International Research Journal of Innovations in Engineering and Technology (IRJIET)

ISSN (online): 2581-3048

Volume 7, Issue 2, pp 116-123, February-2023

https://doi.org/10.47001/IRJIET/2023.702018

Electronic Auction Fraud: An Insight into the Green Snake in Green Grass

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***Abstract* - The emergence and commercialization of the internet in the mid-1990s have revolutionized everything man hitherto does manually. Man's quest to reduce human drudgery became exerting, and his wish that he could wake one day and get everything (including his sleep) done with the help of computers intriguing. This quest is as a result of the internet. In the world of e-commerce, since the formal launch of the internet in 1995, auctioneering became the first-child driven from the comfort of man via the use of computers connected together in a network (internet). Before the birth of e-shopping, dozens of e-auction systems were developed and launched in 1995, including on sale (the first ever e-auction site), Auction Web, Esty, eBay, Yahoo, Amazon, etc. Auctioneering, derived from a Latin word *augeo* meaning "I increase" or "I augment" is driving the world of e-commerce till date. The benefits of electronic auctioneering cannot be over emphasized. Compared with e-shopping, e-auction allows buyers to bargain price that suit their taste and desire- the reason it is widely patronized. In spite of its numerous benefits, *e-auction* is on a daily basis facing fraudulent activities- which the researchers see as a green snake in green grass. The paper x-rays the benefits of e-auction at a glance, and takes an explicit/concise look at the various e-auction frauds with simplicity of styles to help participants of e-auction understand how these fraudulent activities are perpetrated at each stage of the auctioneering process by fraudsters, and proffer measures that will help auction participants avoid being scammed or victimized.**

Keywords: Electronic Auction (e-Auction), e-Auction Fraud.

Introduction

Auctioneering as an ancient commercial activity has been evolving tremendously in recent times from manual methods to electronic form. The word 'Auction' is derived from a Latin word *augeo* meaning "I increase." or "I augment." Auctioneering is thought to have originated from the Babylonians around 500 B.C during the reign of Herodotus as king of Babylon (Dolan, 2004; Nkotagu, 2011; Dong et al, 2019). An Auction is a market mechanism by which buyers make bids and sellers place offers; characterized by the competitive and dynamic nature by which the final price is reached (Dolan, 2004; Turban, 2008; National Auctioneers Association, 2016). Martin, et al (2009) refers to auction as an important type of business that is designed to sell products based upon effective pricing mechanisms or a method of selling property in a public market through open and competitive bidding by merely offering the item to the highest bidder. In essence, auction could be referred to as a form of commercial activity in which goods are sampled for sale to the public and the person who places the highest bid and satisfies all the stipulated bidding requirements gets the goods (Ashindoitiang, 2021). Many auctioning systems in the world today are virtual markets performed over the internet. This development of virtual auctioning system started in 1995 when the internet was formally launched and commercialized. Many companies and cooperate organization have made billions of dollars from the sales of products over the internet using well-known auctioning systems such as eBay, Amazon, Yahoo, Alibaba, Esty, etc. it is believed that e-auctioneering drives the world of e-commerce today (Roebuck, 2014; The Nolo E-commerce Center, 2016; National Auctioneers Association, 2016). Electronic auction has eliminated so many bottlenecks associated with the conventional manual auction system such as distance, security, sizes of products, poor record keeping etc. With electronic auctioning taking center stage in e-commerce, presently scarce products could easily be located, security is enhanced, users' satisfaction is maximized and trading is done by anyone anywhere and anytime. Electronic auctioneering is now a new interactive, dynamic and scalable business activity practiced across the world.

The advantages of the electronic auctioning system over the conventional market structure cannot be over emphasized. They include (but not limited to) the following:

a) E-auction market attracts more customers than the conventional market since physical presence is not a necessity for participation.
b) E-auction gives users the opportunity to discover the best price at which to trade in products.
c) Manual actions have a fixed schedule, but e-auctions are available 24 hours a day. That is, every hour of the day

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d) Manual auctions are controlled by people while e-auctions are controlled by software.
e) E-auction provides a high level of transparency of both product quality and market operations.
f) E-auction is more efficient and reliable and reduces the cost of transportation.
g) E-auction market offers services at a lower transaction cost and provides a level play-ground for fairness in financial transaction.
h) It manages all aspects of trading activities, from market initiation and settlement to delivery than any conventional manual market.
i) There is a better feedback mechanism in e-auction, which is not so in any conventional manual market.
j) E-auction market clearly defines when the sale of a product has been made and buyers have profile knowledge of the seller before making a bid.
k) It has a better way of managing records of transaction.

