

# Prosthetics

A **prosthetic** implant is an artificial device that compensates for a missing body part. It could be lost through trauma, disease, or



a condition present at birth (congenital disorder). Prostheses restore the normal functions of the missing body part.

Since the last decade,

technological advancements have grown exponentially so has the population and the need for less expensive and more innovative products for persons with disabilities. All this has boosted the market growth rate for all domains of disability, the global artificial limb market is expected to reach USD 705 million by the end of 2027 with a compound annual growth rate of 3.1%.

Prostheses/Prosthetics can be created by hand or with



computer-aided

design (CAD), a software interface that helps creators design and analyze the device with computer-generated 2-D and 3-D graphics as well as analysis and optimization tools. It can also be integrated with artificial intelligence to make it more versatile and capable.

There are famous brands in the industry, such as Ottobock with a Research and Development center located in Germany, [Ossur from Iceland](#), and [College Park Industries](#), from the US.



## Makers Hive

CEO & Co-Founder: Pranav Vempati

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**Mission** - To provide access to the best and India's first fully functional Bionic Hand to upper limb amputations from a quantum of over 40 million people in need of prosthetics at an affordable price keeping the economic challenges from the developing world in mind.

They have made it possible to bring the people with amputations together by developing a fully functional, customizable, and mobile app-enabled Bionic Hand - [KalArm](#), named after Dr. Kalam as a homage, to address the problems of 40 million people globally, of which India alone holding about 6 million in need of prosthetic assistance.

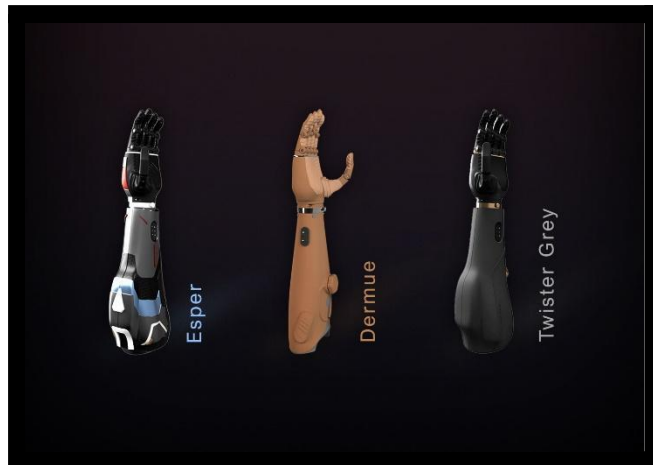
## Product



### ***AFFORDABLE AIDE FROM FUTURE: KalArm***

[KalArm](#) is India's first fully functional Bionic Hand, with 18 pre-defined grips and bespoke aesthetics. Designed and Developed in Hyderabad, India, KalArm is a 3D-printed, EMG

sensors embedded, lightweight and affordable bionic hand, targeted at both National and Global markets of persons with upper-limb below-elbow amputations that can give India an edge to become globally competitive in the Prosthesis Industry.



It is made available in 3 different palm sizes: Small, Medium, and Large with forearm sockets varying from user to user alongside the option to customize colors of outer shells/panels to the user's liking.

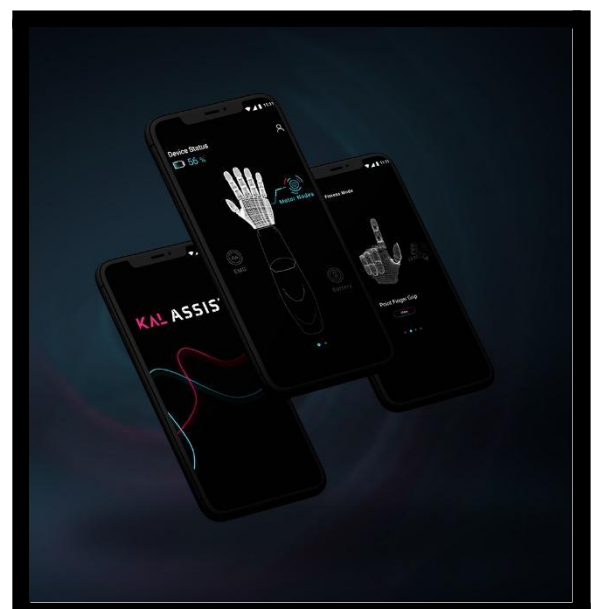
At Makers Hive, they believe Health-Tech does not need to be reformed, it needs to be transformed. The key to this transformation is not to standardize but to personalize the

prosthetics sector and KalArm – a disruptive product for the genesis of a new era - is their solution.

