The goal of this project is the study of new applications, those using the last advances in TICs, can be implanted in the university environment in order to offer information that can be used for getting a better teaching model. These solutions will be based on the use of mobile phones (Near Field Communication) and the NFC technology, first one is used in the society normally and, so, in any layer in the university, and the second one is being developing and introduced. The use of these composed technologies in the university technological environment will make possible the development of new applications those will make possible to implant both a new teaching model and a new university model. These new solutions will can be oriented to many and different aspects: giving solution for identification problems, attendance control, information points, information sending, electronically payment, using university services, other communication services, etc.

Our work will be based on the study of different applications and the use of these technologies in the UCO, and the selection of any of them for the analysis, design and construction of a prototype than can be presented to the people in charge in the UCO for being studied and evaluated.

Nowadays the number of operative lines of mobile phones in Spain is higher than the population, the implantation of the mobile phone is greater for the young people, they have more than one mobile phone. The terminals are making continuously progress and actually more than one out of three mobile phones have 3G technology, it allows the users can use the Internet and the Web applications with these terminals.

In the university environment, it is difficult to think that students, teachers, assessors or staff people do not have a mobile phone in any moment. However, this communication and information way is not used in the universities. In the last decade the universities have understood the importance of the information spreading by using the communication new technologies and they have developed web sites. These sites have making progress by using new applications that make possible making different applications in order to make faster different university management process (for example, on-line registration).

Another type of services that the universities offer are supported by “university cards”. Recently, and with the collaboration of different banks , these card have programmable cards those allow to do different applications as: being used like debit card, electronically purse, identification, etc. Except for being used like identification, the use of these cards have not been so great as was

thought, maybe because of the “union” with a particular bank.

But perhaps, the main problem of the “university cards” is that it do not have capacity of interaction. The information flow is always card-user to service, in such a way that, only using the university web sites, the users can receive information or new services.

Recently a new communication technology have risen, the NFC technology is a new devices connection technology that operates in 13,56 MHz frequency (this band do not need management license), and in a few centimeters of distance (0 to 20 cm, 10 cm usually). It rises with the technological evolution of networks connection and intelligent cards. The communication between NFC devices is made with a dialog. To a request of the Source device reply the Target devices or devices, it must reply before another request.

This is a communication half-duplex (two way, but not at the same time). The supported transmission speeds at the moment are 106, 212 and 424 Kbps.

Almost the starter of this technology has been its application in the bank sector and the consumer electronic, because of its characteristics it s application in mobile phones is really interesting, in way that the mobile terminal is the NFC devices, with guidelines for it.

NFC technology allows the data interchange between devices, not for massive data transmission (WLan or Bluetooth), but for devices with processing capacity like mobile phones, PDA or computers, or card reader. However, this technology allows starting those other services (Bluetooth, Wifi) if you need a massive data interchange.

In short, the main advantages that NFC technology provides: a) Safe technology, because of its short reach, b) It provides a access mode to the services very familiar and intuitive for the users: “if you want one services, touch it”. For example, if you want buy a soft drink, ”touch the machine“, c)It does not need any user configuration, d) The passive mode allows the devices (the mobile phone, for example) does not need additional battery for establishing the connection and for making the data interchange.

In other ways, the unresolved aspects nowadays for this NFC technology massive incorporation into all kind of devices, and specially into the mobile terminals is the absence of API standards, the absence of user applications and the implantation of this technology in the mobile phone; according to a study of ABI Research, in the 2009 year more than 50% of the mobile terminals will have a NFC chip.

NFC incorporated into the mobile terminals will allow to the user doing payments only by putting near the mobile device to another cashing terminal. NFC also can make easier and can start sessions in other wireless technologies like Bluetooth. For example, if you install a WiFi access point at home, with its configuration data (SSID, WEP key, etc.) could be transferred to the NFC chip only putting the phone less than 10 cm of the access point, so any PDA or notebook with WiFi could catch the access data easy when it detect a card less than 10 cm. In this way, users wouldn´t have to configure each device to access to the WiFi net with their screen or keyboards.

For the consumers that want expand their personal music collection, Motorola is offering the NFC solution. Users can use a mobile phone with the NFC technology for reading an intelligent card in a concert poster in order to obtain information about the artist and in order to buy songs or tickets for a future concert on the Internet. We have an important goal, services exist, technologies too, now it is necessary to join technologies, services and easiness of use, in order to do better the experience of the user for these services. Specifically the NFC technology, which is very new, continues growing with the new services in the credit cards and electronically payment. According to a recent Abi Research study, Japan and South Korea are actually the leaders in the payment market with this kind of devices.

Payment way, configuration of applications, configuration of protocols (WiFi, Bluetooh, …), content transfer (photographs) trough devices (TV, phones) or content and application transfer from the mobile phone to the Computer-Internet, are some of the services those can be improved with these technologies.

The university environment would take advantage of this technology, the mobile incorporation into the society, and the NFC technology future incorporation into mobile terminals in order to provide information and services for all its members.