In spite of the numerous advantages of electronic auctioning system over the conventional market structure, electronic auctioning system is today faced with a big green snake in green grass called 'auctioning fraud'.

The concept of electronic auction fraud (e-Auction fraud)

E-Auction Fraud has been identified as one of the greatest challenges faced by e-auction companies in the past decade. Electronic auction fraud involves every fraudulent activity that is perpetrated by participants of e-auction companies and usually takes a range of forms with the perpetrators relying on telemarketing, emails and/or presenting themselves to unsuspected customers they meet in online chat room or social networks. (UkEssays, 2003). E-action fraud could be seen as any type of fraud- scheme that uses websites, emails, chat rooms, or message boards to present fraudulent solicitations to prospective customers (victims) of the auction market to conduct fraudulent transactions or to transmit the proceeds of the fraud to a financial institution or other individuals connected to the scheme.

E-auction fraud is also one of the fastest growing online crimes that have stayed below the radar in recent times (Wood, 2004). There is evidence that the rate of fraud on e-auction system exceeds the fraud found in most of the traditional market systems (Nikitkov & Bay, 2010; Srinivasan & Wang, 2010). E-auction fraud is now rated as the top cyber-crimes in the society (Synder, 2000; Garage Technology Venture, 2002; Comradt, 2012). The major challenge faced by e-auction users is that they don't know exactly which period of the auctioneering process they could fall victims of any crime.

How e-auction scam work:

Obviously, e-auction can take place at any time within the auctioneering process, but often times, it starts when you see an ad for a website auctioning goods and services. A visit to the site would present to you the legitimacy of the company, possibly a claim of affiliations or authority of the government. Users are often convinced to register by sending the auctioneer copies of their sensitive documents and personal information. After registration, a user places a bid on an item and end up a lucky winner of the bid. Thereafter, the auctioneer gives the user instructions on how to make payment for the won item. The auctioneer after getting the payment from the user disappears, send fake or inferior item to the user or becomes difficult to contact.

Types of e-Auction:

To be on the safer side against this attack, attempt has been made by the researchers to categorize e-auction into three namely: pre-auction fraud, in-auction fraud, and post-auction fraud respectively.

1. **Pre-action fraud:** Pre-auction fraud is a kind of auction fraud that occurs before the start of the auctioneering process. It includes every fraudulent activity that takes place before the start of the auction. Pre-auction fraud includes activities like misrepresentation of items, phishing, selling of black-market goods, and triangulation etc.
   a) **Triangulation:** This is a term used to describe when a fraudster purchases an item using a stolen credit card, selling the item to an unknown buyer thereby retaining the cash and transferring the risk of seizure to the end recipient
   b) **Phishing:** This involves the act in which the scammer solicits personal information from his victims in order to use it to steal their identity as well as information relating to their banking details. Phishing usually comes in the form of spam mails. Phishing can provide seller with IDs and other information that permit them to take over an established high rating user account.
   c) **Misrepresentation of items:** Here, the seller gives false information or specification of the item in order to deceive the buyer on the true value of the product.
   d) **Selling of black-market goods:** The seller auction stolen goods or pirated copies of a particular product especially software, CDs Videos, Music, etc. the buyer ends up getting the products without warranty, instruction manual, etc.

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Approaches in handling pre-auction fraud:

a) **Fraud dictation approach:** Modern e-auction systems highly rely on feedback-based reputation systems to evaluate both buyers and sellers. This approach is not 100% guaranteed because most auction systems are flooded with positive feedback-which often times is artificially built up to promote sale and company name. According to Dong, Shatz, Xu (2019), existing reputation systems are easily manipulated. Malicious e-auction users cold first accumulate positive reputation positive reputation with the sales of low-value goods and thereafter capitalize on that reputation to defraud buyers whenever they sale high-value goods. Buyers are advised to study the feedback of a particular seller or the entire company to ensure the integrity of the system and its traders.

b) **Data mining approach:** According to Christou, Bakopoucos, Dimitriou, Amolochitis, Tsekeidou, & Dimitriadis (2021), data mining is a powerful computer-based tool designed to assist us analyze useful information from historical data. It helps us to x-ray and analyze data from several dimensions in order to uncover consistent pattern, anomalies and the correlation between them. It helps us to predict future behaviour and trend based on the discovered pattern and the associated rules.

