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Raffaella Mambrini – Responsabile Business Units TLC & ITS

Logistica e ICT
2 marzo 2012
Villa Letizia - Livorno

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CMMI® Level 3 Rated
Appraised by BUSINESS STRATEGY

1974 - 2009 35 ANNI intecs

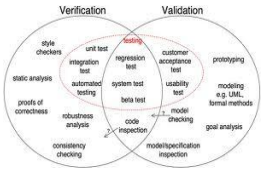
SISTEMA DI GESTIONE PER LA QUALITÀ CERTIFICATO UNI EN ISO 9001:2008 SINCERT DNV

Company Presentation

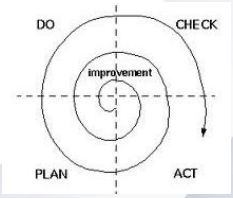
INTECS IS *ONE-STOP-SHOP* FOR INNOVATION

Services & Products

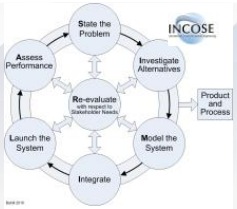
Software



IV&V



Engineering Processes



System Engineering

Safety & RAM

Hardware

1974 — *2012*

Embedded RT Systems

V&V techniques

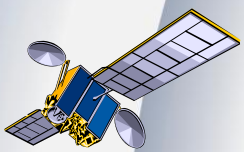
Model Based Engineering

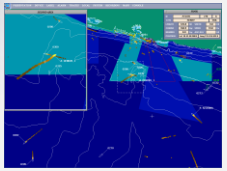
Guidance Nav & Ctrl

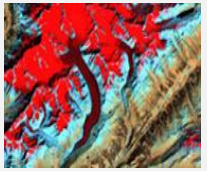
HMI

Image Processing

FPGA







Technologies / CoE

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INTECS IS HIGH-TECH SOFTWARE ACROSS ALL MARKETS

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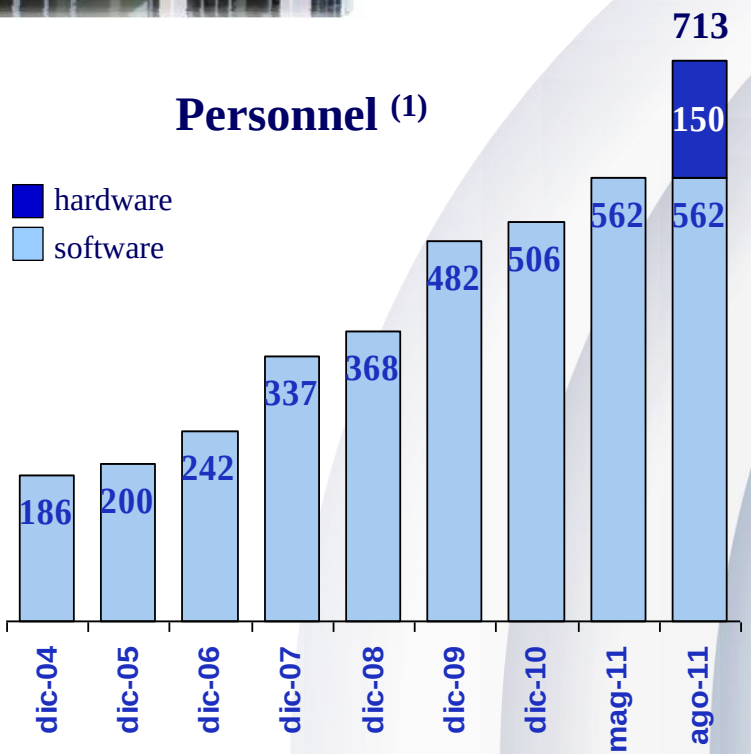
INTECS *HIGH-TECH ENGINEERS* ALL OVER ITALY and FRANCE



(1) Personnel number (not FTE). Including "atipici". End of period values. Data without Piombino. Since dic-06 with Syrea.

