58° Congresso Nazionale SIGG

Torino 27-30 novembre 2013

Sessione "L'anziano e le tecnologie avanzate: necessità o opportunità?

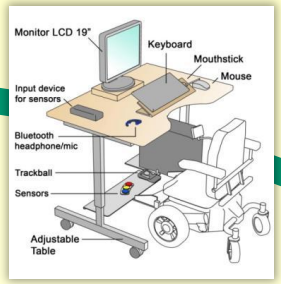
La Tecnologia Assistiva Robotica nell'anziano

Renzo Andrich

Access to information

Mobility

Personal care, daily activities



Worksite adaptations

Home care

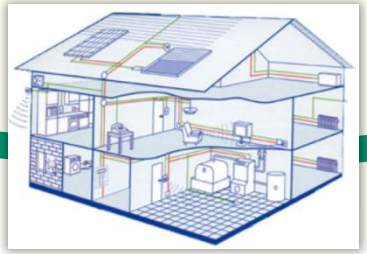
Sensory aids

Assistive Technology

supporting independent living
and personal assistance in all areas of daily life

Prosthetics, orthotics

Sport , leisure



Ambient assisted living

Education

Design for all, accessibility

SIVA

www.portale.siva.it

Il Portale Italiano degli ausili

The Italian Portal on Assistive Technology

EASTIN

European Assistive Technology Information Network

(8 full partners, 8 National contacts, 23 Languages

www.eastin.eu

I Partner EASTIN

The EASTIN partners

Ausilio

(Piergiorgio Mazzola, 1979)

… uno strumento che serve in particolare alla persona disabile (e a chi lo aiuta) per fare ciò che altrimenti non potrebbe, o per farlo in modo più sicuro, più veloce, più accettabile psicologicamente, o infine per prevenire l'instaurarsi o l'aggravarsi di una disabilità…

Assistive technology

Tecnologia assistiva

“Any product or service designed to enable independence for persons with disabilities and older persons”

“qualsiasi prodotto o servizio pensato per favorire l’indipendenza delle persone con disabilità e delle persone anziane”

(King's Fund consultation, 2001)

Robot

dal ceco "robota": lavoro pesante, lavoro forzato

Oxord Dictionary (2013):

- **a machine capable of carrying out a complex series of actions automatically, especially one programmable by a computer**
  Una macchina capace di svolgere automaticamente una serie complessa di compiti, in particolare programmati da computer

- **(in science fiction) a machine resembling a human being and able to replicate certain human movements and functions automatically**
  (in fantascienza) una macchina simile ad un essere umano, in grado di replicare automaticamente certi movimenti e funzioni umane

- **a person who behaves in a mechanical or unemotional manner**
  Una persona che si comporta in maniera meccanica e impassibile

- **another term for crawler (in the computing sense)**
  Sinonimo di crawler (in senso informatico)

SRS
Multi-Role Shadow Robotic System for Independent Living

FP7-ICT-2009-4 Challenge 7.1.a , "Service Robotics for Ageing Well"

"Personas"

Photo by Travis J. Allison, Creative Commons license
www.flickr.com/photos/whybesubtle/3131510578/

Elisabeth Baker

Elderly person with moderate physical and minor cognitive impairments

Age:

Former job:

Family statu

Residence:

Interests:

Elisabeth has two children who both work during the week
her son Martin (55) lives 50 km away. Jennifer comes seve
Martin can only visit her about once a week. Since many o
for her to leave the apartment to meet other people, somet
have someone to talk. She shows a moderate level of mot
fracture in the right hip and right wrist recently. She still fee
strength. The risk of falling is high for her (loss of balance,
sections with the help of a cane inside the home and with a
pendent, handles were installed in the bathroom. She cann
cause she needs support while walking. Also climbing a la
and gets sick more easily than before. Because of her low
much as she used to and has lost some weight recently. D
their mother on some days does not pay attention constan
this only happens sporadically so it is not a major problem

Elisabeth's goals:

- Seeing her children and grandchildren as often as
- Staying autonomous as much as possible, not be
- Drinking and eating enough, as the doctor tells he

Elisabeth's questions:

- Would there be enough space in my apartment fo
- Could the robot help me when I fall and can't get
- Could the robot do some housework for me?
- Would it be able to carry heavy objects for me?
- Would it be easy to make contact with my family t
- What would the robot look like?

