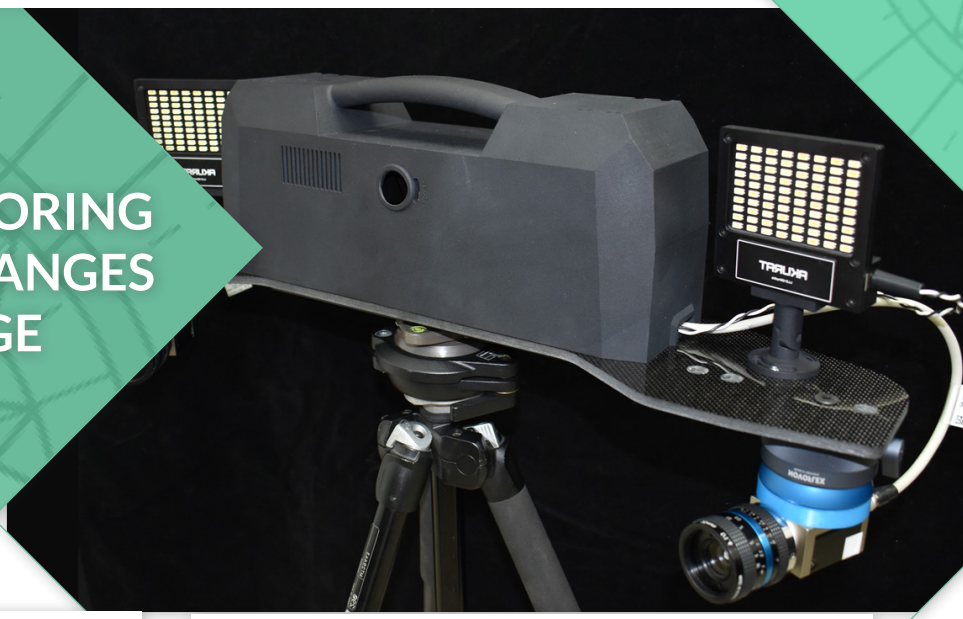
Warsaw University of Technology

EXCELLENCE INITIATIVE RESEARCH UNIVERSITY

Centre for Innovation and Technology Transfer Management
WARSAW UNIVERSITY OF TECHNOLOGY

MULTIMODAL MONITORING AND ANALYSIS OF CHANGES IN CULTURAL HERITAGE SURFACES



QUANTITIES TO MEASURE:

- 3D geometry (x,y,z)
- In-plane displacements
- Out-of-plane displacements
- Strains
- Spectral properties

and their changes in time

MEASUREMENT METHODS:

- Structured light
- Color 3D digital correlation: natural surface texture
- Simplified multiwavelength spectral analysis (λ_1, λ_2, λ_3)

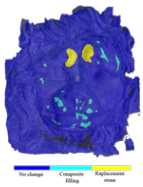
Adjustable Field-of-View
Flexible data acquisition and processing.
Non-invasive and in situ monitoring for CH objects.

DATA ANALYSIS:

Tracking, quantifying, and visualization of changes:

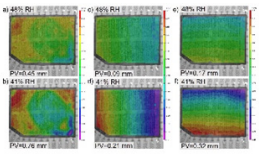
- Processing pipeline for change detection
- Volumetric Data
- Stitching of the collected data
- Segmentation of change in surface geometry
- Combining geometrical, strain and spectral data in 4D
- Visualize the identified changes in static and dynamic modes
- User-friendly colormap visualization and digital documentation

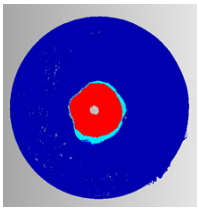
CASE STUDIES:



Change detection after restoration

Monitoring Displacements caused by humidity change





Deformation detection

CHANGE
CULTURAL HERITAGE ANALYSIS FOR NEW GENERATIONS
change-itn.eu

Wydział Mechatroniki Politechniki Warszawskiej

Akademia Sztuk Pięknych w Warszawie

CONTACT:

Prof. R. Sitnik, robert.sitnik@pw.edu.pl
S. Sunita, Sunita.Saha@pw.edu.pl
A. Papanikolaou, Athanasia.Papanikolau@pw.edu.pl

This project has received funding from the European Union's H2020 research and innovation programme under the Marie Skłodowska-Curie Actions (MSCA) Innovative Training Networks (ITN) grant agreement no. 813789