Case Study

Developing the next generation in smart heating control systems to deliver stress free energy savings

Automated Heating Controls (AHC) are the best tools to overcome the limitations of manual thermostats and existing battery powered heating valves to generate savings of up to 50% in energy usage in homes and work space. AHC is hoping to facilitate the widespread application of smart heating control valves in Europe by developing a new product.

Name	Adaption Tool for Local Authorities (ATLA)
Project Type	Innovation - Develops and brings to market climate relevant knowledge, products and services
Lead Partner	greenTEG AG
Project Partners	greenTEG; TU Munich; ETH Zurich, TA Heimeier
Project Manager	Dr. Wulf Glatz; greenTEG AG; wulf.glatz@greenTEG.com
Project Location	Pan-European, coordinated from Switzerland
Project Start Date	01.01.2014
Theme	Transforming the built environment

The Climate Change Issue

Buildings worldwide account for up to 40% of total end-use energy. The main driver of energy usage within buildings is heating, accounting for more than 50%. Most heating valves are manual devices, with few settings or levels to regulate radiators. Users rarely change their levels, and energy is consumed regardless of outside temperature whether someone is in the room, a windows is open, or if it is night or day. Consequently, energy is wasted and very often the room will not be at the desired temperature. Various studies have shown that by intelligently controlling the heating, i.e. by lowering the room temperature when nobody is present or shutting down the heating during airing, the energy consumption can be reduced by up to 50% while still delivering the same or better comfort level to the user. In order to assure user acceptance and seamless integration in potentially existing home automation systems, interfaces to current smart home solutions as well as smart phones and tablets need to be provided. Current systems do not allow the control of single rooms or offices or are lacking user acceptance due to the need for regular battery replacement.

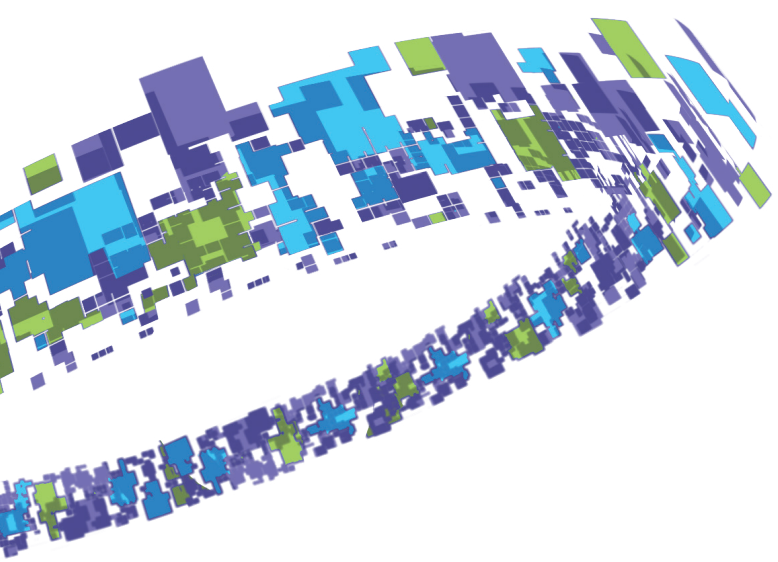
The project solution

The goal of this project is to develop an energy-autonomous, wireless and smart heating control. Such a device would allow user- and use-adapted control of the heating for single rooms/flats/office, e.g. by lowering the temperature when a room is not used or when it is being aired.

First providers successfully introduced a smart heating control for the central heating burner and proved its energy saving potential but, because they cannot offer single room/office control, cannot serve the full market. And although battery powered wireless radiator controller are already commercialised, the market penetration is unsatisfactory and the energy and CO2 saving potential of the idea of smart heating remains strongly underexploited. Market studies have revealed that a severe reason for low customer and market acceptance of the battery powered controller is the missing autonomy, caused by the need for regular battery replacement. The AHC project will eliminate this major barrier by powering the controller with a thermoelectric generator. By combining energy autonomy with user friendly operation we will develop a product which can be used for almost all existing (by simple retrofit) and future waterborne heating systems in residential as well as in commercial buildings. The consortium of this project brings in the latest technologies with low cost, easy-to-integrate thermoelectrics (greenTEG) and ultra-low power electronics (ZHAW), experience in industrial design, product development and innovative business models (TU Munich) and also features one of the strongest European market channels with TA Heimeier. The developed product will allow building owners and users to reduce their energy consumption, save costs and live in a more convenient place.

The role of Climate-KIC

Automated Heating Control is an innovation project of the strategic platform Transforming the Built Environment (TBE) which is facilitated by Switzerland. By working with the former winner of the Climate-KIC venture competition for start-ups, greenTEG, Climate-KIC allows an innovative young SME to bring its technology into a new application and market.



"The AHC is the missing link in today's "Smart Home" landscape for widespread integration of the system with the largest energy savings potential in a building – the heating."

Wulf Glatz
green TEG AG

About Climate-KIC

Climate-KIC is an initiative of the European Institute of Innovation and Technology (EIT) with a mission to create sustainable growth by addressing climate change mitigation and adaptation. As Europe's largest public-private innovation partnership we integrate education, entrepreneurship and innovation. By bringing together communities we help transform knowledge and ideas into economically viable products or services that help to mitigate climate change.

To find out more about this project or about working with Climate-KIC, get in touch by visiting http://www.climate-kic.org