



Home 2016 (v, L) Introduction 17.1.2006

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Opening lecture

- Topic of the seminar
- Arrangements of the seminar
 - Responsible teachers, target group, credits, prerequisites and enrolling
- Study attainment
 - Lectures, literature survey, assignments, deadlines and schedule
- Final event and publication
- Contact information
- PM&RG research group
- Examples of innovation prototypes
- Innovation prototyping
 - SSUR model of scenario, service, use case and realisation
 - Balanced brokering of viewpoints



Topic of the seminar: Home 2015

- Homes are changing
 - The technological as well as time and resources management needs of families are challenging and changing
 - Ubicomp promises intuitive user interfaces and making interaction natural
 - New kinds of domestic applications emerge as a result of mobile and ubiquitous computing
- Home automation and entertainment researched from multitude of viewpoints
 - Networking, electronics engineering, gaming, sociology, interior decoration, architecture...
 - Domestic appliances, consumer electronics, entertainment electronics, housework, home work, telework, leisure and lifestyle services, family as a target user group, future home, mobile programming, ubicomp
- The seminar offers a challenge and chance for being innovative
 - What is really needed by users in future homes and new kind of computing environment.
 - The seminar offers challenges to programming gurus, automation experts, content producers as well as usability experts.



Objectives of the seminar: Home 2015

- The ultimate goal is to find services instead of fancy technology or fascinating intuitive theories.
 - Discovering the long term consequences of evolving technologies, enablers and changes in lifestyles.
 - Forming a structured understanding from all such scattered information
 - This requires familiarizing oneself with the existing research and systematical work
- The aim of this seminar is to teach product development methodologies, working in a heterogeneous team of experts and systematic scientific analysis.
 - Work is in the pre-product development phase, i.e., in the phase when the user groups are not known, technology is still evolving and ways of making profit still have to be found.
 - Application area is mobile and ubiquitous computing.
 - Student groups focus on modelling scenarios, services, use cases and realizations.
 - Background material will be selected from literature, technological reports, scifi, movies, games, latest results of artificial intelligence and robotics, advances in sociology and psychology, studies on users etc.



Responsible teachers

- The study seminar is arranged by the Product modelling and realisation group (PM&RG)
- DO NOT send e-mail to the teachers directly, but to the e-mail address pmrg-assari@cs.hut.fi.
 - Please use the keyword “Home” in the subject field to avoid confusion with spam mail
 - For example as mail subject: “Home: The study attainment”



Target group

- Students, researchers, experts and product developers
 - Open to all who want to deepen or update their knowledge in home automation and ubiquitous computing
- Challenges of various disciplines and for different backgrounds
 - geeks, nerds, hippies, gurus or just an ordinary persons are welcome to find new possibilities
- The seminar is meant for students from different departments and different majors.
 - Computer science and engineering
 - Engineering physics and mathematics
 - Electrical and Communications Engineering
 - Geoinformatics
 - Business
 - Communication networks
 - Product design
 - Usability
- Additional information about accepting the credits in your major or minor can be got from pmrg-assari@cs.hut.fi or from the home page.



Credits

- The seminar is arranged as T-106.850 Seminar on software technology (future code will be T-106.5800)
 - Typically students earn 3-5 credits
- Guidance for students carrying out other software engineering, information processing science and knowledge engineering studies is available in the context of the seminar. This includes
 - Special assignment (e.g. T-106.830 Special assignment in software technology)
 - Project assignment (e.g. T-106.720 Project in software technology)
 - Individual studies (e.g. T-106.870 Individual studies)
 - Updating knowledge (without credit goals)
- Notice that the sessions are open to everyone.
- For those who aim at study credits it is possible to tailor the participation.



