

DESIGN AND ANALYSIS OF BLOCKCHAIN-BASED RESALE MARKETING

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Abstract: Blockchain is a technology that has the potential to cause big changes in our corporate environment and will have a significant influence over the next few decades. It has the potential to alter our perception of business operations and revolutionise our economy. Blockchain is a decentralised and distributed ledger system that, since it cannot be tampered with or faked, attempts to assure transparency, data security, and integrity.

Only a few studies have looked at the usage of Blockchain Technology in other contexts or sectors, with the majority of current Blockchain Technology research focusing on its use for cryptocurrencies like Bitcoin. Blockchain technology is more than simply bitcoin; it may be used in government, finance and banking, accounting, and business process management AS a result, the goal of this study is to examine and investigate the advantages and drawbacks of Blockchain Technology for current and future applications. As a consequence, a large number of published studies were thoroughly assessed and analysed based on their contributions to the Blockchain body of knowledge.

Keywords: Blockchain Technology, Bitcoin, Cryptocurrency, Digital currency, Secondhand products

I. INTRODUCTION

Used goods are now popularly traded and compete with new products. Global online retailer Amazon offers its consumers a choice between new and used products. Selling second-hand products creates an ecosystem in the circular and sharing economy (Wen and Siqin, 2020). A survey by European marketing firm GMI shows that around 70% of consumers buy second-hand items. In particular, women are more likely to purchase second-hand books, clothing, accessories, jewelry, and shoes, while men are more likely to purchase second-hand electronics and cars (Chahal, 2013). The main reasons for buying second-hand products include 1) consumers' unwillingness or inability to afford new products, and 2) consumers' inability to buy new products due to the lack of supply in the market. However, for consumers who do not know the real quality of the products before purchasing, the quality of second-hand products can be uncertain. This uncertainty causes a long-standing moral hazard problem in purchasing second-hand goods, as sellers often have more product quality information than buyers (Fernando et al., 2018). For example, counterfeit items are common in the luxury market, but most consumers cannot distinguish a fake from a real item when they consume second-hand items. Since traffic accidents involving vehicles are often not disclosed, consumers are easily deceived by second-hand car dealers.

Blockchain is a new, innovative and disruptive technology that can help reduce the risk of serious behavioral problems depending on product quality asymmetry (Babich and Hilary, 2020). Recently, many companies have developed an expandable blockchain-based protocol that provides consumers with access to securely manufactured product quality and supply chain information (Choi, 2019; Choi and Luo, 2019). According to a study by consulting firm Gartner, at least 30% of production companies with products worth \$ 5 billion will use the blockchain by 2023 (Dimitrov, 2019). Blockchain is now a unique solution for determining the quality of used goods and effectively preventing the risk of misconduct in the resale. Traditional technologies such as RFID can provide quality disclosures. However, consumers may not fully trust this because RFID information can be updated individually, but blockchain cannot. Blockchain provides a reliable and unique "certificate" for displaying product quality information on history, such as how long a product has been used, who uses it, and how it is used. Also, blockchain data cannot be manipulated or altered by man.

Recently, the blockchain has become increasingly popular in many industries. Many products are powered by blockchain.

Selling second-hand products is controversial because they can disrupt the business of a new product (Feng et al., 2019). Sensible concept means that the introduction of used products can damage new product lines. In this paper, we talk a lot about how the forum determines pricing and delivery strategies in a competitive or affiliate series. In examining the actual processes for selling second-hand products in the online marketplace such as the one in Patagonia and the real one, we note five factors.

- Using blockchain achieves quality disclosure (Babich and Hilary, 2020). With the exception of blockchain use, the actual quality of the second product is unknown to consumers and suppliers of new products. With the use of blockchain, real quality is known to everyone.210

- The impact of the network exists in the online marketplace (Chen et al., 2020). If there are more suppliers, more consumers will be aware of the presence of a separate product market, and consumers will have more opportunities to purchase used products (Anderson et al., 2014)
- The forum uses a contractual framework to attract sponsors to sell their products (Choi and Guo, 2020). In line with actual processes on social media, based on contract and price, providers decide whether to accept the sale of their products on the platform based on their service in terms of cost and revenue.
- The forum determines the number of products used (Orlean, 2019). Donors send and ship their support products to the platform. As a product expert, the forum finds the product, evaluates it, and determines the price.
- An online forum may be independent or affiliated with a provider (Agrawal et al., 2019; Orlean, 2019). The real forum is an independent firm and welcomes any type of product. In contrast, Patagonia collects its used products and resells them on its website. Thus, the platform can be split or integrated horizontally with the supplier.

Our paper operates on social media platforms that sell blockchain-based products. The main reasons are as follows. First, using advanced data technology in e-commerce can address knowledge of the asymmetry of second-hand products. The asymmetry of quality information is important in selling third-party products online.. Consumers cannot distinguish product quality based on description and images. Second, consumers will fully trust the information from the blockchain because the blockchain provides a reliable and unique "certificate" for displaying product quality history information.. To address pending blockchain issues in e-commerce as outlined above, we have done a review of the literature. This method is mainly used to interpret and evaluate published articles without focusing on methodological details, and encourages exploratory research by empowering the creation of a solid foundation for future research. Given the novelty of the topic, we prefer this approach to systematic review (SLR), the latter being the preferred method in which the method of selection and methods of extracting and compiling data are clearly defined (Ferrari, 2015). We started our search process in academic repositories, such as EBSCOhost Business Source Premier, Scopus and Google Scholar, but we did not keep peer-reviewed educational articles in the next sections of our research. Most notably, we found that despite the many hits when we used search terms such as "blockchain," "DLT" or "e-commerce" in full text search, the number of related pages was greatly reduced when we filtered articles that actually discussed the impact of the first two. The scope of our research also includes the analysis of articles that investigate the topic of blockchain and e-commerce from different levels. We therefore examined the summaries of all the relevant papers and compiled and selected a few sections (Mayring, 2000), which eventually led to the framework we present in this paper. In line with the principles of qualitative research, the final structure we discuss in the rest of this paper emerged during the analysis and classification.

