



Article Title: **E-Commerce Application for Farm Fresh Trading**

E-Commerce Application for Farm Fresh Trading

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ABSTRACT

For several years, farmers in India have had little liberty in choosing markets and purchasers for their produce. All states in the country, except three, decree that marketing and selling of farm produce must be directed through state-owned mandis, retail markets where mediators (middlemen) crush farmers to increase margins. According to research, mediators have become dominating buyers of the agricultural market, resulting them to take control over the plight of the farmers and gulping all the profits. The farmers work day and night expecting a good yield. They use a lot of financial resources lending money and buying fertilizers, seeds etc. So, they have the right to enjoy every rupee gained on their corp. In this context, we propose a system which brings farmers close to the retailers cutting the middlemen. Our system consists of a mobile or web application which will serve as a platform for farmer the growers and retailers or customers to sell and buy their farm products. This system aims at giving a profitable price to farmers to their farm products cutting the middlemen. This allows the retailers or the customers to buy products from the farmers at a lower than the normal price. Farmer uploads their product with details and buyers view these details and book that product with in a time. The bidding system is suitable for bulk buyers who would like to bargain for a certain product. They will be able to bid on a product as well as view other bids. This will help them get products at a better price. The consumer can give a rating and review only after having purchased a particular product. K-Nearest Neighbours (KNN) is proposed to recommendation system based on common product ratings, and make predictions using the average rating of top-k nearest neighbours. These are visible on each item's page along with the average of the item's average rating. K-Means is used to overcome sparsity problems and to form user clusters to reduce the amount of data that needs to be processed.

Keywords: E-commerce Platform, Agriculture, nearest neighbour search, Market analysis, Farmer-to-Consumer, Bidding system.

1 Introduction

E-commerce has eased the daily life of people, having a huge impact on three of the major shareholders; customers, organizations, and society. It has given customers the ability to gather information about various products and prices. E-commerce sales are increasing by a rate of 22% to 25% each year which indicates a momentous shift in consumer spending online. Agriculture e-commerce is still in its nascent stage where farmers are slowly shifting towards



Article Title: E-Commerce Application for Farm Fresh Trading

more technologically sound solutions. With the reforms put in place by the Indian Government, bulk buyers can buy directly from farmers without the need for intermediaries. This brings up new issues and challenges, the need for farmers to be connected with potential buyers as small-scale consumers have been shifting to e-commerce that deliver them their daily commodities. Farmers are expected to capitalize on all these new developments and need the platform for this purpose.

Agriculture is the backbone of India. More than 60% of Indian workers are involved in Agriculture. Agriculture refers to the cultivation of land and breeding of animals and plants to provide food, fiber medicinal plants and other products to sustain and enhance life. Agriculture was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that enabled people to live in cities.

Agricultural products refer to crops, livestock and livestock products including field crops, fruits, and vegetables. After agriculture second only to the service sector but over the past several years the number of agricultural workers in developed countries have decreased significantly.

E-marketing is referred to those strategies and techniques which use online ways to reach target customers. E-Marketing is also known as Internet Marketing, Web Marketing, Digital Marketing, or Online Marketing. E-marketing is the process of marketing a product or service using the internet E-marketing not only includes marketing on the Internet, but also includes marketing through e wireless media. E-marketing of agricultural products means marketing of agricultural products through online ways from agricultural pro- business houses or ultimate consumers.

Ecommerce is reasonable to say that the process of shopping on the web is becoming common place. It is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. The terms ecommerce and e-business are often used interchangeably. The main objective of this project is to help farmers ensure greater profitability through direct farmer to end user communication. This project deals with respect to the farmer's benefit of getting their products sale at a best price online. Here, the main users of this website are farmer, customer, and admin. Farmers will get unique interface where they can perform marketing, get the correct rates of the market, get in touch with SMS or Email and gather knowledge of different schemes and get pay online. Agricultural E-commerce enables good trading possibilities by supporting different business models such as multi-suppliers, e-sales and several types of auctions. Today E-commerce lacks fully automated business processes and still requires a significant manual effort by users. So, our project tries to solve all lacking of E-commerce business process.

Agricultural producers are also trying to develop this marketing channel even though there are many barriers of selling agricultural products via the Internet. Farmers may use the Internet to sell agricultural products for consumers and also for organizations. E-marketing is most useful



Article Title: E-Commerce Application for Farm Fresh Trading

to the farmers since the benefits are high and electronic systems are ready to serve customers all over the world and open for 24 hours in a day. The cost incurring is also low.

Agriculture is the basement for any country for their continuous development and survival. So, agricultural development is the utmost priority now as role of digital marketing is concerned, it tries to expand the reach of the people associated with agriculture, and it helps in promoting right agri products to its rightful buyers by reaching out to new people across diverse locations. The farmers have to go to the nearest market to hand over his product to a particular agent where agent sells the product to another agent or a dealer. After a specific time, the agent gives the collected cash out of the sold products to the respected farmer but every Agent tries to cuts his commission out of the earned amount. The whole process is not transparent as there is no way for farmer to know about the deal and the exact amount at which their product was sold & there is no provision for the farmers to know the product rates at different markets where they can sell their products for achieving high profits. This motivated us to design & develop a system which is useful for farmers & end users.

2 Recent Works

[1] Digital Market: E-Commerce Application for Farmers, M. Bhende, M. S. Avatade, S. Patil, P. Mishra, P. Prasad and S. Shewalkar [2018]. The term digital market means a platform that is dedicated to integrate farmer, Merchant/Markets, government and end user and thereby bridge the gap between them. It also let everyone to be updated with the changing market scenario. Indian farmers faced many challenges and one of them is that to get a good profit for the efforts and investment that they had put in. There exist different reasons like season limitation, crop life due to which farmer get very limited amount of time to study the market conditions. The study of flourishing crops and products in current market under agriculture sector is very necessary in order to obtain good price. Since it is not feasible to reach all merchant physically for farmers as it consume much time and efforts wherein our farmers has limited amount of time. Also traditionally, methodologies implemented by farmer created limited access to client (merchants) enabling less options to sell the crop product in the market. So by introducing new marketing method wherein farmer can sell his crop or product at each layer of marketing chain (merchants, markets or directly to end user) along with multiple options becomes necessary. Also there was no transparency from government's point of view wherein the selling of crop at minimum base price was not traceable ultimately, which was not fulfilling the changing demands. Thus the platform and modern techniques will help to sell the crops at different layers of marketing chain providing multiple options (market, merchant or end user) wherein one will be able to explore and do analysis of current market situation with the help of K-Nearest Neighbors (KNN) algorithm as nearest neighbor search for better decision making and Haversine algorithm for the purpose of latitude, longitude check using Global Positioning System (GPS) to sell or purchase the crops. The technology used is the mobile-based android application for farmers, users and merchant access and web-based java application for providing access to government along with common database system that



Article Title: E-Commerce Application for Farm Fresh Trading

facilitates storing of data like SQL and PHP for connectivity. The system also provides complaint box to launch complaint for farmers. The setbacks that the system faces is about tracking transportation record in a dynamic way.

[2] Research on the Problems and Strategies of Rural E-Commerce in the Age of Internet + Agriculture, Y. Zhang and Y. Lu [2018]. In recent years the country has issued a series of policies to support the development of wisdom agriculture, promote agricultural industrial upgrading, and actively promote the rural development of electronic commerce. The electronic commerce enterprises also sight to rural e-commerce. In this paper firstly the development of the national rural “electric Internet plus agriculture” under the background of policy support, and the actively layout of rural electronic commerce is introduced. Then the current situation of the development of rural e-commerce is analyzed, from the basic network facilities, e-commerce talent, “last mile “of the logistics problems and farmers, enterprises and other aspects of the understanding of the existing problems in the development of rural electricity providers. Finally, the development strategy of rural e-commerce in the future is put forward.

[3] E-commerce site for agricultural products, Megha Nayak, Pinky Wankhede, Neha Khapekar, Komal Dhote [2019]. E-commerce is clearly beginning to have a major impact in the agricultural sector. The way people go about purchasing agricultural products is of great concern. Most of the time customers have to travel far distances to get agricultural products and getting the right quality is not ensured. Our project aims to help farmers as well as customers for buying and selling agricultural products across the country using a computerized approach. The website will guide the farmers to access new farming techniques, compare current market rate of different products, the total sale and the earned profit for the sold products. The website builds a platform for farmers to ensure greater profitability through end user communication. The website will act as a unique and secure way to perform agro-marketing. E-farming will serve as a way for the farmers to sell their products across the country just with some basic knowledge about how to use the website. This project allows viewing various products available enables users to purchase desire products instantly by online payment.

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Article Title: E-Commerce Application for Farm Fresh Trading

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3 Proposed Work Explanation

The proposed system consists of a mobile or web application which will serve as a platform for farmer the growers and retailers or customers to sell and buy their farm products. This system aims at giving a profitable price to farmers to their farm products cutting the middlemen. KNN is algorithm to find clusters of similar users based on common product ratings, and make predictions using the average rating of top-k nearest Neighbors. This ensures legitimate feedback from consumers which allows space for improvement on the farmer's end and helps prospective buyers.

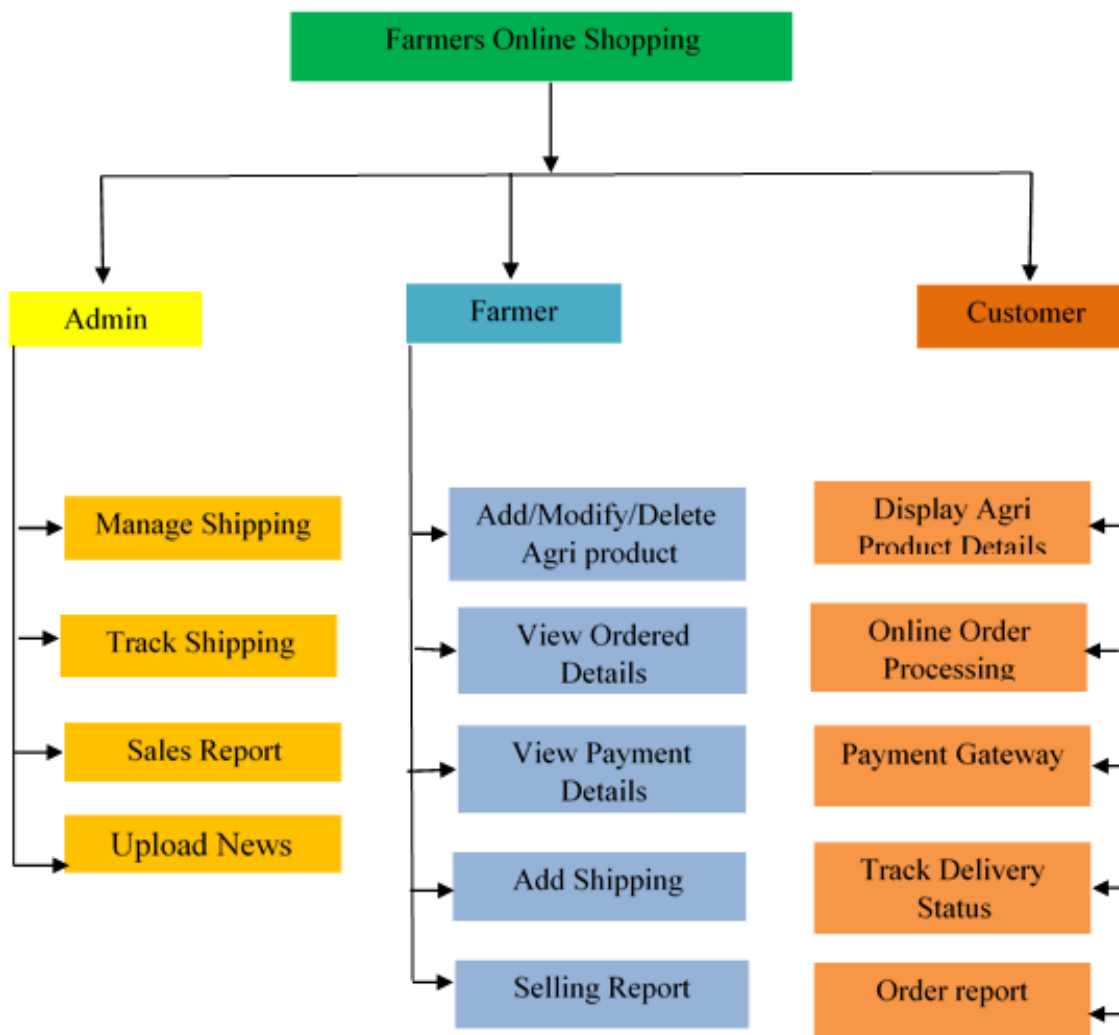


Figure 1: Architecture Diagram



Article Title: E-Commerce Application for Farm Fresh Trading

The main objective of the project is to assist farmers to ensure greater profitability through direct farming. The portal would guide the farmers to access new farming techniques, compare the present market rate of various products, the overall sale, and therefore the earned profit for the sold products. The project proposes a way for farmers to sell their products across the country just with the basic knowledge about the way to use this website. The interface would allow viewing various products available and enables users to buy desired products instantly by online payment. Our system provides an implementation strategy to the idea proposed in the project and proposes modules and features that would enhance the proposed idea.

The system successfully fulfils the following:

Transparent farmer-to-consumer communication through the interface. Showcase products to a virtually global customer base. Efficient browsing through the products on the portal with a variety of choices and options. Standard payment system. Standard tracking of orders. Bidding system for bulk buyers. Analysis of market and statistics of the offered products. Tools such as farmer aid for training and educating. Customer service and feedback mechanism for consumers to register complaints.

3.1 Proposed Front-End

The Frontend Architecture consists of the authentication, farmer portal, and consumer portal. The farmer portal will contain all functionalities required by farmers, which include adding products to the market, pickup module, shipments module, farmer bidding module, farmer aid module, etc. The consumer portal contains functionalities such as product catalogue, orders, cart, payment, consumer bidding, etc.

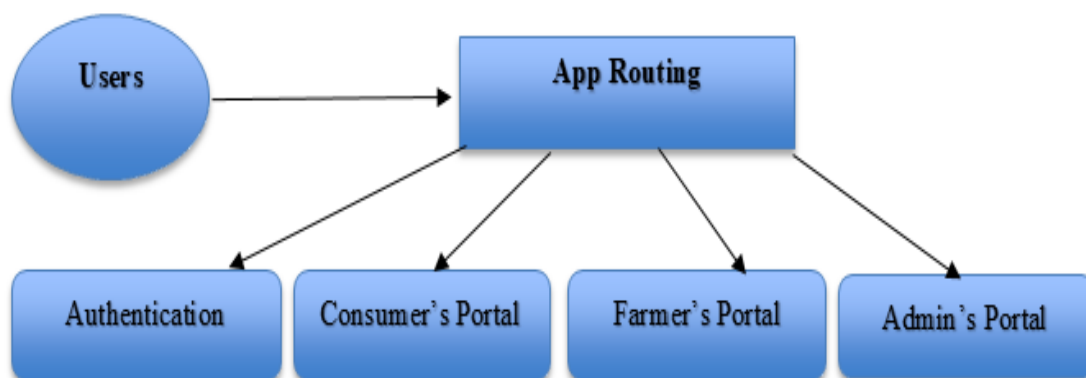


Figure 2: *Front-end Design*

3.2 Proposed Back-End

In the proposed front-end, the client sends HTTP requests to the back-end. Such requests are processed by the backend module and then the data is stored or retrieved from the database and passed back to the client.



Article Title: E-Commerce Application for Farm Fresh Trading

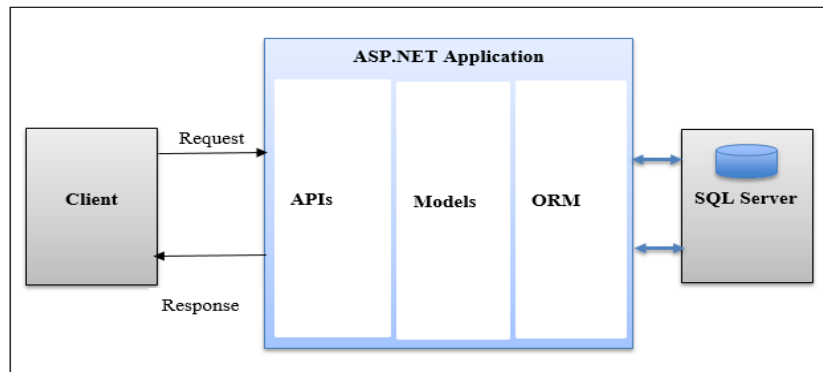


Figure 3: Back-end Design

4 Results and Discussion

This digital platform dedicated to integrate farmer and end-user as consumer and there by Bridge the gap between them. Customer will be able to contact directly to the Farmers and to rate the products. An architecture has been proposed that reduces the middlemen's role and its shares beneficial to both farmer and customer. The module has a variety of functionalities such as allowing farmers to upload details, view product statistics, track various shipments and pickups of orders and receive payment online directly on the platform. It also offers the process of bidding for the product. The ease due to online transactions and the availability of choices ensures a wider user reach which assists farmers in increasing their profit margin.

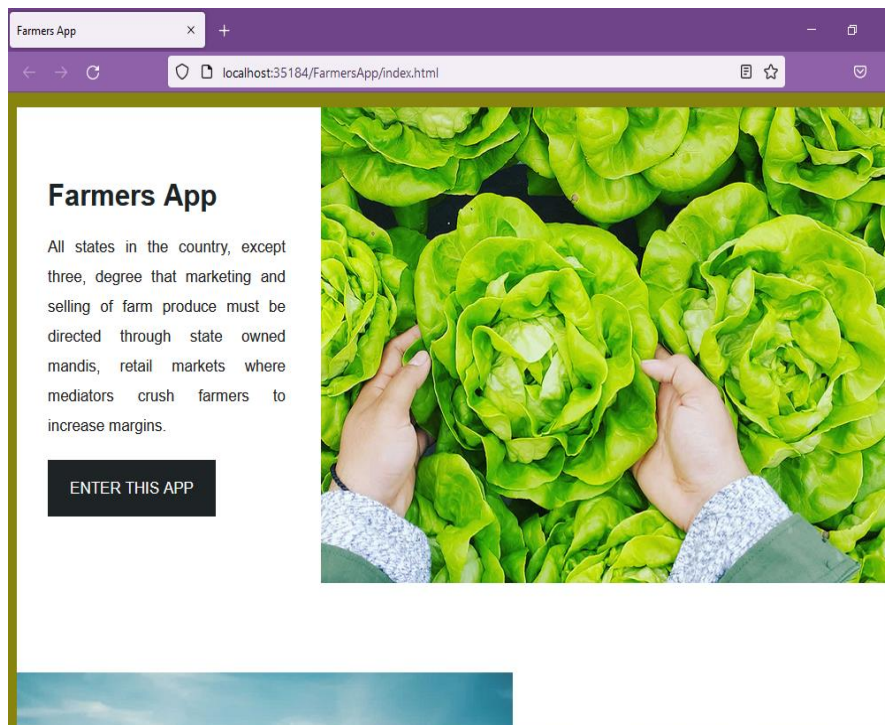


Figure 4: Home Page



5 Conclusion

The main motto of “Fresh from Farm to your Doorstep” aims to achieve the goal of providing farmers with better opportunities to showcase their products and receive higher profit margins compared to what they are getting. Through this platform, we will make sure it is profitable for both the farmers and consumers. Since agriculture is called the back bone of our nation, it is our responsibility to keep it as the same for a lot more generations to come and not let the chain break. It is very much necessary that we must ease some of the pressure from our farmers so that they will not stop doing this divine job, because of which our stomach gets filled. Marketing of agriculture can be made effective if it is looked from the collective and integrative efforts from various quarters by addressing to farmers, middlemen, researchers and administrators. It is high time we brought out significant strategies in agricultural marketing with innovative and creative approaches. This platform will be one such strategy that will encourage the farmers to continue farming and make sure they get the right fruit for their labour.

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Article Title: E-Commerce Application for Farm Fresh Trading

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