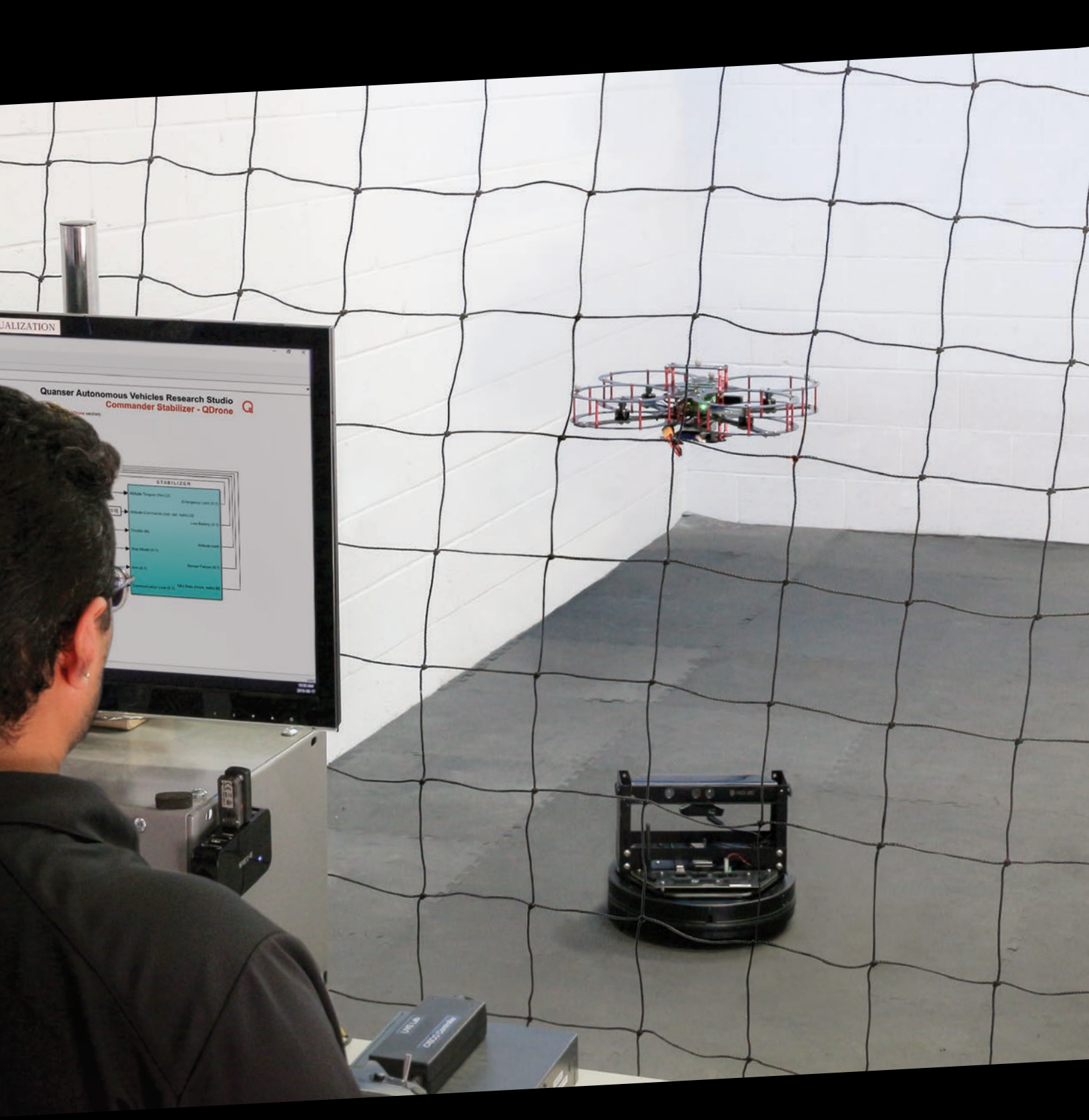


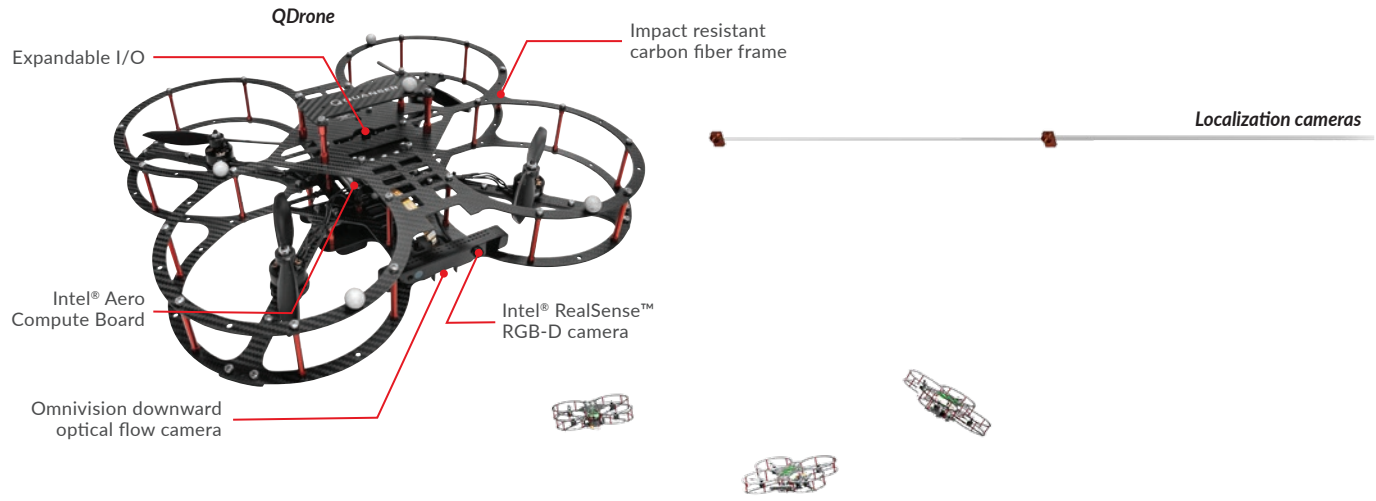
Autonomous Vehicles
Research Studio

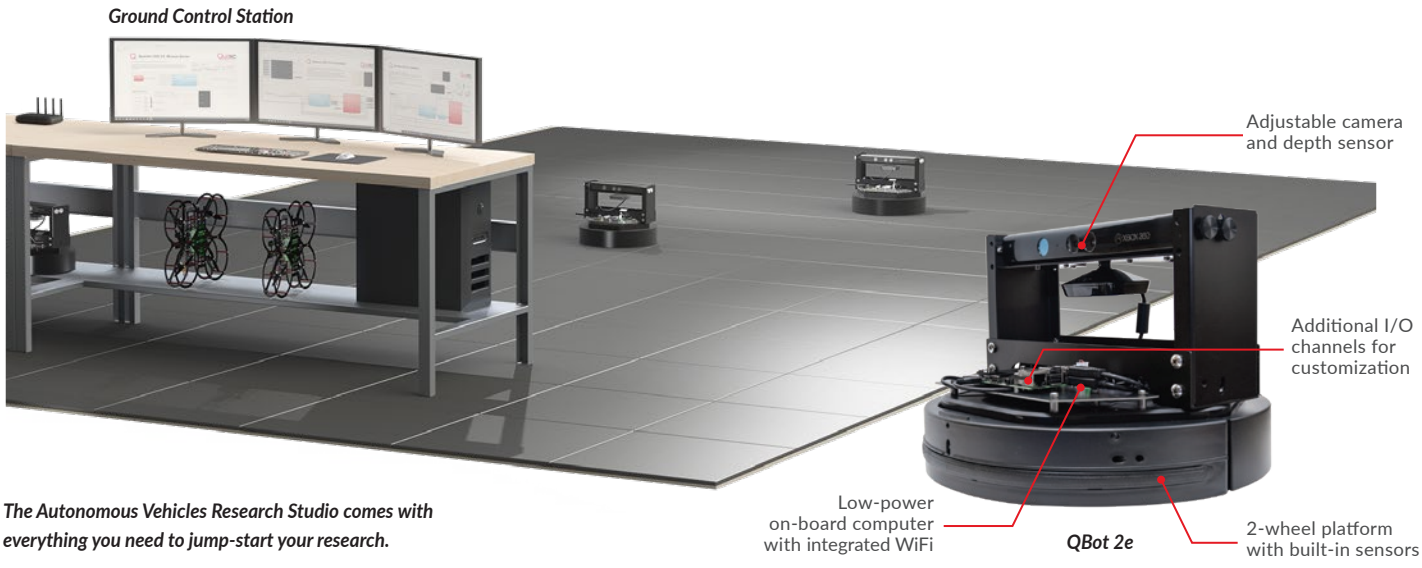
QUANSER
INNOVATE · EDUCATE

Advancement in technology and innovative applications has led to the proliferation of unmanned vehicle research. Many application areas have emerged that require not only multiple vehicles, but collaboration between multiple vehicle types. The diversity and complexity of these applications present significant challenges to researchers