SGL for USaR

Second Generation Locator for Urban Search and Rescue Operations

SGL for USaR is mission oriented towards solving critical problems following large scale structural collapses in urban locations. The devotion, courage and expertise of rescuers need to be matched by procedures and technology that will enable safe and effective responses.

This Integrated Project will combine chemical and physical sensors integration with the development of an open ICT platform for addressing mobility and time-critical requirements of USaR Operations. The project will also focus on medical issues and on the relevant ethical dilemmas.

Project objectives

- To use video images (image analysis), sound (sound signatures), field chemical analysis (marker compounds), optical sensors (spectral analysis), data fusion and wireless communication in order to develop integrated, stand-alone early location devices for entrapped people and dead bodies. Employ the same kind of devices for monitoring and identifying hazardous conditions in voids of collapsed buildings due to construction's physical damage, flaming or smoldering fires and gases released.

- To develop integrated remote early location and monitoring systems for localization purposes based on the deployment of networks of probes. Such systems will also be capable of receiving other type of data (e.g. sonar).

- To integrate early location and monitoring systems with communication and information management applications that can provide with multi-level processing and data fusion and will support relevant USaR services and logistics (medical support, mobilization, tools, transportations, communications) SGL for USaR project will use multidisciplinary approaches, optimize existing cutting-edge technologies and make the best use of available resources.

The IP is targeted on delivering next generation systems for USaR operations.
For that purpose, relevant technical, scientific and operational issues will be addressed.

The project focuses on rapid location of entrapped or buried victims (alive or deceased) and the continuous monitoring of the air conditions in the voids of damaged and partially collapsed structures. Entrapped people and voids are associated with characteristic visual, sound and chemical profiles, due to specific images or spectral emissions, to acoustic signatures and chemical markers.

The adaptation of crisis management USaR services (logistics) with the early location and monitoring systems in a mobile command and control operational center is employed.

The project is formed by eight sub-projects (work packages) running in parallel. These WPs address the development of simulation environments; the development and validation of portable devices for location operations; the development and validation of smart sensors environment for monitoring the situation under the ruins; the management of medical information, including privacy and bioethics; and finally the development of an ICT platform that will integrate all the previous data, ensure interoperability and control the flow of the information from the field to the operational center.

SGL for USaR will deliver methods and guidelines, as well as, tangible prototypes: a stand-alone FIRST responder device that integrates five different location methods; a networked rapid casualty location system (REDS) equipped with wireless sensor probes; an advanced environmental simulator for training and testing search and rescue units, including canine teams; and a prototype mobile operational command and control platform. These solutions can also be applied on security and thus they can create additional commercial opportunities.

INFORMATION

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SGL for USaR

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