Connecting AAL devices and systems to improve service delivery

Paul Panek

Email: panek@fortec.tuwien.ac.at

Vienna University of Technology

Centre for Applied Assistive Technologies (AAT)

www.aat.tuwien.ac.at

AAL Forum, 9 – 12th September 2014, Bucharest, Romania

Centre for AAT Applied Assistive Technologies
Institute of Design & Assessment of Technology

TU WIEN

FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics

About fortec / AAT

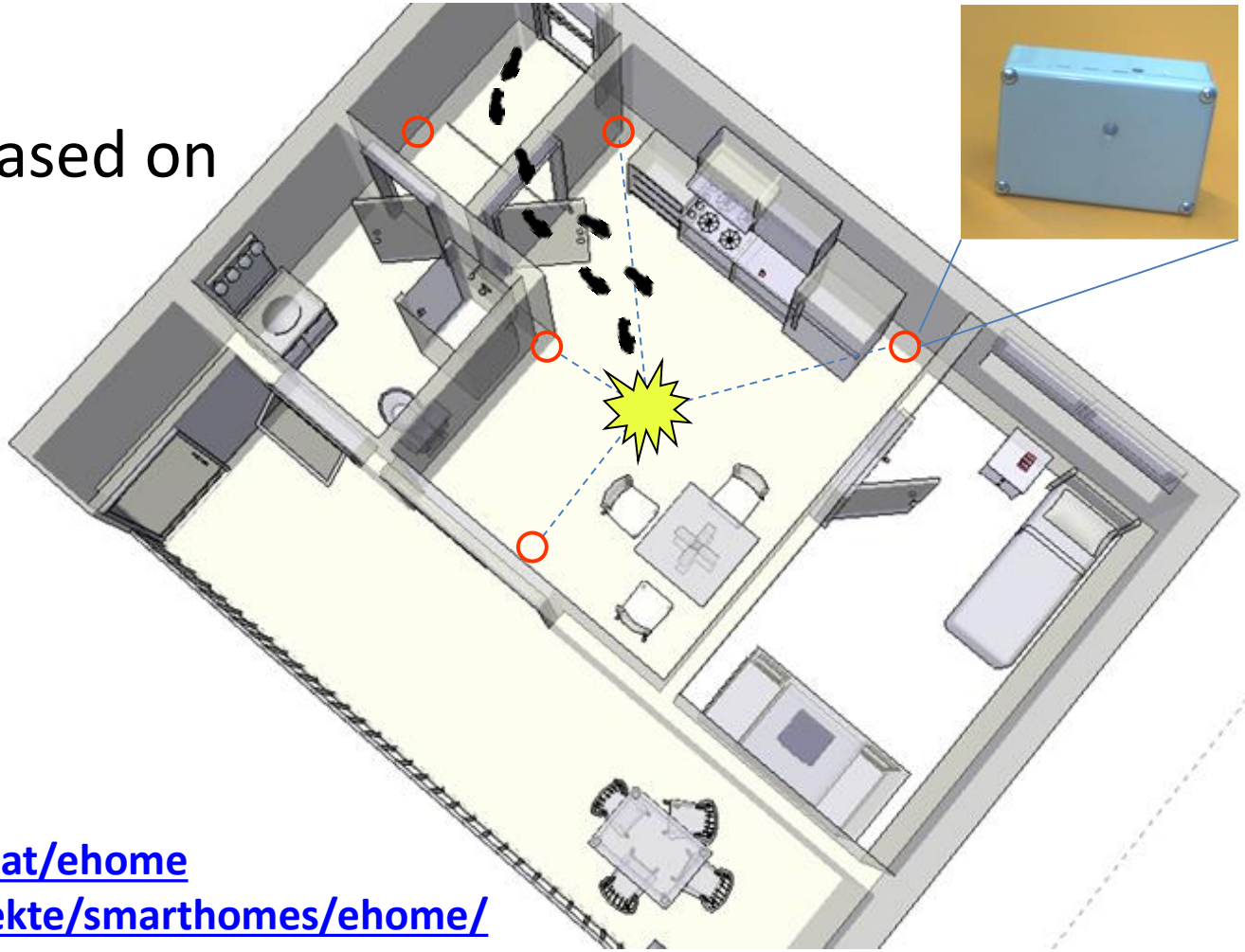
- fortec (Research group on Rehabilitation Technology), established 1986
- Since 2012 Centre for Applied Assistive Technologies (AAT) as part of the Institute of Design & Assessment of Technology
- Research and development of novel technical solutions for disabled and old people
- Ethics in R&D Projects, user centred design, integration of end users in R&D process
- Co-Inventor of „AAL“ (Article 169 initiative)

