Uzhavar Thozhan E-Retailing of Agricultural Products Online Using RI-SHA Algorithm

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Abstract - *In the agricultural industry, e-commerce is unquestionably starting to have a significant impact. It is really important to consider how people buy agricultural products. Customers frequently travel great distances to purchase agricultural goods. also, there is no guarantee of receiving the appropriate quality. Using a computerized method, our project seeks to assist farmers as well as buyers and sellers of agricultural products across the nation. The website will help farmers learn new agricultural methods and compare the prices of various products on the market as well as the overall sales and profits made from the products that were sold. With user interaction, the website gives farmers a platform to guarantee higher revenue. The website will function as an exclusive and safe means to perform agro-marketing. Our project uses RI-SHA algorithm to secure the transaction details. With the help of this initiative, consumers may instantly buy the things they want by making an online payment after examining the variety of accessible products.*

Key Words: **Supply chain, Farmers, RI-SHA algorithm, E-Commerce, Block chain**

1.INTRODUCTION

The supply chain and production processes have changed as a result of the recent spectacular growth of the sharing economy. Increasingly popular mobile devices and apps as a result of technological advancements have prompted the creation of a number of platforms, including Airbnb, Uber, and eBay. These platforms provide a range of free or paid sharing economy services, as well as bartering and exchanges of products and services. The sharing of homes, vehicles, clothes, books, toys, and digital goods are just a few examples of the various facets of our everyday lives that have been impacted by the sharing economy. [11] In the US, roughly 44.8 million adults used sharing economy services in 2016, and statista.com predicts that number would rise to 86.5 million by 2021. 1 C2C-PT, or consumer-to-consumer product trade, is a sharing model.

1.1 Struggles faced by our farmers

The Indian agricultural supply chain faces the greatest difficulties. Due to poor logistics, India loses 20% of its agricultural output. Owing to laborious loading and unloading of agricultural produce and a lack of reefer tracks, a considerable portion is lost. Products go through a number of processes on their way from the farm to the table, and some wastage occurs at each stage.[1]
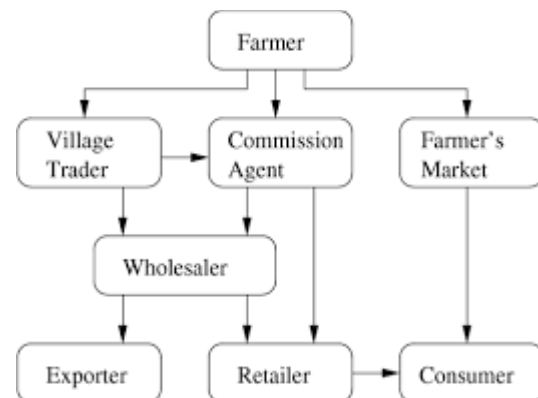

Fig -1: Supply chain

Impact of the middleman: The majority of businesses buy agricultural products from the middleman. [4] Farmers are distinguished from corporations and companies by their powerful lobbying efforts and market dominance. The agriculture market has a variety of chains. Farmer to End User, Farmer to Government Agency to End User, Farmer-Middleman-Government Agency-End User, Farmer-middleman-Wholesaler-Retailer-End User, and several others. This chain's complexity raises the cost.[13]

1.2 Use of E-commerce platform for farmers

Farmers may avoid middlemen by selling their products online, which boosts their income, reduces waste, and provides consumers with fresher goods. When middlemen fill the gap between farms and markets and make money at every stage of the distribution chain, farmers are left with very little. Scalable and sustainable business

strategies that take into account regional market conditions are essential for the success of agri e-commerce ventures.[12]

2. LITERATURE REVIEW

J. Vanerio have found that Dynamic access to spectrum resources is becoming more popular due to the growing significance of wireless communications. Effective management strategies that permit spectrum sharing between authorized primary users are necessary for this. secondary users (SU) and primary users (PU) without a license. In this situation, PUs must maintain their right to utilize priority over any SU. Furthermore, no SU shall interfere with any PU. Through Cognitive Radio systems that modify their operational parameters, technical viability can be realized. We first examine various technological and economic models to accomplish effective spectrum sharing, and then we suggest an on-demand secondary market model governed by a spectrum broker who manages resource allocation.[9]

