Train Communication & Infotainment Systems

AMOTUS

At a glance

Company: Focon Electronics

An innovative market leader in the development and implementation of Real-Time Passenger Information System. Their solutions accelerate the railway industry's ability to make the travel experience more secure and enjoyable for the passengers.
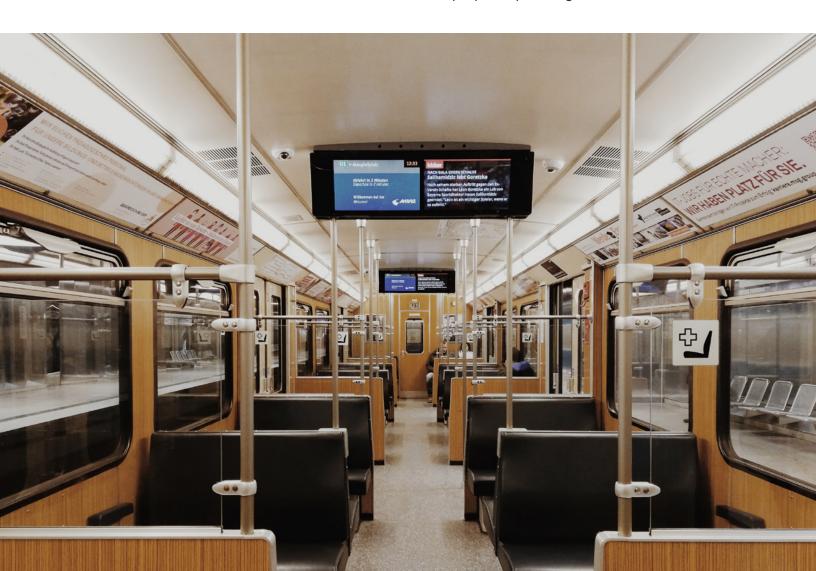
Country: Denmark

Industry

Transport > Railroad

Project Scope

Development of an audio communication system for the rail industry, along with a train infotainment system.

This specific audio system allowed several functions such as passenger messages, communication between crew members, radio broadcasting, etc.

The infotainment system was specifically developed to display ads, passenger information and news.

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Project Development

Challenges

- Analyse and design the functions for the system to be complete
- Correct and refactor the unstable portion of the system
- Displays synchronization
- Upgrade existing technology
- Develop a subsystem for the train infotainment
- Adding features
- Supporting new audio CODEC

Solutions

- Develop new code for the assembly of a Linux operating system
- Refactor obsolete portions of the embedded application
- Migrate to a newer service-proven electronic platform
- Correct various problems reported on the previous version
- Develop a new firmware in order for the server to be able to display the information on the new train screens

Key Differentiators

Focon Electronics came to choose Amotus for our expertise in the rugged electronics market. For this project, they needed an experienced team used to work on reliability, requirements management and capable of designing a PIS (Passenger Information System) that can operate with degraded modes.

It is recognized that our knowledge of obsolescence management was a key element for the completion of this project. Our team has proficiency not only in a highly documented environment, including SEI and IEEE Documentation (SRS, SDD, Requirement Management) but also in IEC Documentation.

Many of these QA processes are critical to deliver a customized platform that meets this industry's high expectations.

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Project Development

> *Taking into account the tight project schedule, we didn't have enough manpower to build a qualified technical team. Working with Amotus Services team allowed us to bring their cutting-edge expertise in industrial electronics. They had the ability to be immediately operational, knowing precisely the railway sector and the technologies involved. Their experience with similar projects was greatly appreciated, when it came to be proficiently quick.*

Bruno Pimpare, Senior Director of Engineering

Operating System

Embedded Linux, for the screen portion.

Produce an Open Source Yocto operating system for multiple hardware and applications. Development of a redundant system and a fail-safe mechanism.

Hardware

Revised plan and diagram.

Recommendations given to the client's engineers regarding Audio CODEC + Video CODEC.

Cloud

Infotainment synchronized to back-end content.

Backend App

Using Qt and Python languages, implement a client-server software topology to synchronize geographical content and ads databases to display different types of video, video streaming and audio streaming.

Backend Server

Establish a link with the content server: news database update and route station database update.

The train server controls the different information/videos that will be showcased on the screens.

The server can also update screens and control them remotely.

Finally, the server can communicate directly in order to manage the choice of information displayed on the train.

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