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An integration of expert systems and multi-agent technologies in online shopping

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Abstract

Online shopping is a practice of e-commerce which permits customers to directly buy goods and services from the supplier over the Internet. It has revolutionized the business over the years by making anything available at anytime from anywhere in a single mouse click. Due to the uncertainty of the customers, online shopping is not popular among the wood based furniture industry. Hence, the wood based furniture industry is limited to a small market space. The customers should search from store to store for a particular piece of furniture, because the customers do not have the facility to compare the prices as in online shopping. Therefore, this paper aims to provide a new experience for online shopping of the wood based furniture industry with the use of recent advancements in the Artificial Intelligence field such as Expert System and Multi-agents. The expert system captures the customer requirements using a simple application form and predicts the appropriate furniture that matches with the customer requirements based on the knowledge of the experts. It presents the prediction with references in order to shape the trust of the customers. The multi-agent approach is involved in the bidding process. The proposed solution will fulfil the customer expectations in online shopping of furniture industry by eliminating the uncertainty of the customers. More importantly, it models the customer satisfaction that leads to gain the customer loyalty which will be a great competitive advantage in the industry.

Keywords: Expert system, Multi-agent system, Online shopping

Introduction

The Internet connects the entire world through digital devices such as computers, laptops, smart phones, etc. which are available to anyone at any time from everywhere. This digital world is a place full of opinions, learning, ideas and opportunities that can be used at any time when necessary through a single mouse click (Oladipo et al., 2014). Therefore, people's life has become faster, smarter and less complex since the necessities such as information, digital business, bill payment, entertainment, etc. are easily accessible. Digital business is an interesting context in this digital world which provides a global exposure to businesses and it creates a market place where people can purchase products and services online (Lavendelis and Grundspenkis, 2014).

But the concept of online shopping is not popular in the wood based furniture industry because of the uncertainties that are arisen when purchasing furniture online. Therefore, when a customer wants to buy furniture, he has to visit the furniture shop to check the quality of the product that they are going to buy before purchasing (Devi and Rajagopalan, 2011). And also, the customer has to visit to several furniture shops because the customer cannot get an idea of the price and the quality of the furniture by going to only one shop. Although, the customer can compare the prices and quality in online purchasing, most of the time the customer will end up with uncertainties such as whether the selected furniture matches with other furniture in the house,