# Design and evaluation of a prototype of augmented reality applied to medical devices.

## Summary

The study was aimed to incorporate all information regarding a medical device through augmented reality. This was done through a mobile application. The method of study had three stages; firstly, assessing user’s requirements through surveys and questionnaire and finding out any important information which will be included in the app such as what medical devices will be used, secondly, prototype development, and finally Software evaluation. The project was based on “Rapid Application Development” (RAD) methodology.

The application was usable on three medical devices and developed by qualified professionals. The human centred model was applied to develop the software taking into consideration the users, the environment in which they will use the application in, user requirements, design features and user assessment.

Results obtained were the following; firstly, 11 nurses and 280 healthcare professionals took part in the questionnaire where the majority agreed t include instructions, indications of use as well as descriptions of the medical device being seen in the AR app, secondly instructions and user friendly and readable description of the prototype application must be included within the app itself through text , images and videos and finally software evaluation .

When evaluating the software, the users described it as “very intuitive” since description of any medical device can be obtained very easily. The think aloud method helped in gathering only the relevant information which was needed in the prototype making it more likeable by the users. Three improvements were identified through the latter method, these were the following; virtual image vibration made the app difficult to use, no zooming function was applied in the application and finally the ability to still keep focus on device without having to keep scanning the actual device. The first problem was solved through dual aim and as a result fixing the virtual image fixed also the functionality of keeping focus on the device. The last problem was solved by including the zooming function.

The main limitation of the application was the process of updating information of medical devices without making use of any databases which in Spain (where the research was carried) did not exist. This results in having to manually updating the application through continuous maintenance.