

WI-FI USER LOCATION SYSTEMS EUNIS 2007

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The knowledge on the physical location of mobile devices has come to play an increasingly important role, supporting the development of innumerable context-aware applications. As a result, many location systems and algorithms were implemented in the last decade.

In this study, we present a set of user location systems based in the Wi-Fi technology, looking into the advantages and disadvantages of the implemented location techniques in these systems. This comparative analysis is based on criteria such as the innovation in the used methods to calculate the location of the mobile devices, as well as in the type of architecture that each system uses.

Our group has been developing a prototype to support a core of basic services to provide user location information in Wi-Fi networks [1]. Firstly we focused our work on the system architecture that could give support to the functionalities so as to offer these basic services. Recently, we started working on the improvement of the user location techniques used. The main goal of this review is to present the best practices in order to improve our location system based in the Wi-Fi technology.

Comparing the studied techniques, we noticed that some use implicit location, which consists of processing device location in each mobile device; and other make use of explicit location, where the location information is acquired from services, having been calculated in a central framework. Both techniques present advantages and disadvantages, so we propose a mixed model as a solution that aggregates most advantages of both techniques.

[1] *User location Services for Wi-Fi Networks*; Martins P., Paredes H., Reis A., Costa A., Vasconcelos A., Barroso J. and Cruz B.; *EUNIS 2006 – 12th International Conference of European University Information Systems, 28-30 June 2006*, pp. 454-458, ISBN: 9985-4-0484-X.