LARM2: Laboratory of Robot e Mechatronics
www.larmlaboratorynet
Prototype design and testing of TORVEastro, cable-driven astronaut robot

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Background

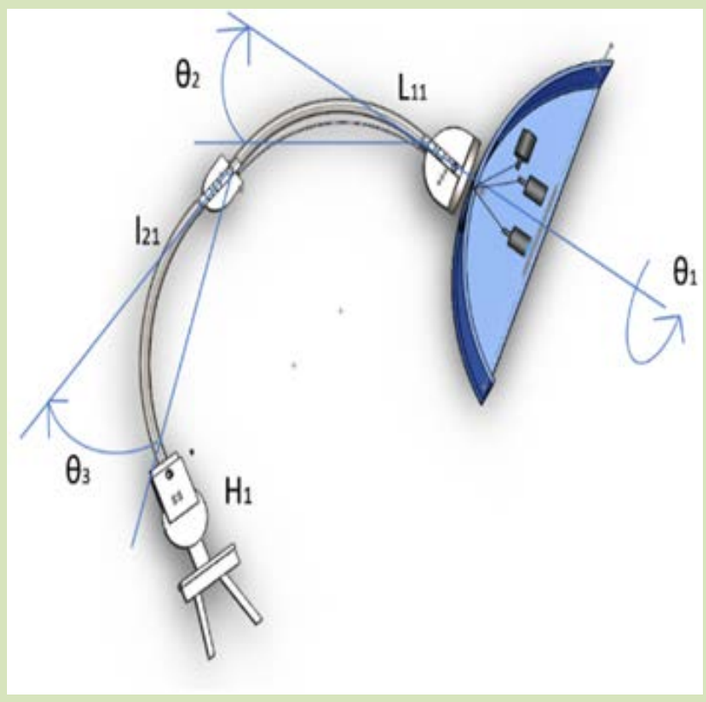


Fig. 1 A CAD model for mechanical design of TORVEastro

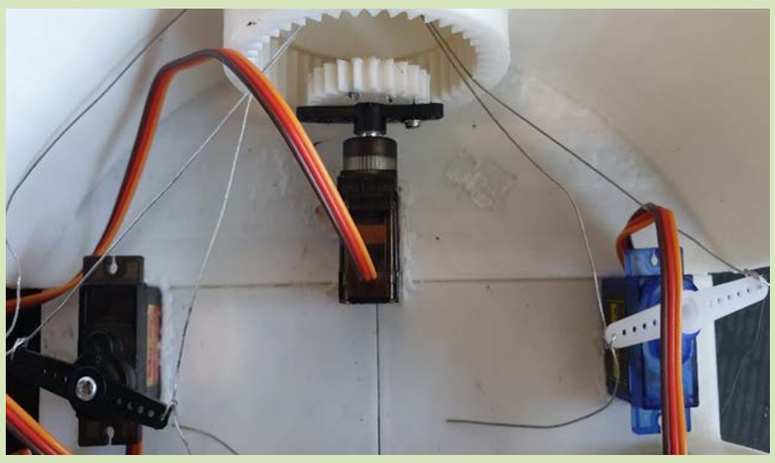


Fig. 4 Transmission design in TORVEastro

Performance

Fig. 2 Details of actuating solutions and dynamic aspects.

