CODESLAYER2k25

Code Collab Conquer →

DevSphere
India

Project Title : Blockchain-Based Supply Chain Transparency for Agricultural Produce

Team Name : Kisaan Sathi

Team Members : Aman Raj (Team Lead, Smart Contract Deployment, Backend, Hardhat, Ether.js)
Navya Rawat (Backend, Blockchain+Backend Integration),
Shambhavi Goel (FrontEnd Development),
Sourish Bandaru (OffChain Database, Web3.js, Ether.js)

Tracks Chosen : Web3 and Blockchain

Problem We're Solving

Issue	Real-Life Stats	Impacted Audience
Price Opacity	2x-5x price markup from farm to consumer.	Farmers: Exploited by low, unfair prices; lack bargaining power.
Quality/Origin Fraud	Farmers lack real-time market prices.	Consumers: Can't verify origin, quality; risk adulteration.
Inefficient Traceability/Recalls	~30% post-harvest waste in India.	Supply Chain: Slow recalls, high admin costs, food waste.
Lack of Direct access to market	Very few farmers have direct access to the market	Farmers: Don't get the actual price of the crop
Information Asymmetry	Farmers are often "price-takers" with no market data.	Farmers: Receive delayed, non-transparent payments.

Target Users

Category	Type	Sector
Farmers & FPOs	B2B	Small Farmers, FPO Leaders, Farm Managers
Distributors & Retailers	B2B	Logistics Managers, Procurement Officers, Store Owners
Regulators & Certifiers	B2B	Food Safety Authorities, Organic Auditors
Conscious Consumers	B2C	General Public (Health/Ethics-focused), Parents, Foodies

OUR UNIQUE SOLUTION

Key Features

- Tracking - See Where Your Food Comes From
- Payments - Fair Money for Farmers
- Trust - Proof of Good Quality
- QR Code - Easy Check-Up
- Safety - Stop Bad Food Quickly
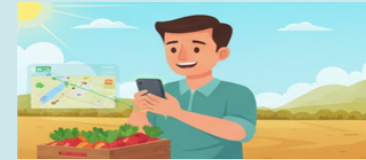- Security - Secure Digital Record

Why It's Different

No Manual Record

Provides Transparency

Secure and Transparent

Aspect	Existing Technology	Our New Technology
Trust	Fraud, Opacity & unverified claims	Immutable, Verifiabl, Transparent
Efficiency	Manual, Slow, costly, errors	Automated, Instant, Decentralized

TECH STACK + ARCHITECTURE

Tech Stack

React Js

DataBase
(MongoDb, IPFS)

Backend
(NodeJs, ExpressJs)

BlockChain
(Smart Contract, Ether.js)

Hardhat & Jest
(Testing API & Contract)

PWA
(offline data entry)

Architecture

SMART CONTRACT
Rules&
Automations

FARMER
Data Input
(Record Harvest
& Details)

CONSUMER
(verification &
trust)

