Smart Spaces

Chapter 0:

Introduction

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Introduction

- What?
- For whom?
- How?
- Course overview
- Online Resources

What?

Approaches in modern applications

- Client-Server
- Peer-to-Peer
- Web, Cloud computing
- Huge data collections
- Mobile devices and hardware miniaturization (Internet of Things)
- Artificial Intelligence

For whom?

- Mandatory course for MSc study
- Applied Math & CS (01.05.00, SDM.03)
- Information Systems (23.02.00, DNM.04.02)
- Students with interest in Networking & Distributed systems
- Computer Science
- Information Technology
- Software Engineering

How?

- Lectures
  - 2h per week, 1st half of semester
  - Introduction to the Smart Spaces Paradigm
- Seminars
  - 2h per week, 2nd half of semester
  - Design of own Smart-M3 application
- Labs
  - 1h per week
  - Smart-M3 trainings
- Grades
  - passed / not passed

Lectures overview

1. Ubiquitous Computing and Smart Applications:
   Smart Spaces and Internet of Things
2. Publish/Subscribe Systems
3. Semantic Web and Ontology
4. The Smart-M3 Platform
5. Smart-M3 Applications: Architectures and Designs
## Labs overview

1. (weeks 1-2) **Smart-M3 and its Installation**
2. (weeks 3-4) **Writing “Hello World” using C_KPI library**
3. (weeks 5-6) **Writing “Hello World” using SmartSlog SDK**
4. (weeks 7-8) **Constructing your ontology with Protégé**
5. (weeks 9-10) **Visualizing your ontology with RDF Gravity**
6. (weeks 11-15) **Implementing your own Smart-M3 application**

## Seminars overview

Each student starts own project for a Smart-M3 application

1. Idea and use case
2. High-level architecture and data flows: agents and application smart space
3. Problem domain and ontology
4. Scenarios: how the architecture and ontology implement the functionality

Presentation and discussion in class

## Online Resources

1. Course web-page
   [http://cs.karelia.ru/studies/umk/2012/Mathematics/5._PMI_I5.-MSc._Smart_Spaces._Korzun/](http://cs.karelia.ru/studies/umk/2012/Mathematics/5._PMI_I5.-MSc._Smart_Spaces._Korzun/)
2. Smart-M3 in Wikipedia
3. SmartSlog project wiki
   [http://oss.fruct.org/wiki/SmartSlog](http://oss.fruct.org/wiki/SmartSlog)

## Literature

- Recent research papers (in English)
- The list will be given for each topic