# Project information

Wireless Traffic Service Platform for Linking Cars

Main focus

The aim of this project is to develop an intelligent wireless traffic service platform between cars supported by wireless transceivers beside the road. The primary applications are real-time local weather data, urban transport traffic management, and urban information broadcasting.

Cars have integrated wireless transceivers to communicate with base stations located beside the road. In addition, cars may also communicate between each other as members of an ad-hoc network. Base stations provide real-time information (e.g. local weather) to the cars driving past. At the same time, cars gather real-time data (weather, traffic density) and deliver this information back to base stations. Base stations provide all gathered information to the central unit, which updates its databases and provides information on current traffic conditions, weather etc. back to cars driving past the base stations.
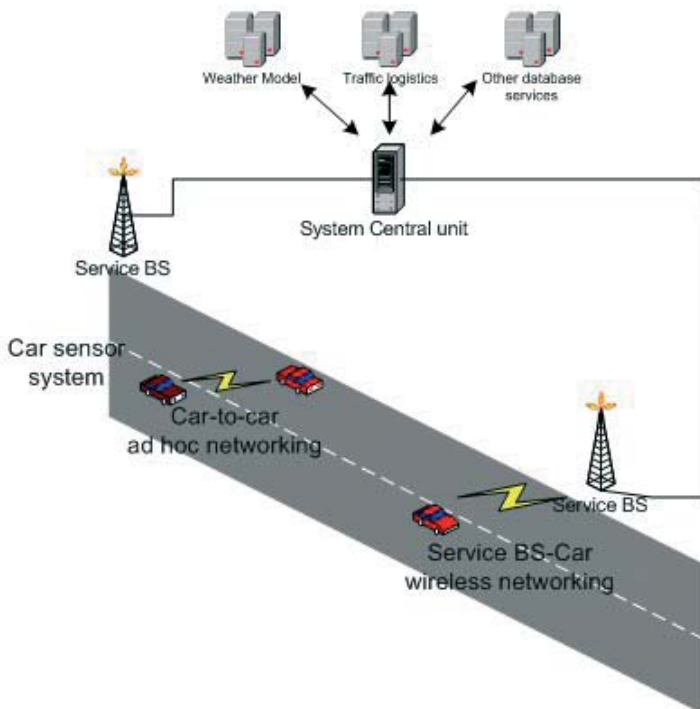
CARLINK

Project ID: CP3-037
Start Date: 1 July 2006
Completion date: 30 June 2008

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Project web site

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Approach

In the CARLINK project different kinds of wireless local area network technologies and ad-hoc networking are integrated as an evolutionary extension of WLANs, WiMAX, cellular networks as well as transmission network technologies. Integration of the various networking technologies is necessary to guarantee required coverage and data transportation ability everywhere in the application area, i.e., on highways and roads as well as urban street areas. The system will also have low-rate wireless connection (via GPRS) between end-users and central-unit, to provide urgent information in real-time. The coverage will be tested in various severe weather conditions with different topologies.

An interactive web portal built as a part of CARLINK is an effective way of promoting CELTIC Lab test vehicles. CARLINK equipment installed in test vehicles transmits position and data from sensors in real time so it is easy to track vehicles and observe both measured and forecasted weather and traffic conditions. The platform operability, usability and necessity will be approved through few key services. At

this point, these services are Local Traffic Weather Service and Traffic Management Service, but supplemental services may be added to the platform based on user requirements and scenarios definition phase, if they are found necessary.

Main results

The main project results will be provided in the form of:

🌐 An intelligent wireless traffic service platform; Extensive communication system for cars, including car end-systems, base stations and service central core unit. Platform consists of different types of networking entities, named as wireless communication based on WLAN/WiMAX and fixed networking based on traditional methods, brought together trough intelligent base-stations acting as routers between different entities. Lower capacity direct connection between core unit and end-users for urgent communication matters is based on GPRS communication.

🌐 A real-time local weather data application that is specialized for traffic; Existing weather forecasting methods are updated with localized weather data,

concentrating on exceptional weather conditions interesting for the traffic management. Car end-users act both as service consumers and data collectors for the system.

🌐 An urban transport traffic management application; Base station network and car end-users collect data to the system, and service core builds up the collective traffic information to be feedforwarded back to the cars. Car end-users act both as service consumers and data collectors for the system.

🌐 An urban information broadcasting/ sharing application; Optional service, open application platform for enterprisers to provide commercial information/ services for the car end-users.

🌐 Fast connectivity and routing schemes for ad hoc networking; Existing ad hoc networking methods are studied, aiming to develop enhancements to support communication between fast-moving transceivers and fast-moving transceivers passing by the base station.

Impact

The results of this project will benefit:

🌐 The car industry, telecommunication operators, drivers, public transportation, truck traffic and other road users. New cars can have new safety feature to be used in marketing new models. New kind of telecommunication service will bring new kind of business opportunities to telecommunication operators. Private car drivers, public transportation, truck traffic and other road users benefit with new safety features.

🌐 Equipment manufacturers (fixed or mobile), municipalities, commercial companies (advertising companies, car parking companies). Platform equipment development will bring new kind of products for electronic component industry. Advertising and value-adding services through the platform can generate new kind of private business.

🌐 Businesses that support the traveller information system.

About CELTIC

Celtic is a European research and development programme, established as Eureka cluster, 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. Launched in November 2003, Celtic (Cooperation for a sustained European Leadership in Telecommunications) was founded and has been supported by major European telecommunication players, both vendors and operators. Celtic fills the gap between public R&D programmes not specifically focused on telecoms and short-term R&D efforts by the telecoms industry

Timeframe: 8 years, from 2004 to 2011

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

Participants: companies from the telecommunications industry (small, medium and large), universities, research institutes, and local authorities from all 35 Eureka countries may participate in Celtic projects.

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