Overview

- Challenge
  - High potential of AAL solutions but lacking commitment from industry and health care org.
- Motivates for
  - Connecting devices e.g. for fall recognition
  - Connecting overlapping areas care / hospital
  - Connecting users at home & (medical) call centre
  - Connecting to civil society via social networks
- Conclusion

Detection of Falls

- eHome
  fall detection based on
  measuring
  floor vibration



http://www.aat.tuwien.ac.at/ehome
http://www.raltec.at/projekte/smarthomes/ehome/

Connecting different approaches

– **eHome:** ambient sensors / fall detection

– **Vivid:** wearable sensors / fall detection

=> Advantages combined via middleware

- Measurement & visualisation of vital parameter
- Extended user interface
- More flexible fall detection
- Interoperability, Alarm and provisioning

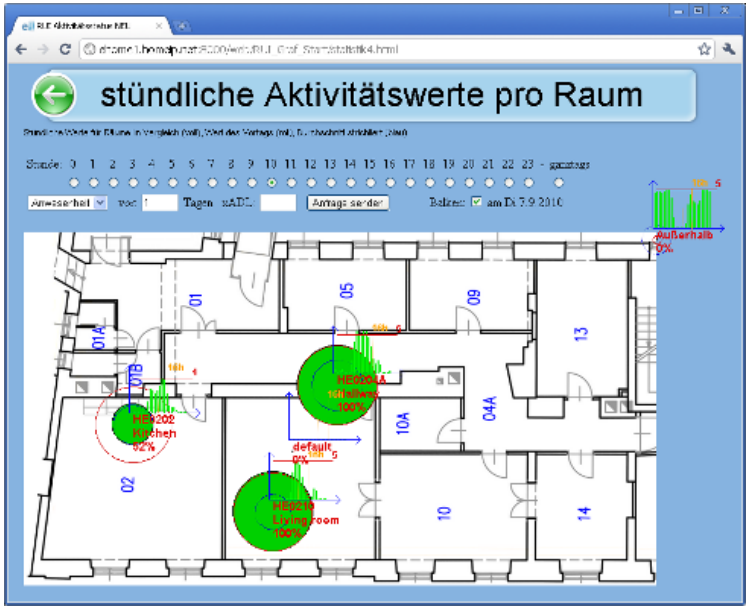
AAL Summit 2014

Connecting devices

- Increase performance, reliability
- Flexibility for market entry

Connecting overlapping areas home care / hospital

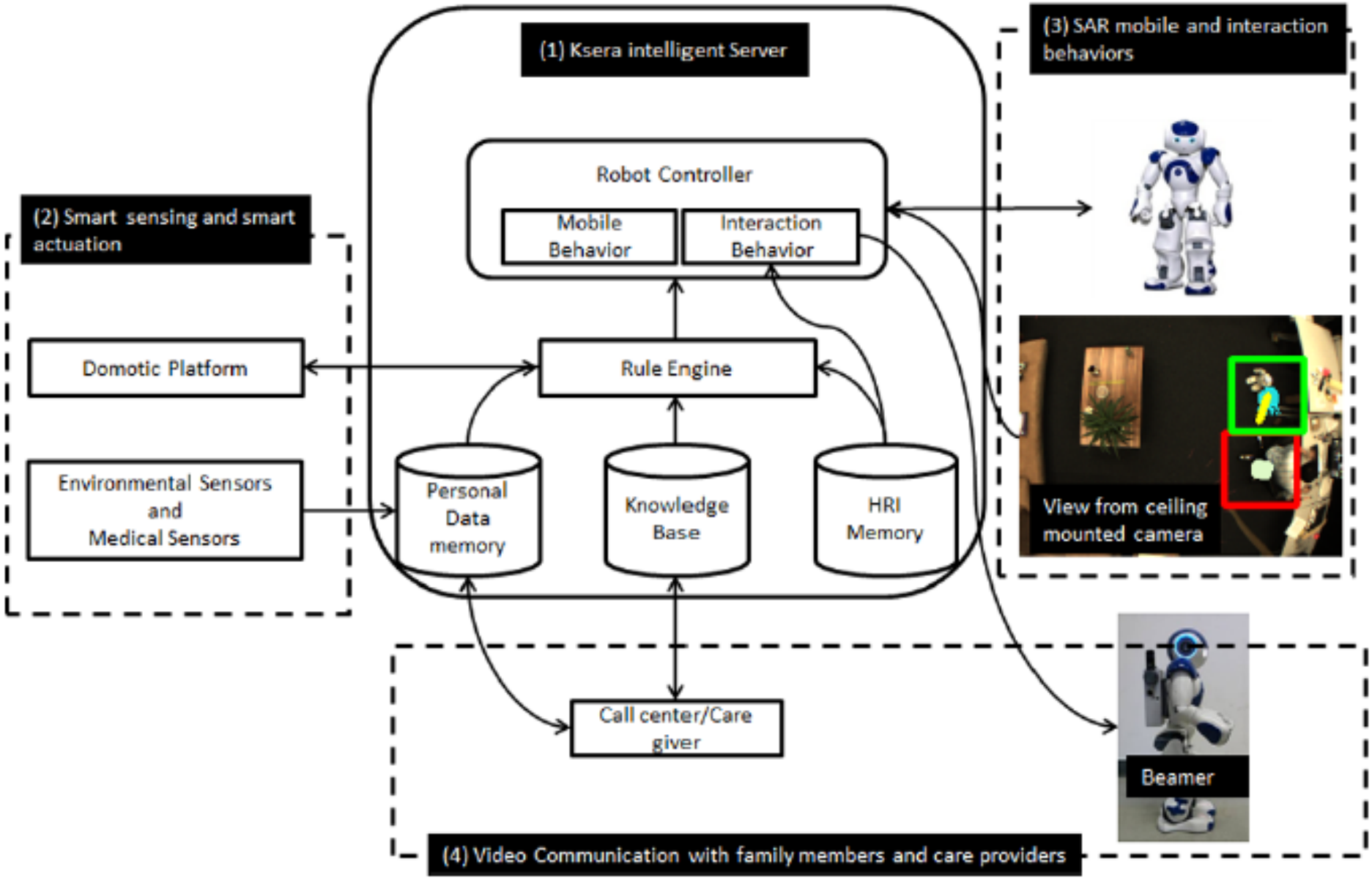
- E.g. activity monitoring system in care area
- To be used for assessing patient activities after discharge from hospital
- Valuable information source for occup. therap. → enables to choose most suitable therapy