[Pre-order at](#)

### Features

- **Smart Battery** - Easy rechargeable on-fit battery. Percentage of charge can be viewed in the mobile application.
- **Custom Panels** - Users can now opt from a plethora of interchangeable panels.
- **Firmware Update** - No more queuing up for updates, we bring you Over-the-Air device updates.
- **Agility** - Our product equips the user with the capability to lift up to 8 Kgs of weight effortlessly.
- **Multiple modes** - Offers 4 modes: Office Mode, Kitchen Mode, Sports Mode, Lite Mode.
- **Performance monitor** - Monitors the health of the device, functioning of the sensors, and motor interface through the mobile application.



- **18 Predefined grips** - A diverse range of gripping positions to equip users with unhindered agility.
- **Android Supported** - Through our mobile application, we provide a better user experience.

## Ottobock

R&D Headquarters: Germany

Sale: USA

Mob: 800 328 4058

Ottobock is a med-tech company and works in developing products like a prosthesis, an orthosis, a wheelchair or an exoskeleton. They also provide services that take care of the full treatment cycle all over the globe. These services are provided under the Ottobock SE & Co. KGaA name, which began in 2018 to channel the company's med-tech expertise also into sustainably healthy workplaces.

They develop different prosthetics solutions for different body parts, these include

- Prosthetic Socket Solutions
- Prosthetic Hip Solutions
- Prosthetic Knee Solutions
- Prosthetic Foot Solutions and more.

- Body weight: 125-150 KG (depends on type).
- Sizes: 21–30 cm.
- Slim shape for 15 mm heel height (sizes 21–27 cm).
- Normal shape for 10 mm heel height (sizes 24–30 cm).
- Weight without foot shell: approx. 460 g.
- Structural height with normal foot shell: 149 mm



*Triton 1C60 Prosthetic Feet*

- The anatomy of the natural foot is reflected in the characteristic, curved, triangular form of the Triton prosthetic feet.
- Pyramid adapter made of lightweight aluminum.
- The split forefoot spring allows the foot to adapt to uneven surfaces. It offers energy return, stability, and control at rollover and toe-off.

- The high-performance polyester split base spring has a separate big toe and connects the forefoot and the heel spring to form a complete unit.
- The attachment spring made of carbon fiber material gives the foot the required stability.
- The heel spring dampens the impact at heel strike and stores the energy for a smooth rollover.
- The optional heel wedges provide a simple method for adapting the Triton to the individual needs of the patient.

## Inali Foundation

Founder: Prashant Gade

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Prosthetic is a wide field that has a variety of products starting from upper limbs to implants. [Inali Assistive Tech](#) is currently focusing on upper limbs and other related products to upper limbs like elbow joints, wrist units partial hands prosthesis, etc. [What do we do?](#)

Inali foundation, in 3 years has provided over 1500 upper limbs to people from all across India. Most of the patients of Inali foundation are people who could not afford any kind of prosthetics or any medical assistance related to disability. The two variants of upper limbs that Inali foundation has distributed are simple [silicon-made cosmetic gloves and Mayo arm](#). The entire limb is manufactured and assembled in India.



## Inali Product

- [The Gesture-based arm](#) is controlled using your foot gesture, the arm has a battery, a charger, and an ankle



sensor. The Arm goes for 48hrs with one single charge (always depends on patient use). The charging time for the battery is one and a half hours.

- [The switch-based arm](#) works when the patient touches the switch, to open and close the patient needs to touch the switches. The Arm goes for 48hrs with one single charge (always depends on patient use). The charging time for the battery is one and a half hours.

## Steeper

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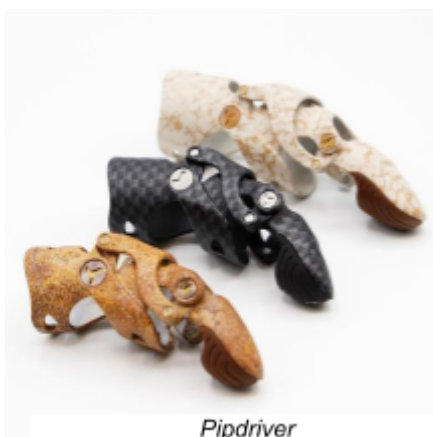
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Steeper delivers world-leading technologies and products, alongside responsive clinical services across the fields of prosthetics, orthotics, and assistive technology, their mission is to create turning points that empower patients and fundamentally, enhance people's lives. They have also been designing and installing environmental controls and communication for specially-abled people. They have been 100 years old and have a large number of partnerships for example from naked prosthetics, Quha Zuho and, Smartboxe, etc.

