

# *Precise Operation Positioning for Alpine Rescue Teams*



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# Outline

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# Consortium Presentation

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## **IfEN GmbH: Poing – GERMANY**

- SME, founded 1998, ca. 25 employees; Main business activities: **Integrity Syst., Navigation Applications, Receiver Techn., Mobile Solutions**
- Project tasks: service definition, SAR control implementation, dissemination

## **Istituto Superiore Mario Boella (ISMB): Torino – ITALY**

- Research centre under the private law established by Politecnico di Torino University and San Paolo's Company Foundation in 2000. **ISMB hosts the NavSAS Group in its Navigation Lab**.
- Project tasks: system requirements, architecture definition, test plan definition

## **Sist&Matica: (Coordinator) Manta – Cn- ITALY**

- Projecting and manufacturing of **radio control systems** for industrial and agriculture machines and it develops **fleet management systems** for its partner Sistemobile.
- Project task: overall responsibility for the project consisting of its scientific, technical and administrative aspects. System implementation and the overall system testing.

# Strategic Background of the Project

Annually more than 150 million people are estimated to search for recreation in the mountain environment. This large number dramatically increases the interventions of the Rescue Teams.

Despite of the high level of professionalism acquired by the Alpine Rescue Teams, the effectiveness of the intervention is often limited by the efficiency of the operation management (i.e. operations take place in every weather or environmental conditions!)

## Major problems to be faced

- Rescue teams are usually equipped with GPS receiver able to provide the position of each single rescuer, but **no automated service is present** for the management of the operation by a control center
- **No feedback** related to rescuers position is available (e.g. helicopter' s landing area)
- Portable receiver **does not always provide a sufficient degree of accuracy in hostile environments** as canyons or dense foliage forests

# Objectives

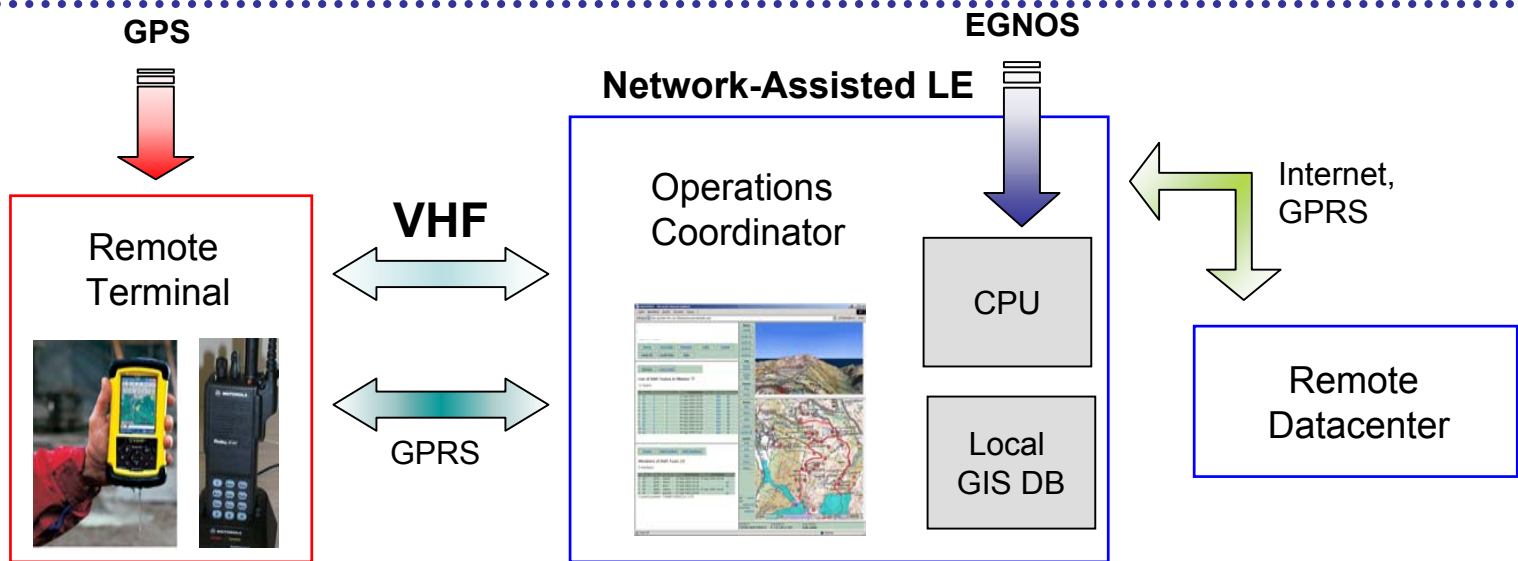
The main objective is to **provide the members of the Alpine Rescue Teams with a centralized localization/communication system for the real-time support to rescuers operating in the field.**