II. IMPLEMENTATION

In this project we proposed blockchain based ecommerce system in which customer transactions will be stored on blockchain servers in the form of blocks. We have implemented following modules in this project.

- Admin Panel

In this panel administrator will be able to login into the system by using static userid and password. Admin will be able to view user details in this panel.

- Seller/ Customer

Sellers will do their registration by their own. Every customer will be able to upload his products on this site. The customer will be able to view other seller's products. Customers will be able to view product transaction history eg who purchased this product first, and then who buy this product and price history transparently. The transaction history will be stored on blockchain servers in encrypted format; therefore the administrator or any other user will not be able to edit history data.

- Blocks management

The blocks are maintained on separate servers in database. The block structure is as given below

Hash value of current block using SHA algorithm	Transaction data and timestamp in encrypted format using AES	Hash value of previous transaction using SHA algorithm
-------------------------------------------------	--------------------------------------------------------------	--------------------------------------------------------

Customers will be able to browse products and place order. The seller will receive the order and process it, once the seller received payment he will mark the transaction paid. After that the transaction history will be maintained on blockchain servers by using rest apis. We have called java rest apis to store transaction data on blockchain servers. The data will be stored in block chain database by using following stored procedure.

```

DELIMITER $$

CREATE DEFINER=`root`@`localhost` PROCEDURE `insertTrans`(in userid1 varchar(200),in prodid1 integer,in
prodName1 varchar(200), in price1 double,
in selleruid1 varchar(200),in sellernm1 varchar(200), in dt1 varchar(30), in tm1 varchar(200) )
begin
declare mxid integer;
declare prevHash1 text;
IF EXISTS (select thash from transactions where transid=(select max(transid) from transactions))
Then
set prevHash1=(select thash from transactions where transid=(select max(transid) from transactions));
else
set prevHash1='NA';
END if;
set mxid=(select ifnull(max(transid),1000) from transactions);
set mxid=mxid+1;
insert
into
transactions
values(mxid,SHA2(mxid,256),prevHash1,aes_encrypt(userid1,mxid),prodid1,aes_encrypt(prodName1,mxid),price1
,aes_encrypt(selleruid1,mxid),aes_encrypt(sellernm1,mxid),dt1,tm1);
select mxid as transid;
end$$
DELIMITER ;

```

III. RESEARCH FRAMEWORK

Blockchain is a multidisciplinary technology that addresses e-commerce through technical, legal, organizational and quality issues and consumer issues. It opens up new opportunities by providing unprecedented opportunities in technology, but at the same time, it requires critical evaluation of current business processes, such as processes involving sensitive customer data or the formation of communication channels near a supply chain. Technical problems related to data management, privacy and security issues, development, use and design of the basic system and the potential impact of new technologies, such as Internet of Things (IoT), big data, cloud computing, artificial intelligence (AI) and machine-to-machine communication (M2M). Legal issues are related to issues arising from data collection, storage and analysis and potential security breaches and compliance with legal requirements such as “know your customer” (KYC) and “anti-money laundering” (AML). Additional problems are related to the legal compatibility of blockchain-automated processes with novel entities, which include completely isolated organizations (DAOs) in the worst case scenario. Blockchain also opens up new opportunities for large markets that are still operating in the official gray area in many countries. While the fundraising side of this situation has attracted a lot of public attention and led to an uncontrolled outburst (Zetzsche et al., 2017), fundraising features are a first step as the basic tangible assets sold during the fundraising process were almost always sold. with the promise of usability and performance through an internal e-commerce market plan for projects. This means the potential emergence of integrated and unconnected e-commerce systems. Organizational and quality issues include information, system and service quality as well as data tracking and payments, related to data protection and security issues. In addition, structures in organizations may change leading to new business models and the need to re-establish relationships between organizations that may impact on the total value network. Finally, consumer issues include the proliferation of cryptocurrencies, the integration of blockchain features into mobile applications, data-related features, with a special focus on security and privacy from customer perspective, and topics from new data usage opportunities, such as better targeting customers. Such developments mean relationships and customer service, but blockchain can also increase digital diversity. Each of the following sections has the same structure, summarizing a few aspects of e-commerce followed by a discussion of four to six relevant research questions. Tables show that juxtapose is an important feature of e-commerce and possible blockchain changes.

A. Technological issues

The Blockchain technological features are a major driver of innovation (Swan, 2015). However, it is not yet clear how you can make the best money in these properties to create a business value as a large amount of uncertainty persists about how to deal with the design of such systems. In the following sections, the existing e-commerce books on these topics are briefly summarized and considered in the context of the opportunities and risks arising from the blockchain. In the following sections, we discuss the four key areas of e-commerce, namely, access and tracking, privacy and security, novel technology and system development and related blockchain transitions. In the following sections, we introduce each of the research questions, followed by an in-depth discussion.

Research Question T3: How does the combination of blockchain and novel technologies (e.g., IoT, data analytics, cloud computing, AI, M2M) impact e-commerce?

