USER DRIVEN DESIGN for AAL

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INDACO Departement
Industrial Design, Arts, Communication and Fashion

The INDACO department is a research center that works on the main themes of design. The researchers produce an outcome which can be either a project, a research project or an educational research. 66 professors, 20 researchers
Politecnico Expertise

Politecnico di Milano is a technical Engineering, Architecture and Design State University. It was founded in 1863, and today it includes 21 Departments and is widely spread on the territory. The actual staff is composed by 300 Full Professors, 420 Associate Professors, 300 Researchers, 750 Technicians and administrative. Educational activities involve about 43,000 Students.

For the purposes of AAL projects the competences of INDACO can be integrated by other departments’ skills as:
- BEST Dept.: for building requirements
- Bioengineering Dept.: for health technology and management
- DIG Dept.: for socio-economic impact evaluation

The following specific preparatory researches has already been carried out at national level:
- MIUR 2001, "Ergonomics and bioengineering methods for universal design" and
- MIUR 2003, "Design of space, products and interfaces of the integrated home automation system: on-line measurements of user’s characteristics and needs for the improvement of home active comfort."

Politecnico’s general experience on UE level is attested by it’s participation in several FP5 and FP6 research projects.

Project Background and possible partners

The aim is the development of an intelligent interoperable system increasing communication, mobility, safety and security for an independent assisted living through easy-to-use human machine interfaces allowing elderly people to drive a wide set of devices considering his/her individual available resources (cognitive and physical) and his/her own specific needs (i.e. most frequently performed actions, priority of tasks to execute, …) in his/her everyday environment (i.e. home).

This purpose can be achieved through an User centred multi-disciplinary approach:
- involving real end-users (senior citizen, their relatives, nurses...) in the development of Ambient Intelligent scenarios and
- integrating skills from design, architecture engineering and social disciplines

Partnerships with Health care institutions (i.e Villa Beretta Hospital), User Associations (contact in progress), SME and international enterprises already working with Politecnico are obviously forseen.

The involvement of at least 3 countries is suitable to exchange expertise and to evaluate the impact of the proposed solutions on different welfare models (e.g. Spain – contacts in progress; Ireland - trough Interaction Design Centre, Limerick and if needed also Argentina – contacts with Centro de Investigación en Diseño Industrial Córdoba)
**Project contribution**

In detail the main steps according to the **User Driven** and **Design for All** approaches can be resumed in the following items:

a) Development of a methodology for user-technology integration starting from field user observation through **videoethnography techniques**. The approach of a general but customised system can solve the Design for All problem to reach the wider user population as possible "driving" technology to fit each single user.

b) Application of **participatory design** approaches to bring technology closer to users’ needs and requirements i.e. development of systems and products with redundant functionality that can be finely tuned to the individual user’s requirements for his/her own needs (mass customised systems and product).

c) Prototype and test through **Wizard of Oz and usability trials** a set of products and an interoperable platform for specific advanced services implementing the proposed methodology as an actual test-bed demonstrator.

d) Increase the "Europe System" by integrating technologies and products of European companies including **harmonisation and standardisation of the communication protocols** towards "end actuators" to perform the requested actions (i.e. home appliances, e-services, health tetemonitoring, electronic wheel chairs, personal communicators...).