Y. Cheng showed a detailed study of Q-learning algorithm. Information technology has given e-retailers unprecedented power of learning demand in real time. In order to improve dynamic learning, this work explores how to combine real-time learning technology with the Q-learning algorithm. pricing in an e-commerce environment. This research focuses on the optimal dynamic pricing problem for seasonal and fashion products in an e-retailing environment. A simulated test is used to evaluate our methodology.[7]

A. G. Abishek proposed this initiative to ensure that the farmers receive fair prices by developing innovative methods and utilizing the online market. An application that acts as a conduit for the transportation of agricultural products from farms directly to customers or merchants. This mobile and online application gives farmers, customers, and retailers the ability to acquire and sell the necessary farm products at the proper profitable price without the involvement of a middleman. The product that is submitted to this platform will be examined by agriculture specialists, who will then approve it and provide ratings depending on quality. As a result, all farm products are now freely accessible. Consequently, it offers freedom of pricing and accessibility.[8]

3. PROPOSED WORK

The proposed system uses an blockchain technology in an E-commerce platform in which the security system will assist in generating local matches based on user lists, and users can then mail things to one another or arrange to meet up in person to trade. [5] When a transaction is generated, it synchronizes the data, so that it becomes a

secure E-commerce platform both for the consumers as well as the farmers.

3.1 Uzhavar Thozhan powerful means to connect the unconnected to the global trade

Uzhavar Thozhan web application is an initiative taken for the welfare of farmers and to create a revolution in the field of agro-marketing.it provides a trading platform for the farmers in order to get the expected price of actual product which is sold than it is sold in the traditional method. [16] blockchain technology is used to secure the transaction details which makes it efficient and safe towards the growing vulnerabilities in today's world.

3.2 Importance of blockchain technology

The Indian government has also launched numerous initiatives in this regard. These websites include Krishijagran.com, farmer.gov.in, agricoop.nic.in, and agriwatch.com, among others. In addition to these, there are other E-commerce websites, such as fert.nic.in and enam.gov.in. Fig.2 displays the industries presently utilizing blockchain. [20] Blockchain technology can be used to create a decentralized platform for information sharing and computing that allows for numerous authoritative domains.
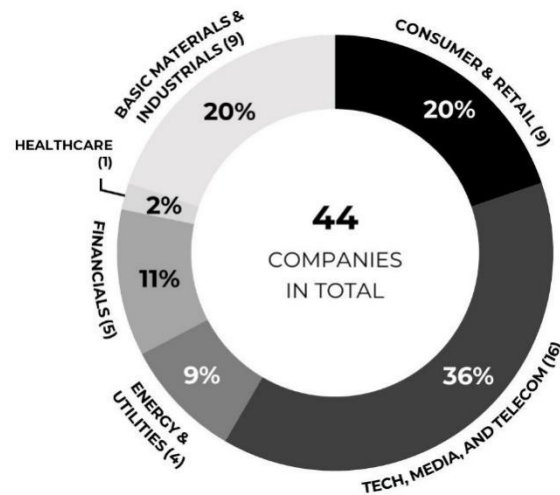