Several authors have highlighted the potential of incorporating novel ways of gathering and analyzing data into e-commerce applications, such as the integration of the Internet of Things (IoT), big data analytics, cloud computing, artificial intelligence (AI)

and machine-to-machine (M2M) communication (Piotrowicz and Cuthbertson, 2014; Salah et al., 2019; Yu et al., 2017). In this context, IoT refers to the emerging network of physical objects (i.e., “things”) that are embedded with networked sensors and components for the purpose of connecting and interfacing with other devices and systems (Khan and Salah, 2018). Related to the accompanying increase in available data, big data analytics is tasked with extracting value from increasing amounts of data (Russom, 2011). Finally, cloud computing denotes the on-demand availability of computer resources without active management by the user (Velte et al., 2009). Peng et al. (2016) show how online robots that use an intention recognition model can be used to enhance e-commerce customer service, while Shang et al. (2012) illustrate how a three-layered (perception, network, service layer) IoT infrastructure can be applied to share relevant information. The combination of blockchain with innovative technologies has led to widespread speculation about novel use cases, ranging from combining the IoT with smart contracts in the insurance industry to enabling payments without cumbersome administrative processes (Underwood, 2016). In the field of healthcare, specifically when it comes to the analysis of radiological images and CT scans, Peterson et al. (2016) note that blockchain technology can generate mechanisms to compensate AI service providers for the development and execution of novel machine learning algorithms. Despite the huge potential that is recognized in this area, rigorous research on its implications for e-commerce remains scarce.

B. Legal issues

A especially technological advances in its early years, the blockchain now offers a host of new opportunities that regulators need to fully understand before any necessary legislative changes can be made. Similar to the early days of e-commerce, the law is lagging behind modern development in many lands. This applies to regulations relating to the handling of personal data, investment in tangible assets, the legal implications of smart contracts and the arrival of private entities (De Filippi and Wright, 2018). In addition, it is not yet clear how compliance issues will be managed in the future (Houben and Snyers, 2018; Lai, 2018). According to our review, the five major legal topics can be affected by the blockchain: data related issues, compliance, organizational and structural processes, access to financial markets and the design of blockchain-based e-commerce systems.

Research Question L1: How does blockchain impact the handling of sensitive data in e-commerce?

The fulfillment of data needs has been discussed since the beginning of e-commerce. For example, previous research has investigated the impact of practical intelligence on the legal requirements for grades and e-commerce (Lievonen, 2017). Of particular concern to consumers and legislatures alike is the protection of sensitive data and consequently customer privacy (Desai et al., 2003). In the context of e-commerce, law in many countries regulates topics such as data collection, usage, disclosure, duration, storage requirements and information (Azmi, 2002). While the General Data Protection Regulation (GDPR) has established a global standard for consumer data protection (Goldberg et al., 2019), various privacy laws apply to the processing of personal data on blockchains (Finck, 2017). Blockchain systems integrate data about the transaction of tangible assets and, in the case of smart contracts are used for the execution of legal contracts, in contractual agreements. Although the cryptographic identity used by participants in many existing social blockchain programs is unknown, it is possible to identify participants using additional information under certain circumstances (Pesch and Sillaber, 2017). This raises the question of how e-commerce businesses processing blockchain data can ensure compliance with privacy laws such as the GDPR in the European Union. As soon as the data is verified and embedded in the public blockchain, it is made public and accessible to anyone. Key features of the GDPR, such as rights to edit and delete, cannot be easily applied to this new technology (Porru et al., 2017). Blockchains that store personal data under the GDPR, cause concern for many e-commerce operators.

Research Question L5: How can e-commerce systems be designed that consider the legal idiosyncrasies of blockchain?

Hoeren and Stauder (2001) put together a collection of e-commerce regulations, including EU directives as well as US-law and other international treaties. These regulations cover topics such as data protection, legal protection of software, information provision, aspects of copyright and marketing of financial services. As outlined above, blockchain systems are confronted with a plethora of obvious and not-so-obvious compliance challenges. As e-commerce businesses explore the use of such systems, regulatory costs and challenges will increase accordingly, and businesses might be confronted with the implementation of expensive controls to achieve regulatory compliance, such as for the GDPR (Finck, 2017). Table 2 summarizes the five major legal topics that can be affected by blockchain.

C. Organizational and quality issues

This section covers organizational topics that are not related to the legal issues discussed in the previous section. This especially pertains to the importance of aligning organizational structures and processes with the new possibilities offered by blockchain (Treiblmaier, 2018). Apart from just generating value from the data (which was identified as a technological topic), the question arises as to how to best design organizations in order to account for data protection, security and quality concerns while simultaneously benefitting from the data and functionalities at hand. These tensions can result in novel and varying business opportunities for companies. Finally, reductions in transaction costs may result in a shift in organizational boundaries, which can affect internal organizational structures as well as relations between organizations. In our review, we identify four major organizational topics: data related issues, data protection and security, organizational structures and processes and value networks.

D. Consumer issues

As recognized in previous research sections, the gathering and use of private data are key issues for e-commerce businesses. The possibility of shared use of data implied by blockchains can potentially benefit not only companies, but also customers.

Cryptocurrencies, which launched the blockchain hype, are only infrequently used for online payments, although they promise lower transactions costs. Mobile applications with integrated blockchain wallets such as smartphones have already been introduced that integrate certain blockchain features and hide the complexity of the underlying technology (Biryukov and Tikhomirov, 2019). This might help to increase adoption among consumers who are not used (or unwilling) to take over full control of their private data, which in the case of blockchain goes hand in hand with accepting the risk of total loss that can occur in case private keys are lost or stolen. One example is the hosting of deposits in exchange accounts. Custodial services, albeit partially contradicting the original libertarian blockchain philosophy of self-custody and the removal of intermediaries, might therefore turn out to be an important adoption driver for many end consumers. A key strategy for many companies is to provide high service levels and establish relationships with their customers that are based on trust (Ying et al., 2018). Currently, it is unclear to what extent blockchain may further increase the so-called digital gap or lead to new gaps. Based on the existing literature, we identify six major consumer topics, namely, the proliferation of cryptocurrencies, mobile-based applications as killer applications (i.e., applications that gain such great popularity that they help to boost the underlying technology), data-related issues, targeting of specific customer segments, customer relationships and the digital gap.

Research Question C6: How does blockchain impact the digital gap?

