

**Docket #:** S18-211

# Third Arm: Smart, Wearable, Robotic device

Stanford researchers at the Salisbury Lab have prototyped a wearable, articulated robotic device that can be attached to a person at the hip or other location to augment human task productivity. This mechanical "third arm" has many uses such as assisting abled users (e.g. holding additional tools to enhance work), helping disabled users (e.g. providing support and lifting objects), and as a haptic interface for interaction with robotics systems and AR/VR experiences. This invention incorporates the latest robotic technology with a newly designed 4-state brake mechanism in joints for advanced operations.

Beyond traditional research in wearable robotics, this work focuses on the creation of symbiotic combinations of powered, increasingly intelligent devices that work intimately with human's physical abilities to augment and extend their skills and task performance.

## Figure



**Figure description** - Next generation arms and user interface

## Stage of Research

- Prototypes completed and successfully tested

## Applications

- **Augment productivity of abled users.** Examples include:
  - People holding objects such as flashlights, drinks, plates, or personal care items while performing other two handed tasks
  - Construction workers holding more tools to work faster
  - Combat forces holding ammunition and other apparatus
- **Assist disabled users.** Examples include:
  - Elderly persons with reduced motor function using device to stabilize or hold objects
  - People with limited motor ability execute daily tasks
- **Haptic interface** for interaction with remote robotics systems and AR/VR experiences.
- **A smart physical assistant** that could perform actions in response to human requests, including those given by keyboard, myoelectric, verbal, gaze and other methods

## Advantages

- **Enhances human task productivity**
- Provides user an additional means of grasping or supporting objects
- Incorporates the latest robotic technology with a newly designed 4-state brake mechanism in joints for advanced operations
- This field of research differs radically from traditional areas of prosthetics, orthotics, exoskeletons, wearable robotics and industrial robotics. The focus is on the creation of symbiotic combinations of powered, increasingly intelligent devices that work intimately with human's physical abilities to augment and extend their skills and task performance.

## Patents

- Issued: [10941821 \(USA\)](#)

## **Innovators**

- J. Kenneth Salisbury Jr.
- Peter Lowe
- Austin Epps

## **Licensing Contact**

### **Chris Tagge**

Technology Licensing Program Manager

[Email](#)