

COST CA18110

Underground Built Heritage as catalyser for Community Valorisation

WG2 Meeting Results

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<http://underground4value.eu/>



Specific Action's challenge to cover from WG2

UBH conservation. Starting by reviewing sectoral literatures, the WG individuates the main methodological approaches and defines new research questions for the UBH conservation, which are incorporate in the case-studies assessment and in future research needs. The WG pays attention to **technologies for UBH non-invasive diagnosis, innovative ICT tools for on-site monitoring** tools of the cavities (sensing) techniques for **evaluating the stability of the site**, integrated approaches to the stability of cavities, techniques of simulation of underground failures, detailed **high-resolution visualisation and virtual reconstruction** of the more interesting items of the heritage. The WG contributes to the case-studies assessment and to the training school modules, and finally publishes the results.

Members of the WG2

- 12 members have attended the 1st WG2 meeting from Italy, Hungary, Macedonia, Portugal, Poland, Ireland, Turkey and Spain.
- Mostly architects and engineers
- We nominated:
 - Zili Li as the WG2 member of the Training School Scientific Board.
 - Alice Tavares as the WG2 member of Editorial Board.
 - ?? as the WG2 member responsible for regularly updates of the content in the Web site.
 - ?? as the WG2 member of the STSM Selection Panel.
 - ?? as the WG2 member of the ITC Conference Grant.

Set of (ICT) tools for UBH conservation and monitoring

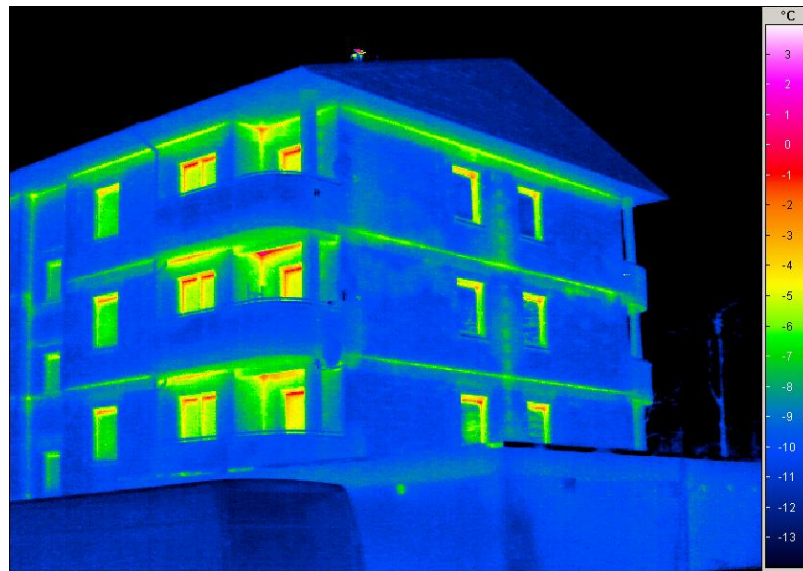
- Thermal imaging cameras for vision in darkness and dampness detection
- Georadar and geophysical surveys for locate underground structures by
- Collection and digitalization of old UBH data
- Stress and deformation monitoring
- Dynamic load monitoring for vibrations
- Remote (wirelessly) sensing (cracks, water, inclination, settlement...)
- SLAM for 3D modelling
- Computational Modelling of UBH

Two interesting technical Talks + Naples Case Study

- Naples Case Study: Antonino Barba
- Thermal imaging: Robert Olbrychy (Lodz University of Technology, Poland)
- Remote Sensing: Zili Li (University College Cork, Ireland)

