Chapter 14
Success Cases for Mobile Devices in a Real University Scenario

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ABSTRACT

Mobile devices have become a new platform with many possibilities to develop studies and implement projects. The power and current capabilities of these devices besides its market penetration makes applications and services in the area of mobility particularly interesting. Mobile terminals have become small computers, they have an operating system, storage capacity so it is possible to develop applications that run on them. Today these applications are highly valued by users. Nowadays we want not only to talk or send messages by mobile terminal, but also to play games, to buy cinema tickets, to read email… We can bring these capabilities in our pocket. The University may not be aware of this fact. The students, due to their age, are the main users and purchasers. In this sense, this article will present three applications we have developed for mobile devices. Nowadays they are being used in Universidad Pontificia de Salamanca. All of them work on a university scenario and use different kind of services.

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INTRODUCTION

In recent years mobile devices (mobile phones, PDAs, ...) have suffered a large and fast evolution; this fact has caused companies and individuals demanding information and services over mobiles environments. These devices have evolved considerably since their birth; the great progress came in 2001, when appeared the first devices with LCD color display. In same year but in Japan it was released the *third-generation* phones (*3G)* that they were based on *UMTS (Universal Mobile Telecommunications System)*; main innovation was the incorporation to the device of a second camera to video calls. Nowadays these 3G devices are the most used.

Current mobile devices are very powerful. They are capable of transmitting, receiving and storing information, connecting to networks and running applications. Therefore, they are a very interesting platform for new research projects.

University may not be aware of this fact. Students are the main users and purchasers. In this sense, this article will present three applications we have developed for mobile devices. They are being currently used in *Universidad Pontificia de Salamanca*. All of them work in the university scenario and they use different type of services.

Structure that we will follow in our chapter is: first we are going to show with data that there is a continued demand for mobile devices. Market penetration and demand of applications and services for this type of devices are growing up.

We'll continue with a summary of the most important mobile services: voice services, messaging, multimedia, video, applications that run over mobile devices and data services. After that, we'll emphasis on *location based services (LBS*) which is the main technologies available to carry out the location: cells and *GPS (Global Positioning System)*.

Then we will describe the main technologies to develop applications for mobile devices. Nevertheless mobile devices have some constraints which are necessary to be on mind when developing applications or services for mobiles.

After that, we'll explain some study cases that we have developed and implemented in a university scenario; next paragraph we are going to explain briefly these three applications.

The first application is ***MovilPIU***: it is a mobile application that provides to students the same services that those provided in *UIP* (*University Information Points*). Some of these services are free (request student record by example) and other services are paid (such as request certificates, purchase dining tickets). Also we'll explain how we have resolved the payment of these services. MovilPIU is a *data service* and it is accessible through *browsing*.

The second one that we describe is ***MoBiblio***: we have developed this application to improve and to speed up the management of basic services of a library; exactly loan, return and renewal of books in the library of Universidad Pontificia of Salamanca. It is based on both message services: *push and pull-push*; besides it uses *data services* through *browsing* in order to provide other services such as access to the library catalogue.

HouseMobile is the third application that we are going to study; help student to find an accommodation in Salamanca. It is based on *location services*; the application displays maps with both the position of the student (mobile device) and the position of accommodation searched; also, it provides to the user the guidance over a map from her current position towards the position of accommodation.

Finally, we will finish describing what improvements we are going to incorporate to the above applications. Besides we will describe the actions that we are going to undertake at the present and in the future as regards mobile applications and services: *Android* and new development frameworks.