In terms of the digital divide between those who can reap the benefits of IT and those who cannot, Poon and Lau (2006) take an optimistic perspective and argue that it might be e-commerce that is well-suited to help close this gap. However, as Doong and Ho (2012) illustrate, a sophisticated approach is needed to fully understand ICT development across and within countries as well as the possible ramifications. Since blockchain can also be used to increase security and privacy in smart homes, technology leaders will soon begin to apply this technology in their private homes, which might increase the digital gap (Dorri et al., 2017). Hence, consumers will be confronted with different applications, and in many cases they will not even be aware of the underlying technology that applies equally to all types of blockchains. Table 4 lists the six major consumer topics and how they can be affected by blockchain-induced changes.

IV. LIMITATIONS AND FURTHER RESEARCH

The findings of this study are limited to the youth of the domain and the lack of books directly related to blockchain and e-commerce. Besides, the continuous development of blockchain-based technology and the attention paid to crypto-currency media combined with the evolving legal framework around the world makes it difficult to predict what technology will deliver in a few years and what legal frameworks will be operating in different countries. The research questions presented in this paper are therefore not tied to the use of a particular blockchain, legal framework or business model. Instead, they are presented as standard operating considerations that require further refinement in order to focus on the minor issues clearly defined in each context. In line with the principles of narrative reviews, our focus was not on the reconstruction of results, but rather on the identification of areas for novel research. Further research is needed to consider the dynamics of the domain, which to some extent also became a feature of e-commerce, especially in its early years. Additionally, future studies may identify relevant theories that may provide additional information and use the evidence data to investigate the topics developed in this paper. A systematic review of books may help to expand and refine our framework as soon as sufficient textbooks are published on this subject. Considering the predictions of the major impact of the blockchain on society and the economy, purposeful and important evaluation by academic researchers can help to establish the domain and identify those blockchain factors that include the value of e-commerce success. A solid foundation of academic literature may provide the basis for educational research with the aim of generating new theory that will enable subsequent debit research studies to explore these ideas and speculations. Within just a few years, the blockchain has evolved from a vague technology known only to a handful of dedicated cryptographers and specialized computer scientists into a common theme that attracts billions of dollars in investments and interest from researchers in various fields of study, including computer science, information systems, statistics (especially game theory), economics, business management and sustainability. As these developments take place in a relatively short period of time and technologies are still being developed, there is a lot of uncertainty about the future development of the blockchain and related technologies and their potential impact on the economy and society. In contrast, research surrounding e-commerce as a business model has evolved over the past few years, and academic researchers have systematically mapped out the domain and identified the most important success factors. This paper demonstrates how a potential blockchain impact on e-commerce can build on previous research and show how relevant research questions can be solved. Expands previous research frameworks in this area by providing a clear focus on how to investigate blockchain-related issues in e-commerce. It is proposed that the domain be divided into four categories: (a) technical issues, (b) legal matters, (c) organizational and quality issues and (d) consumer issues. The current literature on e-commerce success was researched to determine the appropriate success precedents in all four areas, and these precedents were considered in light of the features and proposed blockchain impact. This process resulted in the discovery of 19 research questions that could be used to systematic and comprehensive research into the impact of the blockchain on e-commerce.

