

# QLABS VIRTUAL QCAR

## High fidelity digital twin in an interactive driving world

The Quanser Virtual QCar is a fully instrumented, dynamically accurate digital twin of the Quanser QCar system. It behaves the same way as the physical hardware and can be measured and controlled using MATLAB/Simulink or Python development environments. It can enrich your lectures and activities in traditional labs, or bring credible, authentic model-based lab experiences into your distance and online self-driving course.

Same as the physical QCar, the virtual system is a self-driving teaching and research platform complete with industrially relevant sensors such as LiDAR and RGB-D cameras.

### Features



#### Academically appropriate

High-fidelity, credible lab experiences equivalent to using the physical QCar



#### Comprehensive Resources

Well-rounded curriculum mapped to popular control engineering textbooks



#### Open access

Full access to the system parameters through MATLAB®/Simulink® or Python®



#### Scalable

12-month multi-seat subscription

### Courseware

- Image acquisition and camera interfacing Filtering
- Sensor interfacing and kinematic modeling
- Line detection and lane keeping
- Occupancy grid mapping
- Sensor fusion
- Object detection and classification
- Lateral and longitudinal control
- Self-driving behavior planning

### Product Details

QCar virtual sensors	4x CSI cameras 160° FOV 820 x 410 resolution at 30 Hz
1x Intel RealSense RGB-D camera	640 x 480 resolution at 30 Hz 8-bit depth sensing
2D LiDAR	360° 16-bit depth sensing
6 axis IMU	3-axis accelerometer 3-axis gyroscope

QLabs Virtual QCar runs on Windows 10/11 (64-bit) and requires MATLAB and Simulink R2020b or later (not included).

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