DECENTRALISED
SYSTEM

PRODUCT BATCH
unique digital
identity

SUPPLY CHAIN
STACKHOLDERS

DECENTRALISED
LEDGER
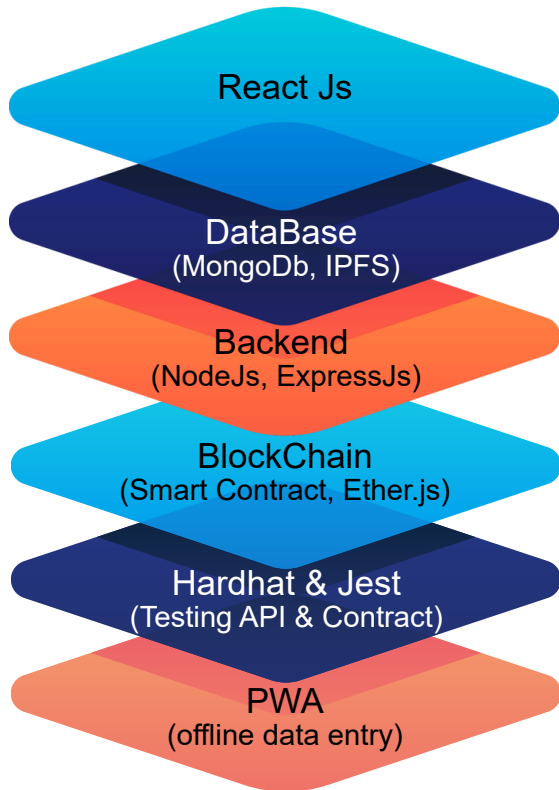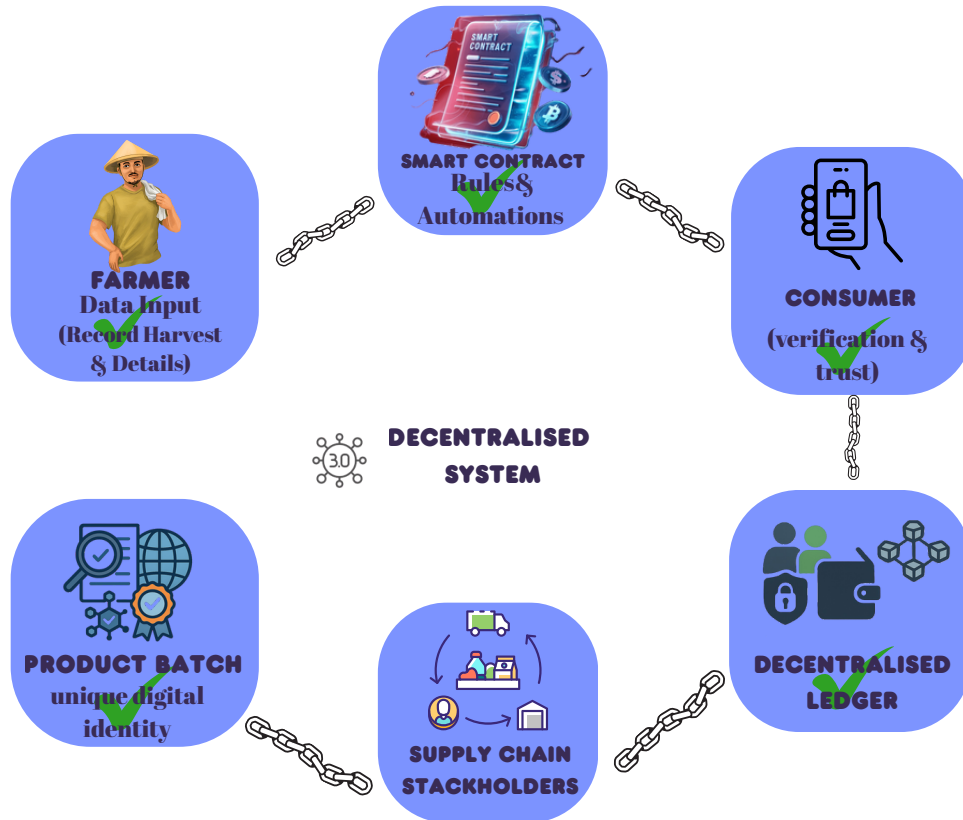
Feasibility

- **Skills:** Our diverse team has strong expertise in Blockchain (Solidity, Web3.js), Frontend (React), Backend (Node.js, Express), and Database Management (MongoDB), covering the full tech stack.

- **Tools:** Leveraging readily available open-source tools like Hardhat for smart contracts, IPFS for off-chain storage, and cloud platforms for deployment, all set up for rapid development

- **Time:** Dedicated team commitment to intensive work throughout the hackathon.

Showstoppers

- Extensive Testing: Rigorous unit and integration testing using Hardhat/Jest for smart contracts and APIs. Pair programming for critical components.

- Modular Design & Simplicity: Focus on core functionalities; defer complex integrations if time-sensitive. Use well-documented libraries.

USP(UNIQUE SELLING PRICE) & BUSINESS MODEL

DevSphere India

USP (UNIQUE SELLING PRICE)

Aspect	Old/Current Technology (Manual, Fragmented, Centralized)	Kisaan Sathi (Blockchain-based Solution)
Trust & Transparency	Opaque, prone to fraud, unverified claims, information hidden.	Unbreakable Trust: Immutable, verifiable, cryptographically secured ledger.
Farmer Empowerment	Exploitation by middlemen, unfair prices, delayed payments, no market visibility.	True Fair Value: Transparent pricing, automated faster payments, recognized quality.
Consumer Confidence	Doubtful origin, quality claims hard to verify, food safety concerns.	Verifiable Authenticity: Instant farm-to-fork traceability via QR code.
Operational Efficiency	Manual tracking, slow recalls, high audit costs, data silos, waste.	Smart & Seamless Operations: Automated tracking, rapid targeted recalls, digital audits.

BUSINESS MODEL

Aspect	Description
Value Proposition	Unbreakable Trust & Transparency in Agri-Supply Chain.
Target Customers	Farmers, Retailers, Consumers, Regulators.
Revenue Streams	Tiered Subscriptions (B2B), Micro-Transaction Fees, Value-Added Services.
Growth Strategy	Freemium for Farmers, Network Effect, Strategic Partnerships.

Video Link:- <u>Click here for Video Explanation</u>