



CReating Ubiquitous Intelligent Sensing Environments (CRUISE)

**From RFID to the Internet of Things
Pervasive Networked Systems, Brussels
March 6-7, 2006**

Neeli Prasad

**Head of Wireless Security and Sensor Networks Lab
CTIF, Aalborg University, Denmark**

np@kom.aau.dk

Fact sheet:

- ◆ Start of the project: 1st of January 2006
- ◆ Duration: 24 months
- ◆ Consortium: 32 partners
- ◆ Project Coordinator: Dr. Ir. Neeli R. Prasad from CTIF, Aalborg University, Denmark, np@kom.aau.dk
- ◆ Project website: <http://www.telecom.ece.ntua.gr/cruise/>

Why is CRUISE NoE necessary?

- ◆ To address current weakness and fragmentation in this field in Europe
- ◆ To bring and outline the benefits of sensor networks closer to the European society
 - Awareness of the immense benefits of wireless sensor networks is still low in Europe.

Why NOW?

- ◆ Research activities on wireless sensor networks at the national and European level are gaining momentum
 - Coordination is necessary
 - Europe should gain leadership



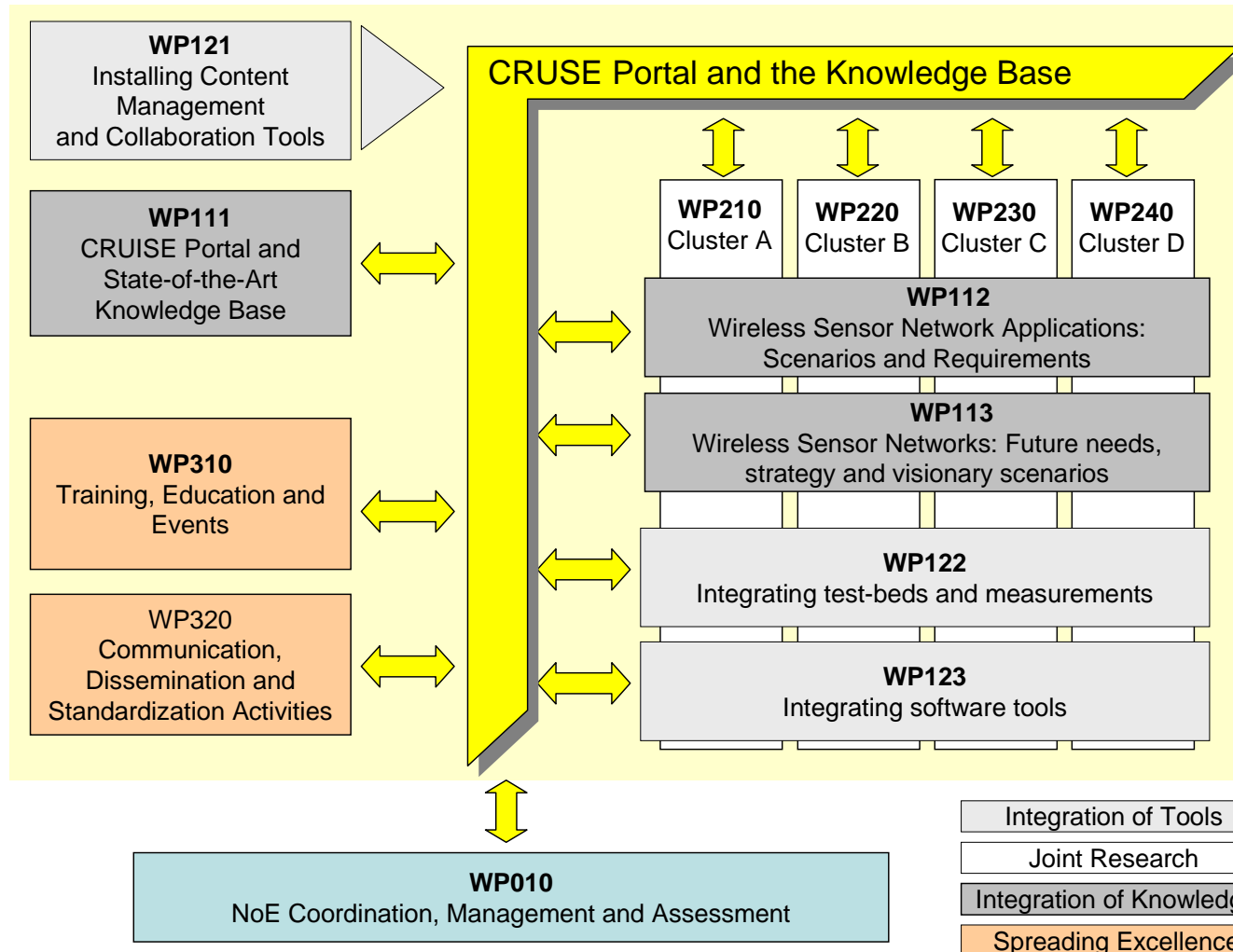
CRUISE overall objectives

- ◆ **Make a significant contribution to coordination and effectiveness of research**
 - Evaluate, update and communicate the State-of-the-Art in wireless sensor networking to the technical community.
 - Distil a path from current technological status to a long term vision by defining the intermediate steps in a vision-based roadmap.

