

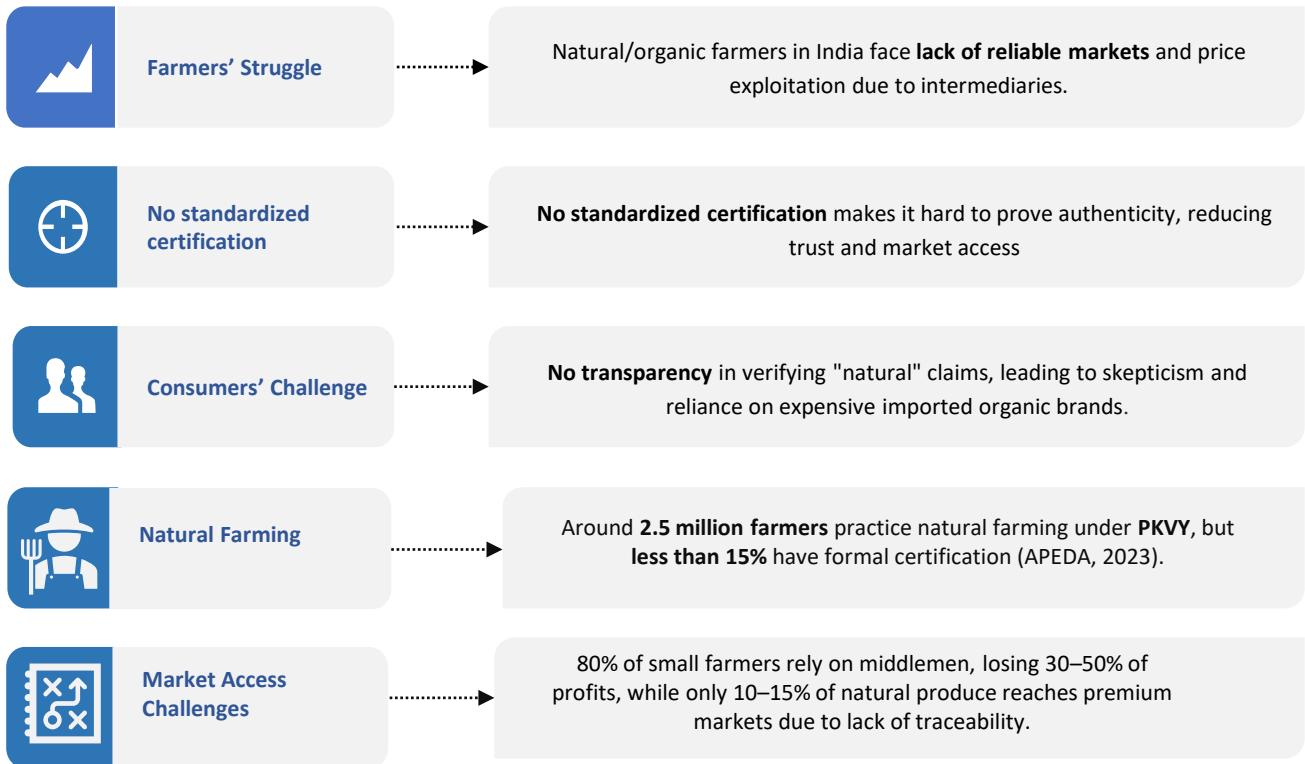
# EcoNirman

Building a green agricultural future



Name	role	skills
Parmar krish D	Backend Developer	JavaScript, Redis, Kafka, Python
Parmar Falguni A	Researcher	JavaScript, C
Parekh Pujan	Frontend developer	JavaScript, Java, DSA
Gadhvi Aditya	Full stack	JavaScript, MERN

# Problem statement



## Problem Analysis

### Farming in India IN

- 1 **120-150 million** farmers are farming in India! 🧑‍🌾 🧑
- 2 But only **2 million** farmers practice **natural farming** 🌱
- 3 The other **118 million** farmers use different farming methods 🚜
- 4 It's hard to identify who is doing natural farming and who is not 😮🔍
- 5 Buyers can't easily trust farmers because they don't know how the crops are grown 😞

### Impact of Unhealthy Crops ✖️

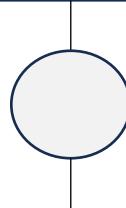
- 1 Many farmers use **chemical fertilizers** 🌳
- 2 These chemicals make crops **unhealthy** ✖️
- 3 People eating these crops can get sick 😢
- 4 Health problems are increasing due to chemical farming ! 💔
- 5 We need to promote natural farming for healthy food & a healthy life! 🌱

# Solution

Pain Point 1: There is no certification system to verify that a farmer is practicing natural farming.

