

# CARE@HOME

## AI that Cares for Aging at Home

### ABSTRACT

This research project aims to develop a novel contactless monitoring ecosystem for elderly individuals that surpasses existing limitations by leveraging the potential of Nearable & Airable Smart Sensors (NASS). By expanding the scope of monitoring to include a wider range of poses, vital signs, and activities of daily living, the system will provide a deeper understanding of elderly behavior patterns and enable early identification of anomalies or health concerns without the need for intrusive wearable sensors. The integration of NASS technologies with advanced AI algorithms, including the implementation of TinyML-based edge processing, offers several key advantages. This approach enables efficient and resource-constrained real-time data processing while minimizing data transmission and ensuring privacy-preserving data collection and analysis. To ensure data integrity and user privacy, the project will prioritize the development of an ethical and trustworthy framework for sensitive data monitoring. This framework will incorporate secure local processing, techniques for mapping sensitive data into metadata representations, and controlled data sharing protocols with responsible care experts to facilitate informed decision-making. Collaboration with project partners from different countries will allow for rigorous evaluation of the system's performance and user acceptance across diverse real-world settings, including deployments in three distinct clinical environments. This evaluation will ensure the system's practical applicability and clinical utility. The ultimate goal of this research is to develop a cutting-edge AI-based contactless monitoring ecosystem that provides peace of mind for families, reduces the workload of primary care providers, facilitates telecare, ensures prompt responses, improves the quality of life for older adults, and well-being in their own homes.

### KEYWORDS

- Artificial Intelligence
- Contactless
- Elderly
- Geriatric
- Sensors
- Healthcare
- Environment

### DURATION

24 months

## PARTNERS

	<b>Name and Surname of the Principal investigator</b>	<b>Institution, Department, full Affiliations</b>	<b>City, Country</b>
Coordinator (= Partner 1)	Agnė Paulauskaitė-Taras evičienė	Kaunas University of Technology, Artificial Intelligence Centre	Lithuania
Partner 2	Jurate Macijauskiene	Lithuanian University of Health Sciences/Lithuanian University of Health Sciences Kaunas Hospital	Lithuania
Partner 3	Alar Kuusik	Tallinn University of Technology	Estonia
Partner 4	Kristaps Circenis	Riga Stradiņš University	Latvia
Partner 5	Katarzyna Szczerbińska	Uniwersytet Jagielloński	Poland
Partner 6	Roel Pieters	Tampere University	Finland
Partner 7	Tom Ziemke	Linköping University	Sweden
Partner 8	Carlos Fernandes Viadero	Servicio Cántabro de Salud	Spain
Collaborator 1	Kristina Judine	Addere Care	Lithuania