Prerequisites – licentiate level (L)

- Prerequisites
 - The students themselves are responsible of ensuring that they have the needed skills
- For majoring, licentiate and doctoral studies
 - Master of Science, Licentiate of Science, Doctor of Science, Doctor of Philosophy
- Arrangements and organization of a seminar differ from an ordinary course
 - Seminars are arranged to allow students to practice accessing and even creating novel information and taking full responsibility of the work
 - The objectives of researcher/expert education require that the students take care of deadlines, manage the teamwork, check that guidelines are understood etc.
 - However, you are not expected to master everything yourself, rather you are expected to be active in asking for guidance when needed – never hesitate to ask
- The teachers are motivated by the chance to spread information about their own research and to learn more from the seminar participants



Enrolling to the seminar

- Primarily by using the form at <http://www2.cs.hut.fi/~pmrg/index.cgi?id=95&event=237>. If this is not possible for some reason, send email to pmrg-assari@cs.hut.fi.
 - Even if you do not want credits, please enrol.
- Please tell your
 - name
 - (possible) student id
 - (possible) university/department, major, minor
 - (possibly) how many years studied
 - e-mail
 - (possible) credit goal and type
- Also tell your background
 - What you have studied, do you have own interests or background related to the seminar topic, and are you working on related topics and so on
 - If you have wishes for the topic of the assignment let us know.
- Registering instructions at <http://www2.cs.hut.fi/~pmrg/index.cgi?id=237>



Study attainment

- The study attainment for seminar credits typically consists of
 - Attendance to lectures (absences must be negotiated with course staff)
 - Literature survey
 - Group assignment
- Please contact pmrg-assari@cs.hut.fi if you have other requests



Lectures

- Every Tuesday at 16.15 (3 hours) at T4
- Timetable at <http://www2.cs.hut.fi/~pmrg/index.cgi?id=235>
 - Sessions and deadlines – check regularly
- Visiting lectures
 - Studying home for design ideas, Ilpo Koskinen, UIAH
 - Identifying and Selecting Users for User-Centered Design, Sari Kujala, HUT
 - Home automation, Jukka Vanhala, Tampere University of Technology
 - Future home, Päivi Timonen, Kuluttajatutkimuskeskus
- Presentations and reviews of student work
 - Literature surveys
 - Assignment plans
 - Preliminary results
 - Final event



Literature survey

- Every student makes a literature survey on a topic that is related to the assignment
- The survey gives a background and necessary skills for the assignments.
- Based on books, scientific journals, conference articles, and maybe on good and reliable web sources
- Follows the form of academic publication
 - Abstract, Introduction, Background, [Content], Conclusions, References
- The topics are chosen on 24.1.2005
 - PM&RG proposes potential topics
 - Students may propose own topics
- Checkpoints for the literature survey
 - 14.2. Submission of a draft version of the literature survey
 - 28.2. Submission of the final literature survey
 - 28.2. Presentation of the literature survey
- The survey has to be finished, reviewed and accepted by PM&RG before the group can continue to next phase
- More information: <http://www2.cs.hut.fi/~pmrg/index.cgi?id=242>



Assignments

- 2-4 persons per group
- The aim is to define home and family related services using the models of innovation prototyping sufficiently to be a basis for service development.
- The assignment consists of assignment topic application, literature survey, assignment plan, reference based models 1, reference based models 2, brainstorming based model, derived service model and reporting the results.
 - These are not separate stages, but rather interdependent and it is advantageous to take following stages into account and even do some of the work in parallel.
- The final report comprises the literature survey, the models and their sources, and conclusions.
- Check the seminar assignment www page
<http://www2.cs.hut.fi/~pmrg/index.cgi?id=245>



Assignment schedule

24.1.	Introduction of the assignment topics DL: Forming the groups
31.1.	DL: Group assignment topic application
14.3.	Presentations of the assignment plans DL: assignment plans
28.3.	DL: Final report v0.3, reference based models 1
11.4.	DL: Final report v0.5, reference based models 2
25.4.	Presentation of preliminary results DL: Final report v. 0.7, brainstorming based models and derived models
9.5.	DL: Final report v.0.9 DL: Presentation for the final event
31.5.	DL: Final report v1.0

NOTICE: Always check the timetable www page <http://www2.cs.hut.fi/~pmrg/index.cgi?id=235>.
The dates presented here are subject to change.



