



Summer Term 2008

19589 - PS Telematik Projekt: Embedded Sensor Web

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Organization

- Prerequisites: Bachelor or Vordiplom
- Supervised lab course
- Task handed to group of 9 students
- “Projektseminar“: Praktikums- oder Seminarschein (decide early!)
- ECTS-credits: 10
- Hardware supplied for whole semester to all attendees

Course Requirements

- No exam
- Attend lab hours
- Presentation
- Hand in your work before deadline containing:
 - Commented/documented source code (“doxygen style”)
 - Documentation describing your task and the solution
 - If your task could not be solved successfully describe the problems and what is missing!
 - Presentation slides
- Minimum of 150 work hours (150h/14weeks \approx 10.7h/week)
- Seminarschein: Focus on theoretical background



Required skills and knowledge

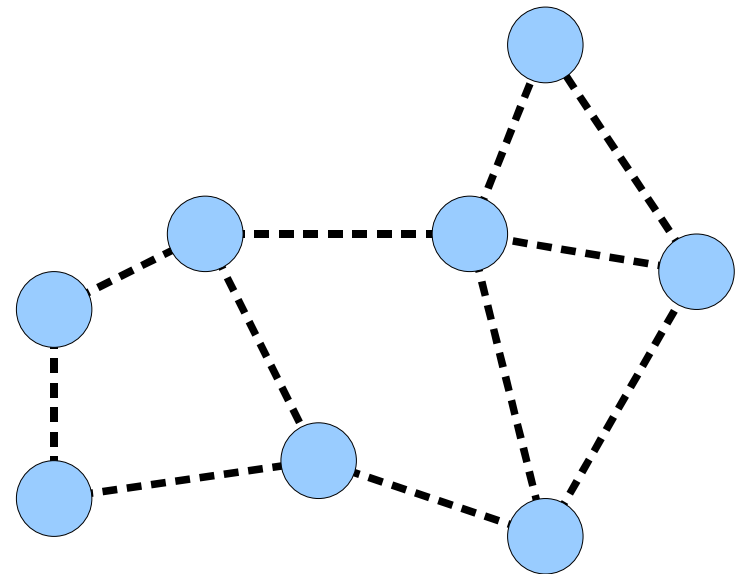
- Experience with the C programming language
- Experience with the Java programming language
- Courses: Computer Architecture, Telematics, Mobile Communications
- Doxygen
- Subversion
- Teamwork, teamwork, teamwork!!!

Schedule

- 09.04.2008:
 - First Meeting
 - Introduction, Requirements
 - Handout of customer requirement specification
 - Preliminary team forming
- 16.04.2008:
 - Introduction to ScatterWeb² firmware (first steps)
 - Final team forming
- 23.04.2008 - 16.07.2008:
 - Supervised lab hours, team meetings, milestone presentations
- 14.07.2008:
 - Hand in your presentation slides (PDF only!)
- 16.07.2008:
 - Final Event: Talk + Demo
- 23.07.2008:
 - Hand in your work (deadline is 24:00), return hardware

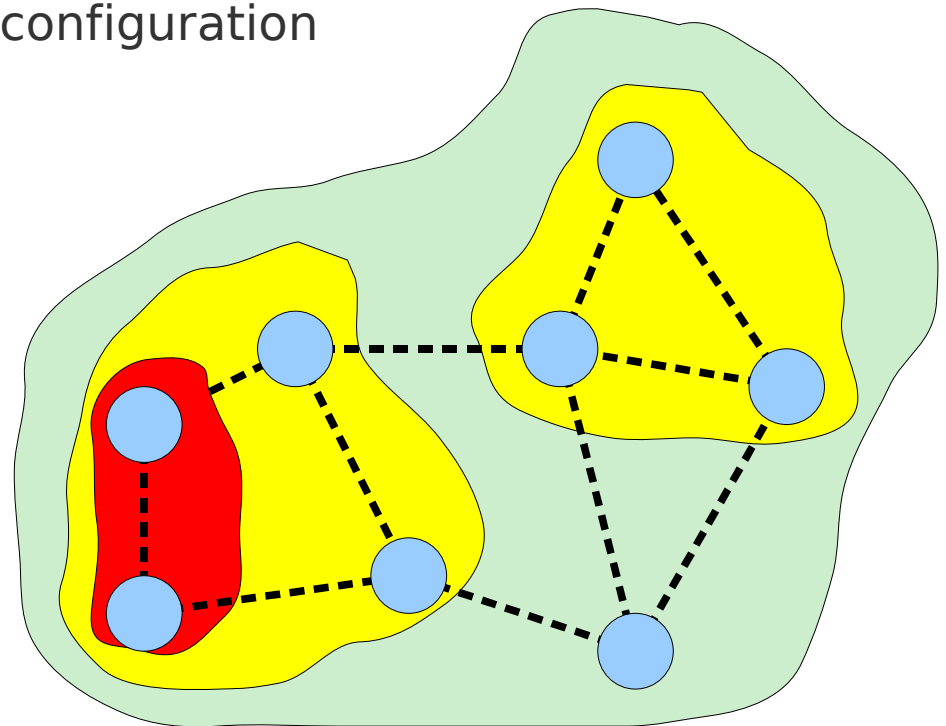
Topic (abstract)

- Wireless Sensor Network (WSN)
 - spatially distributed autonomous devices
 - equipped with sensors
 - cooperative monitoring and computation
 - origin: military
 - embedded systems
 - wireless ad-hoc network
 - network size: up to 10.000 nodes



Topic (specific)

- Home Automation Wireless Sensor Network
 - nodes with temperature and humidity sensor
 - GPIO pins to connect actuators or external sensors
 - data aggregation
 - solution encompassing all ISO/OSI layers
 - web based management + configuration
 - contour map



“Schein” requirements

- Developed solution has to work
- Documentation must be available (about 40-50 pages per team)
- Presentation of all team members
- Meet deadlines
- Optional: Non-mandatory features (improve grade!)
- Attend Wednesdays meetings (at least 85%)
 - inform team members and advisors on absence
 - hand in attest/doctor's note
 - make up time at home

What is provided?

- Rudimentary operation system
- Several code packages
- Open source compiler toolchain (MSPGCC)
- Sensor nodes, required cables, flash interface
- Project description/customer requirement specification

Milestones

- 07.05.08:
 - Task assignment to team members
 - General approach to solve the problem
 - Interface definitions, selected routing protocols, management application prototype
- 11.06.08:
 - Mid-term presentation
- 02.07.08:
 - Preview of final event
 - Overview: What's finished, what's missing?
- 16.07.08:
 - Final Event: Talk + Demo

Task till next week

- (Re-) Read course requirements
- Read customer requirement specification
- Get familiar with C, Java, Doxygen, Subversion, LaTeX, ...
- “Get clear picture of affection“
- Keep in contact with (preliminary) team
- Optional: Start with background research of your task

Questions?

THE END

Questions?