



Autonomous data collection for Disaster management: location aspects

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In Search and Rescue (SaR) operations, Autonomous system dedicated to data collection meant for the rescuers constitute a good way to detect buried people under debris. For example, a Ground Penetrating Radar (GPR) coupled to an autonomous system, constitutes a very efficient tool available for accessing unreachable domains for the rescuers. Such areas are characterised by very hostile conditions. These are dangerous zones due to their instability, and due to the difficulty to move in this environment, for instance: holes, geological breaches, narrow passages, etc. The possibilities to block the autonomous system in the hostile environment and to lose it are very important aspects that need to be addressed.

One may reason that on one hand efficient advanced navigation functionalities and on the other hand accurate location of the targets, for example people buried under debris, are required to ensure a localisation system capable of governing itself and self-sufficient operation.

Self-sufficient, in this context, means available to determine in real-time the system location without external data produced by other systems such as GNSS, radio navigation services, etc. Indeed, in the post-earthquake context, the electromagnetic wave propagation constitutes an important difficulty.

In this contribution we consider and evaluate new approaches dedicated for obtaining the location of the autonomous system throughout its mission-life.



Figure 1. Arcturius module, dedicated to buried people detection

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