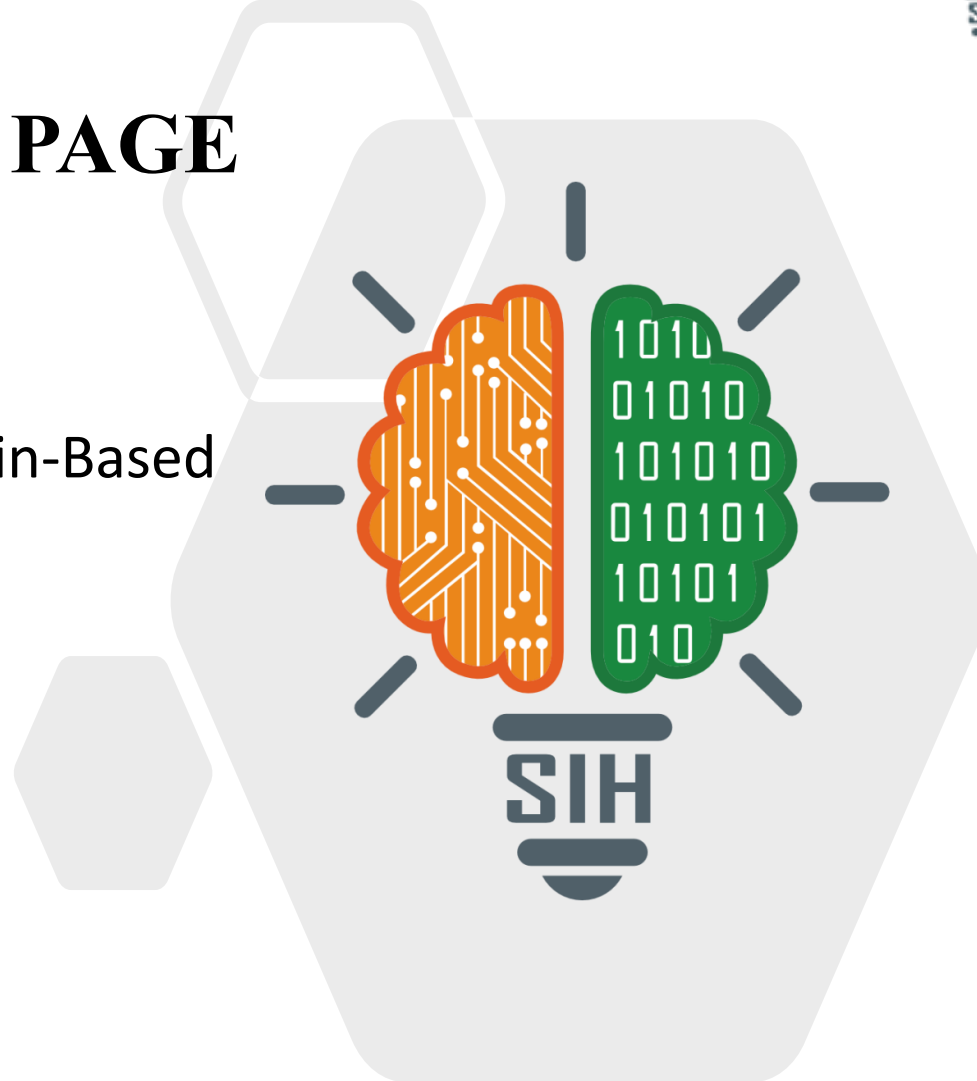


# SMART INDIA HACKATHON 2025



## TITLE PAGE

- **Problem Statement ID** – 25038
- **Problem Statement Title-** Blockchain-Based Blue Carbon Registry and MRV System
- **Theme-** Clean & Green Technology
- **PS Category-** Software
- **Team ID-**
- **Team Name** - CodeStrom ⚡





# BLUE CARBON MRV EXCHANGE



## Details Explanation of the Proposed Solution:

- A **blockchain-based platform** for blue carbon MRV that uses smart contracts to tokenize credits, allows mobile data uploads from the field, and provides admin tools for NCCR..
- **Blockchain technology** ensures transparent, immutable, and auditable transactions.
- **Smart contracts** automate carbon credit tokenization and instant settlements.
- **AI and IoT** provide accurate tracking and real-time monitoring using drones, sensors, and satellite data.
- A **secure, scalable, and transparent ecosystem** connects all stakeholders globally.

