

29th October 2009

Ambient Intelligence – Work assistance systems as a field of action für OSH

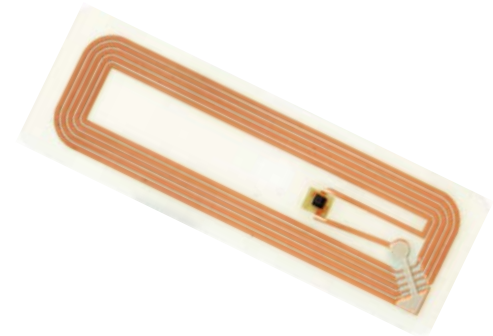
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Outline

- Meaning and origin of the term AMI
- Reasons for the topicality of AMI
- AMI 2009: Ideas and practical applications
 - ⇒ „Smart“ products - „Wearables“
 - ⇒ „Smart Factory“ - Supply-Chain Management and more
 - ⇒ „Smart Office“ – Intelligent Facility Management
- To be continued...
 - ⇒ Development of a research concept:
„AMI and occupational science“

Meaning of the term AMI

- AMI designates micro-computers integrated both into work- and everyday equipment that invisibly and unobtrusively support a person in his or her activities.
 - ⇒ human centered technics vision
 - ⇒ electronic background assistance
- Characteristics of AMI
 - ⇒ a proceeding miniaturisation of computers
 - ⇒ a decreasing energy demand
 - ⇒ an increasing capacity of memory elements
 - ⇒ (more) flexible material properties (Smart Cards / RFID-Tags)
 - ⇒ an improved networking of system components
 - ⇒ decreasing costs for sensors and processors
 - ⇒ the ability of devices to intercommunicate
 - ⇒ the redefining of the interaction between man and technology



Related terms and origin

- *Ambient Intelligence* is a relatively new term (~2000). It has been implemented by the EU especially by considerable financial support (2002-2006; 800 Mio. €) within the context of the EU's 6th framework programme as an equivalent of the US-American term *Ubiquitous Computing*
- The term *Ubiquitous Computing* (1991) is to be taken as a synonym
- Means of omnipresent IT can as well be described by the term *Pervasive Computing*. In its meaning this term, however, is rather industry-related and primarily refers to Mobile-Commerce-Scenarios
- *The Internet of Things* is only one aspect of many in the context of AMI that deals primarily with the technical realisation of an intercommunication of devices.

Fields of action for research and development

- Further development of technical basics and especially the networking and standardisation of intercommunication between devices
- Consideration and clarification of questions concerning ethics and data protection in case of a required storage and transmission of data
- ➔ • Identification of the potential of new technologies from an occupational-scientific point of view
- ➔ • Impact assessment of the application of new technologies (Chances and Risks) especially in terms of occupational health and safety

Scenarios and Applications: Wearables

Content:

Providing the clothing with sensors in order to collect and transfer data, e.g. about state of health, posture, etc.

Application:

Fabrication, production and medical

Chances:

Warning in case of stress, training behaviour

Risks:

Supervision and sanction of unwanted behaviour, compensation of risks



Head Mounted Display



BAuA-Projects:
INQA-Production
F2202 A92 – SAFE (BMBF)



Belt buckle computer

Scenarios and Applications: Smart Factory

Content:

Control of Supply-Chain Management via RFID

Application:

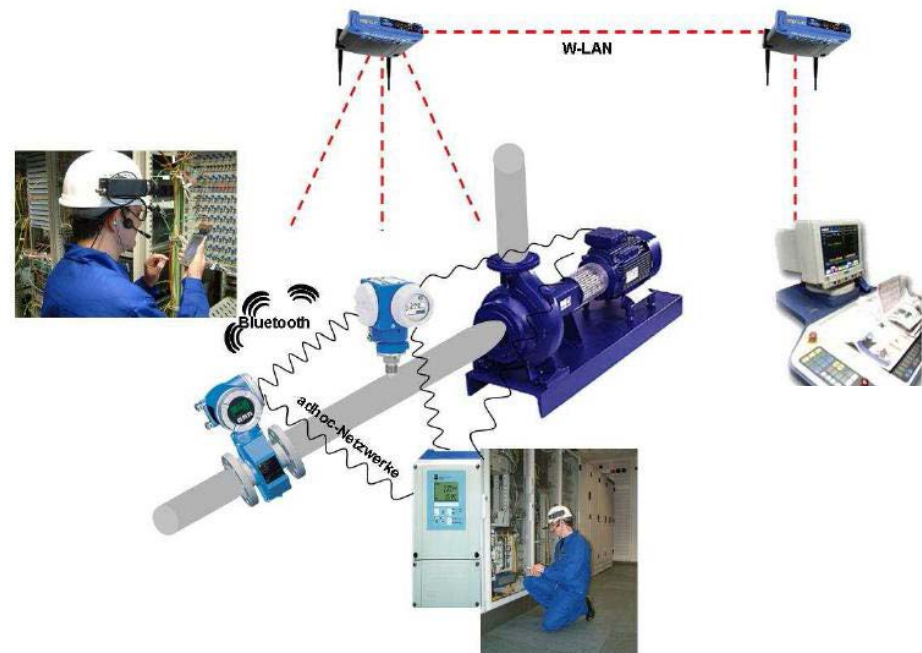
In the range of logistics, fabrication, service and maintenance as well as in business

Chances:

Shifting of wearing activities to machines, increasing of both reliability and quality of the particular process, a more flexible arrangement procedures

Risks:

for a better communication new human-machine interfaces are required, aggravation of accident consequences due to an increased dependence on technical systems, loss of qualifications with simple activities



Scenarios and Applications: Smart Office

Content:

Controlling of building services engineering and office-IT via RFID

Application:

In the range of energy management (Air conditioning/lighting) and adjustment of work environment features to individual requirements.

Chances:

individual requirements are taken into account more seriously, energy-efficiency, increased performance by means of improved interfaces

Risks:

possible manipulative influence on work performance, abuse of increased transparency of the employees' behaviour

Development of a research concept on „AMI and occupational science“

- Designation and prioritisation of occupational science-related topics/fields of application
- Identification of institutes that
 - ⇒ are already engaged
 - ⇒ are possible partners
- Elaboration of a concept for the topic „AMI and occupational science“
 - ⇒ aims
 - ⇒ expected benefits
 - ⇒ structures that outline the procedure (intern/extern)
 - ⇒ customers and target groups
 - ⇒ definition of work scopes and cooperations

- Expert meeting at the BAuA
15th January 2010
(in German – maybe translation is possible)
- Gaining of long-term cooperation partners
- Elaboration of a work- and research plan (beginning 2010)