



Tartu: Smart Home Solution

Overview

Besides retrofitting, the installation of smart home systems in Tartu's pilot area apartment buildings is an additional important measure. The smart home system consists of a gateway (or several), a control panel as well as various sensors and meters that all exchange data through cable or radio communication. More specifically, the smart home solution includes the following elements:

- Gateway – communicates with the meters, sensors and devices installed in the apartments;
- Control panel – a tablet computer that is used to control the devices and run the smart home app;
- Smoke detector – mounted on living room ceilings;
- Impulse counters – mounted on electricity, water and gas meters and transmit consumption data;
- Smart thermostats – to control room temperature;
- CO₂ detector – to control ventilation.

The smart home system will be connected to the Cumulocity cloud platform, which will be used to exchange data between various stakeholders (residents, housing associations, city of Tartu, University of Tartu, Tartu Regional Energy Agency), devices and platforms.

The collected energy consumption data will mainly be used in three ways. Firstly, for automatically fine-tuning the parameters of heating and ventilation in the renovated buildings. Secondly, for providing end users with direct feedback about their consumption habits. Finally, the data will also be accessible to third parties like SMEs and startups for building up innovative services. The privacy of the end users will have key importance in this process



Benefits

- Monitoring and adjusting energy consumption
- Improved data availability and new business opportunities
- Increased comfort and control over the indoor climate
- Behavioral change related to consuming energy
- Increased energy efficiency and reduced energy bills
- Greater transparency of urban processes
- Better management of service providers

Citizen Engagement

Communicating the solution's requirements, functionalities, risks, benefits and privacy issues to the pilot area residents has had key importance, especially as ca. 20% of these residents are 65+ years old and generally more cautious towards new technologies. People's concerns have mostly been related to the process of installing the solution, the functionality of the devices, the associated risks (e.g. electromagnetic radiation rate of the devices) and the related health hazards. As such, citizen engagement has been a natural part of planning and developing the smart home solution.



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Stakeholders

Owner(s)	Pilot area residents
Service/Technology Provider	Telia as the service provider, devices tbs
Users	Pilot building residents, service providers, entrepreneurs, universities
Investors	H2020, Telia

Replication Potential

Investment/Finance

Ca. 400,000 Euro

There are several components of the smart home solution that are novel and will be tested through the SmartEnCity project. Most notably, the central ventilation system that can be managed on the apartment level (including the CO₂ level) is something new and by the end of the project, the cost-benefit and performance of this solution can be assessed for further replication purposes. In addition, as both radio and cable solutions will most likely be used in the pilot area buildings depending on the housing associations' preferences, good knowledge will be gained about the reliability and performance of each of the options. As additional cable works will make up a significant part of the costs of setting up the smart home solution in Tartu, the availability of these connections should be taken into consideration when planning and implementing retrofitting activities even if initially, there is no intention of installing and integrating smart home devices in the apartments. Besides the technical expertise that will be gathered through implementing the smart home solution in Tartu, knowledge about how the pilot area residents accept the new solution, how they use it and how it changes their consumption patterns and behavior will also be available.

Contact

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More Details:

<https://smartencity.eu/about/solutions/smart-home-solution-tartu/>



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