

Smart Home IRIS at the University Rehabilitation Institute Ljubljana and its role in active living of people with NMD

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IRIS = Independent Residing enabled by Intelligent Solutions

- a demonstrative apartment 90m²,
- latest equipment, technical aids, rehabilitation and assistive technology



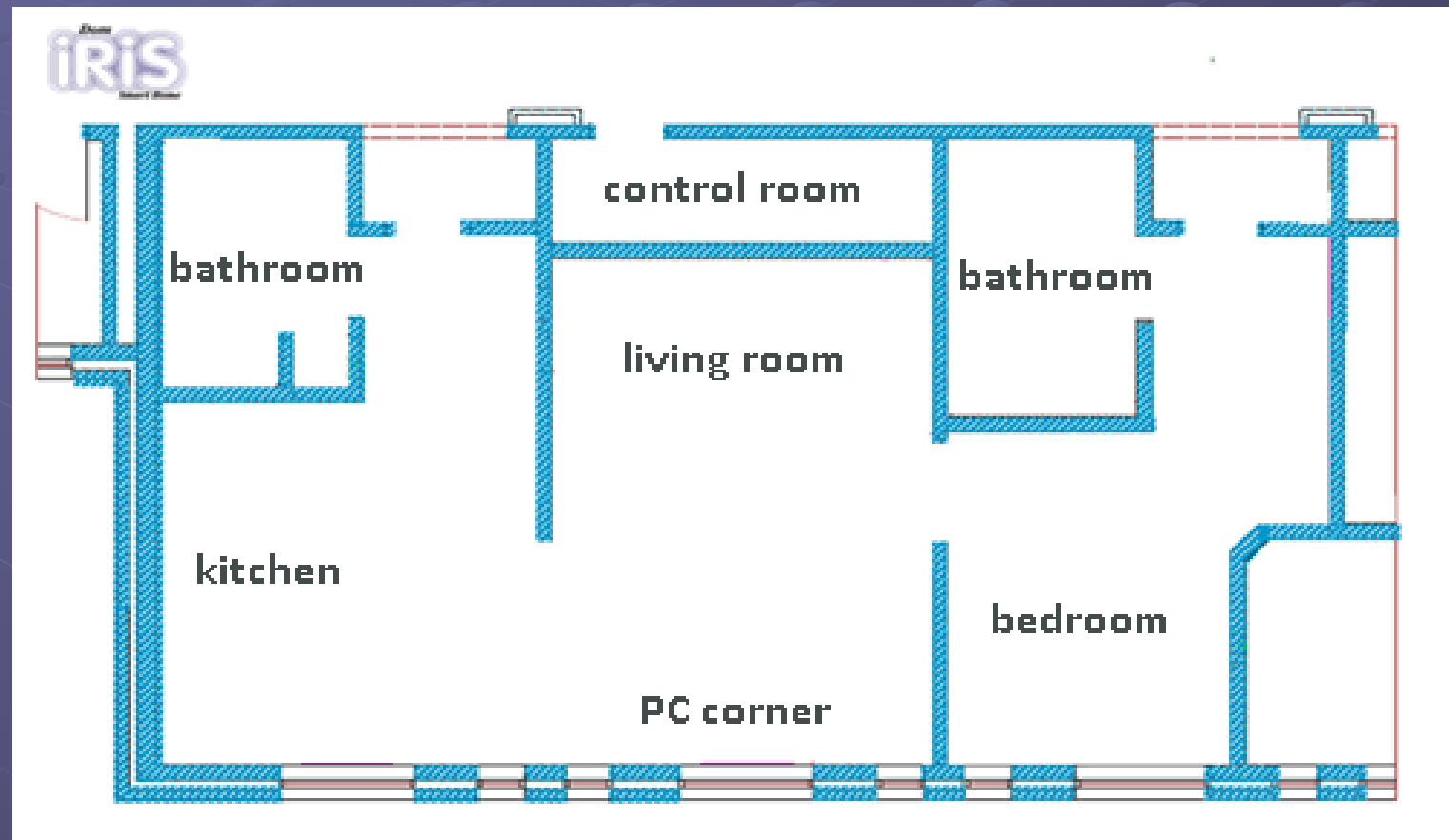
safety, independent & quality living

University Rehabilitation Institute Ljubljana, Slovenia



The apartment (90 m²)