and developers, such as increasing difficulty in setting up and maintaining the evolving and growing drone fleet, as well as the need for standardized validation and verification platform to facilitate development, evaluation and analysis. Quanser's new Autonomous Vehicles Research Studio is the ideal solution for academics looking to build a multi-vehicle research program in a short amount of time.

QUANSER INNOVATION UNLEASHED FOR AUTONOMOUS VEHICLES

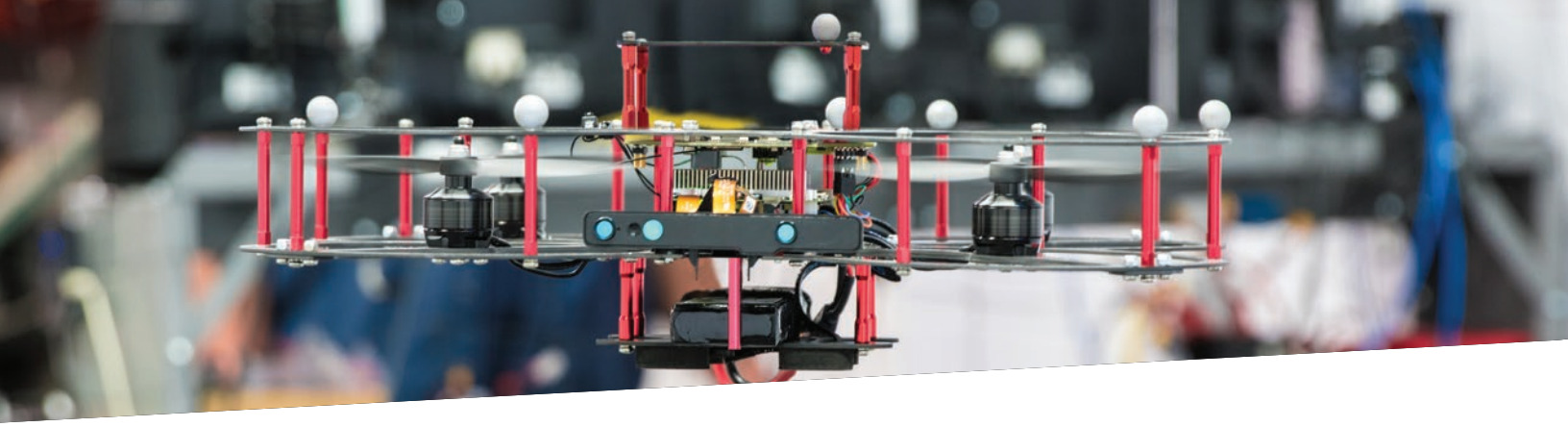
At the center of the Research studio are two autonomous vehicles for air and ground: the QDrone and QBot 2e. The successor of the QBall 2, the QDrone is a quadrotor air vehicle equipped with powerful on-board Intel® Aero Compute Board, multiple high resolution cameras and built-in WiFi capability. On the ground the QBot 2e is an innovative open-architecture autonomous ground robot, equipped with a wide range of built-in sensors and a vision system. Working individually or in a swarm, these are the ideal vehicles for your research applications.





