

# APPLICATION BRIEF

## 2020

### ***SWITCH FORCE SUB-ASSEMBLY TEST SYSTEMS***

#### **Brief Description:**

Emerging Technologies, LLC. was called upon to build an automated switch force sub-assembly test system from a customer provided design. The DUT switch contacts were to be verified for force, position, and electrical state while being automatically actuated by the test system.

Emerging Technologies, LLC. worked from the customer provided design and sample product. Challenges included fixturing of the DUT for automated actuation of limited access switch contacts.

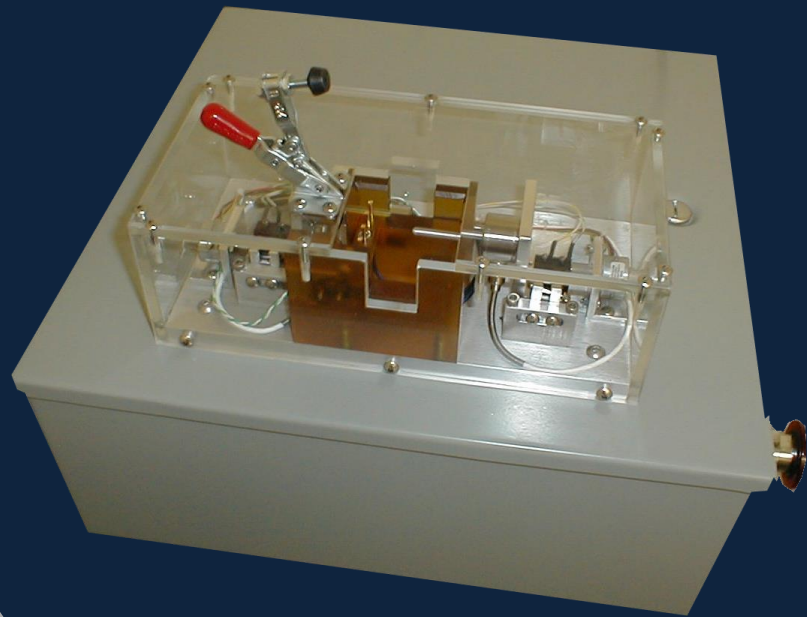
Test software was written to customer specification. The test ran to completion automatically upon clamping of the DUT into the fixture. Results of each test were stored.

3D solid modeling was utilized to ensure correct fit of customer provided DUT models prior to manufacture of fixture.

The project cycle consisted of picking up the design where the customer left off, development of the fixture for manufacturing, development the custom test application, and final verification of operation.

#### **Customer Benefit:**

The customer is able to verify the switch force, state change distance, and the spring force required to switch each sub-assembly, using the Emerging Technologies, LLC. provided test system prior to assembly of an intermediate assembly. Additionally, the results of testing each product is accessible via database over the plant network.



#### **ET Responsibilities:**

- Functional Specification Generation
- ✓ Design / Engineering
- ✓ Fabrication
- ✓ Programming – Software
- Programming – Firmware
- Circuit & PCB Design
- On-Site Commissioning
- ✓ Post Commissioning Support
- Other

#### **Technologies:**

- Embedded Computers
- Microcontrollers
- Visual Software
- ✓ Control Software
- ✓ Data Acquisition
- ✓ Computer Based Control
- ✓ Communications – USB w/stepper drives
- ✓ System Integration
- ✓ Other – CAD - 3 D Modeling

#### **Special Features:**

- ✓ Electrical Switch State Measurement.
- ✓ Stepper Driven Motion Control.
- ✓ Linear Displacement Measurement.
- ✓ Load Cell Based Force Measurement.
- ✓ Custom DUT Fixture.
- ✓ Results Storage.
- ✓ Bench-top Enclosure.