V. RESULT

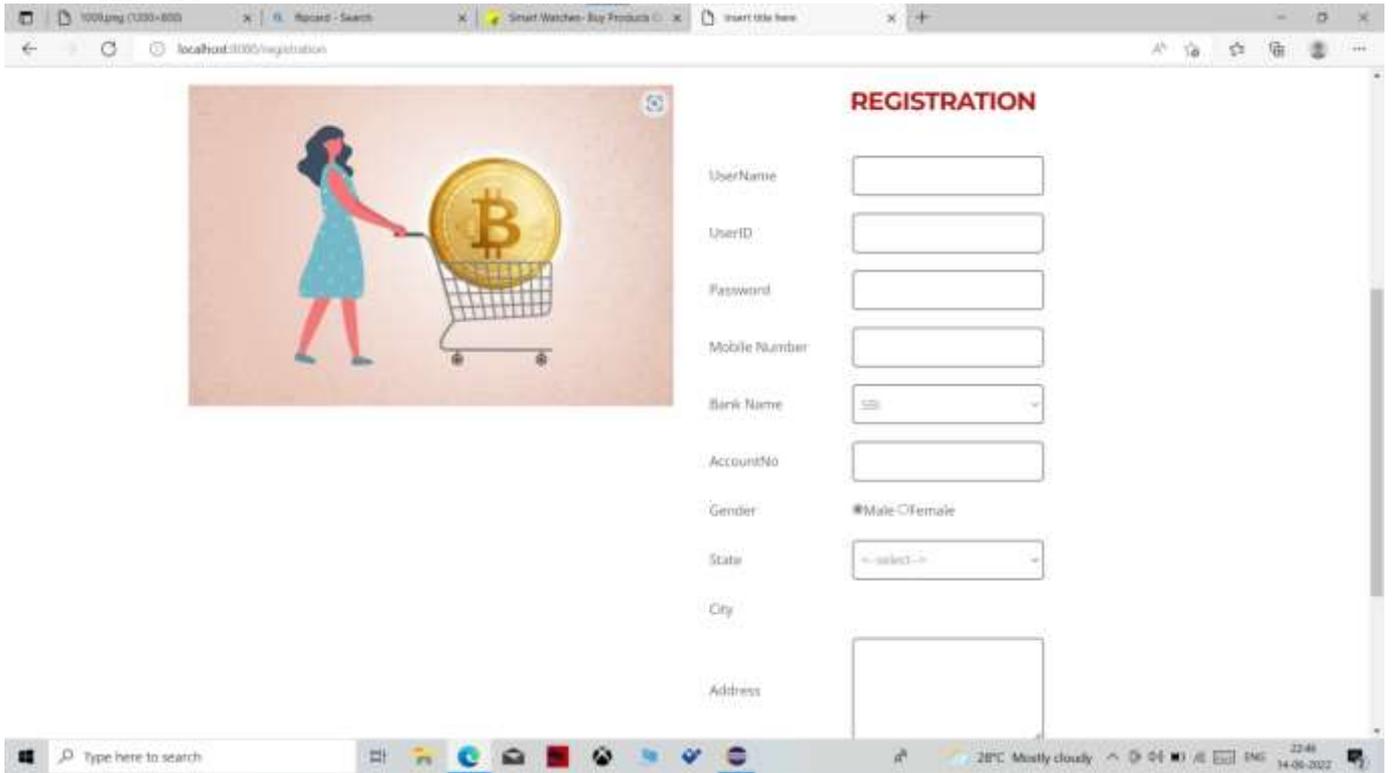


Figure 1: Registration Page

In this section user need to register himself to enter in log in page and In this section we need to give username userid along with password ,mobile number,bank information also information regarding to address ,city .

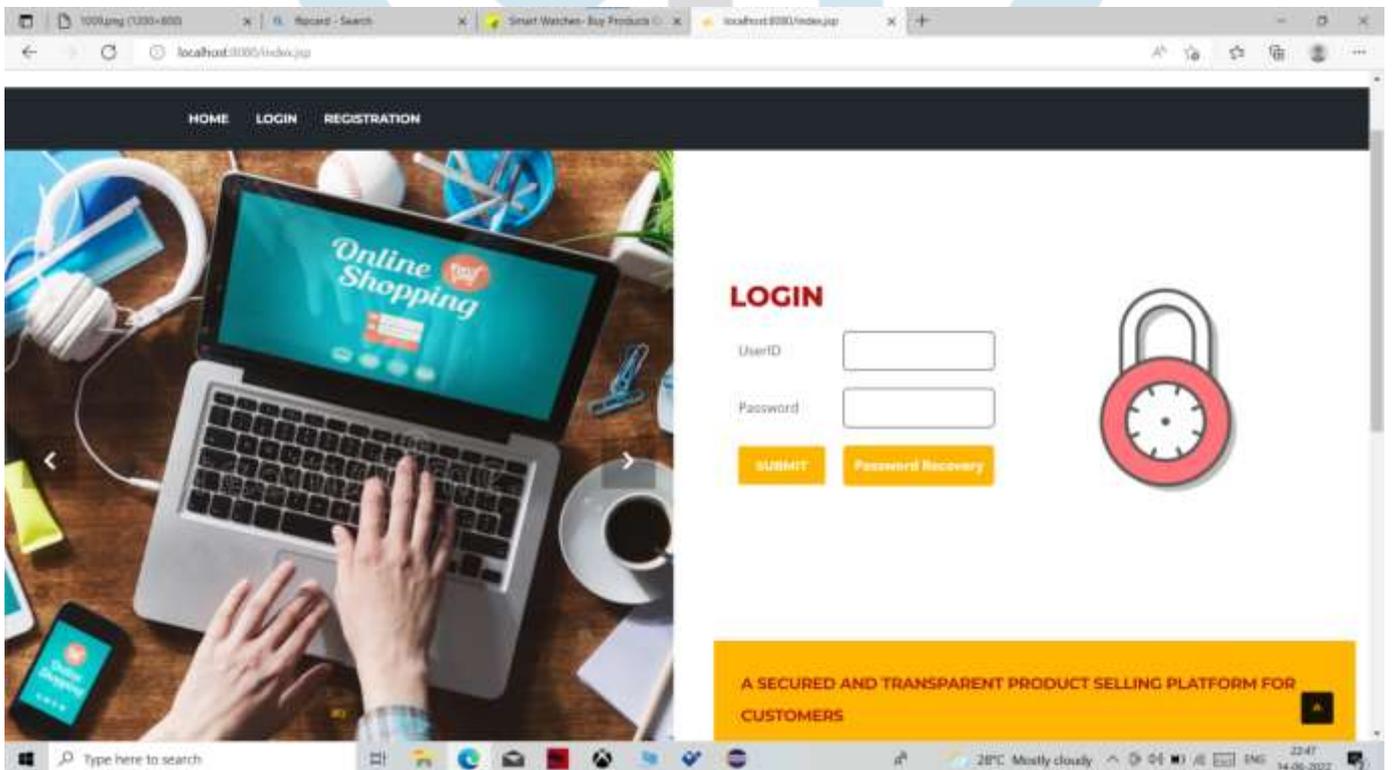


Figure 2: Login Page

In the login page person need to provide his userid and password to enter in the section also allow user to gain access to an application by entering their username and password .