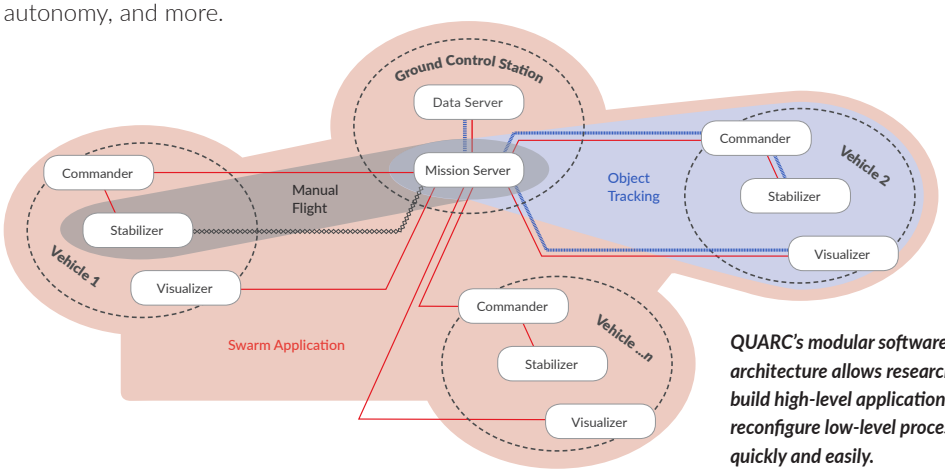
The Autonomous Vehicles Research Studio comes with everything you need to jump-start your research.

Products pictured are not to scale. Additional workstation components may be required. For full product information and system configurations, visit www.quanser.com



STUDIO ARCHITECTURE

The research studio software architecture is powered by QUARC™ for Simulink®, and is designed to provide key functionalities required for multi-vehicle research through a variety of customizable modules. Each module is powered by QUARC's communication framework to be target independent. This enables researchers to build high-level applications and reconfigure low-level processes supported by prebuilt modules and libraries. Using these building blocks you can explore topics in advanced flight control, machine vision, SLAM, autonomy, and more.



QUARC's modular software architecture allows researchers to build high-level applications and reconfigure low-level processes quickly and easily.

Legend

Stabilizer	High-speed low-level control
Commander	High-level local monitoring and control
Visualizer	Image capture and processing
Data Server	Global localization
Mission Server	Global monitoring and supervision

Information exchange

- Manual flight communication
- Object tracking communication
- Swarm communication

	STANDARD CONFIGURATIONS	1 Vehicle	3 Vehicles	6 Vehicles	10 Vehicles
Vehicles	QDrone quadrotor	1	2	4	6
	QBot 2e ground robot	-	1	2	4
Ground Control Station	Includes: • High performance computer with Intel® Core i7 • Three monitors • USB flight controller joystick • High performance router • Ground camera • Safety net and protective floor tiles	1	1	1	1
	QUARC™ Autonomous Vehicle licenses	1	3	6	10
Studio Space & Components	Minimum recommended room size (m)	4.5 x 4.5 x 3.5	4.5 x 4.5 x 3.5	6 x 6 x 3.5	7 x 7 x 3.5
	Recommended workspace (m)	3.5 x 3.5 x 2	3.5 x 3.5 x 2	5 x 5 x 2	6 x 6 x 2
	Optitrack Flex 13 localization cameras	6	6	8	12

For custom configurations, please email info@quanser.com

www.quanser.com

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