



## Prosthetic Hand

Current mechanical prosthetic hands tend to be designed either with appearance in mind, rather than functionality, or are functional but not aesthetically appealing. Prosthetic hands that are both aesthetically appealing and functional are often very costly.

This cost effective, mechanically operated prosthetic hand, which allows the patient to use the amputated hand to perform everyday activities, is functional and aesthetically appealing. Whilst the device is mechanically operated, other high-end models will incorporate myoelectric sensors and motors to operate the hand.

A fully functional prototype has been developed and positive feedback has been received from prosthetists regarding its functionality and usability. Further refinements are being made, along with the development of an external 'glove' for aesthetic appeal.

The device was awarded the Popular Mechanics 'Inventor of the Year' Award in the 'Cutting Edge' category.

### Benefits

- It grants patients independence to perform their daily activities, and fingers operate independently to grasp a round object
- Ergonomically designed, mimics standard anatomy
- Low cost of manufacture and easy maintenance with the ability to be upgraded to a myoelectric device

### Market

Public healthcare, therapists, NGOs, and upper limb amputees

### Technical Description

The current mechanical prosthetic hand comprises four fingers and a thumb, which are movable to enable the hand to take on a position of an open, partially closed and fully closed hand. The hand has a metal cord at the wrist that is either released or pulled in a direction parallel to the fingers. By pulling the cord, the fingers will grip until the hand is closed. The cord works together with a knob, adjacent to the fifth metacarpal. When the knob is manually rotated or pushed the fingers become locked in position. The thumb is attached by a swivel to rotate and move either towards or away from the fingers.

#### Keywords:

MRI, patient tracking, MRI orientation, image correction

#### Intellectual Property Rights:

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#### Technology Readiness Level:

6 - Advanced prototype

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