IMPACT

A groundbreaking European research project, SMARTHANDLE, addresses the pressing challenges faced by the manufacturing sector in the European Union. With the aim of enhancing productivity, flexibility, and sustainability in handling operations, SMARTHANDLE pioneers the development of intelligent, reconfigurable agents, AI-based reasoning enablers, and advanced planning systems.

The manufacturing sector in the European Union plays a vital role, contributing to 2 million enterprises, 33 million jobs, and 60% of productivity growth. As market demands a shift towards products with shorter lifecycles, manufacturing businesses must adapt to remain sustainable by effectively balancing cost, quality, and productivity.

SMARTHANDLE recognizes the shortcomings that need to be addressed, including the high number of product variants requiring reconfigurable and flexible handling tools, the lack of advanced perception systems for efficient product and environment monitoring, the absence of adaptable control and planning schemes for handling a variety of workpieces and materials, and the immaturity of planning systems to keep up with market needs and custom orders.

PARTNERS

The consortium of SMARTHANDLE consists of **14 partners from 6 countries** (Greece, Spain, Germany, Netherlands, Luxemburg, and Belgium) who will join forces to develop, deploy, validate, and promote smart and versatile manufacturing solutions within the 3 years duration of the project.

Find more about SMARTHANDLE:
www.smarthandle-project.eu
Contact us:
info@smarthandle-project.eu

Follow us on social media:

SMART HANDLE

Resilient manufacturing lines based on smart handling systems

Funded by the European Union

CHALLENGE

Manual and automated production lines must evolve to “produce more and diverse with less”, while addressing important shortcomings such as product variabilities, lack of high-level autonomous reasoning and accurate adaptable control and holistic efficient planning systems. SMARTHANDLE will research technologies to address these needs and support European industry.

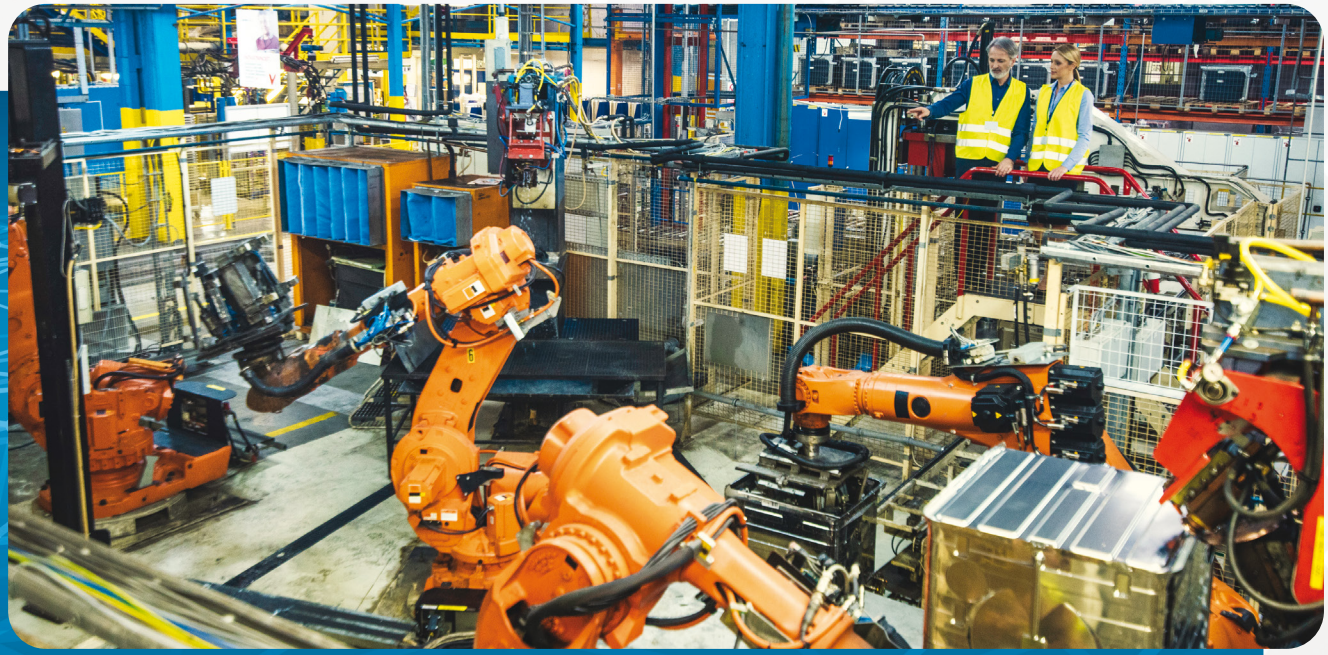
Social and ethical aspects will be addressed, demonstrating benefits for workers by reducing their involvement in unsafe and unhealthy tasks, improving their working conditions when working in areas where the SMARTHANDLE reconfigurable solutions will operate.

KEY TECHNOLOGIES

Intelligent, Reconfigurable Agents: Capable of adapting to a range of handling applications, possessing dexterity and flexibility, to efficiently handle different types of workpieces and materials

AI-Based Reasoning Enablers: Leveraging the power of artificial intelligence, to explore advanced reasoning capabilities to optimize the flexibility of the intelligent handling agents and to enhance the adaptability and efficiency of handling

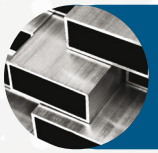
Higher-Level Planning and Coordination Mechanism: To ensure the successful and scalable deployment of the deveoped solutions in real-life use cases, enabling seamless integration of the intelligent handling agents into existing production systems



USE CASES ON DEXTEROUS ROBOTICS

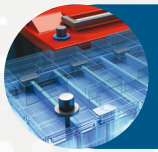
SMARTHANDLE’s dexterity, reconfiguration and reasoning enabling technologies will be validated and will demonstrate their advances through three real-life manufacturing scenarios. Those originate from Metal (ALUMIL), Consumer goods (MENICON) and Automotive tier-one supply (ABEE) industrial sectors. These use cases have been selected for covering a wide spectrum of dexterous handling operations. In overall, the project’s outcomes will tackle handling challenges for small to large sized parts, made from rigid or deformable materials, presenting simple or sophisticated geometries that require conventional or specialized handling treatments.

VERTICAL APPLICATIONS OF PILOTS



Metal Production

Consumer Goods



Battery Pack Disassembly