

An Ontology For Mobile Situation Aware Systems

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Abstract

This paper introduces a novel design artefact, namely a generic situation management ontology based on situation theory. This ontology contributes to the foundation knowledge base of mobile service delivery systems for future research and systems design. It demonstrates the applicability, and feasibility of using situation theory in the design of reactive information systems. The support within the ontology for context based filtering for situation detection also contributes to the efficiency of implementation and operation of situation driven reactive information systems.

Highly mobile people (HMPs) require flexible, reactive service delivery due to their regularly changing location and activities and the lack of a wired network connection. A mobile service delivery system should be able to detect relevant events that occur such as change of location, availability of new last-minute specials, sales opportunities and safety issues and then reactively take action in response to these events. This paper describes a generic situation management ontology that was developed in OWL using the ontology development tool, Protégé. The ontology is combined with domain specific classes in the travel domain to create a travel situation management ontology that can be used as the basis for a ubiquitous mobile travel service application. Using a typical independent traveller scenario, the travel situation management ontology is instantiated to demonstrate its effectiveness.

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