Source: Photo by Jim Budd, Creative Commons license
www.flickr.com/photos/74791601@N00/833858537

Martin Baker

Informal caregiver

Age: 55

Job:

Family status:

Residence:

Interests:

Martin lives around 50 km from his mother Elisabeth (81). Due
has recently also bought a modern multi-touch smartphone wh
two kids at home, this means he cannot visit her often. Howev
problem since his mother was able, with some assistive devic
her health status has been decreasing and Martin and his wife
assist her now and in the future. Sometimes, when talking to h
rent problem like lack of appetite or inability to reach down to t
of the tasks, now difficult for his mother, could be done rather
the apartment. Martin has sometimes wished he could be ther
and perform certain actions. His mother has strong objections
can understand. He has offered his mother to move in with the
in her habitual environment and does not want to intrude their

Martin's goals:

- To have more time for himself and for his children
- To help his mother more, at least as much as his sist
- To know that his mother is safe and receives help in

Martin's questions:

- What exactly would the robot be able to do?
- Would the robot be able to send an alarm to my mobi
- Would I be able to operate the robot when I travel?
- Would my mother understand how to use the robot h
- Could the robot kill some of her time and keep her ac

Source: Photo by StickerGiant, Creative Commons license
www.flickr.com/photos/stickergiant/5226802153/

Claudia Moreno

Professional teleoperator

Age:	31
Job:	Teleassistance specializing in elderly customers' needs
Family status:	Married, one child
Residence:	3-room apartment in the city
Interests:	Reading, listening to music, aerobics, spending time with her family

Claudia completed an education as a medical assistant. She worked in this position for six years. When the practice closed she searched for a new job. Through a friend she learned about a vacant part time position (75 percent) as a teleassistant for elderly in a home emergency support centre and thought the offer was interesting. The payment was a little higher than what she earned as a medical assistant. Claudio underwent five months of job training learning about the large variety of different computer systems and software in use at the center, the work procedures, emergency rescue, and how to deal with elderly people. She had to get used to one night shift a week. But as the job is quite versatile and she coordinates different tasks every day and works directly with the elderly people, Claudia is happy with her work. She and her colleagues help elderly people who push a button on a home emergency support device in case of an emergency, if they need nursing, or if they fall and cannot get up on their own. There are peak times when the working environment is stressful because of the noise but there are also times when there are fewer people calling and Claudia can relax and talk to her colleagues. Some of the elderly speak a strong dialect, mumble, or have little language proficiency as they were immigrants. Therefore it is sometimes hard for Claudia to understand them. But she learned to handle it and somehow one always gets along with the people. Claudia personally knows and some of the elderly who call more often and talk a lot. With some of them she enjoys having a little chat if time permits. Claudia is open to new ideas and technical innovations so when she heard about the SRS concept, she signed up for the training. She likes the idea to see who she actually talks to and the robot's camera helps her assess the severity of the situation when an alarm is triggered (e.g., person bleeding, lying on the floor, epileptic attack). This is especially useful since sometimes the persons do not speak or cannot be understood. She also sometimes uses SRS to open a front door. Without an SRS system there are often delays for the emergency staff to get in because they have to break the door or fetch the key from a neighbor (who is not always home) or from a deposit station (which can mean a longer ride). With SRS she can better meet the needs of the elderly and decide what should be done.