Fig -2: Sectors in which blockchain used

3.3 RI-SHA Algorithm

The RI-SHA (Reduced Iteration Secure Hash Algorithm) algorithm is a one-way hash function which is developed from the family of SHA-2 with the idea of reduced number of rounds in our algorithm. Preprocessing and hash computation are used to process the input data for RI-SHA algorithm. In the preprocessing, a message is first padded, after which it is parsed into N x 512-bit blocks and initialization values are set. Next, using the padded message and a sequence of the hash value created using

the message schedule blocks, hash computation is used to create message schedule blocks. [21] The output of the RI-SHA is generated as the message digest, which is the final output. The RI-SHA message digest is 256 bits in size which gets it bit-size from it's predecessor SHA-256 , the message digest always contains distinct values. All operations in RI-SHA algorithm are carried out using 32-bit units. [10] As a result, 232 serves as the foundation for all mathematical operations. RI-SHA uses several logic functions including AND, OR, XOR, SHIFT (right), and ROTATE (right) operations and utilizes eight working variables (a, b, c, d, e, f, g, and h), and two temporary variables (T1 and T2). Compared to SHA-256 algorithm our RI-SHA algorithm performs eight rounds lesser in order to increase the computational efficiency. These logical functions, working variables, and temporary variables are combined and mixed together to process the hash computation stage.
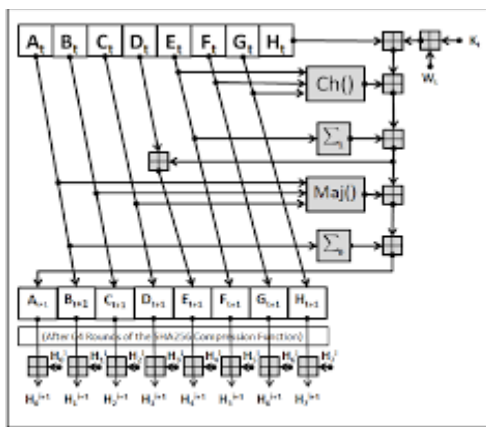

Fig -3: RI-SHA Functioning

Data is transformed into fixed-length, essentially irreversible hash values using RI-SHA, which is primarily used to validate the authenticity of data. While RI-SHA algorithm might malfunction sometime, but we can currently trust on it to protect our data as it is derived from the family of SHA-2.[21]

4. SYSTEM DESIGN

The systems architecture builds the fundamental framework of the system, we suggest the RI-SHA algorithm, and we can store a small amount of data locally and on a fog server to ensure privacy. Also, depending on this approach, which employs computational intelligence, can determine the distribution proportions saved in the local database respectively.
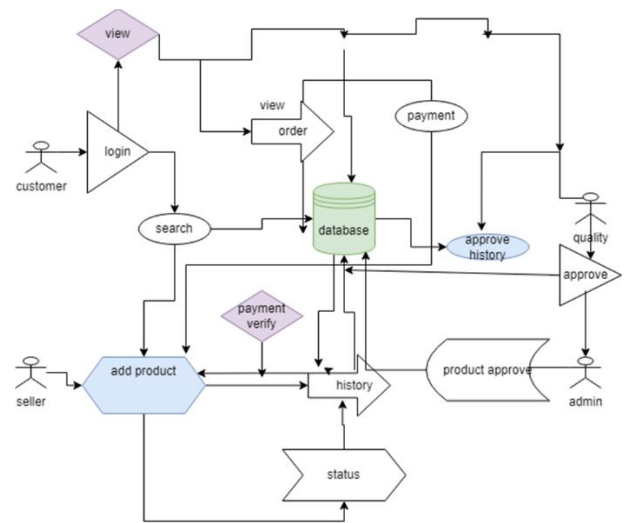

Fig -4: System Architecture

4.1 Modules description

1.User

The user can examine all the agricultural products in our project's user module after the farmer has uploaded items. If the user needs the particular product, he or she can add them to his cart and complete the purchase.

2.Farmer

This farmer module allows us to upload a project and have the farmer determine whether the product details are correct or not. The farmer determines if a distribution technique is deliverable or not. The farmer will be able to view every payment, including payment history and all account information.

3.Admin

Every user registration in our project is activated in this admin module. If a user registers, the administrator will receive their information and will decide whether to accept

the registration. The added commodity from the farmer can be approved by the admin. Manage all user lists, product lists, and user information.

4.Quality Team

Every user registration in our project is activated in this quality team module. Products that the seller has added are authorized by the quality team after being shared with the administrator. The authorized list is viewed by the quality team.

