AgroConnect Nepal - Project Documentation

1. Project Overview

AgroConnect Nepal is a web-based agriculture platform designed to connect Nepalese farmers directly with buyers and transporters. It facilitates seamless product listings, multilingual support, offers, logistics, and feedback - all tailored to empower the local agricultural economy of Nepal.

2. Objectives

- Enable farmers to sell their produce directly to buyers.
- Provide multilingual accessibility for inclusive participation.
- Allow buyers to make offers and schedule pickups.
- Match transporters with delivery requirements efficiently.
- Ensure transparency through user ratings and order tracking.

3. Stakeholders

- **Farmers**: List crops/products, view offers, manage orders.
- **Buyers**: Browse products, make offers, place orders.
- **Transporters**: Register transport services, schedule pickups.
- **Admins**: Monitor and manage users, products, and logistics.

4. Functional Requirements

User Module

- Register/Login (Farmer, Buyer, Transporter).

- Language preference selection.

- Update profile and reset password.

Product Module

- Farmers can add/update/delete product listings.

- Support multilingual product descriptions.

Offer Module

- Buyers can place offers on products.

- Farmers can accept/reject offers.

Order Module

- Direct purchase or conversion from offer.

- Track order status and history.

Logistics Module

- Transporters list availability and vehicle info.

- Schedule pickups and track delivery.

Rating Module

- Rate counterpart after order delivery.

- Comment and star rating system.

5. Non-Functional Requirements

- Responsive UI for mobile and web.

- Secure password hashing and JWT authentication.

- Scalable backend APIs with rate limiting.

- Real-time notifications (future scope).

6. Technology Stack

Frontend:

- React.js (with Redux for state management)

- Tailwind CSS

- i18next for multilingual support

Backend:

- Node.js with Express

- MongoDB (with Mongoose)

- JWT for Authentication

- Bcrypt for password hashing

DevOps / Hosting:

- Render or Vercel (Frontend)

- Railway or Render (Backend)

- MongoDB Atlas (Database)

7. Database Models (Brief)

User

- ID, Name, Email, Phone, Role, LanguagePreference, PasswordHash

Product

- ID, Name, Description, Price, Quantity, Language, FarmerID

Offer

- ID, ProductID, BuyerID, OfferPrice, Status

Order

- ID, ProductID, BuyerID, FarmerID, Quantity, Status

Transport

- ID, TransporterID, VehicleType, Availability

Pickup

- ID, OrderID, TransportID, PickupDate, Status

Rating

- ID, FromUserID, ToUserID, Rating, Comment

8. Entity Relationship Diagram

(Refer to ER diagram in project assets)

9. Benefits

For Farmers:

- Fair pricing via direct buyer access.
- Reduced waste with faster delivery.
- Inclusive support via local language access.

For Buyers:

- Fresh produce at better prices.
- Negotiation via offer system.

For Transporters:

- Regular, targeted logistics jobs.
- Efficient scheduling.

10. Future Enhancements

- Mobile App with offline support.
- AI crop price prediction.
- Weather/crop advisory APIs.
- Government subsidy tracking.

11. Conclusion

AgroConnect Nepal is a step toward modernizing agriculture in Nepal by enabling transparent, accessible, and efficient trade among farmers, buyers, and transporters. Its multilingual and modular architecture ensures inclusivity, scalability, and real-world impact.