

INSTANT-Olympic: facts sheet

1. Project summary and objectives

INSTANT-Olympic is an RTD Pilot Project in the 5th Framework Programme under the GROWTH thematic programme and is coordinated by NEXT-(IT). It is co-funded by EC and under the technical supervision of the Galileo Joint Undertaking (GJU).

The project targets as a test case the Athens Olympic Games of 2004 and proposes applications in two different environments (sea and land) and in different land surroundings (urban, semi-urban). Project applications made extensive use of up-to-date GNSS receivers (i.e. EGNOS) in close integration with other emerging technologies (geo-information, mobile/satellite communications, personal digital assistants, mobile mapping software). It aimed to provide a scalable and dynamic reconfigurable system to support different application domains; INSTANT pilot applications are of particular importance to demonstrate the advantages of making use of EGNOS with respect to GPS in chosen areas and the possibility to build innovative services that can better match real user needs in realistic operative situations;

This project has to set up, validate and demonstrate three pilot projects, based on the EGNOS System Test Bed with the view to develop a pre-operational service provision: all three pilot projects deal with safety of life applications and introduce a unique opportunity for EGNOS/Galileo for different reasons:

- The high visibility and real needs in addition to the current lack of use of Satellite based technologies by the Rome/Florence Fire Brigades.
- The maritime opportunities and operational needs in Athens (in the Aegean Sea and the Wider Saronic Gulf) arising from the Olympic Games, 2004.
- The safety related land mobility opportunities and operational needs in Athens (in the wider Attica area) arising from the Olympic Games, 2004.

The technical and scientific objectives of the project are to:

- Develop, Test and Demonstrate EGNOS/Galileo applications before Galileo becomes operational emphasising on the differentiators of EGNOS/Galileo to GPS (added value of integrity, improved accuracy, guarantee of service) and setting up trials in different environments (urban, semi-urban, maritime).
- Exploit the GNSS Test Bed by using the EGNOS signal, and feeding into the GSTB planning and other standardisation efforts.
- Interact closely with real users, assess opportunities from requirements relevant to certification, legislation (e.g. IMO), demonstrate EGNOS in specific events of global high visibility (Olympic Games).
- Exploit the integration of GNSS, communication, geo-information and Personal Digital Assistants (PDA) capabilities in a European framework.
- Deploy innovative IT infrastructures to support operative large-scale management of Emergency situations in real environments;

2. Major achievements

In line with the objectives declared, the INSTANT consortium designed and developed an innovative IT infrastructure demonstrated successfully during the appointed demonstration periods (in Athens and in Florence – July/August 2004).

In particular, the following achievements can be highlighted:

- INSTANT infrastructure was finalised in the contractual period and hosted the three different pilots demonstrators, based on a distributed component architecture that allows scalability and dynamic operations to achieve robustness, interconnection fault-tolerance and service continuity.
- Event-based transparent use of cellular and wireless communication systems like GSM, GPRS, WLAN and Satellite links to use heterogeneous bandwidths in a dynamic fashion, with superior QoS facilities and reconfigurable mode of operations required in the Emergency Services domains.
- The appointment of a robust Service Control Centre that includes the Infomobility and Emergency Management of operations, Fleet Management capabilities, Event messaging, Tracking of Resources, DBMS for secure and persistent operations, GIS servers with precise Maps (both in vector as well as raster formats – e.g. IKONOS data with 2m accuracy), Enterprise servers and the INSTANT portal
- The development of a (ruggedised) Mobile User Terminal interconnected by WiFi /GPRS communication, equipped with Bluetooth EGNOS receivers; it is capable to monitor (by embedded Digital Camera), manage operations and connect by SatCom terminals with the other terminals or to tralised SCC (in Rome/Athens);
- The management of critical situations based on a reconfigurable network of mobile resources. A Mobile Control Center (MCC) is equipped with WiFi/GPRS and SatCom communication and is able to control and monitor the communications and positioning of its own User Terminal cluster and/or distributed clusters. The mobility of resources is thus extended with the mobility of the control centres that can manage the situations in case of calamities.
- The wide usage of an innovative Wireless Application Server in order to deliver any sensible content to any Internet user, using any wireless Internet devices and across wireless networks, spreading the information to the involved public user (e.g. involved in a calamity and informed by sms).

Furthermore, the INSTANT demonstrations confirmed the capabilities of the project infrastructure, in order to:

- Supervise the emergency situations with continuous monitoring of the activities and using bi-directional communication and semi-automatic (rule driven) system management;
- Manage vehicles and pedestrian resources equipped with communication and precise positioning systems;
- Show the potential of the high-end User Terminal in critical and harsh environments, supporting the control centres with live information and receiving constant support in real time;
- Demonstrate the effective integration of back-end information systems (e.g. planning, databases, information networks, institutional, etc.) within the implemented LBS capabilities;
- Integrate textual structured information in communication based mobile systems and distributed open platforms to open e-inclusion of context-aware information to the specific context operators as well as to general public;

3. Disseminations

1. Live demonstrations were organised in several periods of the project, ending with the real demonstrations in Athens and in Florence. Specifically:
 - In Athens for the Olympic Games (see ESA video, Euronews video and the information on the INSTANT web site): this demonstration involved the two greek users and the technological partners to deploy and test the infrastructure for the security and maritime environments.
 - In Florence for the real operations of the Fire Brigades: this demonstration involved several resources and in particular the Command and Control car (equipped with the Mobile

Control Center and a set of user terminals), connected with the Control Center that followed the operations in real time. Operative firemen supported the operations.

