Researchers at the University of South Florida have developed an Orthotic Gripper that is intended to augment the gripping capability of disabled people.

This invention is an assistive device intended for augmentation, where gripping capability is accomplished by enhancing the user’s grip by means of an assistive mechanism attached to the hand(s). This device is controlled by the angle to which the user bends his or her wrist. The angle of the user’s wrist is measured by a flex sensor, which sends a signal to a motor that ultimately creates a closing (gripping) or opening (releasing) motion. As the user bends his or her wrist towards their body a gripping motion is achieved, and, conversely, bending the wrist away from the body achieves an opening motion.

The inventors have designed the orthotic gripper to be compact, lightweight, and comfortable. This invention allows individuals with C5-C6 spinal injuries to become more independent, specifically allowing users to grasp items effectively and securely while using just one hand. It is also designed with a one degree-of-freedom gripping system such that simple flexing motions of the wrist control the open and close motions.

Our inventors’ orthotic gripper prototype gave an effective proof of concept for a complete motion control gripper. Through testing, it was demonstrated that the system could easily grasp and hold many common household objects.

ADVANTAGES:
- Compact design
- Scalable
- One degree of freedom gripping method and flex sensor
- Assist people with C5-C6 spinal injuries
- Cost effective and inexpensive

Assistance for Quadriplegia

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