

# Instrumented grip for forearm rehabilitation



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**STATUS PATENT:** Concesso

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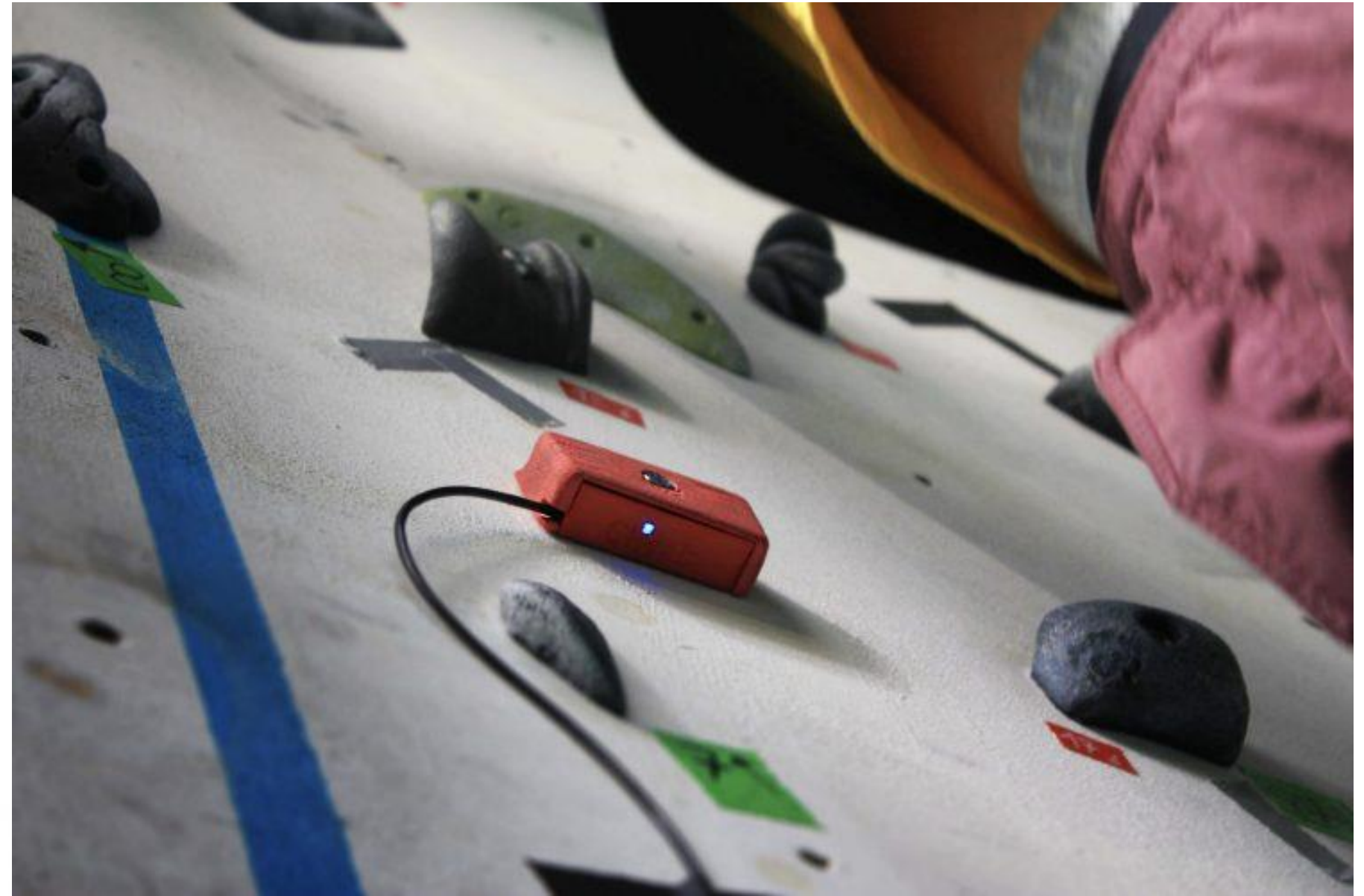
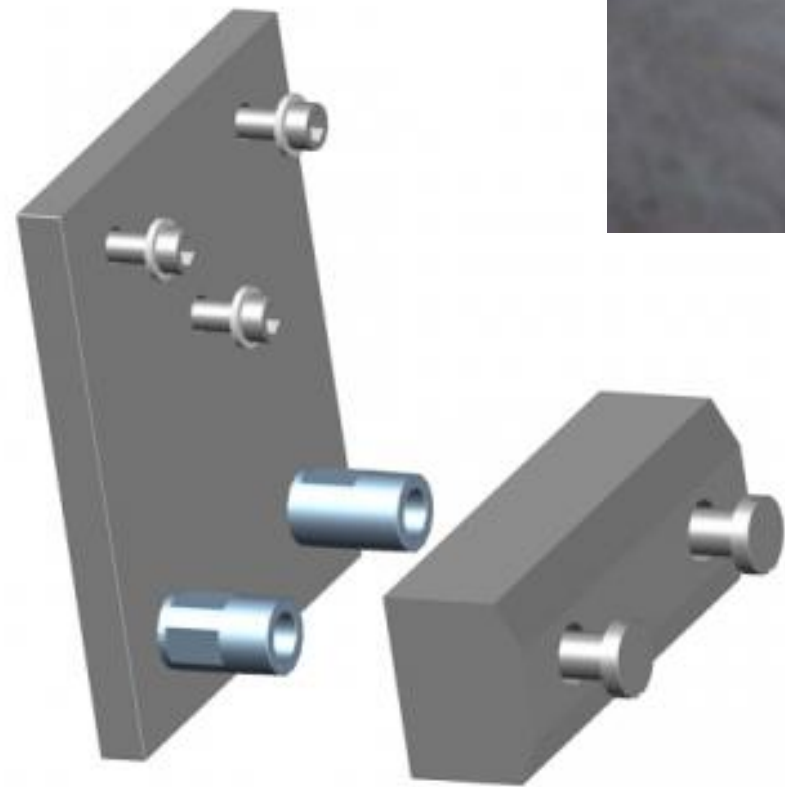
**Patent family:** ITA

