

## TITLE: MODULAR AND SELF-ADAPTABLE ROBOTIC DEVICE FOR THE REHABILITATION OF THE HAND AND PROCEDURE OF USE

### DESCRIPTION OF THE TECHNOLOGY

This technology consists of a modular and self-adaptive robotic device for the rehabilitation of the hand, which is comprised of: a robotic device of exoskeleton type, a dorsal and palmar stimulation system synchronized with the assisted movement of opening and closing of the hand, a system of fixation and liberalization between the device and the user's hand based on the use of magnetized clip-type or similar systems, a system for acquiring physiological signals by means of sensors embedded in the device's fixation system, a control system and a virtual reality system with different therapeutic activities.

Self-adaptation of the device is understood as the ability of the device to modify the level of assistance provided by the device together with the level of complexity of the rehabilitation therapy based on the real-time estimation of the user's intention, physiological state of the same and its performance during the realization of rehabilitation therapies assisted by the device.

This technology makes possible the total or partial rehabilitation of people who have lost all or part of the motor function of the hand and / or the assistance to people in the performance of daily tasks that require hand grasping functionality.

### BUSINESS APPLICATION SECTORS

Technical sector of medical robotics, more specifically in relation to rehabilitation robotics and assistance robotics.

### TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The robotic device can be configured by locating on the base so many modules, formed by linear actuator and exoskeleton type mechanism, as fingers of the hand want to rehabilitate and / or assist during tasks of daily life, including the control of the opening mechanism and close of the hand.

### TECHNOLOGY DEVELOPMENT LEVEL

There is a prototype ready to be developed and commercially exploited.

### INTELLECTUAL PROPERTY RIGHTS

Protected by a patent in Spain. Rights owned by the Universidad Miguel Hernández de Elche.

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**SEARCHED COLLABORATION**

Collaboration with interested companies to carry out technology proof of concept that facilitates its commercialization and industrial implantation.

**RELATED IMAGES**

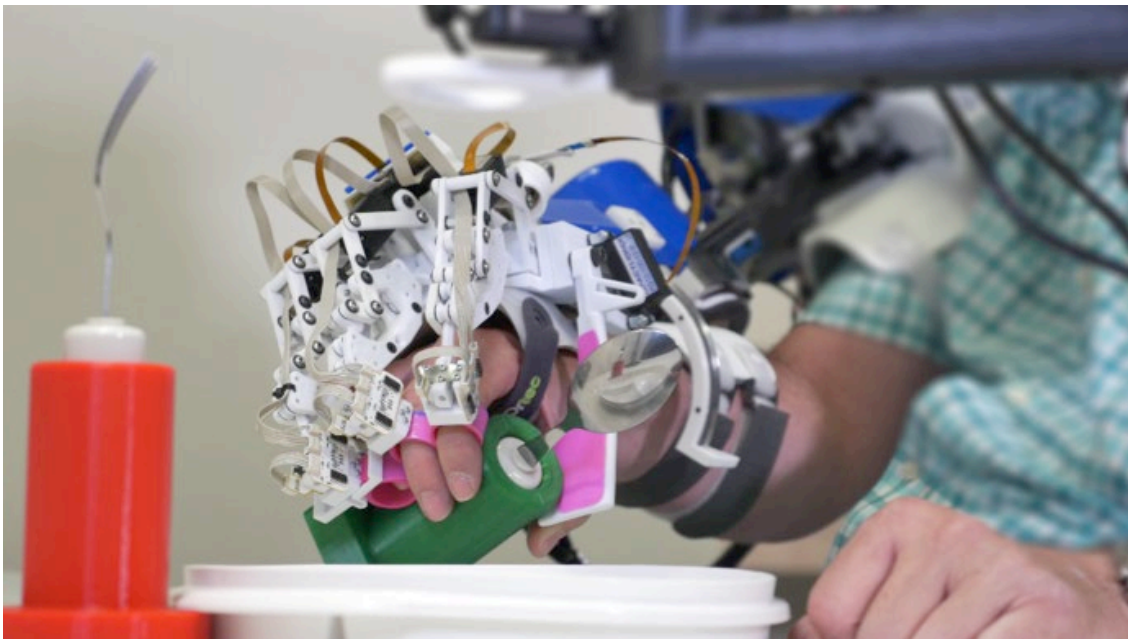


Fig. 1: Proposed system

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