



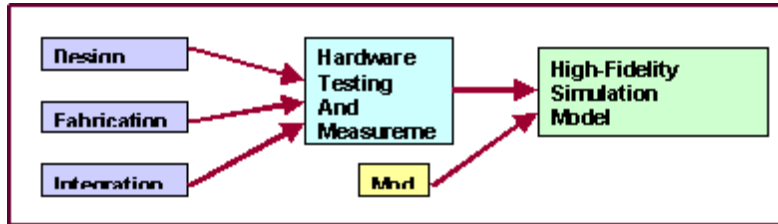
DYNAMIC CONTROLS INC.



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- **Engineering Consulting**
- **System and component design**
- **Research and development of control systems and supporting technologies**
- **Design to customer's requirements**
- **Incorporated in 1972**
- **Prototype design and fabrication**
- **Unique limited production hardware**
- **Design, implement, integrate, and test customer's concepts**
- **Gavin Jenney, PhD, MBA, P.E. – President**
- **Bruce Raymond, MS Systems Engineering, MBA, P.E. – Principal Engineer**



PROTOTYPE AND PROOF-OF-CONCEPT HARDWARE

Electrical

- Design classical textbook and simulation methods.
- Motor controls (brushless three phase DC, induction Brush) and power electronics.
- Signal processing (analog and digital.)
- Data acquisition.

Mechanical

- Design - classical textbook and finite element methods.
- Machining and sheet metal work.
- Packaging and enclosures.



Control Systems

- Design - classical and modern methods.
- Simulation.
- Fabrication and testing of electrical, hydraulic, and pneumatic systems.

Mechanisms

- Design and simulation.
- Side stick flight controllers, servo valves, and actuators.

ACTUATION SYSTEM DESIGN ANALYSIS, TESTING

Control System Design, Analysis & Testing

- Electrical, hydraulic, and pneumatic control systems.
- Analysis of linear and non-linear systems using MATLAB, Simulink, and CC.
- Control system performance testing and parameter measurement.
- Design and implementation of loading systems.
- Fault tolerant design for critical applications.

Mechanical Component Design & Fabrication

- Structural, hydraulic, pneumatic, and thermal design and analysis.
- Prototype and low rate manufacturing (machining, material specification, sheet metal fabrication, and assembly.)

Electronic Circuit Design & Fabrication

- Power electronics.
- Motor controllers.
- Analog and digital circuit design.
- Printed circuit layout and assembly (including surface mount technology.)

CREATION OF HIGH FIDELITY SIMULATION MODELS

Data Acquisition & Analysis

- Data acquisition systems design and implementation (LabView and Visual Basic.)
- Data Analysis.

SYSTEM INTEGRATION

System Integration

- System requirements development and analysis.
- Hardware/software integration.

Software Development

- C/C++, Visual Basic, and LabView.
- Real-time software design.

HIGHLIGHTS

- Electrically Powered Actuator Development (EPAD) Program – Flight test of three prototype actuators in F/A-18 aileron location. Smart Actuator - control and drive electronics moved from flight control computer to actuator. Communication over fiber optic link. Electrohydrostatic actuator (EHA) and Electromechanical actuator (EMA) - power-by-wire, control electronics mounted in aircraft wing.
- X-37 – Actuation consultants, specification compliance.
- X-38 – Crew re-entry vehicle prototype. Design and implement flight control computer surrogate system to verify performance of failure detection algorithm software (FDIR). General EMA, system, and integration consulting.
- X-43 – Actuation consultants. Measure and verify on-vehicle performance of EMA's. Design and supply EMA stiffness measurement and dynamic load testing system.
- Pilot Side-Stick Controller – Assist with setup, test design, and data analysis of Dynamic Controls designed and built flight control side-sticks in NASA Dryden simulators.