

Ankle prosthesis with locking mechanism

KEYWORDS

- Active
- Lightweight
- Elastic structural element

Technology Market:

Prosthesis or orthosis for ankle

Recent advanced prostheses are too heavy, too expensive and lack autonomy.

Health systems are reluctant to pay a high price for high-tech devices such that the market remains focused on low-tech less expensive device. However, recent studies demonstrated the benefit of high-tech active devices, embedding motors and capable of providing energy for restoring a normal gait.

The UCLouvain invention

The new prosthesis includes a novel parallel spring locking mechanism that significantly decreases the energy consumption while offering high performance. The second innovation consists in a 3D printed compliant element embedded in the structural parts of the prosthesis that allows reaching requirements in terms of robustness, stiffness while decreasing the number of components and thus reducing the global cost and weight of the device.

Applications

- Active or nearly passive ankle prosthesis for lower limb amputees
- Assistive orthosis for disabled walkers
- Humanoid robot foot

Main features

- Low energy consumption
- Lightweight
- Low cost
- High performance

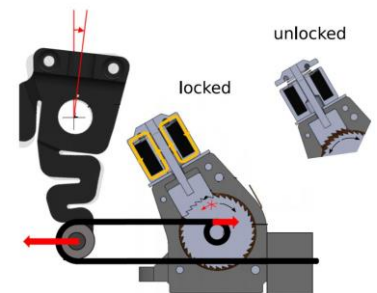
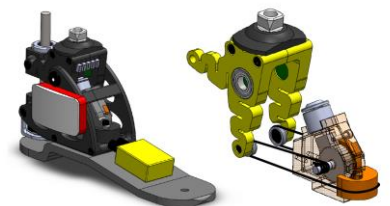
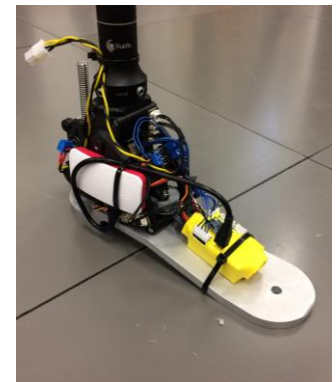
Technology status

TRL 4 Prototype has been tested and functionality have been demonstrated over a limited range of operating conditions. Preclinical testing on a limited number of patients will be performed soon.

IPR This work was the subject of an EP patent application filed on the 23d of August 2018 (EP18190369).

Preferred partnership

Joint developments, licensing opportunities



Prototype and schematics of the prosthesis

Interested in developing and / or commercializing this technology?

UCLouvain



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