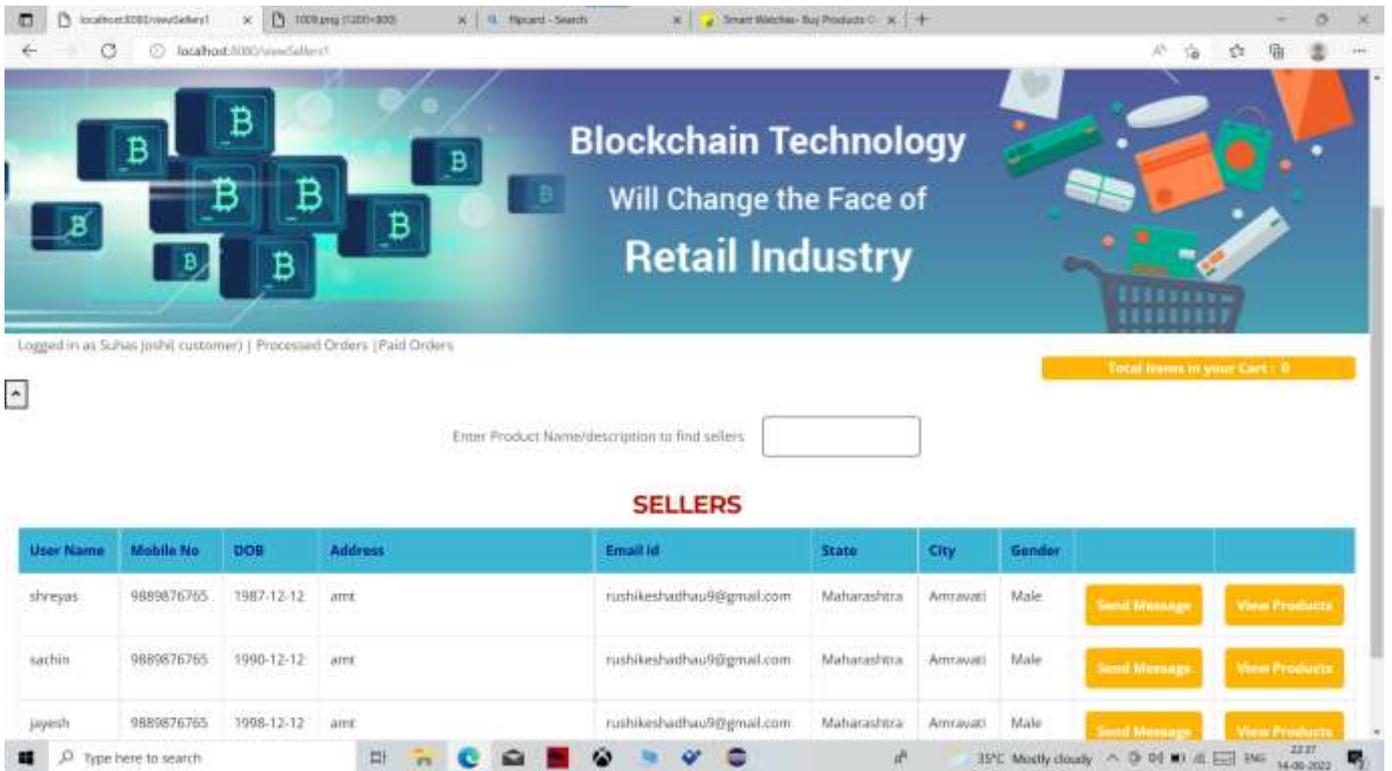


Figure 3: Seller Data

Here is full list of all types of online e-commerce seller , in this section we can send message to seller and also we can view products

