KEEPING TRACK!

How innovative GPS technology can increase utilization of rail infrastructure

ProRail is responsible for the daily operations of the rail infrastructure in the Netherlands. The rail network is at the heart of Dutch mobility. It accommodates 1.200.000 travellers, 6.000 trains and encompasses about 7.000 kilometres of rail-tracks. The density on the network has grown over the last years and is expected to continue to increase. This will cause congestion and delays in the network. Adopting innovative GPS and GPRS technology of Sycada has proven that it is feasible to increase utilization of the network without compromising security. Read here how it was done!

Problem

- An expected growth in travelled kilometres per train of some 5% over the coming years poses a serious challenge to the rail infrastructure.
- Congestion and delays are expected unless extra rail tracks are implemented to facilitate faster takeovers at train stations or, alternatively, solutions are found to make it possible to reduce the distance between trains without compromising safety.

Solution

- Use advanced GPS technology to continuously measure the distance to and speed of the next train on the tracks.
- Make this information visible in real time (via GPRS) to the train driver so that he can determine the safe distance and optimal speed at all times.

Benefits

- Visibility to train drivers leads to reduced distance between trains on the track and thus reduced congestion.
- Scheduled take-over times between Intercity and Stoptrains at stations can be reduced by 33% without adding rail infrastructure.
- The driver gets enhanced visibility of what is in-front with a positive impact on rail security.

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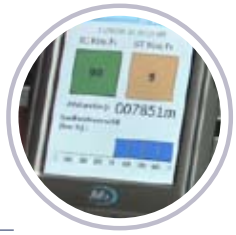
Tech Talk

- Sycada Mobile Solutions is responsible for the entire solution, including hardware, server infrastructure, PDA application, systems integration and GPRS connectivity.
- Specific technical challenges included: Managing extremely high load of GPS data from individual trains, analyzing this data in virtual real-time, and making it available to train drivers within a few seconds.

Hardware

- Enfora GPS tracking modules on trains.
- Mobile Compia ruggedized PDA's for machinists/train drivers.

Software



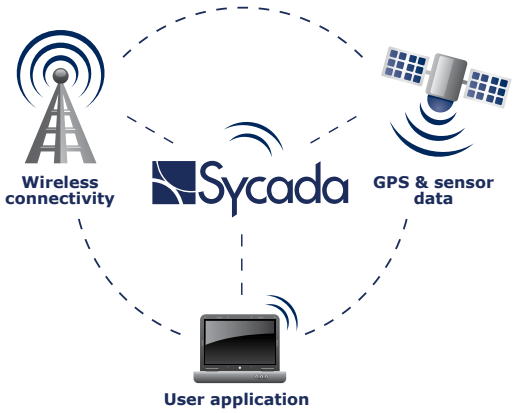
- Sycada's ***m!***Trace web application with Google Maps for real-time tracking of trains on rail network for central users.
- Dedicated PDA application for train drivers securing full visibility of speed of and distance to next train.

Systems integration

- A socket interface for detailed analysis of geo-data in relation to train rosters, departure times, delays etcetera was realized for additional data mining purposes.

Infrastructure & Connectivity

- Sycada's remote server infrastructure provides the backbone for the entire solution facilitating:
  - Registration and analysis of GPS data
  - Two-way communication with trains and drivers
  - Over-the-air system updates
  - Data security
  - Interfacing with 3rd party systems
- GSM/GPRS data communication takes place via a secure, dedicated Sycada APN on the Vodafone GSM/GPRS network.



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