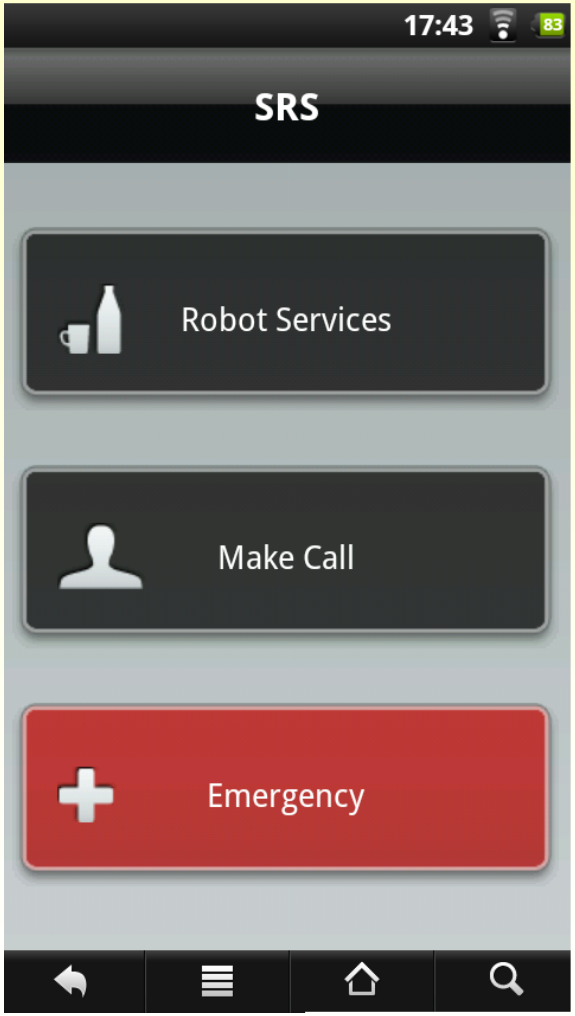
Claudia's goals:

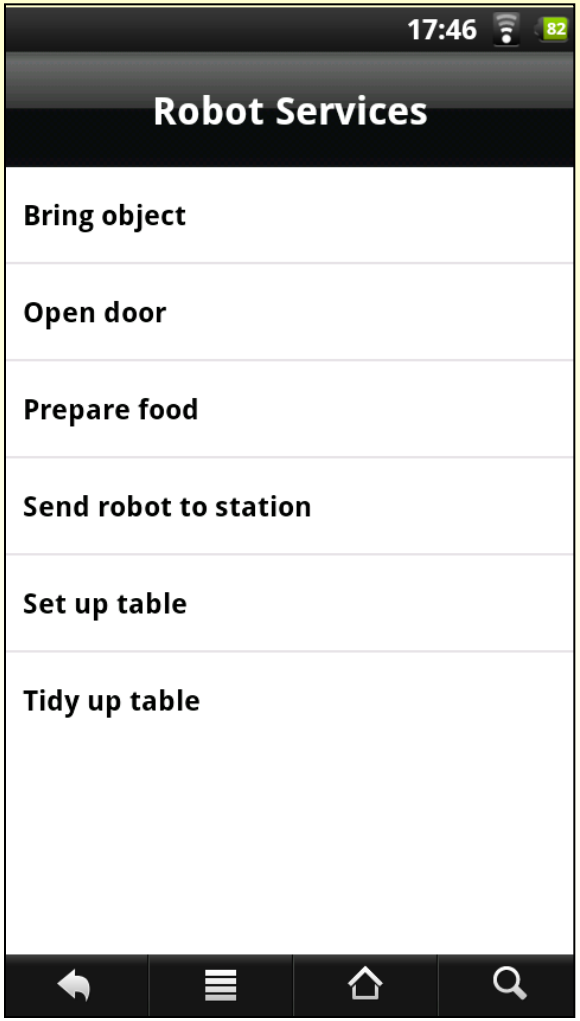
- Keep personal contact to her patients and do the best that she can for them
- Try not to think about the elderly peoples' sorrows after work
- Stay on the cutting edge of technology

Claudia's questions:

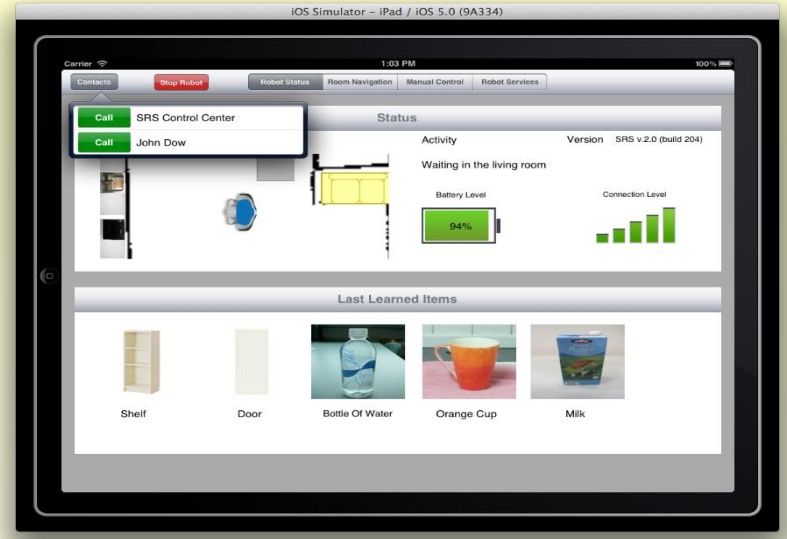
- What can the robot do for me, how will my tasks change?
- Will the elderly people accept a robot in their home?
- Will people still need me if they have the robot?
- Will the robot be easy to use for me?