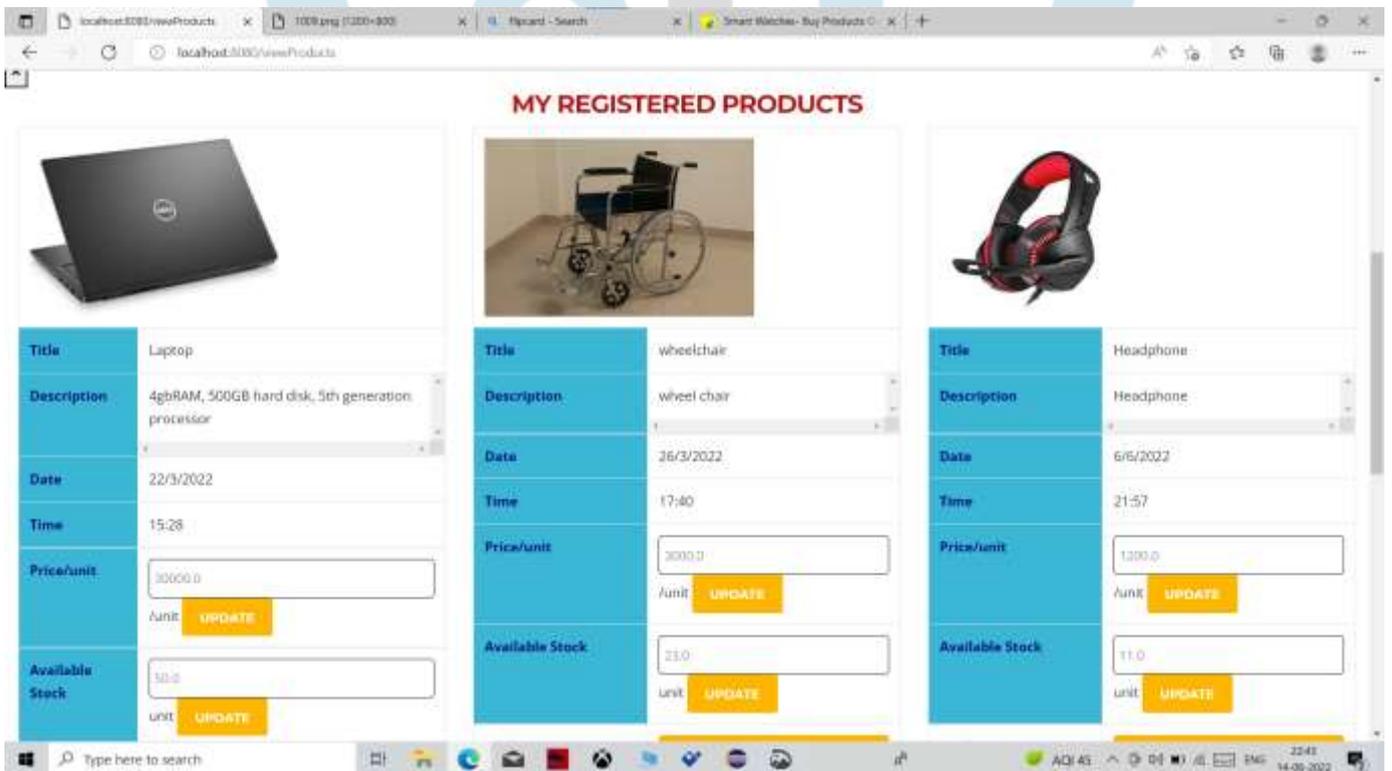
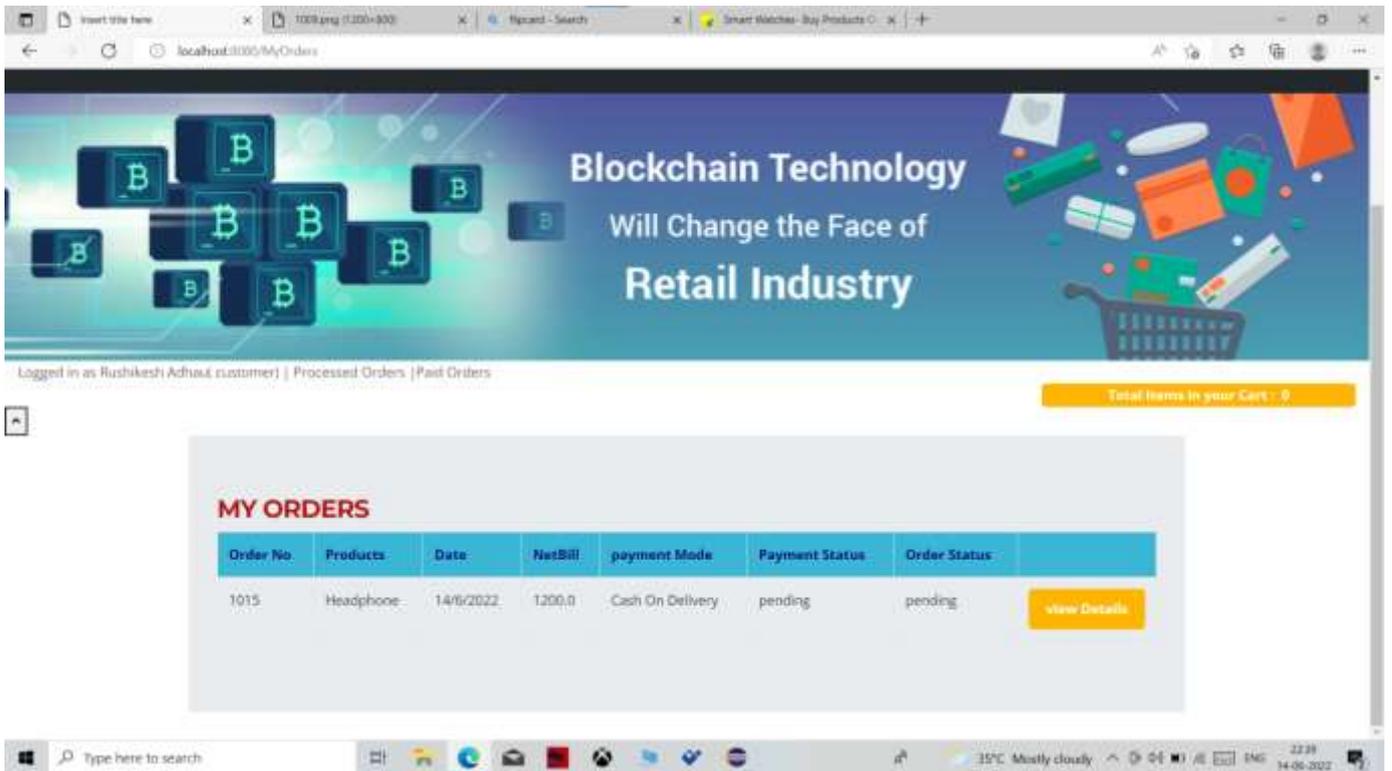


Figure 4: Registered Product Page

In this section the customer can check the all products which is registered in the section.



In the my order section customer check the details regarding to order and other information like payment mode, payment status also order status .