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INTECS LEADERSHIP (I)
- Main Certifications obtained -

- ISO 9001 since 1994 (Det Norske Veritas)
- Vision 2000 since June 2003, Vision 2008 since May 2009

- CMMI® Level 3 in Pisa in July 2010
- CMMI® Level 3 in Rome and Naples in May 2009
- CMM® Level 3 in Naples since 2004

- Automotive SPICE ™ level 2 by VOLKSWAGEN in 2006

- CENELEC Assessor Brandeburg, qualified by SciroTÜV and TÜV Rheinland Berlin

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KEY ACCOUNT CUSTOMERS

Magneti Marelli
FIAT GROUP
Bitron
META SYSTEM
cobra
brembo
PIAGGIO
ST
IVECO
AnsaldoSTS
A Finmeccanica Company
SELEX GALILEO
SELEX ELSAG
Secure Networking Solutions
A Finmeccanica Company
Telit
ITALTEL
Roots to the future
MOTOROLA
ERICSSON
Nokia Siemens Networks
Alcatel·Lucent

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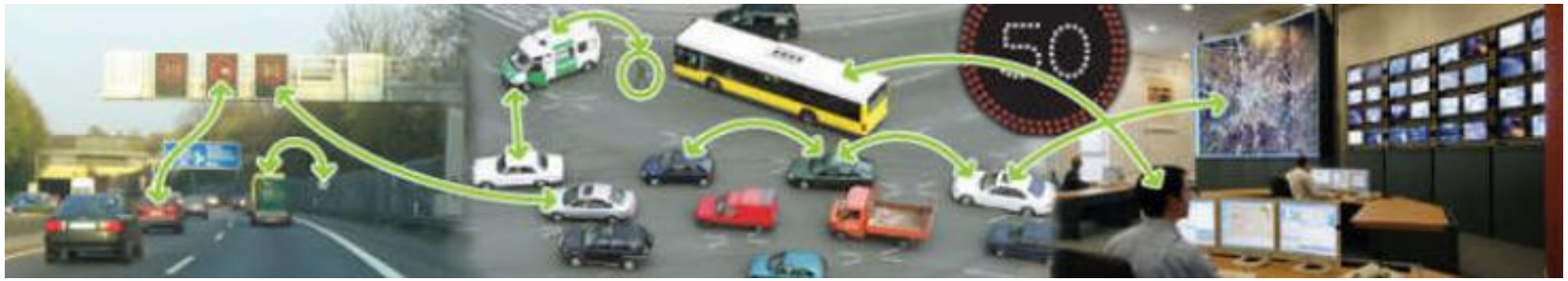
ITS Business Unit



ETSI ITS Standards on the move

ETSI

TTS ITALIA Italian ITS Association

Genova smartcity

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MAIN ACTIVITIES (1/3)

- **Public/Private clients (Freight Terminals, Ports, Municipalities, Traffic Authorities…)**
- **Co-funded R&D and Industrial projects (IPERMOB, SIMIS)**
- **Internal R&D activities**
- **Partnerships Public/Private (CNIT, Aleph, Iles)**
- **Associations (TTS Italia, Genova Smart City)**
- **ETSI Technical Committee (ITS, M2M)**
- **Publications & Conferences**

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MAIN ACTIVITIES (2/3)

- **Project Development**
  - **Project development following the 'turn-key' formula: Requirements, Design, Development, Integration, Verification, Validation**
  - **Design and development of Software Simulators (PC Based) to simulate the real environment for the System to be validated**
  - **Integration of market & custom solutions**
  - **Porting of existing software applications to platforms and/or different architectures**
  - **Harmonization for system interoperability**

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MAIN ACTIVITIES (3/3)

- **Design and Development of:**
  - **Control Room (web applications & services)**
  - **Middleware (Data Analysis and Modeling)**
  - **Telecommunication Infrastructures (Gateway, Wireless Radio Links, Priority messages handling …)**
  - **V2X (IEEE 802.11p OBU&RSU compliant)**
  - **Custom sensors (ie traffic flow, park monitoring, logistics)**

- **System Integration - Installation - V&V:**
  - **sub-systems integration (ie market sensors)**
  - **system porting**
  - **testbed installation**
  - **system verification and validation**