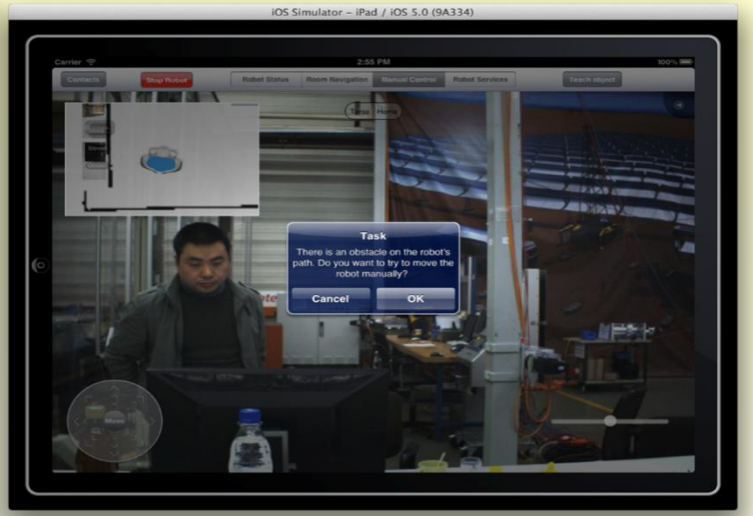
User Interface on Smartphone

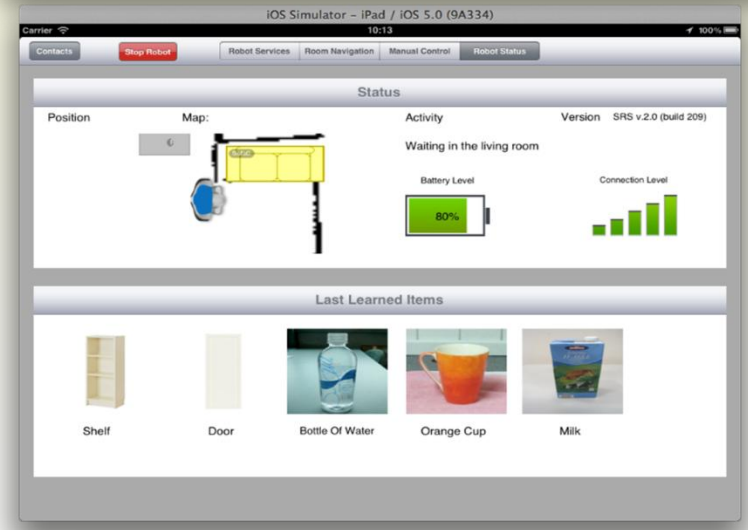


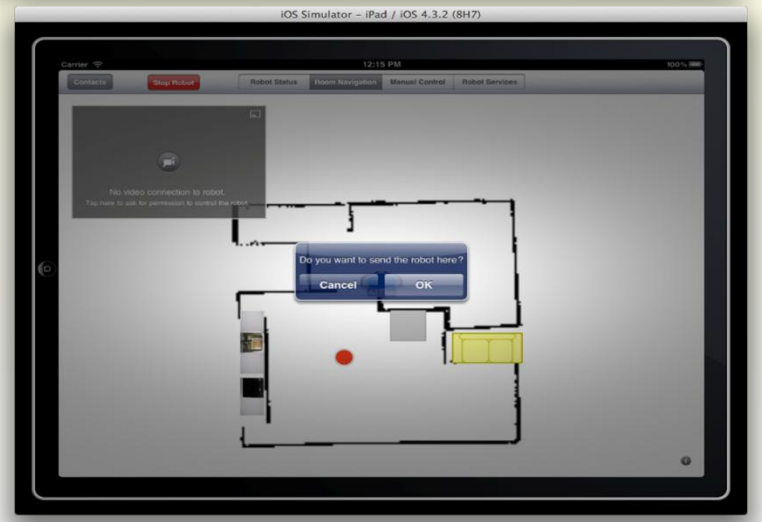


User Interface on IPad









What users would like or dislike to have done by a robot

Items	Elderly people	Family caregivers	Professional caregivers	Health professionals
Falling management	1,77 (1,137)	1,26 (0,653)	1,77 (1,412)	1,50 (,722)
Reaching objects	2,34 (1,428)	1,68 (0,820)	1,68 (1,249)	2,22 (,850)
Fetching objects	2,55 (1,413)	2,32 (1,293)	1,77 (1,270)	2,39 (1,158)
Shopping	2,67 (1,604)	1,95 (1,393)	2,23 (1,541)	2,14 (,889)
Carrying objects	2,70 (1,550)	2,68 (1,600)	1,77 (1,270)	2,65 (1,071)
Cleaning windows	2,80 (1,625)	1,84 (1,167)	2,00 (1,309)	2,52 (1,275)
Taking medications	2,84 (1,586)	2,05 (1,471)	1,77 (1,343)	1,70 (,974)
Electronic devices	2,86 (1,542)	1,74 (1,195)	1,59 (0,908)	2,57 (1,121)
Reading	2,86 (1,562)	2,16 (1,537)	2,14 (1,552)	2,70 (1,222)
Cleaning floor	2,89 (1,565)	1,74 (1,284)	1,82 (1,332)	2,17 (1,154)
