

INTEGRATED MECHATRONIC AND INFOCOM PLATFORM FOR HOMECARE OF CHILDREN WITH CHRONIC ILLNESS

In Hungary and the European Union the change in the healthcare systems proceeds in the direction that a lifestyle supported with infocommunication devices gets a larger and larger role, which includes not only the conscious prevention but also the increasingly efficient and humane forms of the care of the chronic ill. Medical attendance is more and more shifting towards the transparent, accountable, technology-based approach. An increasing proportion of the ill children's parents require special services that adapt to their requirements, lifestyle and life quality (e.g. a non-stop, permanent activity recording makes the two-earner family model unviable).

As a result of the rapid development of the medical science, newer and newer diagnostic and therapeutic opportunities emerge in everyday medical care. New innovative procedures and means are born, which are expensive but do not always serve the treatment efficiently. The most common reason for this is that they are not in accordance with the system of the treatment, i.e. system problems impede the achievement of the targets. A considerable part of the problems arising in relation to the operation of the entire system result from the problems of home care. These processes more and more highlight the methods and solutions that facilitate the rationalisation, differentiability and efficiency-increasing of the health service system in the treatment of children suffering from chronic diseases.

The development and improvement of AAL means is determined by another methodology more and more dynamically spreading and applied in European curing that considerably contributes to the rationalisation of healthcare processes and the growth of efficiency: Evidence Based Medicine.

The following systems are expected to spread the most:

- systems triggering a sensitive social reaction (e.g. ill children, diseases entailing considerable suffering, etc.),
- systems that are able to eliminate the subjective and objective disadvantages of the currently applied procedures (e.g. time need, human errors, etc.),
- systems that are well integrated into both the treatment and the family lifestyle at
- system level.

In our project we elaborate and realise the system of the integrated mechatronic and IT environment at prototype level. This system consists of the following subsystems:

- 24-hour video supervision system, in a portable design, with simple local installation and an automatic data storing and alarm system (including, as a novel, the taking of a full-value recording of the covered patient),
- AAL technology-based intelligent sick-bed modules for three functions (controlled medicine storage and medication; patient-nurse-physician communication; supporting of learning-culture-entertainment).
- Development of mobile diagnostic head unit (the wireless EEG "helmet")
- Integrated middleware framework to realise the critical messaging,
- New-generation front-end system to efficiently serve the users.

