

The performance of grey system agent and ANN agent in predicting closing prices for online auctions

Abstract

The introduction of online auction has resulted in a rich collection of problems and issues especially in the bidding process. During the bidding process, bidders have to monitor multiple auction houses, pick from the many auctions to participate in and make the right bid. If bidders are able to predict the closing price for each auction, then they are able to make a better decision making on the time, place and the amount they can bid for an item. However, predicting closing price for an auction is not easy since it is dependent on many factors such as the behavior of each bidder, the number of the bidders participating in that auction as well as each bidder's reservation price. This paper reports on the development of a predictor agent that utilizes Grey System Theory GM (1, 1) to predict the online auction closing price in order to maximize the bidder's profit. The performance of this agent is compared with an Artificial Neural Network Predictor Agent (using Feed-Forward Back-Propagation Prediction Model). The effectiveness of these two agents is evaluated in a simulated auction environment as well as using real eBay auction's data.