Chapter XXXVII
Context–Awareness in Mobile Tourist Guides

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ABSTRACT

Today's tourists expect to get personalized access to tourism information at anytime, from anywhere with any media. Mobile tourist guides provide the user with such a ubiquitous access. The prerequisite for this is the notion of customization, requiring awareness of the applications context together with appropriate adaptation mechanisms. Currently, there is a proliferation of mobile tourist guides, proposing an unmanageable number of diverse functionalities. This chapter sheds light on those approaches by identifying their strengths and weaknesses, thus providing the basis for next-generation mobile tourist guides. For this, an evaluation framework is used comprising detailed criteria for the two orthogonal dimensions of context and adaptation.

INTRODUCTION

E-commerce and m-commerce have dramatically boosted the demand for services which enable ubiquitous access. Ubiquity offers new opportunities and challenges in terms of time-aware, location-aware, device-aware and personalized services which can be achieved by using customization, that is, adapting an application towards the current context (c.f. Kappel, Retschitzegger

& Schwinger, 2003). The roots of customization are manifold and can be found in user interfaces being either adaptive (Good, Whiteside, Wixon & Jones, 1984) or even intelligent and advisory (Carroll & Aaronson, 1988), information filtering and recommender systems (Loeb & Terry, 1992), adaptive hypertext and hypermedia (Brusilovsky & Maybury, 2002) and mobile computing (Altmann, Leonhartsberger, Pichler, Schwinger, Hofer & Retschitzegger, 2003; Oppermann & Specht, 1999). The pre-requisite for realizing customization is that an application is aware of its context (Abowd, 1999). For this, the classical user model employed for personalization purposes (Kobsa, 2001a) should be generalized to a context model adding primarily environmental data in terms of time (Kleinrock, 1996) and location of access (Großmann, Leonhardi, Mitschang & Rothermel, 2001), together with device (Fox, Brewer, Gribble & Amir, 1996); Rodriguez et al, 2001) and network capabilities (Badrinath, Fox, Kleinrock, Popek, Reiher & Satyanarayanan, 2000).

One of the application domains particularly suited for providing ubiquitous access on basis of customization is the tourism domain, not least since in this way, tourists can be assisted not only in the preparatory phase of a vacation but especially during the vacation itself (cf., Beer, Fuchs, Höpken, Rasinger & Werthner, 2007; Kramer, Modsching, ten Hagen & Gretzel, 2007; Garzotto, Paolini, Speroni, Pröll, Retschitzegger & Schwinger, 2004), allowing access with any media, at any time, from anywhere (cf., Berger, Lehmann & Lehner, 2003). Such applications supporting the tourist on the move by means of location-based services are often called mobile tourist guides. They provide the tourist, for example, with personalized on-site tourism information about points of interest (POIs) (e.g., environmental and landscape attractions or gastronomy), or assist the tourist in organizing an individual tour. A series of such mobile tourist guides have recently been proposed, offering a wide range of functionalities with respect to context-awareness and adaptation.

This chapter addresses the urgent need for identifying the strengths and weaknesses of existing approaches. For this, the chapter focuses on an in-depth survey of existing mobile tourist guides providing the basis for next-generation mobile tourist guides. In contrary to other surveys like (Baus, Cheverst & Kray, 2005) this chapter deals with mobile tourist guides which are web-based, applying a broad view on context-awareness comprising not only location and device capabilities but also personalization and other context properties like time or network. In the light of that, this chapter applies an evaluation framework comprising detailed evaluation criteria for context and adaptation for evaluating web-based mobile tourist guides.

The structure of this chapter is as follows. The next section, Evaluation Framework, gives a brief overview on the evaluation framework. This evaluation framework is applied in the section Evaluation of Mobile Tourist Guides for in-depth investigation of nine mobile tourist guides. The findings and implications for further research are listed in the section Lessions Learned, before concluding the chapter with a short summary in the Conclusions section.

EVALUATION FRAMEWORK

This section briefly gives an overview on the evaluation framework used as the basis for comparing the customization capabilities of Web-based mobile tourist guides. For a more detailed explanation of the evaluation criteria it is referred to our previous work (Kappel et al., 2003). This framework is characterized by two orthogonal dimensions, comprising context and adaptation, and the mapping in between represented by the notion of customization (cf. Figure 1). To ensure traceability of the different criteria in the evaluation of approaches in the section Evaluation of Mobile Tourist Guides, appropriate abbreviations are used for each criterion.

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