

QLABS ROBOTICS

Interactive, high-fidelity hardware experiences through interactions with virtual hardware

QLabs Robotics is a scalable platform capable of delivering credible, academically appropriate, and high-fidelity lab experiences through interactions with virtual hardware. QLABs Robotics offers fully instrumented and dynamically accurate digital twins of the Quanser physical systems, the QBot 2e mobile ground robot and the QArm robotic manipulator. These digital twins look, behave, and can be measured and controlled using MATLAB®/Simulink® and other platforms exactly as the real systems would.

QLabs Robotics is available on a 12-month subscription basis for up to 300 students, and is accompanied by a comprehensive curriculum and tools for instructors to manage student access and monitor their progress.

Features



Credible

High-fidelity, academically appropriate experiences



Scalable

Flexible 12-month subscription with up to 300 seats



Flexible

Create custom controllers using MATLAB®, Simulink®, and more



Comprehensive Resources

Curriculum mapped to popular robotics textbooks and instructor resources.

Subscription Details

Curriculum Topics	18
Hours of Lab Exercises	50+
Subscription Period	12 months
Seats	Up to 300
Instructor Resources	✓
Access to New Content Modules	✓
Priority Support	✓
QUARC Home License	✓

For increased number of seats, customized content, analytics tools, or to discuss your eLearning and remote teaching needs, contact sales@quanser.com

Courseware

QArm:

- Introduction to QArm sensors and components
- Joint control
- Forward kinematics
- Inverse kinematics
- Path planning
- Differential kinematics (*coming soon*)
- Statics (*coming soon*)
- Dynamics (*coming soon*)

QBot 2e:

- Differential drive kinematics
- Forward and inverse kinematics
- Dead reckoning and odometric localization
- Path planning and obstacle avoidance
- 2D mapping and occupancy grid map
- Image acquisition, processing, and reasoning
- Localization and mapping
- High-level control architecture of mobile robots
- Vision-guided vehicle control

Product Details

QBot 2e Virtual Sensors: 3 digital bumper sensors
1 Z-axis angle measurement (heading)
1 Kinect RGBD sensor

- Camera resolution: 640 x 480
- Depth sensing: 11 bit
- Depth sensor range: 0.5 - 6 m

QArm Virtual Sensors: Joint position
Joint velocity
Joint PWM command
Joint current
RGBD sensor

App Download Mechanism Direct from Quanser Academic Portal

App Compatibility Windows 10, 64-bit

About Quanser:

For 30 years, Quanser has been the world leader in innovative technology for engineering education and research. With roots in control, mechatronics, and robotics, Quanser has advanced to the forefront of the global movement in engineering education transformation in the face of unprecedented opportunities and challenges triggered by autonomous robotics, IoT, Industry 4.0, and cyber-physical systems.

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