

E-Business Decision Support System for Online Shopping using MAS with Ontology and JADE Methodology

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E-Business systems are playing a crucial role in human's day to day life. It acts as an interface between the product manufacturer and the end users thereby reducing the time and cost. It also offers a variety of choices in products based on product ratings for quality, pricing, and services. The customers of the e-commerce ecosystem can do everything online and even make the payments. Recommender systems suggest/help the customer for shopping the products based on their interest and their usage. JADE (Java Agent Development Framework) is FIPA (Foundation for Intelligent Physical Agents), that enable automated agents to perform intelligent tasks efficiently. JADE is an open Framework with stable and optimal database agents in the distributed environment. MAS (Multi-Agent System) offers the methodologies for the financial transaction in an E-Business environment. The recent implementation of MAS with the current Web methodologies (JACK, JADE, etc.) serves as the building blocks for the upcoming e-commerce platforms for taking core decisions and negotiations. With the help of Agent-Oriented Programming Languages, the functionalities/roles in the use cases are created as Agents. Though this domain is growing exponentially, constructing an ontology for a dedicated purpose is a challenging task to define various concepts and actions. Thus, the e-business ecosystem invites fruitful research solutions for time-constrained applications and secure transactions. In this article, we propose a framework that combines the JADE, ontology and Multi-Agent System based web service composition to increase the efficiency of the system with optimal services. Also, our proposed system aims at providing a secure E-Payment under the availability of financial institutions. The proposed framework is tested under different cases and it is inferred that the system will offer an efficient process for the secured and time-saving E-Commerce transactions.

Keywords: JADE, Multi-Agent system, Online shopping, E-Payment, E-Business applications, Message exchange technique