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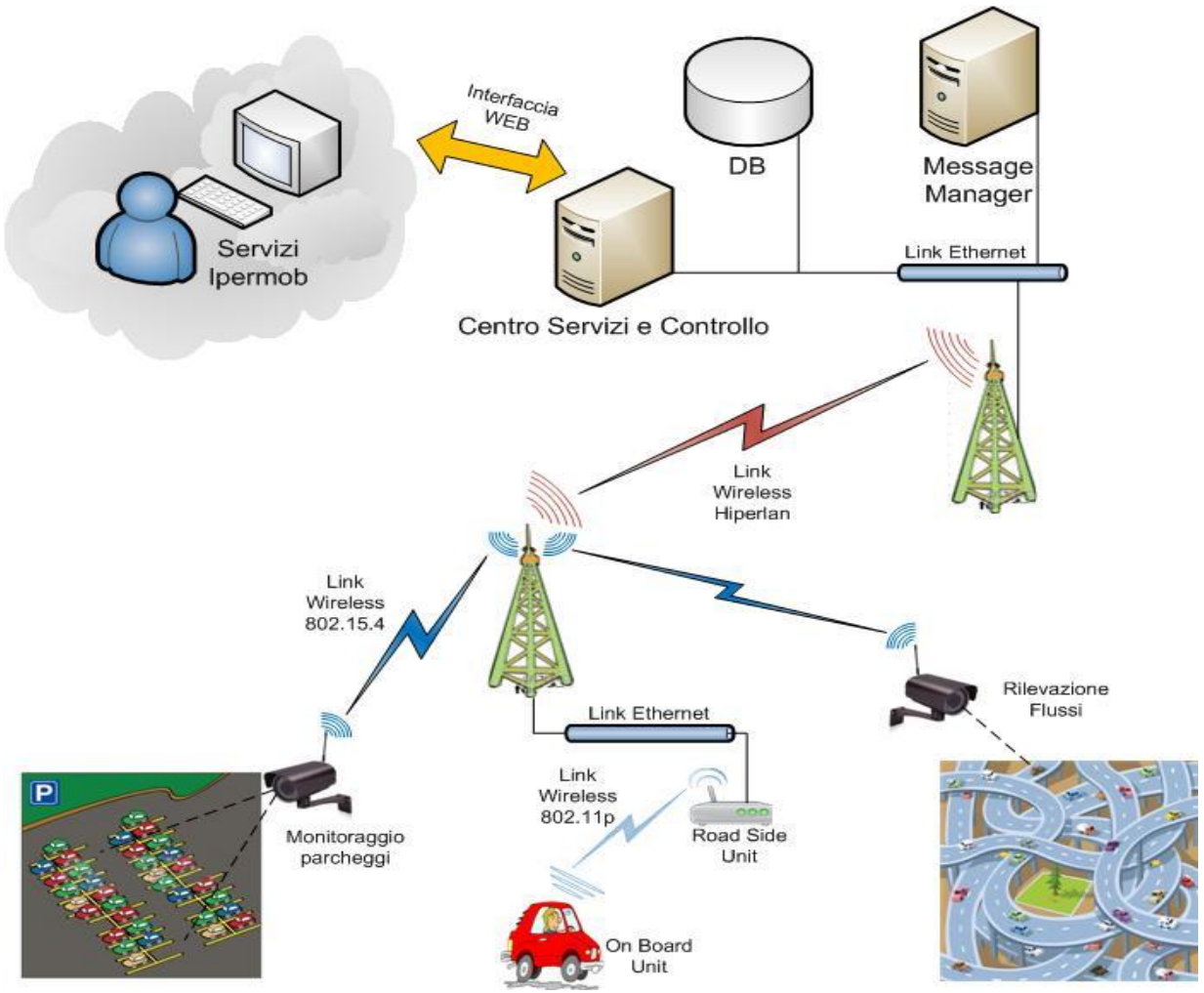
ITS ARCHITECTURE



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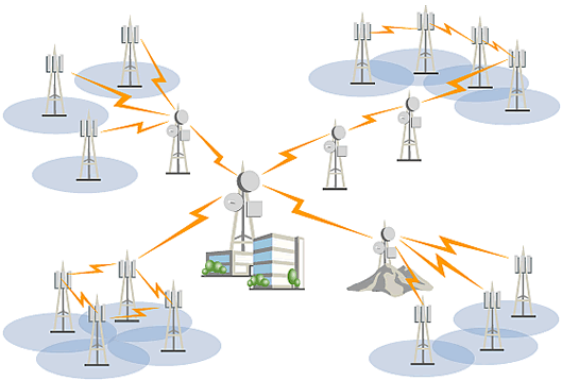
Wireless Backhauling & SENSORS – MAIN TECHNOLOGIES

- **Wireless & wired technologies for data collection and transmission:**
  - **IEEE 802.15.4 (WSN)**
  - **IEEE 802.11**
  - **IEEE 802.16**
  - **ETSI HiperLAN/2**
  - **M2M**
  - **3GPP, LTE**
  - **PLC (Power Line Communication)**



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Data Center & Control ROOM (Applications & Services)

- Data Collection & Storage on Spatial DBs
- Real-time Data Analysis
- Traffic Model Alghoritms

- *Real-time & off-line* services:
  - Real-time monitoring of traffic flow
  - Real-time monitoring of parking availability
  - Vehicle and truck tracking
  - Trip planning
  - Statistics of traffic flow off-line
  - Statistics of parking areas off-line
  - Transport models applications
  - System Operation & Maintenance

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IPERMOB Project (1/3)

IPERMOB

A Pervasive and Heterogeneous Infrastructure to control Urban Mobility in Real-Time

- Parking availability
- Vehicle flows
- Vehicles tracking
- Traffic Modeling
- Testbed: Pisa Aiport

