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Full-Sized

Caplex® System

The ideal hardware and software platform for exploring, developing, and testing the benefits of wearable assistance, training, rehabilitation, or augmentation strategies. Powered and controlled by off-board motors and computers, Caplex® provides exceptional performance and versatility to meet even the most challenging requirements. The modularity of the platform enables us to meet your unique needs without lengthy custom-development cycles, just let us know what sort of exoskeleton, prosthesis, or other wearable robotic system you are looking to build!

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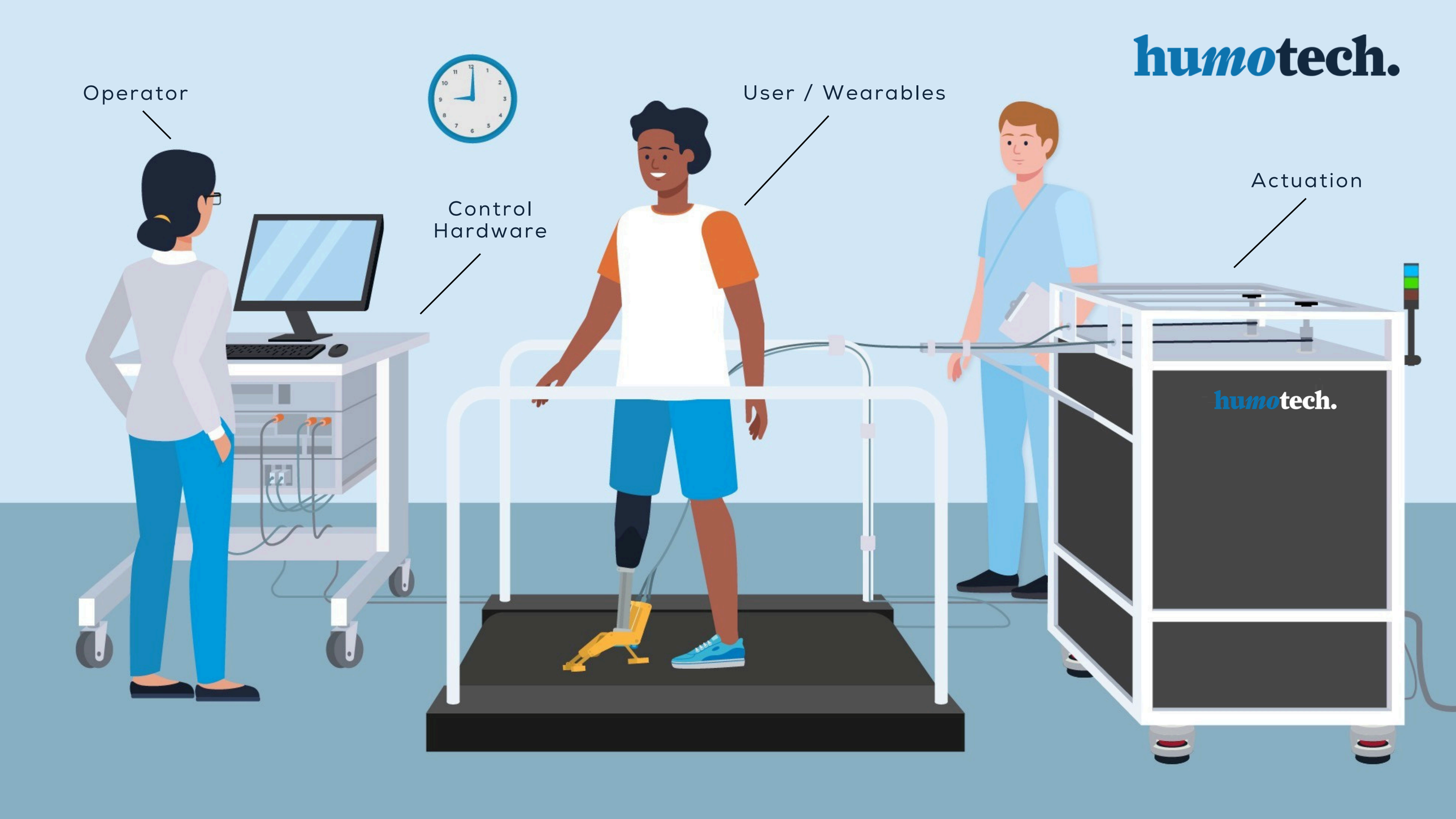
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Operator
Control Hardware
User / Wearables
Actuation
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WHAT'S INCLUDED

Actuator Units - High torque and power actuators to provide an extremely wide range of forces and speeds needed for a variety of applications and user types.

Control Hardware - High performance real-time computing with a wide selection of analog and digital I/O and communication protocols.

Host PC - Windows-based operating system for running the Humotech software and controllers.

Caplex® Software

- Graphical User Interface (GUI)
- Controllers
  - Generic template controller
  - Device-specific controllers
- Utility Functions

Wearable Device(s) - Lightweight, high performance, modular wearable end-effectors.

Documentation and support by wearable robotics experts

WHAT'S NOT INCLUDED

Your wearable device designs - with our standardized actuation and control hardware, you can design, develop, and attach your own custom devices.

Your custom controllers - with our low-level control system in place, and pre-built template or example controllers, you can customize or build your own controllers to explore any paradigm.

All possible sensor types*

Custom design work*

Custom Research & Development*

*All of these elements together empower customers to get started with testing, focus on controller development, and dive into practical and functional wearable design. At the same time, Humotech benefits from this architecture to develop bespoke controllers and novel hardware to aid and enhance human capability.

