

Project Information



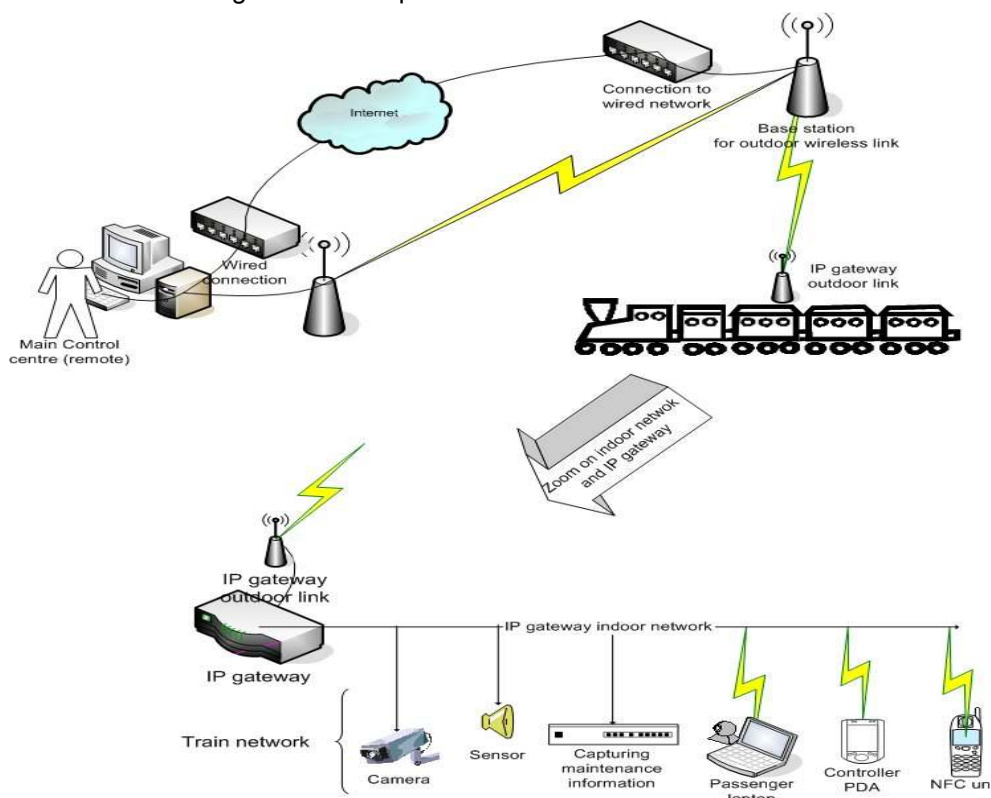
On Board Wireless Secured Video Surveillance

The BOSS project will create a high-data-rate communication system between a public transport system, (in this case trains) and the wayside base station. This will allow to deploy enhanced on-board functionalities and services including solutions for increasing passenger security (against attacks) through video surveillance, better access security on-board train and remote train maintenance.

Main focus

The BOSS project aims at developing an innovative and bandwidth efficient communication system to transmit large data rate communications between public transport vehicles and the wayside. This will allow to cope with the increasing need from public

transport operators for new or enhanced on-board functionalities and services, such as passenger security, remote diagnostic, and predictive maintenance. In particular, the BOSS concepts will be evaluated and demonstrated in the context of railway transport. As a matter of fact, security issues, traditionally covered in stations by means of video-surveillance, are clearly lacking on – board of trains, due to the absence of efficient transmission means from the train to a supervising control centre. Similarly, diagnostics or maintenance issues are generally handled when the train arrives in stations or during maintenance stops, which prevents proactive actions to be carried out.



BOSS

Project ID: CP3-004

Start Date: 1 October 2006

Closure date: 31 March 2009

Partners:

Alstom Transport, France

Arteixo Telecom, Spain

BARCO, Belgium

BUTE – Budapest University Technology and Economics, Hungary

EGROUP Services Ltd., Hungary

Ingeniería y Economía del Transporte (INECO), Spain

INRETS Institut National de Recherche sur les Transports et leur Sécurité, France

LIP6 (Université Pierre & Marie Curie Paris), France

SNCF (Société Nationale des Chemins de fer Français), France

Telefónica I+D, Spain

Thales, France

UCL (Université Catholique de Louvain), Belgium

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Project Website

www.celtic-initiative.org/projects/boss

Approach

To reach its goal, the BOSS project will develop a communication system relying on an IP gateway inside the train. This will enable the communications both inside the train and to the outside world. Inside the train for mobile passengers and controllers, and outside with the terrestrial reference frame, with a link towards wireless base stations (WiMAX like or back-up in non-covered areas). The BOSS project will consequently work on a dual mobility level, and will work to guarantee a differentiated Quality of Service for the different targeted services. The project partners will also work on adaptation of video surveillance applications, in particular increasing the robustness of existing tools and development of behaviour analysis algorithms to ensure that the passenger security is handled in the best possible way.

As an enhanced level of railway passenger security services is highly demanding in terms of bandwidth, this application thus represents a good case study to validate the BOSS concepts. Moreover, the high bandwidth which provides

both downlink and uplink, enables wireless communications solutions such as video on demand, internet access, and travel information services, which are of great interest for travellers. These services could be integrated in the global BOSS framework via an adapted level of service management.

Main results

A test-bed platform demonstrating in a real train this dual-mode approach with guaranteed QoS will be developed to validate the BOSS approach. SNCF and RENFE will be involved as end-users to evaluate concretely the different technical outputs of the project.

With its IP gateway, the BOSS project will offer the moving train the possibility to inform a control centre both on security and exploitation related issues. This will allow to increase the user protection as well as demonstrating the possibility to offer at the same time video on demand, on-board information and telecommunication services to the travellers. The validation of user protection will be performed through on-line tests on trains in revenue service.

Impact

The project will provide the communications systems needed to develop new telecommunications applications in the domain of public transport. The major expected impact will be on societal benefits to European end-users, thanks to the enhanced comfort feeling and transport efficiency especially

during off-peak hours. In particular, BOSS aims at contributing to the "European Transport policy for 2010: Time to Decide" vision, which wish to reduce the congestion and nuisances caused by the excessive use of the private car by promoting and developing an efficient, high-quality and safe service for a highly secured mobility of the EU citizens.

The BOSS project also explores a new wireless technology, Near Field Communication (NFC) units, in order to demonstrate the proposed concept with devices that are considered to reach the mass market around the end date of the project. In particular, it is planned to include NFC-enabled mobile devices in the test-bed implementation to allow possible secure connection to the wireless LAN, for instance to access added-value services.

About Celtic

Celtic is a European research and development programme, designed to strengthen Europe's competitiveness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

Timeframe: 8 years, from 2004 to 2011

Clusterbudget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from telecommunications industry, universities, research institutes, and local authorities from all 35 Eureka countries.

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