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IPERMOB Project (2/3)

- **Funded by Regione Toscana POR FESR 2007-2013**
- **Project duration: 18 months**

- **Intecs role:**
  - **Overall System integration & validation**
  - **Wireless backhaul planning**
  - **Vehicular network development**
  - **Development of the embedded gateway**
  - **Development of the web based control room and user interface**

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IPERMOB Project (3/3)

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Lab M2M (1/3)

- **M2M communications**
  - **Convergence between ETSI M2M platform and ETSI ITS framework**

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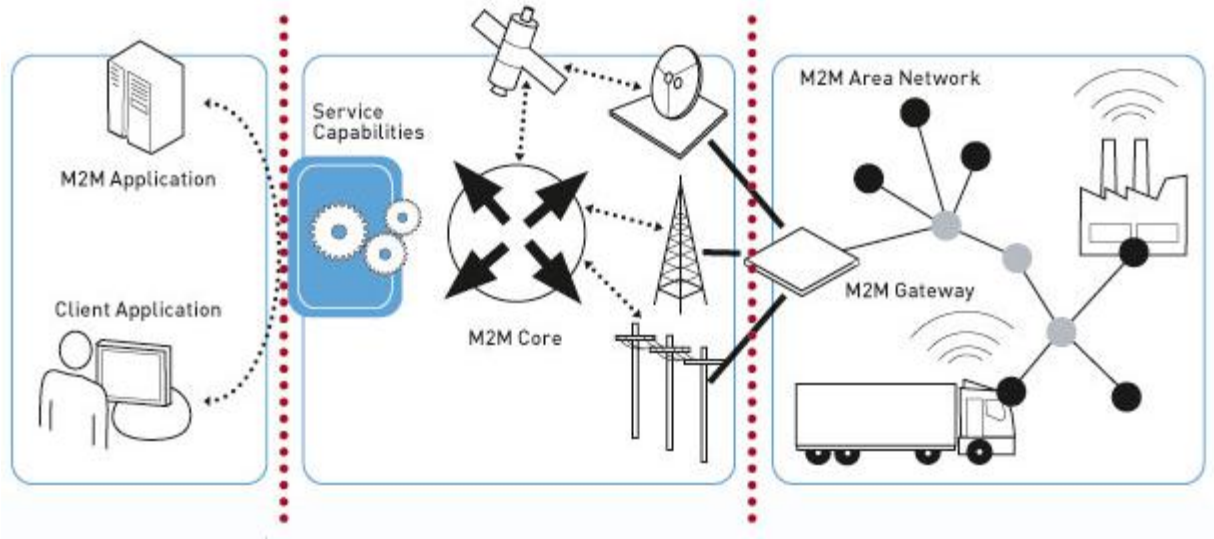
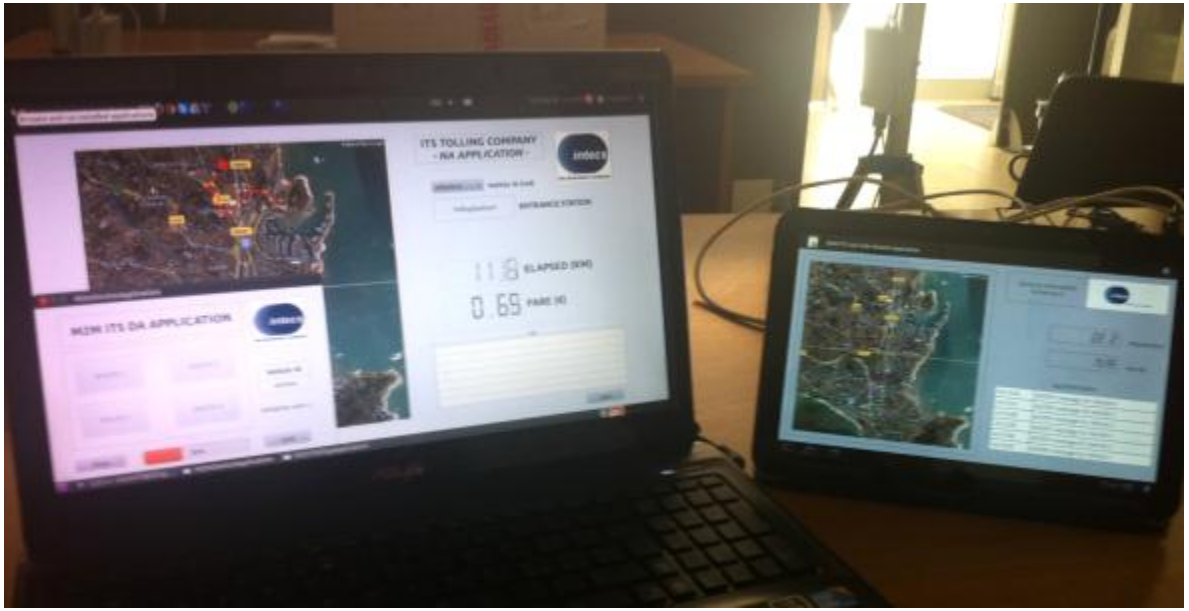


