



Solutions for teaching and research in robotics and autonomous systems

Modern robotics spans a complex range of applications and platforms. Quanser is the only company taking a comprehensive approach to robotics tuned to the academic environment. Whether you are developing advanced algorithms as part of an ambitious research program, or you need state of the art technology and thinking to teach the next generation of robotics engineers, the Quanser product line has the perfect option for your needs. All Quanser robotics products offer the performance, quality, and flexible software architecture you need to accelerate application development and innovation.



Mobile Robotics

Many consider mobile robotics to be the most dynamic engineering specialization today. Whether you are engaged in ambitious research applications or teaching the next generation of engineering leaders, you need a robotics solutions optimized for the academic environment. Quanser's mobile robotics solutions offer a unique combination of advanced hardware with a powerful software framework powered by Quanser's renowned QUARC® built on the MATLAB®/Simulink® platform. Quanser offers options for ground and aerial vehicle applications featuring the latest processors and flexible support of sensors. Combine them together to create a UVS Lab that offers full localization and a comprehensive platform for multi-agent applications.

QBall 2

Open-architecture unmanned aerial vehicle (UAV) solution optimized for advanced mission research in indoor environments.

High performance, open and customizable platform

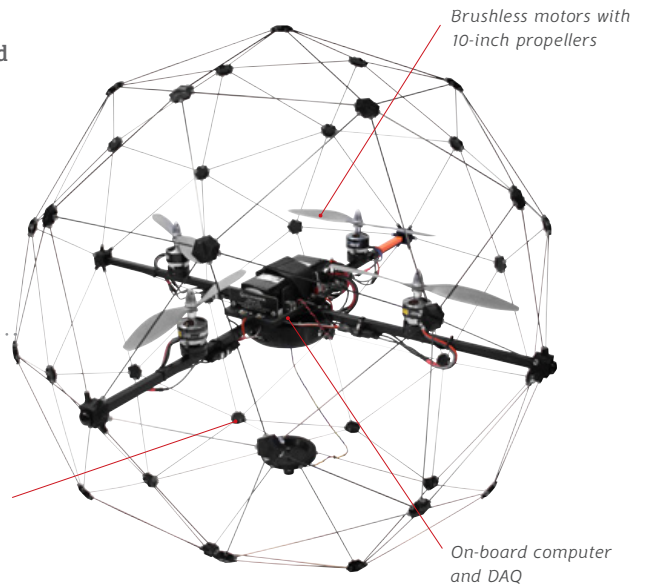
- High-resolution inertial measurement unit and avionics I/O DAQ
- Customizable with add-on digital and analog sensors supported by QUARC®

Indoor environment research platform

- Light-weight, protective carbon fiber cage
- Synchronized infrared OptiTrack cameras provide accurate localization

Save time and resources

- Fully compatible with MATLAB®/Simulink®
- Real-time in-flight parameter tuning



The QBall 2 is ideal for a wide variety of unmanned vehicle research applications

QBot 2 for QUARC

High-performance, open architecture mobile robot with advanced features for research and complete courseware for undergrad courses.

High performance, open and customizable platform

- RGBD vision system for real-time image processing, adjustable tilt angle for various viewing positions
- Customizable with add-on digital and analog sensors supported by QUARC®

Affordable solution for undergraduate education

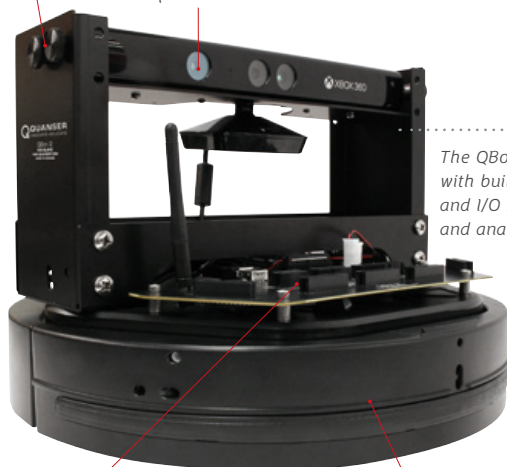
- Durable, high quality robotics platform ideal for teaching labs
- Low cost allows for equipping lab with multiple units
- Fully compatible with MATLAB®/Simulink®

The only mobile ground robot with course resources

- Extensive courseware and resources
- Laboratory exercises organized as independent modules

Camera mounting structure with adjustable tilt angle

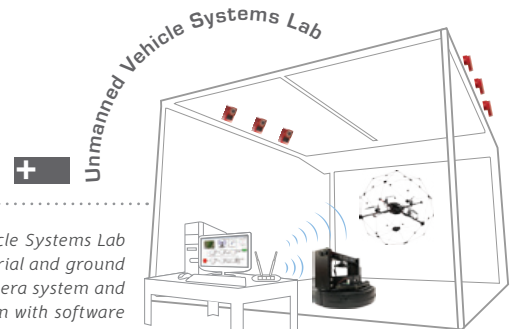
Camera and depth sensor



The QBot 2 for QUARC is equipped with built-in sensors, a vision system, and I/O support for additional digital and analog sensors

Data acquisition card with accessible I/O headers

2-wheel platform with built-in sensors



The Unmanned Vehicle Systems Lab consists of unmanned aerial and ground vehicle(s), multi-camera system and control station with software



Manipulator Robotics

The study and exploration of serial link robots has been a core part of robotics education and research for many years. Initially the study of manipulator robots was driven by applications in manufacturing, but later it became a key subsystem in more complex robotic applications in space robotics, and mobile robotics. As a leader in providing open architecture robotic solutions for teaching and research, Quanser has a new offering for their line of manipulator robots: the Quanser Robotics Package for Education.

