AGRICULTURAL E-COMMERCE MARKETPLACE

FarmShare: Web-Based Agricultural Marketplace for Direct Farmer-to-Customer Selling

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Abstract

Agriculture is an important part of the Indian economy because it provides food, income and employment to millions. But farmers struggle to sell their products because of various issues like middlemen, difficulty in setting prices, and lack of communication. FarmShare is a web-based agricultural marketplace that allows farmers to sell their products. This application allows farmers to register, create profiles, showcase products, update products and reply to customer requests. Customers can look at products, view product details and contact farmers. FarmShare is a simple web-based application that utilises HTML, CSS and JavaScript to create the front-end and Node.js, Express.js to create the back-end. The major goal of this application is to make selling products in agriculture easier and increase communication between farmers and customers.

Keywords: agricultural marketplace; direct farmer-to-customer selling; web application; Node.js; Express.js; MySQL; digital agriculture

1 Introduction

Agriculture plays a huge role in the Indian economy. It provides food, employment and income to millions of people. Farmers will grow a variety of crops and agricultural products to meet the needs of society. These products need to be sold through a marketing system once they have been harvested. Farmers usually sell through local markets, wholesalers, middlemen and retailers. This can cause issues with getting more customers, comparing prices and communicating. FarmShare is therefore a web-based marketplace that allows farmers to sell their products. Farmers can register, create profiles, showcase products with names, prices, quantities and descriptions. Customers can look at products, view product details and send requests to farmers. The application supports user authentication, profiles, product showcases, customer requests, messages and reviews.

2 Problem statement

Farmers and customers often run into issues when trying to market their products. Farmers may struggle to get more customers, provide product details and respond to customers. Farmers may have issues with receiving less income because they are reliant on wholesalers and middlemen. There is also no common platform for customers to easily check what products are available, their prices and product details. FarmShare is a web-based marketplace that allows farmers to showcase their products. This allows farmers to have a common platform to showcase their products, update products and respond to customer requests. Customers can look at what products are available, view product details and contact farmers. This application aims to make selling products in agriculture easy and increase organisation and efficiency in communication.

The major issues identified are:

- Dependency on middlemen.
- Struggle to reach customers.
- No clear way to compare prices.

3 Scope of the project

FarmShare is a web-based marketplace that allows farmers to sell their products to customers. Farmers can showcase their products.

3.1 Farmer scope

- Register and login.
- Create and manage profiles.
- Add and update agricultural products.
- Update product details and prices.
- View customer requests.
- Contact customers.

3.2 Customer scope

- Register and login.
- View products.
- View product details and prices.
- Send purchase requests to farmers.
- Contact farmers.
- Give reviews.

3.3 Admin scope

- Manage user details.
- View product details.
- Manage incorrect information.
- Maintain activities on the platform.

3.4 Technical scope

- HTML – To create the structure of the webpage.
- CSS – To design the website.
- JavaScript – To create functionality on the front-end.
- Node.js – Create back-end.
- Express.js – API and routing.
- MySQL – Database management.

3.5 Future scope

Mobile applications, online payments and delivery tracking can be added.

4 Literature review

This review examines previous studies related to digital agriculture and provides a foundation for the FarmShare project.

4.1 AgriConnect (2026)

- Authors: Chavan et al. [2].
- Connects farmers to customers.
- Provides registration, product showcase, price management and order management.
- Helped with designing product and farmer management.

4.2 WB-CPI (2021)

- Authors: Gupta et al. [4].
- Focuses on crop prediction based on weather.
- Uses big data analytics with Python, MapReduce and K-means clustering.
- Allows crop recommendations and planning for agriculture.
- Helps farmers make better decisions regarding crops and shows how technology can be used in agriculture.

4.3 Web-based e-commerce platform (2025)

- Authors: Deekshitha et al. [6].
- Online platform for selling agricultural products.
- Farmers can showcase products.
- Aims to reduce reliance on middlemen.

