Industrial Viewpoint on Wireless Sensor Networks

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Content

- The Overall Picture – Industrial Trends
- Criteria for Valid Applications
- Examples for Ongoing projects on Sensor Networks

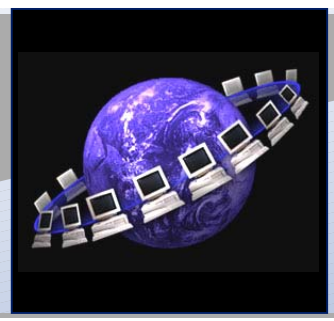
1970

Mainframe Computers

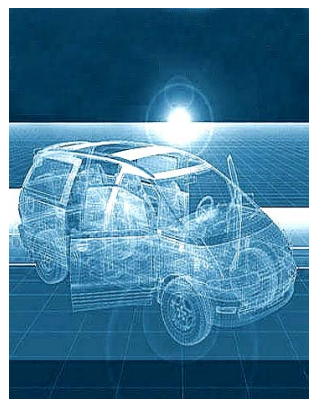
1990

Personal Computer

2010



Ambient Intelligence

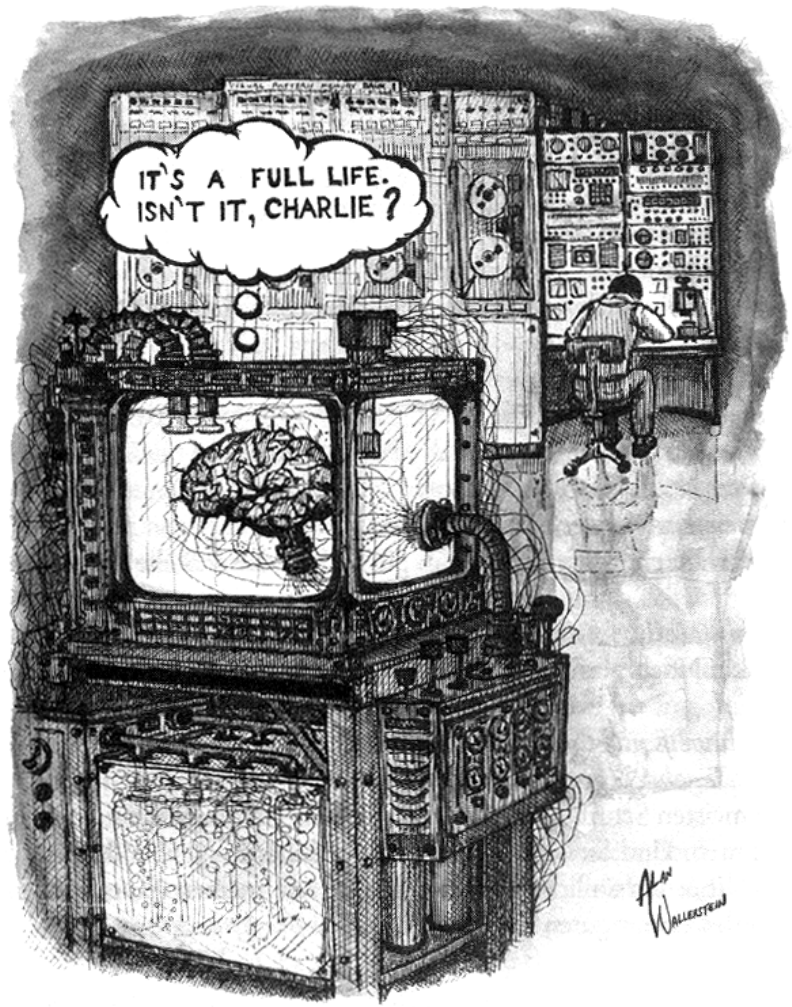


Trend to …

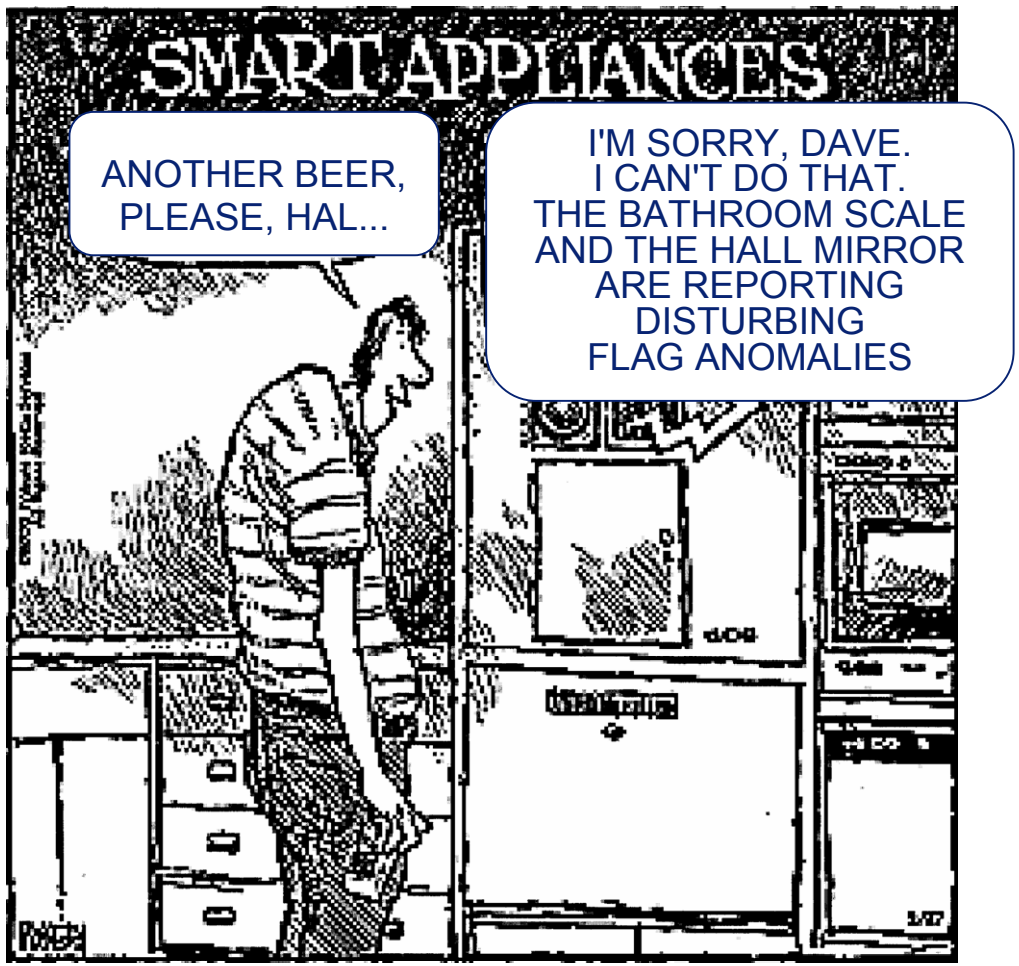
... disappearance of electronics into the environment of human beings
Invisible electronic appliances serve humans.

In "virtual reality" humans become part of an electronic environment

The ultimate virtual reality: Cyborgs



Not all ideas will make it to the customer ...



Industrial Boundary Conditions

Customer orientation:

Concrete benefit for customer should be in the foreground

…This is not trivial!...

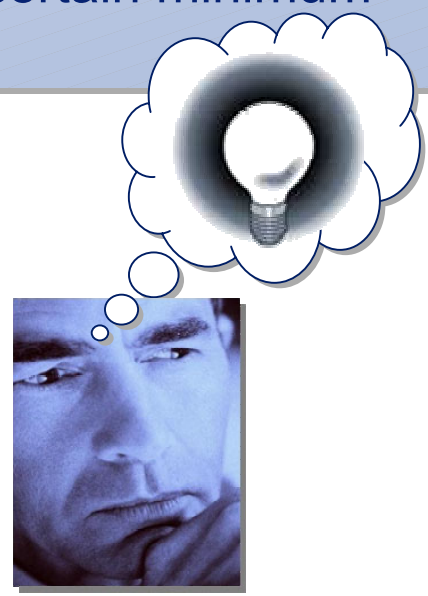
People are disappointed if things don't work

