

Spanish company developer of a medical device consisting on a contactless/air pressure driven collaborative robot for physiotherapy seeks partners for commercial agreements with technical assistance.

Summary

Profile type	Company's country	POD reference
Technology offer	Spain	TOES20230831004
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement with technical assistance	• World
Contact Person	Term of validity	Last update
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General Information

Short summary

A Spanish startup has developed a medical device consisting of a collaborative robot to support physiotherapists in the treatment of patient's muscle injuries. The robot mimics a clinician's pressure massage therapy using temperature-controlled pressurized-air, significantly reducing patient recovery time and lowering waiting lists and treatment costs up to 40%. The company is seeking sellers and distributors worldwide to reach commercial agreements with technical assistance.

Full description

A Spanish startup has developed a highly innovative robotic technology within the medical rehabilitation area after several years of research and development. This solution was born from the hands of a physiotherapist and uses robotic technology for the treatment of musculoskeletal disorders. Musculoskeletal disorders (MSDs) are a leading cause of disability worldwide, with a prevalence of 1.3 billion, and responsible for 136 million lived with disability in 2017. Even though the incidence of MSDs increases with age, adolescents and people in working age group are also highly affected, leading to increased morbidity and even early retirement from work. Moreover, 60% of work-related health problems are caused by MSDs. These create a burden for the healthcare system with an estimated cost of

€196 billion a year.

These are some of the musculoskeletal pathologies addressed:

- Myofascial trigger points (MTP) and latent muscle contractures.
- Back pain (dorsal, lumbar, cervical)
- Acute diseases in which the therapist cannot contact the patient's skin
- Fascial problems
- Sprains
- Fibromyalgia
- Bruises
- Tendinopathy
- Post-surgery treatment
- Joint inflammatory problems

The collaborative robot is 100% safe and capable of treating musculoskeletal disorders applying compressed air with a correct temperature and without the need for direct contact with the patient. The continuous pressure applied by the air jet imitates manual therapy techniques used by physical therapists for connective tissue, such as myofascial trigger point treatment. It also allows improving the blood flow and oxygenation of the area.

This robot works in two different modes:

Manual Mode

The therapist can safely handle the robotic arm to treat any area of the body that they deem appropriate.

Automatic Mode

The therapist configures the treatment once and the robot can then autonomously reproduce it as many sessions as necessary. The treatment can be focused on one or several predefined points in a sustained manner, or the pressure can be carried out through movement with linear or pendulum sweeps. The possibility of performing these movements allows you to program non-contact massage treatments both for the relaxation of muscle spasms, as well as to perform movements with a draining and relaxing objective in cases of inflammation or post-surgery.

The robot performs a 3D scan to identify the anatomy of the patient and adjust the treatment in each session according to the position of the patient. Before starting each treatment, it also takes a high-resolution thermographic image to help diagnose the patient's condition and measure its evolution.

The physiotherapy robot has been developed with the objective of fully supporting physiotherapists in the holistic personalized treatment of their patient's musculoskeletal disorders, with a painless treatment. The robot has been demonstrated to objectively aid with the diagnosis of muscle injuries by using infrared images of the body and is able to fully mimic a clinician's pressure massage therapy using temperature-controlled pressurized-air. Clinical findings from patients have shown that this robot has a positive impact on the reduction of patient recovery time from 7 to 3 weeks and has contributed to lowering waiting lists and treatment costs by 40%.

Due to its effectiveness and autonomy in the treatment of the most typical injuries of the athlete, it is an ideal device for sports clubs and rehabilitation services. Nowadays the device is in level 9 of TRL, as the robot is functional and has been successfully used and purchased in hospitals (private and public), sports clubs and wellness centres in different countries such as Spain, France, Lithuania, India, USA and Ecuador.

The company is seeking commercial agreements with technical assistance involving distributors and commercial partners. Distribution companies would preferably be international and with experience in high-end physiotherapy devices.

Advantages and innovations

This device is a unique combination of Robotics, Artificial Intelligence, and Medical Science to reach new levels of physiotherapy care for patients. The company has the competitive advantage of being of the only solution on the market capable of automating physiotherapy massages improving efficiency, recovery time, and giving medical proof of patients' recovery.

Using this medical device makes it possible to automate tedious and repetitive tasks, increasing the productivity of physiotherapists, who will be able to treat more patients in less time, shorten waiting lists and, thanks to thermography, obtain objective data on the evolution of patients. Finally, and most importantly, it can improve the well-being of the patients. Those who have tried it report improvements after just a few sessions of painless treatment.

Main technological features:

- Individualized treatment thanks to a custom proprietary recognition software.
- Use of thermographic imaging for pre-diagnosis of MSDs and evolution measurement.
- Use of 3D cameras for patient and surface recognition.
- Jet of pressurized air at a controlled pressure of 6 bar.
- Treatment air temperature control.
- Air filtering for medical applications.
- Cloud-based multi-device access for users and therapists alike for a delocalized user experience.
- Clinical history registry system and thermographic imaging storage.
- Robotic arm safety system and continuous force control and feedback for a 100% safe experience for the user.

Main clinical advantages:

- Three different treatments, point-by-point, linear and pendular.
- Treatment independent of location.
- Drainage enhancement for inflammatory pathologies.
- Post-surgery recovery and treatment.
- Pain relief for muscle problems throughout the treatment sessions.
- Shortens recovery times, boosting the overall treatment by the therapist.
- Complete customization of the treatment, times, loops, temperature and velocity for an individualized and effective treatment.

Technical specification or expertise sought

Stage of development

Already on the market

Sustainable Development goals

• Goal 3: Good Health and Well-being

IPR Status

IPR granted

IPR Notes

Partner Sought

Expected role of the partner

The company is seeking private companies from the physiotherapy/health and/or wellness/sports sectors interested in selling and/or distributing the product under a commercial agreement with technical assistance. Distribution companies would preferably be international and with experience in high-end physiotherapy devices.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **Big company**
- **SME 50 - 249**
- **SME 11-49**
- **SME <=10**

Dissemination

Technology keywords

- **06001020 - Physiotherapy, Orthopaedic Technology**
- **01004001 - Applications for Health**
- **01003003 - Artificial Intelligence (AI)**

Targeted countries

- **World**

Market keywords

- **05007006 - Computer-aided diagnosis and therapy**
- **05004001 - Electromedical and medical equipment**

Sector groups involved

- **Health**