Multiple actuation system for robotic joints

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Invention

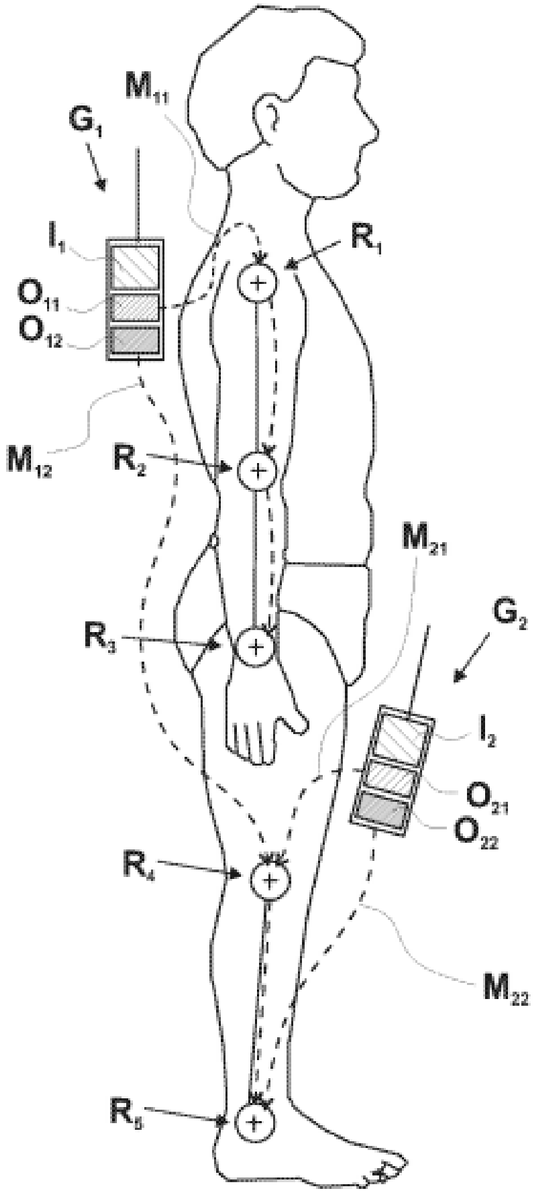
Wearable robotics in recent years is becoming increasingly popular. It is now not uncommon to see examples in everyday life of using robots, prostheses or exoskeletons. Surely the phenomenon will increase given the growing trend of technologies that are increasingly presented in this area. One of the particular technical challenges still very much felt to ensure that exoskeletal technologies are even more present on the market is the difficulty of still considerably reducing the weight in the face of the forces and powers supplied.

The invention refers to a selective sub-implementation system for exoskeletons. The device has only one power input (e.g. gearmotor) which, through a selector, can deliver power to one body district rather than another in a selective and / or suitably controlled manner. Thanks to this discovery, it is possible to minimize the weight and cost of the complex exoskeleton to significantly increase its usability in real everyday life scenarios.

The main advantages are represented by:

- Simple and light system with the possibility of implementing different outputs using a single actuator.
- Low cost of construction

Drawings & pictures



The system underlying the idea is to have a smaller number of actuation groups than the robotic joints to be operated for the use of an exoskeleton

Industrial applications

The industrial applications are in the field of:

- Multi-joint exoskeletons
- Wearable robotics

Possible developments

The patent technology is in a development phase that is not yet fully mature for the market with the respective products. The TRL is still to be considered low (eg: 2/3) suitable for experimental validation prototypes.

Still numerous other insights are needed by the research team to make the technology effectively applicable to wearable robotics.

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