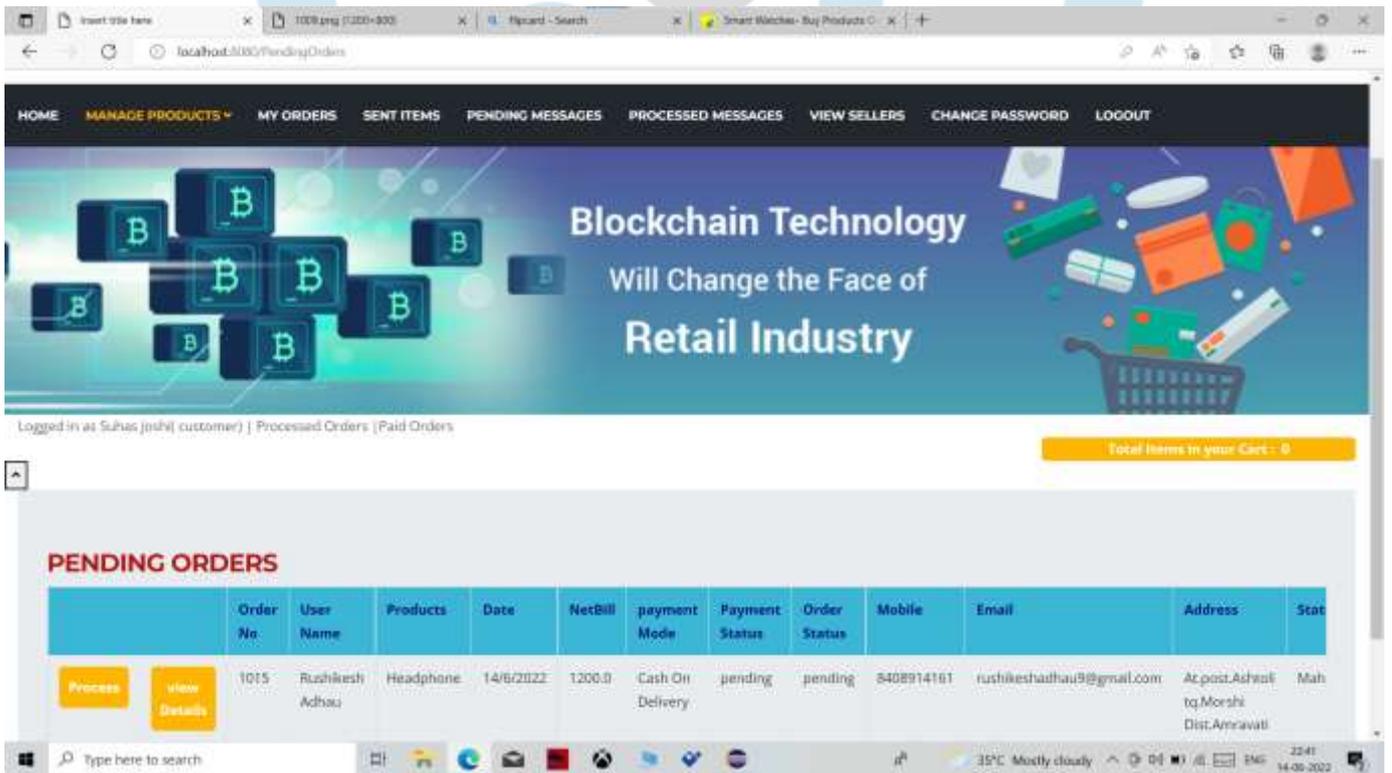


Figure 5: Order Data

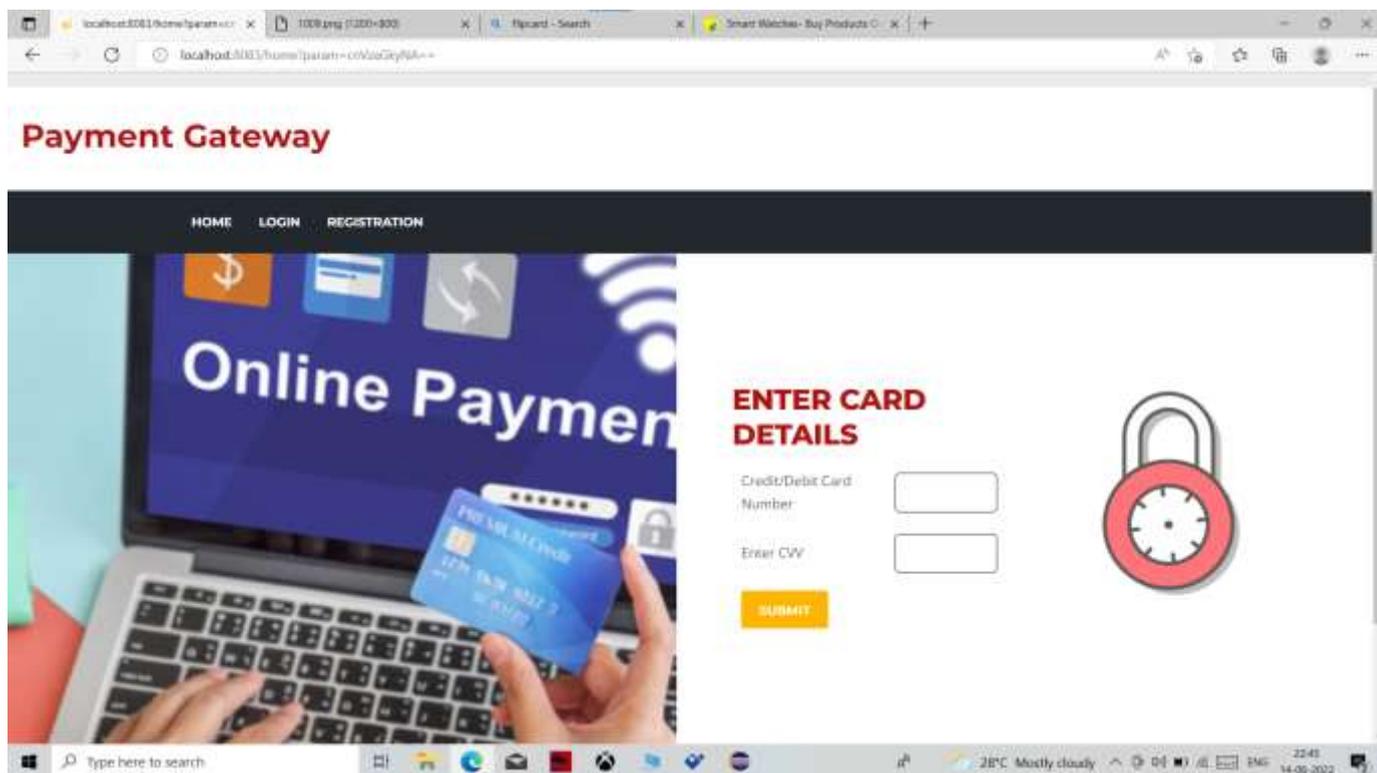


Figure 6: Payment Page

In the section payment gateway in this mechanism that reads and transfers payment information from a customer to a merchant's bank account .its the job to capture the data ,ensure funds are available and get merchant paid . Online payment gateway is cloud based software that connects a customer to merchant.

VII. CONCLUSION

Our study has several implications for theoretical literature and practice of e-commerce and blockchains. First, the study provides a survey of existing blockchain technologies and application in e-commerce. Second, we highlight key blockchain properties with their benefits and challenges in online shopping sites. Third, the paper discusses several existing e-commerce applications with blockchains and proposes new applications with the full utilization of blockchain properties. These blockchain applications bridge the gaps between technological concepts and prototyping to support researchers, developers, and platform operators for rapid adoption, better compatibility, and higher acceptance. Last but not least, we designed and implemented a platform which is capable of transforming the current generation of e-commerce towards a more social and decentralized direction.

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