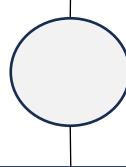
## Farmer-Friendly Registration

- Farmers can register in any language they choose! 
- We will add **Voice AI**  to help farmers register easily in their selected language. 
- No typing mistakes!  AI will make it **error-free** 
- Simple, fast, and hassle-free! 



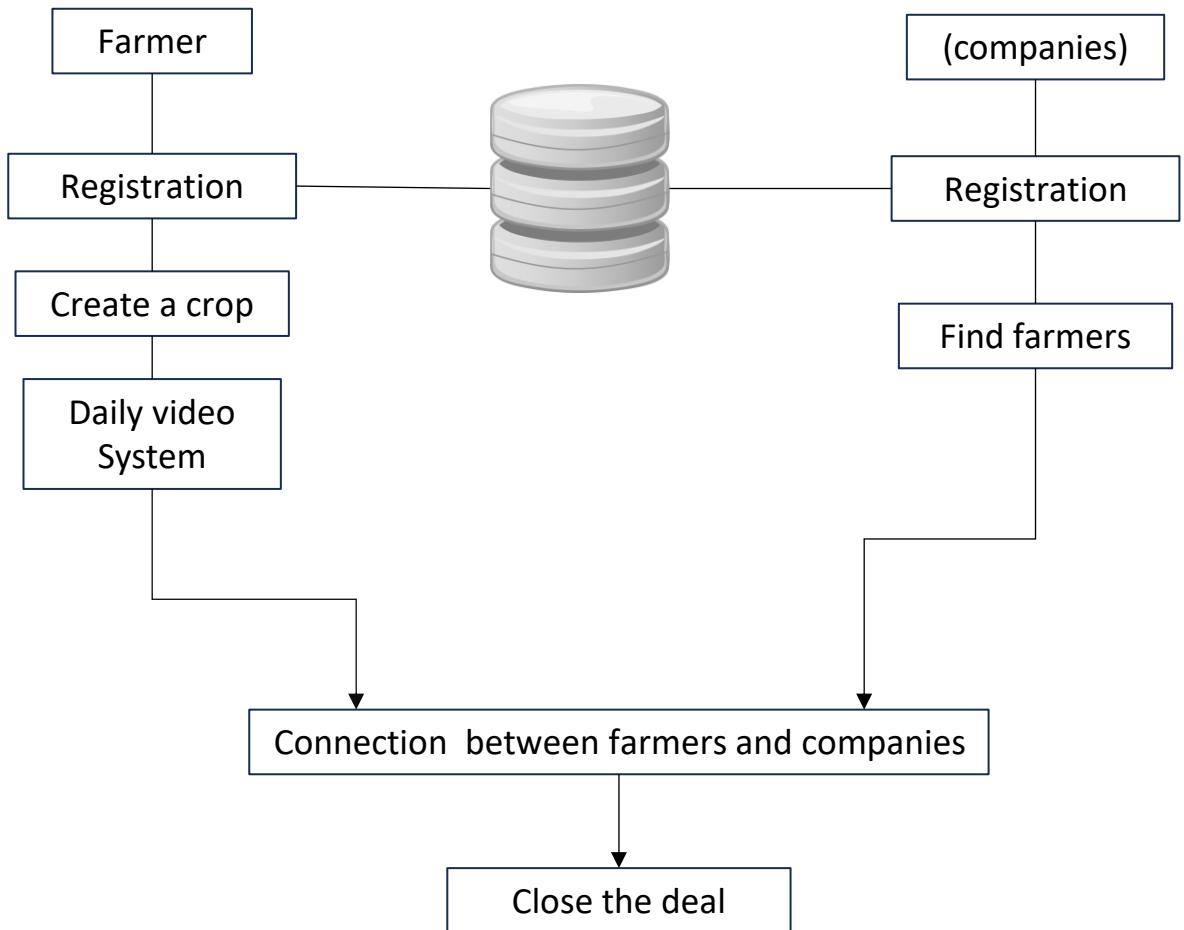
## Farmer Video Verification

-  After registration, farmers will record & upload a video  
-  For security, we don't allow users to upload videos from the gallery  
-  Our AI model & team will check the videos and product details  
-  Farmers need to complete 1-2 crop cycles  
-  After verification, we provide a Natural Farming Certificate  



