BDTIC
3rd BUILDING DIGITAL TWIN International Congress

RESPONSE
Integrated Solutions for Positive Energy and Resilient Cities

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement nº 957751. The document represents the view of the author only and is his/her sole responsibility: it cannot be considered to reflect the views of the European Commission and/or the European Climate, Infrastructure and Environment Executive Agency (CINEA). The European Commission and the Agency do not accept responsibility for the use that may be made of the information it contains.

RESPONSE Project - Smart Heating in Residential Buildings

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ORGANIZED BY:

BDTA DigiChecks EUnet4DBP

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME – PROJECT 101058541 – DIGICHECKS

Response project

- Focus: **Positive Energy Districts**
- Strategic vision for *Smart Cities Energy Transition*, in an affordable, secure and sustainable way.

13 countries, 53 partners ~ 20 M€

2 lighthouse cities → 6 followers

10 integrated solutions

90 innovative elements

- Brussels
- Zaragoza
- Botosani
- Ptolemaida
- Gabrovo
- Severodonetsk

Video https://www.youtube.com/watch?v=wrvVvdBVKrE&t=36s

Response project

Lighthouse city Turku Finland: Retrofitting block (B4)

- **Positive Energy District** with 5 blocks (B1-B5)
- Retrofitting block (B4)
  - Reserved residential buildings, 50 years old block connected to district heating network.
  - Owner: Turku Student Village Foundation (TYS).

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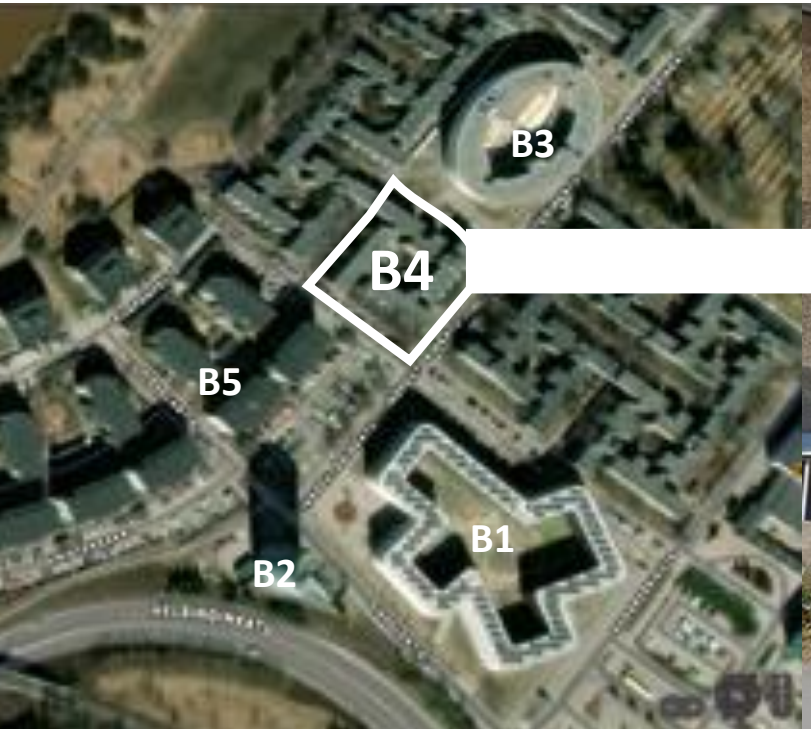
Response project

Lighthouse city Turku Finland: Retrofitting block (B4)



- 4-glazed windows
- Extra insulation, Urethane ceilings
- Conventional retrofitting
- Solar panels
- Heating, ventilation with heat recovery & water saving