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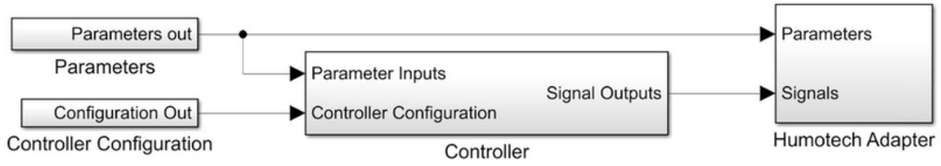
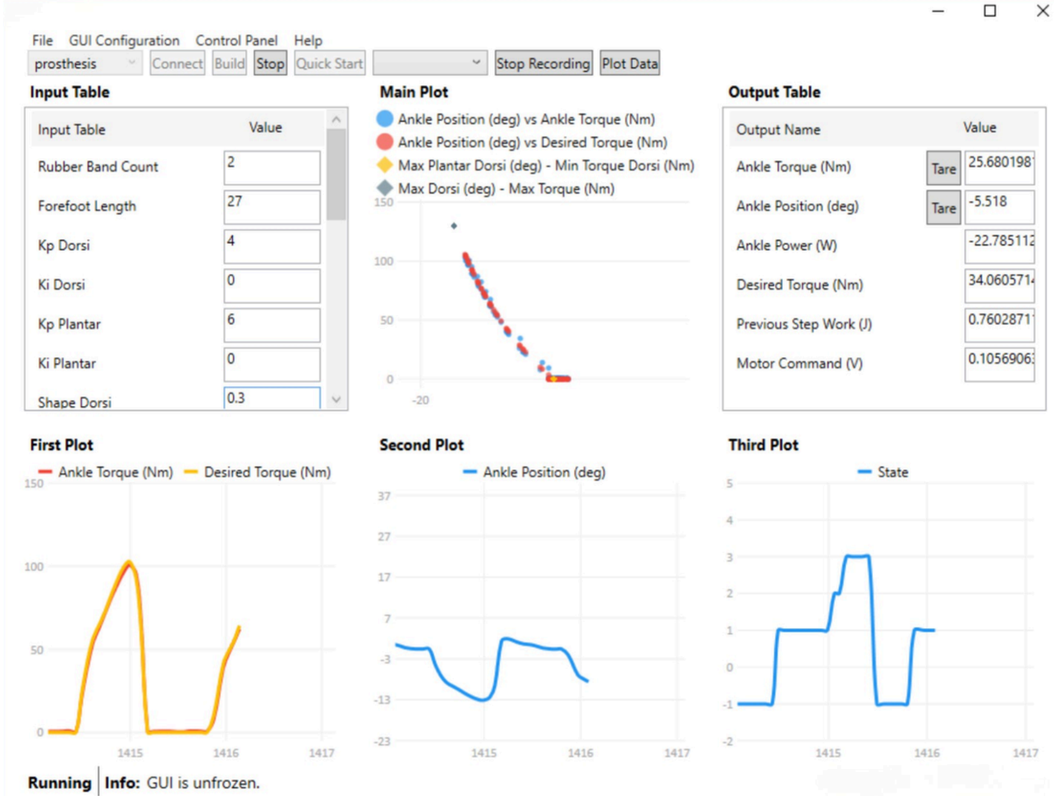
Software

Development & Operation

- Everything is modular! One GUI can accommodate any controller design*, the template controller is intended to be modified by both expert and novice developers
- Start testing from day one with existing Humotech controllers for Humotech wearable devices (or another device with compatible hardware)
- Intuitive and clean GUI provides standard operator interface with the ability to customize the display
- Standardized controller architecture to streamline development and collaboration
- Template controller is designed with ease of use and user experience prioritized
- Building on Humotech's years of experience, custom controller development services can be purchased





*Following Humotech's naming conventions for parameters and signals

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Control Hardware

Off-Board

- Everything is modular! One I/O and Control unit can accommodate dozens of types of signals and sensors
- Simplifies setup and routing of signals to and from external control elements (actuators, sensors, wearable devices, etc.)
- Powerful hardware eliminates practical concerns about computational power for controlling wearable devices
- Comes with expansive set of available analog and digital I/O with further expansion is available by special request
- Designed with Mathworks/Simulink software in mind allowing for considerable support and interface functionality
- Can be positioned on a server rack, desk surface, or shelf

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Actuator Units

Off-Board

- Everything is modular! Control 1 axis or hundreds by daisy-chaining multiple single- or multi-axis units together
- More power, torque, and speed than you could ever need
- Quiet, high-prevision feedback and control using industry-standard communication protocol (EtherCAT)
- Allows for velocity (default for use with Caplex® force/torque controllers), position, or torque control
- Mobile units enable flexibility in room layout and system configuration
- Designed to interface with custom/non-Humotech control systems and wearable devices or other end-effectors as needed

Multi-Axis

Single Axis

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Wearable Devices

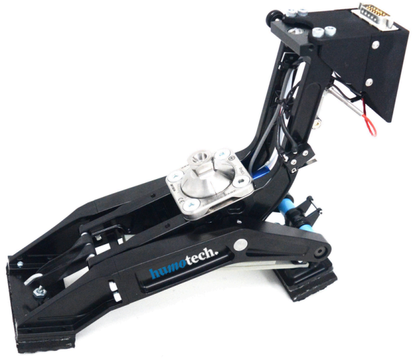
+ Other End Effectors

- Caplex® wearable devices are designed to be plug-and-play, high-performance, and configurable. Through adjustable and swappable parts, they can accommodate almost all users
- Humotech is constantly expanding and improving the line-up of Caplex® wearable devices, all utilizing our standard actuation and control interfaces
- Need something new or special? We'd love to incorporate your requirements/feedback into future designs, or, you can develop your own custom end-effector. We can even talk about custom development!

EXO001

EXO010

EXO04



PRO002

PRO003

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