Lab M2M (2/3)

- **M2M for ITS**
  - **Vehicle tracking for a public/private ITS close system**



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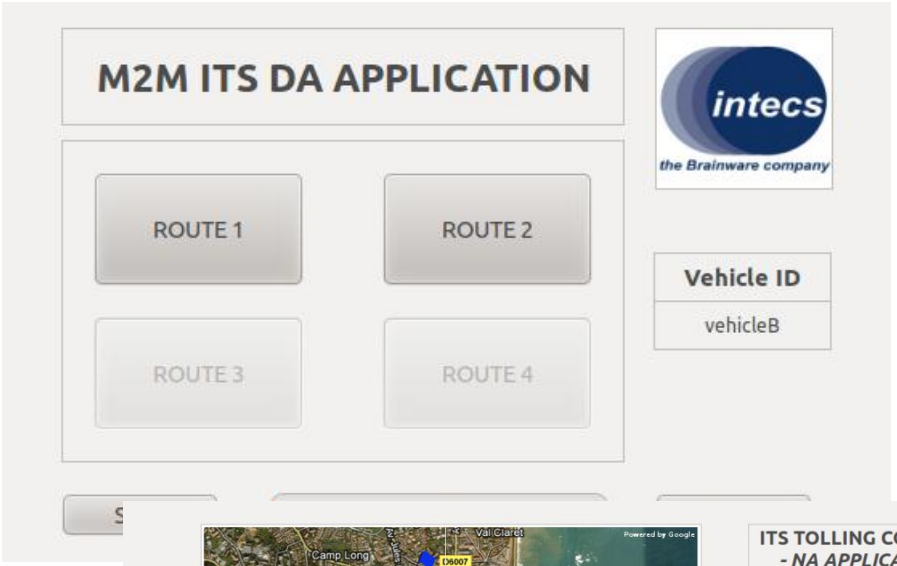
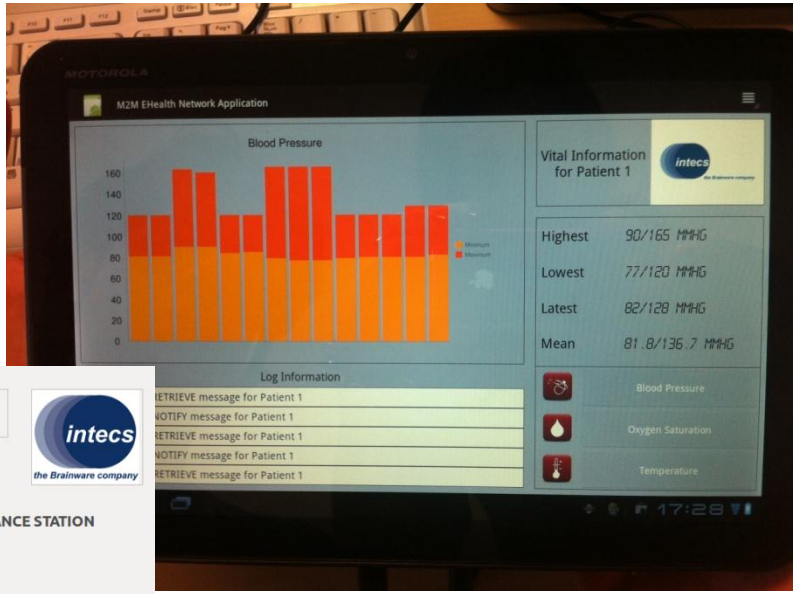
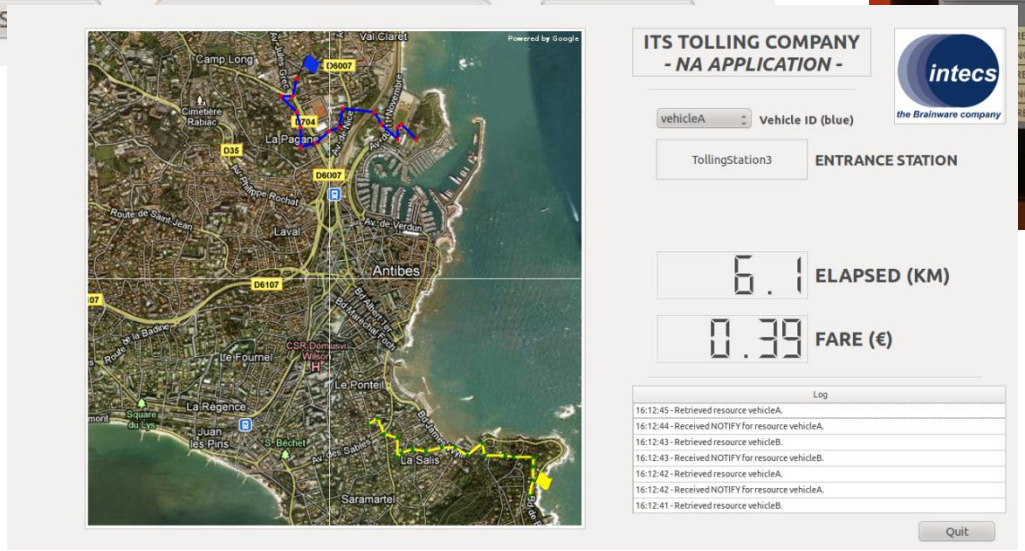
Lab M2M (3/3)