2. The INSTANT web site can be found at the following link:

- o <http://www.instant-olympic.com>

this site encloses all the contents required for general dissemination purposes (including information on the GALILEO programme, the project, the consortium, the objectives, the live videos, the news section and the relevant papers and presentations).

In order to improve the penetration of the site in the relevant communities, it is planned a careful restructure of the site presentation with extended contents and improved graphical layout by the end of the activities.

This web site hosted the group work of the consortium (e.g. by the publication of minutes, design material, presentations, etc), contains all the information about the project meeting and a special section for the EC and GJU (restricted sections).

c. Conferences

The INSTANT project and results was presented at the following international events:

- DGTREN Conference in Barcelona (November 2002)
- NAVSAT 2002 (Satellite Navigation and Positioning World Show Nice-Acropolis 2002)
- GNSS 2003 (The European Navigation Conference Gratz, April 2003)
- NAVSAT 2003 (Satellite Navigation and Positioning World Show Geneve, June 2003)
- ITS World Conference in Madrid (November 2003)

In the NAVSAT conferences a real demonstration with a reduced set of equipments was made.

d. Brochures and PR material

The following papers were presented at International Conferences:

- "Devising Scalable And Dynamic Reconfigurable Emergency Services" Systems: The Instant Approach": Luigi Mazzucchelli, A.Pistoni (Navsat 2002)
- "A Dynamic And Reusable Model For Event-Based Distributed Architectures: The Instant Approach":Luigi Mazzucchelli (Dasia 2002)
- "A Distributed And Mobile System To Support Emergency Situations Management" : Luigi Mazzucchelli (Gnss 2003)
- "Supporting Scalability And Dynamic Mode Of Operations In A Distributed Component Based Approach: Instant-Olympic Pilot Project Results" : Luigi Mazzucchelli (Navsat 2003)
- "Estb Signal Survey Results In Rome And Ahtens Areas: A Preliminary Assessment In Instant" : D.Vassiliadis, A.Pistoni, P.Savino, V.Varela (Navsat 2003)
- "Extensible Interfaces For Mobile Devices In An Advanced Platform For Infomobility Services" Luigi Mazzucchelli, Matteo Pace - Avi 2004 Advanced Visual Interfaces International Working Conference In Cooperation With Acm-Sigchi, Italy May 25-28, 2004

Brochure of the project was prepared originally by EC and a poster and a video presentation (anticipated tasks for the dissemination deliverables) was prepared by NEXT and circulated to the partners and conferences.

In occurrence of the demonstration in Athens and Florence two professional videos were prepared:

- in Athens video by ESA personnel: the material was also re-mounted by Euronews and circulated in the satellite channels (see the INSTANT web site for a streaming video copy). This video explains how the EGNOS capabilities, supported by the INSTANT system, is ready to support security and maritime operations for the Olympics.
- In Florence by the operators of the “Centro di Documentazione Video Regionale e del Comando dei Vigili del Fuoco”: this video explains how the real operations of the Florence fire brigades take advantage on utilising the INSTANT systems and its evolutions.

3. Exploitation opportunities

The key exploitation opportunities for the INSTANT project are the following:

- For what is regarding the Florence fire brigades, it is agreed that a real operative system (with a small amount of user terminals) will be installed at the Command and Control facilities by the end of October – supporting the real operations in emergency management.
- Demonstrations for private Yacht Brokers in Italy will be appointed for the extension of the INSTANT platform to intelligent agent systems, to provide information dissemination and infomobility for Maritime operations in the Mediterranean sea.
- Other opportunities are foreseen in the effective reuse of the INSTANT infomobility infrastructure for supporting road tolling operations (see the VIFP project VeRT) and other systems for infomobility (e.g. the recent project on integrating sniffers and electronic noses in the user terminal to serve secure operations for terroristic attacks, the eSecure project)
- A key exploitation opportunity is for NEXT the industrialisation of the mobile User Terminal for mass-market users: the PGA-Personal Geographical Assistant. This evolution of the INSTANT terminal is based on the extension of the navigational and mapping capabilities, together with the novel concept of group messaging and group connected operations. This business prospect is fostered by the cooperation with Teletlas (Mapping) and Emtac (producer of the Bluetooth EGNOS GPS – the EGNOS capability of this equipment was made possible by the NEXT-EMTAC cooperation during the INSTANT activities). The PGA handheld will be presented at the SMAU 2004 in October.

Several dissemination and exploitation activities were held in the period by the partners both at National as well as International level.

4. Contacts

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