4.2 Software requirements

1.Front end: JSP

Sun offers Java Server Pages, also known as JSP, as a tool for creating dynamic websites. JSP offers strong server-side scripting functionality for developing web applications that are database driven. JSP gives programmers the ability to directly insert Java code into jsp files, simplifying the development process and making maintenance much simpler. [17] JSP pages are effective; they load into the web server's memory immediately after receiving the first request, and any subsequent calls are answered quickly. The Java platform uses Java Server Pages (JSP) technology to serve dynamic content to web clients in a portable, secure, and well-defined manner.

2.Back end: Java Servlet

A Java class can be dynamically loaded to increase the capabilities of a server thanks to the Java Servlet, a general server extension. Servlets are portable and secure since they are used with web servers and execute inside a Java Virtual Machine (JVM) on the server. They don't need java support like applets do, therefore they can run on any web browser. Servlets don't employ several processes to deal with various requests, in contrast to CGI. [17] Within the same process, servlets can be processed by many threads. Moreover, portable and cross-platform, Servlets are.

3.Database: SQL 5.5

Based on SQL (Structured Query Language) queries, MySQL is a relational database management system (RDBMS). It is one of the most widely used languages for managing and gaining access to table records. Under the terms of the GNU license, MySQL is free and open-source software. The Oracle Corporation backs it. MySQL offers a wide range of database management features. [14] For controlling the data itself, you can enable cursors and database triggers for various operations.
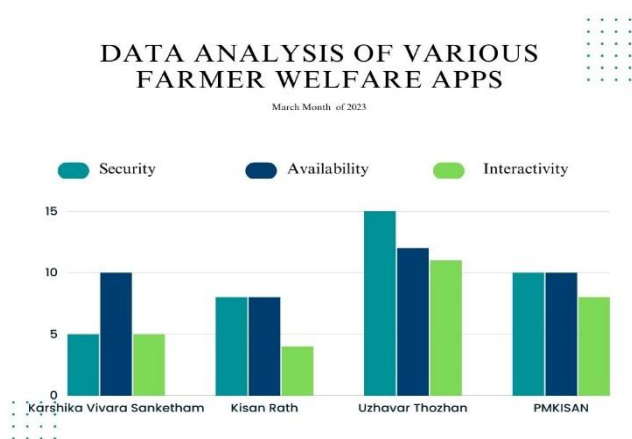
5. PERFORMANCE METRICS

Fig -4: Efficiency of Applications

Comparatively other apps are less interactive than our app. Following are the results of our application.

Enhanced user experience: E-commerce websites that are simple to use and navigate likely to draw and keep more visitors. Site owners might think about adding functions like personalized product recommendations, simple checkout options, and predictive search.

Mobile optimization: As more and more people shop online or on their phones, e-commerce sites that are mobile-friendly are more likely to draw in and keep customers.

Product information: Providing detailed and accurate product information can be critical for customers making purchasing decisions. Site owners could consider

6. CONCLUSION

This analysis supports the idea that E-commerce will benefit farmers by enabling them to reap some rewards for their labor. To improve farming in rural areas and increase awareness of commodities and their market values, the e-commerce system is required. The government can also benefit from using this kind of system to obtain accurate information about the crops that are readily available in each region. According to the research we conducted, smallholders will benefit from the growth and transformation of e-commerce as a novel means of market access and management. We'll create a system that every rural farmer can utilize with ease. The project we are working on will give farmers the highest possible earnings so they get their profit without providing them to wholesale retailers who quote the price for their products.

7. FUTURE ENHANCEMENT

As an AI language model, I am unable to comment on the specifics of any one e-commerce site or on how it is now functioning, but I can provide some broad recommendations for potential future improvements to an e-commerce site that offers agricultural products. We can convert this model into a real-world commercial initiative in the future. Currently, user data is saved in databases. In the future, user and farmer data may be stored in the cloud.

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