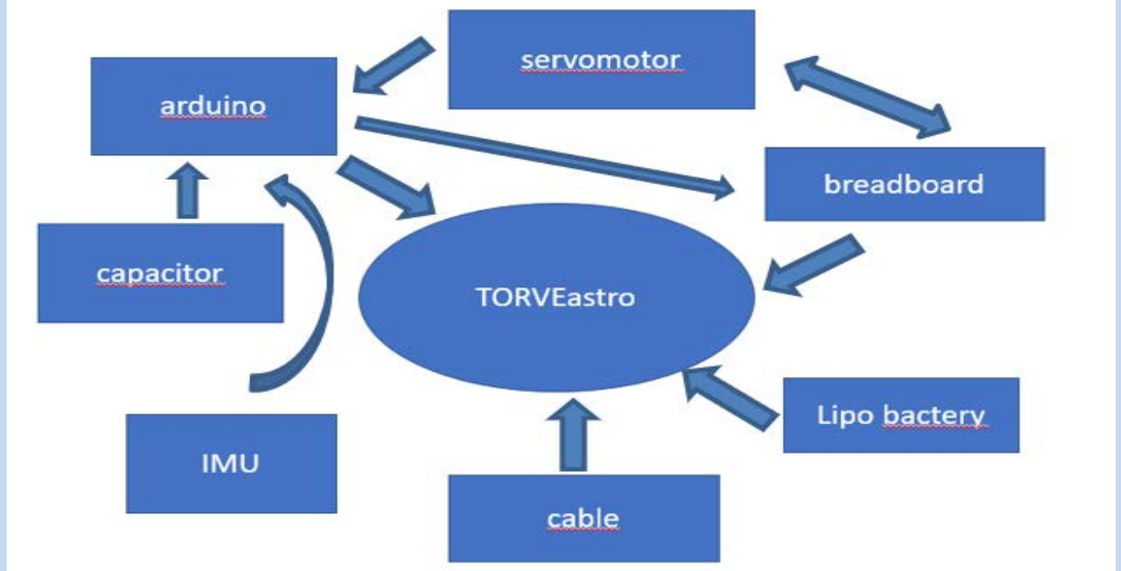


Fig.6 A testing layout of TORVEastro

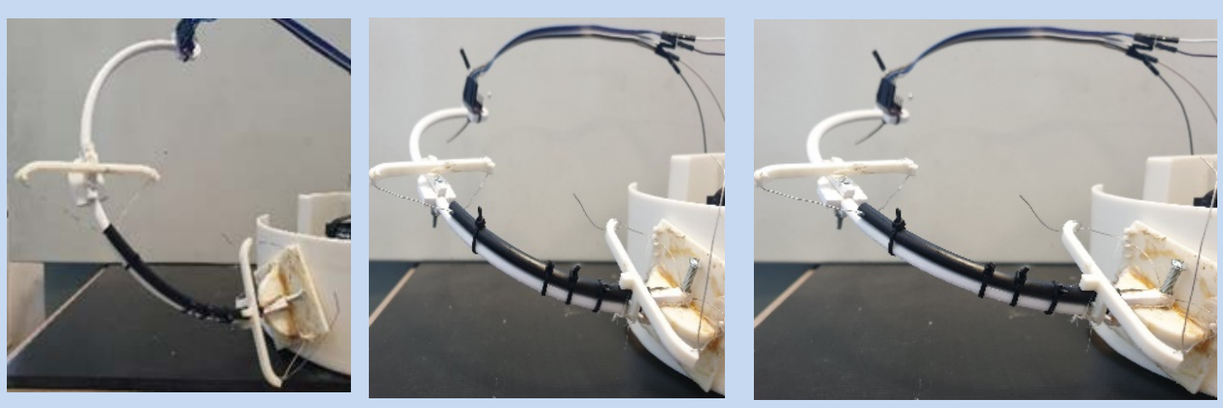


Fig. 5 A snapshot testing.

