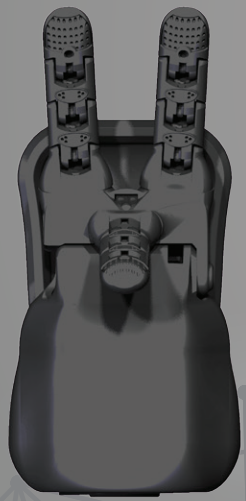
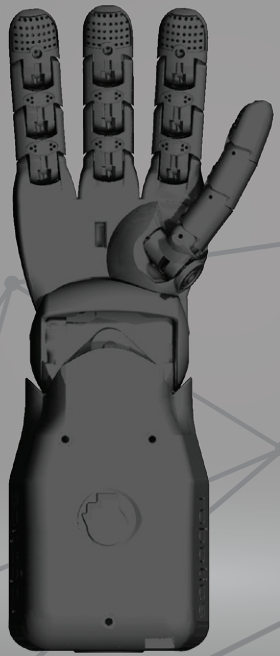
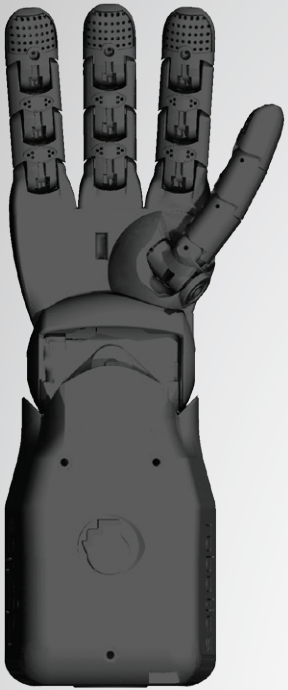
seed robotics





NEW

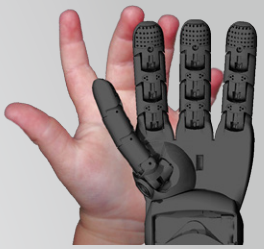
FTS Tactile Pressure Sensors
Contact force measurement
3 axis, 1mN resolution



RH6D Child-size Robot Hand

Human-inspired, child-size robot hands

The RH6D offers similar features of the larger RH8D, in a more compact form factor. Suitable for smaller Humanoids (up to 1.2m tall) and Robot Arms.



Dexterity

The RH6D features 15 degrees of freedom, including opposable thumb.

3-segment, fingers are independently controlled by smart actuators.

Advanced Sensing and Data Acquisition

Real time feedback of position, speed, PWM output and current sensing for each smart actuator, enabling force estimation.
Palm distance sensor
Capacitive Touch areas on the back of the hand (optional)

Technical Data

Payload (3D space): 450g
Payload (vertical pull): 750g
Weight: 305g

Main processor: 32 bit ARM Cortex M
Interface: RS485 and USB
Power supply: 12 ~24V

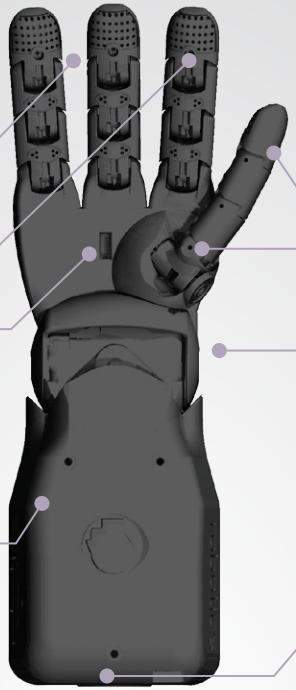
RH6D Child-size Robot Hand

Under actuated design

. 15 Degrees of Freedom

. 6 Smart actuators for precise control

The under actuated design aims to provide the right balance between fine control and conformance to the shape of the objects.



Ring finger and Little finger flexion with tendon tension equalization (6)

Index finger flexion (5)

Time of Flight Distance Sensor
Accurately detects proximity and presence of grasped objects

All the Smart Actuators and control modules are contained inside the forearm in one compact unit.

Opposable thumb (2 actuators):
Thumb flexion (4)
Thumb adduction (3)

Wrist Flexion (2)
Wrist Rotation (1)

ISO 9409-1-50 mounting adapter for direct assembly on most Robot Arms. Custom mounting adapters also available upon request.

For videos of the RH6D in action visit
https://tinyurl.com/rh6dchildsize

Human-inspired with Dexterity and Expression capabilities

The RH8D and RH6D models present a human-inspired design, with *opposable thumb*.

The opposable thumb enables the execution of most human grips, and a wide range of hand expressions in H.R.I. scenarios.

For advanced H.R.I., select models can be optionally fitted with *capacitive touch areas* on the back of the hand.

Sensors and Data Acquisition

The smart-actuators provide real-time, high frequency feedback of *position, speed, PWM output and high-resolution current measurement*.

Combining the *high-resolution current measurement* with the additional parameters, users may *infer force information*.

A distance sensor on the palm reports the proximity or presence of objects.

Tactile Pressure Sensors (FTS Sensors) can also be installed on the fingertips for accurate contact force measurement. Resolution of 1mN in 3 axis (FTS-3D) and 1 axis (FTS-1D) variants.

Physical Interfaces

UART up to 3Mbps (user-configurable, 1Mbps standard) over RS485

USB Interface: Text console, for Configuration and Maintenance

Bluetooth Wireless Interface (optional)

Reliability and robustness at the core of our design

All models feature a *magnetic finger detachment* system that protects finger joints in the event of impacts.

Dyneema (a Kevlar fiber) tendons are used for maximum durability.

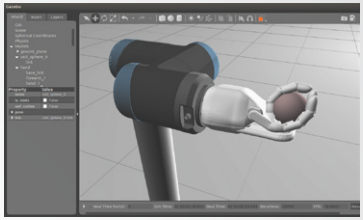
Specially designed elbow attachments, with reinforced shell construction, ensure the best protection in case of an impact.

Command and Control

Open Source ROS Package

Python (PyPot)

Low-level Serial Protocol (UART)



3D Simulation models. Available in URDF format.

Technical Specifications

Operating Voltage: 12V~24V

Embedded Processor: 32 bit ARM Cortex M