Mobile services for energy efficiency in existing buildings

Carl Magnus Olsson
Assistant Professor
Department of Computer Science
School of Technology, Malmö University
Goals

Ecosystem of services

∀ Basic services
  ∗ Inform, control
∀ Advanced services
  ∗ Predictions, suggestions, various levels of automated actions

Deliverables

1. Open service platform related to energy efficiency
2. Analysis: usefulness, added value, and challenges
Project arenas
(living labs experiment sites)

Apartments (E.ON MKB)
* Also: Schneider Electric, MAH, LTH, BTH
* Led by: Magnus Lindström, E.ON

Building management
(Malmö Stad Schneider Electric)
* Also: MAH, LTH, BTH
* Led by: Olle Strandberg, Serviceförvaltningen

Project coordination (MAH)
* Diffusion channels and coordination with related initiatives:
  * Mobile Heights, Media Evolution, Region Skåne, Malmö Stad
* Led by: Karin Johansson-Mex (MAH)
Business models (BTH)

- Also: E.ON, Schneider Electric, MKB, TeliaSonera, IBM
- Led by: Lars Bengtsson, BTH/LTH

- Including:
  - Value creation mechanisms, suppliers-providers-end users

System architecture and intelligence (MAH)

- Also: BTH, LTH, Sony, TeliaSonera, IBM, ST Ericsson
- Led by: Paul Davidsson (MAH)

- Including:
  - IoT appropriate architecture, service discovery, context-awareness, levels of autonomy, predictions and suggestions
User studies (LTH)

- Also: MAH, BTH
- Led by: Mattias Wallergård, LTH

- Including:
  - Usability, integrity, user involvement

Prototyping (MAH)

- Also: Ericsson, Sony, Schneider Electric, IBM
- Led by: Carl Magnus Olsson, MAH

- Including:
  - Software integration, development, testing and demo environments, service prototype development
Timeframe

- 2 year project, started Sept. 1, 2012
- **Fall 2012**
  - Project arenas as living labs
  - Systems inventory
  - Service and platform definition
  - Integration, development, testing, and demo environments
- Main development starting Jan. 1, 2013

Process

- Iterative development
- Parallel development
- Continuous integration
- Continuous deployment
- Continuous user feedback
Sample services
(early brainstorming for apartments)

- Quantify yourself (self-awareness)
- Gamification-based competitions (individual, peers, all)
- Appliance optimization (spot price, load balancing, location)
- Convenience service (remote starting, context based actions)
- Social rewards (guesture value > monetary value)
- User-adapted behavior (if-this-then-that, share 'recepies')
- Nudging service (actions, services, recepies)