

# AGRIMART: A Digital Marketplace System for Direct Farmer-Consumer Interaction

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**Abstract** - AGRIMART is a digital marketplace built to bring farmers and consumers together—no more middlemen, no more price confusion. The platform takes everything that gets in the way—extra costs, lack of information, and tough market access for small farmers—and tackles it head-on. It gives everyone clear roles: farmers, buyers, retail and delivery partners, even administrators, all with tools and rights tailored just for them.

Farmers can easily upload their produce, set prices, and keep track of inventory. Buyers get to browse options, check prices, learn where their food comes from, place orders, and track their deliveries. Everything's managed out in the open, so everyone knows what's happening and trust actually builds. The system keeps everything running smoothly by bringing everyone onto the same platform, communicating in one space.

AGRIMART is simple to use and ready for future upgrades like real-time notifications and secure payments. It's built to grow - or shrink -and uses modern web tools that actually work in the real world.

## Key Features -

- Direct farmer–consumer interaction
- Multiple user roles with clear access controls
- Product listing and easy inventory management for farmers
- Secure logins and user authentication

## INTRODUCTION

Agriculture matters, it feeds us and employs a huge part of the world, especially in developing countries. But for years, farmers have barely made enough to get by, partly because prices are kept in the dark and most of their customers are out of reach.

Throw in a few intermediaries and prices shoot up even further, while farmers earn less. Most online solutions focus on big retailers or wholesalers, and forget the small farmers hoping to carve out an honest living. Even worse, most don't offer flexible roles or strong order management.

AGRIMART replaces old inefficiencies with a system that puts farmers and buyers face-to-face. Farmers get to show what they have, set their prices, and watch their stocks. Consumers get to browse and buy directly, all while tracking how and when their order moves. By using modern web tools, AGRIMART makes everything clearer, more accessible, and fairer for everyone.

In India, agriculture is a huge deal—millions rely on it every day. But farmers here, and around the world, get squeezed by middlemen who pocket most profits and bump the final costs. Consumers don't really know the journey their food has taken, and farmers have no clue what people want or how much they're willing to pay.

AGRIMART jumps this gap. Tech-wise, the system is built

with React.js, Node.js, and MongoDB, so it's fast, secure, and ready to grow. The goal? More transparency, fewer unnecessary steps, and an easier way for everyone to get what they need.

### Literature Survey

Plenty of research has gone into digital agriculture, pricing models, and AI for farming—but most focus on just one part of the puzzle. Some, like Cheng's ARIMA-SVM hybrid model, predict crop prices with historical data. Others try machine-learning for broader predictions, or real-time advisory through AI-based chatbots. A few use blockchain for transparency, but all these systems miss an all-in-one approach.

Some platforms track inventory and secure payment, others use complex AI, but almost none brings it all together: a single platform for direct farmer-consumer interaction, flexible roles, and smooth order management.

AGRIMART pulls these pieces together in one user-friendly and scalable system.

### Proposed System

AGRIMART isn't just another online catalog—it's a place where farmers and buyers actually meet, trade, and trust each other. Everyone signs in with their own role—farmer, consumer, delivery partner, retail partner, admin—getting the right tools for their job.

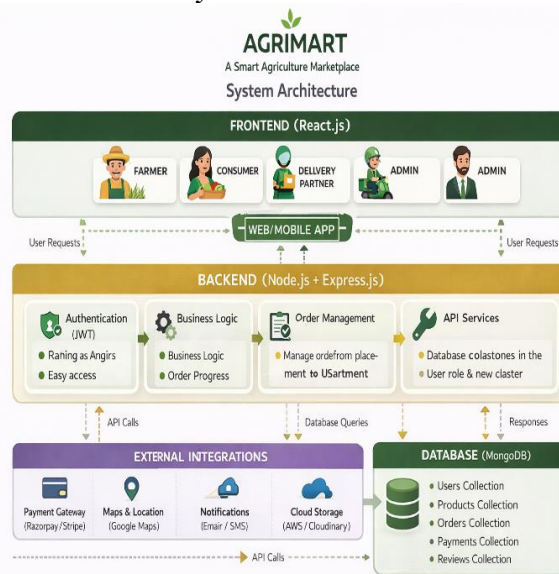
Farmers upload and price products, manage inventories, and track every order in real time. Buyers can explore, compare, order, and keep an eye on shipping. Delivery partners make sure everything arrives on time, and admins keep the system ticking.

