



Controller and Actuator Solutions

Driving Business Improvement Through Test and Information Management Systems

VI Engineering has the technical expertise, development process, and resources required to deliver reliable controller and actuator test and information management systems with a quick turnaround and low lifetime cost of ownership.

Partnering with VI Engineering enables clients' engineers to focus on their core competency: interpreting test data to develop and improve products. Whether you need test system development support due to resource shortages or information systems to automate workflow, VI Engineering should be your value added partner.

TECHNICAL EXPERTISE

VI Engineering integrates advanced software programming, COTS hardware, and state-of-the-art mechanical and electrical design experience with an in-depth knowledge of controllers and actuators to provide test and information management solutions that address each client's unique needs from R&D to manufacturing.

MECHANICAL

- ◆ Fixtures
 - Pneumatic
 - Hydraulic
- ◆ Panel Build
- ◆ Wire Harnesses

ELECTRICAL

- ◆ FPGA Design
- ◆ Bed of Nails Fixtures
- ◆ Hardware Monitoring Boards
- ◆ Electronic Load Boards
- ◆ Signal Conditioning Boards

Controller testing expertise ranges from software simulation to UUT stimulus-response while actuator testing expertise ranges from low performance electro-mechanical automotive body components to high performance electro-hydraulic aircraft actuation systems. Information management systems include test request, test configuration, HIL script management, and data management systems.



DEVELOPMENT PROCESS

Every project begins with the definition of system requirements and complex projects take advantage of UML/SysML modeling to visualize requirements and dependencies more effectively. The acceptance test criteria are also defined in the requirements phase to ensure each requirement is traced to a verifiable test procedure, eliminating ambiguity in requirements and scope. This foundation is critical to mitigate performance, cost, and schedule risks.

RESOURCES

VI Engineering has over 60 skilled staff with numerous certifications distributed across four development centers. Capable of handling small to large projects, VI Engineering offers flexible and scalable services structured to meet specific schedule and performance requirements.

**For More Information contact VIE Sales at
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VI ENGINEERING, INC.
VALUE • INTEGRITY

Complete Test and Information Management Solutions that Exceed Expectations

ATP Test System for Electric Brake Actuators

V I Engineering developed a turn key system for verifying the performance of commercial aircraft electric brake actuators. The system simulates the brake controller and measures actuator force and linear displacement for loads up to 50,000 lb over 1 in. travel. To ensure quality the system includes built in self test of the electrical and mechanical subsystems. A configurable test sequencer executes the test for each actuator, compares the response to expected limits, and generates an automated ATP report.



Automotive Body Control Module Test System

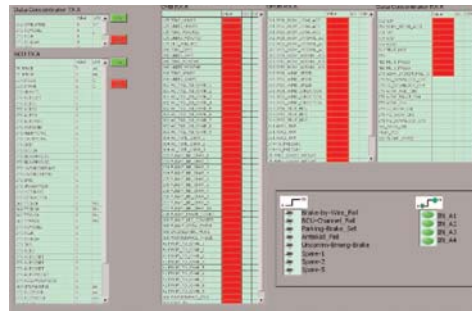
V I Engineering developed a Universal Test Station capable of testing 7 model families ranging from 115/230/277 Vac inputs and control for 1/3 HP to 1 HP actuators. Multiple test interface boxes were developed for each unique family. The system performs fully automated functional testing of the following parameters: cable check (proper TIB), ground continuity, hipot, EEPROM read/verify, input current test with simulated loads, RPM test with golden actuator, and UUT calibration with EEPROM write.

Aircraft Brake Controller Test System

V I Engineering developed two similar systems for qualification testing of the brake controller card and brake controller system for a commercial aircraft. Both systems leverage the same application and enable deterministic testing of the UUTs by executing scripts in LabVIEW RT. Inputs to the two systems include ARINC 429, CAN, RS-485/422, power, and electrical signals. Outputs of the controller system include actuator force and ARINC 429 messages.

Landing Gear Control System Emulator

V I Engineering developed an emulator for testing a landing gear control system. Inputs/outputs to the system include ARINC 429 messages and 28 VDC signals. The emulator enables engineers to easily modify, transmit, and view inputs/outputs to the system through a table based GUI. Automated deterministic testing is available by executing script files in LabVIEW RT



ABOUT V I E

V I Engineering is a Veteran Owned Small Business that specializes in providing test and control systems, engineering information management systems, consulting services, and staffing services. With sustained growth since 1992, V I Engineering has delivered the results that Aerospace, Defense, and Automotive customers require.

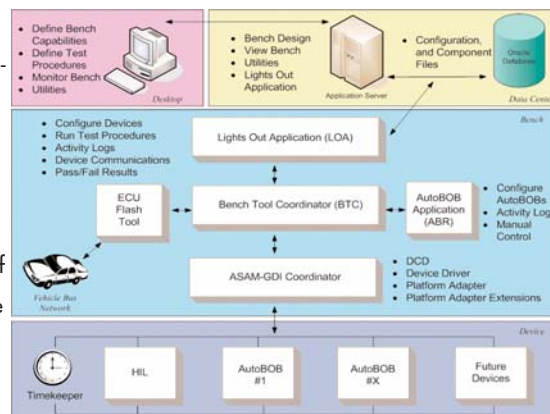
Ammunition Handling System Emulator

V I Engineering created an R&D simulator to emulate the Turret System Electronic control Unit (TSEU) that controls General Dynamics' MGS ammunition handling system. The TSEU Emulator is a PXI-based system that allows for control and validation of the complex MGS auto-loading and replenishing systems.



Automated HIL Configuration and Validation System

V I Engineering developed an engineering information management system to automate workflow for simulation testing of all the electronic control modules (ECUs) in a vehicle. The system configures the hardware in the loop (HIL) devices allowing simulation of various vehicle signals and faults to be injected automatically. It also validates the wiring connections on the bench before the start of testing. With the new level of automation the automotive manufacturer is able to achieve 24x7 testing, dramatically reducing program schedule and costs.



V I Engineering

V I Engineering has its headquarters located in Farmington Hills, MI and engineering offices in White Bear Lake, MN, Indianapolis, IN, and Bangalore, India.

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