## Strong Connection Between Farmers & Buyers

-  Buyers can see how crops are grown  
-  Farmers show what products they use for farming  
-  Buyers know the time needed to grow each crop  
-  Full transparency! Our app provides proof of natural farming  
-  Farmers earn more money for their high-quality products    
 Trust grows, farmers earn more, and buyers get safe food!  



### For Companies: Accessing Farmer & Product Details 🌱📊

- 1 Companies must subscribe to our app plan to get full product details 📋✓
  - 2 We DO NOT share farmer contact numbers in the regular plan ✋📞
  - 3 Companies can only view product information, not contact farmers directly 💬📄
  - 4 For direct farmer contact, companies must subscribe to our Lifetime Plan 🔑∞
  - 5 After lifetime subscription, we provide all farmer contact details 💊📞
- This ensures privacy for farmers & value for companies! 🌎🌟

# Tech Stack Implementation ⚙️



## Tech Stack

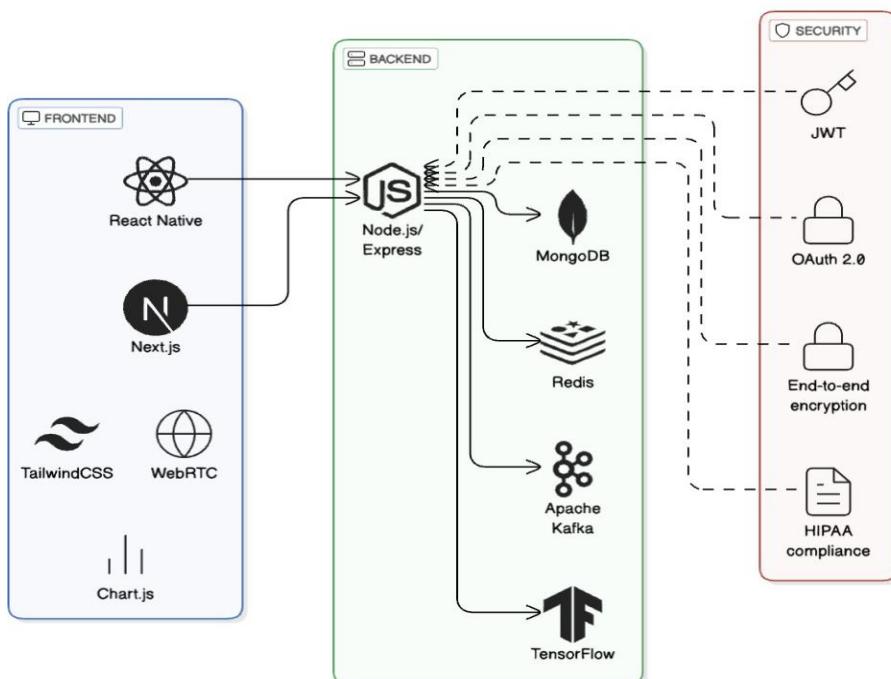
- Frontend: React Native (mobile), Next.js (web), TailwindCSS, WebRTC
- Backend: Node.js/Express, MongoDB, Redis, Apache Kafka, TensorFlow
- IoT Integration: MQTT Protocol, BLE Stack, WebSocket, Time-series DB, Edge Computing
- Security: JWT, OAuth 2.0, End-to-end encryption, HIPAA compliance,



## Supported IoT Devices

- Wearables: Smartwatches, Fitness bands, Medical sensors
- Medical Devices: BP monitors, Glucose meters, ECG devices
- Environmental: Air quality sensors, Sleep monitors, UV sensors

## FLOW



# Feasibility & Viability Analysis

## 🔍 Problem Overview

- ⚠️ Farmers lack direct access to premium buyers.
- ⚠️ Many farmers use chemicals, leading to health concerns.
- ⚠️ Buyers can't trust farmers due to lack of transparency.
- ⚠️ Natural farmers struggle to prove their authenticity.
- ⚠️ Companies want direct access to farmers for quality products but lack a structured way.