Manipulator Robotics for Research and Teaching

Complete robotics solutions for teaching and research that include open architecture software for developing controllers and running 3D simulations.

For Education

- Compact 4 DOF design ideal for undergraduate labs
- Perfect for teaching the essentials of kinematics and control
- Extensive courseware and resources

For Research

- High performance 6 DOF serial manipulator with two-finger gripper
- Direct joint arm control and access to internal PID gains
- Example models for advance controllers

Intuitive control design using Simulink block diagram environment and QUARC control software

Robotic manipulator simulation and 3D visualization

Real-time sensor measurements

Two-finger gripper

4 DOF Serial Manipulator

Quanser Robotics Package for Education allows students to validate algorithms virtually before implementing on hardware

Cost-effective Way to Introduce Robotics and Haptics

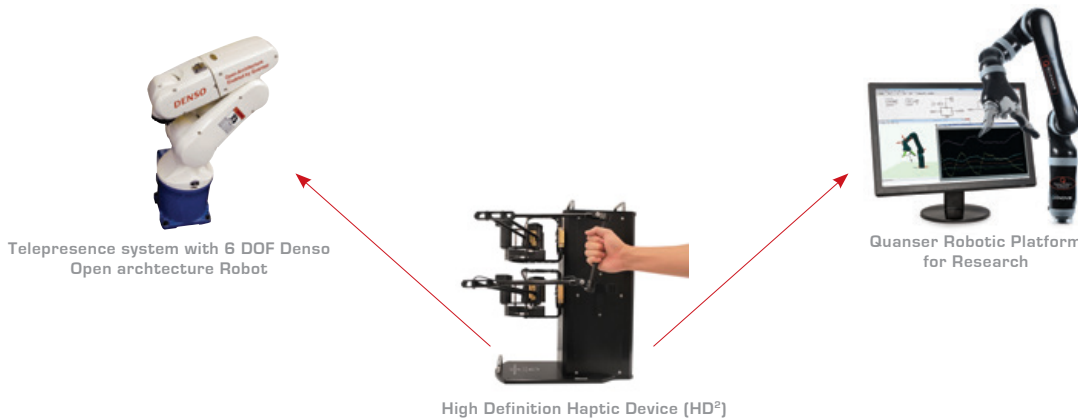
The Omni™Bundle introduces intermediate and advanced control concepts and theories related to robotics and haptics in a safe, compact experiment. Combining Geomagic Touch™ (formerly SensAble Phantom Omni) haptic device with QUARC® control software, students can easily translate course theory into hands-on experience.

- Six degree-of-freedom positional sensing
- Open architecture
- Portable design and compact footprint



Open Architecture Research Robots

These unique research solutions let you deploy your own advanced control algorithms by providing researchers and students direct access to the robot's sensors and actuators. With the capabilities of the communication blocksets of Quanser's QUARC software validating your robotic control algorithms is easier than ever.



Tele-robotics and Haptics

This solution is the platform of choice for advanced tele robotic application with haptic feedback. The platform consists of an advanced robot manipulator equipped with a force/torque sensor mated a high DOF haptic manipulator, and Quanser's QUARC real-time control software. This turn-key solution can be deployed quickly and is readily adaptable for a wide range of force-feedback research applications. Combined with visualization, it is the ideal platform medical simulations, remote vehicle operations, and more.

Robotic Control

You can explore and validate key concepts specific to robotic control with these unique products, from introductory concepts in kinematics, dynamics and control, to advanced concepts including torsional compliance and flexible joints and links. Add on modules to the popular SRV02 system provide the ideal entry experiences while more advanced idealized arms such as the 2 DOF Serial Flexible Joint and 2 DOF Serial Flexible Link are perfect for graduate level study or research validation.



The plants pictured here are not to scale. For accurate dimensions and system specifications, please request a product information sheet at info@quanser.com

About Quanser:

Quanser is the world leader in education and research for real-time control design and implementation. We specialize in outfitting engineering control laboratories to help universities captivate the brightest minds, motivate them to success and produce graduates with industry-relevant skills. Universities worldwide implement Quanser's open architecture control solutions, industry-relevant curriculum and cutting-edge work stations to teach Introductory, Intermediate or Advanced controls to students in Electrical, Mechanical, Mechatronics, Robotics, Aerospace, Civil, and various other engineering disciplines.

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