2. **In-auction fraud:** In-auction fraud is any fraudulent activity that occurs during the main auctioneering process. It is the most dangerous and tricky of all the types of auction fraud ever known, be it electronic or manual auctioning system. In manual auctioning systems, in-auction fraud is minimal, compared with electronic auction, because the time frame for manual auction is short such that fraudsters won't have enough time to plan and execute some of the strategies involved in its various methods. In e-auctions where some products are opened up for bidding for a longer time frame (sometimes for days or weeks), in-auction fraud is predominant because fraudsters have enough time to plan and perfect their strategies (Ariely & Simonson, 2003; Meissen and voisard, 2008). In-auction fraud often results in vicious spiral auctions, insufficient market or market failure and could happen at the buyer or seller's end. In-auction fraud includes activities such as Shill bidding, bid shading, false bidding, multiple bidding/ bid shielding and bid rings.

Types of in-auction fraud: In-auction fraud can be sub-divided into two namely:

1. Sellers' in-auction fraud: this is the auction fraud that is purely associated with the seller of a product in an auction market. These are fraudulent activities carried out by a seller or his/her agent with the view of benefiting his/her business, or those fraudulent activities that affects the seller and his/her business negatively. They activities include Reserve-price shilling, competitive shilling, false bidding, and Buy-back shilling etc.

   a) **Reserve-price shilling:** Is a bidding activity aimed at avoiding the payment of the reserve price fee. That is, some sellers might engage shills to place bids on their auctions in other that they might not send an official reserve price to the action company.

   b) **Buy-back shilling:** This is a bidding behaviour used by a seller or a shill agent of the seller to win/ buy back the auctioned product especially when the legitimate highest bidder does not bid an acceptable price the seller intent to sell the product.

   c) **Competitive shilling:** Is a form of bidding behaviour that artificially drives up bidding price of an auctioned item with no intention of buying the item. The aim of such action is to make a legitimate winner pay more than he/she would have wished. It is aimed also at profiting the seller. Competitive shilling is common in both manual and electronic auction system provided the collusion between the seller and the shills remain unknown to other bidders (Wood, 2004).

   d) **False bidding:** Is when an auctioneer submits an extra bid to make the second highest price very close to the current highest bid such that the seller can gain more profit. It is peculiar with the second-price sealed-bid auction systems.

   e) **Shill bidding:** Is when sellers or their associates place bids on their auctions for fraudulent purposes. It is a form of bidding that artificially increases the price of an item or desirability of bidders on that item. An individual either work with another or create a false identity in order to drive up the bidding price for the benefit of the seller Shills are associated with sellers because they have more knowledge of their products than the buyers.

   f) **Second chance scheme:** It involves the act of contacting a losing bidder of a legitimate auction and offer to sell the product to him/her at his/her highest bid price and thereafter collecting the money without delivering the item.

   g) **Internet fencing:** Is the act of using a renowned auction company like eBay or Yahoo to sell stollen good to unknown customers.

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2. Buyers' in-auction fraud: these are fraudulent activities associated with the buyer of a product in an auction market. These fraudulent activities might be beneficial to the buyer, or of severe adverse effects to his/her transaction. The fraudulent activities include:
   a) **Bid shading:** This is the insertion of a bid above the highest placed bid in a first-price sealed-bid auction before the bids are officially disclosed.
   b) **Multiple bidding (bid shielding):** This is when a buyer inflates the price of an item via higher bids placed by his/her aliases, and thereafter withdrawing the high bids to enable him/her secure the item. It is a fraudulent practice of the buyer rather than that of the seller. The buyer registers several aliases and uses them to place multiple bids for a particular item in order to discourage other bidders from bidding. Bid shielding occurs when a buyer and a partner artificially inflate the bids during an auction. It occurs when a buyer and a partner (not the seller) artificially inflates the bids in order to discourage other potential buyers from bidding.
   c) **Bid rings:** It is the collusive auction fraud practice carried out by several bidders. Fraudulent bidders, in this mechanism, form a ring and agree not to bid on a particular item or to place phantom bid on an item.
   d) **Sniping:** This is when the buyer waits till the last seconds of the auction period to place a winning bid leaving no chance for other to outbid him/her and thereafter fail to purchase the product.
   e) **Unmasking:** In unmasking, a buyer placed several bids at a short interval in order to expose the highest bid, especially in seal-bid auctions.

