# CUSTOM TESTING SOLUTION FOR TRAIN ONBOARD EQUIPMENT

Datasheet

Project objective

Develop a replacement solution to execute specific board-level tests on critical carborne railroad equipment. The solutions would execute automated LabVIEW tests for the legacy Decoder PCB board, and be compatible with the existing client's testing stations. This would allow our client to guarantee the safety and efficacy of the spare ATP equipment and its parts to authorities of the rail systems they work with.

Test equipment

USB or RS232

Board Under Test

Text Fixture

LabVIEW
NATIONAL INSTRUMENTS
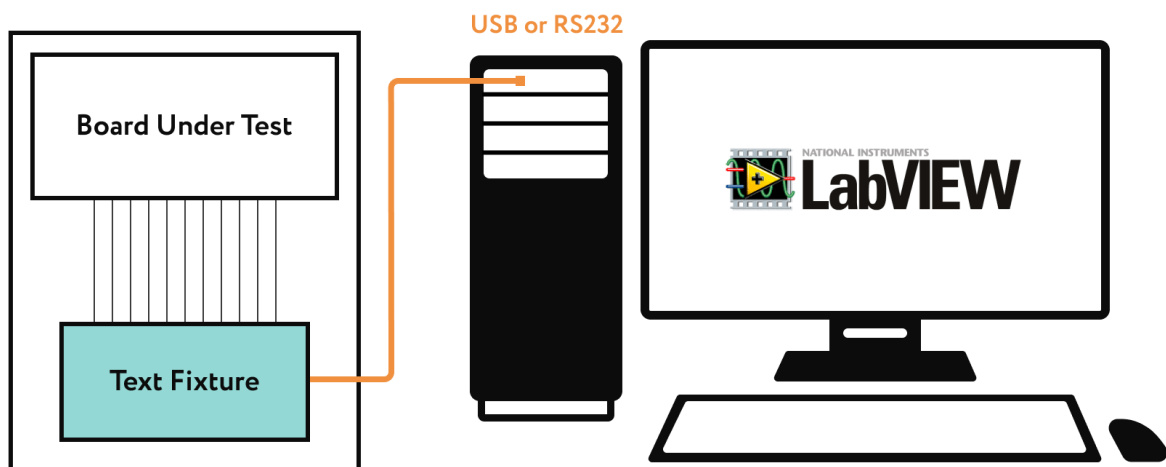
Result

The custom test fixture for the legacy boards is designed in the card module format with a socket connector, which allows for its easy mounting into the client's test equipment (backplane) and minimizes its configuration. It allows for automated testing of legacy boards in the latest version of LabVIEW and is fully compatible with the existing test stations. This low-cost solution allowed our client to provide a continuous supply of all spare parts for the rail onboard equipment, including legacy components.

Scope of work

- Analysis of old tests and their translation into test sequences
- Analysis of circuit design of the tested PCB boards. Preparation of a test plan
- Design of a device in view of compactness and compatibility. Block diagram and electrical circuit development, PCB development
- Communication with LabVIEW via serial interfaces, which can be implemented via both physical RS232 port and USB-COM virtual interface
- Connectivity with the PCB board under test via the processor socket (DIP40), and the edge connectors simultaneously
- LabVIEW tests development for the legacy boards

Activities

- Requirements definition
- PCB Analysis
- Hardware Design
- Firmware Design
- Test Interface Creation
- Functional Testing
- Documentation Creation
- Samples Production

About the project

Technologies

- Arduino IDE
- AVR
- C++
- Delphi
- SolidWorks
- Git
- LabVIEW

Project size

- 2 people

Duration

2.5 months

Platform

- Windows
- Linux