

Measurement & control of personal energy consumption

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INTRODUCTION

This project suggests a solution for better utilization of the produced energy, from renewable energy sources. By helping individual energy consumers use energy at times of low demand, it decreases the individuals' energy costs, and reduces the workload on energy sources in times of high demand.

THEORY

Intelligent Home Concept (IHC) is a system made by the electricity company Lauritz Knudsen, integrated in some new houses. IHC enables the owner of the house to wirelessly control the individual electricity outtakes, lights, ventilation systems etc.

Remotely read electricity meters (sometimes called "intelligent electricity meters") enables electricity distributors to remotely read the electricity usage of households.

Also a house owner can view the electricity prices online, at a database updated every day.

Our project merges these three services, and creates a common user interface on Android based smart phones. Through the smart phone interface, the user can set the IHC-controller to turn high energy consuming devices on and off at appropriate times, based on energy prices. Also the device can be used to check for and turn off object when leaving the building. Therefore assisting the consumer towards a more efficient energy consumption.

THE PRODUCT

Our product is an Android based application that connects with an IHC-controller, a remotely read electricity meter and uses the internet for collecting data about energy prices. It enables the user to control devices, based on time of day, energy prices or manually, through the phone.

The product makes it more attractive for consumers to have a more efficient energy consumption, by saving the user money and doing so through a commonly known easy-to-use interface.

FUTURE USE

The product is open for further development, such as:

1. Providing an alarm, to remind the user that a device is still turned on, if the person leaves the building. This could be based either on GPS tracking or WiFi connection or preferably both.
2. By providing services, for electrical device producing companies (such as washers etc.) to easily adapt their devices to the application, other products than the IHC can be included.
3. Solar cells and private windmills could be connected, so that their productivity can be read directly.
4. Etc.