Their products in prosthetics include.

- Upper limb products
- Lower limb products
- Custom silicon solutions
- Clinical Services



*Pipdriver*

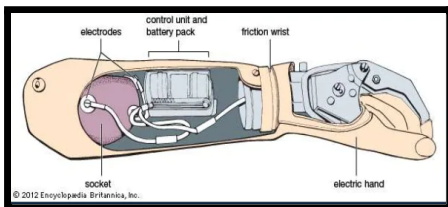


*Victor Knee*



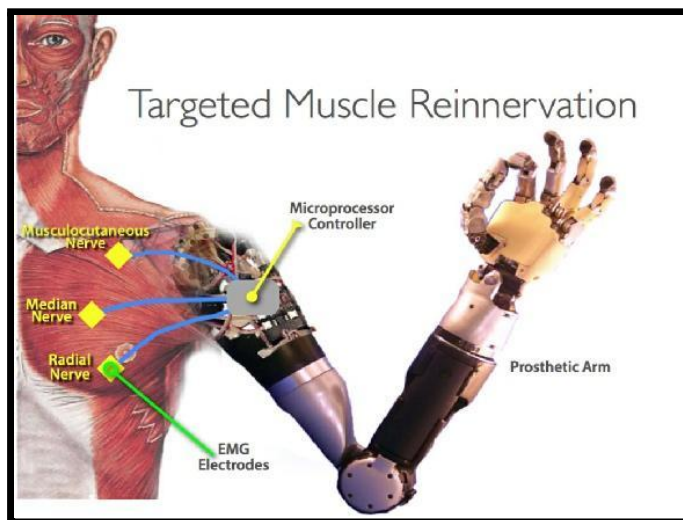
- Water resistant, body driven, lightweight.
- Voluntary opening, ring tensile strength: 27Kg
- Material: Nylon 12, Silicon & Titanium.
- 1 years of warranty.
- Bespoke ring fabricated to the patient's residual digit size and length.
- Heat resistance: < 175°C (347°F)
- Aluminium body with weight limit 125 Kg.
- Total weight 710g.
- Pneumatic Swing Phase, single axis.
- 2 years of warranty.
- Total height 20.4 cm.
- Weight activated friction break.

## Innovations



- Myoelectric Prostheses: More Sensitivity, Better Functionality - Sensors are positioned along the surface of the myoelectric prosthesis to function as sensory interfaces. Electrical impulses from the body's neuromuscular system are picked up by the

sensors and translated into the active movement of an electric-powered prosthetic hand, wrist, or elbow.



- 3-D printed products, less cost, quick delivery, and easy for growing children's. One such company working on this idea is [Ambionics](#). It is dedicated to providing functional prostheses for children and understands that a device needs to change as a child grows. It capitalizes on multi-jet fusion 3D Printing technology to create advanced prosthetic limbs. To know more information watch [YouTube](#).

### *Product features by Ambionics*

|  | <i><b>Ambionics Functional<br/>Passive</b></i> | <i><b>Ambionics Cable<br/>Operated Terminal<br/>Device</b></i> | <i><b>Ambionics Body Cable<br/>Operated Terminal<br/>Device</b></i> |
|--|--|--|---|
| <i>Custom Made, soft inner<br/>socket</i>  | Yes  | Yes  | Yes   |
| <i>Super lightweight,<br/>ultra-tough nylon outer<br/>socket</i>   | Yes  | Yes – with an Integrated<br>cable mount                        | Yes – with integrated<br>cable mount                                |
| <i>Quick-change modular<br/>adapter for use with<br/>other Ambionics<br/>products and accessories</i>    | Yes  | Yes  | Yes   |
| <i>Colour matched rubber<br/>digits for improved grip,<br/>shock absorption<br/>and aesthetic appeal</i> | Yes  | Yes  | Yes   |
| <i>Customizable<br/>color schemes</i>  | Yes  | Yes  | Yes   |
| <i>Spring-loaded<br/>mechanical thumb<br/>(for manual operation)</i>                                     | Yes  | Yes  | Yes   |
| <i>Ambionics<br/>terminal device</i>   | X  | Voluntary opening  | Voluntary close   |

For customizing your own product at Ambionics visit [here](#).