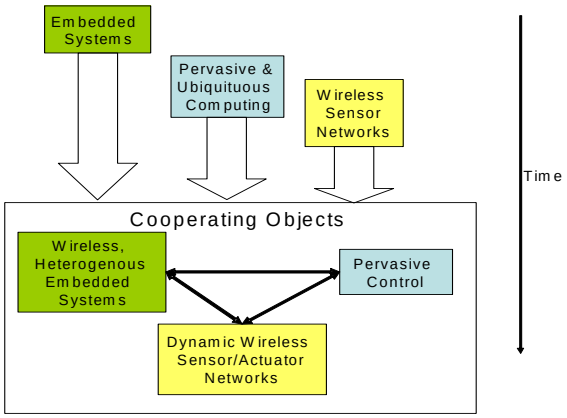
EMBEDDED WiSeNts

Cooperating Embedded Systems for Exploration and Control featuring Wireless Sensor Networks

KEYWORDS: Wireless Sensor Networks, Cooperating Objects, Embedded Systems

Introduction

A number of different system concepts have become apparent in the broader context of embedded systems over the past couple of years. First, there is the classic concept of **embedded systems** as mainly a control system for some physical process. Second, more recently, the notion of pervasive and **ubiquitous computing** has evolved, where objects of everyday use can be endowed with some form of computational capacity, and perhaps with some simple sensing and communication facilities. Third and most recently, the idea of "**wireless sensor networks**" has arisen, where entities that sense their environment are not operating individually, but collaborate together to achieve a well-defined purpose of supervision of some area or some particular process. **Embedded WiSeNts** claims that these three types, of actually quite diverse, state of the art systems share some principal commonalities but also share some complementary aspects which make a combination of these systems a coherent system promising.



Objectives

Embedded WiSeNts aims to increase the awareness and to find out a vision as well as a roadmap towards wireless sensor networks and cooperating embedded systems within the academic community and, most importantly, within the manufacturers of proper technologies as well as potential users community.

Embedded WiSeNts technologies will be available to selected decision makers in academia and industry. So two bodies will be established to increase the awareness of this technology within the academic community and, most importantly, within the industrial producer and user community: The Industry Cooperation Board (manufacturers, adopters, system integrators), as well as the Cooperating Partners Group (academics, research).

Expected Results

Embedded WiSeNts addresses therefore three main goals:

1. Supporting the integration of existing research

While there is a lot of ongoing research work in Europe on different aspects of this broader vision, there is a need for better integration of contacts and knowledge between European researchers. The intended result is the creation of a scientific research community achieved through a European Scientific Conference (EWSN 2005/2006) and a Distinguished Visitor Program. Equally important is also fostering the exchange of experience about platforms and tools to be used for future research.

2. Road mapping for technology adoption

A clear understanding of the relevant state of the art is required, as well as a vision of the actual applications that shall be possible using cooperating objects and that are not realizable with today's technologies and system concepts. This understanding can then be used to develop an actual research roadmap, fostering follow-up work that will

solve the actual research challenges. A whitepaper on visionary applications and a whitepaper describing a research roadmap towards cooperating objects will be produced.

3. Promoting excellence in teaching and training on systems of cooperating objects

The project will start three types of support activities, namely:

- Assisting individual faculties in the effort to share the best teaching practice with the community,
- Running a top-level summer school for short term education,
- Encouraging student's mobility.

Partners and their role

Technische Universität Berlin is the project coordinator and mainly responsible for the overall management, quality assurance and dissemination activities.

University of Cambridge is responsible to find out the "Visions for innovative applications" – a appropriate study with a longer time horizon will be performed.

University of Copenhagen will lead a task concerning "Teachware improvement and dissemination".

Swedish Institute of Computer Science is the Workpackage Leader for "Research Integration".

University Twente works on "Education and Training", particularly to support student mobility.

Yeditepe University is the organizer of the "European Workshop on Wireless Sensor Networks" (EWSN).

Consorzio Interuniversitario Nazionale per l'Informatica contributes to the "Research Integration" with a "Distinguished Visitor Program".

University of Padua takes responsibility for "Education and Training" programme.

Swiss Federal Institute of Technology Zurich will be collaborating with the summer school programme.

Asociación de Investigación y Cooperación Industrial de Andalucía will lead the work on "Road mapping and Technology Adoption".

Institut National de Recherche en Informatique et en Automatique will insure the dissemination of the project's results.

Universität Stuttgart is responsible for the "Research roadmap" preparation.

This project is part of the portfolio of the

Embedded Systems Unit – C3
Directorate General Information Society

For more information please check:

http://www.cordis.lu/ist/directorate_c/ems/

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CONTRACT NUMBER
IST - 004400

FULL NAME
Cooperating Embedded Systems for Exploration and Control featuring Wireless Sensor Networks

TYPE OF PROJECT
Coordination Action

PROJECT PARTICIPANTS
Technische Universität Berlin (Germany)
University of Cambridge (UK)
University of Copenhagen (Denmark)
Swedish Institute of Computer Science (Sweden)
University Twente (The Netherlands)
Yeditepe University (Turkey)
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PROJECT WEBSITE
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BUDGET
Total cost: 1.4 M€
Funding: 1.2 M€

TIMETABLE
Starting date: 1. September 2004
Duration: 24 months