Approaches in solving the problem of in- auction fraud: A well-designed e-auction system is likely an unfertile ground for fraudsters to survive. Generally speaking, internet crimes might not be totally eradicated in any shortest possible time; it can only be minimized or controlled. Though technology has in recent times boosted the fight against internet crimes, much still need to be done to eradicate it entirely. In the case of e-auctioning, measures can be taken to solve some of the problems fraudulent activities associated it. The approaches include:

   a) **Prevention/reduction approach:** Here, there are measures that can be employed to prevent fraudulent activities on an auction system. One of such approaches is the use of either a private or public key infrastructure by buyers and sellers or a hybrid user authentication technology. In key encryption mechanism, each bidder's message is first signed by the bidder and then encrypted with a public key of the auctioneer such that the auctioneer can check the authenticity of each of the encrypted bids of the bidder. The auctioneer uses a private key to decrypt such bids before being able to view them. This mechanism makes it impossible for fraudsters to gain access to bids submitted by bidders. (Srinivasa and Wang, 2016)
   b) **The use of an agent-based trust management framework:** The use of an agent-based trust management framework has been one of the recent most efficient means of handling electronic auction fraud. It employs a collection of agents that work as a team to monitor fraudsters and their activities. The mechanism consists of a security agent, an analysis agent, a set of monitoring agents, an auction agent, and a bidding agent. It is a multi-agents-based system (Synder, 2010). How this mechanism works is that a bidding agent, on behalf of a human bidder, can communicate with an auction agent to place bids automatically. Meanwhile, the security agent can represent the monitoring agent to watch for bidding activities and dictate suspicious users of the auction system. The analysis agent takes over from here by analyzing the bidding behaviours/activities of the users using the date gathered from users' profile and history. The result so obtained by the analysis agent will now help the security agent to evaluate the user in other to know whether or not the bidder is a shill, shield etc. this then helps the administrator to make informed decisions.

3. **Post auction fraud:** Post auction fraud is any fraudulent activity carried out of the actual auctioneering process. That is, after bidding has been concluded. Post-auction fraud includes the activities such as non-delivery of products; fee stacking; buyers receiving products that defers in specification and quality from what was displayed and bade for; paying for a fake product; and buyers refusing to pay for products they bade and won.
   a) **Vishing:** This is a form of e-auction fraud in which a phone call is made with the caller pretending to be calling from a financial or banking institution of the victim in order to elicit information from the victim such as credit card details and pin. It is a concept in which an individual unknowingly divulge banking details of the victim (Brown, 2011 in Nkotagu, 2011)
   b) **Identity theft:** This involve the stealing of an individual's identity usually in the form of physical impersonation, forgery of signature, etc
   c) **Changing of sellers' ID:** The ability of the seller to use several IDs so that there is no track record. Though auction sites keep trying to overcome such challenges by requesting sellers to provide their

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legitimate credit card details before they are issued a seller ID, it is still possible for sellers to acquire several credit cards and use them to open several auction accounts on the same site.

d) **Changing terms of sales:** This may include the change of payment method, shipping fee, delivery options, etc after bid has been concluded.

e) **Product authenticity:** Here, the seller claims that the item he/she listed for sale is something precious and worth the product description on the product menu when in reality that item is not worth it. He/she does this for the sole purpose of attracting buyers and promoting the sales of fake or sub-standard goods, and buyers are pushed to bid for a product that is fake or inferior in quality.

f) **Fee stacking:** This is the charging of extra money offer of a product when auction is over.

g) **Non-payment for delivered goods:** Here, the seller sends the goods to the buyer out of trust but the buyer fails to pay for the items.

h) **Bogus escrow services:** This happens at the end of the auctioneering process whe auctions are concluded. The bogus escrow service would receive payment from the buyer, pocket the money and vanish without remitting it to the seller.

i) **Hidden charges:** Instead of the seller to give a flat rate for handling and postage of the item, he/she adds separate fees/charges for postage, shipping or handling of the item which results in the buyer paying more than expected.

It is worthy of note, therefore, that pre-auction and post-auction frauds involve off-line behaviours that can be noticed by buyers and sellers. Investigation of such auction frauds solely rely/ depend on real life experience.