## ✓ Our Solution & How It Works

### 1 Farmers Register & Upload Videos 📹

- Farmers record real-time videos (no gallery uploads for security).
- Videos show farming methods & product details.
- Our AI model & team verify authenticity.

### 2 Crop Cycle Verification & Certification 🌱 🏆

- Farmers must complete 1-2 natural farming cycles.
- After successful verification, they get a Natural Farming Certificate.

### 3 Buyers Can View Farmer Details 🔎 💬

- Buyers get full transparency on farming methods.
- They see what products were used & growth duration.
- This builds trust between farmers & buyers.

### 4 Companies Subscribe for Product Details 🗂️ 📊

- Companies can subscribe to see full product details (without farmer contact).
- Only Lifetime Plan subscribers get direct farmer contact info.

### 5 Farmers Earn More, Buyers Get Quality Products 💰 🌎

- Farmers get better prices for their high-quality produce.
- Buyers get healthy, chemical-free crops with proof.
- Trust grows, and the market for natural farming expands!

# Feasibility Analysis

## Technical Feasibility

- ✓ **AI-based verification** ensures authentic farming practices.
- ✓ **Secure video uploads** prevent fraud & fake claims.
- ✓ **Subscription model** makes data access structured & controlled.

## Financial Feasibility

- ✓ **Multiple revenue streams** (subscription plans for companies).
- ✓ **Cost-effective model** as farmers provide video proof themselves.
- ✓ **Scalable**—more farmers & companies can join over time.