Deadlines

- If you keep the deadlines, you earn one extra grade. (However, grade zero is not upgraded :)
- If you miss two (2) deadlines without negotiating in advance with seminar staff, you lose one grade.
- If you have to skip seminar sessions, please contact pmrg-assari@cs.hut.fi
- If you have constraints that make it impossible to keep a deadline, you have to negotiate in advance through pmrg-assari@cs.hut.fi



More information

- Seminar home page:
<http://www2.cs.hut.fi/~pmrg/index.cgi?id=236>
- Timetable: <http://www2.cs.hut.fi/~pmrg/index.cgi?id=235>
- Please check the schedule and announcements regularly
- Newsgroup for the seminar is <news://otax.hut.fi/tkk.pmrg>
- Also more information from pmrg-assari@cs.hut.fi.



Final event and publication

- The seminar culminates in a final event
 - A chance to show the results and get feedback from experts
 - Audience of students, researchers, experts from companies
 - Conclusion and reward for the whole seminar
- Publishing the results
 - The final reports are published as a collection
 - Use the Microsoft Word compatible format and template provided by seminar
 - Summary of each assignment as an A4 leaflet



Contact information

- Please do not hesitate to contact us, if you have any questions or you just want to check something
 - pmrg-assari@cs.hut.fi
 - Please notice:
 - Keyword “Home” in the subject field of your e-mail helps to avoid confusion with spam mail
 - email subject could for example be “Home: The seminar assignment”
 - Even when teachers send e-mail from their own accounts, please remember to answer to pmrg-assari@cs.hut.fi, which is read and answered by several people
- You are welcome to join events that PM&RG arranges for its hangarounds, special interest group, students, tutor group etc. Invitations are published at
 - Newsgroup [tkk.pmrg \(otax.hut.fi\)](mailto:tkk.pmrg@otax.hut.fi)
 - Home page <http://www2.cs.hut.fi/~pmrg/index.cgi?id=1>



NOTICE

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 - home page: <http://www2.cs.hut.fi/~pmrg/index.cgi?id=236>
 - timetable: <http://www2.cs.hut.fi/~pmrg/index.cgi?id=235>
- The dates presented in powerpoints are subject to change.



PM&RG



PM&RG

Product modelling and realisation group

- The mission of PM&RG is research, education and application of innovation prototyping methodology.
 - Service idea generation, service design and development.
 - The foundation is information management that makes the development process transparent to all participants and allows balanced collaboration.
- A methodology for pre-product development
 - Experimentation of service ideas of the future
 - Providing rationale for the product development
- Application area is mobile and ubiquitous computing (ubicomp)



Mission of PM&RG

Research on the innovation prototyping methodology (°) <ul style="list-style-type: none">– Service idea generation and development	Education on the basis of innovation prototyping methods (°) <ul style="list-style-type: none">– Majoring students, postgraduates, experts
Application (#) <ul style="list-style-type: none">– Mobile and ubiquitous computing based services of the future	
International collaboration (*) <ul style="list-style-type: none">– Exchange, collaborative research and education – particularly with Japan, but also in Europe	

Based on the mission statement of Helsinki University of Technology

(°)The basic task of HUT is to conduct scientific research, to provide teaching of the highest level, united with research, and to promote science and art.

(#)HUT operates where research may have both scientific and technological significance.

(*)HUT shall be an internationally significant promoter of science and technology.

