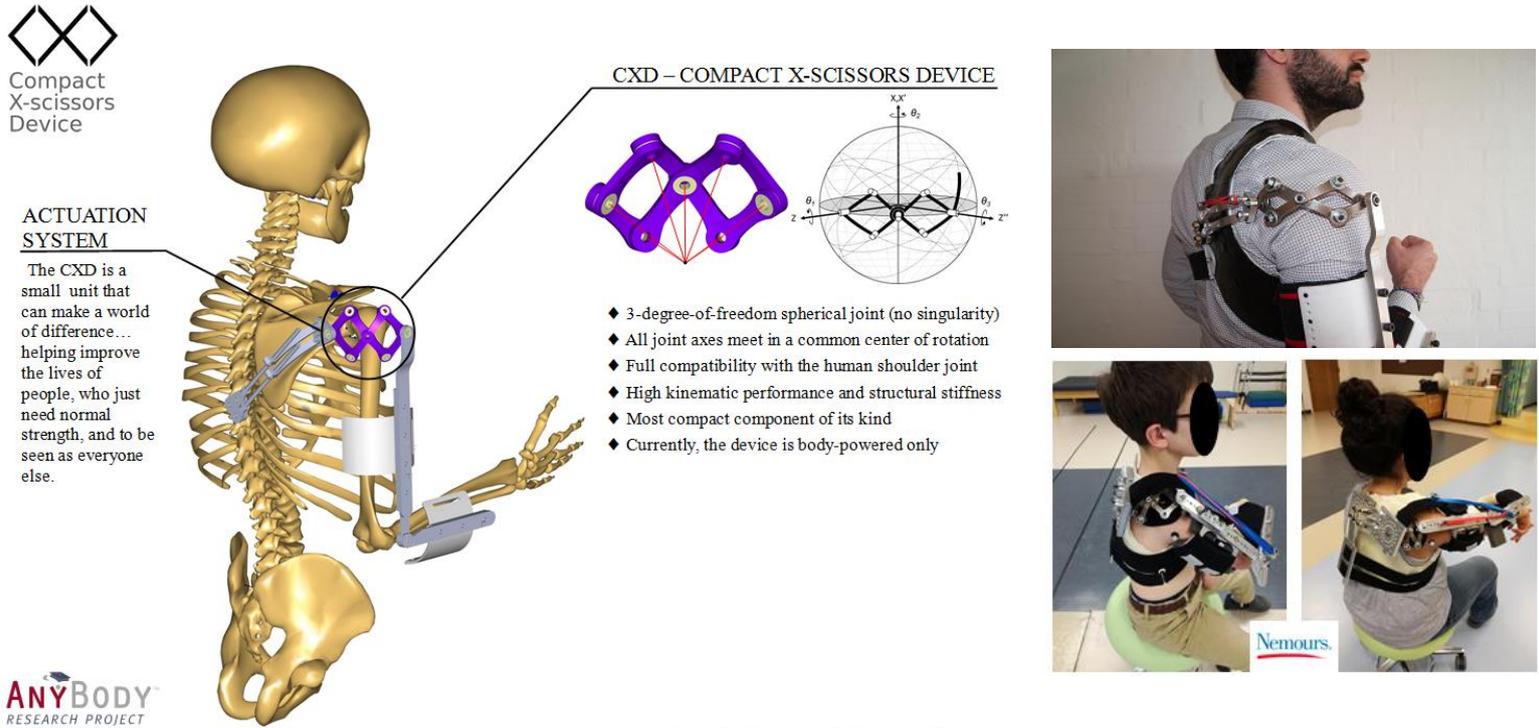




# COMPACT X-SCISSORS DEVICE



## Value Proposition/USP

The commercial potential of the Compact Joint for 3D Spherical Motion is particularly related to the combination of the

- Scalability and Compactness of the joint minimizing the need for space around a center of motion, and the
- High degree-of-freedom to design the joint to fit a specific purpose ( including the size of a person, when used in exoskeletons), compared to other known joints, as the curvature and size of individual linkages can be optimized for the required movement, securing
- High degree of control and precision, and enabling full range of motion, with three degrees of freedom.

## Business Opportunity/Objective/Commercial Perspectives

Paralysis in the upper extremity can result from traumatic injuries, congenital diseases, stroke, and aging in general. It can make independent life difficult and disable daily activities such as feeding and personal grooming. Exoskeletons can provide assistance and rehabilitation. The majority reject existing well performing devices because they are either bulky, heavy and impractical or do not have a solution for the shoulder complex. A compact solution that can fit and hide underneath clothing may drastically improve the acceptance of these devices and make them actually wearable. Enabling the impaired to achieve normal function and/or enables healthy people to perform heavy lifting, or endure loads for long periods without causing injuries.

## Technology Description/Technology Summary

The CXD (short for Compact X-scissors Device) is a spherical scissors mechanism capable of three rotations, thereby mimicking the behaviour of a spherical joint. The mechanism moves on an imaginary sphere with a constant rotation centre and an arbitrary radius determined by the design parameters. Since there is a void space within the mechanism, it is suitable for applications where the mechanical parts surround a given object or workspace. The mechanism is particularly well suited to support anatomical, spherical joints such as the shoulder and the hip, thereby solving a problem that has been haunting the fields of orthotics and exoskeletons for decades.

## Development Phase/Current State

Proof-of-concept prototype made of aluminum and steel has been tested successfully as a highly compact shoulder joint in an upper body exoskeleton configuration. Watch the invention here: [https://youtu.be/Pw\\_esFdwGmo](https://youtu.be/Pw_esFdwGmo)

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### Seeking

- Funding/Investors
- Licensee
- Partner/Research Collaboration

Patent Pending

MedTech and Diagnostics