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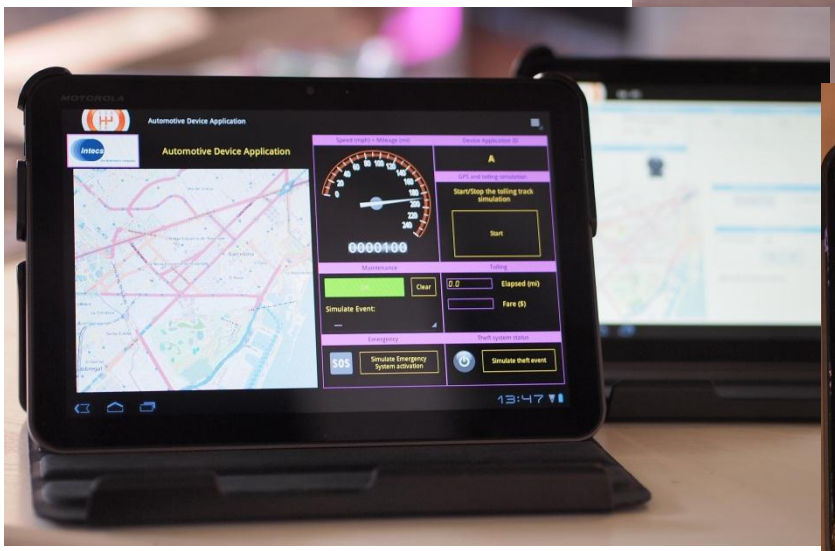
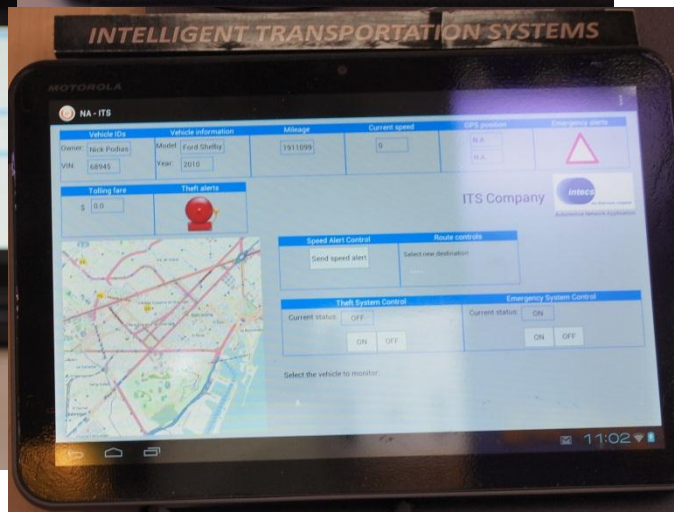
Lab M2M (3/3)

GSMA MOBILE WORLD CONGRESS

Barcelona | 27 February - 1 March 2012





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SIMIS

- Monitoring of traffic flow
- Parking availability
- Vehicle tracking
- Statistics of traffic flow & parking areas
- Transport models