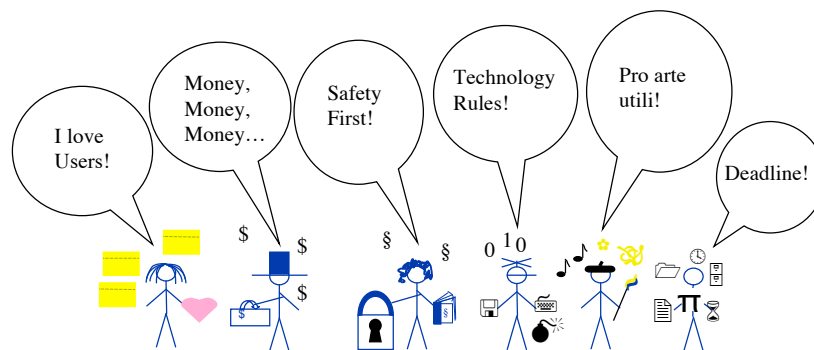


PM&RG seminars (T-106.850)

- Spring 2006 Home 2015
- Autumn 2005 Finding requirements for leisure services
- Spring 2005 Vertical handover
- Autumn 2004 Innovative user interfaces
- Spring 2004 Mobile experimentation
- Autumn 2003 Experimentation seminar
- Spring 2003 Scifiskenaarioista innoprotoiksi
- Autumn 2002 Tarinasta todeksi innoprotolla - palveluskenaariot
- Spring 2002 GO for better life
- Autumn 2001 Paikkatietoisuudesta X-tietoiseihin palveluihin ja teknologioihin
- Spring 2001 Pelle Peloton - löydä sisäinen insinööri
- Autumn 2000 Bluetooth technology & utilization



Viewpoint integration



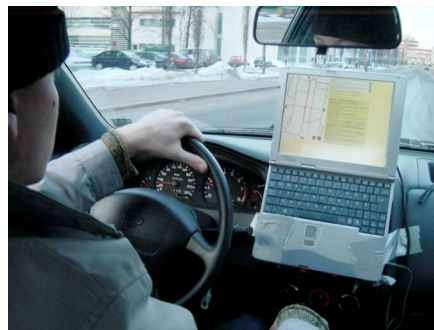


Examples of innovation prototypes



Car navigator system

- Evaluation of requirements for navigation systems
 - User interface
 - Map presentations
 - Everywhere vs. hotspots
 - GSM/GPRS/EDGE/UMTS
 - WLAN
- Riitta Ilander, Pekka Sahi, Seppo Sahi and Marjaana Träskbäck





Location and direction sensitive www service

- Tool for evaluating location and direction awareness
 - Leaving messages to places and reading place related messages
 - Help for lost, travellers, hobbies, urgent notices...
- Mikko Honkala, Vesa Kautto, Jarmo Parkkinen, Kari Pihkala, Juha Vierinen



[Minna Mäenpää: Avaimet hävinneet! 5.6.kello...](#)
[Ville Jokinen: Kuka mahtoi kolhia mun autoa t...](#)
[Vahtimestari T-talo: Löydetty avaimet parkkipa...](#)
[Poliisilaitos, Espoo: Autovarkauksia TKK:n päär...](#)
[Tik106-850: Luento peruutettu tietokoneen kado...](#)



SmartBike – BikePC

- Location aware services
- Katja Ahola, Tero Haahtela
ja Jyrki Oraskari



Bluetooth business card

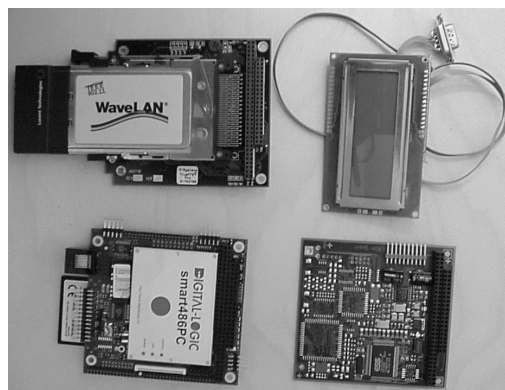
- Bluetooth based wireless exchange of electronic XML business cards
- Bluetooth seminar (Tik-86.174) students
- Learning new technology



