

Products Shipment using Dutch Auction

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Abstract— Procurement value is an essential budget in several industries, so Procuring from low-priced suppliers is important to stay competitive. Dutch auction procural has been proved to adequately facilitate patrons, triggering fierce competition among sellers by effectively revealing the value of the vendor. This paper argues that a unique approach: dutch auction format ends up in different leads to associate degree uneven info setting. In fact, patrons will acquire a part of the personal info of suppliers in KEEPING with their attributes, like location, technology and scale. These attributes confirm suppliers' risk preferences and prices distribution, so crucial their bidding strategy. This paper discusses however bidding goes in several auctions with attributes and provides the best auction call.

Keywords—Patrons, procural, associate degree, bidding strategy, descending price auctions, Dutch auction, literature review, online auctions

I. INTRODUCTION

In this paper we discuss Product shipment using dutch auction application using which we have developed an approach to give a freight contract through introducing technological advancement in the field of logistic contract. The term commerce is viewed as transactions conducted between business partners. Therefore the term Electronic commerce (EC) seems to be fairly narrow to some people. Therefore, the term 'e-business' refers to a broader definition of EC, not just buying and selling but also servicing customers and collaborating with business partners and conducting electronic transactions within an organization. According to the globalizing market of the Logistics and the trend of

de-localization of manufacturing facilities as well as the rapid diffusion of logistic information accompanied by advanced technologies, to give the advantage over reduction of the transportation fees for their products from warehouses to customer. We propose a replacement to the existing system. The planned system uses a Dutch auction mechanism to distribute an order which is a cost effective solution.

An auction is a system of buying and selling goods or services by offering for bidding, allowing buyers to bid, and allows seller to selling to the highest bidder. The bidders compete against one another, with each subsequent bid being beyond the previous bid. An auction is taken into account completely when the seller accepts the very best bid offered. In the broader e-commerce landscape, however, most auction platforms focus on other auction mechanisms, both in B2B and B2C settings, such as descending-price auction formats. While the reasons for this development are manifold, it is safe to state that the underusage of dutch auctions in practice, compared to other auction mechanisms, has contributed.

II. LITERATURE SURVEY

The logistics industry continues to witness growth owing to the progress in retail, e-commerce and manufacturing sectors.[1]

Logistics industry in India is evolving rapidly.[1]

It is the interplay of **infrastructure, technology** and new types of service providers, which defines whether the logistics industry will be able to help its customers **reduce their costs and provide effective services.**

Logistics companies are facing an era of unprecedented change as digitisation takes hold and customer expectations evolve. **New technologies are enabling greater efficiency and more collaborative operating models**; they're also re-shaping the marketplace in ways that are only just beginning to become apparent.

Emphasis on research and development is potent because it encourages the use of indigenous technology, which can make the industry cost-effective and can also bring about improvement in services.

The logistics firms are moving from a traditional set-up to the integration of IT and technology to their operations to reduce the costs incurred and to meet the service demands.

A. Reverse /Dutch Auction :

Reverse auction (RA) may well be a purchase tool available under e-commerce through which the techno commercially acceptable bidders simultaneously bid their price online leading to a price discovery. Also observed as buyer's auction[2], in reverse auction, the buyers invite bids from multiple sellers. the worth decreases because the sellers compete for the buyer's business with all-time low bid considered the winner. It creates an intensely competitive but transparent environment leading to reduction in procurement cost.



Fig. 1. Dutch Auction

Over the last decade, companies have focused more and more on their core competencies, by outsourcing non-core activities to other companies.