4.4 AgroConnect (2025)

- Authors: Manjiree Chandrakant Huse et al.
- Product showcase, order management and communication.
- Gives ideas for managing products and customer requests.

5 Comparison table

Table 1 compares the proposed FarmShare system with AgriConnect [2] and WB-CPI [4].

Table 1. Comparison of FarmShare with existing systems.

Parameter	AgriConnect	WB-CPI	Proposed FarmShare
Main purpose	Agricultural marketplace	Crop prediction	Agricultural marketplace
Platform	Mobile application	Data analytics system	Web application
Main users	Farmers and customers	Agricultural data users	Farmers and customers
Technology	Flutter and Firebase	Big data analytics	HTML, CSS, JavaScript, Node.js, Express.js, MySQL
Product listing	Available	Not its primary function	Available

Parameter	AgriConnect	WB-CPI	Proposed FarmShare
Customer requests	Order-related functionality	Not its primary function	Available
Messaging	Depends on implemented application features	Not its primary function	Available
Main focus	Digital agricultural sales	Weather-based crop prediction	Direct interaction between farmers and customers

6 Research gap

A research gap means identifying areas where previous studies/systems have issues or can be improved upon. Previous studies focus on different areas of digital agriculture. AgriConnect has been developed as a mobile application whereas FarmShare is a web-based application allowing farmers and customers to use the marketplace services through their browser. WB-CPI focuses on crop prediction based on weather, whereas FarmShare focuses on marketing agricultural products.

FarmShare aims to provide a common platform for farmers to add and manage product details, such as prices, quantities and descriptions. Customers can look at products, send purchase requests and communicate with farmers. It uses MySQL to store and manage user details, product details, customer requests, messages and reviews. Unlike previous studies, FarmShare provides product showcase, customer browsing and communication.

7 Proposed work

FarmShare is a web-based agricultural marketplace. This allows farmers to showcase their agricultural products. Customers can look at products.

7.1 System architecture

This application uses a three-layer system:

- Presentation Layer: HTML, CSS, JavaScript.
- Application Layer: Node.js & Express.js.
- Database Layer: MySQL.

7.2 How the proposed system works

1. Users register and login.
2. Farmers add and manage products.
3. Customers look at available agricultural products.
4. Customers send requests to farmers.
5. Farmers and customers can communicate.

7.3 Modules

- Authentication Module – Manage user registration and login.
- Farmer Module – Manage farmer profiles and products.
- Customer Module – Browse products and send requests.

- Message Module – Enable communication.
- Review Module – Allow customers to give feedback.
- Admin Module (Future Scope) – Can be added to manage users, view listings and maintain activities.

7.4 Database design

The FarmShare database contains the tables listed in Table 2.

Table 2. Tables in the FarmShare database.

Table name	Description
Users	Stores user details.
Listings	Stores agricultural product details.
Requests	Stores customer requests.
Messages	Stores communication details.
Reviews	Stores customer feedback.

7.5 Advantages

- Direct connection between farmers and customers.
- Reduced reliance on middlemen.
- Easy to access product details and prices.
- Improved communication.
- Easy to showcase products.
- Encourages the use of digital technology in agriculture.

8 Technology used

- HTML – This is used to create the basic structure of webpages. In FarmShare this is used to create registration forms, login pages, dashboards and product sections.
- CSS – This is used to design and style the website. It allows different colours, font styles, spacing and layouts.
- JavaScript – This adds interactivity to the website. It allows validation on forms, actions by users and dynamic content. It also allows communication with the back-end.
- Node.js – This is a JavaScript runtime which allows back-end development. It allows execution of back-end code.
- Express.js – This is a framework for Node.js. It creates routes and APIs for the application. It manages requests and communication between front-end and back-end.
- MySQL – This is a relational database which stores and manages information such as user details, agricultural products, customer requests, messages and reviews.
- Visual Studio Code – This is a source code editor. It allows users to write/edit/debug files. It supports different programming languages and extensions.