- living room with PC corner
- kitchen
- bedroom
- two bathrooms with toilet





PURPOSE OF IRIS SMART HOME

- enable people with disabilities and the elderly to see and test various assistive technologies in order to find solutions for independent living in their home environment.
- offer advice to people with disabilities and the elderly, as well as their family members or care takers, on the most sensible and reasonable (cost-effective) adjustments of their current living environment in regard to their special needs.
- show to the slovenian public solutions and services, which enable people with various disabilities and the elderly to live more independently.
- enable equipment producers and service providers in the area of technological solutions for people with disabilities and the elderly to display their solutions as well as to test, upgrade and combine them.
- carry out contemporary rehabilitation methods with the aim of including persons with disabilities into the information society.
- enable activities for the promotion and implementation of the policy of e-accessibility and e-inclusion in Slovenia.

AIMS OF IRIS SMART HOME

- assure higher independence and safety to persons with disabilities and the elderly living in their home environment.
- lower the costs of home nursing (healthcare, home care, home assistance, etc.).
- lower the needs for including persons with disabilities into nursing homes or other social institutions.
- prepare modular solutions, from the simplest to the most technically advanced, which can be transferred into the user's living environment (home, social institutions, nursing homes etc.).
- introduce new technologies for persons with disabilities and the elderly.
- improve e-accessibility and e-inclusion.

USERS OF IRIS SMART HOME

- persons with disabilities and elderly persons.
- professional public which can use the demonstration environment of iris smart home for educational purposes as well as for planning specific activities for immediate users.
- students of medical, social and technical studies who by means of educational processes can learn about the needs and problems of people with various types of disabilities and elderly as well as about possible solutions.
- general public which can learn about specific characteristics and demands of the life of persons with disabilities and the elderly as well as about technological solutions which make their lives easier.
- civil engineers and architects who by learning about the needs of persons with disabilities and the elderly can apply suitable designs of buildings and their equipment.

Multidisciplinary team approach

- **Physiatrist** (anamnesis, clinical examination, functional assessment).
- **Occupational therapist** (assessment of ADL, adaptation of home environment, application and training of AT).
- **Engineer** (assessment, application and training of AT and ICT).
- **Others.**

Demonstration

- Adapted housing equipment.
- How to control the environment.
- How to control the computer.
- How to use different programs that enable him to communicate with the outside world and to partake of distance nursing, distance health state monitoring, learning, work and leisure activities by means of electronic media.
- Ambient intelligence, which allows at this moment automatic adaptation of the environment according to the needs of certain person.

ADAPTED HOUSING EQUIPMENT

- Adapted kitchen
- Adapted dinner table
- Adapted worktable
- Adapted bedroom
- Adapted bathroom
- Adapted toilet

ADAPTED KITCHEN



ADAPTED DINNER TABLE



ADAPTED WORKTABLE



ADAPTED BEDROOM



ADAPTED BATHROOM



ADAPTED TOILET



CONTROLLING OF THE LIVING ENVIRONMENT (DOOR AND WINDOWS, TV, RADIO, PHONE, HEATING, COOLING, ETC).