Behind the scenes, there's secure login, strict role-based access, smooth order tracking, and open communication. The system is built with the future in mind—add AI for price trends, mobile apps, multiple languages, or new payment methods easily.

### Key Features of the Proposed System

- Connects farmers and consumers directly, no intermediaries
- Real-time price and inventory updates
- Secure, role-focused logins and actions
- Easy order management and delivery tracking
- Open for new features: mobile, AI predictions, local language support

### System Architecture



### METHODOLOGY

AGRIMART is split up into parts that fit together well. Up front, React.js handles everything users see and do—logging in, shopping around, and checking their orders. Node.js and Express.js take care of the muscle work on the back end, talking to MongoDB, which stores all the important details.

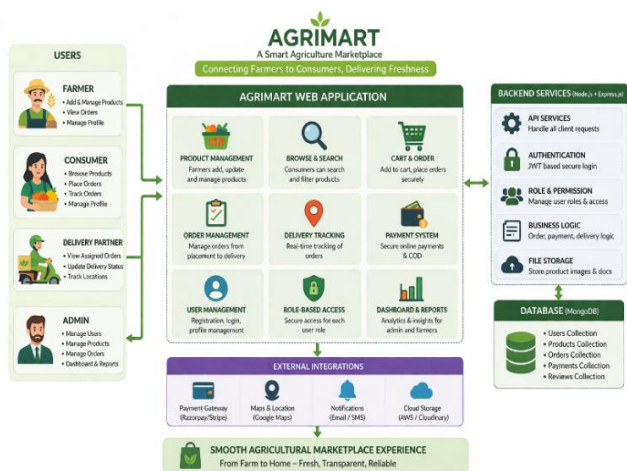
- Users interact through a clean web interface.
- They make requests that the backend checks and processes—logging in, posting products, placing orders.
- The backend applies business rules; only users with permission can act.
- MongoDB saves and pulls the data as needed.
- The frontend quickly gets results and updates the user.

Delivery partners and admins get their own tools to manage actual orders and keep everything moving.

### Traditional Approaches

Before systems like AGRIMART, everything was manual. Farmers relied on middlemen, record-keeping was a mess, prices were hidden, and tracking anything was almost impossible. Market reach was tiny, and trust was low on all sides. No direct interaction between farmers and consumers

- High dependency on middlemen
- Manual record-keeping and inefficient management
- Lack of real-time updates and tracking
- Limited market reach for farmers



### IMPLEMENTATION:

AGRIMART comes together with a modern tech stack. The frontend is React.js (plus HTML, CSS, JavaScript), making the interface responsive and friendly. Node.js and Express.js run the server and power the APIs. MongoDB keeps all the data organized.

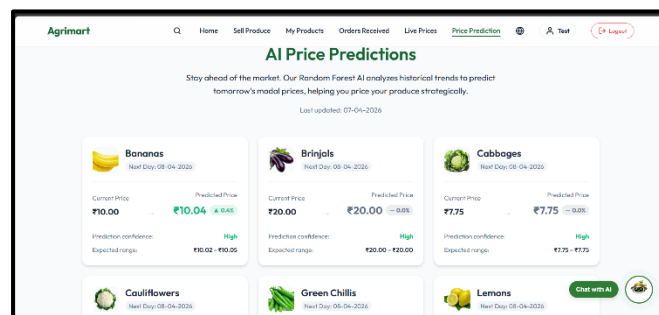
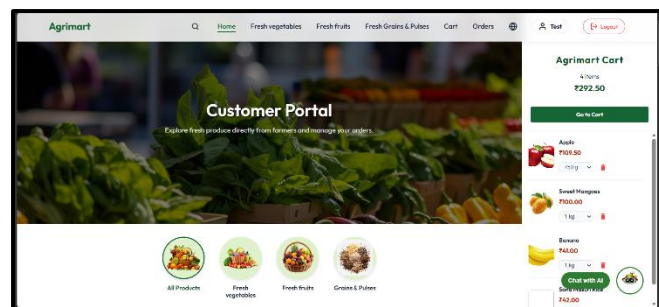
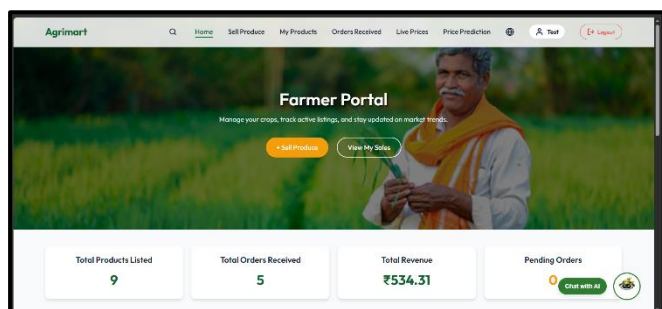
Development happened with Visual Studio Code and Git/GitHub for teamwork. The app runs smoothly in browsers like Chrome and is cloud-ready for 24/7 access.

