

Chapter 20

Independent Living Support for Disabled and Elderly People using Cell Phones

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ABSTRACT

This chapter presents a technological solution to promote and help independent access to work for disabled people using Smart Phones. A deep state of the art about smart phones technologies and about examples of other projects is presented. The aim is to develop a form of technical assistance that supports them in the control of schedules, prevention of dangerous areas in the work place, warnings, and automatic alarm generation. The device chosen to exchange all this information is a Smartphone based on Android Operating System and GPS technology. A set of Android applications have been developed using Java language, and controlling the device via Google-developed Java libraries. All of these are connected to the Server Application through the Communications Module. The server Application Module provides the assistants or psychologists the possibility of supervise all the handicapped people's activities. The assistants, psychologists, and users have all evaluated the application very positively as it covers disabled people's needs perfectly.

1. INTRODUCTION

The Information and Communication Technologies (ICT) have shown an extraordinary development in the last decades. Nevertheless, that improvement has been slow in certain areas,

such as the integration of the people with special needs or disabilities into the society, workforce and leisure time.

The phones have become an almost indispensable tool in everyday life. The diversity of models/operating systems (Android, iOS, Sym-

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bian, Windows Mobile...)/applications (available in Android Market, Apple Store..) and power of mobile phones are the ideal support for the development of applications related to everyday life, and in this case of disabled or elderly people.

The impact of any development on mobile phones transcends all borders. In the social sphere can develop applications for:

- Promote the independence and safety of persons with special needs or disabilities, assisting them in carrying out daily-life activities.
- Increase e-inclusion for people with disabilities, that is, bringing new communication technologies (as a means of support) to this group.

In recent years, it has become more and more evident that an increasing amount of attention is being paid to the collective of people with functional diversity (the elderly or the disabled), and furthermore an increasing number of resources devoted to this collective have had to be modified and adapted to their current needs. This situation has arisen owing to a greater awareness among this collective and their families of their rights. In view of this change, a transition has taken place, as well as a change in the resources and programs provided by the various entities and institutions: it is no longer required to design programs for welfare and protection, but others based on the provision of support, in the understanding that this is the key to enable people with functional diversity to enjoy total access to the opportunities and equipment that society provides them with.

When talking about this provision of support, it is quite common to think of the people who actually provide it: professional careers, part-time careers, relatives, social workers, etc.; everyday terms that we are now used to referring to without considering other forms or ways of providing support.

Taking advantage of new technologies to facilitate and reduce the need to employ human support or care by family members appears to be beneficial for not only increasing the intimacy of a person with functional diversity, but also making it easier for the people who support or even live with these people to organize their lives.

We will provide a general outline of the project and a description of the real tests carried out in the piloting with intellectually disabled people. Also included is the evaluation made by the users themselves (both adolescents and adults), support staff from the Basque Country Down Syndrome Foundation and research workers/developers; all in all, a wholly interdisciplinary task in which all parties involved in the design and implementation process of a technological solution are represented.

The main objective of this chapter is to present all applications can be developed (and other initiatives already launched) using mobile phones and whose beneficiaries may be the elderly and disabled people.

The specific objectives are described in the following list:

- Evaluate different technological possibilities of each Mobile Operative Systems Platforms.
- Use Design for all recommendations in mobile phones application developments.
- Review national/international case studies and developments oriented to elderly and disabled people.
- Increase the knowledge of Mobile Applications by psychologists, assistants, teachers...

The most important social objectives set out in the section are:

- Promoting the independence of people with special needs or disabilities and their inclusion in as many spheres of community life as possible.

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