

# BeAware – Boosting Energy Awareness

Carin Torstensson  
Interactive Institute  
Portgatan 3, SE-633 42 Eskilstuna, Sweden  
Carin.Torstensson@tii.se

## Abstract

*BeAware is delivering mobile and ambient interface technologies aimed at increasing the user awareness of energy consumption at home, while boosting energy conservation practices. The net power energy saving at home is expected to be around 15%.*

## 1. Introduction

The project, called BeAware, is a joint European research project, investigating how next generation ICT can be designed to reduce energy consumption in the home.

BeAware wishes to foster the creation of new services that turn householders into active players in energy and inspire creation of new services and products for energy awareness.

BeAware is co-funded by the European Union in the FP7/ICT program and is a three year project running from 2008 until 2011. The first integrated prototype, consisting of a mobile application and an ambient interface, will be tested in eight households during the spring 2010. Four households are placed in Italy and four in Finland. In each site, studies will be carried out in a home environment. The research is highly multidisciplinary and combines a variety of approaches in the area of user studies, user-centred design and evaluation.

## 2. What is innovative about the technology?

BeAware brings a high level of innovation in different fields:

- Providing the user with natural user-friendly and simple ambient and mobile technologies for increasing their energy awareness.
- Developing innovative wireless sensors, which allow measuring the power consumption of individual appliances in near-to-real-time, and identify the type of appliance (for example oven, refrigerator and water boiler) and its specific fingerprint with low energy consumption.
- Providing new services and technology tools aimed at turning householders into active players in the

energy saving challenge and supporting energy awareness increase, which include: 1) visualization of detailed data attained through pervasive sensing 2) aesthetic displays using novel interfaces , 3) theoretically informed implementation of feedback that address behavior change. The problem of these three distinct streams is that they have tackled separately three aspects that should be addressed at the same time respectively: detailed data sensing, engagement through novel user interfaces, and psychological and anthropological approaches to behavior change. We aim at bridging these three areas by proposing a system that addresses detailed information provision, engagement through novel UI and theoretically informed feedback strategies.

## 3. How has your project become a success?

Two are the main motivations for turning the BeAware project in a concrete success:

1. Bringing the user to the centre stage. With this regard several tools for the real time monitoring of energy consumption at home have been emerging in the market (GoogleMeter, Microsoft Hohm and others). Nevertheless, despite technologically advanced, all of these have failed to be largely adopted by households, since they overwhelms the users with too much information and time-consuming tasks.

On the contrary BeAware is delivering user-friendly technologies and concepts, driven by innovative cognitive models and social studies on the energy behaviour of the users.

2. The “openness” of all the technology layers developed (wireless sensors, web service platform, mobile and ambient interfaces), which paves the way for higher interoperability with technology components and layers developed by other vendors.

The resulting and winning approach to the market is consequently to functionally decouple the overall technology developed within the project in different yet interoperable technology bundles, which could be adopted and integrated by different types of stakeholders in the value chain of home automation, supporting the construction of the renovation of green-oriented buildings.

#### **4. Results and conclusion**

The project is still running on its second year and the results from trial 1 will be available at the time of the conference (pilot period starting march 2010). The final results will be available next spring (2011).

The results so far can be summarized as followed

Access to total electricity consumption in the households are important input to the system but not simple/cheap/standardised to get

Our project has an innovative combination, a lot of systems (with measuring on appliances etc) are coming

on the market. Other systems don't offer complete solutions with both innovative sensors and interface as well as customer tools for fostering, education through quiz and advices.

There are similarities as well as differences on the different markets in Europe. Where the Nordic countries use electricity for heating, car heaters and sauna while the Italian market has a lot of air-condition, both markets have a saving potential though.

For more information:

[www.energyawareness.eu/beaware/](http://www.energyawareness.eu/beaware/)