The platform is split into reusable frontend parts (login, product lists, shopping cart, order tracking), all connected with React Router. The backend uses secure APIs, JWT authentication, and bcrypt to keep passwords protected. MongoDB collections (users, products, orders) are designed carefully, and Mongoose takes care of database structure. Axios links frontend and backend for fast data transfer.

### RESULTS AND ANALYSIS:

AGRIMART runs as intended. People can sign up, log in, list products, shop, and track orders easily. Each user only sees what they need, orders get processed efficiently, and communication channels are clear.

Farmers have total control over their products and sales. Consumers track exactly what they're getting and when. The whole system is secure, fast, and fair, doing away with most headaches of the old process.



### CONCLUSION:

AGRIMART sets a new standard for digital agriculture. By cutting out unnecessary middlemen, clarifying prices, and giving farmers the reins, it creates a market that's open and trustworthy. Tech like React, Node, and MongoDB make it scalable and ready for real-life use. Farmers benefit from better control and visibility; consumers can find out exactly what they're buying and deal directly with growers. In short, AGRIMART shows how digital tools can give everyone a fair shot.

### FUTURE SCOPE:

There's a lot of room to grow. AGRIMART can get smarter, faster, and easier to use with a few upgrades:

- AI pricing predictions to help farmers set the best prices
- Mobile apps for more access, especially for rural communities
- Multiple language options for users across regions
- Secure online payments and even better delivery tracking
- Analytics to help users make smarter choices
- Chatbots and voice assistants for quick support
- Integration with government services and more powerful recommendation engines

**Objectives:**

- Build a platform that links farmers and buyers directly
- Cut out dependency on middlemen
- Give farmers full control over pricing and sales
- Make every transaction and price transparent
- Streamline order management and delivery
- Design a system that's truly accessible to everyone

**Advantages:**

- Honest, direct trade between farmer and consumer
- Transparent pricing – no surprises
- Farmers set their own prices and manage their sales
- Role-based controls for better security and usability
- Efficient order and delivery management
- User-friendly for everyone, city or rural

**Limitations:**

Right now, most farmers still use traditional, middleman-heavy markets that drive costs up and profits down. Many digital systems ignore small farmers, lack flexible roles, or don't efficiently manage orders and logistics. AGRIMART's approach gives everyone more power and visibility, but there's still more to do for a fully seamless market.

**REFERENCES:**

- [1] H. Cheng et al., "Hybrid ARIMA-SVM Model for Crop Price Prediction," IAENG International Journal of Applied Mathematics, 2025.
- [2] N.-Q. Tran et al., "Machine Learning-Based Agricultural Price Prediction: A Systematic Review," Proceedings of SOICT, 2023.
- [3] R. Sheikh et al., "AgroChatbot: Multilingual AI Chatbot for Farmers Using LLaMA-3 and RAG," IEEE ICCSAI, 2025.
- [4] N. Jain et al., "AI-Based Agricultural Question Answering System Using Sentence Embeddings," IIT Gandhinagar, 2024.
- [5] M. Khatik et al., "Grambazaar: A Digital Marketplace for Rural Vegetable Commerce," International Journal of Scientific Development and Research (IJS DR), vol. 10, no. 6, 2025.
- [6] R. Kavitha et al., "Digital Agricultural Marketplace with AI-Based Price Tracking and Blockchain," International Journal of Innovative Research in Technology (IJIRT), 2025.
- [7] B. Surya Teja et al., "AI-Based Multilingual Agricultural Chatbot System," IJIRT, 2025.
- [8] Dr. S. Mohana et al., "AGRI CONNECT – A Transparent Digital Marketplace for Empowering Farmers," International Research Journal on Advanced Science Hub (IRJASH), vol. 7, no. 4, 2025.