Building trust and dependability for WSAN Technology

WSAN4CIP aims at substantially advancing the technology of Wireless Sensor and Actuator Networks (WSANs) beyond the current state of the art and to apply this technology to Critical Infrastructure Protection (CIP).

Objectives of the project:

- Enhance the reliability of critical infrastructures by providing reliable and trustworthy data to the control center of the CI.
- Increase the dependability of critical infrastructures security, by providing selfhealing and dependability modules for WSAN.
- Provide a dependability engineering methodology and appropriate tool support.
- Demonstrate the feasibility of our approach using: I) energy generation and distribution, and II) drinking water distribution, as representatives of critical infrastructures.

Challenges addressed by WSAN4CIP:

WSAN methodology and design

Engineering of dependable WSAN applications will be assisted by a service composer tool applying formal descriptions of the application requirements and of the software modules of the WSAN4CIP library.

Sensor node protection

We will increase the dependability of current sensor platforms by developing innovative virtualization techniques for the operating system. The detection of compromised nodes will be performed through enhanced software attestation. Moreover, WSAN4CIP will reprogram deployed nodes with over-the-air upgrade mechanisms.

Dependable sensor networking

To increase the reliability of all networked services, we will develop MAC, routing and transport protocols with tuneable security, QoS and energy efficiency parameters. We will also look at network coding techniques to enhance transport and storage in WSANs.

Dependable sensor service

WSAN4CIP will develop intelligent middleware to enhance fault detection and fault resiliency beyond the state of the art. It will take advantage of the nodes redundancy to build fault-tolerant, self-organizing services that meet the application needs, ensuring service QoS and lifetime.

On-site demonstrators

In 2011, two comprehensive demonstrators in energy and drinking water distribution scenarios will show the applicability of the developed WSAN modules for the protection of CIs. Moreover, they will meet the requirements of the utilities partners and interface to their SCADA management system.

WSAN 4 C I P

Consortium:

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IHP Microelectronics	Germany
NEC Europe Ltd.	U.K.
INESC Inovação – Instituto de Novas Tecnologias	Portugal
Energias de Portugal Distribuição	Portugal
Budapest University of Technology and Economics	Hungary
INRIA	France
Luleå University of Technology	Sweden
SIRRIX	Germany
Tecnatom S.A.	Spain
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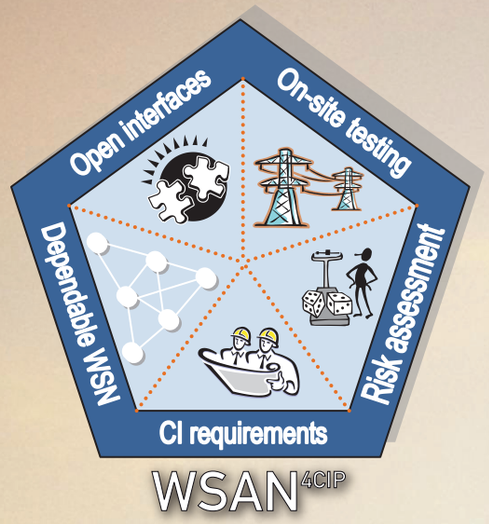
Reliable data anytime, anywhere for secure

Critical Infrastructures



Today, Critical Infrastructures, like power and water distribution networks, have become difficult to protect, due to growing complexity and increased threats.

The rapid development of wireless sensor technologies offers now cost-effective ICT solutions to enhance the dependability of Critical Infrastructures (CIs).

The WSAN4CIP project aims to demonstrate the benefits of wireless sensor technology for the protection of Critical Infrastructures. This shall build the necessary trust for utilities to deploy WSANs for CI protection.

Better protection for Critical Infrastructures

Visit www.wsan4cip.eu for further information

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WSAN4CIP

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SEVENTH FRAMEWORK PROGRAMME