Emerging Technologies

APPLICATION BRIEF
2020

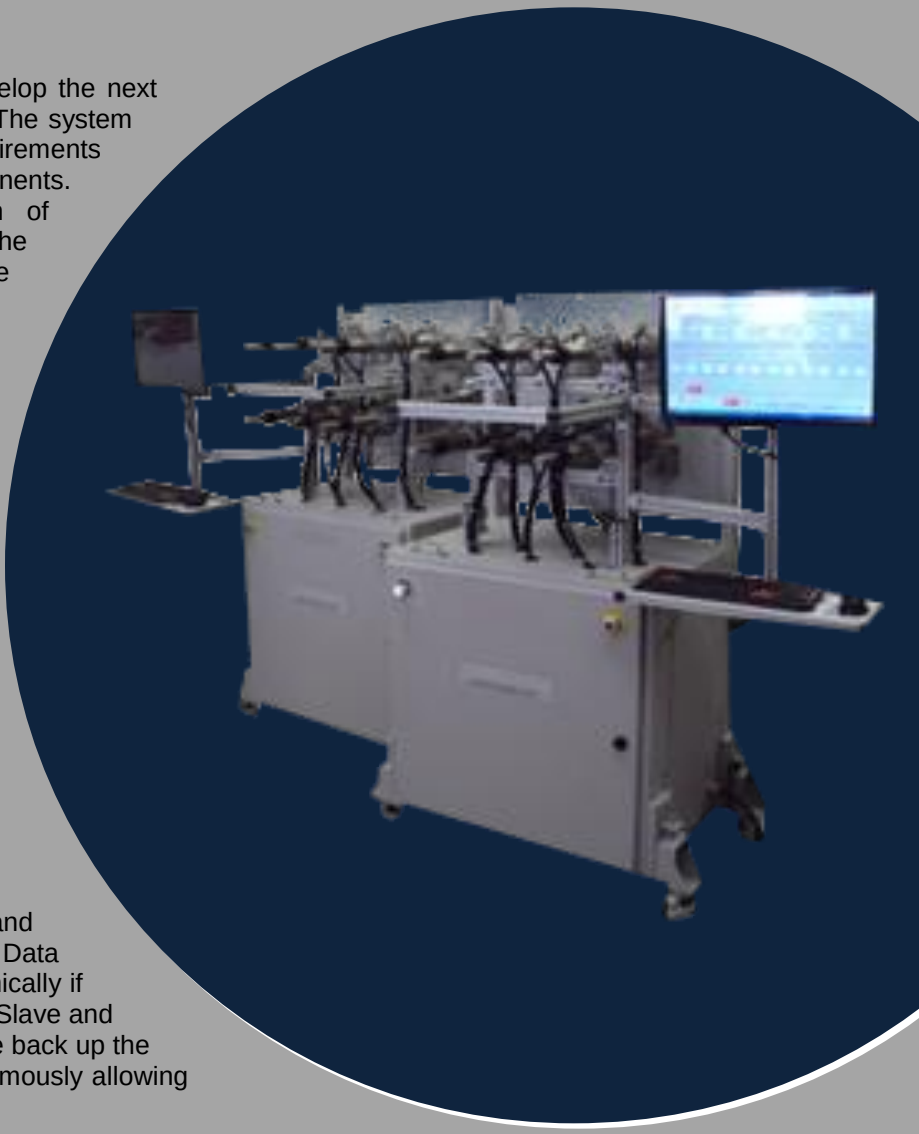
12 POSITION LINEAR – ROTARY MOTION DURABILITY TEST SYSTEM

Brief Description:

Emerging Technologies, LLC was called upon to develop the next generation of Linear – Rotary Durability test System. The system required 12 positions for product testing. Test requirements included insert, rotate, and retract of mating components. Additionally, the system required data acquisition of position and force involved with the operations. The system also needed to allow the operator to train the system for independent movements for each of the 12 test positions. Product testing was to be performed inside an environmental chamber, thus requiring the mobile carts incorporate the chamber interface.

A key to the success of the system is the use of LinMot linear – rotary servos. Essentially, one shaft designed to make both the linear and rotatory moves. Coupled to the shaft is a force sensor that reads both linear and rotational forces for analysis by the system computer.

A comprehensive LabVIEW based test application was developed to train, control, monitor, and analyze the multiple tests as they are run simultaneously. Additionally, communication with the environmental chamber is managed.



Customer Benefit:

The customer is able to efficiently setup, run, and document up to 12 product tests simultaneously. Data stored to a database can be recalled and viewed graphically if required. The two mobile carts operate as Master and Slave and can be configured for either identity allowing for one the back up the other in functionality. Each position can be run autonomously allowing tests to run independently of one another.

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 – Ethernet
- ✓ System Integration
- ✓ Other – Linear-Rotary Servos & Measurement

Special Features:
- ✓ 12 Operator Trainable Test Positions.
- ✓ 2 Mobile Carts each with Master – Slave Capability.
- ✓ Linear and Rotary Movement and Measurement on a Single Shaft.
- ✓ Graphical Monitoring and Recallable Data Viewing.

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