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Eatfresh: Direct Farm-To-Door Convenience

Aditi Gurjar[1], Akshat Paliwal[2], Deepali Arse[3], Ayushman Upadhayay[4]

[1,2,3,4]Acropolis Institute, of Technology and Research Indor, India

Abstract

EatFresh is an innovative platform developed to modernize the vegetable supply chain, addressing long-standing inefficiencies that affect both vendors and customers. In traditional distribution, vendors face significant challenges such as managing inventory, handling deliveries, and expanding beyond local markets, while customers experience inconsistent quality, limited selection, and unreliable access to fresh produce. Our app tackles these issues by offering a streamlined, technology-driven solution that enhances delivery logistics, optimizes inventory control, and improves vendor-customer interactions. For vendors, EatFresh provides tools for real-time tracking of inventory, automated order management, and route optimization, which together reduce waste, minimize operational delays, and enable businesses to serve a wider customer base efficiently. Additionally, the platform's data-driven analytics help vendors track sales trends, understand customer preferences, and make informed decisions to enhance service quality and operational efficiency. The app also includes secure payment options, enabling smooth and safe transactions across various methods, which adds convenience for customers while supporting vendors' financial management. For customers, EatFresh offers a user-friendly interface that makes it easy to browse a variety of fresh produce from multiple vendors, place orders, and schedule delivery times that fit their needs. With real-time delivery tracking, customers can reliably plan for timely arrivals, and quality control measures are implemented to ensure produce freshness and integrity throughout transit. Furthermore, by expanding the reach of local vendors and integrating tools for better demand forecasting, the platform reduces inventory issues and helps maintain high service standards. In addressing these core needs, EatFresh promotes a more efficient and accessible vegetable supply chain, enabling a high-quality shopping experience for customers while allowing vendors to grow their businesses sustainably and reach broader markets. While the app offers a promising solution, some limitations remain, such as the initial costs for app development and the technology adoption curve among smaller or less tech-savvy vendors. Nonetheless, with an emphasis on continuous improvement and adaptability, EatFresh is well-positioned to transform the vegetable supply chain by creating a more connected, efficient, and customer- centric model that benefits all stakeholders involved.

Keywords: Vegetable supply chain modernization, Streamlined fresh produce delivery, Real-time inventory tracking, Enhanced vendor-customer connectivity, Expanding vendor market reach, Quality control in produce transit, Tech-driven vegetable distribution, Customer-centric ordering experience, Data-driven insights for vendors, Route planning for delivery efficiency.

INTRODUCTION

The traditional vegetable supply chain faces significant inefficiencies, including delayed deliveries, inconsistent quality, and limited access to fresh produce. Vendors often rely on manual processes for inventory management, order tracking, and delivery coordination, which are prone to errors and delays.

The platform streamlines logistics, improves inventory management, and strengthens vendor-customer relationships, enabling vendors to expand and providing customers with reliable access to fresh produce. This outdated system restricts vendors to local markets, limiting growth and making it difficult to meet the demands of urban consumers. Customers also struggle to find fresh produce reliably, facing limited availability and inconvenient access. These challenges call for a technology-driven solution to streamline the supply chain and improve service quality.

EatFresh offers a solution by optimizing the vegetable supply chain through enhanced logistics and better vendor- customer connectivity. The app provides vendors with tools for real-time inventory tracking, order management, and optimized route planning, reducing waste, lowering costs, and enabling market expansion. Data-driven insights allow vendors to better understand customer preferences and sales trends, supporting informed decisions for growth. These features help vendors operate more efficiently, maintain produce quality, and reach a broader customer base.

For customers, EatFresh simplifies the process of browsing, ordering, and scheduling fresh produce deliveries from multiple vendors. The user-friendly platform allows customers to select convenient delivery times and track their orders in real time. The app provides vendors with tools for real-time inventory tracking, order management, and optimized route planning, reducing waste, lowering costs, and enabling market expansion. Integrated quality control measures ensure fresh produce during transit, addressing common quality concerns.

By addressing inefficiencies in the supply chain, EatFresh offers a transformative solution for both vendors and customers. The platform streamlines logistics, improves inventory management, and strengthens vendor-customer relationships, enabling vendors to expand and providing customers with reliable access to fresh produce. EatFresh redefines vegetable delivery, creating a more efficient and accessible supply chain.

LITRATURE SURVEY

A. *Inefficiencies in the Traditional Vegetable Supply Chain*

Several studies have identified inefficiencies within traditional vegetable supply chains, where delays and quality issues are rampant. A study conducted by Smith et al. (2020) found that manual processes in inventory management and order fulfillment contribute to substantial food waste. Vendors often face difficulties in tracking inventory, leading to overstocking or understocking, which results in unsold or spoiled produce. Furthermore, their research highlighted the struggle of small-scale vendors to access larger markets, keeping them confined to local or regional customer bases. These inefficiencies also hinder vendors from maintaining consistent quality and reducing operational costs.

B. *Technological Solutions in the Supply Chain*

To address these challenges, various surveys have explored the role of technology in enhancing supply chain efficiency. A study by Kumar and Sharma (2022) emphasizes the positive impact of digitization on supply chain processes, particularly in logistics and inventory management. The use of real-time data analytics, automated order processing, and optimized route planning can drastically reduce operational costs and improve delivery speed. Additionally, an increasing number of studies, including research by Johnson (2021), have examined how the Internet of Things (IoT) can be used for real-time monitoring of produce during transit. Sensors for temperature and humidity control have been shown to reduce spoilage and maintain freshness, particularly in the transportation of perishable goods.

C. *Direct-to-Consumer (D2C) Models*

The rise of Direct-to-Consumer (D2C) models has been an important focus in recent studies on modernizing the vegetable supply chain. A recent survey by Patel et al. (2023) revealed that D2C platforms are beneficial for vendors by providing them with greater control over their sales channels and offering customers the ability to select delivery times and product options. These platforms eliminate the need for intermediaries, allowing vendors to expand their reach and reduce dependency on traditional distribution channels. Their findings also indicated that consumers value the convenience and customization offered by these platforms, enhancing customer satisfaction and loyalty.

D. *Consumer Behavior and Demand for Fresh Produce*

Understanding consumer preferences has become a critical factor in modernizing supply chains. Research by Anderson and Patel (2022) found that consumers increasingly demand fresh, high-quality produce delivered at their convenience. Their study suggests that the ability to track deliveries in real time and schedule them based on individual preferences is a key factor in customer satisfaction. This demand for flexibility in delivery times, coupled with expectations for freshness, drives the need for more efficient, tech-driven solutions in the vegetable supply chain.

METHODOLOGY

The platform acts as a broker, creating a digital marketplace that connects customers directly with farmers to buy agricultural products online. Through a user-friendly Android application, it offers an accessible and efficient way for users to buy and sell produce. This setup not only expands market reach for farmers but also ensures that customers can access fresh agricultural products
conveniently. By streamlining transactions, the platform fosters a supportive environment for both farmers and consumers, simplifying the supply chain and promoting sustainable commerce within the agricultural sector.

A. *Signup Page*

The signup page allows users to create an account and gain access to the platform by providing essential registration information. Users can choose their unique username, email address, and password. When creating an account, each username is stored in the system and is associated with any changes made while logged in, rather than by IP address. Upon successful signup, the user's information is securely stored in the platform's database. Users also have the option to register using an existing Google account, which enables the system to automatically pull data from Google to streamline the registration process.

B. *Login Page:*

The login page allows users to access their accounts on the platform using their credentials—typically a username and password. The platform also includes enhanced security measures such as email verification and OTP (One-Time Password) verification to protect user accounts. For password recovery, users can reset their passwords by choosing the "Forgot Password" option, where they enter either their registered mobile number or email address. An OTP or email link is sent to complete the password reset process, ensuring a secure and convenient method for account recovery.

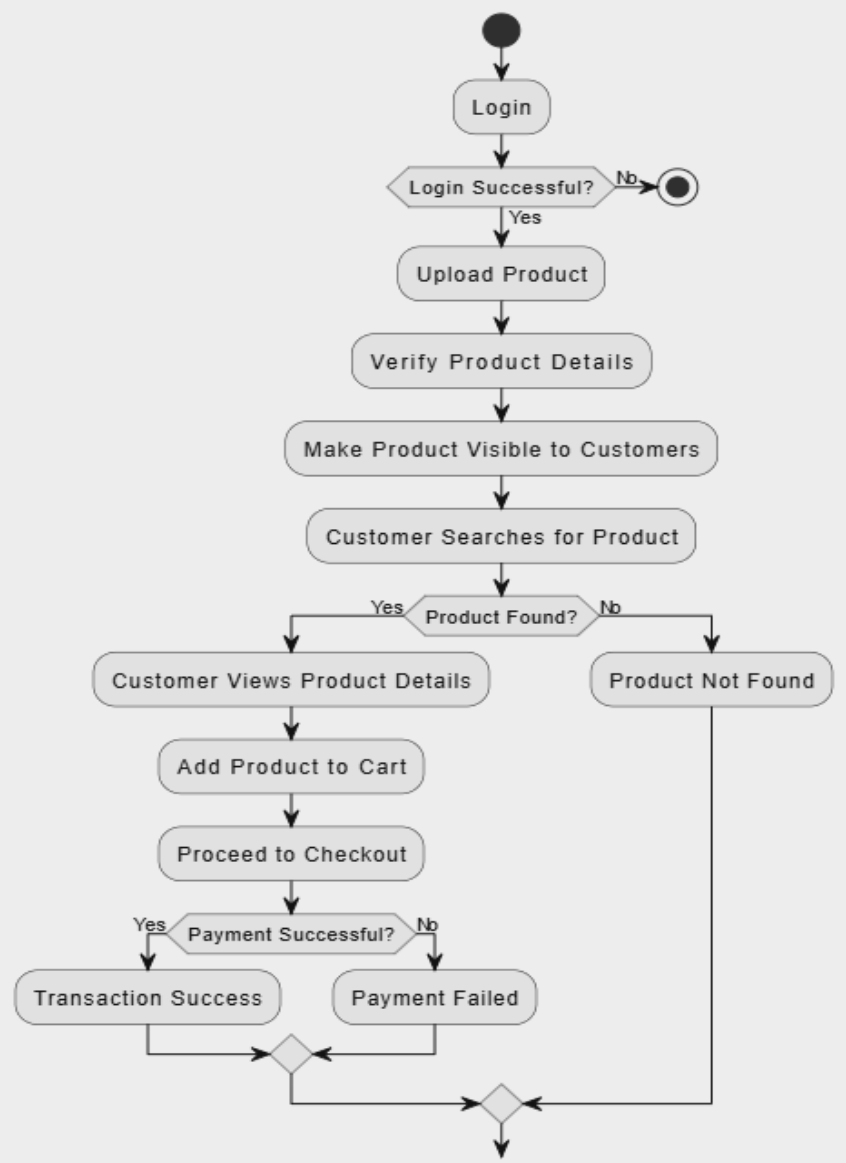


Fig. 1. Proposed Architecture for App

C. Different Crops:

EAT FRESH revolutionizes the delivery of fruits and vegetables by streamlining the supply chain for both vendors and customers. The platform enables real-time inventory tracking, optimizing delivery routes, and reducing spoilage, ensuring that produce like tomatoes, spinach, carrots, and apples arrive fresh. With perishable items, EatFresh coordinates faster deliveries to minimize transit time, while maintaining quality for more durable produce. The platform's decentralized social network fosters seamless communication between vendors and customers, enhancing transparency and service.

WORKING

The EatFresh platform connects vendors and customers to streamline the vegetable and fruit supply chain. Vendors manage inventory, process orders, and prepare produce for delivery. The platform optimizes delivery routes to ensure freshness and timely arrivals. After delivery, customers provide feedback, which is shared with vendors to improve service. This efficient system reduces waste, enhances communication, and ensures high- quality, fresh produce is delivered on time.

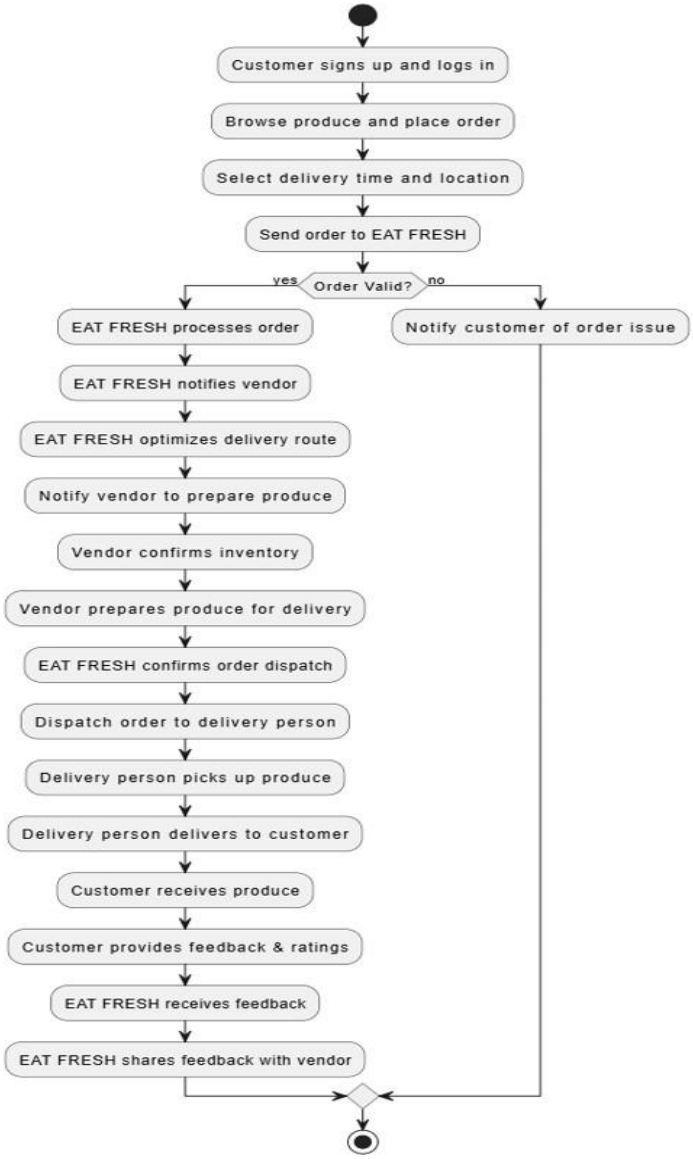


Fig. 2. Proposed Architecture for App

The EatFresh platform simplifies the process of ordering and delivering fresh produce. Vendors list their inventory, receive orders, and prepare the goods for delivery. The platform then optimizes delivery routes for quick and efficient transport, ensuring the produce stays fresh. Customers can track their orders and provide feedback after delivery, which helps vendors improve their service.

A. *Primary Source of Data:*

Primary data refers to the first-hand data collected directly from original sources. For this project, the necessary information was gathered through direct observations, staff feedback, and discussions with stakeholders involved in the vegetable supply chain. Key methods of primary data collection include:

1. **Observation of vendor and customer interactions**
2. **Informal discussions with vendors and delivery**

B. *Secondary Source of Data:*

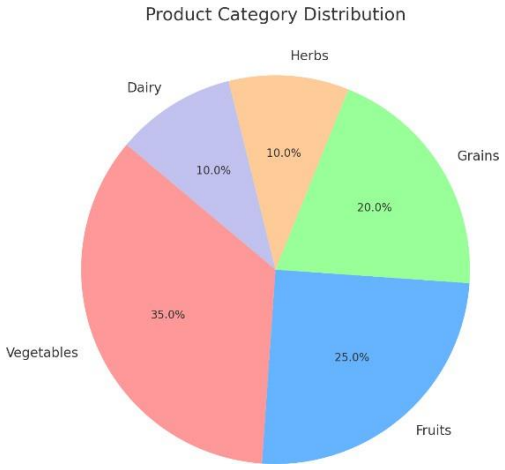
The Secondary data sources were used to obtain relevant information and provide context for the development of the **EAT FRESH** platform. These data sources include:

1. **Reports from the agricultural sector**
2. **Research from related websites**

OBJECITVE

The EatFresh platform is designed to revolutionize the vegetable and fruit supply chain by introducing a streamlined, tech-driven approach to direct vendor-customer transactions. Key objectives include:

1. Creating a **transparent, decentralized platform** for the direct sale of fresh produce between vendors and customers, eliminating the need for intermediaries.
2. **Simplifying delivery logistics** by offering optimized routes and real-time order tracking, ensuring produce arrives fresh and on time..
3. Providing **real-time inventory management** for vendors and easy browsing for customers, ensuring a smooth, reliable experience for all users.



Graph 1. Statewise traded quantity and value

CONCLUSION

The EatFresh platform is designed to transform the vegetable and fruit supply chain by providing a direct connection between vendors and customers, eliminating intermediaries. Primary data for the development of the platform was gathered through direct observations, staff discussions, and vendor feedback, ensuring that the system addresses real-world challenges in fresh produce delivery. Secondary data from agricultural sector reports and relevant online resources helped to contextualize the platform's design and functionality. The platform focuses on creating a transparent, tech-driven approach for fresh produce transactions, optimized delivery logistics, and real-time inventory management to enhance user experience for both vendors and customers.

The EatFresh platform simplifies the purchasing process, making it more efficient for customers to order fresh produce and for vendors to manage inventory and deliveries. By ensuring transparent pricing, real-time order tracking, and optimized delivery routes, the platform improves the freshness and quality of produce delivered. Additionally, its user- friendly interface enables easy navigation, empowering customers and vendors alike. With its extensive features, EatFresh is poised to promote sustainable farming practices, improve market efficiency, and support local agriculture by providing equitable benefits to all stakeholders involved in the supply chain.

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