STAND ALONE, EMBEDDED, FUNCTIONAL TEST SYSTEM

Brief Description:

Emerging Technologies, LLC. was called upon to develop a stand alone, portable test system for a pcb based sub-assembly. The customer provided specification called for an easy to use sequential tester that would loop on failure of any step in the sequence. Sub-assemblies reaching the final step of the sequence are considered passing units.
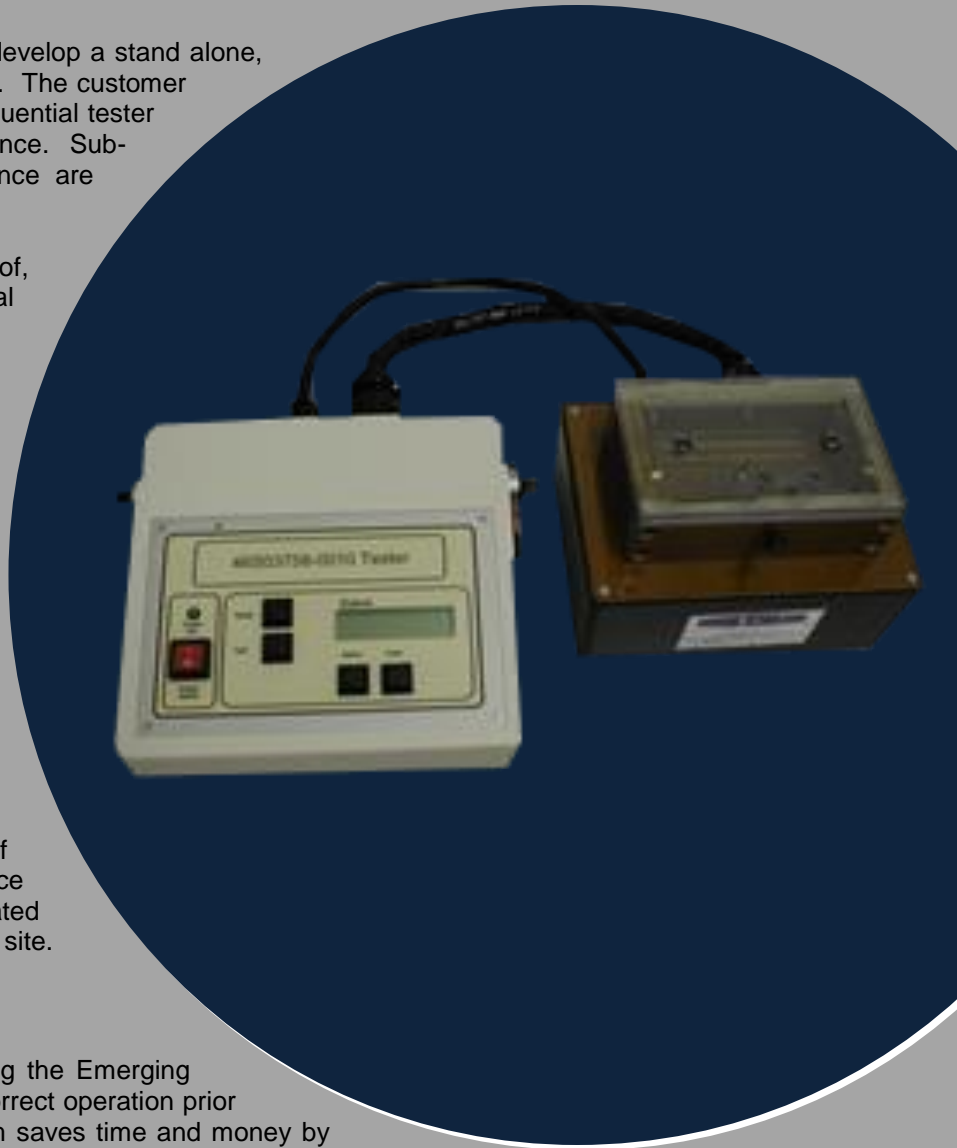
The thirty-five-step test sequence consisting of, twenty-seven discrete and three analog, mixed signal I/O to completely test the functionality of the sub-assembly. All inputs are verified for each output combination. A custom developed PC based application interfaces the tester to allow an administrator of the system to transfer configuration parameters to the tester.

The hardware design includes custom circuit and PCB design and fabrication. Some manual operator settings are required. A customer provided DVM is plugged into the test jacks provided to monitor set up parameters.

Emerging Technologies, LLC. prepared a design package for customer review prior to fabrication of the tester. The design package included: System Layout Diagram, I/O list, Schematic Diagrams, Configuration Screen Layout, and Sequence of Operation (provided by the customer). Once approved by the customer, the tester was fabricated and tested, and then commissioned at the customer site.

Customer Benefit:

The customer is able to test sub-assemblies, using the Emerging Technologies, LLC. custom test system, to verify correct operation prior to assembly into the final product. The new system saves time and money by detecting faulty assemblies, before they are implemented, 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 – serial
- System Integration
- Other

Special Features:
- ✓ External fixture with modular cabling
- ✓ Remote configuration capability.
- ✓ Compact size and portability.
- ✓ Flexibility of design supports addition of future fixtures.
- ✓ No PC required for operation.
- ✓ Built in Diagnostic Screens.
- ✓ Automatic Sequencing.
- ✓ Loop on sequence step failure.