- *Remote controller*
- *Speech orders*
- *Via TV*
- *Wheelchair's joystick*
- *Eye tracking system*

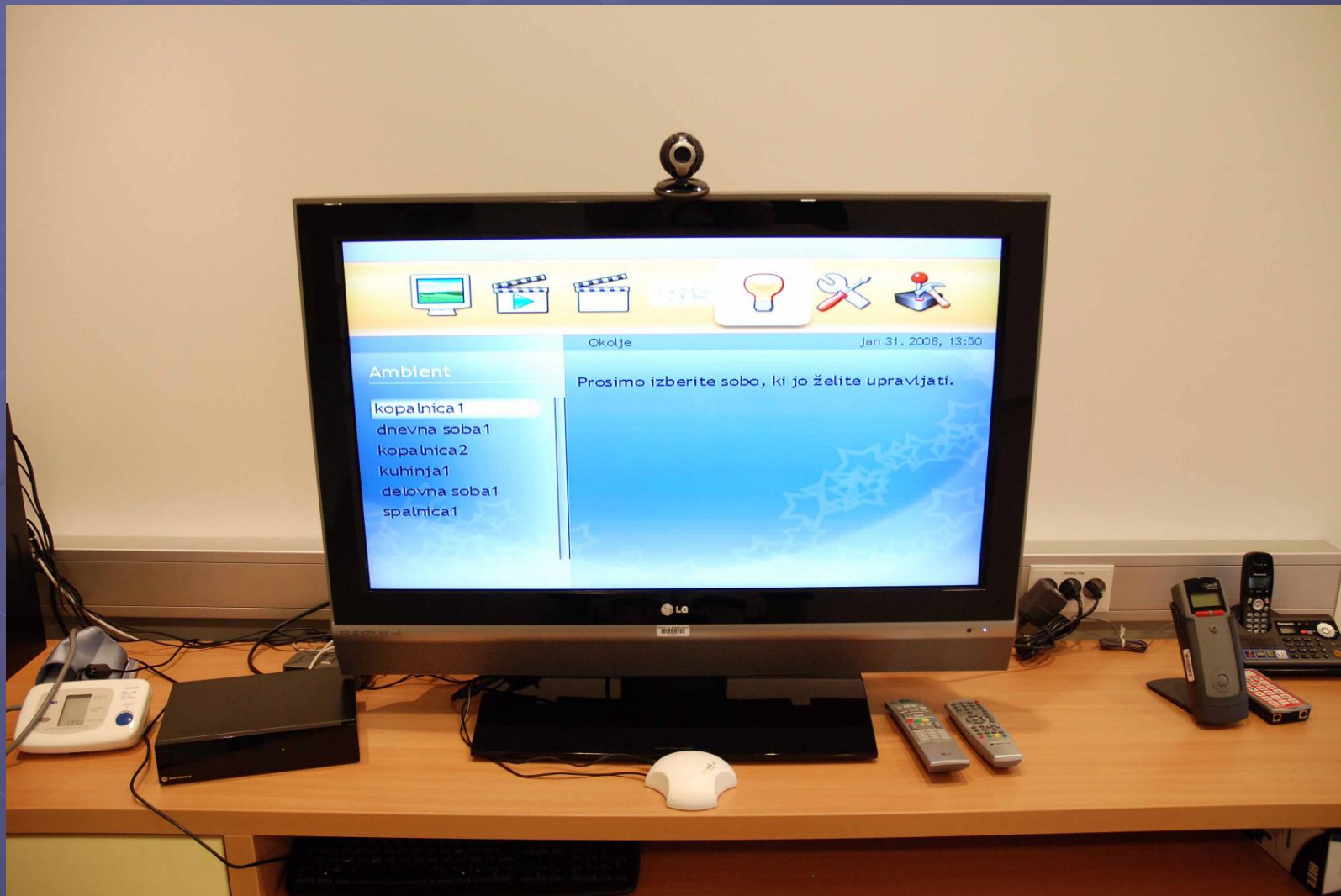
REMOTE CONTROLLER SPEECH ORDERS



WHEELCHAIR'S JOYSTICK



