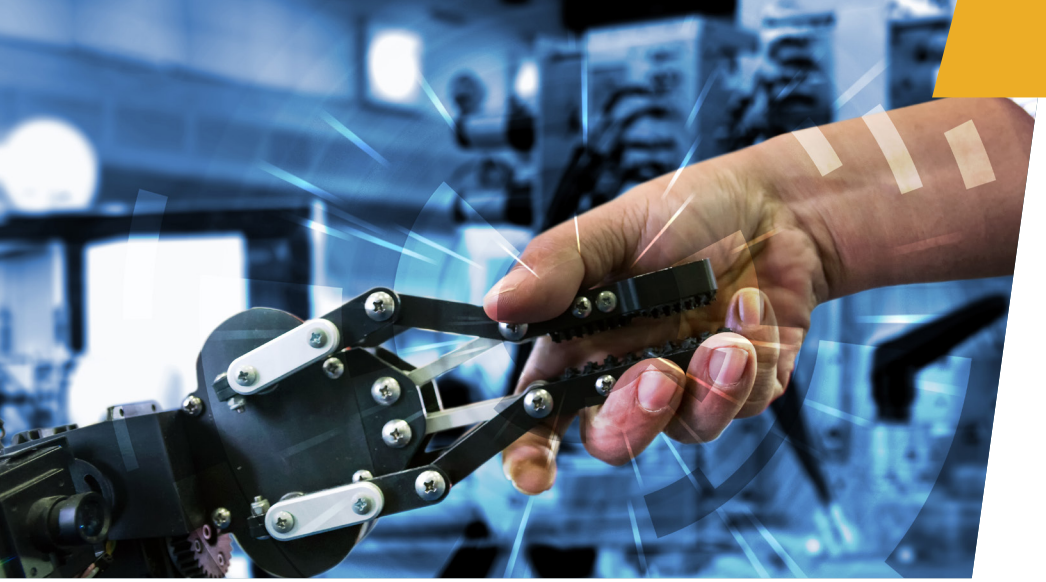

Sharework project develops a software and hardware modular system capable of understanding the environment and human actions through knowledge and sensors, future state predictions, smart data processing, augmented reality and gesture and speech recognition technology in order to make the robot overcome human barriers and ensure a more effective cooperation.

Sharework is applied in four types of real industrial scenarios in the **automotive, railway, metal and capital goods manufacturing industries**. Sharework solution will be able to apply to other relevant industrial environments and different industrial assembly and production processes, improving the efficiency of manufacturing processes, while guaranteeing the safety of the worker.

> **Sharework human-centred software modules will provide robots with the necessary intelligence to safely work in cooperation with human operators, reducing human stress, increasing efficiency and flexibility and strengthening the European industry**

Key outputs

Evolving knowledge base - KB and semantic environment

KB capable of representing information constituting the system experience and real-time environment

Methods for overcoming human-related barriers and ensuring a successful integration

Methods for overcoming human-related barriers and to ensure data reliability and security concerning the entire framework for a successful integration in the industry

Human-aware dynamic task planning system

Dynamic task planning and scheduling system to continuously adapt the control model of the collaborative tasks that the human and the robot are going to perform

Human-aware robot motion planner

Off-line and real-time motion planners enabling human-robot cooperation while coping with cycle time

Multimodal human-robot communication system

Module for human task identification based on human gestures, environmental information, and workflow status using machine learning

System Features

Task Selection
Selecting the best tasks to be performed and their timing based on human task in execution

Multiple adjustments
Adjust varieties such as speed and strength to ensure the workers' safety

On-going learner
Observe the worker task, recognize and learn it

Human aware
Inform the human about the next action

Allows human input
Allows the human to make specific requests to the system

Improved ergonomics
Evaluate work ergonomics and suggest posture corrections to workers