9 System architecture

The system architecture of FarmShare is shown in Figure 1. It consists of three layers:

1. Presentation Layer: Provides the user interface using HTML, CSS, and JavaScript for farmers and customers.
2. Application Layer: Uses Node.js and Express.js to process user requests and manage application operations.
3. Database Layer: Uses MySQL to store and manage user details, products, requests, messages, and reviews.

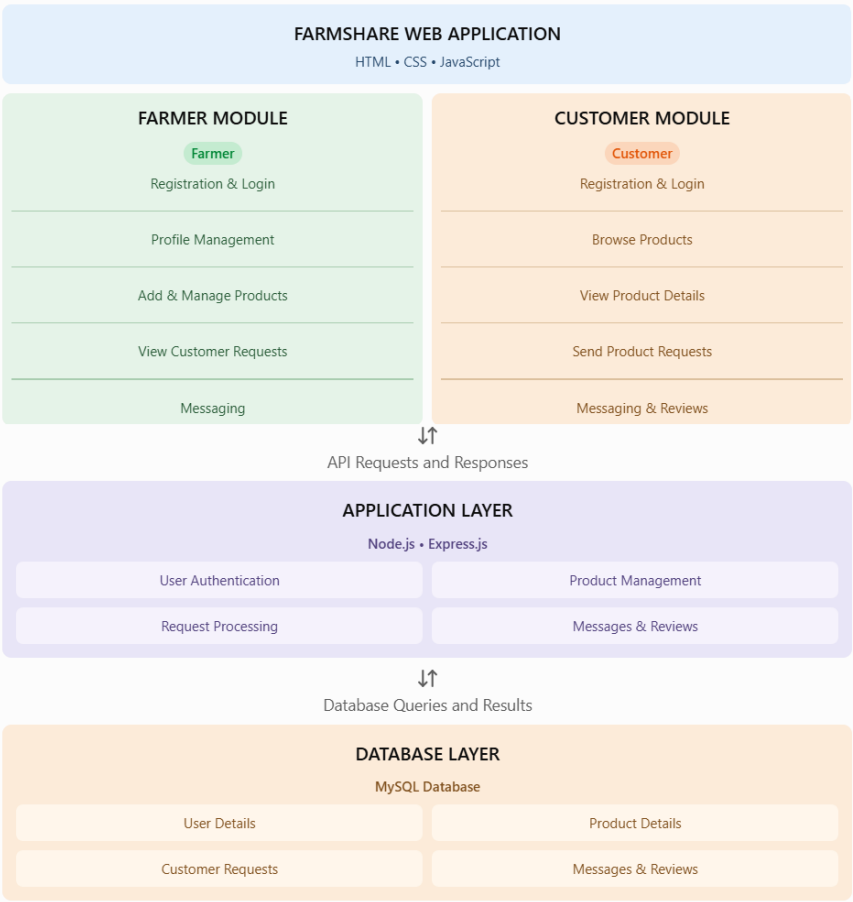


Figure 1. System architecture of FarmShare.

10 Results

The main screens of the FarmShare application are shown in Figures 2–6.