VIA TV



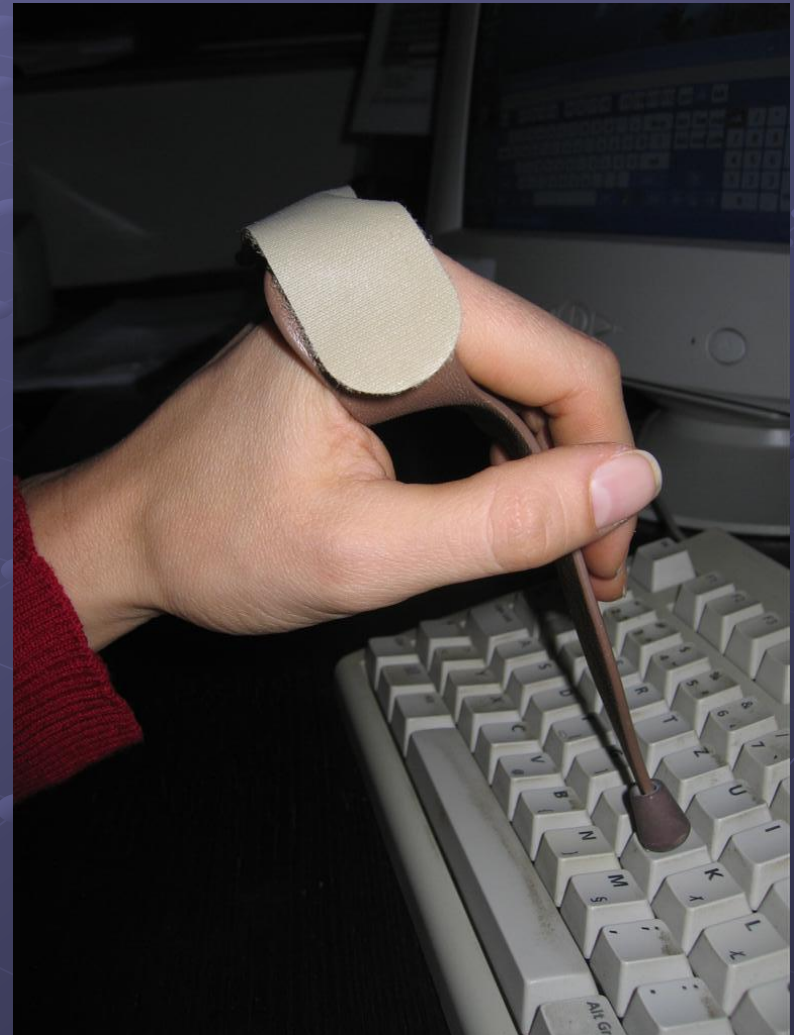
EYE TRACKING SYSTEM



CONTROLLING OF THE COMPUTER

- Special keyboards
- Special mice
- Speech orders
- Wheelchair's joystick
- Eye tracking system

