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AgriTrade: A Digital Agricultural Trading Platform

Anupama Sahani, Harsh, Kajal Kumari

Department of Computer Science & Engineering Ambalika Institute of Management & Technology Lucknow, U.P., India

Abstract: Agriculture plays an important role in supporting the economy and providing food for the population. Many farmers face difficulties in selling their agricultural products at fair prices because of limited access to markets and the involvement of intermediaries. AgriTrade is a digital agricultural trading platform designed to connect farmers directly with buyers through an online system. The platform allows farmers to display their products and enables customers to search and purchase agricultural goods easily. This system helps improve transparency in the trading process and provides better opportunities for farmers to reach more customers. AgriTrade also supports features such as product listing order management and communication between farmers and buyers. The main objective of the platform is to create a simple and reliable digital marketplace that promotes efficient agricultural trading and supports the growth of the farming community.

The platform is designed with a user friendly interface so that farmers and customers can easily use the system without requiring advanced technical knowledge. By using digital technology the platform helps farmers expand their market reach and improve the efficiency of agricultural trading. The main objective of the platform is to create a simple and reliable digital marketplace that promotes efficient agricultural trading and supports the growth of the farming community while improving income opportunities for farmers.

Keywords: Agriculture, Digital Marketplace, Online Agricultural Trading, Farmer to Customer Platform, Agricultural Commerce, Smart Agriculture System

I. INTRODUCTION

Agriculture plays an important role in economic development and supports the livelihood of a large population. Farmers produce essential crops and food products but often face difficulties in selling their produce at fair prices due to limited market access and the involvement of intermediaries. These intermediaries reduce the profit received by farmers and limit direct interaction with buyers. With the growth of digital technology online platforms have become an effective way to improve communication and business transactions. Digital marketplaces allow producers and consumers to connect directly and simplify the buying and selling process. AgriTrade is a digital agricultural trading platform that connects farmers and buyers through an online system. It allows farmers to list their products and enables customers to search and purchase agricultural goods easily. The main objective of the platform is to create a user friendly digital marketplace that improves market access for farmers and supports efficient agricultural trading.

The platform also helps improve transparency and efficiency in agricultural marketing by providing a direct communication channel between farmers and customers. Farmers can easily update product information and reach a wider range of buyers beyond local markets. At the same time customers can access fresh agricultural products and make purchasing decisions based on available product details. By integrating digital technology with agricultural trading AgriTrade aims to support a more efficient and reliable marketplace that benefits both farmers and consumers.

II. EASE OF USE

A. User Friendly Platform

AgriTrade is designed as a simple and user friendly platform for farmers and customers. Farmers can register and add details of their products such as crop name quantity and price. Customers can search products and place orders easily through the system. The platform also helps farmers reach more customers and improves transparency in the trading process. By reducing the role of intermediaries the system allows farmers to receive better value for their products while buyers get easy access to fresh agricultural products.

B. Efficient Trading Process

The platform simplifies the agricultural trading process by providing a direct connection between farmers and buyers. Farmers can display their products online and customers can purchase them without depending on traditional market intermediaries. This system improves transparency in the trading process and helps farmers receive better value for their products while customers get easy access to fresh agricultural goods.

C. PROPOSED SYSTEM

AgriTrade is a digital agricultural trading platform that connects farmers and buyers through an online system. Farmers can register and add details of their products such as crop name quantity and price. Customers can view the available products search for crops and place orders easily. The system reduces the role of intermediaries and helps farmers reach more customers while providing buyers with easy access to agricultural products.

III. LITERATURE REVIEW

Many studies have explored the use of digital platforms to improve agricultural trading. Online agricultural marketplaces help farmers connect directly with buyers and reduce the role of intermediaries. Previous systems focused on improving market access providing price transparency and enabling farmers to sell products through digital platforms. These solutions show that technology can improve communication between farmers and customers and support efficient agricultural trade. In addition digital platforms help farmers reach a wider market and increase their chances of selling products at better prices. They also make the trading process faster more organized and more transparent for both farmers and buyers. Furthermore digital agricultural platforms support better management of product information demand and supply which helps farmers make better marketing decisions. These systems also encourage the use of modern technology in agriculture and contribute to the development of a more efficient and reliable agricultural trading ecosystem.

