

Combating Shill Bidding In E-Commerce Websites.

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Abstract: -In recent years, human cheating has grown quite drastically among the e-commerce websites. In today's competitive world where individuals' main aim is to earn big, trust becomes a big issue. Particularly in the field of online auctions, trust among random users is almost impossible to maintain [1]. Shill bidding is a process in which a seller increases the price of a product or introduces fake bids into the auction so as to raise the price of that particular product. The architecture for detecting the fake bidders is proposed which includes monitoring of the various patterns that these bidders follow. The algorithm called as Bid Tracking will be implemented that will help us to identify the patterns and hence a make conclusion as to whether that particular user is a fake bidder or not.

Keywords: -e-commerce, fake bidders, online auction, shill bidding

I. Introduction

Online auctions are the main reason behind providing ease and comfort to the users involved in trading. Some of the popular auctions sites include eBay and Yahoo! These two auction sites itself contribute to more than 50 percent of the users that are into trading business.

However, auction frauds are one of the most reported crimes at present. The increased benefit of such auctions has also attracted many fraudsters who look to take advantage and gain more funds. The U.S. Federal Bureau of Investigation's Internet Crime Complaint Center (IC3) [4] has categorized online frauds into many categories like fee staking, triangulation, non-delivery of products etc. Shill bidding, however, is the most common auction fraud out of all. Shill bidding is when someone bids on an item to artificially increase its price.

This approach focuses on an algorithm that observes the actions performed by the bidders and then categorizing those actions into various patterns which will eventually help us to find the fake bidders and in turn detect shill bidding [3].

II. System Analysis

a. Present System

Individuals have been working on combating shill bidding in forward auctions [2]. However, at present all existing auction houses, and most approaches proposed by them have no functionality that detects shill bidding in live auctions and do not take any action until a report is made by an auction user. Since the damage occurs during the auction, it is preferable to detect and stop shilling in real time, rather than detect it afterwards. If shilling is not detected in real time, by the end of the auction, the winning seller/buyer has already been cheated.

b. Proposed System

A system is proposed where it will be able to detect and stop shill bidding in real time. User will view the website and login to bid the products that are available. Bidder will enter an amount higher than the selling price and place a bid. 'Bid Tracking' algorithm will be used to track the bidding behaviour. By using this system, if the user is a shill bidder then he/she is blocked and restricted from performing further bids.

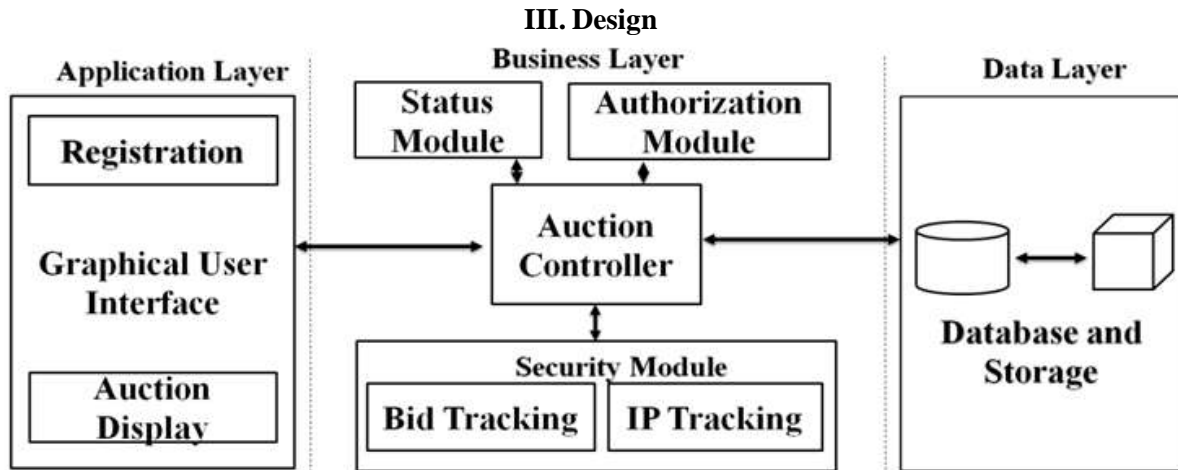


Fig. 1: Data Flow Diagram

The three-layer architecture is composed of a GUI layer, a business layer and a data layer. The GUI layer contains information of all auctions and users. For registration and sign in, every user has to be approved by the business layer. The data layer keeps the history of users and auctions. The business layer comprised of four different agents to ensure shill-proof mechanisms in auction systems, in this layer the ‘Auction Controller’ agent keeps the system centralized and protects from shill bidding based on user status, proper authorization and shill reports from the ‘Security Controller’.

IV. Conclusion

At present, fraudulent activities have a major impact on online auctions conducted by e-commerce websites. A shill bidding detection and prevention system is designed in which shill bidder is detected and restricted from future bids. A system is designed that uses a bid tracking algorithm that identifies the bidding patterns of bidders and calculates a shill score. Based on the shill score a bidder is identified as a fake one or not a fake one. A shill bidder is then blocked from performing further bids.

Our perspective is to implement the proposed things experimentally, and contribute our part by creation of Shill bidding detection and prevention system.

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