Initially, this has focused on semi-permanent arrangements, with the internet acting as an intermediary. However, as this trend is becoming increasingly important, much research and development effort has been focusing on a more dynamic, service-centric view of the Internet. Web Services are virtual entities that provide a service over the network through an open standard interface.[2]

III. THE AUCTION MODEL

The auction model consists of the following five entities[4]:

A. SELLERS:

Sellers are the manufacturers who manufacture a product and are willing to ship it to their client. So, traditionally they had a fixed transporter who shipped their all product at transporters rate. Manufacturers here spends lot on the shipping of products eventually reducing their profit margin. On suggested platform manufacturer can create their account by providing basic details like company name, licence no, GST No (if any) etc. After creating the account they can now put their product up for the auction. Now here seller here has to provide basic details like type of product, Dimensions, Weight, Fragile/non fragile, pickup address, Delivery address, auction start date, auction end date, pickup date. After putting the details a base price is calculated by the platform that will be the starting bid for that product. After filling the required details, the seller can now start the auction. Sellers can check the live status of the auction by opening it in the dashboard. Sellers can check the current bid and can see the winner details after the auction is completed. As soon as the auction is completed, the seller is displayed the transporter who has won the auction and contact details are shared to both seller and transporter.

B. BIDDERS:

Secondary users are bidders who submit their bids for the consignments. A Bidder can be a person or an organization. A bidder's identity must be validated by the admin before it participates in the auction. Each bidder has to register himself into the portal by providing information like number and types of vehicle, capacity of vehicles, registration number of each vehicle, etc. This information will be stored in a centralized database which is accessible to admin only. On successful registration, a bidder is assigned an ID Bi. The bidder can see the ongoing auctions of different types in different localities. The identity of the bidder winning the auction is not revealed to all (not to the seller also) and hence a returning user (i.e seller) does not gain any benefit.

C. ADMIN

The admin is responsible for approval of auctions and to determine the base price of auction while ensuring truthfulness and individual rationality. The base price is calculated by the admin considering various factors.

Mathematically, the Base Price(B) is expressed

as: Base price = (P, D, V, T)

where,

P - Approximate price of petrol or diesel in that region.

D - Distance between the source and destination.

V- Type and Capacity of Vehicle used for shipment.

T - Estimated time that will be required to deliver the shipment.

An admin must make sure that all sellers and buyers are treated fairly and the mechanism is unbiased to any particular individual. All the queries asked by the clients are dealt by the admin. The main job of Admin is to ensure the smooth flow of the process of the auction system and ensure maximum uptime possible to gain the trust of clients. Admin has another responsibility of reviewing the product and their owner's information, only admin has the right to see the information of all the people logged in on the website. The information provided by the manufacturer like GST No, Licence no etc are checked by the admin. Hence admin plays an important role in this application as the working of it is handled by the Admin.

D. CREATING AUCTION:

A Seller creates an Auction by filling the information required for the object to be included in the auction. The details of the object like type, dimensions, weight, location of pick up and destination etc. The Auction can only be created by a legitimate seller. The Auction will be then approved by the admin.

E. BIDDING IN THE AUCTION:

Bidder's arrivals are also assumed to be stochastic and their lifetimes are also dynamic. A bidder's identity must be validated by the admin before it participates in the auction. Each bidder has to register himself into the portal. The information will be stored in a centralized database to which the admin has access. On successful registration, a bidder is assigned an ID Bi. A new bidder submits its bid request to the admin with its credentials and upon approval from the admin, it enters the auction portal. In the portal, the bidder can see the ongoing auctions of different types in different localities. The bidder also has to pay a nominal charge as boot value before entering an auction. The boot value will ensure that only interested bidders are bidding for the consignment. Secondly the boot value amount will act as a profit to the organization developing and managing the portal. The boot value will be different for each consignment. After paying the boot value, the bidder then has to bid for a amount less than the current bid amount or base price in case of first bid. A bid is considered as valid only if the bid value is less than the current bid amount. Any bid value higher than the current bid is treated

as invalid. After a valid bid, the current bid amount of auction will be modified and the bidder will be in the

winning position until some other bidders bids for a lower value. A bidder can return and bid for a lesser amount later in the auction. Each product stays in the auction for a particular period of time only. The auction period is decided by the seller (as per Server System Clock). The time that is displayed from the server clock at the top of the auction portal, will be valid for all actions of requesting bid submission. The Time followed in this portal is as per Indian Standard Time (IST) which is GMT+5:30. The bidders should adhere to this time during bid submission. After the auction period, the admin sends an e-mail to the seller as well as the winning bidder containing the bidder id and final payable amount by the seller. Note that the price is finalized and is not adjusted afterwards. The result of the auction is visible only after the time slot allotted for the auction is completed. The lowest bid price is visible to the bidders but the identity of the bidder winning the auction is not revealed to all (not to the seller also) and hence a returning user (i.e seller) does not gain any benefit. After the auction period, if the consignment has no bids then the seller has the option of re-auctioning the consignment or cancelling the shipment.