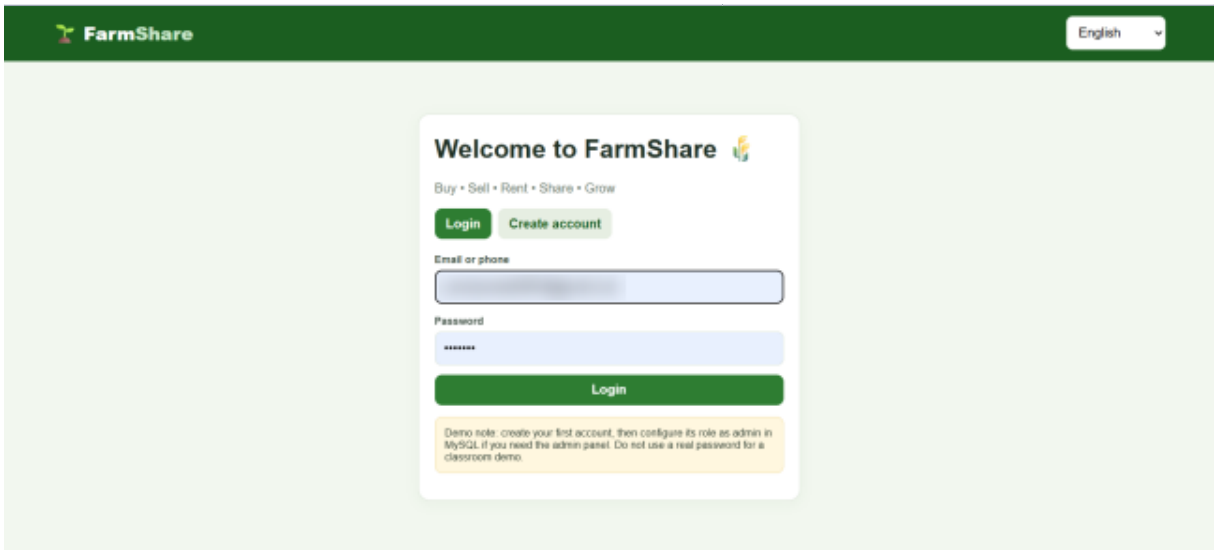


Figure 2. Log-in/registration screen.

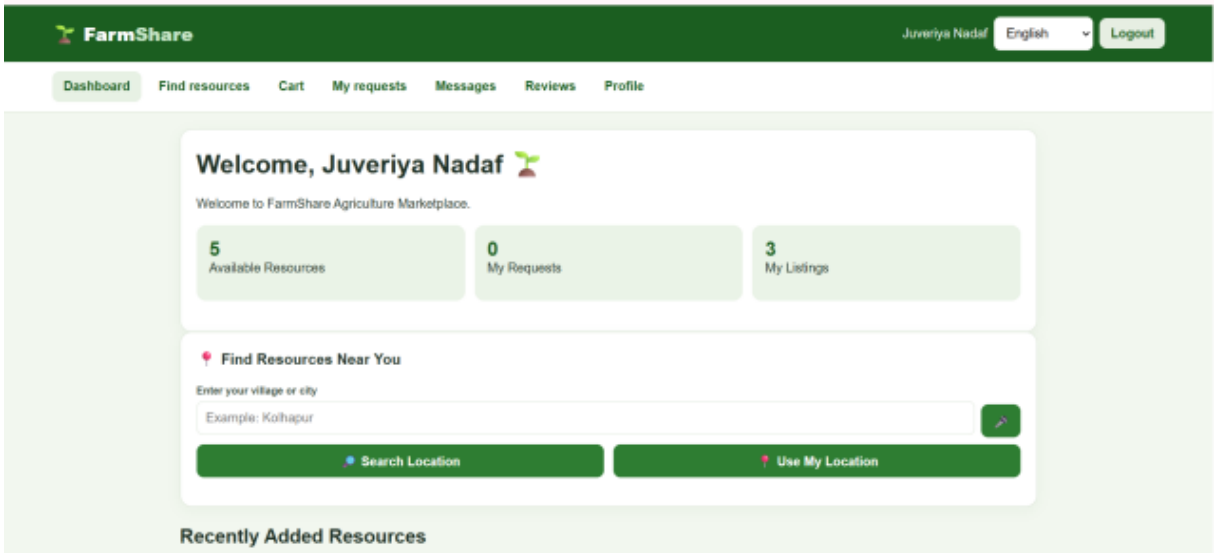


Figure 3. Dashboard.