A. Digital Platforms in Agriculture

In recent years digital technology has improved agricultural activities by helping farmers access market information and sell their products more efficiently. Online platforms allow farmers to connect directly with buyers and share details about crop availability prices and products.

B. Online Agricultural Marketplaces

Several studies have focused on the development of online agricultural marketplaces that connect farmers and consumers through web based systems. These platforms allow farmers to upload product information while customers can search for agricultural products and place orders online. Online marketplaces help reduce the role of intermediaries and improve transparency in the trading process. They also provide better communication between farmers and buyers which leads to more efficient agricultural trade.

C. Role of Technology in Agricultural Trading

The use of modern technology such as web applications and mobile platforms has improved the efficiency of agricultural trading systems. Technology based platforms help manage product listings customer orders and transaction records in a structured manner. These systems also provide easy access to agricultural markets and allow farmers to promote their products through digital channels. As a result technology based agricultural platforms support better market access and improved trading opportunities.

D. Need for a Digital Agricultural Trading System

- 1) A digital platform helps farmers connect directly with customers, wholesalers, and retailers without depending on traditional markets.
- 2) Traditional agricultural markets involve several middlemen who reduce farmers profits, so a digital system helps reduce this dependency.
- 3) Farmers can see market prices and sell their products at fair rates which improves transparency in the trading process.
- 4) Online systems make the buying and selling process faster and more efficient for both farmers and buyers.
- 5) Farmers can reach more customers beyond their local markets through digital platforms.
- 6) A simple and user friendly system makes it easier for farmers and buyers to interact and complete transactions.

- 7) By selling products directly and reaching more customers farmers can improve their income and economic condition.

IV. OBJECTIVES OF THE STUDY

The main purpose of this study is to understand how a digital agricultural trading platform like AgriTrade can improve the marketing and selling of agricultural products. The study aims to explore how technology can help farmers overcome traditional challenges and create a more transparent, fair, and efficient trading environment. The major objectives of the study are as follows.

- 1) To design and propose a digital platform that directly connects farmers with buyers, including wholesalers, retailers, exporters, and consumers. The objective is to reduce the dependency on intermediaries, who often take a large share of the profit and leave farmers with low returns.
- 2) To analyze the role of technology in improving market access for farmers. Many farmers, especially in rural areas, struggle to reach larger markets due to lack of information and resources. The study aims to show how AgriTrade can expand their market reach and help them sell their produce at better prices.
- 3) To provide real-time and accurate market information, such as price updates, demand–supply trends, quality standards, and weather conditions. The goal is to help farmers make informed decisions about when, where, and at what price to sell their crops.
- 4) To ensure transparency in agricultural trading by enabling secure communication, verified buyer profiles, and digital transaction records. Transparency is important to build trust between farmers and buyers and to reduce fraudulent activities.
- 5) To evaluate how digital payments and online transactions can make trading faster and safer. Traditional trading often involves delayed or partial payments, whereas a digital system ensures secure and immediate payment, improving financial security for farmers.
- 6) To study how AgriTrade can increase the income of farmers by offering fair prices and reducing unnecessary marketing costs. The objective is to highlight how digital trading platforms can improve the economic condition of rural communities.
- 7) To examine how user-friendly design and regional language support can increase digital adoption among farmers. Many farmers are unfamiliar with digital tools, so the platform must be easy to use and accessible to all.
- 8) To understand the impact of modern technologies such as data analytics, AI, and mobile accessibility on agricultural trading. These technologies can help predict market trends, improve decision-making, and enhance the efficiency of the overall agricultural supply chain.
- 9) To identify challenges faced by farmers in traditional trading systems and propose digital solutions that can simplify the entire process—from product listing to negotiation, payment, and delivery.
- 10) To explore how AgriTrade can contribute to sustainable agricultural development, reduce waste, promote fair trade practices, and support long-term rural development goals. The study aims to show that digital platforms can not only improve trading but also support environmental and economic sustainability.

