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Title

PARALLEL ROBOT FOR THE RECOVERY OF LOWER LIMB MOBILITY

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Patent/ Application number

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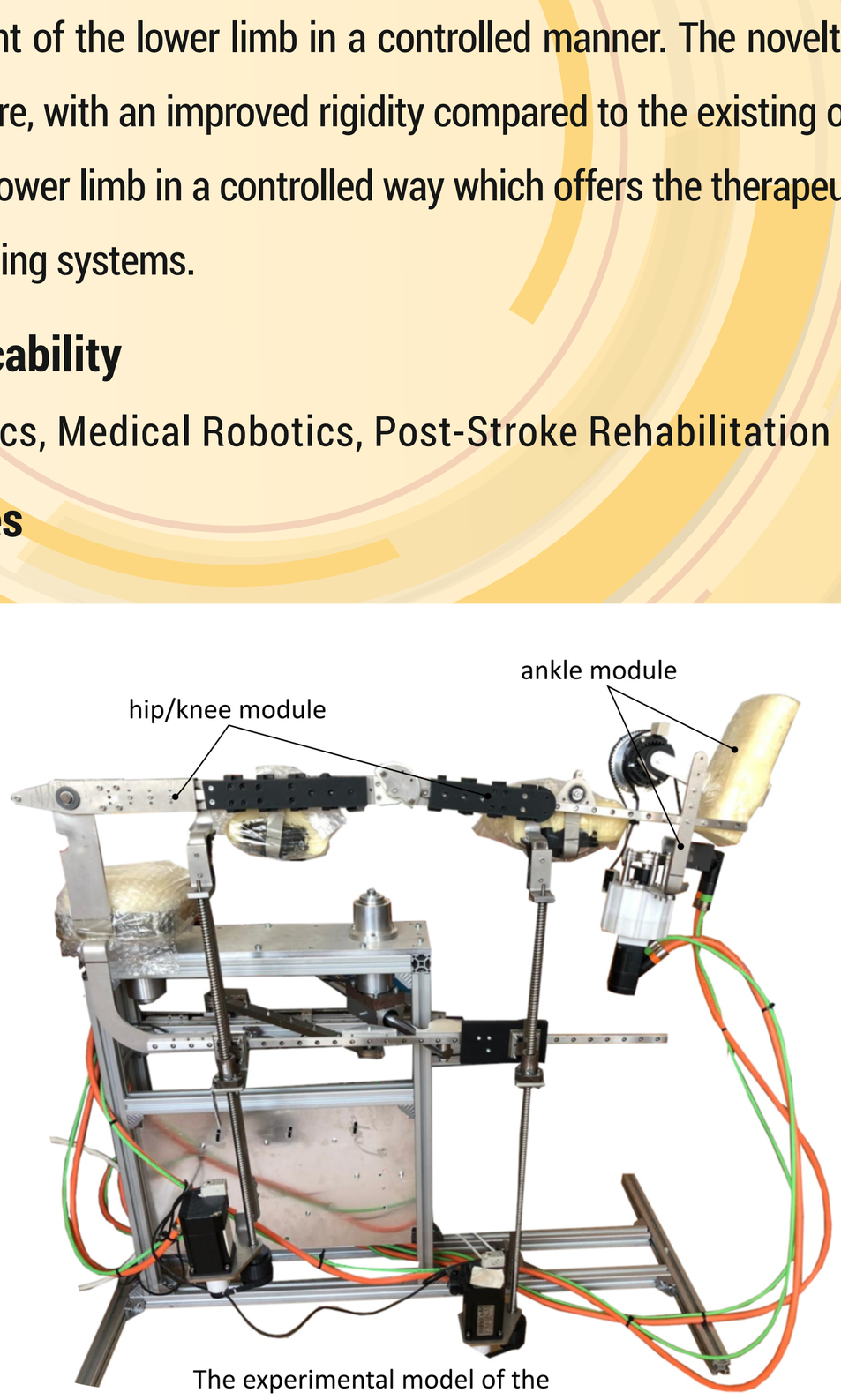
Short presentation

The present invention relates to a robotic system for the rehabilitation of the lower limb of post stroke patients, a system consisting of two robotic modules that are coupled to perform the medical rehabilitation process of the entire lower limb. The first module is designed for the rehabilitation of the hip and knee joints whereas the second module is designed for the rehabilitation of the ankle joint. The hip and knee module has 3 degrees of freedom for the recovery of the flexion / extension and abduction / adduction of the hip and the flexion / extension of the knee and the ankle module has 2 degrees of freedom for the recovery of dorsiflexion / flexion and inversion / eversion of the ankle. The specific application of the robotic system proposed in the present invention is the recovery of the mobility of the lower limb by moving the anatomical joints with the aid of the robotic system that supports and moves each segment of the lower limb in a controlled manner. The novelty brought by the robotic system proposed in this patent has a modular structure, with an improved rigidity compared to the existing ones (in particular the serial ones), allowing the mobilization of the joints of the lower limb in a controlled way which offers the therapeutic advantage of allowing a wider range of recovery exercises compared to existing systems.

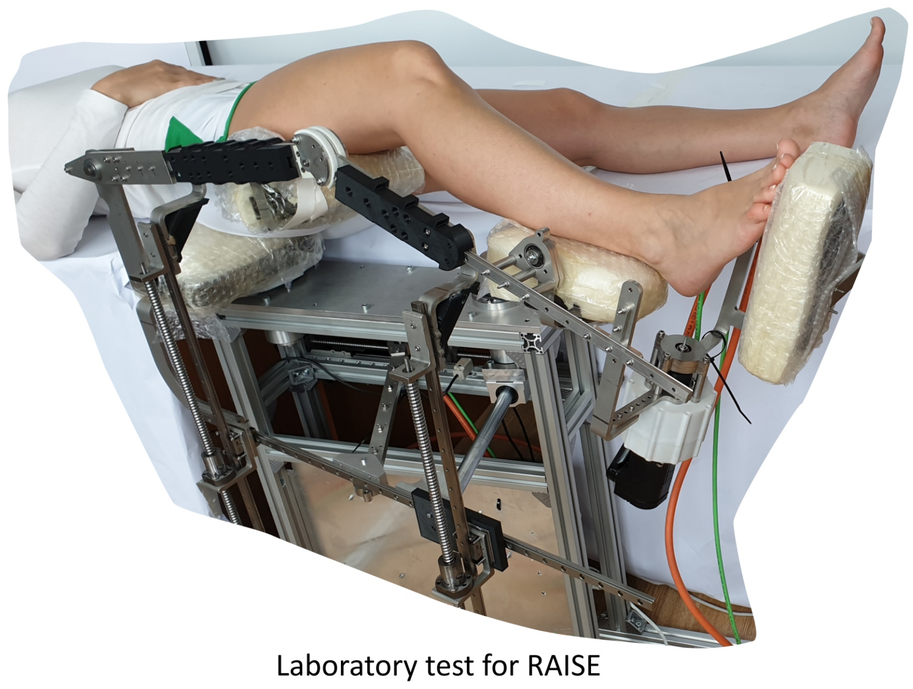
Applicability

Robotics, Medical Robotics, Post-Stroke Rehabilitation of Bedridden Patients, Paralel Robots

Images



The experimental model of the
RAISE parallel robot for lower limb rehabilitation



Laboratory test for RAISE
(with healthy subjects)