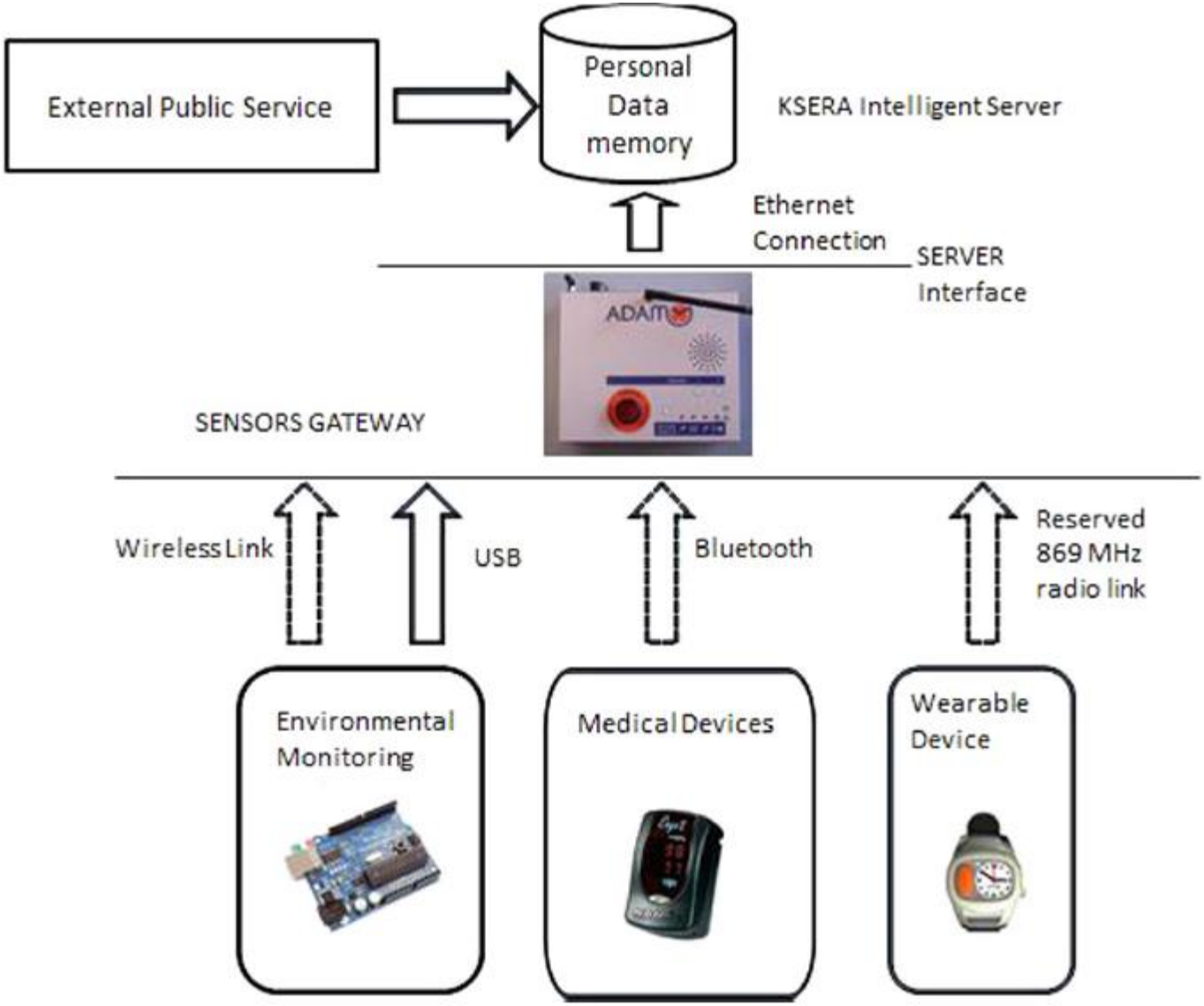
Connecting to medical service centre

- Example of an assistive robot
  (KSERA FP7 project http://ksera.ieis.tue.nl/)
- Collecting medical data to support self management
- Increase motivation
- Allows contact to and supervision by service centre including medical expertise