Washing clothes	2,94 (1,582)	2,05 (1,311)	2,00 (1,345)	2,39 (0,941)

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Washing clothes	2,94 (1,582)	2,05 (1,311)	2,00 (1,345)	2,39 (0,941)
Getting up	3,00 (1,563)	2,74 (1,368)	2,55 (1,503)	2,58 (1,100)
Opening bottles	3,02 (1,496)	2,32 (1,529)	1,95 (1,463)	2,65 (1,301)
Walking	3,06 (1,562)	3,37 (1,461)	2,55 (1,535)	2,87 (1,180)
Climbing bathtub	3,09 (1,669)	3,11 (1,595)	3,09 (1,716)	2,54 (1,285)
Washing crockery	3,17 (1,569)	2,47 (1,467)	2,32 (1,524)	2,83 (1,267)
Cooking	3,22 (1,474)	2,47 (1,679)	2,36 (1,536)	2,35 (1,112)
Tidying up the room	3,31 (1,521)	2,21 (1,316)	2,09 (1,411)	2,74 (0,915)
Clearing the table	3,33 (1,481)	2,47 (1,467)	2,45 (1,535)	3,00 (1,087)
Dressing	3,38 (1,475)	2,79 (1,475)	2,82 (1,918)	2,92 (1,139)
Bathing	3,64 (1,384)	2,74 (1,485)	3,05 (1,864)	2,79 (1,382)

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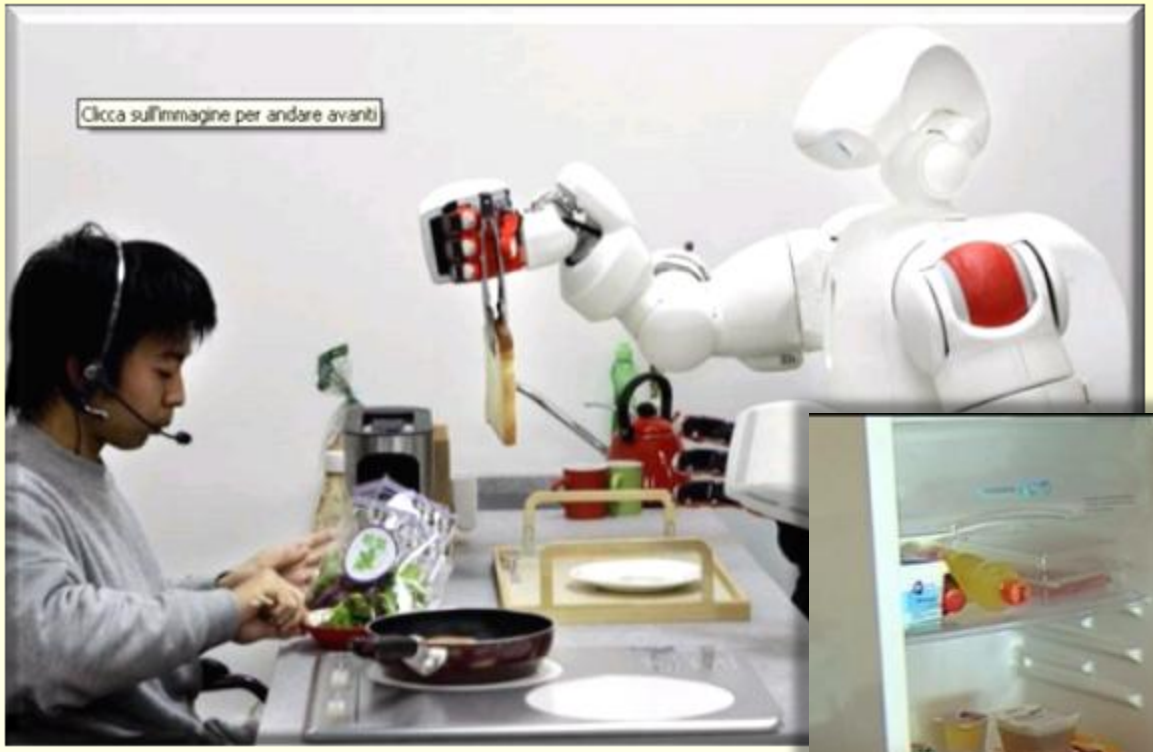


