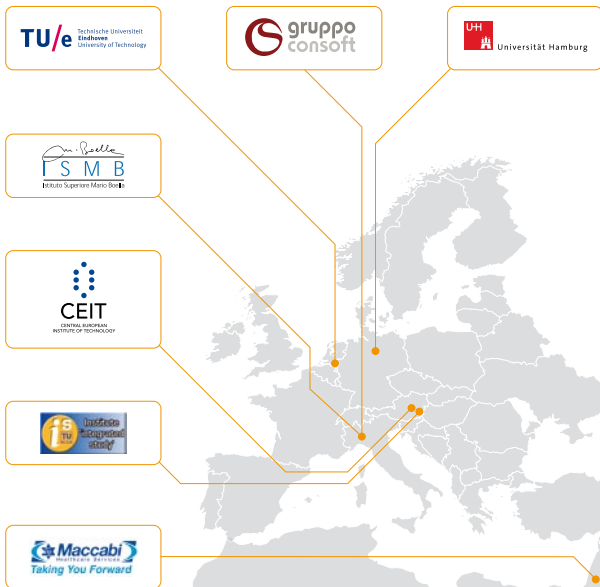


## PARTNERS

- Technische Universiteit Eindhoven (TU/e)
- Istituto Superiore Mario Boella Sulle Tecnologie Dell'Informazione e delle Telecomunicazioni (ISMB)
- Maccabi Healthcare Services (Maccabi)
- Technische Universität Wien (TUW)
- CEIT RALTEC gemeinnützige GmbH (RALTEC)
- Consoft Sistemi S.P.A. (Consoft)
- Universität Hamburg (UH)



The KSERA project is co-financed by the European Commission under the 7th Framework Programme (FP7) for Research and Technological Development.



## K-SERA FACTS & FIGURES

- 7 partners.
- 353 person-months of work.
- Start date 1 February, 2010.
- 3 year duration.
- Overall budget of €3.9 M.
- EC co-financing of €2.9 M.

For more information visit our website:  
**[www.ksera-project.eu](http://www.ksera-project.eu)**

Contact details project coordinator:  
Lydia Meesters  
Technische Universiteit Eindhoven (TU/e)  
Email: [l.m.j.meesters@tue.nl](mailto:l.m.j.meesters@tue.nl)

**CEIT RALTEC**  
**[www.ceit.at](http://www.ceit.at)**  
**[raltec@ceit.at](mailto:raltec@ceit.at)**



KNOWLEDGEABLE  
SERVICE ROBOTS  
FOR AGING





## ABOUT K·SERA

KSERA investigates the integration of assistive home technology and service robotics to support older users in a domestic environment. The KSERA system helps older people, especially those with COPD, with daily activities and care needs and provides the means for effective self-management.

The main aim is to design a pleasant, easy-to-use and proactive socially assistive robot (SAR) that uses context information obtained from sensors in the older person's home to provide useful information and timely support at the right place.

### KSERA addresses socio-economical needs:

#### • Independent living:

- Desirable: older people want to live as long as possible in their own homes and enjoy good quality of life (QoL).
- Necessity: the support ratio: i.e., the number of people of working ages per person of 65 and older, decreases from 1:5 in 2000 to 1:2 in 2050.

#### • Chronic Obstructive Pulmonary Disease - COPD:

- 3rd leading cause of death in the world in 2030.
- Annual EU healthcare cost of €7.6 billion for outpatient care and inpatient care.
- Age-related illnesses cause a decline of the patients' capabilities, including mobility limitations and self-care restrictions.

## K·SERA OBJECTIVES

The overall objective is to obtain a successful, effective interaction between the human and the socially assistive robot to guarantee acceptance and adoption of service robots and assistive home technology.

### More specifically the KSERA objectives are:

- **Robot mobile behaviour** i.e. machine navigation and following a target person through a variable and domestic environment.
- **Ubiquitous monitoring** of physiological, behavioural and environmental data through direct measurements and interaction with wearable and household sensors to detect normal and anomalous daily living patterns.
- **Human-robot interaction** including shared attention, tracking user intentions, affective technology, and communication and entertainment via adaptable multimodal interfaces.

## APPROACH

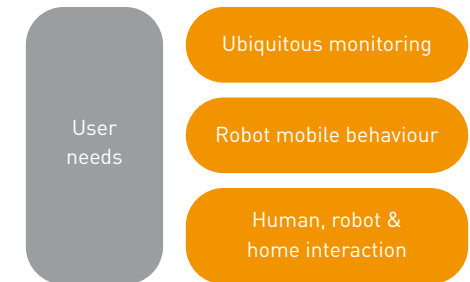
- Multidisciplinary team: medical & care professionals, expertise of robotics, sensors, IT, assistive home technology, environmental variables, user-system interaction, cognition, psychology and ethics.
- Real user scenarios and participative design drive the research.
- In an iterative design, two prototypes will be developed and validated in a real end-user environment based on measures of safety, user acceptance, care efficiency and QoL.

## APPLICATIONS

- A mobile assistant to support and interact with an older person.
- Delivering useful communication (video, internet) to an older person.
- Advise an older person or caregivers of anomalous or dangerous situations on the basis of health and behavioural monitoring.

### Integration, prototyping and validation. Evaluation with real users in a domestic environment.

#### USER INVOLVED DESIGN & PROTOTYPING



## EXPECTED IMPACT

- Increasing the acceptance and adoption of service robots in domestic environments.
- More independence and a better QoL for older people particularly those with COPD.
- Decreasing burdens on family and caregivers.
- Decreasing healthcare costs.