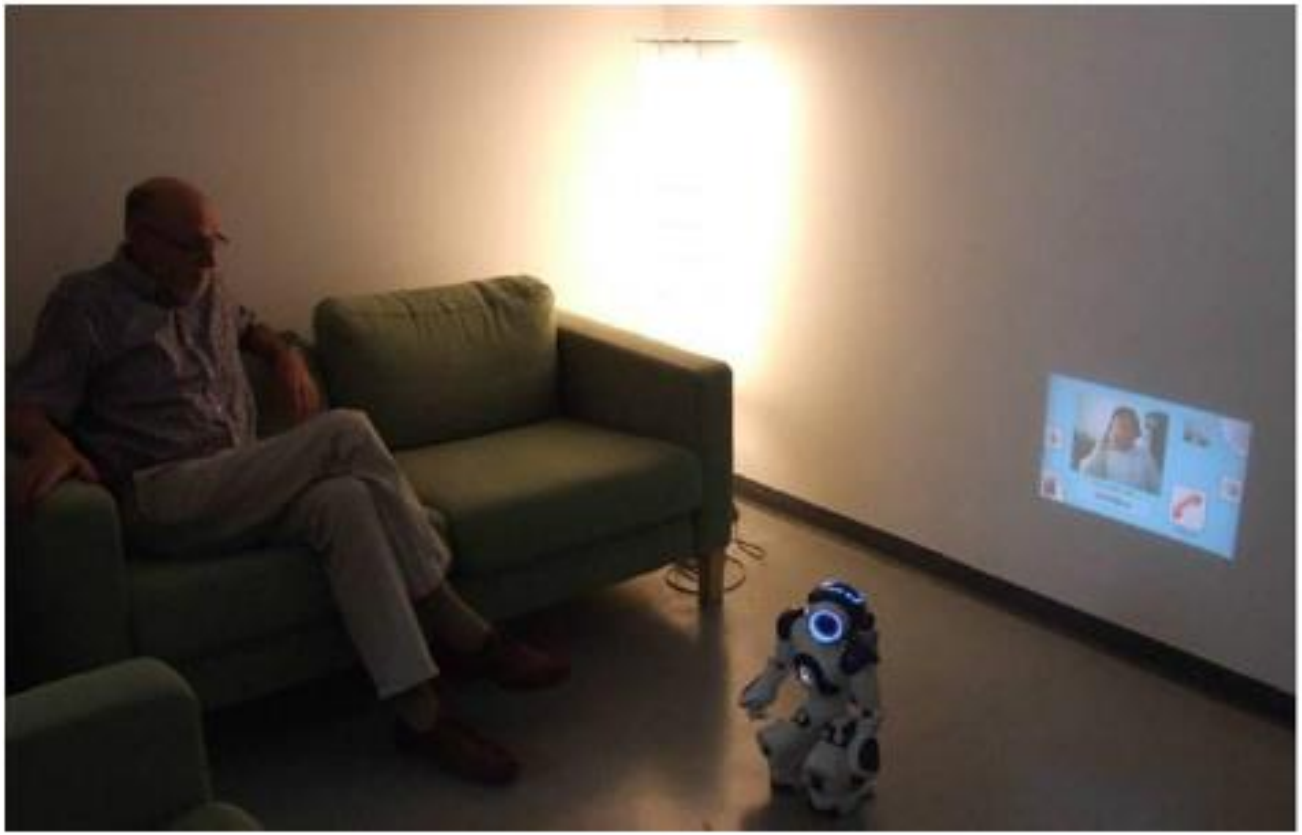
KSERA architecture



Sensory systems in KSERA

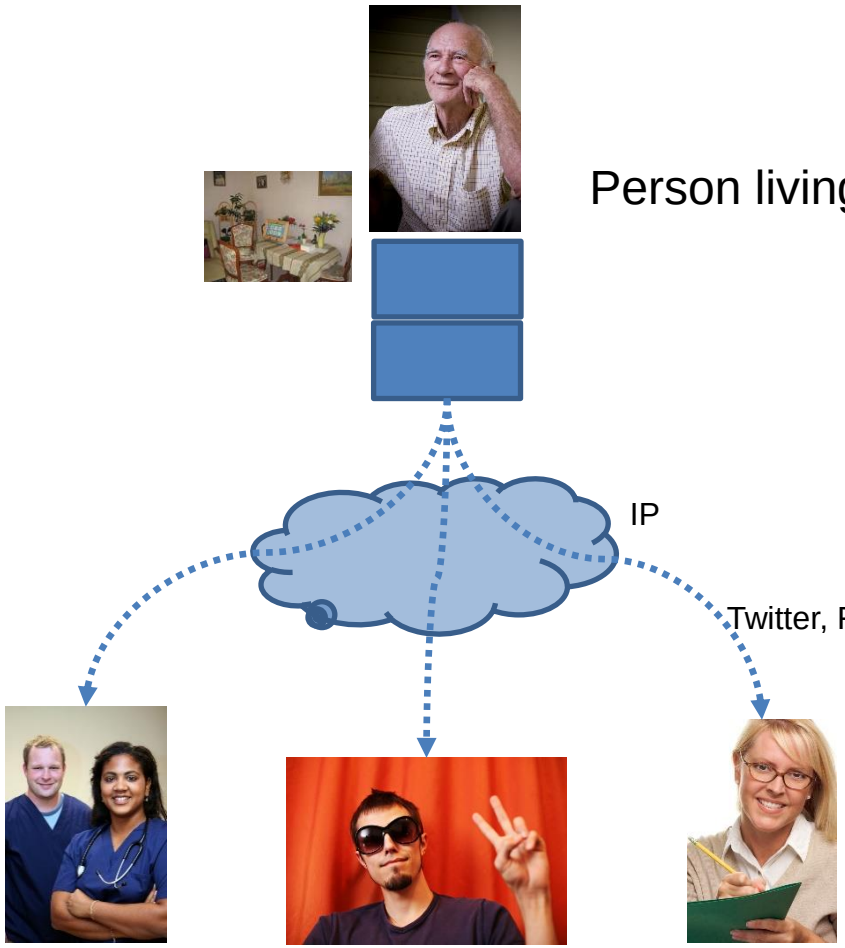


Example of Nao facilitated video communication

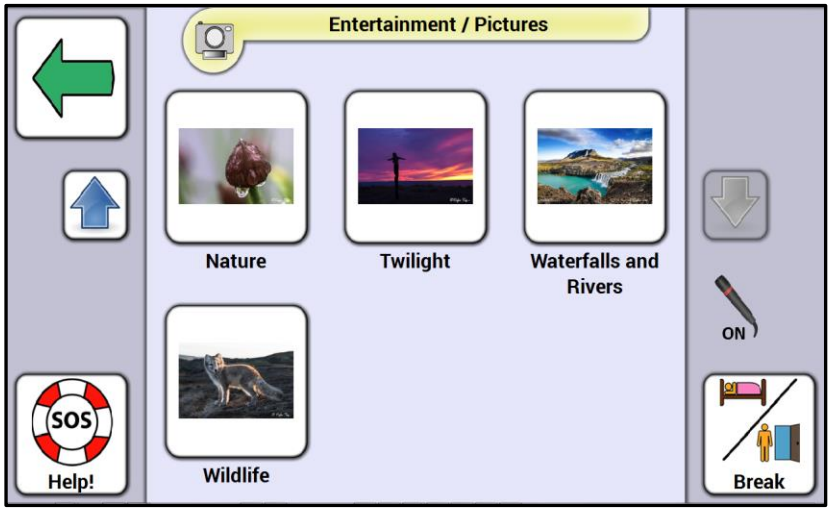


