

Store Management System

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Abstract

E-commerce into agriculture has significantly changed the existing structures of the agricultural markets. It provides a direct outlet for farmers to sell their farm products and offers the opportunity to buy fresh and organic farm products for consumers. Here we reported the design and development of an e-commerce web application for agricultural trading that not only made use of modern web technologies but also allowed farmers to list their products directly, keeping the inventory in real-time and tracing the orders effectively. Buyers have access to a wide range of agricultural products, using advanced search and filtering tools to research them further, and can securely order their crops with an integrated payment gateway. The application offered the possibility to extend its functionality with machine learning to provide recommendations based on user's preferences and the current situation in the market. One of the benefits that this e-commerce platform has is the feature of users' rating and reviews on products so that sellers can establish trust and quality assurance between buyers and sellers. Farmers will also have their own dashboard for reporting sales, price analytics, and customer feedback to enable them to make data-based decisions. The logistics support module in this e-commerce platform was very user-friendly, enabling the delivery of goods for urban and rural consumers. The automated notifications and order tracking facility in this e-commerce platform helped in providing transparency between stakeholders. The present study was about the economic impact of this e-commerce platform and its role in empowering small and medium-scale farmers with greater market reach beyond local buyers. By getting rid of post-harvest losses and streamlining supply chain processes, the e-commerce platform will increase profitability and promote sustainable agriculture practices.

Keywords: E-commerce, agriculture, web application, digital marketplace, farmers, supply chain

INTRODUCTION

The importance of agriculture cannot be overemphasized regarding economic growth and food security. Agriculture supports millions of livelihoods all around the globe. Management of agricultural product stores should ensure that farmers get timely access to required inputs such as seeds, fertilizers,

pesticides, farming tools, and irrigation equipment. The mode of operation of these stores are usually purely manual for keeping records, which often lead to influences such as incorrect inventory tracking, delays in restocking and no sales monitoring. Poor management of these leads to financial losses for store owners, disruption in the supply system, and difficulty experienced by farmers in accessing the essential products during their times of needs. A well-structured 'Agricultural Product Store Management System' is very necessary to modernize and streamline operations, thus improving inventory accuracy, enhancing customer service, and continuing availability of agricultural supplies. The rapid growth of digital technology has transformed management within various businesses

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from the conventional way into automated systems that enhance efficiency, accuracy, and cost-effectiveness. However, the agricultural sector has surprisingly been slow to embrace such digital transformation, even in store management. Many agricultural stores still use handwritten books for accounts, paper-based invoicing, and other outdated management inventory methods that generally lead to miscalculations, misplaced records, and difficulty in keeping large inventories. 'Online Agricultural Product Store Management System' is a product designed to provide a one-stop solution for store owners to keep an eye on stock levels, sales transaction tracking, automate bill management, and generate insightful reports to aid better decision-making.

Establishment of the 'Agricultural Product Store Management System' boasts real-time inventory management. It automatically updates the stock levels whenever a sale is made or new supplies are added. This aids in preventing stock shortages and overstocking enabling an optimal decision by store managers around purchases of stock. Automated alerts can also be programmed into the system whenever stock levels get to a pre-defined threshold for timely restocking and avoiding the risk of running out of certain essential products. This reduces a number of human errors associated with manual monitoring of stocks. Another major component of an electronic management system is sales tracking and financial management. After entering a sale into the system, an invoice and receipt are generated automatically at that time. This helps to improve the correctness of financial records and makes tax calculations, expenditure tracking, as well as profit analysis easier. Digital records will help store owners reduce paperwork, inefficiencies, and ensure compliance with different standards. By the above means, they can also have a budget for the above activities [1, 2].

LITERATURE REVIEW

The literature review brings forth the importance of cloud-based point of sale (POS) systems and artificial intelligence (AI)-based retail analytics software in the area of current business operations. A study that surveyed some small and medium enterprises (SMEs) using cloud-based POS systems for sales and inventory management was published in the Journal of Small Business Technology. The study found that cloud-based POS systems provide solutions within an environment that are cost-effective and scalable, granting the SMEs with capabilities of accessing data in real-time, enhancing the efficiency of transactions, and well integrating inventory management systems. Such technology increases efficiency by featuring the capability of reducing manual errors and thereby providing data-based or evidence-based decision-making.