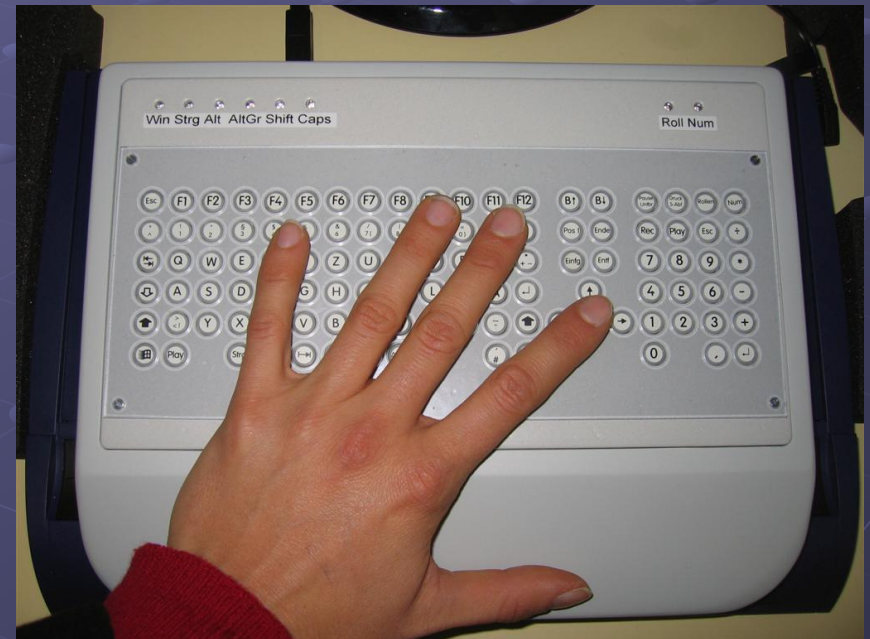
HAND PROLONGATION



SPECIAL KEYBOARD FOR PERSONS WITH TREMOR, ATAXIA



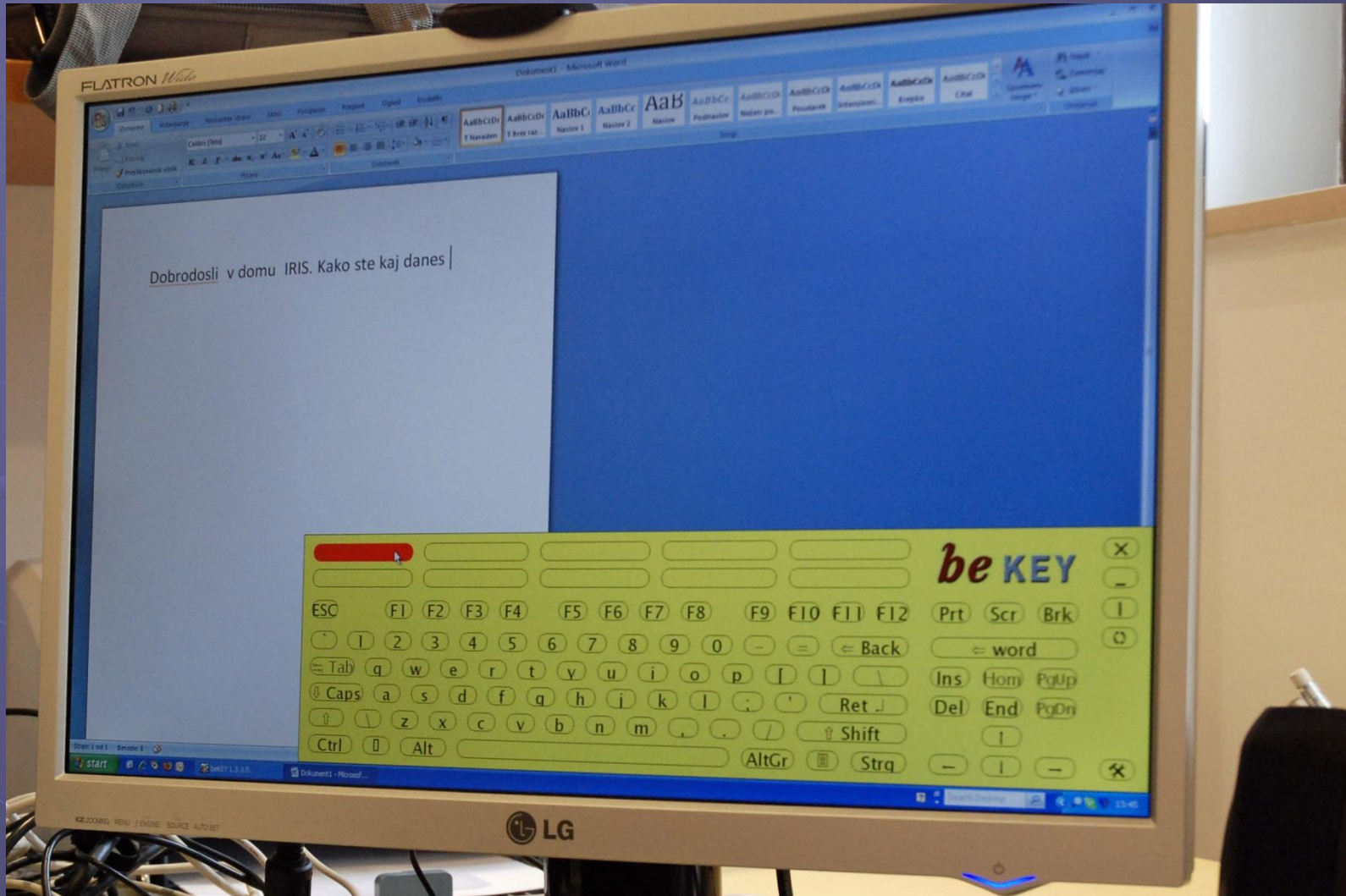
SPECIAL KEYBOARD FOR PERSONS WITH LOW RANGE OF HAND MOVEMENTS