An excellent man machine interface is key to this development

Concentrate on services

Take care the accessible revenue volume is above a certain minimum

Avoid fears for dominating technology



Industrial view of future applications

- Think about applications that are around the corner (scope of 5-10 years)

Sindrion – A Hierarchical Network

Networking of Smart Transceivers

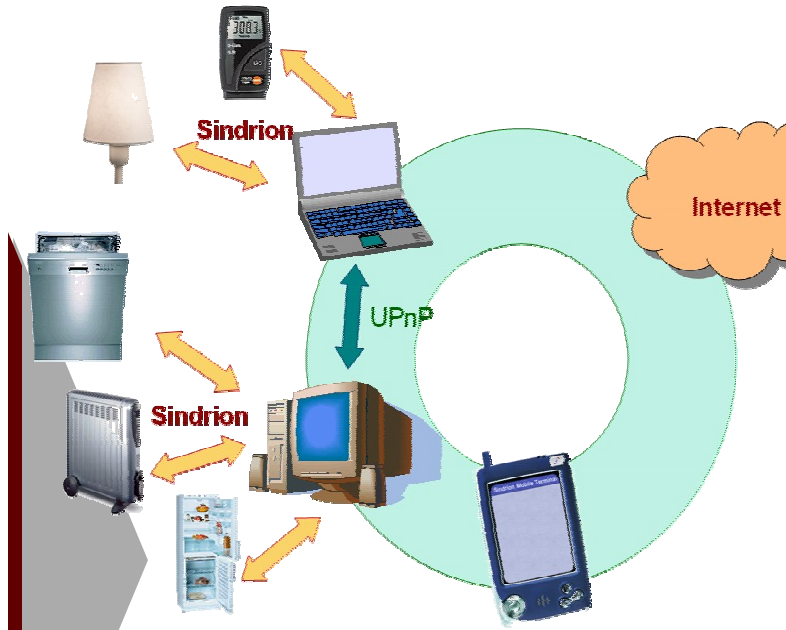
- Platform for simple integration of electronic devices
- Low-cost low-power solution

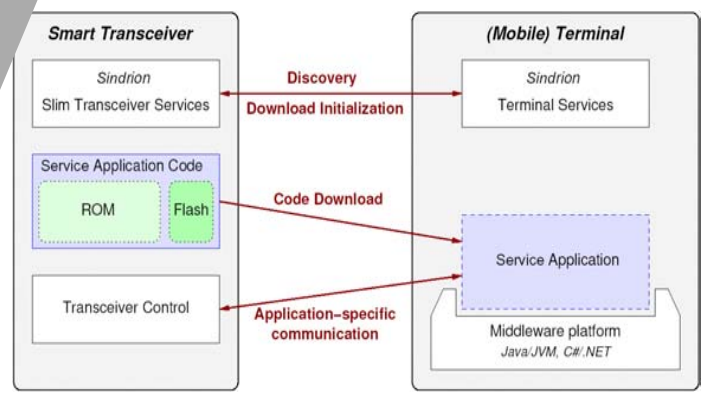
Advantages

- Seamless integration into Universal Plug and Play™ (UPnP™)
- Ad-hoc networking
- Zero-configuration

Applications

- Home automation (HVAC, Lighting, Sensors, Remote Control)
- Service (Automated billing, surveillance, malfunction detection)
- Entertainment / Infotainment