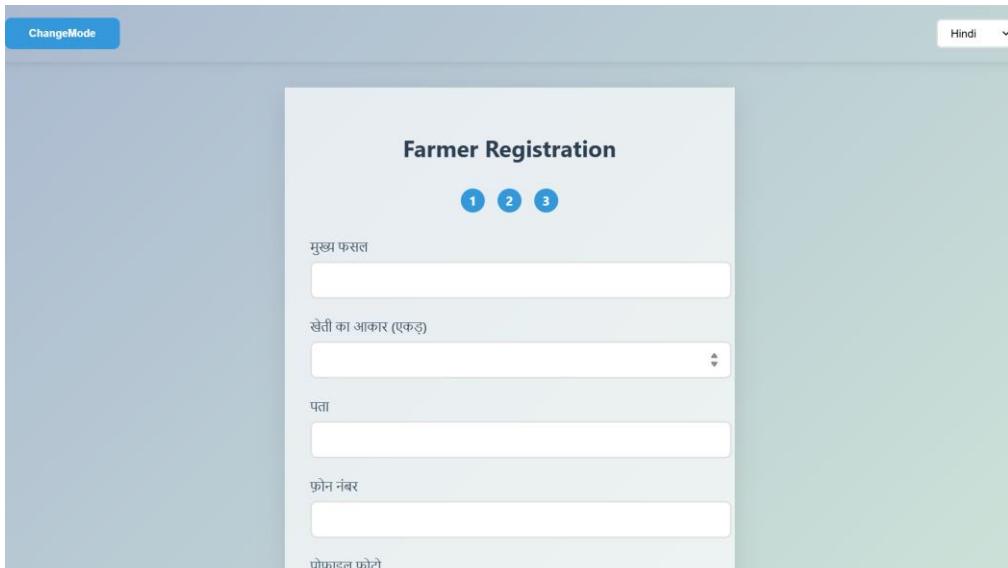
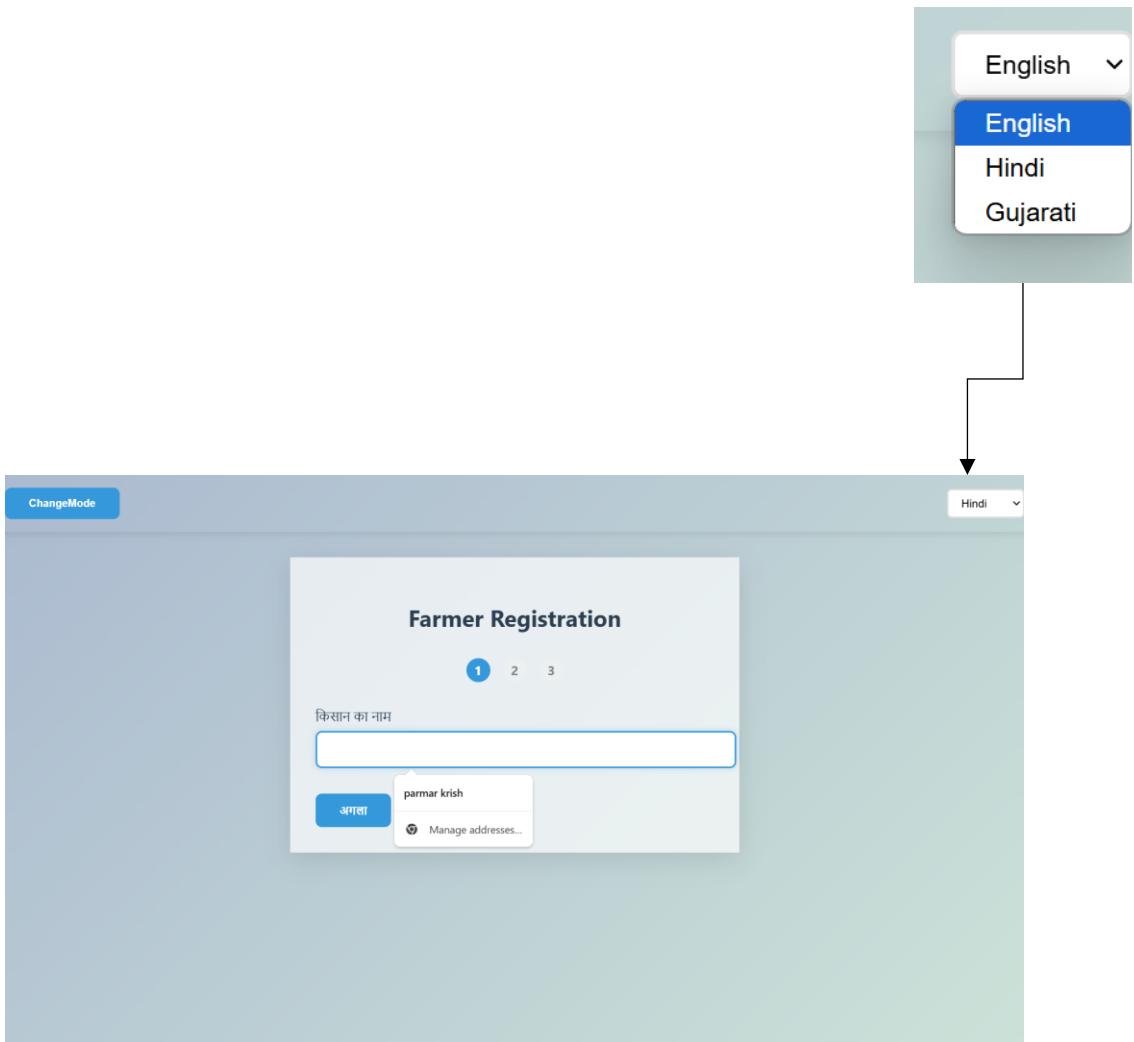
## Market Viability

- ✓ **Huge demand for organic & natural farming**  
- ✓ **Companies want trusted sources** for raw materials 
- ✓ **Transparency builds trust**, helping farmers earn more 

## Conclusion: Why This Works?

- ✓ **Secure & Transparent** – No fake claims, only real data  
- ✓ **Fair for Farmers** – Better earnings & recognition  
- ✓ **Trust for Buyers** – They know exactly what they're buying  
- ✓ **Business-Friendly** – Companies get structured access to quality products

# User Interface/User Experience (UI/UX)



Farmer site

Retailer

Pages

- Dashboard
- Profile
- Sign In
- Sign Up
- History

Farmer section

- All new farmer
- Explore
- Connections

Upgrade to Pro

Are you looking for more correct and more accurate data ? Check out our premium version.