SPECIAL KEYBOARDS AND SWITCHES



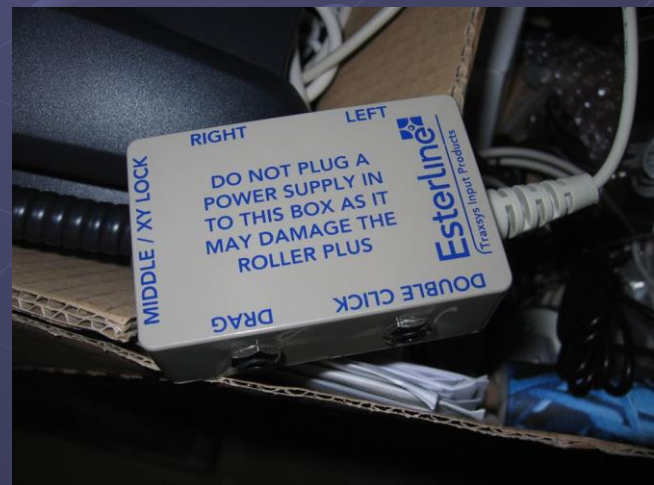
SCREEN KEYBOARD



SPECIAL MICE



SPECIAL MICE



CHIN CONTROLLING



HEAD CONTROLLING LASER KEYBOARD (LOMAK)