Design and Prototype

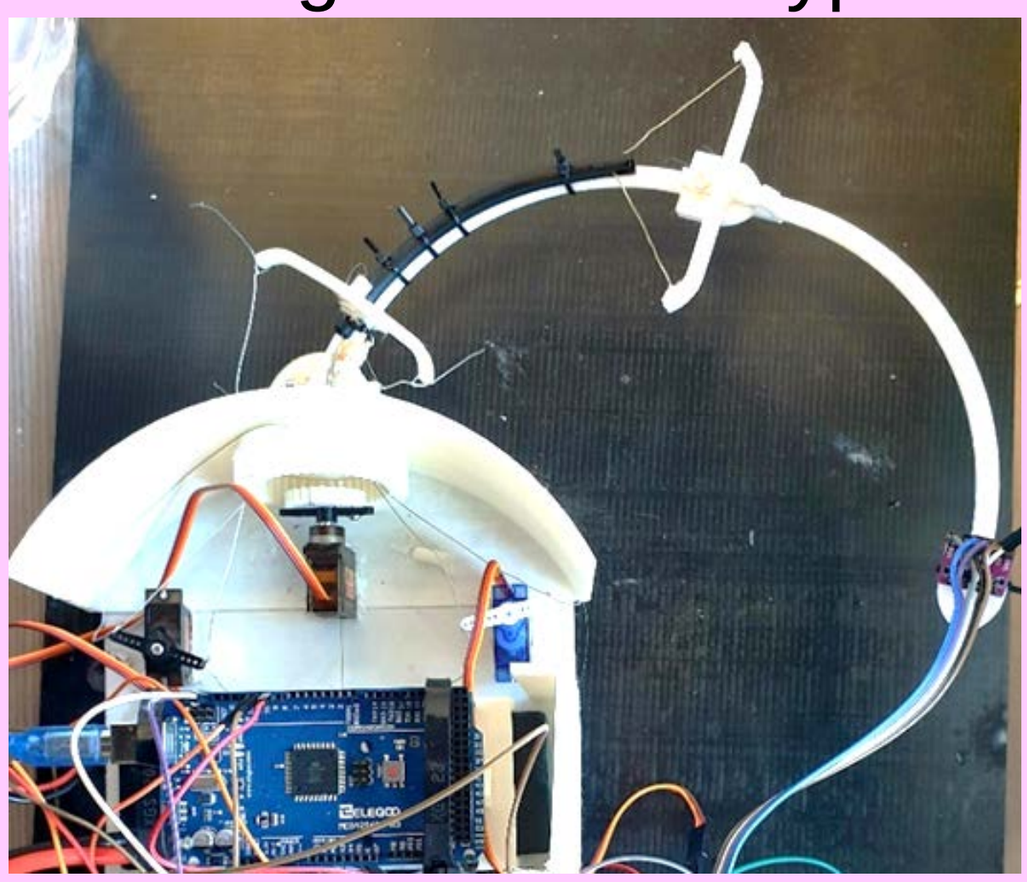
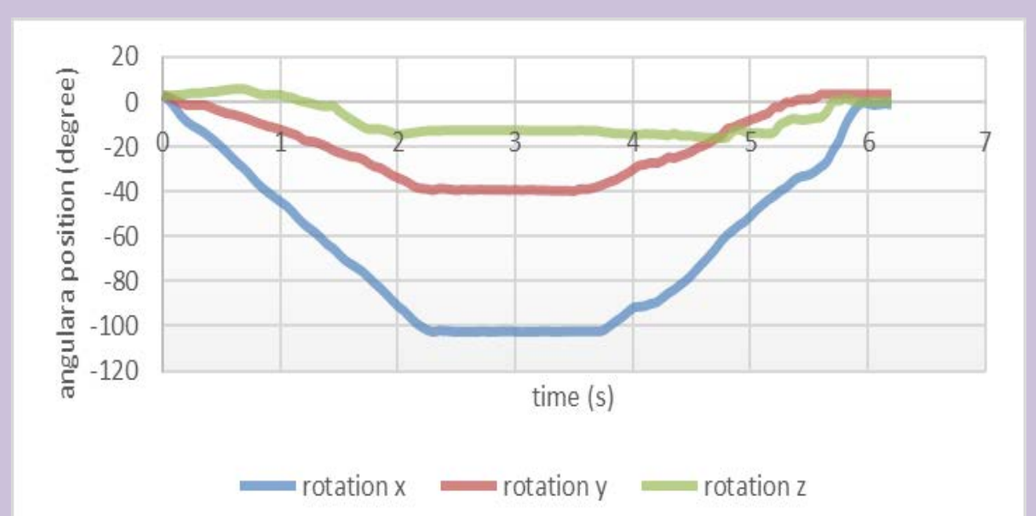
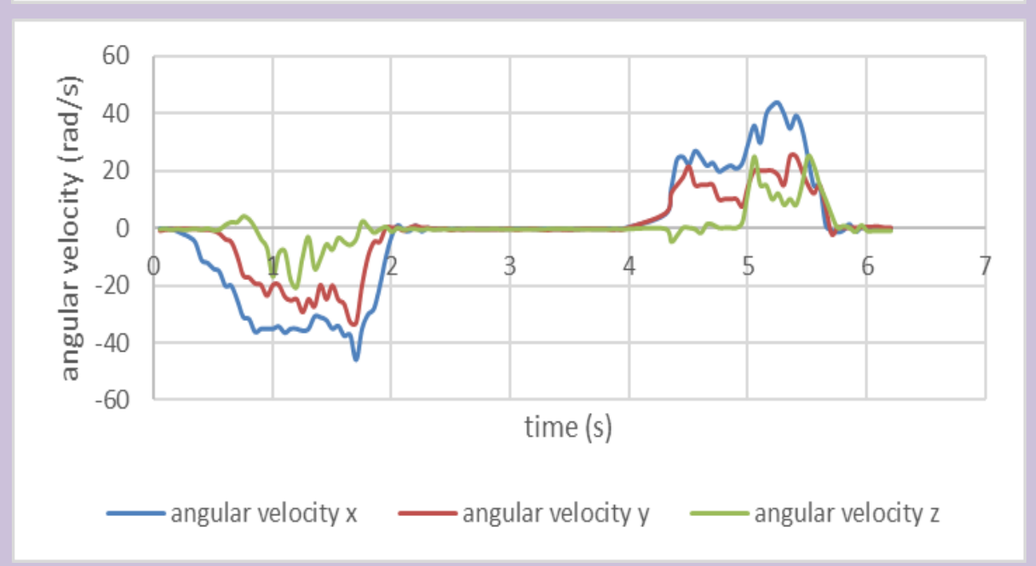