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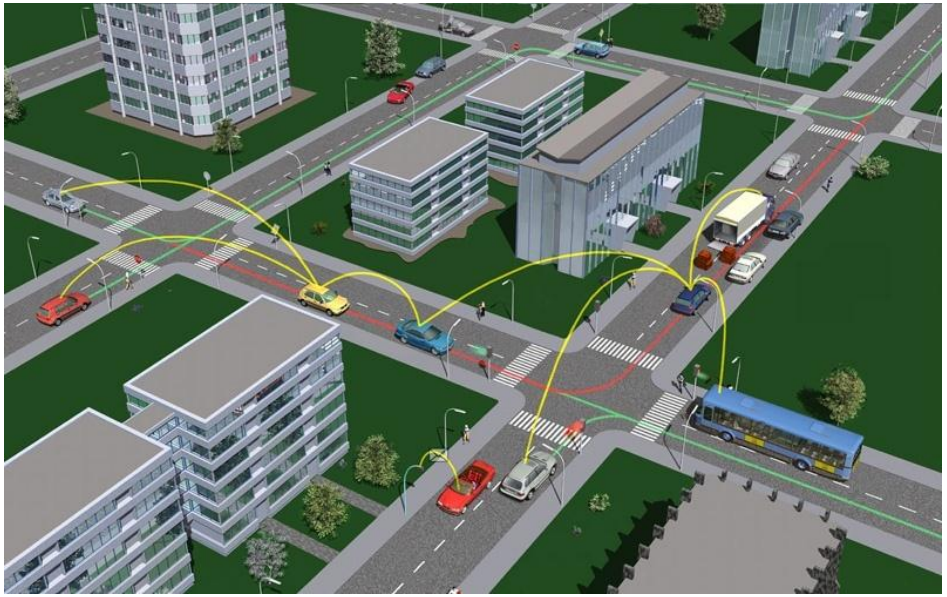
SIMIS – Backhaul and Vehicular Network

- Deployment of the wireless network infrastructure, based on **HiperLAN/2** and including **IEEE 802.11p/WAVE**



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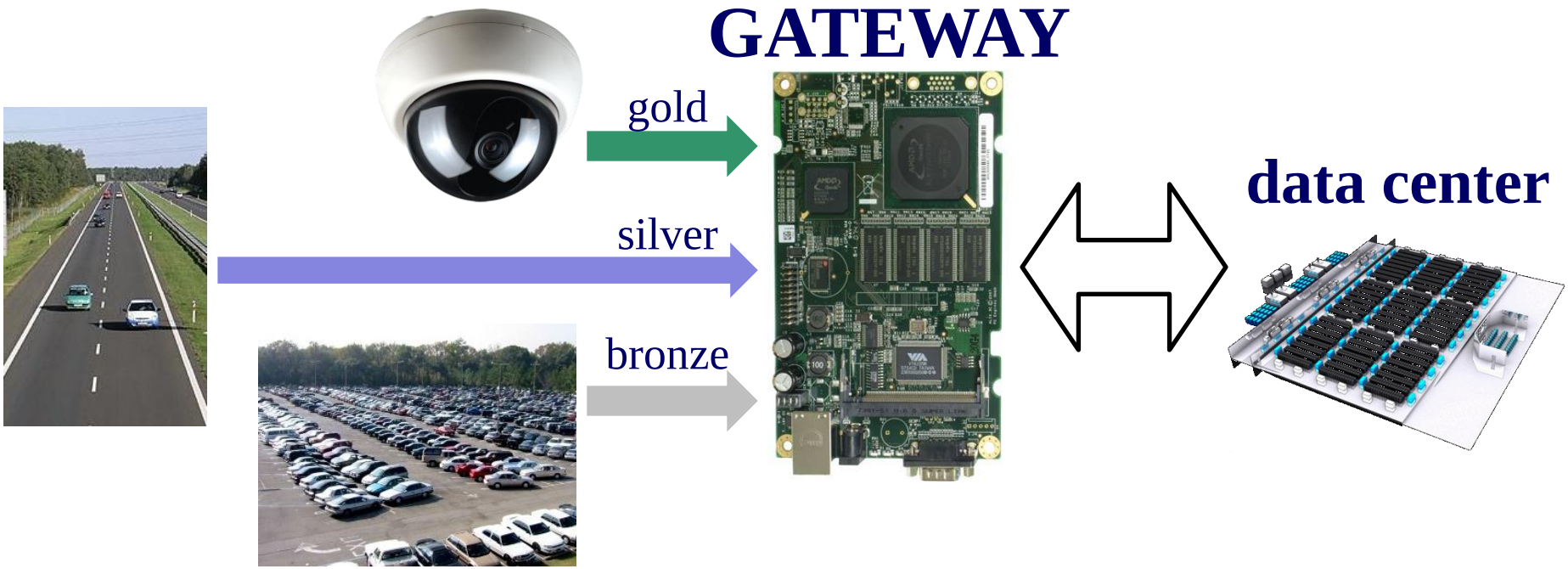
SIMIS – gateway

- Development of the SW for an embedded gateway with Quality of Service (QoS and priority messages handling)



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SIMIS – Control Room

- *User profiled real-time & off-line* services:

  - Real-time monitoring of traffic flow (people and freights)
  - Real-time vehicle travel times monitoring
  - Real-time vehicle position tracking (V2I)
  - Real-time text messages between vehicles and Infrastructure (V2I)
  - Real-time monitoring of the occupancy status of parking

  - Statistics of traffic flow off-line
  - Statistics of the occupancy status of parking off-line
  - Forecasts and feasibility studies through application of the transport models

  - System Operation & Maintenance

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SIMIS – For more details…

http://www.intecs.it/prodotti_dettagli.asp?ID_Prodotto=14

http://www.ttsitalia.it/newsletter/7_luglio_2011.html

http://www.youtube.com/watch?v=8HCkn-HPyA4

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Publications & White Papers

Publications

- C. Cicconetti, F. Galeassi, R. Mambrini, "A Software Architecture for Network-Assisted Handover in IEEE 802.21," *Journal of Communications (Academy Publisher)*, Vol. 6, no. 1, 2011.
- R. Mambrini, "IPERMOB: Infrastruttura Pervasiva Eterogenea Real-time per il controllo della MOBilita`," Geomedia, no. 6, 2010.
- C. Cicconetti, R. Mambrini, A. Rossi, "A Survey of Wireless Backhauling Solutions for ITS," Roadside Networks for Vehicular Communications: Architectures, Applications and Test Fields (Eds. R. Daher, A. Vinel), *IGI-Global*, in press.

White papers

- F. Andreini, C. Cicconetti, F. Crisciani, R. Mambrini, "P2P for ZigBee M2M Services in the Internet of Things," *European ZigBee Developers' Conference*, Munich, Germany, May 17-18, 2011.

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Conference Proceedings (1/2)

International Conference

- C. Cicconetti, F. Crisciani, V. Ginghiali, R. Mambrini, "Reliable And Geo-Localized Content Search In Mobile Networks," IEEE MILCOM, Baltimore, MD, USA, Nov. 7-10, 2011.
- C. Cicconetti, R. Mambrini, A. Rossi, S. Sudati, "Wireless backhauling in Intelligent Transportation Systems: Results from the IPERMOB project", *eChallenges*, Florence, Italy, Oct 26-28, 2011.
- C. Cicconetti, F. Galeassi, R. Mambrini, "IEEE 802.11p: Laboratory Measurements and Analysis", 50th Fitce Conference , Palermo, Italy, Aug. 31-3, 2011
- C. Cicconetti, R. Mambrini, A. Rossi, F. Galeassi, M. Rosellini, "Wireless Backhauling in Intelligent Transportation Systems", *11th International Conference on Telecommunications for Intelligent Transport Systems (ITST-2011)*, St. Petersburg, Russia, Aug. 23-25, 2011.
- R. Mambrini, A. Rossi, P. Pagano, P. Ancilotti, O. Salvetti, A. Bertolino, P. Gai, L. Costalli, "IPERMOB: Towards an Information System to Handle Urban Mobility Data", *Models and Technologies for ITS*, Leuven, Belgium, Jun 22-24, 2011.

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Conference Proceedings (2/2)

- F. Andreini, C. Cicconetti, F. Crisciani, R. Mambrini, "A scalable architecture for geo-localized service access in Smart Cities", *Future Network & Mobile Summit*, Warsaw, Poland, Jun 15-17, 2011.
- C. Cicconetti, F. Galeassi, R. Mambrini, "Network-Assisted Handover for Heterogeneous Wireless Networks", *IEEE Globecom 2010 Workshop on Seamless Wireless Mobility*, Miami, FL, USA, Dec. 6-10, 2010.
- F. Andreini, C. Cicconetti, F. Crisciani, R. Mambrini, "Context-Aware Location in the Internet of Things", *IEEE Globecom 2010 Workshop on Network of the Future*, Miami, FL, USA, Dec. 6-10, 2010.

National Conference

- C. Cicconetti, R. Mambrini, "Comunicazione e cooperazione distribuita nei sistemi di trasporto intelligenti," Convegno nazionale AEIT, Milan, Italy, Jun 27-29, 2011.
- C. Cicconetti, R. Mambrini, "Verso la ubiquituous connectivity nelle reti wireless a larga banda e l'importanza di un handover intelligente ," Convegno nazionale AEIT, Milan, Italy, Jun 27-29, 2011.

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Contacts

Raffaella Mambrini - TLC & ITS BU Leader

Email : raffaella.mambrini@intecs.it

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Intecs SpA

Via Umberto Forti A5

Polo di Attività Montacchiello Loc. Ospedaletto

56121 Pisa

tel.: 050.9657.411 fax: 050.9657.400