### Solution Overview :

1. Blockchain platform for **MRV & carbon credit** exchange with **Buyer/Seller and NCCR logins**.
2. **Smart contracts** enable automated, fraud-proof tokenization.
3. **AI + IoT** provide real-time monitoring with drones & sensors.
4. A **transparent and future-ready ecosystem** for global carbon credit trading.

### Problem Solved :

1. Provides **stable market access** with **transparent** contracts.
2. **Minimizes risks** through smart, reliable contracts.
3. Smart contracts **reduce fraud** by removing intermediaries.
4. **Blockchain and decentralized registry** ensure secure, traceable, and immutable records.

### Key Innovation :

1. Blockchain **registry with smart contracts** ensures tamper-proof records and instant settlements.
2. **AI + IoT** enable real-time verification using drones and sensors.
3. Live carbon **map with e-contracts** (2FA) ensures secure, transparent trading.
4. **NFT certificates** provide digital proof of restoration after CO<sub>2</sub> credit allotment.



Buyer/Seller and NCCR logins



Project Uploaded By Seller



Project Verified by NCCR/Admin



Smart contract and token management



End-to-end carbon trading And Visualizing on Live Map

Process Flow of the Web Application/Platform

Scan QR Code to Access Figma Wireframe

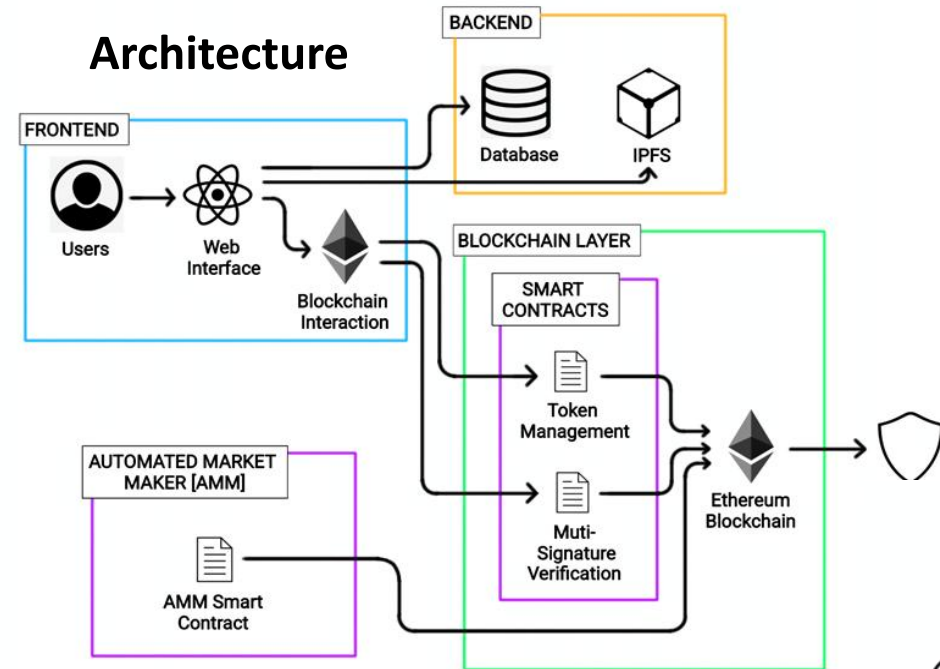


# TECHNICAL APPROACH

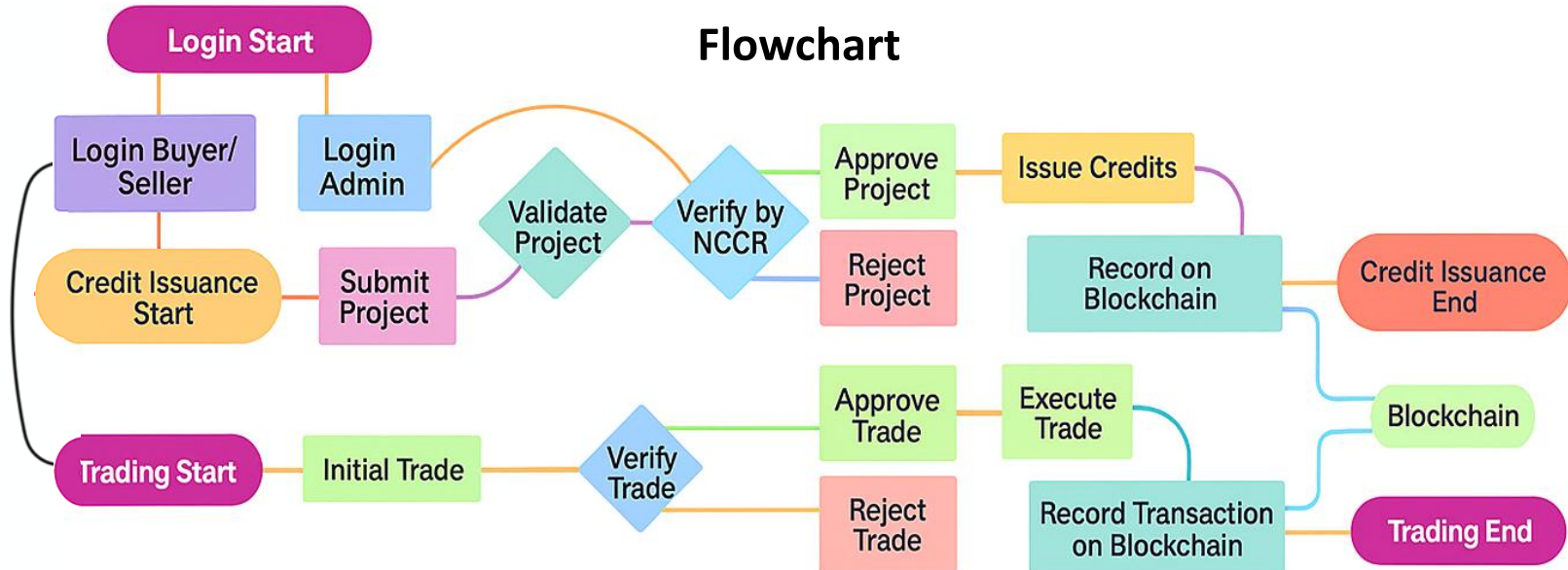
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## Architecture



## Flowchart



Scan QR Code  
to Access  
GitHub Repo