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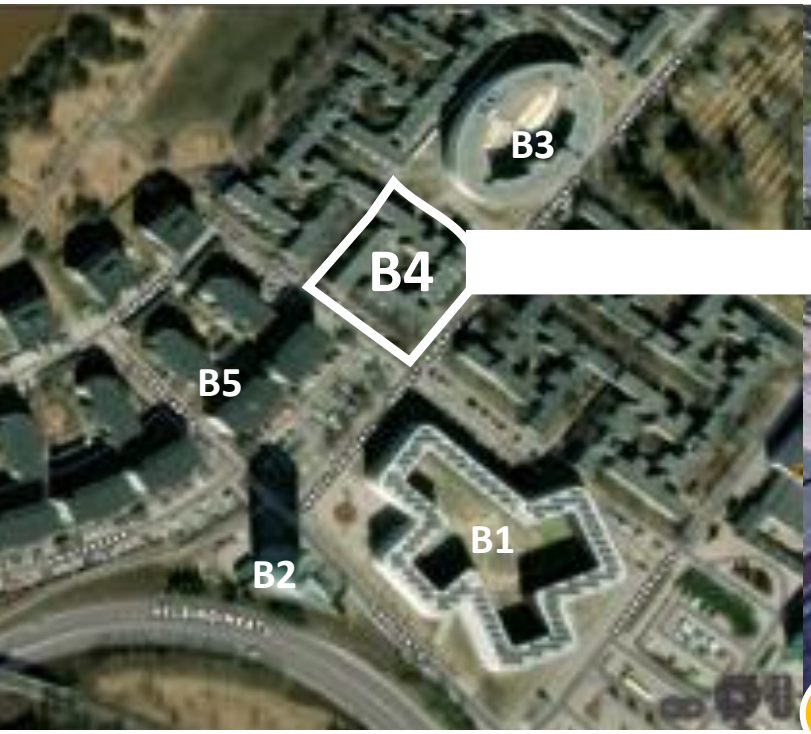
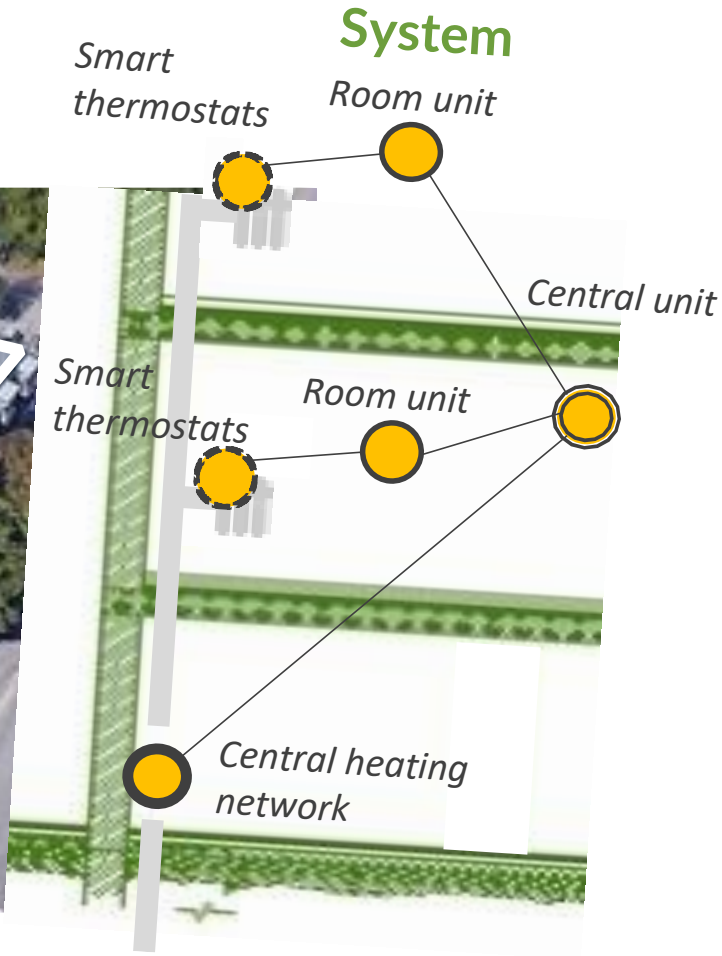
Response project

Smart heating (automated): Individual thermal comfort





Voluntary experiment, system installed in 2/4 buildings (63 apartments)

Response project

Smart heating (automated): Individual thermal comfort

- Typical home temperature 21°C, but **optimal temperature varies individually** (science: 6°C difference).
- **Smart heating** *automatically controls heating*, based on *measurements* and *user demand*. This utilises *VTT Thermal Sensation Control* technology.

Response project

Smart heating (automated): Individual thermal comfort

- Solution
  - Högfors GST, Kiona, Simap (*Central heating with room units and thermostats*)
  - VTT Thermal Sensation Control (*technology*)

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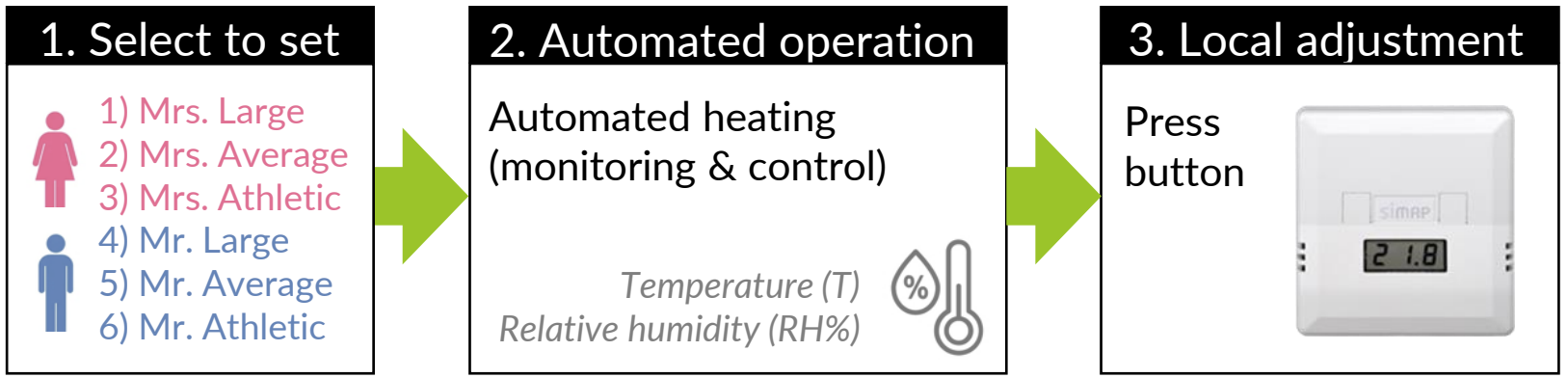
Response project

Smart heating (automated): Individual thermal comfort

- How it works
  1. User selects a *fictional person type* to **set heating** (*6 options, representing different individuals*).
  2. **Heating** is **automated** *with indoor monitoring and control.*
  3. For **local adjustment**, user may *press button* (up/down).



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Response project partners

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Thanks for attention!

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