Diagram of E-Action fraud

The e-Auction fraud is diagrammatically represented in Figure 1.

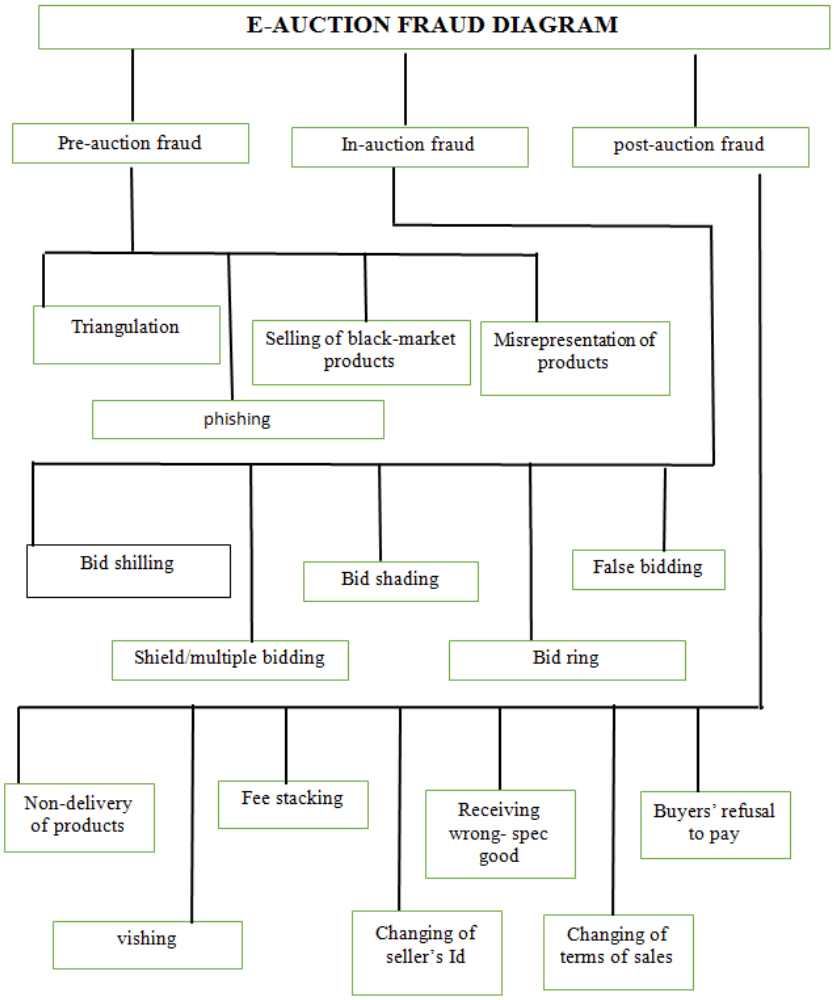

Figure 1: e-Auction fraud diagram

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ISSN (online): 2581-3048

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https://doi.org/10.47001/IRJIET/2023.702018

Figure 1 above shows the three types of electronic auction fraud and their associative fraudulent activities. The three auctions fraud includes Pre-auction fraud, in-auction fraud, and post-auction fraud respectively.

A-Z guidelines on how to avoid being a victim of e-Auction fraud:

Avoiding been defrauded in online business is one of the earnest desires of e-Auction users (buyers and sellers). E-auctioning, as a branch of e-commerce, have in recent times faced series of criminal attacks- which have triggered research by security experts on measures to eliminate or reduce such attacks. The researchers suggest the following A-Z guidelines to help e-Auction users avoid been scammed or defrauded while making online transaction. The measures include:

a) Educate yourself and understand how auction work before making any transaction. Do this by carefully reading through the company's rules and regulations, and the Frequently Asked Questions (FAQ) button on the website, and wisely study the terms and conditions. Find out if there is winning bidder' fees, taxes, entry fees, shopping fees, bid deposits, etc
b) Make sure you understand online payment methods and avoid using unfamiliar payment options. Identify fake payments and bogus requests. Scammers might decide to use Mobile Payment Applications and send you fake payment receipts.
c) Identify and avoid fake verification codes that usually come in form of text messages with Google Voice verification codes. Scammers will demand the code from you and use it to create a Google voice number linked to your phone number- which they will be using to scam other users.
d) Watch out for fake reviews/feedbacks. Scammers often participate in reviewing their own products using bots or other methods.
e) Monitor listings and be wary of 'too good to be true' deals.
f) Determine your maximum bid before placing a bid. Set up purchasing limit and always consider the number of active bidders and the bidding trend.
g) Monitor your bid by trying to use a bid tracker.
h) Be wary of a newly registered seller/buyer on the site who has little or no feedback from other users. Carefully analyze the profile of new users, photos of items, their description and manufacturer's trademark.
i) Conduct product research in open markets before bidding.
j) Participate with your head and not just your pocket. Be smart when experiencing tricky auctioneering trends
k) Research much about the auction company and the respective auctioneers before participating.
l) Limit the amount of personal information you supply to both the auction company and the user(s)
m) Don't give in to the bidder's excitement through impulse buy.
n) Keep your anti-virus and firewall software updated. This may help you identify scam mails.
o) Consider using a low-limit separate credit card for online purchases in order to limit potential loss if things go wrong.
p) Report any problem you encounter to the customer service officer or the administrator depending on the site feedback/ complaints mechanism.
q) Keep records of your transactions always. Do this by printing out details of your transactions where necessary including receipts, product description, bidding history, pictures of items sent and received, etc.
r) Identify reality: use your head to identify fake products of fraudulent companies.
s) Checkout the sellers or buyers' contact information and their profile and the feedback about them. Read previous reports about them especially negative complaints about them from others.
t) Study the feedback mechanism and disclaimer message on the site carefully before making any transaction.
u) Be mindful and wary of any untraceable buyer or seller. That is, any buyer or seller you cannot trace or whom you have no concrete information about him/her as you go through their profile.
v) Check retail prices of products in the open market before placing a bid so as to avoid being cheated.
w) Watch out for fraudsters (shills, shields and gray markets). This might be difficult to notice, but it is not impossible when you go via the seller/buyer's transaction history.
x) In case of challenges, contact the buyer or seller via phone calls. Most importantly, before completing the deal, contact the other party to ascertain and confirm details of what you are buying or selling.
y) Use the safest payment, shipping and delivery option/method. Payment should be made in a way that you can trace, preferably with credit card and be wary of payment through cheque or bank transfer (mobile App or USSD). Sellers should not send the product unless it has been paid for. The shipping

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Volume 7, Issue 2, pp 116-123, February-2023
https://doi.org/10.47001/IRJIET/2023.702018

method should allow for the tracking of the product until delivery is successful.

z) Avoid participating in private auctions that you contact the seller before bidding; be sure the email of the action user registered on the site correspond with the one on his/her PayPal or financial account.

Conclusion

Electronic auction, often called e-Auction, internet auction, or online auction has in recent times driven the world economy to greater heights with prominent auctioning companies like eBay, Amazon, Esty, yahoo, etc selling millions of products to customers across the world on regular basis. E-auction proves to be an influential market place for customers because it provides opportunity for customers to bargain the prices of products as on the normal open market. In spite of the numerous benefits, e-auction users are on daily basis suffering in the hands of fraudsters who intrude into the auctioneering process. These fraudulent activities happen at all stages of the auctioneering process, and are classified as pre-auction fraud, in-auction fraud, and post-auction fraud respectively. The paper explicitly analysis these fraudulent activities and proffer possible guidelines to help auction users escape being victimized. Auction users are expected to understudy these guidelines and apply them carefully whenever they participate in e-auctioneering activities.

Recommendations:

a) Auction site builders should use an efficient user login security, preferably a hybrid user authentication.
b) Users of e-auction should take time to educate themselves on how auction works and the various transaction safety mechanism especially those recommended in this article.
c) Auction companies should ensure they have product authentication mechanism in line with the body assigned by the government to ensure the standardization of products. For example, the Standard Organization of Nigeria (SON)
d) Auction companies should design credible and safe payment options like the use of credit card, ensure proper authentication of users and how to track them in case of any fraudulent transaction perpetrated by them.

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ISSN (online): 2581-3048
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Citation of this Article:

Ashindoitiang, Emmanuel Atemgweye, Ashishie, Denis Undiukeye, "Electronic Auction Fraud: An Insight into the Green Snake in Green Grass", Published in *International Research Journal of Innovations in Engineering and Technology - IRJIET*, Volume 7, Issue 2, pp 116-123, February 2023. Article DOI https://doi.org/10.47001/IRJIET/2023.702018

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