- ◆ **Stimulate exchange of researchers and keep them informed of the needs of both industry and research**

- ◆ **Foster integration and sharing of test beds and research tools in more effective ways**

- ◆ **Organize and participate in events which promote research on sensor networking and the integration of different European research initiatives**



Cluster A –
Architecture and
Topology

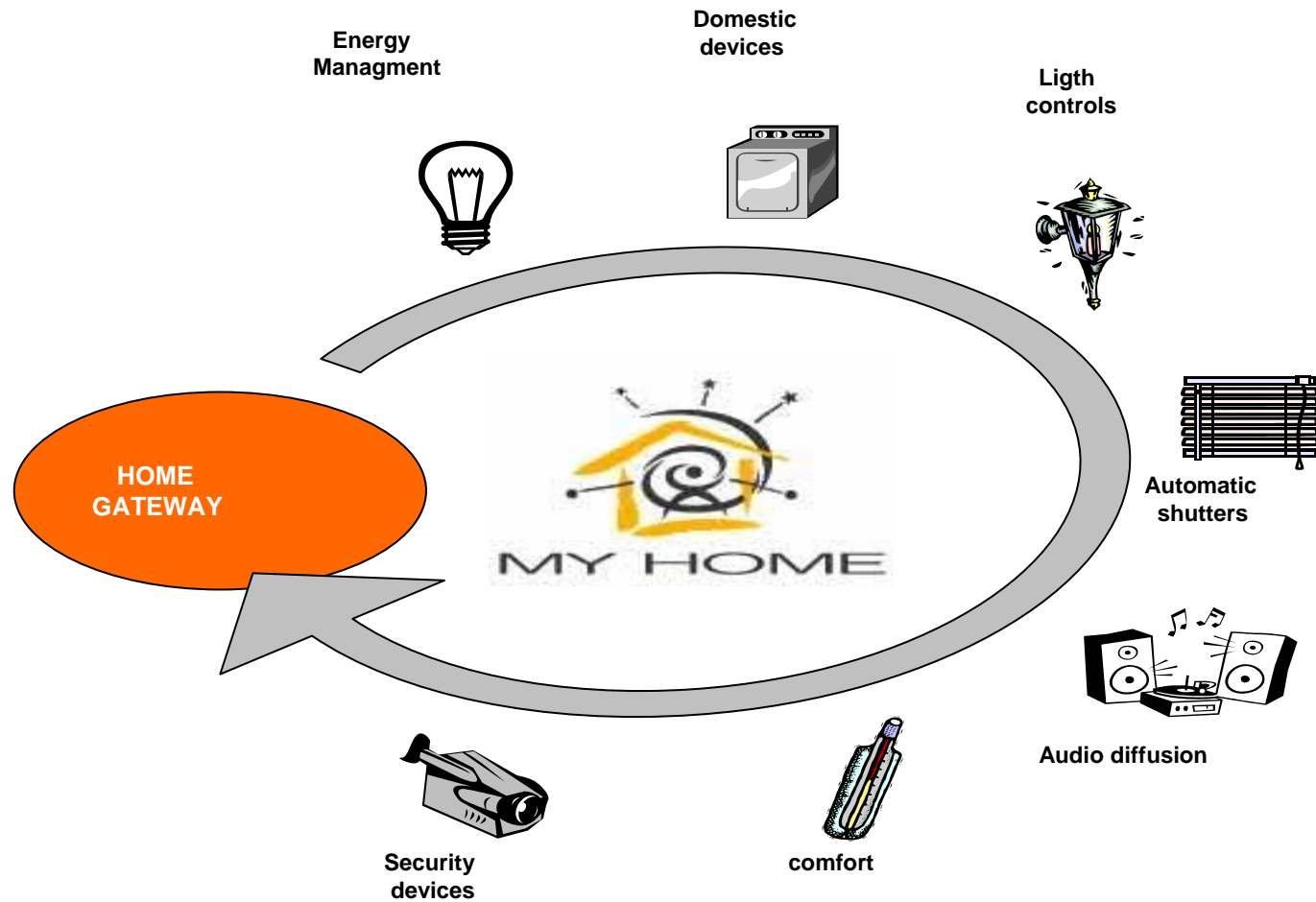
Cluster B –
Protocols and
data aggregation

