A Platform for Ubiquitous Context-Sensitive Applications

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Background and current research topics

UI-Research
- Multimodality
  - Speech
  - User Profiling
- Intelligent Agents
  - Java
- Middleware
  - RMI
  - Corba

U(B)I-Research at VTT ELE
- Context Awareness
  - Sensor Fusion
    - Signal Analysis
- Knowledge-based systems
  - Data Mining
  - Knowledge Representation
  - Model-based Systems
    - Modelling
    - Databases
    - Diagnostics

Your strategic partner
Requirements for the Platform

- Co-operating appliances / artefacts
  - Common Protocol for exchange of messages
  - Shared vocabulary (domain ontology)
  - Common message format

- Appliances must be able to locate each other
  - Plug and play + white- and yellow pages-like services

- Environments aim is to support the user
  - Users context and desires
  - Personal agent / assistant
  - Artificial Intelligence?
Infrastructure for Smart Devices

- Agent platform
  - Autonomy, Intelligence
  - Task in co-operation with other agents
  - Service and resource management

Communication
- Agent communication languages
- Knowledge Interchange Format
- Vocabularies, Ontologies
- Data Transfer

Your strategic partner
Future Challenges

- Sensor data enhancement
  - Raw data to symbolic information
- Knowledge representation & Ontologies
  - Representation format
  - Ontology design (restricted yet sufficient)
  - Inference & combination of knowledge
  - Goal setting
- User-centred operation
  - User profiling
  - Learning
  - Pro-active operation
The end

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