## Key Features:

1. Network-Assisted Local Element concept in order to assure low level of traffic (data) and reliability
2. High precision in positioning using EGNOS
3. **VHF air interface** as a major system requirement
4. GPRS as backup COM system

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# Objectives



The overall system is composed by

- **A remote terminal** - hybrid terminal composed by PDA, GPS chipset, GPRS modem and a VHF transceiver
- **Operations coordinator** (movable on demand LE) that must be able to rapidly coordinate the rescue operations
- **Remote datacenter**: centralized database that must collect information about rescue team members and history

# Workplan and Progress Status

POP-ART just started!

KoM: 21<sup>st</sup> March 2006

## Major Milestones

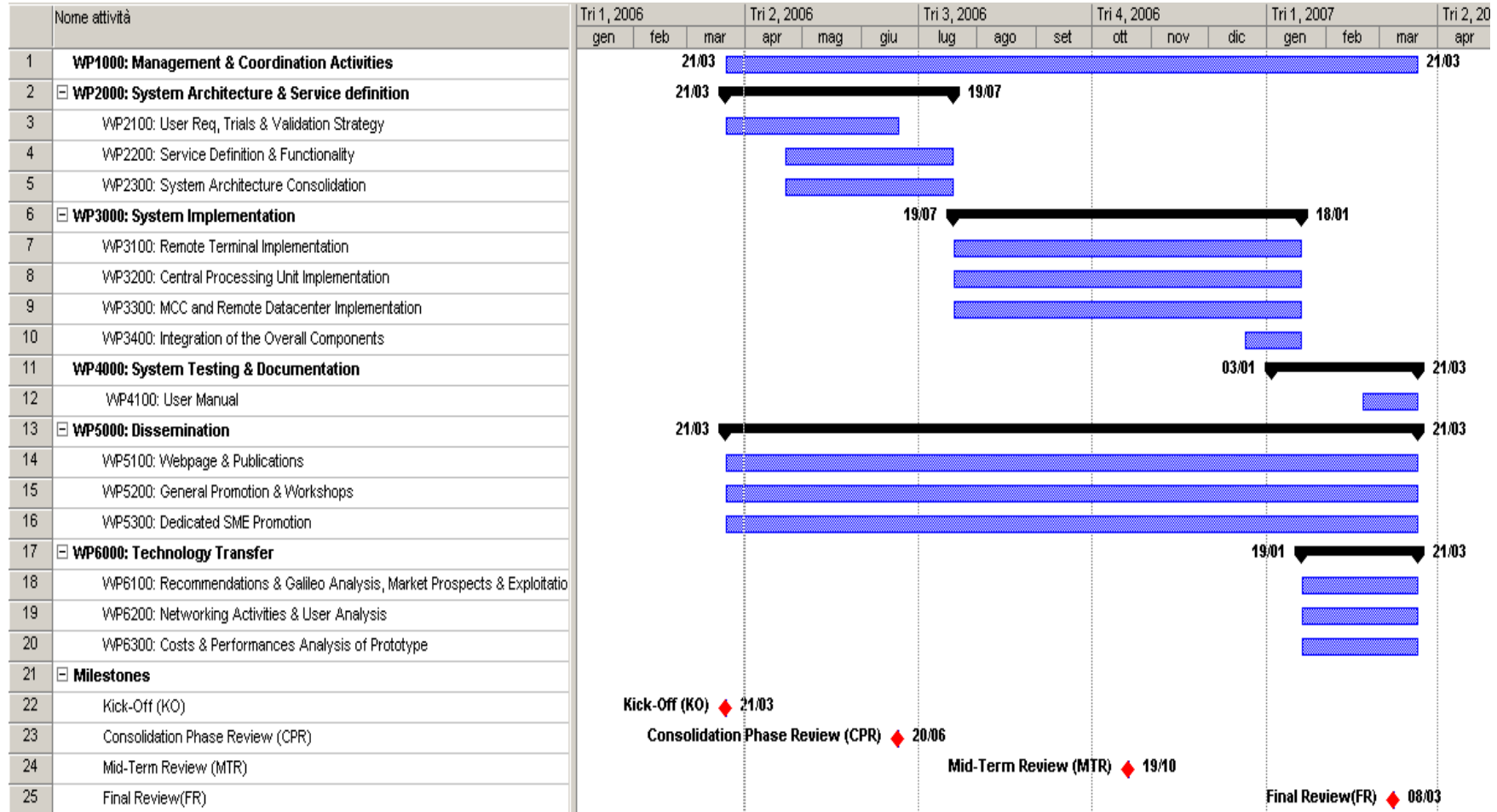
- ✓ **System requirements and architecture**
  - Status: STARTED (interview with the user community)
- ✓ **System implementation**
  - Status: planned for September 2006
- ✓ **System Test** (involvement of user community)
  - Status: planned for February 2007



