Interaction Design for Energy Saving and Shifting in Smart Grids-enabled Households

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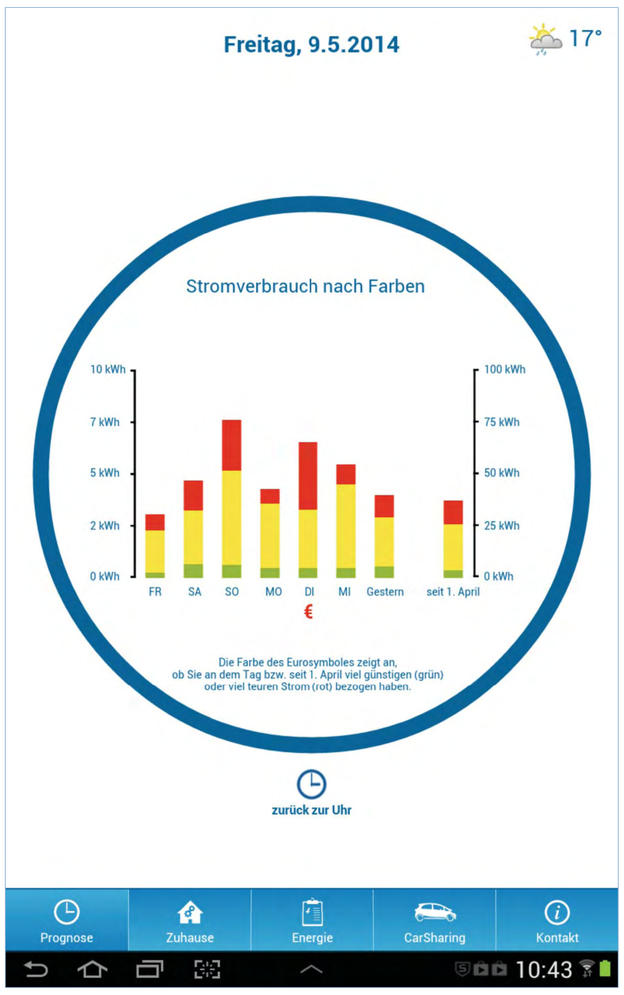
A multi-functional tablet app to promote shifting energy consumption for balancing loads in smart grids. Provides energy load prognosis, energy shift and consumption feedback, home automation, weather info and is also a sleek clock in the living room.

Electricity load prognosis



Consumption shift feedback

Unobtrusive passive mode

Design Goals

- » Go beyond energy consumption feedback: energy demand feedback
- » Go beyond promoting less energy use: promote shifting energy use
- » Increase ambient energy awareness: always-on home display
- » Increase engagement with service: multi-functional device

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- Energy load prognosis & feedback
- Save money by shifting energy use
- Ambient device with passive mode
- Clock, weather, home automation

Persuasive Strategies

- » Simulation: show cause-and-effect scenarios
- » Self-Monitoring: track performance and status
- » Rewards: honour desired behaviour
- » Reduction: reduce complex behaviour to simple task

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- Electricity load prognosis
- Energy shifts & consumption
- Incentives for load balancing
- Shift opportunities at a glance

Evaluation Study

- » 1-year field trial (April 2014—March 2015) in Salzburg (Rosa Zukunft)
- » 35 app-equipped apartments, 50 standard apartments (control group)
- » Quantitative: consumption data, app usage logging, questionnaires
- » Qualitative: focus groups, in-depth face-to-face interviews, personal diaries

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- Find energy shift patterns
- Explore enablers & barriers
- Understand social complexities
- Research technology acceptance

klima+ energie fonds

Dieses Projekt wird aus Mitteln des Klima- und Energiefonds gefördert und im Rahmen des Programms „NEUE ENERGIEN 2020“ durchgeführt.

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