

WLANs in Athletics: an Empirical Investigation into user Perceptions and System Architecture Critical Components

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Watching an athletics event can be a very exciting experience. However, certain characteristics of the stadium viewing experience, such as the long distance between the spectator and the field and the large number of events taking place in parallel, may create problems to spectators. Our work proposes the use of Wireless Local Area Network (WLAN) infrastructure in a stadium to provide solutions to the aforementioned problems and to enhance the spectators' experience. WLANs have recently been exploited in several domains (airports, railway stations, and hotel chains to name but a few) creating so-called 'public hotspots'. Their proliferation has induced important research and managerial questions regarding their value offering capabilities. Following these arguments, the scope of this paper is to explore the potential of WLANs in the field of athletics through empirical research and demonstration.

The initial phase of the study aimed at eliciting users' perceptions for WLAN applications during an athletic event. Two questionnaire-based surveys were conducted with two different target groups. The first group consisted of spectators during an actual athletics event and the second group consisted of students from the Athens University of Economics and Business. The questionnaire was structured into three main categories: ownership of technological devices and degree of telecommunications services use; degree of interest for athletics, preference of stadium versus TV attendance, and previous information that spectators obtain before attending the event, and; evaluation of the proposed WLAN applications (which were identified through secondary research). The top five applications were (1) highlights and replays, (2) information for the athletes, (3) time-based alerts, (4) event card and race results and finally (5) Internet and e-mail access.

The results of this empirical study resulted in the implementation of the WLAN system. Three main components were implemented: (1) the data adapter, (2) the back end system, and (3) the portal (Figure 1).

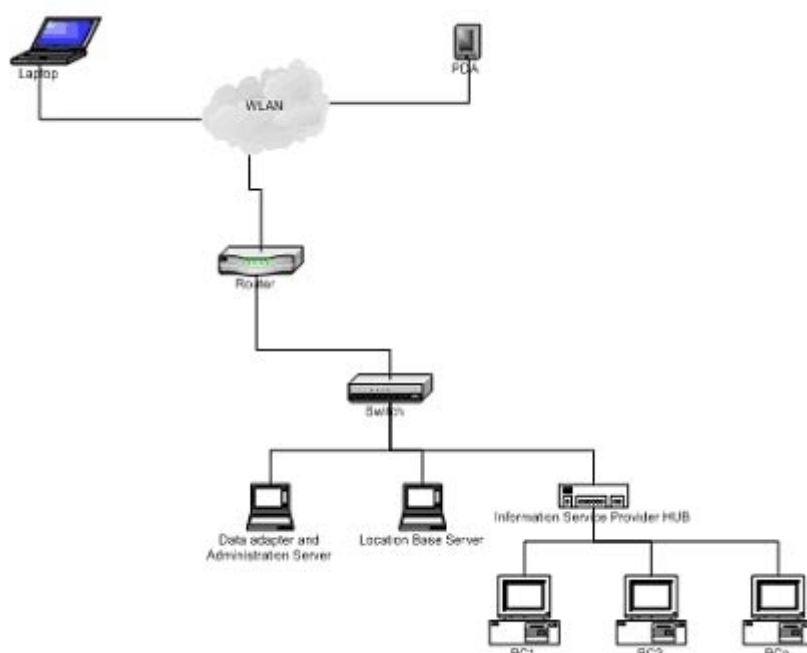


Figure 1: System's architecture

The data adapter's main operation was to do an initial data feed from the Information Service Provider Database, an entity that provides computerized coverage of sports events, while it provides to event organizers all necessary information in various forms and media. The back end system fine tunes the data and provides the administrator with setup capabilities, like article uploads, information for the athletes or the hosting city, and so on. Finally, the front end, through a shared code base, offers two different portal versions: a full framed version for laptops/table PCs and a minimized version for PDAs / smartphones (Figure 2).