[Upgrade to Pro](#)

Order Completed

Successfully delivered to buyer

rakesh Patel

Village Farm, Gujarat - 385001

Farmer

Product: Organic Wheat (50kg)

Delivery: Completed

Payment: Received

Farming Video

Retailer

Pages

- Dashboard
- Profile
- Sign In
- Sign Up
- History

Farmer section

- All new farmer
- Explore
- Connections

Upgrade to Pro

Are you looking for more correct and more accurate data ? Check out our premium version.

[Upgrade to Pro](#)

**Ramesh**

95% Work Complete

24 Videos

Recent Activities  
Last completed: Rice Harvesting

Latest Video  
Uploaded: 2 hours ago

**raju**

5% Work Complete

2 Videos

Recent Activities  
Last completed: no details get

Latest Video  
Uploaded: 9 hours ago

**Ramusing**

**Ramusing**

Company site

# Business Scope

Revenue Stream 💰	Description
<b>Subscription Plans 🏢</b>	Companies subscribe to access farmer product details.
<b>Lifetime Plan 🔑</b>	One-time payment for direct farmer contact.
<b>Advertisements &amp; Promotions 🎤</b>	Brands can advertise organic products on the platform.

## Subscription Plans

Plan	Access to Product Details 📄	Farmer Contact Info 📞	Direct Farmer Connection 🤝	Validity ⏳	Pricing 💰
<b>Basic Plan ✨</b>	Half Product information	✗ No Access	✗ Not Allowed	—	Free
<b>Standard Plan 🌈</b>	✓ Full Product Information	✗ No Access	✗ Not Allowed	Monthly/Ye arly	Paid
<b>Lifetime Plan 🔑 ∞</b>	✓ Full Product Information	✓ Full Farmer Contact Info	✓ Direct Farmer Connection	Lifetime	One-time Payment

## Use Case Scenarios (Real-World Examples)

- ◆ **Scenario 1: Buyer Trust in Natural Farming Problem:**

A buyer wants to purchase organic vegetables but doesn't trust the seller's claims.

**Solution:** The buyer checks our platform, watches farmer videos showing natural farming, and verifies product details before purchasing.

- ◆ **Scenario 2: Companies Looking for Certified Farmers**

**Problem:** A food company needs bulk organic wheat but lacks direct farmer connections.

**Solution:** The company subscribes to our platform, accesses verified farmer product details, and subscribes to the **Lifetime Plan** for direct contact.

- ◆ **Scenario 3: Farmer Increasing Profits**

**Problem:** A farmer using natural methods struggles to prove authenticity and sell products at a good price.

**Solution:** They upload farming videos, receive a **Natural Farming Certificate**, and get better deals from buyers looking for trustworthy suppliers.

## Market Need

- 🚀 **Why is This Solution Important?**

1. 🌱 **Rising Demand for Organic Food:** Consumers prefer **chemical-free** products.

2. 💰 **Trust Gap Between Farmers & Buyers:** No proper system for buyers to verify natural farming claims.

3. 💰 **Better Earnings for Farmers:** Directly connecting verified farmers with buyers increases profit margins.

4. 🔎 **Transparency & Traceability:** Companies need **proof of authenticity** before buying farm produce.

5. 📊 **Tech-Based Verification is the Future:** AI & digital proof make **quality assurance** easy.

# System Design & Architecture

Component	Technology Used
 Frontend	React.js / Vue.js for UI
 Backend	Node.js (Express.js) / Django
 Database	PostgreSQL / MongoDB
 Video Processing	FFmpeg / Cloud Storage (AWS S3, Firebase)
 AI Verification	OpenCV, TensorFlow for image & video analysis
 Security	JWT Authentication, OAuth

## Design Patterns

-  **MVC (Model-View-Controller)** - For clean separation of logic.
-  **Microservices Architecture** - For scalability and modular development.
-  **Event-Driven Design** - Real-time notifications and verification updates.