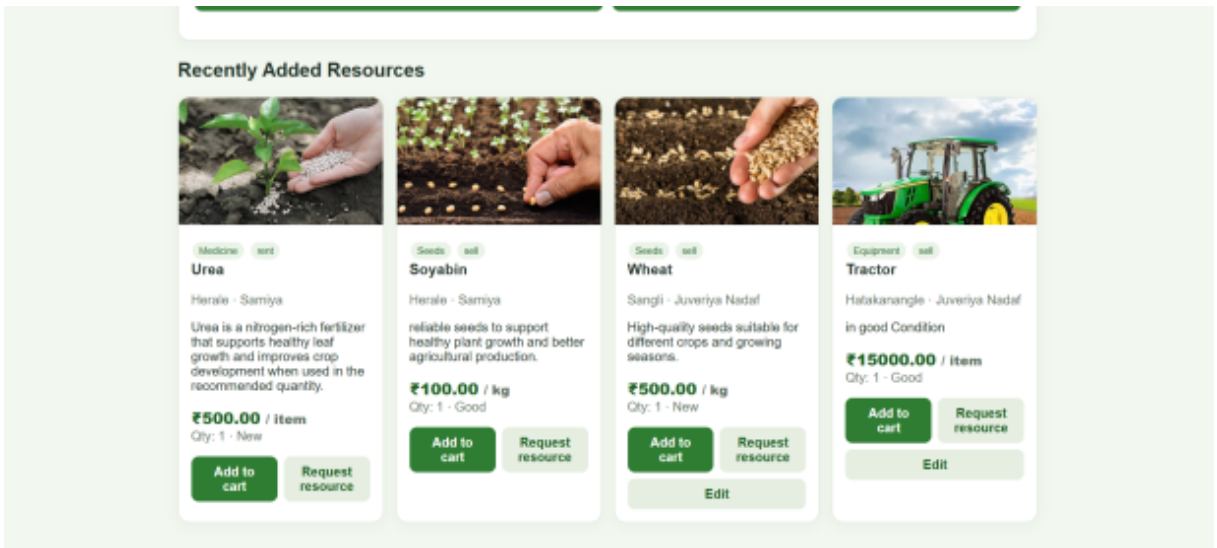


Figure 4. Product dashboard.

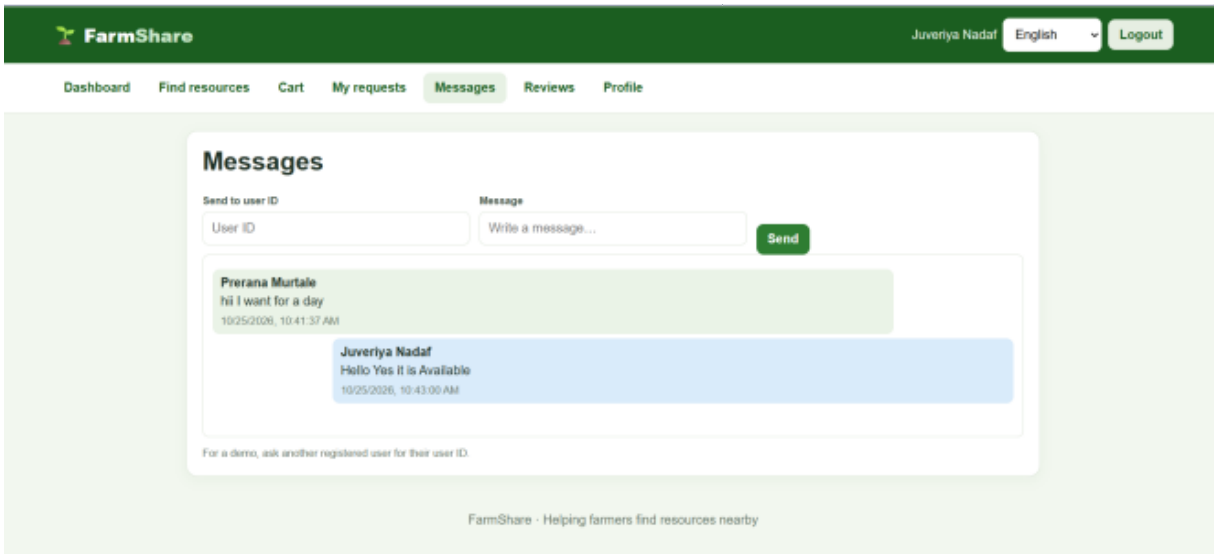


Figure 5. Message passing.