V. PROPOSED SYSTEM

AgriTrade is a digital agricultural trading platform that connects farmers and buyers through an online system. Farmers can register on the platform and upload details of their agricultural products such as crop name quantity price and availability. Customers can view the listed products search for required crops and place orders easily through the platform.

The system reduces the dependency on intermediaries and helps farmers sell their products directly to customers. It also improves transparency in the trading process and provides better market access for farmers. The platform is designed to be simple and user friendly so that farmers and buyers can easily use the system for agricultural trading.

The platform also supports better communication between farmers and buyers which helps in building trust in the trading process. Farmers can reach a wider customer base while buyers can access fresh agricultural products directly from producers. By using digital technology the AgriTrade system aims to make agricultural trading more efficient convenient and beneficial for both farmers and customers.

VI. SYSTEM ARCHITECTURE

The system architecture of AgriTrade is based on three main layers that work together to support smooth and secure agricultural trading. These layers include the user interface layer application layer and database layer. The user interface allows farmers and customers to interact with the platform easily.

The application layer processes user requests and manages system operations while the database layer stores important information such as user details product data and order records. This architecture ensures efficient communication between different components of the system and supports reliable agricultural trading.

A. User Interface Layer

This is the front-end part where farmers and buyers interact with the system through a mobile app or website. It includes screens for login, product listing, searching crops, viewing prices, and placing orders. The interface is designed to be simple, fast, and easy to use for all users, including farmers with limited digital skills.

B. Application layer

This is the middle layer that manages all system operations. It handles user authentication, crop uploading, price updates, order management, communication between farmers and buyers, and payment processing. This layer ensures that all requests from the user interface are processed correctly. Technologies like Node.js or Express.js are used to manage the platform's logic.

C. Data layer

This layer stores all important information such as user profiles, crop details, price data, chat messages, and transaction records. Databases like Firebase or MongoDB are used to keep data secure and easily accessible. Sensitive information is encrypted to maintain privacy and safety.

D. How it works(Flow)

User interacts with the interface → Application layer processes the request → Data layer stores/retrieves information → Response is sent back to the user.

VII. CONCLUSION

- 1) AgriTrade is a digital agricultural trading platform designed to connect farmers and buyers through an online system. The platform helps farmers display and sell their agricultural products directly to customers without depending on traditional intermediaries. By using a simple and user friendly interface the system makes the trading process easier and more transparent. The platform also allows farmers to reach a wider market and provides customers with easy access to fresh agricultural products.
- 2) The platform improves market access for farmers and allows customers to easily purchase fresh agricultural products. Overall AgriTrade supports efficient agricultural trading and contributes to better income opportunities for farmers while providing a convenient marketplace for buyers. It also promotes better communication between farmers and customers which helps create a more reliable and efficient agricultural trading system.
- 3) AgriTrade also supports better management of agricultural products by allowing farmers to update product information and availability in real time. The platform can help farmers reach customers beyond local markets and improve the overall efficiency of agricultural trading. By providing a digital marketplace the system encourages the use of technology in agriculture and supports the growth of modern agricultural marketing.
- 4) The AgriTrade platform also helps improve transparency and trust in agricultural trading by providing clear information about products prices and availability. This allows customers to make better purchasing decisions while farmers can promote their products more effectively. The system also supports efficient communication between farmers and buyers which helps create a more organized and reliable agricultural marketplace.
- 5) AgriTrade also supports the growth of digital agriculture by encouraging farmers to adopt modern technology for selling their products. The platform provides an easy way for farmers to promote their crops and reach a larger customer base. This helps improve the overall agricultural supply chain and supports sustainable agricultural development.

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