

PROJECT

ICSI

Intelligent Cooperative Sensing for Improved traffic efficiency

Funding: European (7th RTD Framework Programme)

Duration: Nov 2012 - Dec 2015

Status: Complete

Total project cost: €4,538,143

EU contribution: €2,919,000



[CORDIS RCN : 105540](#)

Background & policy context:

Cooperative Intelligent Transport Systems is the future direction of mobility. Transportation assets will be increasingly integrated and will communicate through a wireless communications system. Travellers and goods carriers will have full knowledge of system performance and will be able to plan their journeys accordingly. The architecture of the ICT infrastructure for supporting Intelligent Transportation Systems (ITS) is purely hierarchical, with sensed data flowing from the leaves (i.e., road-side or vehicle-installed sensors) to the root (i.e., the traffic management centre). The current approach does not scale adequately with the inclusion of a significant number of new elements, is not flexible in supporting an incremental growth or changes of the ITS, and exhibits latency and security issues.

Objectives:

In ICSE tackles these issues by proposing a new architecture where the intelligence for sensing and actuation is distributed over some of the elements, called gateways, which host a software platform for running ITS applications, using the local storage and computation capabilities available. Communication with the remote centre happens only for the transmission of aggregated data for long-term operations, e.g., data mining, software upgrades, and logging.

The approach proposed in ICSE enables scientific and technological innovations: advanced sensing algorithms will be defined, which make use of real-time availability of data; efficient distribution of context-rich data lays the foundations for novel traffic and travel management strategies. Both directions will be studied in the project. However, research challenges are associated at all levels to the realization of the system, especially for the communication among sensors, gateways, and vehicles, which are fully addressed in the project activities. Prototypes of sensors, road-side units, and communication units suitable for the cooperative operation envisaged in ICSE will be developed and integrated into an end-to-end demonstrator, which will be used in on-field experiments for the use cases of smart urban traffic management and accident recovery in highway.

Parent Programmes:

[FP7-ICT - Information and Communication Technologies](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Other funding sources: European Commission

Partners:

- INTECS SPA
- ANGEL IGLESIAS S.A. - IKUSI

- UNIVERSIDAD DE LA IGLESIA DE DEUSTO
- Hellenic Telecommunications & Telematics Applications Company
- SVEUCILISTE U ZAGREBU FAKULTET PROMETNIH ZNANOSTI
- CONSIGLIO NAZIONALE DELLE RICERCHE
- CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZIONI
- ISTITUTO DE TELECOMUNICACOES
- BRISA INOVACAO E TECNOLOGIA SA
- OBJECTSECURITY LIMITED

Organisation: INTECS SPA

Address: Via U.Forti 5

Zipcode: 56121

City: Pisa

Contact country: Italy

Telephone: +39 050 96 57 418

Organisation Website: [ICSI](#)

Technologies:

Road vehicle operations
 Communication network for intelligent mobility
Development phase: Demonstration/prototyping/Pilot Production

STRIA Roadmaps: Network and traffic management systems

Transport mode: Road transport

Transport sectors: Passenger transport
 Societal/Economic issues, Safety/Security,

Transport policies: Digitalisation

Geo-spatial type: Other