# QUANSER MECHATRONIC SYSTEMS BOARD

## Prepare Students for Engineering Systems Design and Integration

Mechatronic systems are all around us from industrial robot arms and autonomous cars, to home washing machines. Fundamentally, mechatronic systems are a collection of software, mechanical, and electronic subsystems that form a cohesive functional unit. Unfortunately, these type of systems are often either too complex, abstracted, or dangerous to be used for education. The Quanser Mechatronic Systems Board is designed to provide hands-on experience with a complete mechatronic system in a safe, and academically appropriate setting. The system is composed of two DC motors which direct drive a five-bar linkage. At the end of the manipulator linkage is a downward-facing camera. Together these parts allow the user to delve into the operation of a mechatronic system at every level, from motor interfacing all the way to a complete line following autonomous robotic system. Designed exclusively for the NI ELVIS III platform and LabVIEW™, the board also exposes students to industry-grade instrumentation, image processing and control fundamentals.

## Features



NI ELVIS III sold separately

### Complete System
Complete mechatronic system from sensor integration and motor control, to image processing and state machines.

### Open and Customizable
Access and customize the interfacing and control software using LabVIEW FPGA

### Comprehensive Courseware
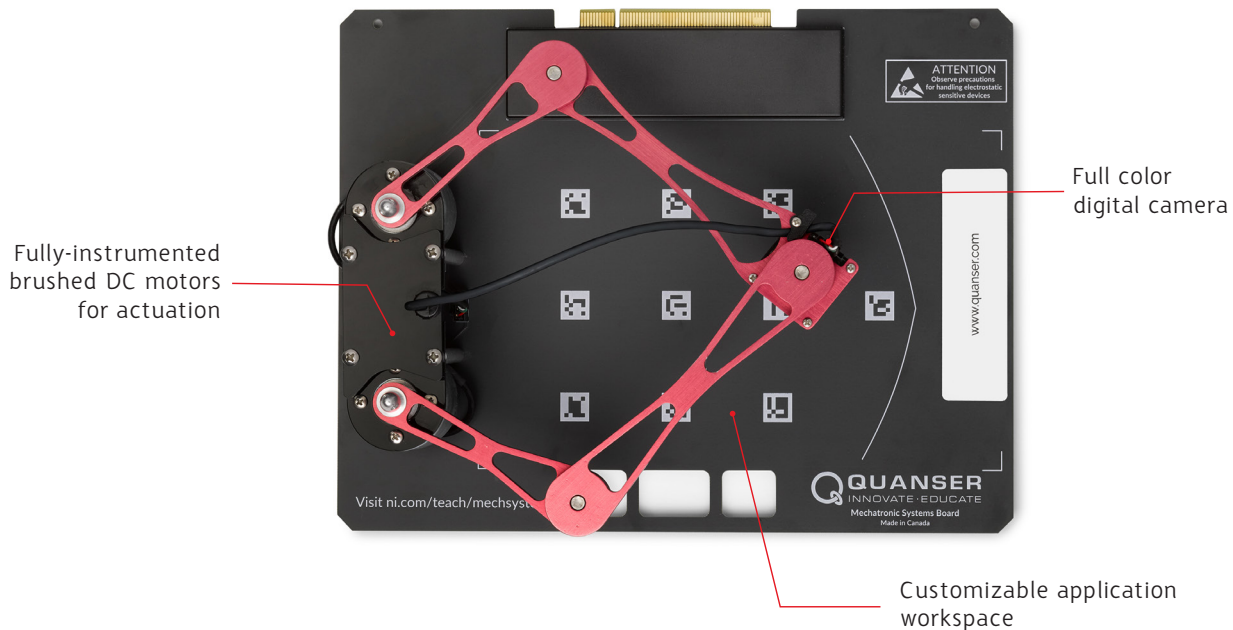Includes comprehensive ABET-aligned course resources and LabVIEW files

### Accelerate Discovery
Learn the fundamentals of interfacing, manipulator control, image processing, and state machines

## Courseware

- **Manipulator Control:** Motor interfacing, forward and inverse kinematics, PID motor control
- **Processing Images:** Image thresholding, blob detection, pattern matching
- **System Level Control:** State machines, task-space control, goal directed line following

## Product Details



Full color
digital camera

Fully-instrumented
brushed DC motors
for actuation

Customizable application
workspace

## Device Specifications

- Two brushed DC motors with high-resolution encoders
- Full-color digital camera with support for NI-IMAQ tools
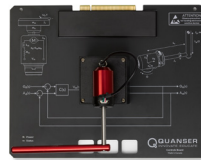- Customizable application workspace with magnetic paper holder

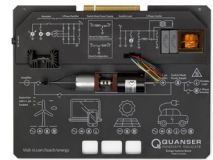## ACCELERATE DISCOVERY WITH THE NI ELVIS III PLATFORM



**Mechatronic Sensors**    **Mechatronic Actuators**    **Controls**    **Energy Systems**

**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 workstations to teach Introductory, Intermediate and Advanced controls to students in Electrical, Mechanical, Mechatronics, Robotics, Aerospace, Civil, and various other engineering disciplines.