## FEASIBILITY



**Technical Feasibility:** Blockchain, AI, IoT, and drones are mature technologies and easily adaptable for MRV systems.



**Operational Feasibility:** Mobile apps and web platforms simplify onboarding for NGOs, industries, and coastal communities.



**Economic Feasibility:** The rising carbon market demand ensures revenue from tokenized credits and investor interest.



**Regulatory Feasibility:** Aligns with India's National Carbon Credit Registry (NCCR) and global carbon verification standards.

## CHALLENGES



**Technical Risk:** Integrating blockchain, AI, IoT, and drones into one platform is complex.



**Regulatory Risk:** Evolving carbon credit policies may slow adoption and compliance.



**Community Risk:** Coastal and rural communities may face digital literacy and connectivity challenges.



**Security Risk:** Blockchain and IoT networks are vulnerable to cyberattacks and data breaches.



# IMPACT AND BENEFITS



## Industries

Industries can trade verified carbon credits efficiently to achieve sustainability and compliance goals.



## General Public

Promotes climate action and environmental awareness through transparent data sharing.

## Environmental Organizations

NGOs gain transparent access to a global marketplace, boosting funding for climate initiatives.



## Communities, Farmers

Local communities earn fair income by contributing to conservation and reforestation projects.



# IMPACT & BENEFITS



## Landowners

Opens new income opportunities for sustainable project developers and landowners.



## Investors, Businesses

Attracts more green investments by building a transparent and scalable carbon market.

## Regulatory Authorities

Regulators benefit from tamper-proof, immutable records for better policy enforcement.



## Tech Teams

Enhances accuracy in environmental tracking using AI, IoT, drones, and satellite imagery.





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