Tra futuro e presente…

Between future and today…

Tra futuro e presente…

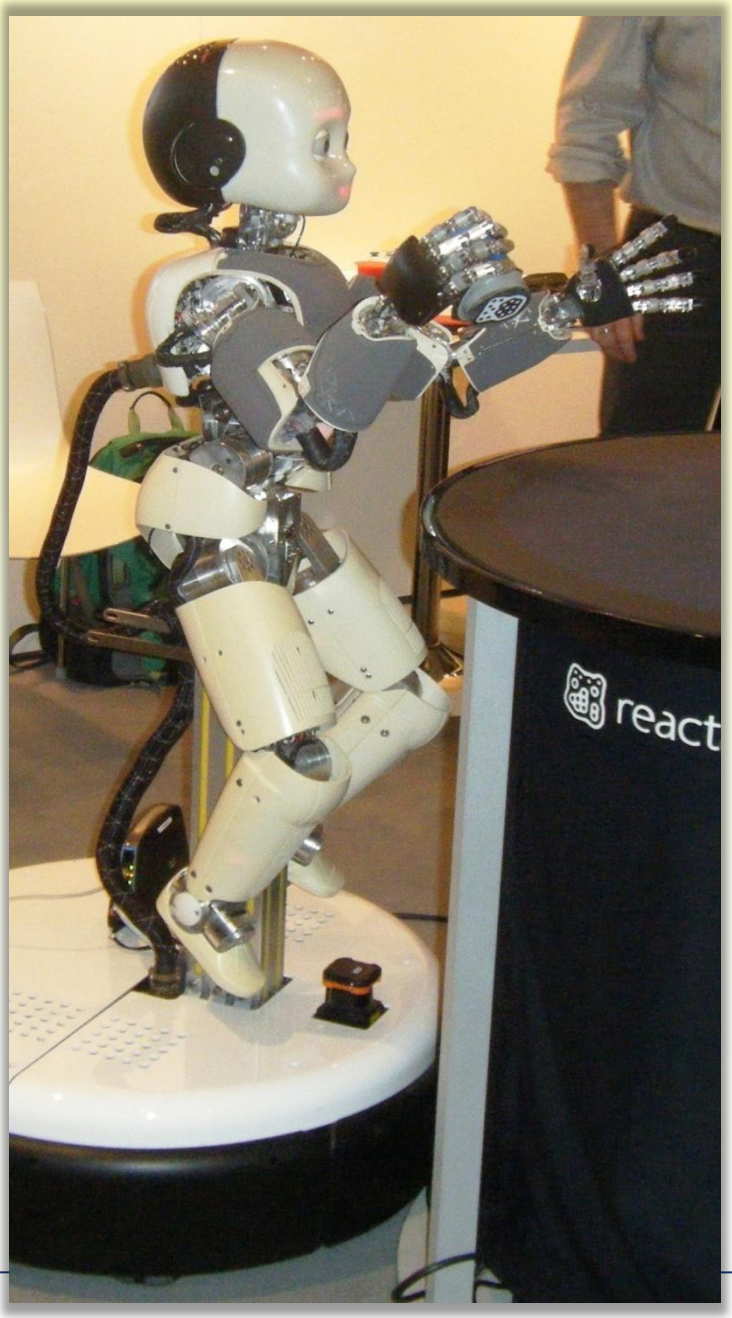
Between future and today…

Ausili robotici per la mobilità

Ausili robotici per la mobilità

Robot di telepresenza

Robot “compagni”