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Ämpäri – first experiment of innovation prototyping

- Mobile music service
- Henrik Asplund
- Can a WLAN access point (Martnode) be turned into a MP3 player ?
 - Yes, but it requires expertise on hardware prototyping



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3D virtual shape design

- Utilising two eBeam devices as interaction device for 3D shape design software
- Suvi Elonen, Markku Multamäki and Matti Sillanpää
- Inventors of "hassuliinisyyys"



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Mobile phone as a general remote controller

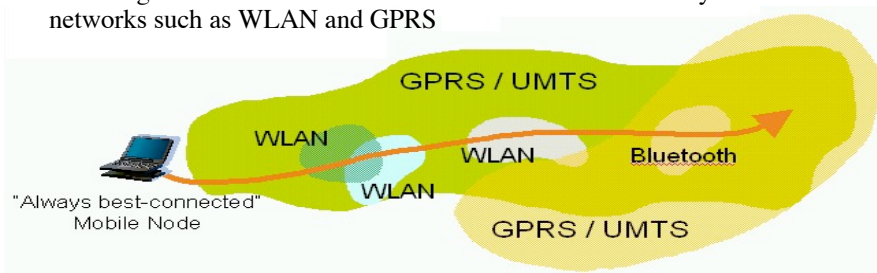
- WAP mobile phone as general remote controller (stereo, video, sauna)
- Kati Lehtinen, Tomi Nevasoja, Jussi Ranta and Juha Vehkamäki
- In the picture Rollo robot (Automation technology laboratory, Panu Harmo) is controlled via mobile phone
- Co-operation across borders



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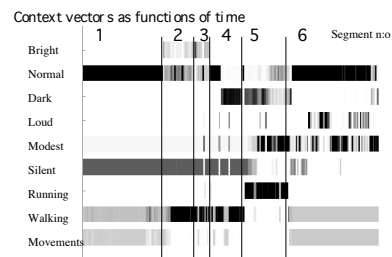
Simultaneous multiaccess in mobile IPv6

- A multiaccess extension to the MIPL Mobile IPv6 implementation made in the GO project at HUT
- Petri Jokela, Teemu Rinta-aho, Jorma Wall, Ville Nuorvala and Henrik Petander
- Allowing the user of a mobile device to utilise simultaneously several networks such as WLAN and GPRS



Context-based user interface adaptation

- Adapting user interface based on multiple context information
- Johan Himberg and Jani Mäntyjärvi
- Exploiting fuzzy logic controllers in handling multiple fuzzy contexts



- The user scenario related to the segment numbers
1. User is at the office, it is late, he is planning to catch a bus from the nearest bus stop, and he is browsing bus timetable.
 2. Walks along a hallway...
 3. Walks down the stairs...
 4. Opens the front door, goes out and walks on the street...
 5. Notices that a bus is coming, begins to run...
 6. Catches a bus, steps into it, pays, and sits down.



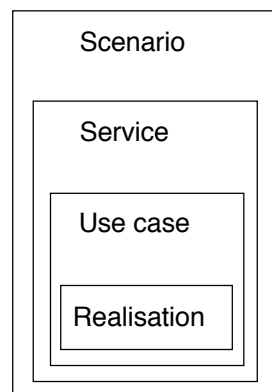
Innovation prototyping



Scenario, service, use case and realisation

Scenario is a detailed story about situations and actions of a user in colloquial language...

Use case describes system's interfaces by detailed sequences of actions



Service is the entirety that fulfils the user needs extracted from the scenarios. Service also binds together the use cases of different viewpoints..

E.g. technology realisation is defined by possible gadgets, network solutions, protocols, ...



Balanced brokering-based integration of expertise viewpoints

