

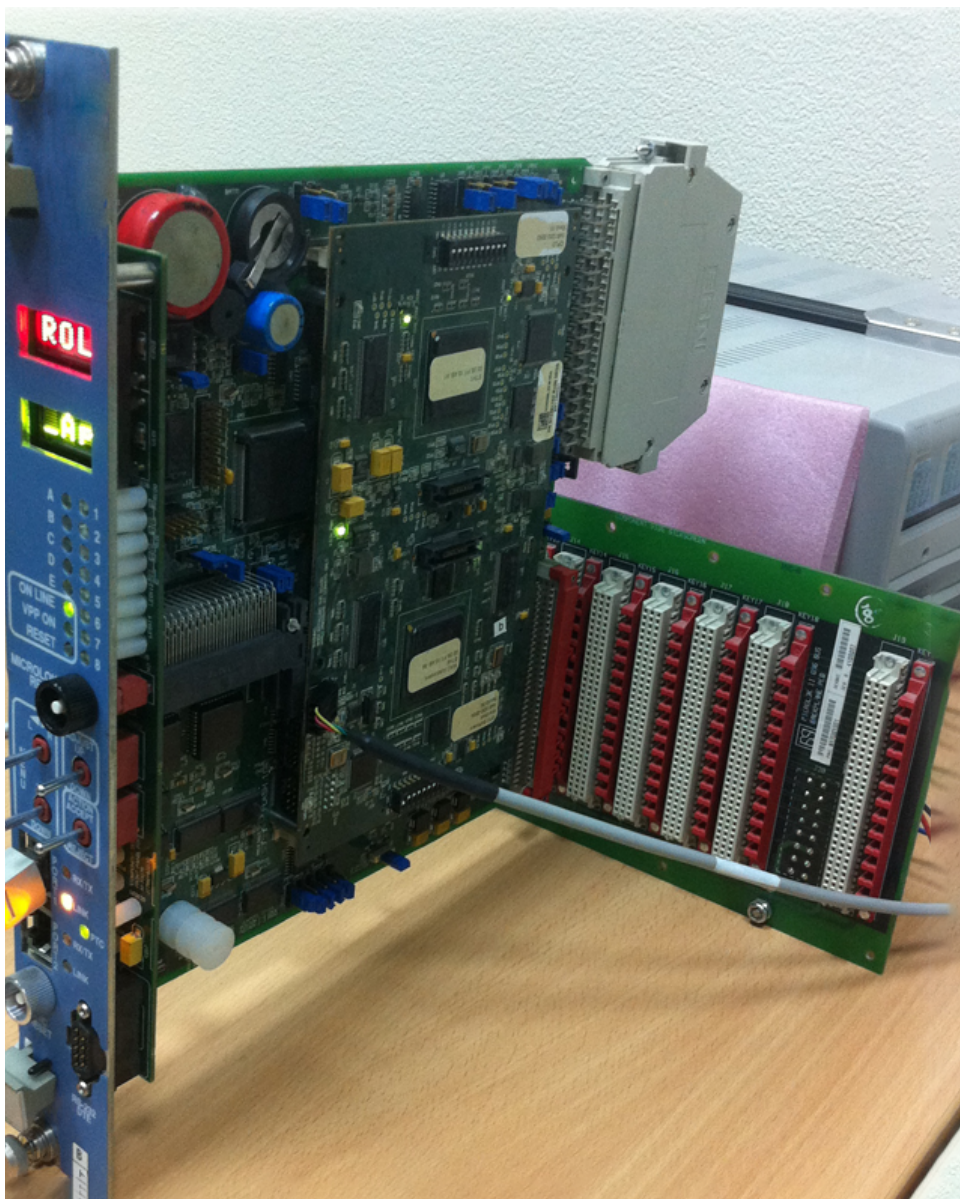
INTEROPERABLE TRAIN CONTROL SYSTEMS

Datasheet

Project objective

Execute seamless integration of a 3rd party Interoperable Train Control (ITC) system into the client's signaling infrastructure based on MicroLok II hardware. Provide continuous support of the system after integration.

This would ensure seamless communications between wayside, locomotives, and back office, thus providing PTC capabilities.



Result

Established interoperable and wireless communication between the wayside, locomotives, and back office allows for transfer secure PTC data. It solves operational, maintenance, and security-related tasks with respect to wayside units.

Scope of work

- ❖ Review of the existing source code and resolve bugs
- ❖ Porting of 3rd party ITCSM software to the resource-limited Wayside Interface Unit (WIU) boards
- ❖ Customization and optimization of real-time environment. Memory allocation and usage optimization, reduction of simultaneous execution threads, and the creation of a lightweight package manager
- ❖ Establishment of a security infrastructure for distributing sensitive data wirelessly. Setting up a correct interaction with 3rd party server
- ❖ Interoperability component. Direct and scheduled SOTA and FOTA updates
- ❖ Problem diagnostic support. Generating and distributing notifications and logs by messages and SNMP traps
- ❖ Resolved issues in communicating with the back office
- ❖ Improved ITCSM performance and stability. Enhanced the file transfer functionality
- ❖ Updated firmware for PTC WIU
- ❖ Fixed issues with ACSES updates
- ❖ Elimination of software resets to prevent unnecessary processor load

Activities

- ❖ Documentation review
- ❖ Prototyping
- ❖ Requirements investigation
- ❖ Architecture review and adaptation
- ❖ Porting and base components implementation
- ❖ Test cases definition and preparation
- ❖ Functional testing and debugging
- ❖ Continuous support

About the project

Technologies

- ❖ C/C++
- ❖ Embedded Linux (uClinux and LFS)
- ❖ NiOS2 Altera CPU
- ❖ RedHat Linux compatible environment (CentOS)
- ❖ SVN
- ❖ .NET MVC
- ❖ Eclipse
- ❖ OpenSSL



Project size

- ❖ 6.5 people

Duration



Platform

- ❖ Embedded