## The Invention

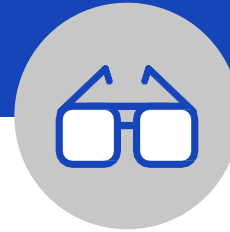


The patented technology makes it possible to monitor the level of preparedness and improvement of motor action in any practitioner, competitive or not, through dynamic on-wall testing; in addition, the instrumentation allows periodic assessment of the maximal and resistant strength of the forearm muscles, which is the one maximally involved in the action of climbing, through simple tabletop tests performed by mounting a single grip on a special stand; finally, the instrumented grip can be used to assess the recovery of any forearm muscle and tendon injury. The invention consists of an instrumented grip capable of reading in real time the three spatial components of the forces applied by the climber during prehension. Knowledge of these forces and their evolution during the sporting gesture makes it possible to correct the setting of the movement and minimize the effort, so as to make its execution smoother and more effective, and objectively monitor the athletes' progress. Having immediate feedback of the action just performed is the basis for improving performance in sport climbing. To address this issue, and in particular to answer the many questions that normally arise during a regular training session, a new type of instrumented grip has been developed. The instrument consists of an instrumented base with two specially designed load cells. The base can normally be screwed on like any other socket on a gym wall and is completely wireless. This base is covered with an interchangeable outer shell of different shapes, which is the actual grip. The system measures the 3 components of force applied to the instrumented grip and their point of application during the climbing action. The system sends the data to a device capable of acquiring and displaying the data for up to a maximum of 4 instrumented holds, with the goal of being able to perform a multipoint analysis of the forces expressed by the subject in order to obtain a complete dynamic assessment.

Images



## Industrial application



The patented technology is designed for the following applications, among others:

1. Dynamic wall testing;
2. Athletic training monitoring;
3. Periodic assessment of maximal and resistant muscle strength;
4. Monitoring recovery of physical injuries.

The advantages of the patented technology consist in the possibility of realizing a wireless device with universal installation, real-time feedback and forearm gesture correction/guidance.

## Possible Developments



The patent is available for outright assignment, as well as for exclusive and non-exclusive licensing. Licenses are available for the remaining term of the patent titles.

The Research Group is available for new collaborative and third-party research activities, in-depth technical investigations, scientific advice, also aimed at raising the TRL of the technology.

The TRL of the invention is 3.

For further information:



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