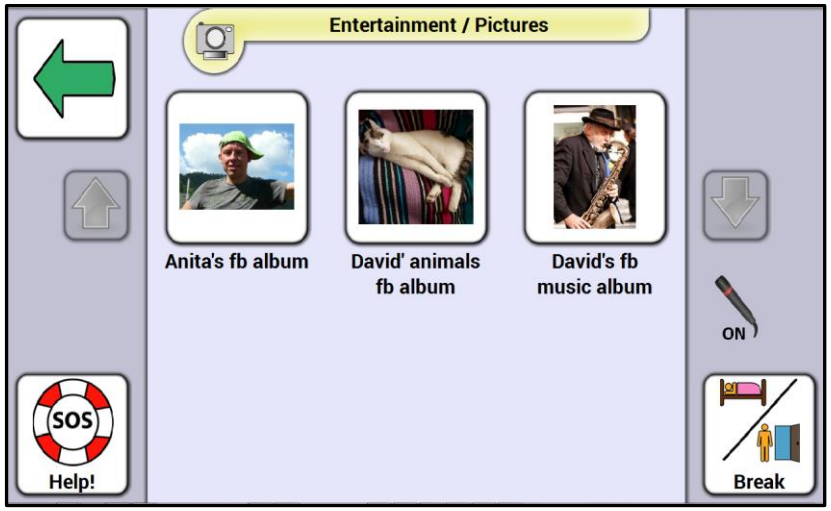
D.O.Johnson et al. (2014). Socially Assistive Robots: A comprehensive approach to extending independent living, Int J Soc Robot (2014) 6:195–211