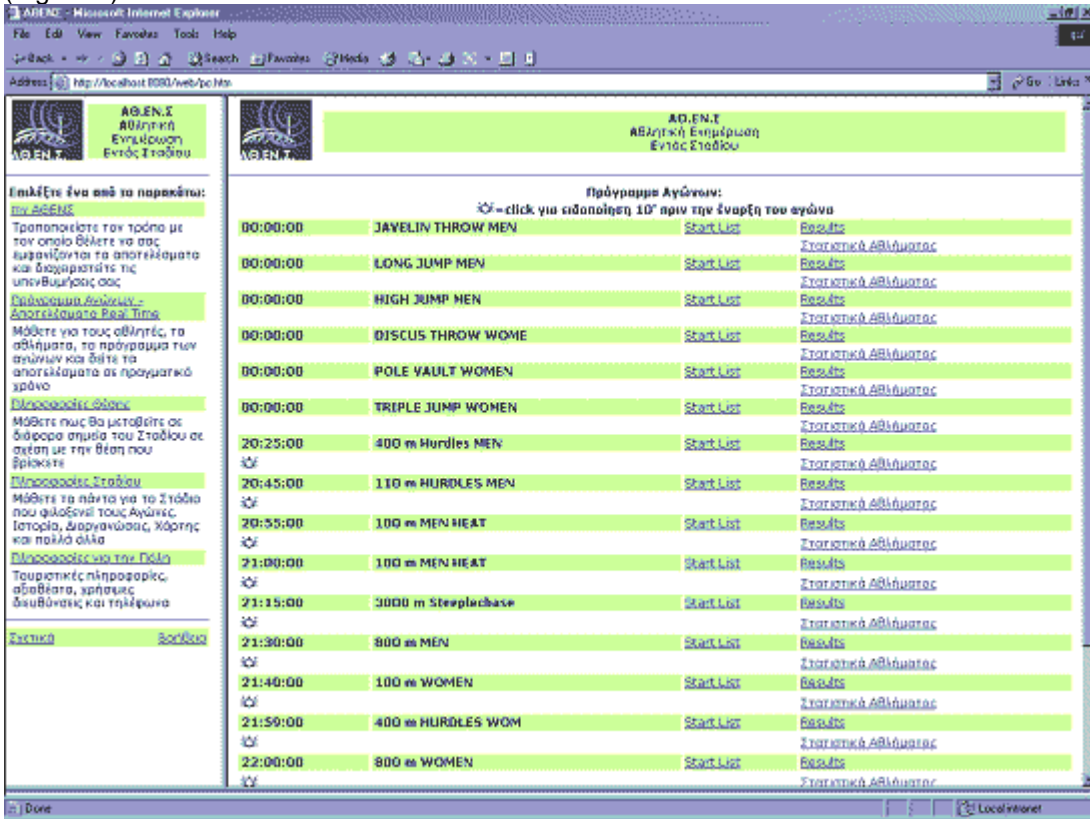


Figure 2:

Portal's Homepage

Testing the proposed application was conducted among the spectators of a real-life athletics event that took place in Athens, Greece in June 2004 through the use of a structured questionnaire. The questionnaire was based on the definition of a set of Critical Success Factors for the application and their respective metrics as these resulted from a literature review on measuring and evaluating information systems, web applications, and mobile Internet applications where time- and context-sensitivity are considered to be crucial. Critical Success Factors in the case of the WLAN system include the following: system reliability, interaction quality, ease of use, usefulness, impact on the spectators' experience, and general acceptance level of the application. In addition to these factors, the questionnaire also included a question regarding users' opinion on a potential pricing policy for the commercial version of the application. Finally, unstructured interviews with spectators and sports journalists during the pilot event were also conducted and resulted in positive attitudes towards the potential acceptance and contribution of the proposed application. On average, the application was well accepted by users, while improving its design and structure and adding multimedia capabilities were referred as the main opportunities for further improvement. Detailed statistical analysis of the questionnaires revealed strong dynamics of acceptance among spectators that are familiar with the use of the Internet and mobile technologies, show medium to high interest for athletics, and viewing athletics events, while the group of male users aged from 25 to 35 exhibiting the greatest interest. Consequently, sports and especially athletics events constitute an interesting and challenging field for applying mobile technologies and applications in an effort to augment the number of spectators and enhance their on-site experience.