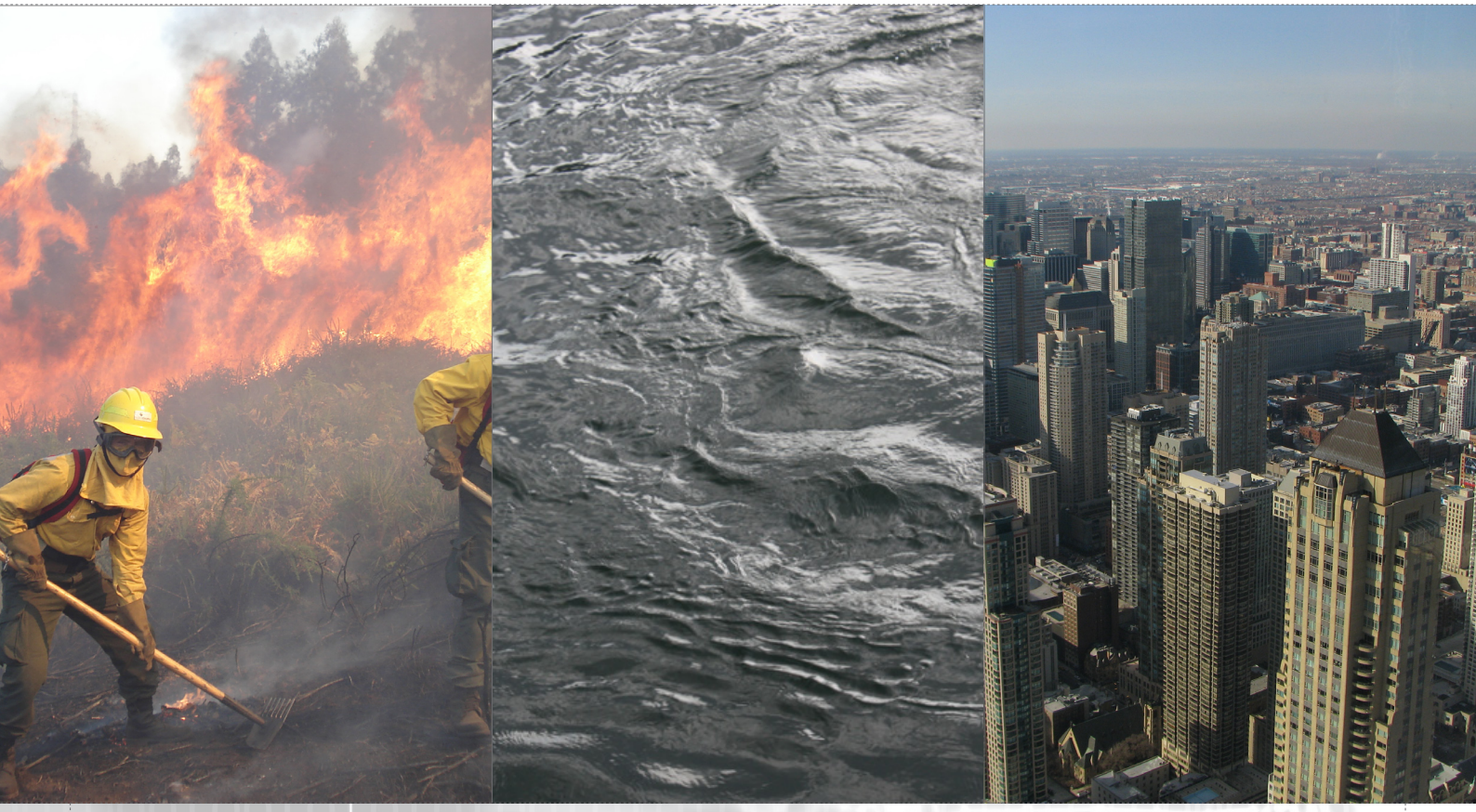
an ARTEMIS Call 2008 project profile

EMMON

EMbedded MONitoring



EXECUTIVE *summary*

The EMMON project is a collaborative venture. The consortium intends to research, develop and deploy a large-scale Wireless Sensor Network (WSN) functional prototype for the real-time monitoring of specific natural scenarios (related to the quality of urban life, forest environment, civil protection, etc) using WSN devices.

CONTRIBUTION *to SRA*

EMMON contributes and is relevant to the following ARTEMIS JU SRA research domains: "Seamless Connectivity and Middleware "and "Reference Designs and Architectures" (in this order of importance). Seamless connectivity means the possibility to exchange at the physical level - networks - at the logical level - data - and at the semantic level - information and exchange knowledge. The research work within the scope of EMMON will lay basic foundations and provide the communication infrastructure, protocols and middleware to enable robust, scalable, energy-efficient, fault-tolerant large-scale Wireless Sensor Networks.

MARKET INNOVATION *& impact*

EMMON will tackle the challenge of using thousands of embedded networking devices in large-scale distributed application scenarios by covering the technology chain from OS to middleware and from protocols to system integration in a large geographical area. The potential market impact is to enable several robust and reliable environmental monitoring applications at lower cost and higher performance, providing unprecedented situation analysis and awareness, data and information, to better help decision makers, organisations and authorities reduce and optimise costs as well as provide better services to citizens.

RELEVANCE & CONTRIBUTIONS *to Call 2008 Objectives*

EMMON is relevant to ARTEMIS industrial priorities 3.1.2 seamless connectivity and middleware (and 3.1.1 reference designs and architectures).

The project's relevance to seamless connectivity and middleware since it is contained in the RTD and validation work in cross-domain connectivity and communication capabilities, necessary to realise the seamless interoperability between the 'Ambient Intelligent Environments' aimed at the European citizen (at home, travelling, at work, in public spaces,…).

It is also relevant project's relevance to seamless designs and architectures due to the focus on in architectural scalability and dependability, to ensuring secure, reliable and timely system services in large-scale WSN deployments, mitigating accidental failure of system components and/or the activity of malicious intruders.

R&D INNOVATION *and technical excellence*

EMMON takes both a vertical and horizontal approach. The vertical scenarios are related to end-user environments specified in the project context within their own operational environments. Additional scenarios can be considered during the project execution, but the operational tests will be performed in one of the scenarios considered and with one end-user, selected from the target scenarios: water, ocean, urban environments or forestall / civil protection.

For this reason the EMMON follows a dual approach:

1. Identify a common architecture and build a horizontal interoperable infrastructure for service innovation
2. Identify a set of domain specific services, "vertical cases", with relevant business models.
   EMMON technical research will focus on ARTEMIS Sub Programme 1 - Methods and processes for safety-relevant embedded systems, on the work on large scale protocols for WSN and infrastructures for the usage of multiple deployed WSN systems as well as SP7- Embedded technology for sustainable urban life since urban environmental monitoring and management of resources (water, air quality, noise…) is one of the topics addressed in end-user scenarios. The project will also address technical research relevant for SP3 - (smart environments and scalable digital services).

PROJECT *partners*

Critical · isep · InteSys Ltd · akting SESM s.c.a.r.l. (Finmeccanica) · CEIT · DSG Distributed Systems Group Trinity College Dublin

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WEBSITE
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DURATION
36 months

START
March 2009

TOTAL COST
2,56 M€