The 1 Cent Tag – An Extremely Hierarchical Sensor Network

Technologies for a Distributed Electronic System

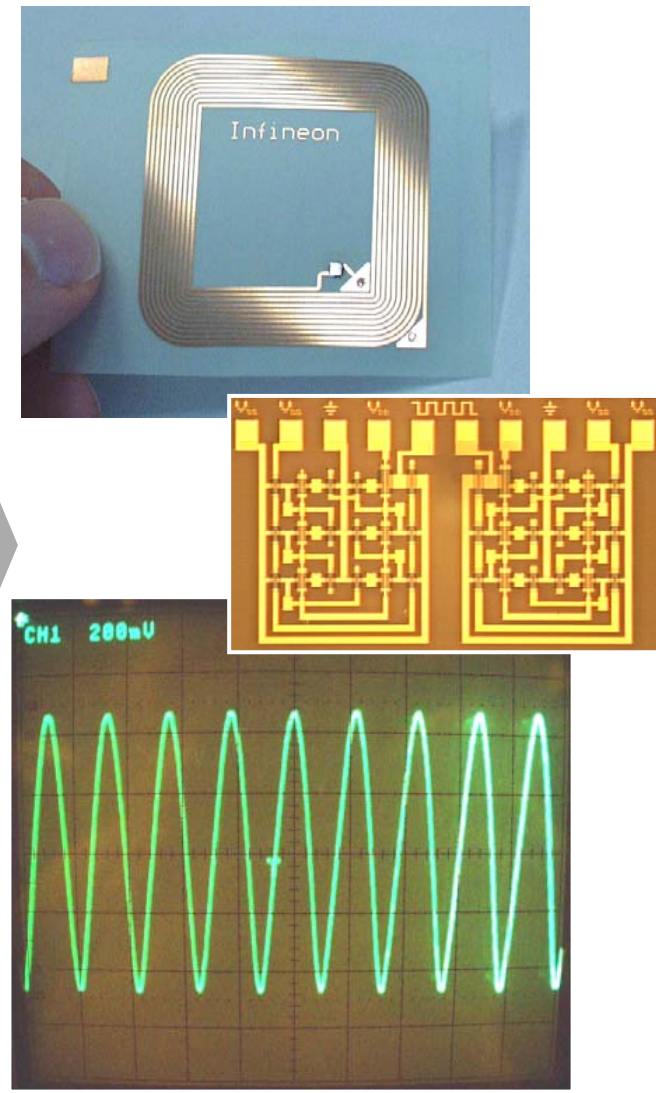
- Polymer electronics
- Si-based tags

Advantages/Disadvantages

- Homogeneous printing process for polymer solution
- Evolutionary roadmap for Si-based solution

Applications

- Logistics in industrial environments
- Tagging of warehouse and food store goods



