



In this 3rd newsletter, go on and Get to know our **ULTIMATE** partners

Robotnik

● **Robotnik** designs, manufactures and markets autonomous **mobile robots and manipulators**, capable of **working autonomously in collaborative environments, sharing space with humans**.

Its activity in the service robotics sector started in 2002 and **Robotnik** is currently a reference in mobile robotics in the world and leader in Europe, having presence in the main international markets: Korea, Japan, China, Singapore, USA, France, Germany or Italy.

From January 2023, **Robotnik** is part of United Robotics Group. With this move, United Robotics Group continued to partner with leading robotic experts contributing to launching the successful third generation of service robots, CobotX (Robots-for-Humans).

● The **Robotnik** industry case inside the ULTIMATE project is based on the concept of **mobile manipulation** and how this technology **can improve the industry**.

Collaborative mobile robotics offers a **more versatile solution with the ability to adapt to new activities and needs**, supporting an operator's tasks and executing the most repetitive, tedious or dangerous tasks.

Traditional industrial arms work in a fixed, static space and the applications are composed of pre-programmed movements due to the lack of reliable perception of the status of the cell. This has changed thanks to the advances in collaborative robotic arms and mobile robotic bases.

● Collaborative robotic arms are light robots that are **inherently safe** (i.e., the force exerted in case of collision is limited and unarmful), so they can **work and cooperate in shared environments between people and machines**. Mobile robotic bases are robots that can move freely around the environment. By attaching a robotic manipulator to a robotic mobile base, robotic cells are extended to flexible robotic cells where the robots are not located in a fixed position, but can be reconfigured according to the current needs of the manufacturing process.



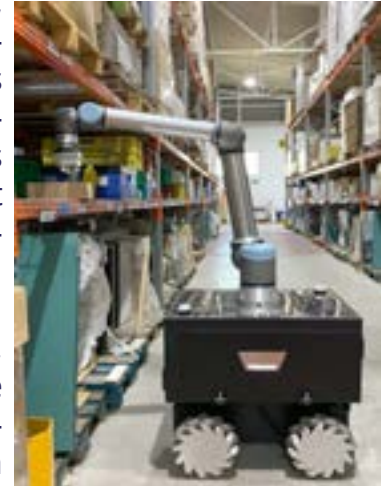
Newsletter
#3
2023



- A mobile manipulator robot like RB-KAIROS+, the one involved in ULTIMATE, allows the arm's functions to be expanded, thus improving operational capacity and increasing return on investment.

- In addition to simplifying processes, collaborative mobile manipulators provide advantages such as resource optimization, reduction of economic costs, reduction of unproductive times or the possibility of operating in any location with a constant rhythm.

- In ULTIMATE project, Robotnik elaborates requirements, defines a robotics use case, generates data, integrates, evaluates and validates the technology, ensuring that ULTIMATE developments are user-oriented.



- Two applications will be developed in the context of this use case, one related to **manipulation** and one related to **navigation**. The manipulation application is a kitting operation, the arranging of individual objects in a container with the purpose of transporting them to another location. The process is affected by the shape, size and number of different objects, and also by their shape, size and number. Additional restrictions may include the weight of the objects and the maximum weight the container can support.

- The navigation application is based on the learning of features of the environment for localization, trajectory planning and execution. The environment in a factory can vary during daily operations. Even if workstations are fixed in the same place, sometimes new elements (e.g. trolleys, boxes) can be placed and removed from the robot paths.

- Moreover, people move around the factory, along fixed lanes or not, and sometimes they can spend some time standing still, in a group or not. One of the potential aspects of industry 4.0 is the flexibility in the setup of manufacturing cells.

- It is expected that **Hybrid-AI will contribute to safer, faster and more flexible manipulation and navigation applications.**

ULTIMATE Events

30th of September 2023: Submission Deadline for a [special issue of Applied Sciences «Trustworthy Artificial Intelligence \(AI\) and Robotics»](#)

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