



Title: RECONNECT - ultra pREcise biONic haNd prosthEsis based on spaCe Transmission
Duration: 15 months
Start date: March 1^o 2021
Closing date: May 31st 2022
Admissible costs: 200.000,00 €
Co-founder: DIH-HERO - Digital Innovation Hub for Healthcare Robotics
Partner:



Project description:

The objective of the experiment is to improve the technological offer for hand prosthesis, associated to a affordable price, transferring the space-originated transmission technology at the base of ESA Contract 18340/04/NL/MV to the medical robot field. In particular, the present experiment aims at improving the mechanical transmission of the hand prosthesis developed by Gruppo FOS Lithuania, by integrating the ultra-compact planetary gearbox of the space subsurface penetrometer for soil investigation of the Beagle 2 lander from the Mars Express mission. Thanks to the employment of this mechanical transmission, the prosthesis will dramatically increase mechanical characteristics such as precision (no backlash), lightness, torque density, reliability and robustness, thus improving the quality of amputee patients.

Within the scope of the TTE, the high cost of the space-originated transmission will be addressed by studying industrial manufacturing processes and improving the design for manufacturing, thereby reducing the cost of the bionic hand.

Furthermore, the prototype will allow the user to control the applied strenght during a task, restoring the pressure feeling, restoring the sensation of hand pressure and applying it to different sensing options by inspecting the LED scale or electrical stimulation from additionally placed electrodes.



**Technology Transfer
 Experiment Open Call 2020
 under the DIH-HERO
 innovation action**