SHAREWORK

Project ID: 820807
Funded under: H2020-EU.2.1.5.1.

Safe and effective HumAn-Robot coopEration toWards a better cOmpetiveness on cuRrent automation lacK manufacturing processes.

From 2018-11-01 to 2022-10-31, ongoing project

Project details

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>EUR 7 351 467,50</th>
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</thead>
<tbody>
<tr>
<td>EU contribution:</td>
<td>EUR 7 351 467,50</td>
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<tr>
<td>Coordinated in:</td>
<td>Spain</td>
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<tr>
<td>Topic(s):</td>
<td>DT-FOF-02-2018 - Effective Industrial Human-Robot Collaboration (RIA)</td>
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<tr>
<td>Funding scheme:</td>
<td>RIA - Research and Innovation action</td>
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Objective

SHAREWORK’s main objective is to endow an industrial work environment of the necessary “intelligence” and methods for the effective adoption of Human Robot Collaboration (HRC) with not fences, providing a system capable of understanding the environment and human actions through knowledge and sensors, future state predictions and with the ability to make a robot act accordingly while human safety is guaranteed and the human-related barriers are overcome. SHAREWORK will develop the needed technology for facing the new production paradigm compiling the necessary developments in a set of modular hardware, software and procedures to face different HRC applications in a systematic and effective way.

A knowledge base (KB) to include system “know-how” data as well as real-time environment information is developed. An environment run-time perception and cognition updates this KB with object detection, human tracking and task identification. A human-aware dynamic task planning system will react based on previous knowledge and environment status by reassigning tasks and/or reconfiguring robot control. This data will allow robot intelligent motion planners to control robots while safety is ensured by a continuous ergonomics and risk assessment module to face a safety-productivity trade-off. A multimodal human-robot communication system will provide interfaces for bidirectional communication between operator and robot. Finally, methods for overcoming human-related barriers and data reliability and security concerning the entire framework are applied for a successful integration in the industry.

SHAREWORK technology will be demonstrated in four different industrial cases: for railway, automotive, mechanical machining and equipment goods sectors. The usability of the developed HRC solutions in different industrial sectors and company sizes will increase productivity, flexibility, and reduce human stress, to support the workers and to strengthen European industry.
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**EU contribution:** EUR 706 000

**Activity type:** Research Organisations

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**EU contribution:** EUR 498 562,50

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

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**EU contribution:** EUR 605 875

**Activity type:** Research Organisations

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**EU contribution:** EUR 352 500

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

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EU contribution: EUR 444 608,75

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EU contribution: EUR 397 500

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EU contribution: EUR 775 937,50

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Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
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EU contribution: EUR 400 000

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Activity type: Other
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EU contribution: EUR 75 937,50

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