

APPLICATION BRIEF

2021

PCBA TEST SYSTEM

Brief Description:

Emerging Technologies, LLC. was called upon to develop and build a PCB test system for a brushless DC motor assembly. The customer-provided specification called for easy loading and unloading of the product and the ability to store results to an SQL database.

A multi-step test sequence consisting of discrete and analog I/O is employed to test the functionality of the product. A spring probe interface is used to interface the DUT with the system. Input voltage, output voltage, motor movement, and LED states are measured throughout the test sequence. An LED analyzer is used to measure RGB color codes and intensity of the LEDs. Test results are stored locally to a CSV file and remotely to an SQL database. Test parameters are stored locally and are editable by a user with administrator level access to the machine.

Emerging Technologies, LLC. Prepared a design package for customer review prior to fabrication of the tester. The design package included: System Layout Diagrams, Electrical Diagrams, Fixturing Diagrams, and Software Sequence of Operation. Once approved, the tester was fabricated, tested, and operation was verified by the customer.

Customer Benefit:

The customer is able to test a motor assembly, using the Emerging Technologies, LLC. custom test system, to verify correct operation prior to final assembly. The new system saves time and money by detecting faulty units before final assembly, resulting in reduction of final product rework.



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 – RS232, Ethernet
- ✓ System Integration
- Other

Special Features:

- ✓ Touch-screen monitor.
- ✓ LED Analyzer
- ✓ Spring Probe Fixture
- ✓ Barcode Scanner
- ✓ Final Product Label Printer
- ✓ Automated DUT Clamping and Release
- ✓ Automated Test Sequence
- ✓ Results Stored to SQL Database