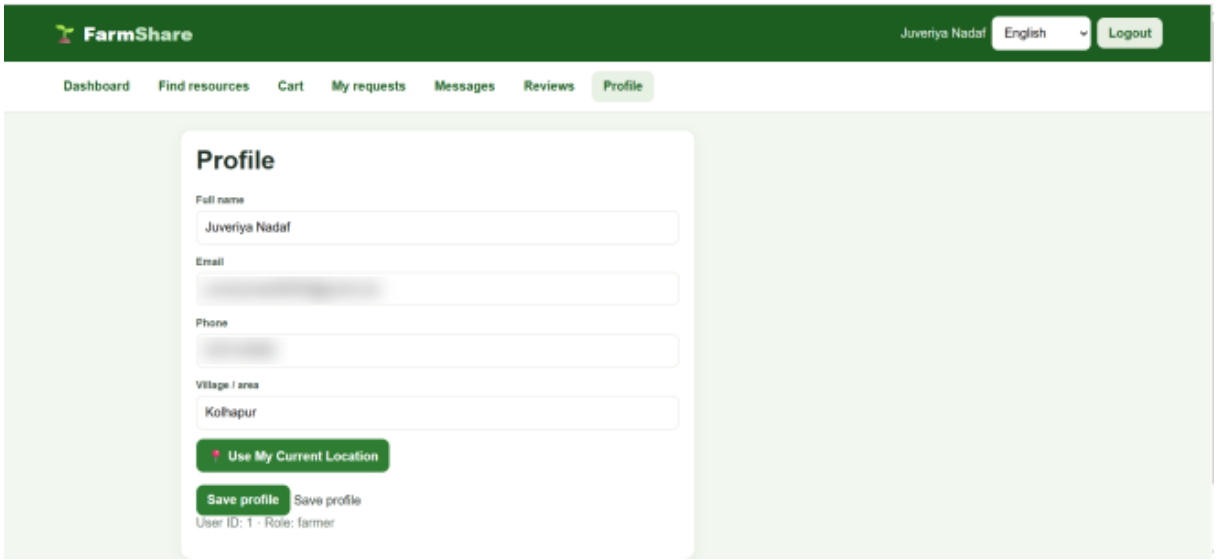


Figure 6. Profile.

11 Conclusion

FarmShare is a web-based agricultural marketplace designed to connect farmers directly with customers. It allows farmers to register, manage profiles, add products, and handle customer requests. Customers can browse available products, view details, and communicate with farmers. The system uses HTML, CSS, and JavaScript for the frontend, Node.js and Express.js for backend operations, and MySQL for database management. It aims to simplify agricultural selling, reduce communication barriers, and make product information easily accessible. In the future, FarmShare can be enhanced with online payment facilities, delivery management, a mobile application, and multilingual support.

12 Future scope

Future development could extend FarmShare with features that make agricultural resource access more convenient for farmers. GPS-based location tracking, for example, could help users identify

nearby agricultural equipment, seeds, fertilizers, and other resources. Online payment facilities may simplify purchases and rentals, while a mobile application would allow farmers to use the platform from their smartphones. Real-time notifications could provide updates about booking requests, orders, and newly listed items. Artificial Intelligence could also be explored for recommending agricultural resources based on farmers' stated requirements. Weather information and multilingual support are other possible additions that may help users access relevant information in a language they understand. Together, these enhancements could improve the platform's accessibility and usefulness to the agricultural community.

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