Fig. 3 A built prototype at LARM2 in Rome.

Test results





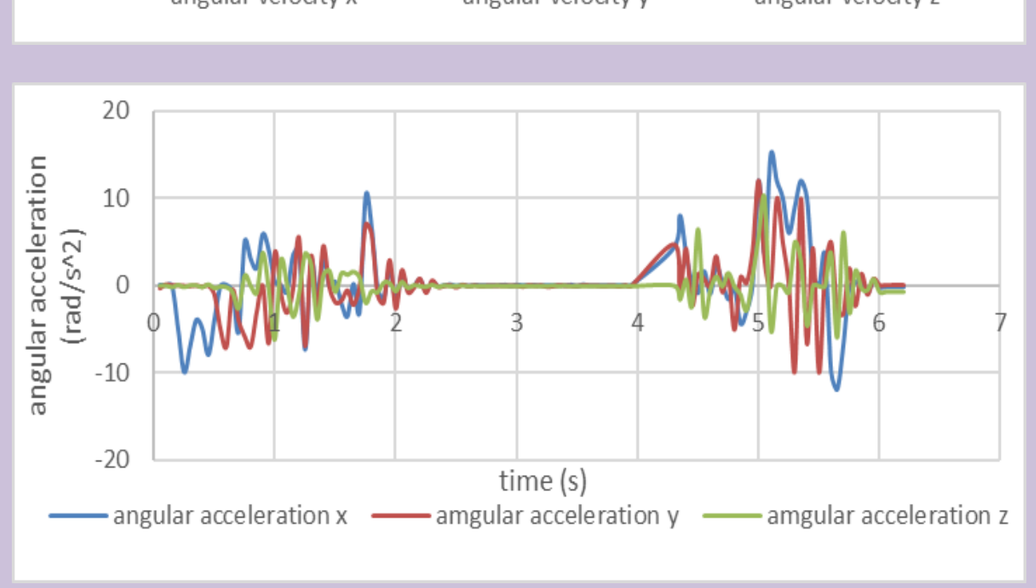


Fig. 7 Experimental results

Main References

- F. Samani, M. Ceccarelli, Design and performance simulation of TORVEastro three-link as-tronaut robot, IOP Conference Series Materials Science and Engineering, (2019)
- M. Ceccarelli, M., H. Li, G. Carbone, Q. Huang, Conceptual Kinematic Design and Performance Evaluation of a Chameleon-Like Service Robot for Space Stations, International Journal of Advanced Robotic Systems, (2015)