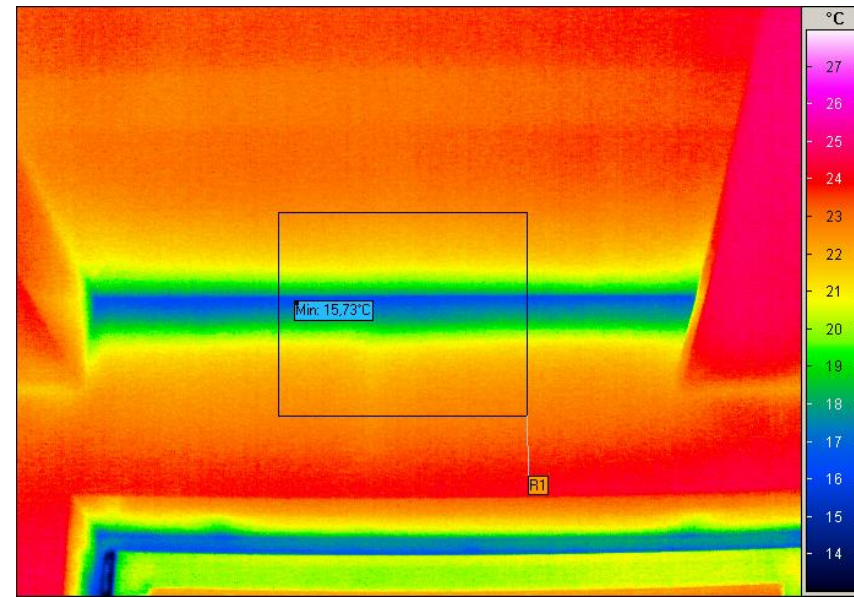
Thermal imaging (1)

Heat losses in buildings



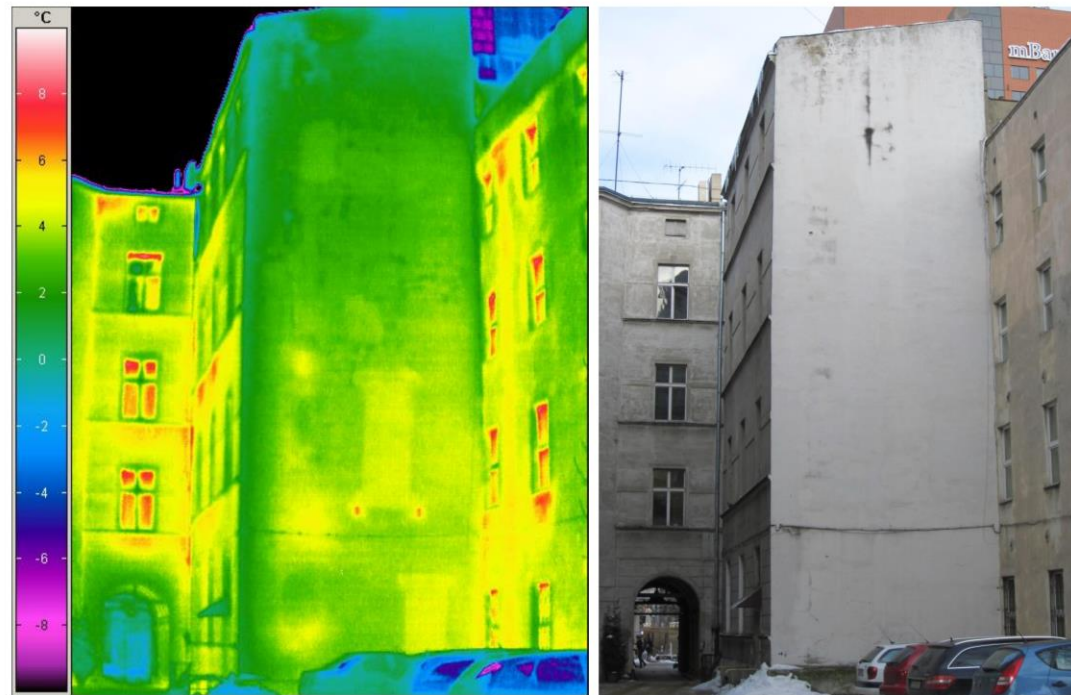
Thermal imaging (2)

Detection of dampness before it becomes visible



Thermal imaging (3)

