SMARTHANDLE's Pilots KERs

	KER 1: Pilot robotic cell for variform large part packaging	KER 2: Pilot cell for robotic-assisted manufacturing of delicate and deformable parts	KER 3: Pilot cell for Battery Recycling
Partner(s):	***TF-CC, LMS, ALUMIL***	***DEMCON, MENICON, STT***	***TECNALIA, ABEE***
KER's description:	The system uses an overhead dual-arm robot with AI-driven control, perception, and advanced handling. It features object detection, digital-twin simulation, and optimized pallet loading to automate packaging of heavy, large, multi-variant aluminum profiles.	The solution automates handling of small, delicate, deformable parts with advanced perception, precise manipulation, and integrated production control. Real-time digital twins, intelligent scheduling, and process monitoring enhance efficiency and responsiveness.	The solution automates the identification and removal of battery cover and module fixings, enabling safe disassembly, minimizing electrical hazards, and ensuring components are separated for reuse or eco-friendly disposal.
Who can use the KER:	Industrial end-users handling large, variably shaped parts, and sectors requiring automated handling and packaging of heavy components with complex geometries.	Companies working in the assembly/manufacturing industry handling similar sized products	Companies working in the area of disassembly / reuse / recycling of discarded batteries (and similar products, such as electronic / electric products)
What purposes can the KER be used for:	The solution can be applied to automated production lines needing advanced decision-making for tasks like stacking irregular packages, intelligent grasping, and object recognition. It reduces reliance on skilled personnel and manual lifting, enabling automated, error-free handling and packaging of complex objects.	The solution's automated handling of small deformable parts can be applied across assembly and manufacturing, bridging ERP systems with shopfloor automation. It optimizes machine-tending and logistics while ensuring precise quality control.	SInce the solution offers automated ways to locate, identify specific fixing items (screws, cables), it can be applied to similar applications in the assembly / disassembly sectors (manufacturing, fixing of discardeed products which can be sold in the second hand market, separation of components to obtain raw materials, etc)
Value proposition:	Automated, flexible handling and packaging for large, complex metal parts enhances productivity, ergonomics, and quality while reducing errors and operator workload. It supports multi-variant components, physics-informed packaging of irregular objects, and advanced grasping and perception.	Automated handling concepts for handling small delicate and or deformable parts contributing to a seamless bridge between ERP systems and shop floor automation.	Automated location and identification of fixing elements and battery components, in a hazardous environment involving electrical risks and handling of heavy parts. Additionally, the lack of uniformity of batteries configuration and inner components poses new cahlleneges to the robotization of the entire process.

Co-funded by the European Union

Discover the SMARTHANDLE Wallet

At the heart of **SMARTHANDLE's** innovation journey are three Key Exploitable Results (KERs), concrete results developed through the project's **pilot activities** and **tested in real industrial environments**. This brochure, also is focused on the SMARTHANDLE Wallet and offers a concise overview of these 3 KERs, highlighting how each one contributes to smarter, more flexible, and human-centric manufacturing.

From ***automated packaging of aluminium profiles, to advanced robotic systems for battery disassembly and the precise handling of delicate consumer goods***, these results demonstrate the project's impact and readiness for uptake across multiple sectors.

Explore the technologies, challenges addressed, and potential applications as we move toward the future of European manufacturing.

PARTNERS

tecnalia · LMS Laboratory for Manufacturing Systems & Automation · Universitat Politècnica de Catalunya BARCELONATECH

roboception · STT Products B.V. · Netcompany

TU/e Eindhoven University of Technology · aimen · Teaching Factory · KUKA

DEMCON · Alumil · Menicon · ABEE

Find more about SMARTHANDLE:
www.smarthandle-project.eu

Contact us:
info@smarthandle-project.eu

Follow us on social media:

Funded by the European Union

EFFRA European Factories of the Future Research Association

SMART HANDLE

PILOTING THE FUTURE - THE SMARTHANDLE WALLET

Exploitable Innovations in Flexible, AI-Driven Handling Systems