Cluster C –
Security and
Mobility

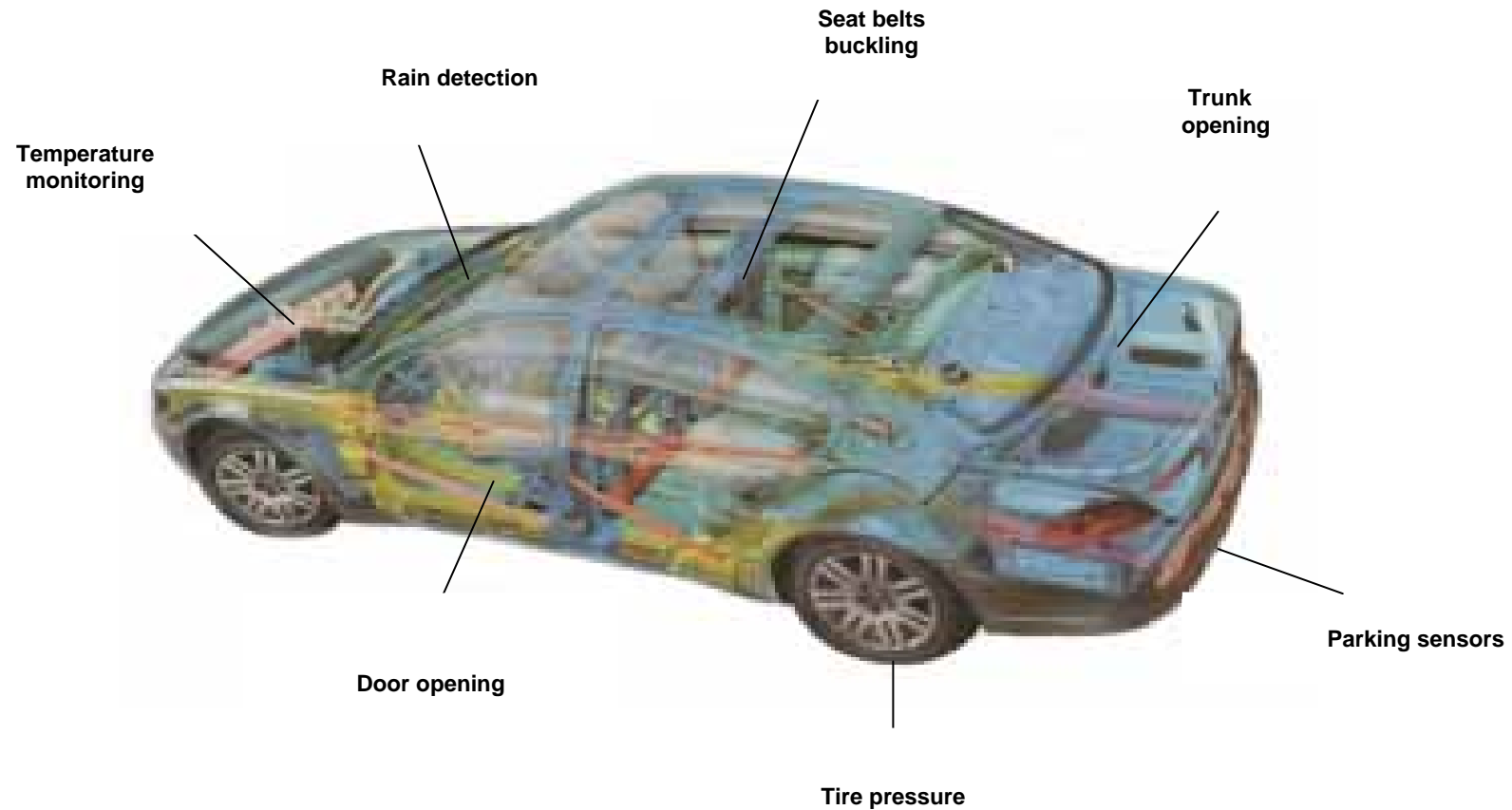
Cluster D -
Transmission

Applications and Scenarios

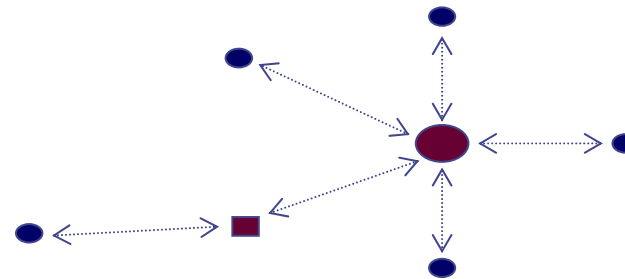
Home environment



Automotive environment

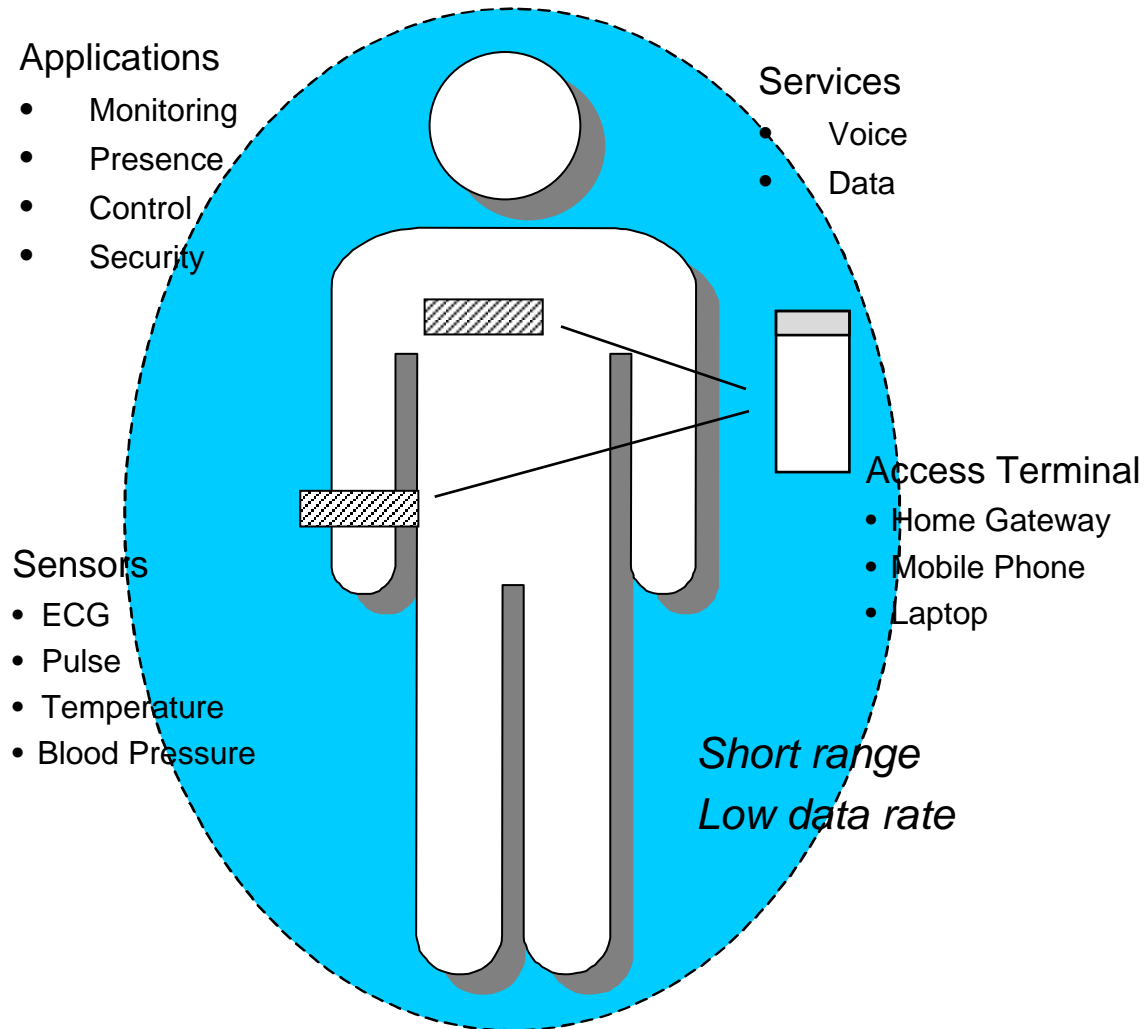


- **No high security needed**
- **Star topology**
(the master offloads the nodes)



- **Long lasting batteries**
 - Practicalness
 - Service continuity
- **Different requirements**
 - Latency
 - Overhead

Medical Applications



- **Simple topology (point-to-point)**
- **Very high security requirements (strong authentication)**
- **Alternative solutions to big batteries**
 - Radiowaves from the outside
 - Solar cells
- **Short term associations**
 - Difficult authentication
 - Setup must be easy

Adaptive

User – System – Network Based

Should be designed from beginning

Should not be add-on feature

Should be application dependent



WSN – RFID Our Fundamental Rights: PRIVACY

One of the most fundamental rights in a ‘healthy’ society is the right of every citizen to be left alone. Article 12 of the U.N, Universal Declaration of Human Rights, states that

“No one shall be subjected to arbitrary interference with his/her privacy, family, home or correspondence.”

In reality???