WHEELCHAIR'S JOYSTICK



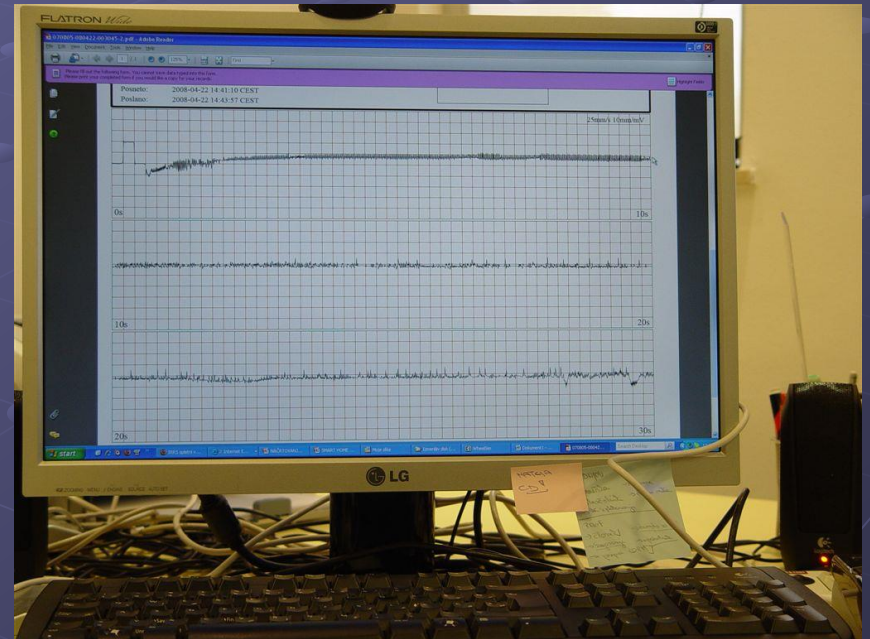
EYE TRACKING SYSTEM



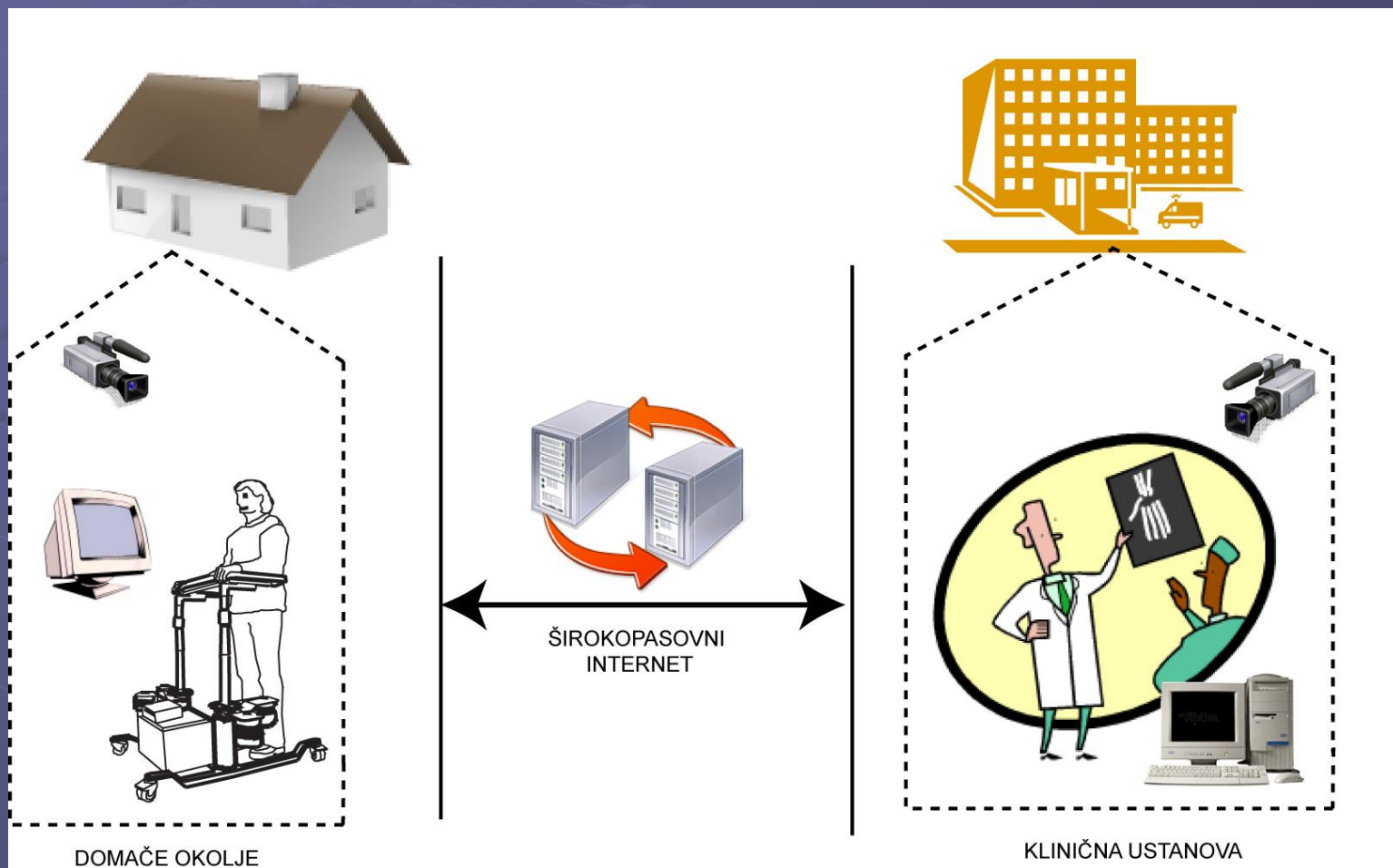
DIFFERENT (COMPUTER) PROGRAMS THAT ENABLE

- Communication
- Telecare
- Telediagnosics
- Telerehabilitation
- Telestudy/work
- Teleshopping
- Telebanking
- Entertainment/hobby

TELEDIAGNOSTICS



TELEREHABILITATION



FUTURE - AMBIENT INTELLIGENCE

