TAIS group is composed by physics, computer and industrial engineers and medics. Most of them are members of Universidad de Sevilla but also people form private companies and hospitals. The main objective is to improve the life quality of elder people and people with disabilities providing solutions in order to improve their comfort. To accomplish this work it is needed to cover the following objectives:

Communications and Wireless Sensors Networks for Ambient Assisted Living

- *Body Area networks (BAN).* Study of the standards and interoperability.
- *Personal Area networks (PAN)*. Development and use of PAN.
- *Indoor Position Systems.*
- *Telemonitoring systems*

Advantages and innovative features: the main design goal of these systems is that systems are standardized, open, efficient and versatile. This leads to easy adaptability to different environments as well as coverage of a wider range of functionality, which means reduced costs.

Multimodal Interfaces

- *Electroencephalogram based interfaces.* Acquisition and process of neuronal activity signals to control computer systems by handicapped people.

- *Adaptable interfaces.* Acquisition and process of biosignals and environment information to detect user's emotional state in order to adapt the system.
- *Electrooculography and electromyography based interfaces.* Acquisition and process of eye and muscular movements signals in order to control computer systems.

- *Head and limb movement based interfaces.* Accelerometers and infrared technologies to develop computer control interfaces or for using in telerehabilitation applications.

Advantages and innovative aspects: the objective is to design for all. The aim is to design efficient, versatile and low cost to provide access, comfort and ease of use of different computer systems. It works in contact with bodies that allow the definition of realistic user profile representing a proper adjustment of the design features.

Computer Application Design

- *Computer Control Applications for motor impaired people.*
- *Augmentative and Alternative Communication Applications.*
- *Serious Games.* Games for increase capabilities, improve motor skills, promote sensory processing, and develop perception, social, emotional and language abilities.

Advantages and innovative features: Carry out multidisciplinar work. Environmental analysis and study of characteristics and needs of individuals. This will determine the goals that the design must meet and the type of technology suitable for the development of each one. A careful testing phase and usability study is done that aims to improve the efficiency and comfort.