

iTETRIS

The Integrated Wireless and Traffic Platform for Real-Time Road Traffic Management Solutions



iTETRIS' vision is to create a global, sustainable and open vehicular communication and traffic simulation platform. It is designed to facilitate a large scale, accurate and multidimensional evaluation of cooperative ICT solutions for mobility management. At the same time, it is to increase European industry's competitiveness and economic, social and environmental wealth of Europe.

At a Glance

Project:

iTETRIS: The Integrated Wireless and Traffic Platform for Real-Time Road Traffic Management Solutions

Project coordinator:

Thales Communications (France)

Partners from:

CBT, Comunicación & Multimedia (Spain)
Comune di Bologna (Italy)
German Aerospace Center – DLR (Germany)
Eurecom (France)
Hitachi Europe SAS (France)
Innovalia Association (Spain)
Peek Traffic B.V. (The Netherlands)
University Miguel Hernandez (Spain)

Duration:

30 months (07/2008 – 12/2010)

Total cost:

4.42 M€

Programme:

FP7 ICT Call 2 'ICT for Cooperative Systems'

Further information:

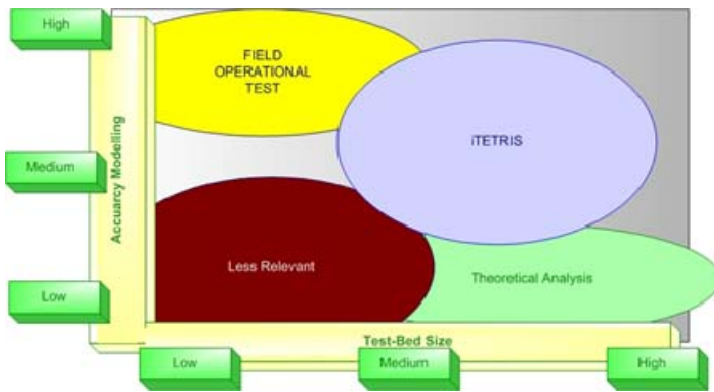
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Main Objectives

Wireless vehicular cooperative systems have been identified as an attractive solution to improve road traffic management, thus contributing to the European goal of safer, cleaner, and more efficient and environmentally friendly traffic solutions.

Indeed, real-time exchange of information among vehicles (V2V Communications) and with road infrastructure (V2I Communications) has the potential to improve traffic management. Nevertheless, routing and data distribution policies suited to the operational characteristics of the vehicular wireless environment need to be designed and optimized. It is also of great importance to investigate the adequate combination of V2V and V2I technologies to ensure the continuous and cost-efficient operation of traffic management systems based on these wireless vehicular cooperative solutions. However, to adequately design and optimize these communication protocols adequate test-beds must be available and Field Operational Tests (FOT) need to be conducted.

Despite the potential of FOT to get first insights into the benefits and problems faced in the development of wireless vehicular cooperative systems, there is yet the need to evaluate them in the long term and at large scale. To this aim, iTETRIS is devoted to the development of advanced tools, integrating traffic and wireless communication simulators.



“to get first insights into the benefits and problems faced in the development of wireless vehicular cooperative systems, there is yet the need to evaluate them in the long term and large dimension”

Such tools will enable large scale computing analysis of adequate protocols and algorithms. Hence, they will overcome the limitations of current data distribution and routing proposals, generally characterized by over simplistic wireless conditions not reflecting a realistic operational environment.

Technical Approach

iTETRIS is aimed at producing the necessary building blocks and interfaces to conduct large-scale (i.e. city level) simulations.

iTETRIS will provide a standardized, open-source integrated communication and traffic simulation platform characterised by:

- Large scale scenario simulation
- Consideration of low V2V penetration scenarios
- Inclusion of new energy and environmental parameters and
- More accurate wireless transmission modelling.

iTETRIS will investigate new, self-configuring, granular, real-time, traffic management policies, such as

- Hybrid traffic management policies
- V2V autonomous traffic monitoring schemes and
- Traffic management policies for low density V2V-V2I scenarios.

iTETRIS will propose and evaluate a set of reliable & contextually dynamic vehicular communication protocols:

- Systemic-Driven data distribution and routing protocols
- DTN information buffering

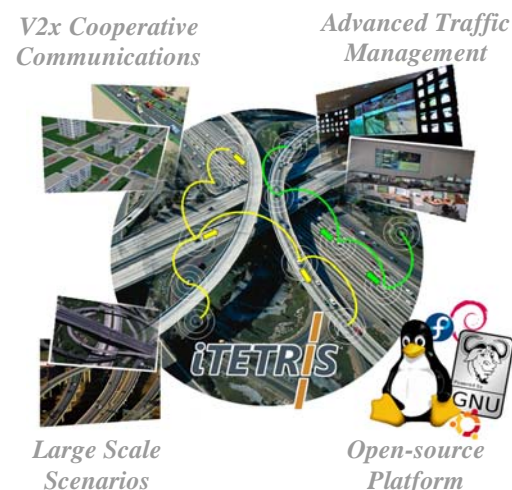
- Geo-unicast, geo-anycast and geo-broadcast communication protocols.

Expected Impact

The benefits of a V2V & V2I specific communication and traffic simulation platform are to improve the performance of traffic information dissemination and, at the same time, to satisfy the application and system requirements.

Optimised communication protocol design will not only improve the QoS levels provided by cooperative systems but also allow European ICT industry to gain a competitive advantage in the networking community as to cooperative systems.

iTETRIS could become the *de-facto* platform for protocol evaluation at CC2CC (Car-To-Car Communication Consortium) and ETSI (European Telecommunications Standards Institute) levels, which are targeting standardisation of the interoperable V2V/V2I technologies



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