Connecting to civil society via social networks



Connecting to Facebook, Picassa, Twitter a.s.o.



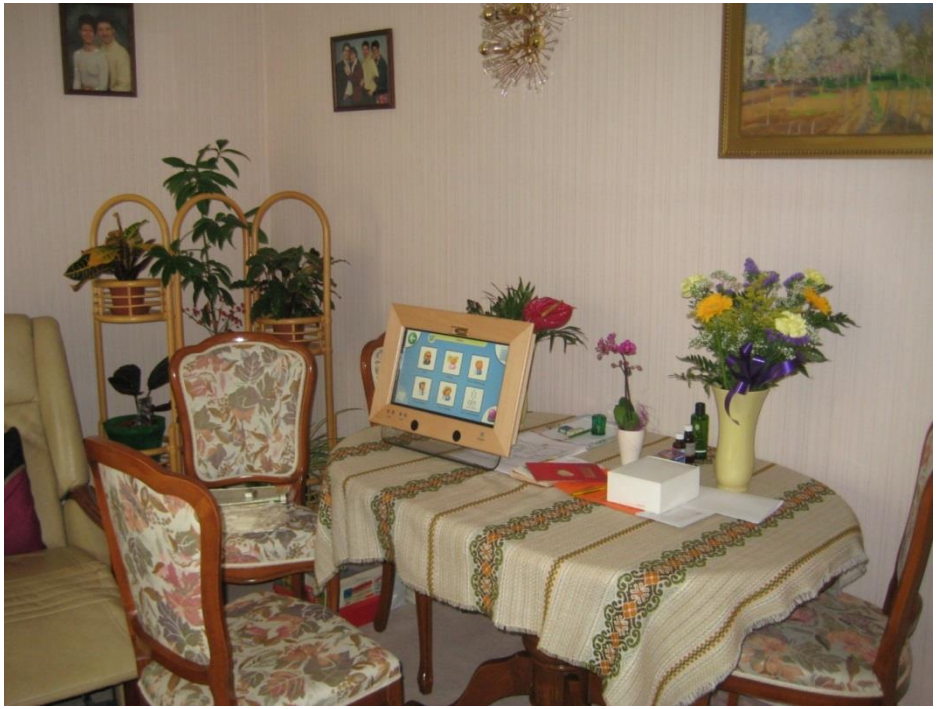


Centre for AAT Applied Assistive Technologies
Institute of Design & Assessment of Technology

TU WIEN

FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics

On stationary devices



Mobile on e.g. HOBBIT Robot

- autonomous navigation
- manipulator with a gripper
- multi-modal user interface interaction via speech, gesture and touch screen
- small display for emotions by expressions of eye (and mouth)
- **See http://hobbit.acin.tuwien.ac.at/**

Conclusion

- Experience from our research shows
  - establishing of marketable AAL systems is only at the beginning
  - still significant challenge in Austria.
- New eco systems are coming up but there is still a
  - lack of willingness and knowledge among the big players in the social system (care and medical)
  - to take up the challenge and make AAL fly in daily life.

Thank you!

Co-funded by

http://www.aat.tuwien.ac.at

Centre for AAT Applied Assistive Technologies
Institute of Design & Assessment of Technology
TU WIEN
FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics