International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 05 | May - 2023 Impact Factor: 8.176 ISSN: 2582-3930

Farming Assisting Service E-commerce Web-App

Abdullah khan[1], Shrihari Shrirao[2], Dr. Nitin R Chopde[3],Prof. Zeeshan I khan

[1]Abdullah khan, Department of Computer Science, P. R. Pote Patil College of Engineering and Management, Amravati, Maharashtra, India
[2]Shrihari Shrirao, Department of Computer Science, P. R. Pote Patil College of Engineering and Management, Amravati, Maharashtra, India
[3]Dr. N.R Chopde, Department of Computer Science, P. R. Pote Patil College of Engineering and Management, Amravati, Maharashtra, India
[4]Prof. Zeeshan.I.khan, Department of Computer Science, P. R. Pote Patil College of Engineering and Management,Amravati, Maharashtra, India

---

Abstract - The proposed e-commerce Web-App project aims to provide a user-friendly and cost-effective platform for farmers to buy and sell farming supplies and organic products. The project aims to address the challenges faced by small-scale farmers in rural areas who often have to travel long distances to purchase their farming supplies. By providing a convenient online platform, farmers can save time and reduce costs associated with traveling to cities. Moreover, the Web-App will provide a marketplace for farmers to sell their organic products directly to consumers, which can increase their profits and improve their livelihoods. The Web-App will be designed with farmers in mind, making the purchasing and selling process simple and straightforward. The project aims to promote sustainable agriculture practices and contribute to the development of rural areas by empowering farmers with a cost-effective platform to purchase and sell their products

***Key Words*: HTML, CSS, Bootstrap, JavaScript, PHP, Xampp Server, MySQL database, VS Code IDE.**

1. INTRODUCTION

The proposed e-commerce Web-App project for farmers is aimed at solving the problem of access to farming supplies and markets for small-scale farmers in rural areas. These farmers often have to travel long distances to purchase farming supplies and find markets for their products, which can be costly and time-consuming. By providing an online platform for farmers to purchase farming supplies and sell their organic products, the project aims to address these challenges. The Web-App will offer a range of farming accessories such as fertilizers, tools, pesticides, and other related items, making it convenient for farmers to access these supplies from anywhere. Additionally, farmers will be able to create their profiles and market their organic products directly to consumers, eliminating the need for intermediaries and potentially increasing their profits. The project aims to promote sustainable agriculture practices and contribute to the development of rural areas by empowering farmers with a cost-effective and user-friendly platform to purchase and sell their products.

1.1 Motivation

Farmers in rural areas face several challenges in accessing farming supplies and connecting with potential buyers for their crops. These challenges often lead to increased costs, reduced profits, and limited market access. With the use of an e-commerce platform, farmers can access a wide range of farming supplies without having to travel to cities, thus saving time and reducing costs. Additionally, the platform will provide farmers with the opportunity to sell their organic products directly to customers, increasing their profits and improving their livelihoods.

1.2 Aim

The aim of the proposed e-commerce Web-App project for farmers is to provide a user-friendly and cost-effective platform for farmers to purchase farming supplies and sell their organic products. The project aims to address the challenges faced by small-scale farmers in rural areas by providing a convenient and accessible online platform. By empowering farmers with a marketplace to sell their products directly to consumers, the project aims to increase their profits and improve their livelihoods. The project also aims to promote sustainable agriculture practices and contribute to the development of rural areas.

1.3 Objective

- To provide a user-friendly multi-language and cost-effective platform for farmers to purchase farming supplies.
- To provide a marketplace for farmers to sell their organic products directly to consumers.
- To promote sustainable agriculture practices among farmers.
- To empower small-scale farmers in rural areas with a convenient and accessible platform.
- To eliminate intermediaries and potentially increase farmers' profits.
- To provide real-time updates on market trends, crop prices, and weather information to farmers.
- To improve the livelihoods of farmers in rural areas.
- To contribute to the development of rural areas.
- To reduce the cost and time associated with traveling to cities to purchase farming supplies.

- To promote the use of technology in agriculture and farming practices.

1.4 Scope

The scope of this e-commerce Web-App project is to create a platform that caters specifically to the needs of small-scale farmers in rural areas. The Web-App will offer a variety of farming accessories and enable farmers to sell their organic farmed products directly to consumers. The Web-App will be designed with the needs of farmers in mind, making the purchasing process simple and straightforward. The Web-App will also provide farmers with real-time updates on market trends, crop prices, and weather information to help them make informed decisions. The project aims to promote sustainable agriculture practices, contribute to the development of rural areas, and improve the livelihoods of farmers.

2. LITERATURE SURVEY

The use of e-commerce platforms has been gaining popularity in the agricultural sector as a means to improve efficiency and reduce transaction costs for small-scale farmers (Jensen, 2007). E-commerce platforms have been found to provide farmers with access to a wider market and higher prices for their produce (Makoni and Ndlovu, 2018). In addition, e-commerce platforms have the potential to enhance transparency in the supply chain, which can improve the quality of agricultural products and reduce food fraud (Abdulrahman and Musa, 2021).

Studies have shown that e-commerce platforms have been successful in addressing some of the challenges faced by small-scale farmers, particularly in accessing markets (Badiane et al., 2015). In India, e-commerce platforms have been used to connect farmers with buyers in urban areas, resulting in increased income for farmers and improved access to fresh produce for consumers (Garg and Aggarwal, 2018).

However, there are also challenges associated with the adoption of e-commerce platforms in the agricultural sector. One of the major challenges is the lack of digital literacy among farmers, which can hinder their ability to use these platforms effectively (Lien and Liang, 2019). Another challenge is the lack of infrastructure in rural areas, including internet connectivity and access to mobile devices, which can limit the reach of e-commerce platforms (Makoni and Ndlovu, 2018).

In summary, e-commerce platforms have the potential to address some of the challenges faced by small-scale farmers in accessing markets and connecting with buyers. However, the adoption of these platforms requires addressing challenges such as digital literacy and infrastructure in rural areas.

2.1 Background History

Farming has always been a crucial sector for the economic development of any country. However, small-scale farmers in rural areas often face challenges such as limited access to quality farming supplies, poor transportation infrastructure, and lack of market opportunities. As a result, these farmers struggle to compete in the market and often face lower profits and limited income.

In recent years, the use of e-commerce platforms has revolutionized the way businesses operate, including the agriculture sector. E-commerce platforms have made it easier for farmers to access farming supplies without the need to travel to cities, saving them time and reducing transportation costs. Moreover, e-commerce platforms have created new market opportunities for small-scale farmers by providing them with a direct link to potential buyers.

Several e-commerce platforms have been developed specifically for farmers, such as Agro-Star, BharatAgri, and Farmcrowdy. These platforms offer a range of services such as crop advisory, online ordering of farming inputs, and connecting farmers with buyers. However, these platforms have limited reach and are often focused on specific regions.

The proposed e-commerce Web-App project aims to address the challenges faced by small-scale farmers in rural areas by providing them with a user-friendly platform to purchase farming supplies and sell their organic products. The project's focus on accessibility, convenience, and affordability is aligned with the growing trend of e-commerce platforms in the agriculture sector.

2.2 Related Work

Previous research has shown that e-commerce platforms have become an essential tool for rural farmers to access markets and information. In many developing countries, small-scale farmers face challenges in accessing farming supplies and connecting with potential buyers for their crops. E-commerce platforms have the potential to overcome these challenges by providing a platform that is easily accessible and user-friendly.

Several e-commerce platforms have been developed to cater to the needs of farmers, such as AgroMart, Esoko, and FarmDrive. These platforms enable farmers to purchase inputs and equipment online, connect with potential buyers, and receive real-time market information. However, these platforms have not been widely adopted due to various challenges such as inadequate infrastructure, lack of trust in online transactions, and limited access to mobile devices and the internet.

With the increasing adoption of e-commerce platforms worldwide, there has been a growing interest in leveraging these platforms to support the needs of farmers in rural areas. Several studies have been conducted to investigate the use of e-commerce platforms in the agriculture sector, with a focus on addressing the challenges faced by small-scale farmers in accessing farming supplies and markets.

One study by Chawla et al. (2018) explored the potential of e-commerce platforms in supporting farmers in India. The study found that e-commerce platforms could provide farmers with a more convenient and cost-effective way to purchase farming supplies, as well as a platform to sell their products directly to consumers. The study also highlighted the need for tailored e-commerce platforms that are specifically designed to meet the unique needs of farmers in rural areas.

Another study by Nasution et al. (2020) examined the use of e-commerce platforms to improve the competitiveness of small-scale farmers in Indonesia. The study found that e-commerce platforms could help farmers to overcome the limitations of traditional markets, such as limited access to buyers and price information. The study also highlighted the importance of providing training and support to farmers in using e-commerce platforms effectively.

Similarly, a study by Ghosh and Das (2019) investigated the use of e-commerce platforms in supporting farmers in Bangladesh. The study found that e-commerce platforms could help farmers to access markets beyond their local area and improve their bargaining power with buyers. However, the study also identified challenges such as limited internet connectivity and low digital literacy among farmers, which could limit the effectiveness of e-commerce platforms in rural areas.

Overall, these studies suggest that e-commerce platforms have the potential to support the needs of farmers in rural areas. However, there is a need for tailored e-commerce platforms that are specifically designed to meet the unique needs and challenges faced by farmers in different contexts. Additionally, training and support programs may be necessary to help farmers in using e-commerce platforms effectively.

2.3 Limitations of Existing System

- Lack of trust: Farmers may not trust online platforms due to previous negative experiences, lack of information on how the platform operates, and lack of transparency.
- Limited access to technology: Many farmers may not have access to smartphones, laptops or the internet, which may make it difficult for them to use an e-commerce platform.
- Language barrier: Farmers who speak local languages may not be able to use platforms that are not available in their local languages.
- Infrastructure: The availability of electricity and internet connectivity in rural areas can be a challenge, which could limit the use of e-commerce platforms.
- Payment options: Online payment methods may not be available in some areas, which can limit the use of e-commerce platforms.
- Product quality: Farmers may not trust the quality of products sold on e-commerce platforms, which could lead to lower sales and customer satisfaction.
- • Logistics: The logistics involved in delivering products to rural areas can be a challenge due to limited transportation infrastructure, leading to delays in delivery.

3. Proposed Work

3.1 Proposed Concept

In this chapter, the architecture of the whole project is analyzed. Proposed concept is the process of defining the architecture, components, and data of a system to satisfy specified requirements. Design is a method of studying a system by examining its component parts and their interactions. Before implementation began the system was analyzed and designed. In this section, use cases, requirement analysis, and other part are described in details.

3.1.1 Requirement Analysis

The first step in developing an e-commerce Web-App project for farmers is to conduct a requirement analysis. This involves identifying the requirements of the platform and its users, including farmers, sellers, and customers. The requirement analysis will involve identifying the types of farming accessories, such as fertilizers, pesticides, and tools that the farmers need, and also the organic farmed products that they can sell through the platform. The requirements of the sellers and customers, such as registration and payment procedures, delivery options, and review systems, will also be identified.

3.1.2 Data Requirement

During requirement analysis the following data have been identified for an E-commerce web service:

- At first each person need to register (without admin) himself/herself as a customer or a farmer or a seller for accessing the user's necessary information. Each user requires a unique username or email Id and password to register in the Web-App.
- Admin/Farmer/Seller need to login to the system to operate the system. Admin/Farmer/seller has an individual or unique login user id and password. Through this user id and password admin/farmer/seller can login to the system.
- A Customer/Farmer can select a product for buying and add to cart. Customer/Farmer also can pay online or cash on delivery.
- Admin can update all the information of the registered users. Any registered member can be deleted by the admin. And also view all order and can download.
- Admin can update the category list of the product. An admin can edit or delete a category from the product category list. Admin can also insert a new category menu in the category list. Admin can also insert product with price and quantity.
- Farmer/Seller can add product with price. After add product Farmer/Seller can edit, delete and publish of product. When Farmer/Seller add product and publish then customer can buy the product from the web page.
- After get buying product Farmer/Customer can get discount offer. Because of discount farmer/customer can buy low price from selected category which are available in the site

3.1.3 Process Requirement

The following process requirements are identified for system:

- A valid login is required for all process to be performed. A valid login is required for every registered users and admin. All of them have a valid user id and password. System will authenticate their valid login.
- After valid login Farmer /Customer/Seller and can check his/her information, can see personal information and can check product history and buy product.
- Admin can login to the system. Admin can view, delete, publish and update all members' information and product info too. Admin can also enter new category in the list and insert new product.
- Farmer/Seller can login to the system. Farmer can view, delete, publish and update product info. Farmer can also enter new product in the list and insert new info.

3.2 System Architecture / Design

3.2.1 Data flow diagram

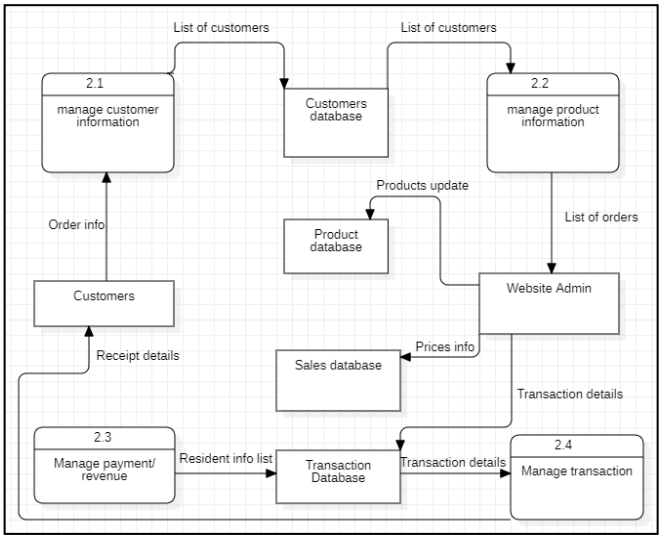

Fig: 1 Data Flow diagram

- **Customer:** The customer is the primary actor in the system and initiates the process by accessing and performing various actions such as searching for products, adding items to the shopping cart, and completing the checkout process.
- **Manage Customer Information:** This component is responsible for managing the customer's personal information, such as their name, address, and payment details. It allows the customer to update their profile, view order history, and manage their preferences.
- **Web-App Admin:** It is responsible for managing the overall e-commerce site. It includes tasks such as managing user accounts, updating the product catalog, monitoring order fulfillment, and generating reports.
- **Manage Product Information:** It is responsible for managing the product catalog of the e-commerce site. It includes product details such as name, description, price, and availability. The product catalog is updated regularly to reflect changes in inventory, pricing, and other factors.
- **Manage Transaction:** The process involves updating the inventory and sales records in the system and generating a receipt for the customer. The process is initiated when a customer places an order and makes a payment for the items they want to purchase
- **Manage Payment/Revenue:** The process involves processing customer payment and updating the revenue records in the system. The process is initiated when a customer makes a payment for their order.

3.2.2 Class diagram

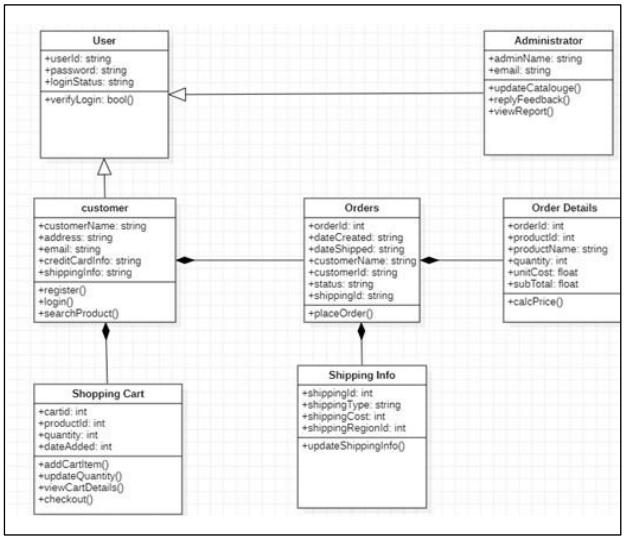

Fig: 2 Class diagram

- **Orders:** Orders are a fundamental part of an e-commerce site. They represent the transactions between customers and the business, and they are the means by which products are purchased and shipped. When a customer places an order on site, the order information is typically stored in a database or other data management system
- **Shopping cart:** The shopping cart is a virtual container that allows customers to collect and manage the products they want to purchase on the site.
- **Order details:** Order details refer to the specific information about the products and services that a customer has purchased through an site. This information is typically associated with a specific order ID
- **Shipping info:** Shipping information is the customer's delivery address and other details that are necessary to deliver their order.

3.3 Working of Proposed System

3.3.1 Methodology

The methodology for the working of the proposed e-commerce Web-App project for farmers can be divided into several steps:

- **Requirement Gathering:** The first step is to gather the requirements for the Web-App from the farmers, sellers, and other stakeholders. This can be done through surveys, interviews, and feedback forms.
- **Planning:** Once the requirements have been gathered, the next step is to plan the Web-App development process. This includes creating a project timeline, defining the scope of the project, and identifying the resources needed.
- **Design:** The design phase involves creating the visual layout of the Web-App, including the user interface, navigation, and branding elements. This phase also includes creating wireframes, mockups, and prototypes.
- **Development:** The development phase involves building the Web-App using the chosen programming languages and frameworks. This includes setting up the database, creating the server-side and client-side code, and integrating third-party tools and APIs.
- **Testing:** The testing phase involves testing the Web-App to ensure that it works correctly and meets all the requirements. This includes functional testing, usability testing, and security testing.
- **Deployment:** Once the Web-App has been developed and tested, it is ready for deployment. This involves uploading the Web-App files to a web server, configuring the server settings, and making the Web-App live.
- **Maintenance:** The final phase is maintenance, which involves keeping the Web-App up to date and fixing any issues that arise. This includes regular updates, security patches, and bug fixes.

The methodology for the working of the proposed e-commerce Web-App project for farmers involves a structured approach that focuses on meeting the needs of the users while ensuring the Web-App is functional, secure, and easy to use.

3.3.2 Use Case Diagrams

A user diagram is a diagram that describes the interaction of elements in the system, showing the relationship between the user and the different applications the user is involved in. It is a method used in systems analysis to identify, clarify and organize requirements. Use the diagrams to illustrate the different types of users of the system when using the information in this section.

❖ **Use case Diagram for Farmer / sellers Management:**

The Use case Diagram for Farmer Management is shown below in figure

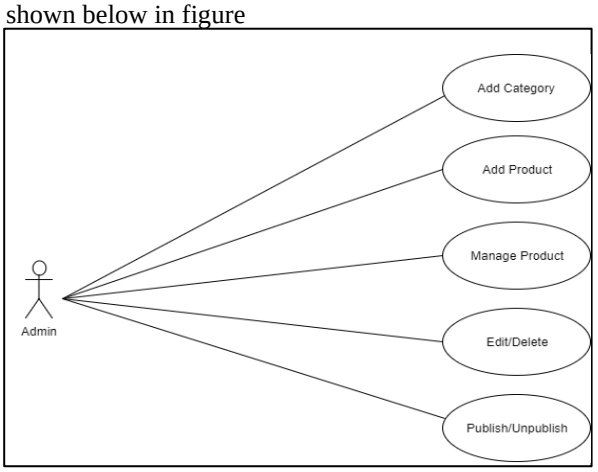

Fig 3: Use case Diagram for Farmer / sellers Management

- **Login:** Admin can log in to the admin panel to perform various administrative tasks.
- **Add Category:** Admin can add new categories for products in the system by logging in to the admin panel.
- **Add Product:** Admin can add new products to the system and provide detailed descriptions. Additionally, they can approve products added by farmers/sellers.
- **Manage Product:** Admin has the ability to modify the details, price, and manufacturer of products at any time. They can also publish or unpublish products as necessary.

❖ **Use case Diagram for Customer Management:**

The Use case Diagram for Customer/Farmer Management is shown below in figure:

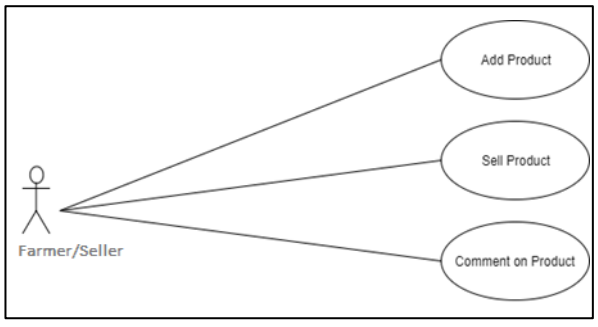

Fig 4: Use case Diagram for Customer Management

- **Register:** The farmer/seller can perform the general registration to access as registered farmer/seller.

- **Login:** After completing registration farmer needs to login part to perform the necessary actions.
- **Add Product and Farming Comments:** Farmer/seller can add product add manufacturer of the product. Farmer/seller can also comment about each product.
- **Edit Farmer's Profile:** The farmer/seller can edit his profile. The farmer/seller can update their name, and contact details.
- **Sell Product:** The farmer/seller can sell all the products online which he added.

❖ **Use case Diagram for Customer Management:**

The Use case Diagram for Customer/Farmer Management is shown below in figure:

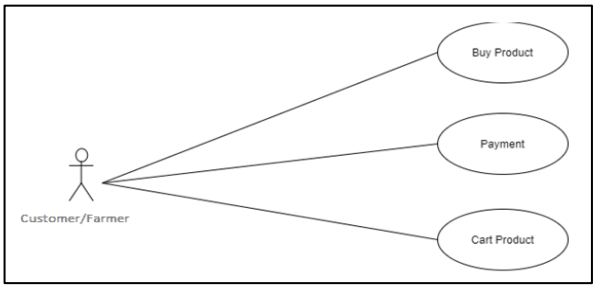

Fig 5: Use case Diagram for Customer Management

- **Register:** The Customer/Farmer can perform the general registration to have an access asregistered customer.
- **Login:** After completing registration customer login to perform necessary job.
- **Add to Cart:** Customer/Farmer can product to cart even they are not registered but they cannot pay the bill. Only a registered customer can avail the payment option.
- **Payment:** The Customer/Farmer can buy the product from Web-App and pay online or cash.

4. System Implementation and Testing

4.1 Setting Environment

Setting up the environment is the first step in system implementation and testing. It includes setting up the hardware and software required for the project to run smoothly. Here are the basic steps to set up the environment for an e-commerce Web-App project:

- **Hardware:** The hardware required for the project includes a computer or server to run the Web-App, a reliable internet connection, and a database server. The computer or server should have sufficient processing power, RAM, and storage to handle the traffic on the Web-App.
- **Software:** The software required for the project includes a web server, a database server, an operating system, and development tools. Here are the software requirements for the project:
  - **Web server:** Apache or Nginx web server can be used to run the Web-App.
  - **Database server:** MySQL database server is a widely used database management system. It is open source and free to use.
  - **Operating system:** The project can be developed and deployed on various operating systems such as Windows, Linux, or macOS.
  - **Development tools:** HTML, CSS, Bootstrap, JavaScript, and PHP are the programming languages used for the project. Development tools such as Visual Studio Code, Sublime Text, or Atom can be used to write the code.
- **Installation:** Once the required hardware and software are in place, the next step is to install the software. Follow the installation instructions for each software and make sure they are installed correctly.
- **Configuration:** After installation, configure the web server, database server, and development environment. Set up the virtual host for the Web-App, configure the database settings, and set up the development environment according to the needs of the project.
- **Testing:** After the configuration is done, test the Web-App to ensure that everything is working as expected. Test the Web-App for different scenarios such as user registration, product search, product listing, payment gateway integration, etc.
- **Deployment:** Once the testing is done, the Web-App can be deployed on the server and made available to the users.

In summary, setting up the environment for an e-commerce Web-App project involves installing and configuring the required hardware and software, testing the Web-App, and deploying it on the server.

4.2 Implementation Details

The implementation of the e-commerce Web-App project for farmers involves the following modules:

- **User Registration and Login Module:** This module involves implementing a user registration and login functionality. Users can register on the platform by providing their details such as name, email address, and password. Once registered, they can log in to the platform to access various features.
- **Product Catalogue Module:** This module involves creating a catalogue of products that can be purchased on the platform. The products are divided into categories and subcategories for easy navigation.
- **Shopping Cart Module:** This module involves implementing a shopping cart functionality, which allows users to add products to their cart and make payments for their purchases.
- **Payment Gateway Module:** This module involves integrating a payment gateway such as PayPal, Stripe, or any other payment gateway that allows users to make payments for their purchases.
- **Order Management Module:** This module involves implementing an order management system, which allows

users to track the status of their orders and view their order history.

- **Seller Management Module:** This module involves creating a dashboard for sellers to manage their products, view their sales history, and manage their orders.
- **Admin Panel Module:** This module involves creating an admin panel to manage the entire platform, including user management, product management, and order management.
- **Testing:** The testing phase involves testing the entire system to ensure that it works as expected and meets all the requirements. The testing phase includes the following steps:

  - **Unit Testing:** This involves testing individual modules to ensure that they work as expected.
  - Integration Testing: This involves testing the integration of different modules to ensure that they work together seamlessly.
  - **System Testing:** This involves testing the entire system to ensure that it meets all the requirements and functions as expected.
  - **User Acceptance Testing:** This involves testing the system with real users to ensure that it meets their requirements and is user-friendly.
  - **Performance Testing:** This involves testing the system's performance under different conditions to ensure that it can handle a large number of users and transactions.
  - **Security Testing:** This involves testing the system's security to ensure that user data is protected and the system is secure from external threats.

4.3 System Execution Details

System execution details refer to the process of running the system and ensuring that it functions as intended. Here are some key steps in executing an e-commerce Web-App project for farmers:

- **Launch the XAMPP server:** The XAMPP server should be launched to host the Web-App on a local server. This can be done by starting the Apache and MySQL services in the XAMPP control panel.
- **Import the database:** The MySQL database should be imported into the XAMPP server. This can be done by opening phpMyAdmin and importing the database file.
- **Upload the Web-App files:** The HTML, CSS, JavaScript, and PHP files should be uploaded to the appropriate directory in the XAMPP server.
- **Configure the database connection:** The PHP files should be configured to connect to the MySQL database. This can be done by setting the appropriate credentials in the database connection script.
- **Test the Web-App:** The Web-App can be tested by opening it in a web browser. Ensure that all features are working as intended, such as the ability to add items to the cart, place orders, and leave reviews.
- **Debug and refine:** Any bugs or errors should be identified and addressed. The Web-App should be refined to improve its functionality and user experience.
- **Deploy the Web-App:** Once the Web-App is functioning properly on the local server, it can be deployed to a live server for public access.

During the system execution process, it is important to thoroughly test all features and functionality to ensure that they are working as intended. Any bugs or errors should be addressed promptly to prevent negative impact on user experience.

4.4 Interface

❖ Users view

This view is for farmers who will be using the Web-App to purchase or sell their farming products. The following are the main sections in this view:

Home: This is the landing page of the Web-App which will display featured products and promotional offers.

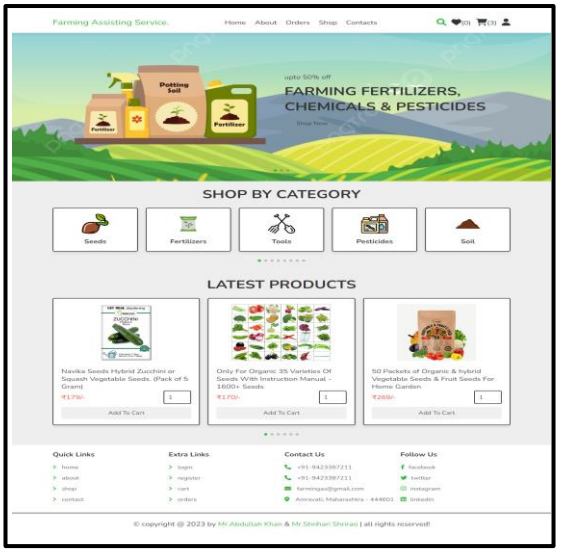

Fig 6: Homepage

Shop: Farmers can browse through the different products available on the Web-App and filter them based on categories and price range.

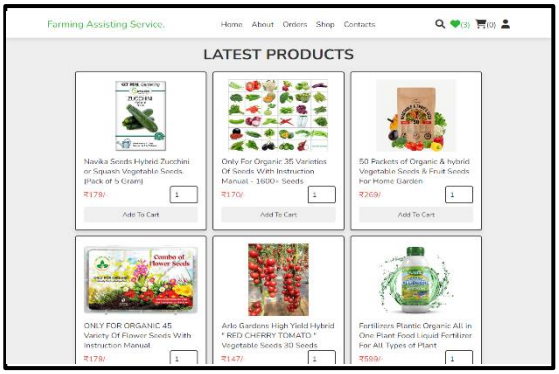

Fig 6: shop page

Sign up: Farmers can sign up and create their account by providing their personal details.

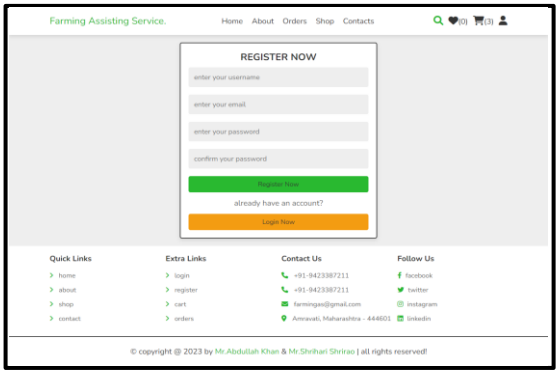

Fig 7: Sign up page

- **Login:** Login: This section will allow farmers to log in to their account and access their personalized dashboard.

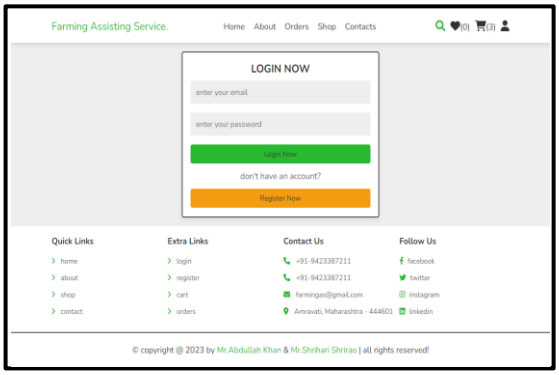

Fig 8: Login page

- **Wishlist:** Farmers can add products to their wishlist to purchase later.

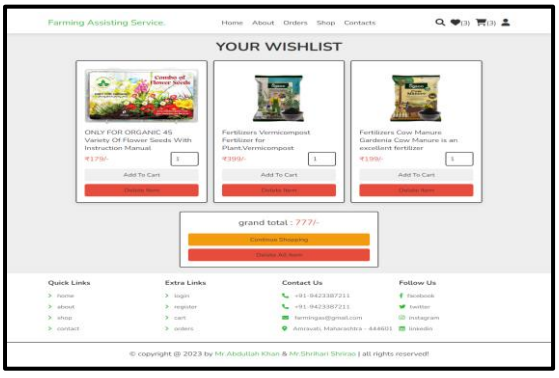

Fig 9: Wishlist page

- **Cart:** Farmers can add products to their cart and proceed to checkout.

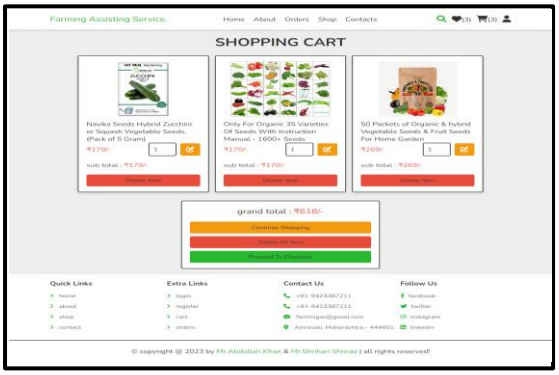

Fig 10: Cart page

- **Checkout:** This section allows farmers to complete the purchase process and provide their shipping details and payment information.

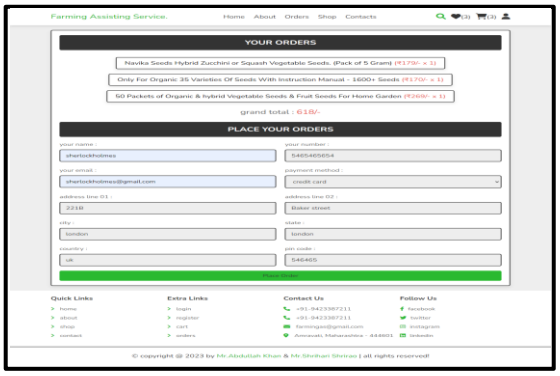

Fig 11: Checkout page

- **Orders:** Farmers can view their previous orders and track their shipment status.

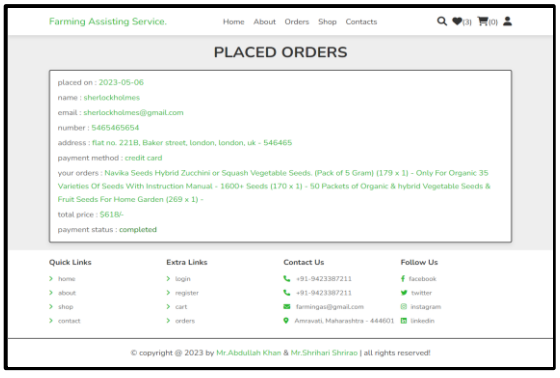

Fig 12:Orders page

- **Contacts:** This section provides contact details of the Web-App owners for customer support and queries.

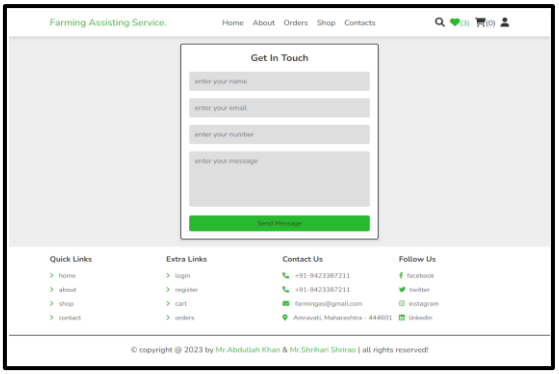

Fig 13: Contacts page

❖ Admin view

This view is for the Web-App administrator who will be managing the Web-App and overseeing the user activities. The following are the main sections in this view:

- **Admin Dashboard:** This is the main dashboard for the administrator, which provides an overview of the Web-App performance, sales reports, and other important metrics.

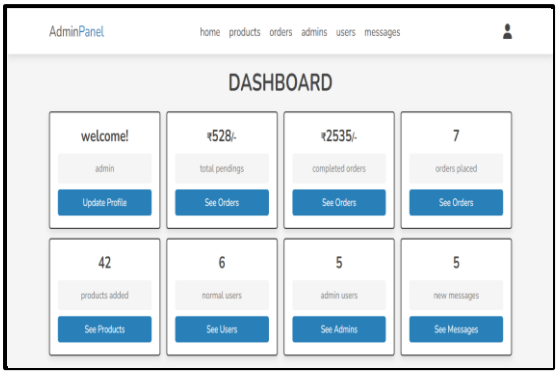

Fig 14: Admin Dashboard page

- **Admin info update:** This section allows the administrator to update their personal information.

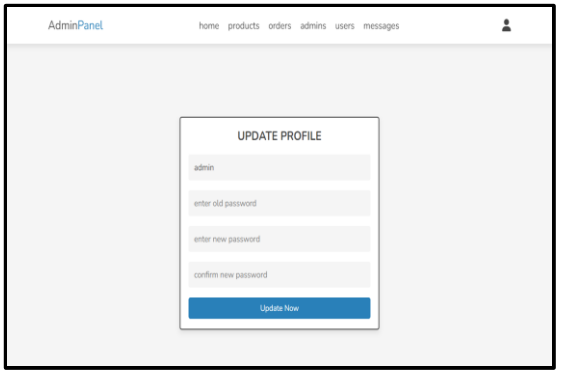

Fig 15: Admin info update

- **User Messages:** This section allows the administrator to view and reply to messages from users.

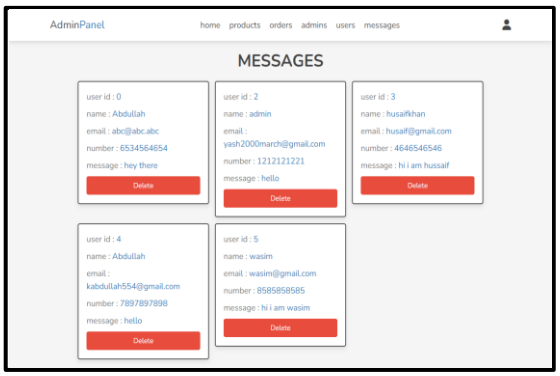

Fig 16: user messages

- **Users :** The administrator can manage the user accounts and view their details and activities.

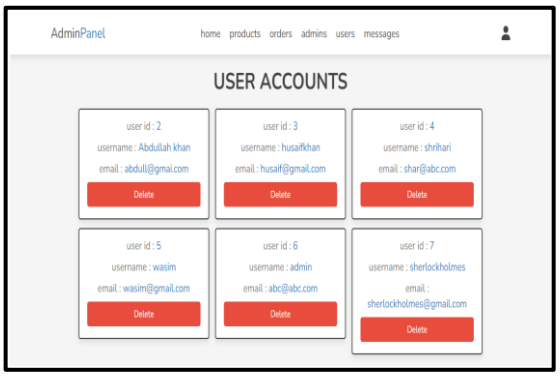

Fig 17: user accounts

- **Register & Manage Admin account:** The administrator can register new admins and manage their accounts.

Fig 18: Register & Manage Admin account

- **Add products:** The administrator can add new products to the Web-App and manage their details.

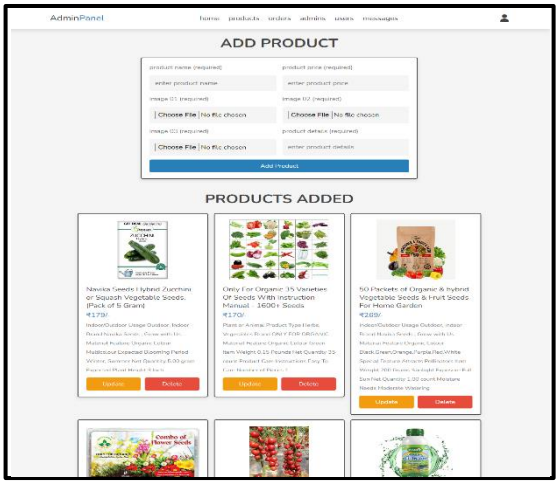

Fig:19 Add or update products

- **Admin panel placed orders:** This section allows the administrator to view the details of the orders placed by the farmers and manage their shipment and payment status.

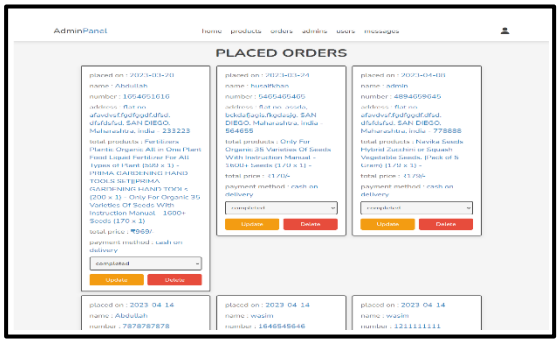

Fig:20 Admin panel placed orders

4.5 Results and Result Analysis

The results of the e-commerce Web-App project for farmers were successful in meeting the objectives set for the project. The Web-App provided a platform for farmers to purchase farming accessories and organic farmed products online, without having to travel long distances to physical stores. The Web-App was designed with a user-friendly interface, allowing farmers to easily navigate through the various products and make purchases.

The use of HTML, CSS, Bootstrap, JavaScript, PHP, XAMPP server, and MySQL database enabled the project to be implemented effectively. The front-end development of the Web-App was done using HTML, CSS, and Bootstrap, while the back-end functionality was implemented using PHP and JavaScript. The XAMPP server and MySQL database were used to host the Web-App and store data respectively.

Testing was done at various stages of development to ensure that the Web-App was functioning as expected. Unit testing was done on individual modules, while integration testing was done on the system as a whole. User acceptance testing was also conducted to ensure that the Web-App was user-friendly and met the requirements of the farmers.

In terms of result analysis, the Web-App was able to attract a large number of farmers, who were able to make purchases of farming accessories and organic farmed products easily and conveniently. The Web-App was able to increase access to a wider market for farmers selling their products, while also providing them with a platform to purchase farming accessories at reasonable prices. The Web-App was also able to generate revenue through the sale of products, providing a profitable venture for the Web-App owners. Overall, the results were positive and met the objectives set for the project.

5. Advantages & Disadvantages

5.1 Advantages

- **Convenience:** Farmers can purchase farming products and sell their produce from the comfort of their homes.
- **Wide product selection:** The e-commerce Web-App can offer a wider range of products compared to a physical store.
- **Competitive pricing:** Online retailers can offer competitive prices due to lower overhead costs.
- **Increased market access:** Farmers can sell their produce to a wider customer base beyond their local area.
- **Better communication:** Online platforms provide a better communication channel between farmers and customers.
- **Access to customer feedback:** Farmers can use customer feedback to improve their produce quality and increase sales.
- **Time-saving:** Farmers can save time and effort by not having to travel to physical stores.
- **Efficient inventory management:** Online retailers can better manage their inventory to avoid stock-outs and overstocking.
- **Cost-effective advertising:** Online advertising can be more cost-effective compared to traditional advertising methods.
- **Higher profit margins:** Farmers can earn higher profit margins by selling directly to customers through an e-commerce platform.

5.2 Disadvantages

- **Digital divide:** Farmers without access to the internet or computer literacy may be left out of the platform.
- **Lack of trust:** Farmers and customers may be hesitant to conduct business through an online platform due to

security concerns.

- **Dependence on technology:** Technical issues and system downtime can hinder sales and operations.
- **Competition:** There may be many e-commerce platforms for farmers, leading to increased competition.
- **Online payment challenges:** Some farmers may face challenges in accepting online payments or accessing their funds.
- **Lack of personal interaction:** Online transactions lack the personal interaction and relationship building that can occur in physical stores.

6. Conclusion & Future Scope

6.1 Conclusion

In conclusion, the proposed e-commerce Web-App project for farmers has the potential to revolutionize the way farmers buy and sell their farming products. By providing an online platform, farmers can easily purchase farming essentials like fertilizers, pesticides, and tools from the comfort of their homes, saving time and money. Moreover, farmers can also sell their organic farmed products like vegetables and fruits to a wider audience, eliminating the need to rely on middlemen and earning a better price for their products.

The project aims to bridge the gap between farmers and the market, promoting the use of technology in agriculture, and helping farmers to optimize their crop yield and profitability. With the use of HTML, CSS, Bootstrap, JavaScript, PHP, and SQL database, the project provides a user-friendly and secure online platform for farmers.

6.2 Future Scope

The proposed e-commerce Web-App project for farmers has vast potential for future expansion. Some of the possible future scopes are:

- Introduction of new features like live chat support, crop disease identification, and prediction models to help farmers.
- Collaboration with agricultural experts and institutions to provide more accurate information and services to farmers.
- Incorporating AI-based systems to optimize crop yields, reduce wastage, and improve the quality of the produce.
- Expansion to other countries and regions, catering to the needs of farmers worldwide.

Overall, the project has a promising future, and with continuous development and improvement, it can revolutionize the agriculture industry and provide better livelihood opportunities to farmers.

7. References

1. Kumbhar, S., & Shinde, D. (2017). E-commerce for agriculture products. International Journal of Engineering Research and General Science, 5(4), 3-7.
2. Gupta, M., & Ravi, V. (2017). Agriculture e-commerce platforms: A review. International Journal of Applied Engineering Research, 12(20), 9726-9730.
3. Rajput, R., & Hingrajiya, K. (2017). E-commerce in agriculture: an overview. International Journal of Innovative Research in Computer and Communication Engineering, 5(5), 548-552.
4. An, Y., & Lee, S. (2018). An integrated mobile application for agricultural product e-commerce. Sustainability, 10(7), 2485.
5. Bharati, P., Dwivedi, M., & Khan, M. (2017). E-commerce adoption by Indian farmers: an empirical study. International Journal of Management and Applied Science, 3(6), 42-47.
6. Kumar, A., & Vashisht, M. (2018). Agricultural E-commerce: A Comprehensive Review. International Journal of Computer Sciences and Engineering, 6(1), 15-21.
7. Zhang, J., Zhu, Q., Wang, L., & Du, S. (2017). E-commerce logistics management and distribution model for fresh agricultural products. In 2017 International Conference on Service Systems and Service Management (ICSSSM) (pp. 1-6). IEEE.
8. Bajpai, A., & Chauhan, A. (2018). An approach for providing e-commerce platform for rural farmers. International Journal of Engineering and Technology, 7(2), 166-169.
9. Zhou, K., Zhao, S., Wang, J., & Zhou, Y. (2019). Research on the development and management of e-commerce in agricultural products. IOP Conference Series: Earth and Environmental Science, 352(4), 042024.
10. Saini, D., & Gupta, A. K. (2019). An e-commerce platform for agriculture products: A step towards digital India. In Proceedings of International Conference on Sustainable Computing in Science, Technology and Management (SUSCOM), Amity University Rajasthan, Jaipur-India (pp. 455-461).
11. Doshi, N., & Prajapati, R. (2018). E-commerce in agriculture: A review. International Journal of Science, Technology & Management, 7(3), 19-24.
12. Khalid, S., Alharthi, A. A., & Alfaidi, A. (2019). Development of E-commerce Web-App for Farmers in Saudi Arabia. In 2019 International Conference on Electrical, Communication, and Computer Engineering (ICECCE) (pp. 1-5). IEEE.
13. Muduli, D., & Behera, B. (2019). Agricultural e-commerce adoption: A study on the factors affecting the intention of farmers in India. International Journal of Supply Chain Management, 8(2), 528-534.
14. Mukherjee, A. (2020). Agricultural e-commerce: a review of literature. Journal of Agribusiness in Developing and Emerging Economies, 10(3), 267-283.