The studies highlight the technological transformation in retail and sales management, where cloud computing enhances efficiency and accessibility for SMEs, while AI-driven analytics strengthen business intelligence and improve customer relations. Therefore, this convergence contributes substantially to the digital transformation in modern commerce, which in turn is providing businesses with more creative tools for staying competitive in the continuously evolving market terrain.

Problem Statement

The present project aimed to address issues such as inefficient inventory management, below-par sales tracking, and incorrect financials. These problems expose the store owners to overstocking, stock shortages, and wastage of perishable goods with no real-time inventory tracking system. Delayed payments, book-keeping errors, and financial losses have their genesis in the absence of an automated transaction system [3].

Furthermore, limited digital penetration limits market reach, forcing sellers to rely on middle men, suppressing profits. An online platform is important for customer management and demand forecasting; lack of it results in sales losses. Security threats such as unauthorised access, data loss, and fraudulent transactions further complicate the store operations. Therefore, the need for a web-based agricultural product store management system integrating inventory tracking, sales monitoring, customer management, and secure transactions arises. The system can boost operational efficiency, minimize wastage, enhance financial control, and widen market accessibility with cloud-driven, AI-powered, automated technologies.

METHODOLOGY

Planning and Requirement Gathering

The beginning of a store management system entails determining the particular requirements of the store. This was done by gathering facts about current handling of inventory, sales, and customer information. Key users were identified such as, store managers and employees, and at times customers in order to ensure that the system serves their needs. The key functions, such as stock tracking, billing, and reporting, were listed along with project scheduling, which provides direction to the development process [4].

System Design

The design of the system followed the specifications, tailored to the extenuating circumstances in which it would operate. Well-designed schematics showed the data flow within the system as stocks were added, sale transactions, and inventory changes. The interface was easy to use for workers. There were security schemes such as role-based access control that would allow only authorized personnel to access sensitive information [5].

Development

The development commenced after the selection of appropriate technology, whether web-based or desktop. The development was done in separate modules, such as inventory management, sales processing, reporting, and user management. A database would be included for the secure storage of all the relevant information. The developers ensured that the modules function independently and that the modules communicate with each other without any problem [6].

Testing

The system was tested in detail before being put into operation so that any bugs and defects may be recognized and rectified. Various test cases were run for addition and deletion of stock, sales processing and reports generation to ensure the system behaves as predicted. Another set of tests run were for performance and security, to ensure the system works at almost best operational capacity while keeping data security intact [7].

Implementation

After the successful completion of testing, the system was put to life in the store. The employees received proper training for the use of the system. Some time, the old and new systems might run together to permit a smooth transition. Minor issues could be fixed based on user feedback or recommendations for improvements [8, 9].

Maintenance and Updates

The system was maintained for smooth operation even after implementation. Any bugs and errors that come up while using the system were fixed as soon as possible. Fixes and improvements were also made on the basis of requirements from the stores so that the system remains fresh and useful. Security updates were done regularly to protect store data from possible threats (Figure 1).

SYSTEM FEATURES

Diagram for the 'Agricultural Product Store Management System' describes a web-based application wherein customers, administrators, databases, and various management modules communicate well with one another. The system ensures profitable functioning of the agricultural store by managing customer information, stocks, sales process, and payment transactions smoothly. As it relates to the customers, they access the system to view agricultural products, make purchases, and pay for them. The '*Manage Customers Information*' module stores customer details into the customer database, easily enabling the tracking of their purchase history and interactions. This is followed by the recording of a purchase by the customer into the purchases/sales database while the stock is automatically updated in the product database to avoid overselling. The '*Manage Sales Information*' module allows administrators to view sales work and draw reports on that data for their records [10].

Secondly, the management of stocks is the critical requirement of the system, which the '*Manage Stocks*' module provides for the maintenance of inventories and availability of agricultural products for customers. The product database contains information about products such as stock-keeping, availability prices, and description. Payment transactions are carried out securely via the '*Manage Transactions/Payments*' module linking to the payment database for the recording of financial transactions and payment status updates. Admins are mostly responsible for running store operations, administering product details, and ensuring stock availability. They monitor sales records and financial transactions to guarantee the smooth running of business processes. The interlinkage of these modules assures real-time updates, consistency of data, and automation of processes for improved efficiency [11]. With digital solutions integrated into this system, manual errors are reduced, the customer experience is enhanced, and store owners can manage better inventory, sales, and finance. Thus, 'Agricultural Product Store Management System' provides a more organized, efficient, and technical way of managing agricultural supplies (Figures 2–7) [12, 13].

RESULTS

The Agricultural Product Store Management System effectively manages product inventories, stock availability, transactions, and financial records. It reduces manual errors, improves efficiency, ensures real-time data consistency, and enhances customer experience by providing a systematic and automated platform for agricultural product management.

Home Page

The Home Page serves as the central interface, displaying product details, stock status, prices, and descriptions. It provides users with easy navigation to modules such as Manage Stocks, Manage Transactions/Payments, and sales records. Admins can update inventory, track sales, and oversee financial transactions, ensuring smooth and transparent store operations (Figure 2).

Login Page

The Login Page acts as a secure gateway for users and administrators to access the system. It verifies credentials, ensures data privacy, and restricts unauthorized access. Admins can log in to manage stocks, products, and transactions, while users/customers can log in to view products, check availability, and place orders. This authentication process ensures safe and personalized access to system features (Figure 3).

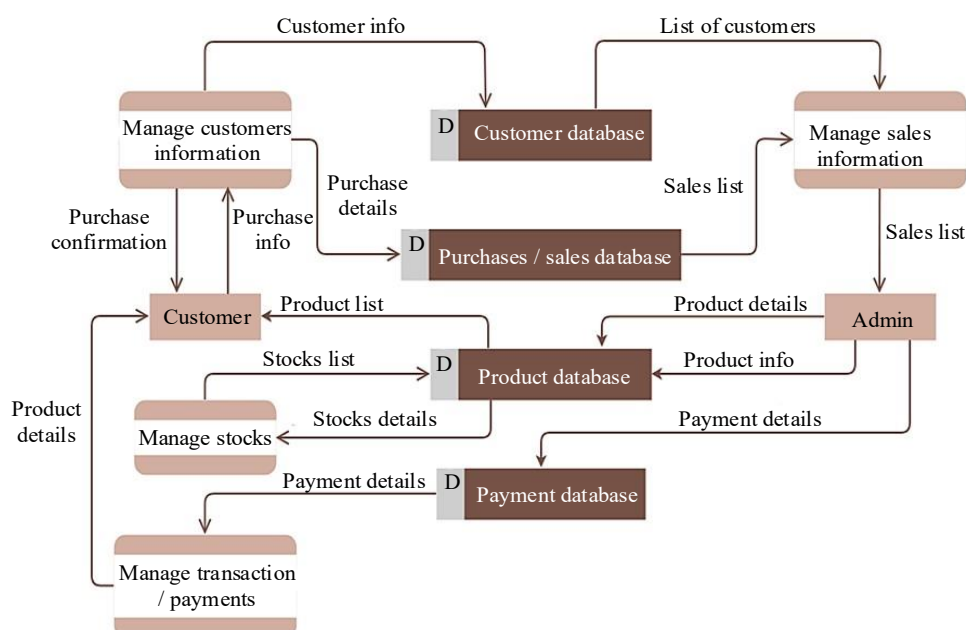


Figure 1. Block diagram.

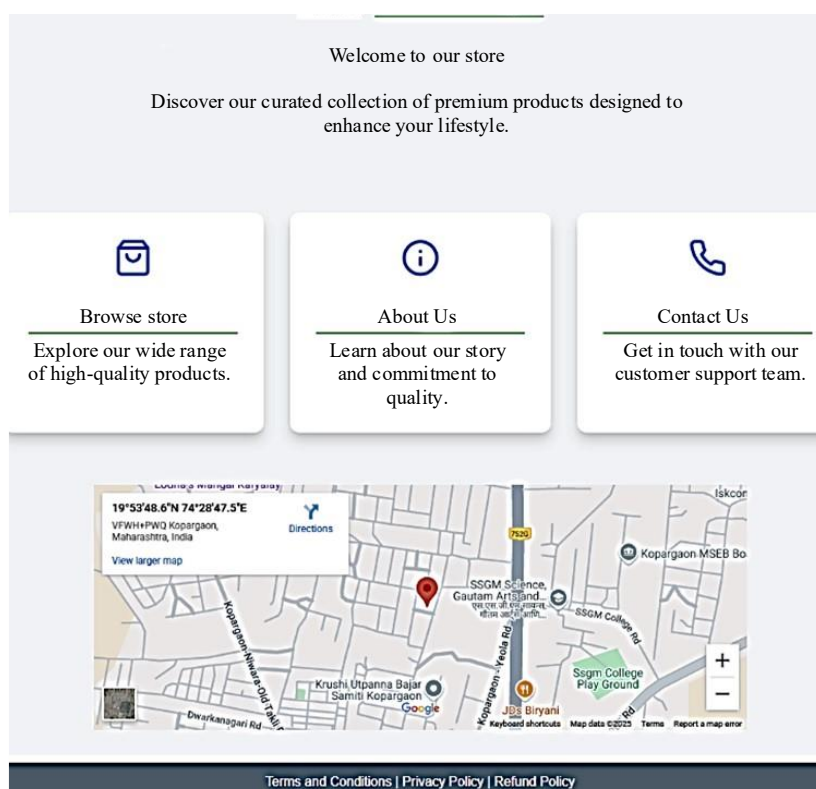


Figure 2. Home page.

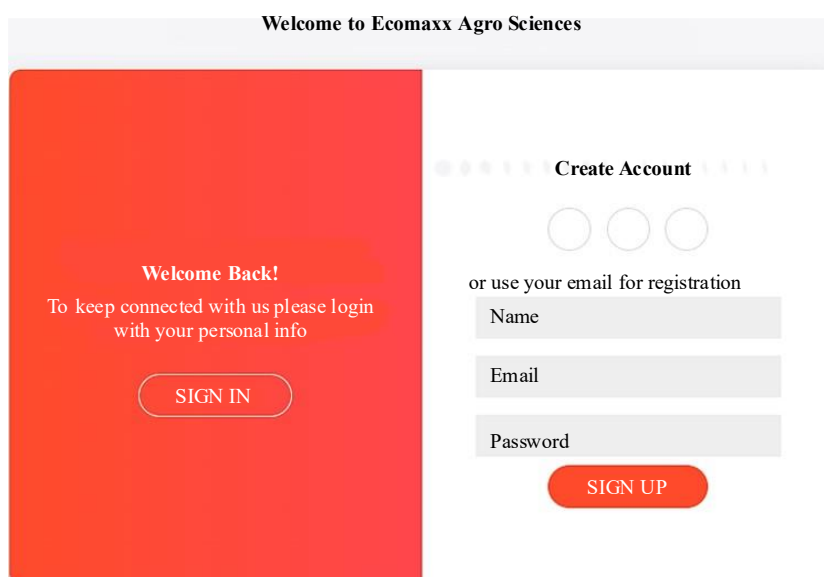


Figure 3. Login page.

Sign In

The Sign In page allows registered users and admins to securely access the system by entering valid credentials. It ensures authentication, data protection, and provides personalized access to system features (Figure 4).

Product Page

The Product Page displays details of agricultural products including name, price, description, and stock availability. It helps customers make informed choices and enables admins to manage and update product information (Figure 5).

Welcome to Ecomaxx Agro Sciences

Sign in

or use your account

Email

Password

Forgot your password?

SIGN IN

Hello, Friend!

Enter your personal details and start journey with us

SIGN UP

Figure 4. Sign in.

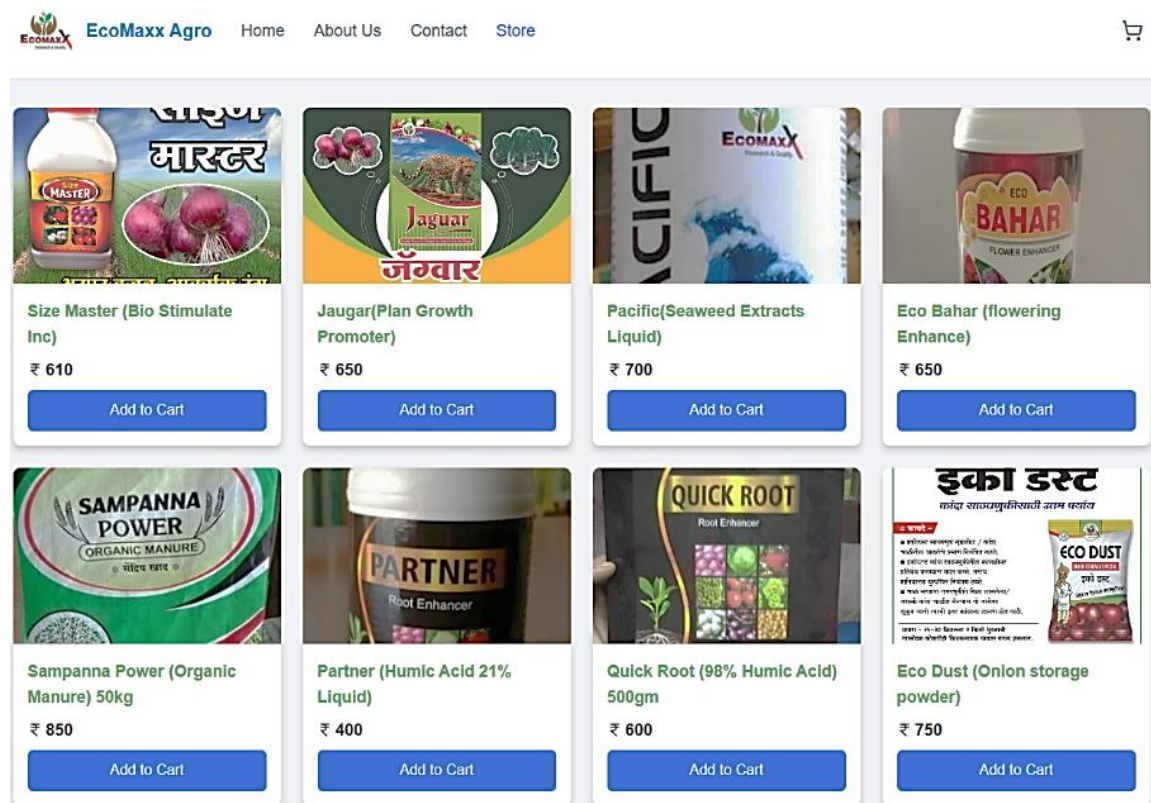


Figure 5. Product page

Cart Option

The Cart Option allows customers to add selected products, review quantities, and calculate total costs before proceeding to payment. It improves shopping convenience and ensures a smooth order placement process (Figure 6).

Contact Us

The Contact Us page provides users with communication options such as email, phone, or query forms. It facilitates customer support, query resolution, and builds trust by ensuring easy interaction between store owners and customers (Figure 7).


Your Cart
×



Pacific(Seaweed Extracts Liquid)
 700
 1



Jaugar(Plan Growth Promoter)
 650
 1



Size Master (Bio Stimulate Inc)
 610
 1

Total: ₹ 1,960

 Checkout

Figure 6. Cart option.

Contact Us

Have questions? We're here to help. Reach out to us through any of the channels below.

Get in touch

Name

Email

Message

Send message

Contact Information

- Email
ecomaxxagroscience@gmail.com
- Phone
+91 7020544645
- Address
M/S Ecomaxx Agro Sciences, CS. No 31,
Kokamthan, Kokamthan, Kopargaon, main road,
Kopargaon, Ahmednagar, Maharashtra, 423601

Business hours

Monday-Friday	9:00 AM 6:00 PM
Saturday:	10:00 AM 4:00 PM
Sunday:	Closed

Figure 7. Contact Us.

DISCUSSION

The 'Agricultural Product Store Management System' is meant to eliminate the hassle of inventory management, sales record keeping, payment integration, demand forecasting, and customer relationship management by using an intuitive web and mobile-based application. The system optimizes the operation of the agricultural store using AI analytics, cloud computing, and secure transaction mechanisms, leading to efficiency and profitability. A breakdown of the core functions presented in the system are given below:

1. Example Application Inventory and Sales Management
 - The system shows the low and high stock levels and thus helps to avoid cases of overstocking and shortfall.
 - Automatically registers each sale, enabling preparation of accurate financial reports.
2. Secure Online Transactions and Payment Integration
 - The system supports the payment options such as UPI, credit/debit cards, and mobile wallets.
 - It is in addition secure in terms of transaction since it employs encryptions and fraud prevention system.
3. Demand Forecasting and Analytics by AI
 - The system does demand forecasting through machine learning tests and keeps stock levels optimized.
 - It helps store owners make informed decisions based on data about pricing and marketing.
4. A Friendlier User-Friendly Web and Mobile View
 - An intuitive interface that works for farmers, store owners, and customers alike.
 - Renders navigation through product orders and the payment processes easy.
5. Cloud Storage and Scalability
 - Secure data; access from anywhere, with automated backup.
 - The system is scalable either expanding or contracting with growing business operations.
6. Bridging Digital Divide through Implementing
 - Trains and gives support to store owners who have little experience of the digital world.
 - Cheap subscription to affordable small size enterprises.

CONCLUSION

Creating an effective web-based application 'Agricultural Product Store Management System' is essential to overcome the challenges faced by conventional agricultural stores. Manual inventory monitoring, sales management, and shortfalls in financial management have resulted in high operational inefficiencies, stock wastages, and financial losses. This is attributed to the absence of automated systems, which results in overstocking, stock shortages, and difficulties already perceived by store owners concerning perishable goods, which result in low incomes from increased costs. Accordingly, owners also experience difficulties in predicting demand, managing customer relationships, and extending market access because of limited digital access through the old business model.

Integrating cloud-based, AI-driven, and automated technologies improves the effectiveness of a store management system by optimizing inventory tracking, sales monitoring, automating payment transactions, and improving client engagement. Cloud computing also enables real-time data accessibility, scalability, and secure storage so that store uses can make informed business decisions. AI-driven analytics that help in predicting sales trends, optimizing stock management, and personalizing marketing strategies therefore have the capacity to produce more revenue. A fully integrated online platform would also bring producers and sellers of agricultural products closer to consumers thereby lessening dependency on middlemen while assuring fairer pricing and higher profit margins.

Further, the system's automated financial tracking minimizes the errors made in book-keeping, enables secure transactions, and minimizes risk due to unauthorized access and fraudulent activity. All these features of centralized databases will ensure seamless data management, improved transaction transparency as well as simplified tracking of tax and revenue.

The wise conclusion of the present work was that a digital ‘Agricultural Product Store Management System’ has the potential to change the agricultural retail sector. Efficiency gains, cost savings, and better access are some of its promising results. In addition, the system provides store owners with far superior business growth tools, which result in a sustainable, scalable, and future-ready solution. Not a bit, this system regulates the agricultural store management sector towards digital transformation in agriculture. Thus, ensuring long-term success as well as competitiveness for the marketplace undergoing constant evolution.

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