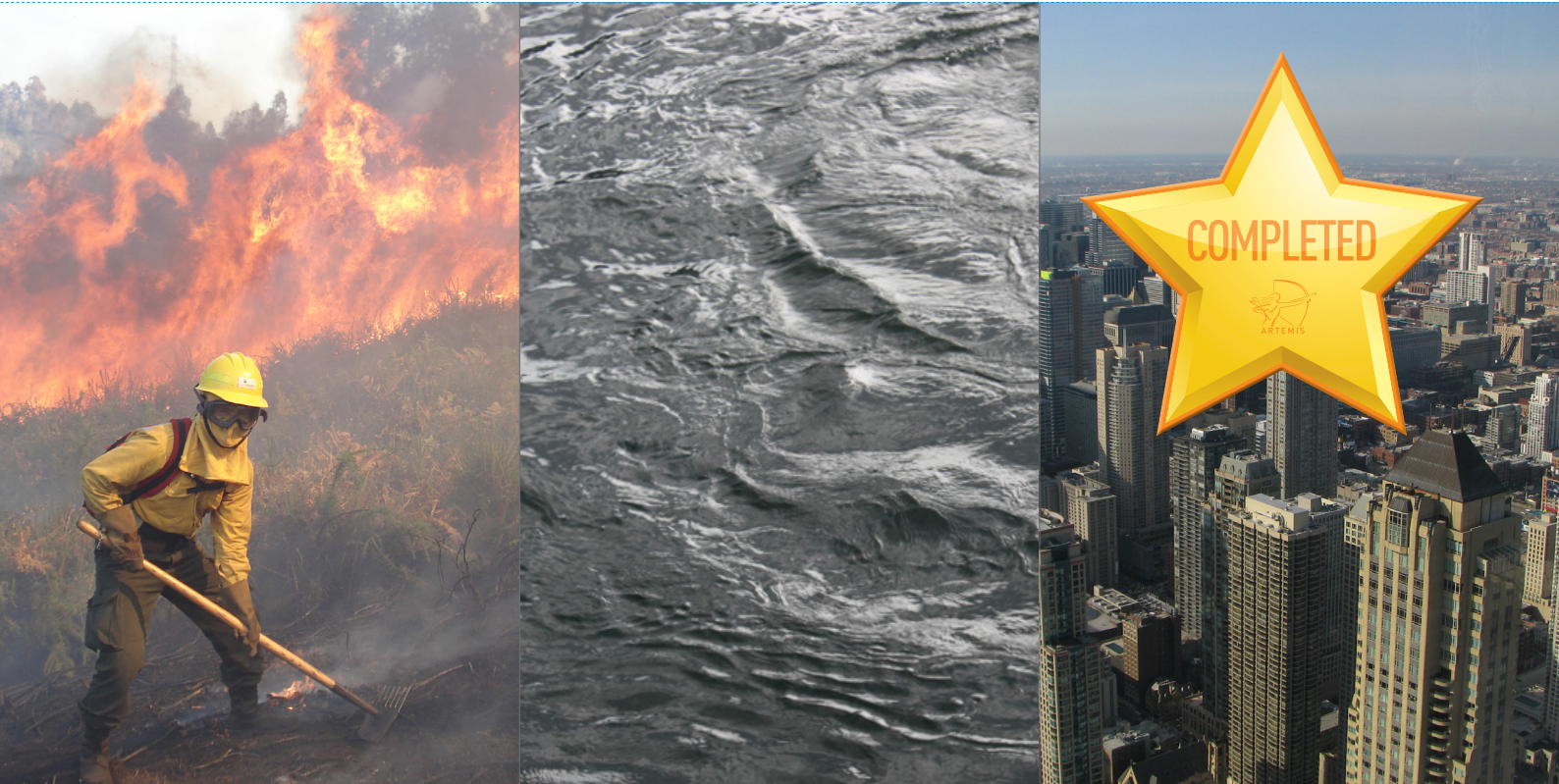


# EMMON

*EMbedded MONitoring*



## **EXECUTIVE** *summary*

EMMON is a collaborative venture within the 7th Framework Programme, ARTEMIS JU initiative of the European Commission. EMMON intends to research and develop a framework of technologies to enable scalable and robust Large Scale and dense Wireless Sensor Network (WSN) for real-time monitoring of specific natural scenarios (quality of urban life, forest environments, civil protection, etc).

## **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".

Seamless connectivity means the possibility for the end-user and system itself to easily access and exchange information and services both from the physical level (sensor network), logical level (data) and semantic level (knowledge). The research work within EMMON will provide innovative protocols, middleware and visualization platform to enable robust, scalable, energy-efficient, fault-tolerant and real-time Large Scale Wireless Sensor Networks. The devised horizontal and scalable network architecture, plus

the development of network planning and deployments toolsets will facilitate and enable large scale deployments.

## **MARKET INNOVATION** *& impact*

EMMON will tackle the scalability challenge in Large Scale WSNs, which means 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 large geographical areas. The potential market impact is to facilitate and enable deployments of large scale and dense sensor networks, offering robust and reliable near real-time requirements for environmental monitoring applications, providing unprecedented situation analysis and awareness (data and information), to better help decision makers, organizations and authorities to reduce and optimize costs and 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 is relevant for "Seamless connectivity and middleware" since it will contain RTD and validation work in cross domain connectivity, multiple operational scenarios, communication protocols and middleware capabilities, necessary to realise the seamless interoperability between the 'Ambient Intelligent Environments' aimed for the European citizen (at home, travelling, at work, in public spaces,...).

It is also relevant for "Reference designs and architectures" due to the project goal in developing a horizontal network architecture, scalable and dependable, to ensure scalable, reliable and timely system services in large scale WSN deployments. Furthermore EMMON will develop network planning and deployment tools to facilitate design and deployment of such large scale networks.

### R&D INNOVATION *and technical excellence*

EMMON research will surpass the existing state of the art by developing an innovate and scalable WSN network architecture, composed of new energy-efficient and reliable communication protocols and stacks, middleware layers, and a geographical visualization platform specifically designed for Large Scale Wireless Sensor Networks (LSWSN).

The project goal is to create an integrated framework of technologies for large scale and dense wireless sensor networks that allow effective monitoring for more than 10,000 devices (10 times more sensors than today's existing deployments), which is reliable and robust

The network design coming out from EMMON will be as generic and horizontal as possible, resulting from the gathering and combination of multiple project end-user needs and requirements, and from diverse domains such as water, ocean, urban environments or forest / civil protection.

### PROJECT *partners*



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**START**  
March 2009

**DURATION**  
36 months

**TOTAL INVESTMENT**  
€2.56 M

**PARTICIPATING ORGANISATIONS**  
9

**NUMBER OF COUNTRIES**  
6



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