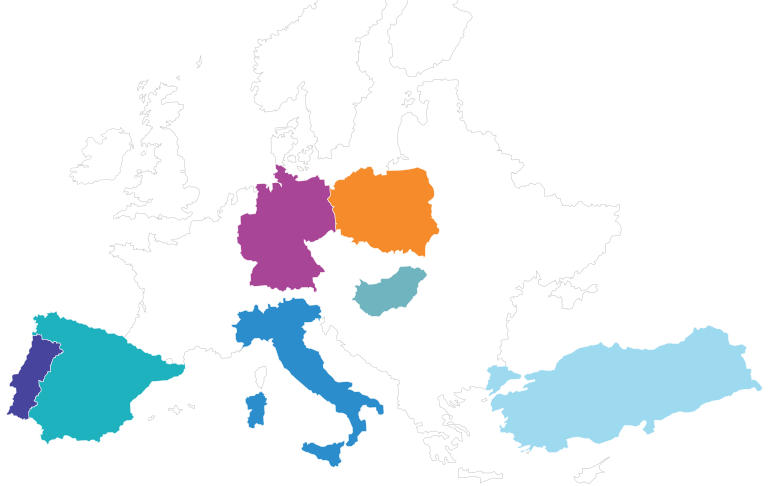

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iit Istituto Italiano di Tecnologia · PRENSILIA Grasping Innovation · Osai automation systems · INCM Imprensa Nacional Casa da Moeda · RON TOK 4.0

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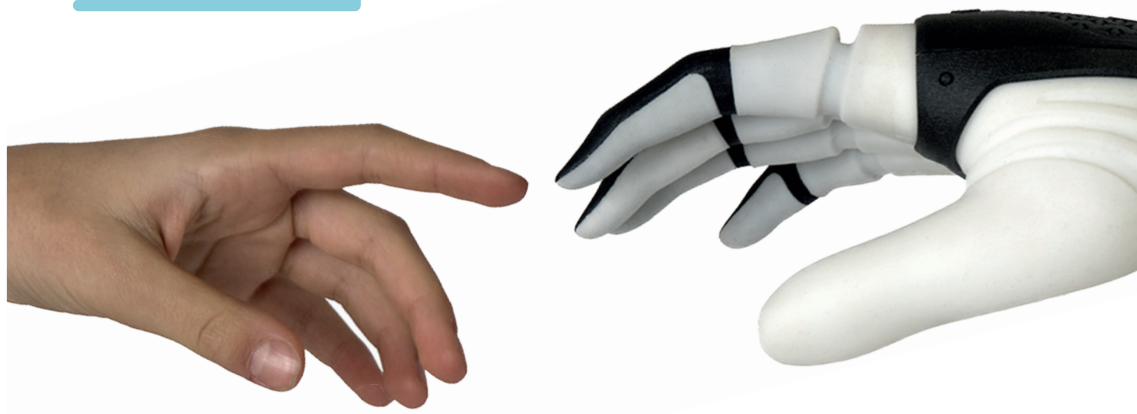
APRIL



APRIL Project

multipurpose robotics for mAniPulation of defoRmable materIaLs in manufacturing processes

PROJECT FACTS

STARTING DATE: April 2020
DURATION: 48 months
PROGRAMME: Horizon 2020
DT-FOF-12-2019: Handling systems for flexible materials
GRANT ID: 870142
PARTNERS: 14 from 7 EU countries
COORDINATOR: Universidad Politécnica de Madrid

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This project is supported by the European Commission under the Horizon 2020 framework programme for Research and Innovation (DT-FOF-12-2019: Handling systems for flexible materials, GA #870142)

Why is APRIL needed?

The manufacturing and processing of soft and flexible materials with varying shapes poses unique challenges to automation, such as requiring highly adaptable manipulation approaches.

APRIL approaches these challenges with a cost-effective solution that easily adapts to changing needs and allows for parallel processing of various products, thus supporting organisations in offering higher-quality and more customised products.

Objectives

- Develop autonomous and market-oriented robots that provide new ways of manufacturing soft and flexible materials.
- Enable complex interaction with the environment through multi-sensor feedback—including dexterous grasping and manipulation of various objects.
- Cloud-based learning allows modular robots to be easily reprogrammed and repurposed for different tasks.
- Uncaged robots guarantee the safety and ergonomic working conditions of human collaborators by recognizing intention and predicting movement.

Use Cases

The APRIL prototypes are being validated and refined in six different real-world scenarios, the APRIL use cases.

Pillow handling
Build a collaborative robot that can handle different soft viscoelastic pillows. The range of pillows produced by PEMU is very wide, and the system must handle them precisely while ensuring the high quality of the product.

Passport quality control
Build a dexterous system able to manipulate the different pages of the Portuguese Electronic Passport and other passports for quality control and data validation.

Kitchen hood production
Increase the production capacity by means of human-robot collaboration in different production steps. Automate wire manipulation and support welding tasks to improve the safety and health of the workers.

Food packing
Automate poultry pieces packaging using grip and place functionalities of the novel APRIL robotic system, and predict shelf-life objectively. Reduce contamination risk.

Shoe insole packing
Improve the current manual bagging of shoe insoles by means of an autonomous robotic system that can carry out complex grasping and manipulation tasks, including handling of flexible insoles and flexible, transparent packaging.

Electronics assembly
Improve the handling and the mounting accuracy of electronic components through the interaction between human and collaborative robot. The robot reduces the risk of contamination and guarantees high level of flexibility in automation.