

Abstract

Context-awareness has been an important topic in recent research literature. Although the main focus has been on ubiquitous computing, other areas might as well benefit from the underlying technologies. An example are collaborative Web applications. In this scenario different context data is of relevance. For instance the capabilities of a device used during a collaborative session represent useful information for adapting the presentation in order to achieve an optimised visual feedback for each individual participant. Moreover, context like personal preferences, time and the user's location can be of interest for adaptation or other domain specific operations such as computer-aided scheduling of collaborative sessions which might for instance take the time zone and holidays of the current location of each individual participant into account. In several use cases of collaborative Web applications there is need for another kind of context, the so called group-context. This context comprises data characterising the collaborative group which contains all users participating in a session and can be partially derived from the context data of the group members. An example for such context data is the least common denominator of device and browser capabilities which could be used to create a uniform presentation for all users of a session to allow collaborative work under the WYSIWIS (What You See Is What I See) paradigm. However, for establishing a context-aware system which provides functionality like adaptation or group-context inference an appropriate context model is needed. To allow different kinds of providers to contribute context and different consumers to benefit from a variety of represented context, such a model should not be restricted to a single domain.

The goal of this thesis is to develop an ontology based context model which is suitable for collaborative Web applications but also shows extensibility to capture context data of other domains. Additionally, a component responsible for managing and maintaining a consistent model of context instance data which is described with concepts of the ontology will be designed and prototypically implemented. As key features support for consistency checking with conflict resolution and rule based reasoning will be included.