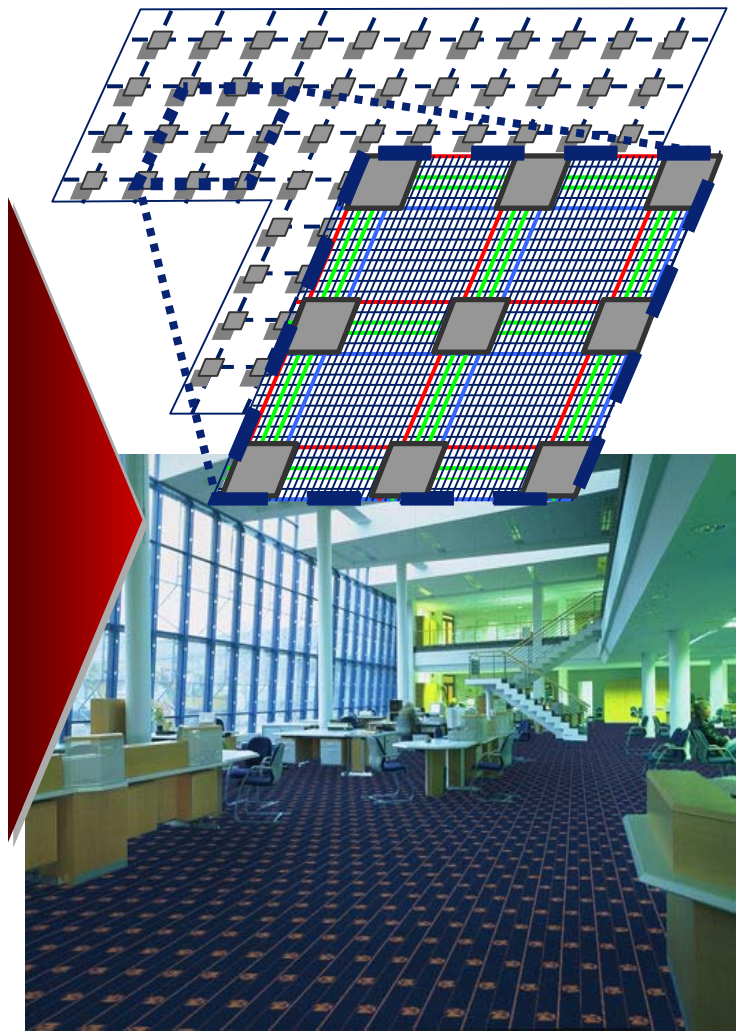
Smart Textiles – A Wired Sensor Network

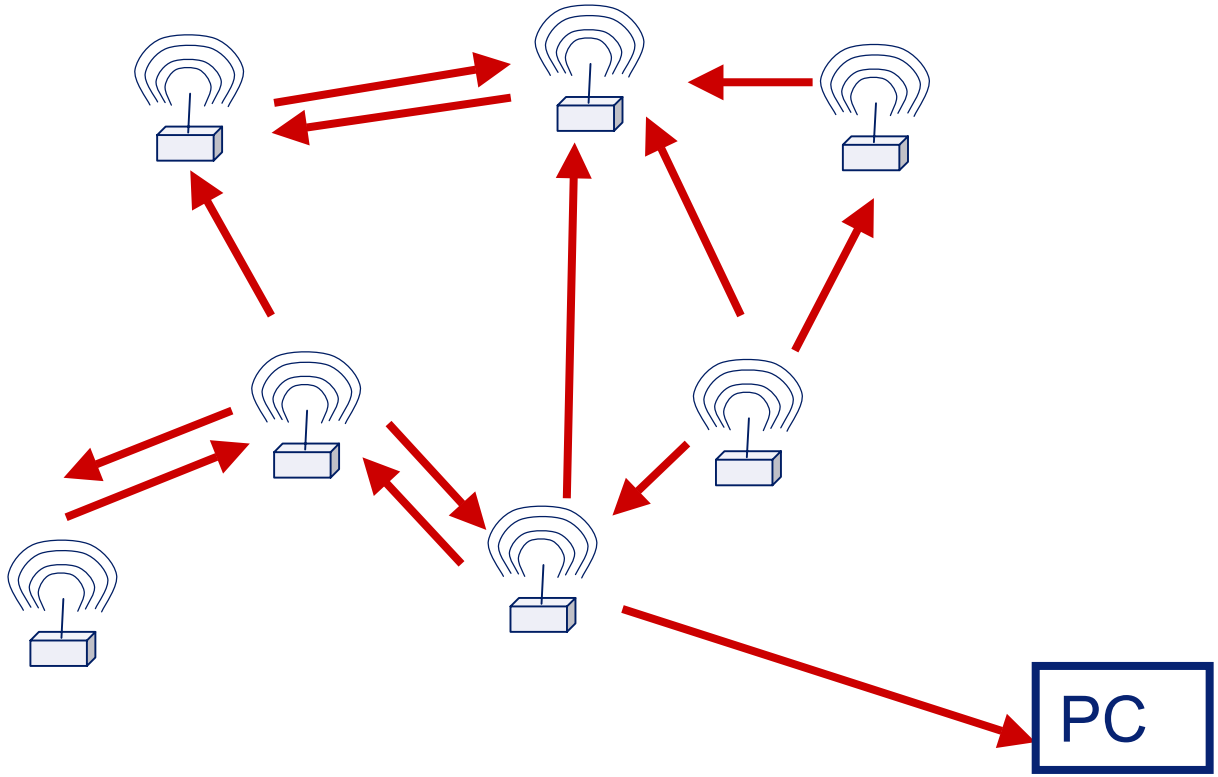
Integrated processor network
- Fault-tolerant
- Self-organizing

Textile integration
- Robust
- Flexible
- Low-cost

Advantages
- Easy installation
- Customized solutions

Applications
- Surveillance and guidance systems
- Intelligent and flexible displays
- Large area sensor systems





Statement: Peer-to-peer wireless sensor networks generate too much traffic just saying who is here and there and questioning who wants to talk to allow reasonable applications

too much power, too little payload data

Advise: Limit flexibility and go for real application cases thus becoming more competitive