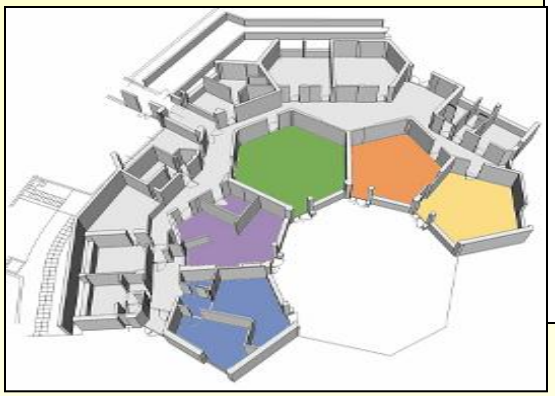
Robot elettrodomestici

*Sicurezza, Comfort, Ergonomia, Consumi, Configurabilità, Socializzazione: cucina **robotica** o **domotica**?*

*WC **robotico** o **domotico**?*

La rete dei Servizi Informazione e Valutazione Ausili (SIVA)

The Network of Assistive Technology Assessment Centres



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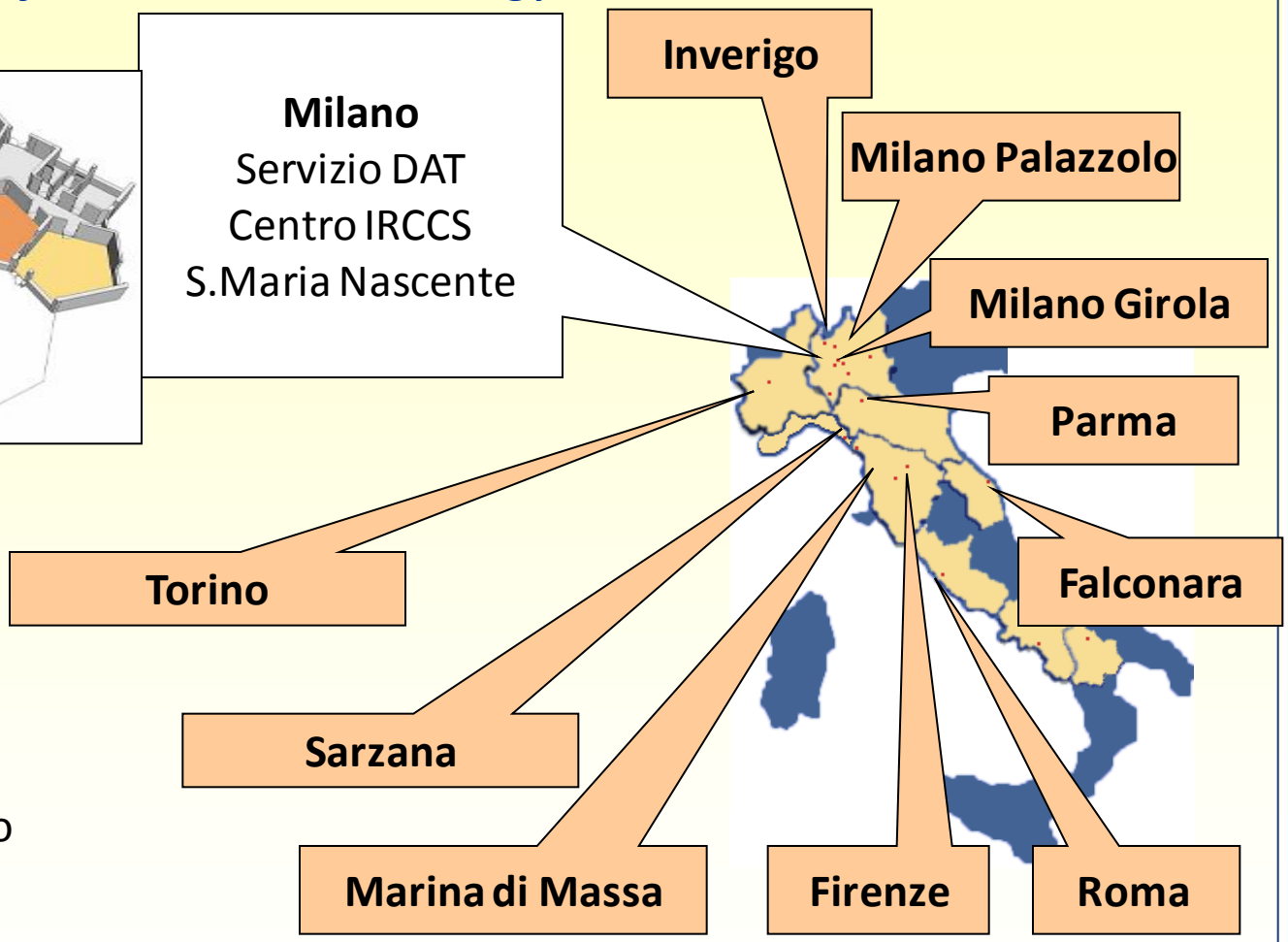
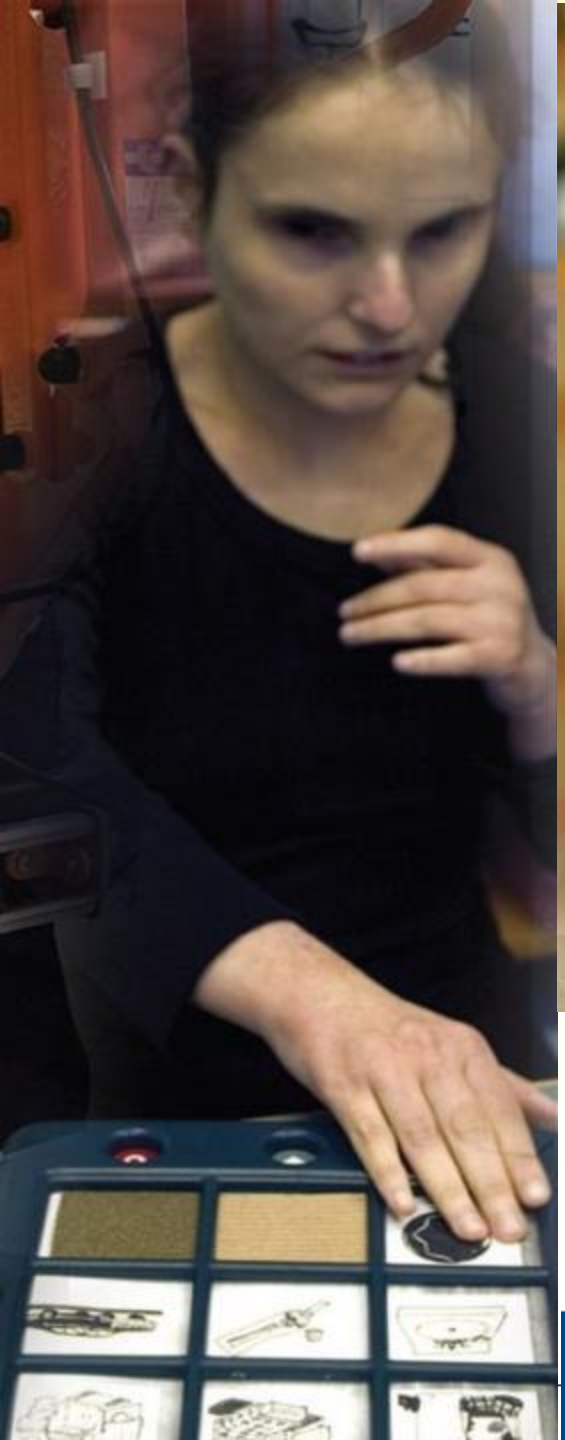
Centro IRCCS
S.Maria Nascente



Telesportello Siva
c/o Servizio DAT, Milano
Orario 8.30/13.00
Tel 02 40308340
portale@siva.it

Grazie per l'attenzione !



Fondazione
Don Carlo Gnocchi
Onlus

ACCANTO ALLA VITA. SEMPRE