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# Workplan and Progress Status

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# Expected Results

1. **Increasing safety and management of mountain rescue teams**
  - Optimization of rescue operations through **real-time coordination** of the rescuers in critical environments
  - Specific **location-based services** will be available at the **operation management level** and at **each terminal**. Use of available **VHF infrastructure** assuring the whole coverage of the alpine area
  - Integration of several LBS at the remote terminal level assuring a real employment of GNSS technologies in the day-by-day operations
  - Provide a **Galileo-Ready Tool** as a first step toward the employment of future GNSS

# Expected Results

2. **An innovative technology for rescue operations in critical environment.**
  - Develop **technological platform & test services** to meet requirements of alpine rescue teams through **hybridization of GPS, EGNOS, GPRS and VHF technologies**
  - Network-assisted positioning concept applied for **EGNOS integration**. Proof of the EGNOS capabilities
    - ✓ Mission **Control Center** to coordinate rescue activities
    - ✓ Guidance (routing information from GIS database )
    - ✓ Position visualization on digital map (**made available by the user community**)
    - ✓ Information exchange between all actors of the rescue chain (e.g. area of search)

# *Expected Results*

- **Providing the Alpine Rescue Teams of the Piemonte Region with a prototype able to be employed in both day-by-day rescue activities as well as the major events schedule in 2007**

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International race  
of sky-alp



Regional training &  
courses

# Future Steps

The Research Committee of the Italian Mountain Rescue Teams confirmed the interest in employing the system as soon as possible

From the **commercial standpoint** future steps will be devoted to further improvements of the system (engineering process) to reach a commercial product

1. Implementation of the feedbacks coming from the user community
2. Set up of a commercial product (i.e. regulation aspects)
3. Consider additional input from other classes of users (e.g. Protezione Civile) to adjust the available services and to increase potential customers

# Future Steps

POP-ART is also a technological platform for innovative LBS application development

From the **technical standpoint** future steps will be depended on the investment capabilities of each partner

1. Test of new COM solutions (e.g. TETRA)
2. Test of the Virtual Reference Stations concept
3. Integration of novel cartographic DBs
4. Security aspects: increase the protection level of the communication
5. Analysis of possible integration with telemedicine systems (e-health concept)
6. Investigate the evolution of the system toward Galileo

# Contact Information

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Find more information on our web site:

[www.popart-project.com](http://www.popart-project.com)

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