ONTOLOGY-BASED GENERIC EVENT MODEL FOR UBIQUITOUS ENVIRONMENT

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Abstract. *In a typical publish-subscribe event system, applications specify their interest by providing rules for content based matching. Since the rules mainly describe the syntactic characteristics of events, the events provided to the applications are sometimes semantically unmatched or the events indirectly related to their interest but without the rule matching are not delivered to the applications. In this paper, we propose an ontology-based generic event model, which reveals semantic relationships even among syntactically different events and performs filtering. Also, the formal specifications of events are described. Due to its generic ontological characteristics, the proposed event model can be used as an application- and domain-independent event service.*
Keywords: Event service, Generic event, Ontology-based event model

1. **Introduction.** An event service collects, stores, analyzes and processes various information, viz., events related to the user or user environment, and then provides such information to services that utilize it as input data [1].

Applications subscribe the event pattern of interest to an event service, and the event service delivers the pattern-matched events to the applications. In a typical publish-subscribe event system, applications specify their interest by providing a rule for content-based matching. Since the rules mainly describe the syntactic characteristics of events, the events provided to the applications are sometimes semantically unmatched or the events indirectly related to their interest are not matched to the rules and so they are not delivered to the applications. This is because, as with the current web search applications, event applications also search the event set for the syntactically matched information rather than the semantically matched information. Since the existing event systems express events with methods that only humans can understand, machines have many limitations on the methods for interpreting, sending and processing the events from the event set with semantic information [2]. In order for the event system to handle events with semantic information, additional technologies are required to express events with machine language.

Our ontology-based event model adds formal semantic information to an event, to enable the event processing system to handle and process an event with semantic information. The most important feature of the proposed event model is the concept that an event is generic, extensible and there are various event handling operations including type