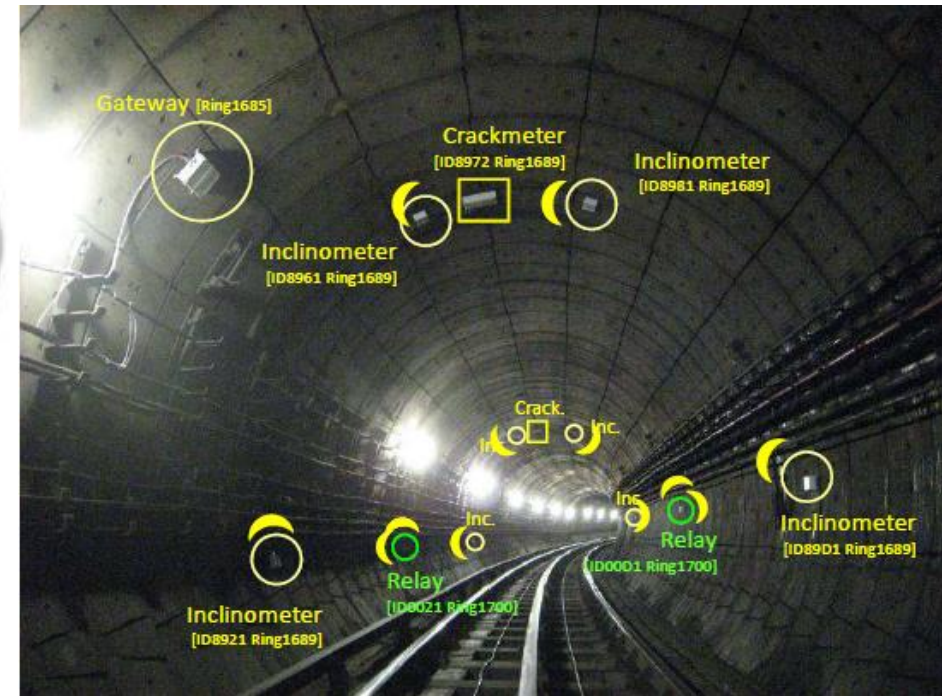
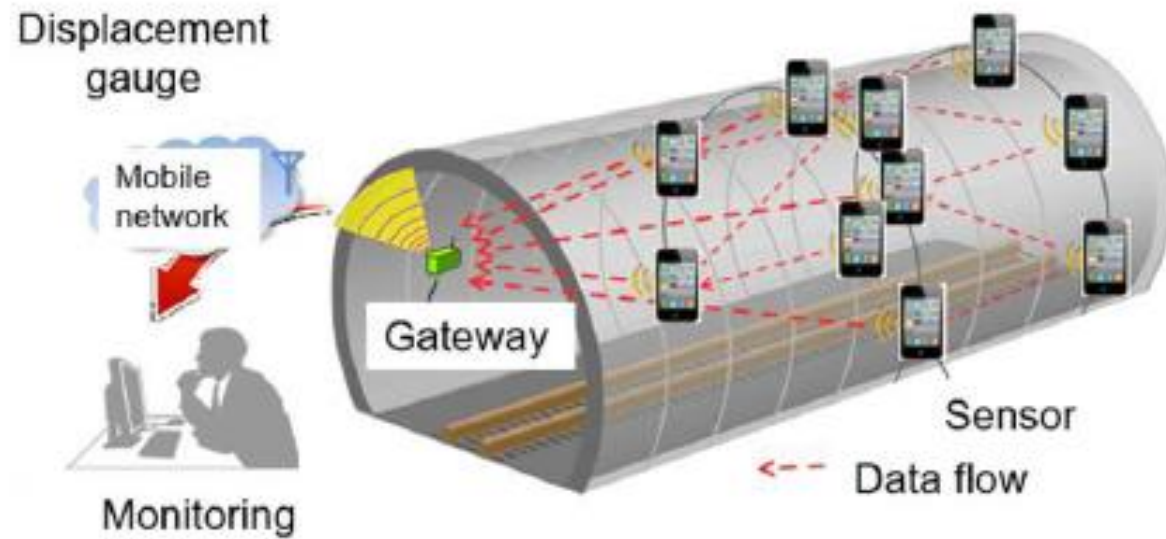
Localization of sub-surface structures



Widok od podwórza

Remote Sensing

Sensor deployment in London underground



Research questions for the UBH conservation and monitoring related to the Action's case-studies

- Who are the stakeholders?
- What are they expectations?
- What specific tools and resources do the stakeholders use for UBH conservation and monitoring (if any)?
- Pros and Cons of those specific tools?
- Legal requirements when installing new equipment and collecting, processing, publishing and providing UBH data?
- Strategic approach to integrate in surroundings?

Thank you!

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