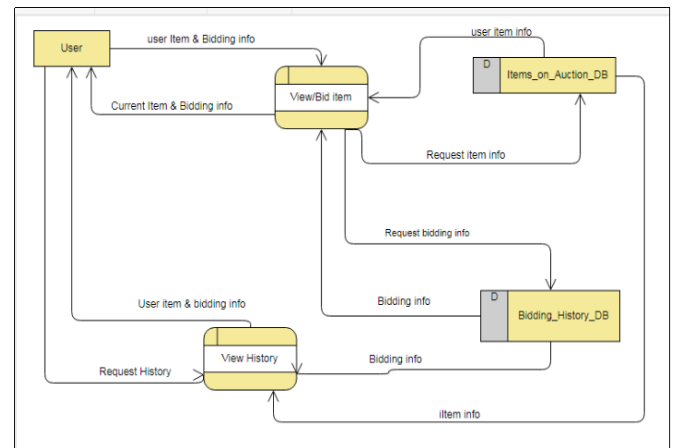


Fig. Working of Application

IV. DESIGN CHALLENGES

An online auction in dynamic markets poses several challenges in designing the mechanism. We present three key design challenges as follows:

A. Online decision with demand and provide uncertainty: The primary challenge is to require an internet decision

B. without knowing the precise number of supply and bidder in future periods. The mechanism must take into consideration the tradeoff between present opportunity and future uncertainty for efficient spectrum allocation.

C. Spectrum reusability: Unlike traditional auctions, the same spectrum unit may be sold to multiple non-interfering secondary users in spectrum auctions. because of this unique property, more bidders may be served with the identical number of spectrum units. While the identical spectrum unit may be allocated to 2 (or more) bidders with very different bids, more than one spectrum unit is also available to one bidder. Thus, the spectrum assignment becomes challenging while trying to keep up the truthfulness property and achieving high efficiency.

D. Time and bid based cheating: because of the web demand and supply nature of the spectrum auction, bidders may report their bids, time of arrival, and deadline untruthfully, and gain advantage within the style of increased utilities [5]. The auction mechanism must provide safeguard against any such attempt of cheating of bidders.

V. CONCLUSION

By the introduction of technology in Logistics industry for procuring the shipment, The Product Shipment Dutch Auction (PSDA) approach brings the manufacturer and transporter on a single platform to interact with each other hence increasing the chances of more contracts for both of them. PSDA approach provides transparency to both these entities as a transporter can know the information of the product to be shipped where as a manufacturer can know the information about the transporter hence this increases the trust of both the entities on the system as they can get live information about each other. PSDA gives a platform to manufacturers where they can post their products that are to be shipped. It also gives a platform to transporters to find shipment contracts with just a click so earlier they were knowing only contracts of their area or not even all contracts of their area but now they are able to know the contracts of the entire city and bid for them. The method used to reduce the shipment charge is Dutch Auction(Reverse Auction), this helps the manufacturer to get the lowest price possible hence saving a considerable amount of money annually. This also helps transporters to get a higher number of contracts than the traditional method of searching it manually, hence increasing the overall profit of the transporter because of the increasing number of contracts. Hence revolutionizing the traditional way of shipment process to a digital solution that will benefit both the party.

VI. RESULT

There lies a handful of advantages to the Online Auction in Transport management one of them is : transparency in transaction and active participation of freight owners and

many others which can reduce the existing glitches in the transport network. The profit margin of the manufacturers will increase by a significant amount, the problem of finding a shipping contract for the transporter will be solved as they can get many numbers of contracts with just a click.

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