## Functional Flow

### Step 1: Farmer Registration & Verification

 Farmer registers →  Uploads live video →  AI & team verification

### Step 2: Buyer Access to Farming Details

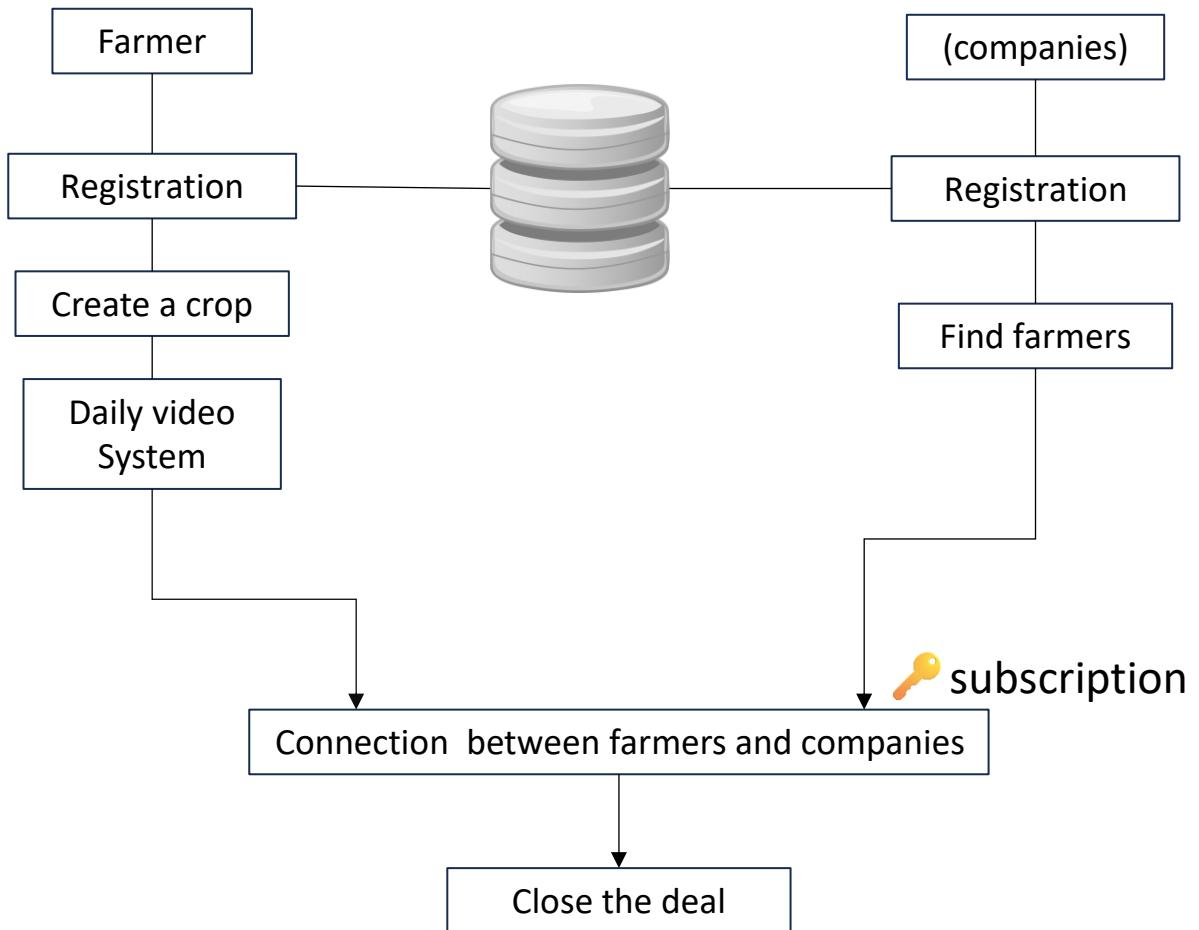
 Buyer searches products →  Watches farming videos →  Checks certifications

### Step 3: Company Subscription & Data Access

 Company subscribes →  Views product details →  Upgrades for direct contact

### Step 4: Farmer Certification & Monetization

 Farmers complete 1-2 crop cycles →  Get a **Natural Farming Certificate**



### Development Strategy

- Agile Methodology** - Sprint-based development for continuous improvement.
- Modular Code Structure** - Each function (video upload, verification, authentication) is separate for scalability.
- CI/CD (Continuous Integration & Deployment)** - Automated testing & deployment using GitHub Actions.

### Coding Standards & Best Practices

- Code Reviews** - Every pull request must be reviewed before merging.
- Testing** - Unit tests (Jest, PyTest), integration tests, and security tests.
- RESTful API Design** - Clean, scalable API endpoints.
- Security Best Practices** - Hashing passwords, input validation, and secure API keys.