Agentic Ethereum Hackathon India

TEAM

SHECODES

Problem statement:

Every day, millions of people share their DNA data with healthcare providers, diagnostics labs, and consumer genetic testing companies. But once that data is collected, individuals lose control over how it's stored, accessed, or used. In many cases, their sensitive genetic information is sold to third parties — such as pharmaceutical companies — without their knowledge, consent, or compensation.

This creates serious risks:

- DNA data is deeply personal. It can reveal predispositions to diseases, family relationships, and even future health risks.
- Most of this data is stored in centralized databases that are vulnerable to misuse or breaches.
- People who provide their DNA receive no transparency and no share in the profits made from their data.

Our Solution:

We're building a decentralized, consent-driven DNA data platform using Ethereum, IPFS, and AI.
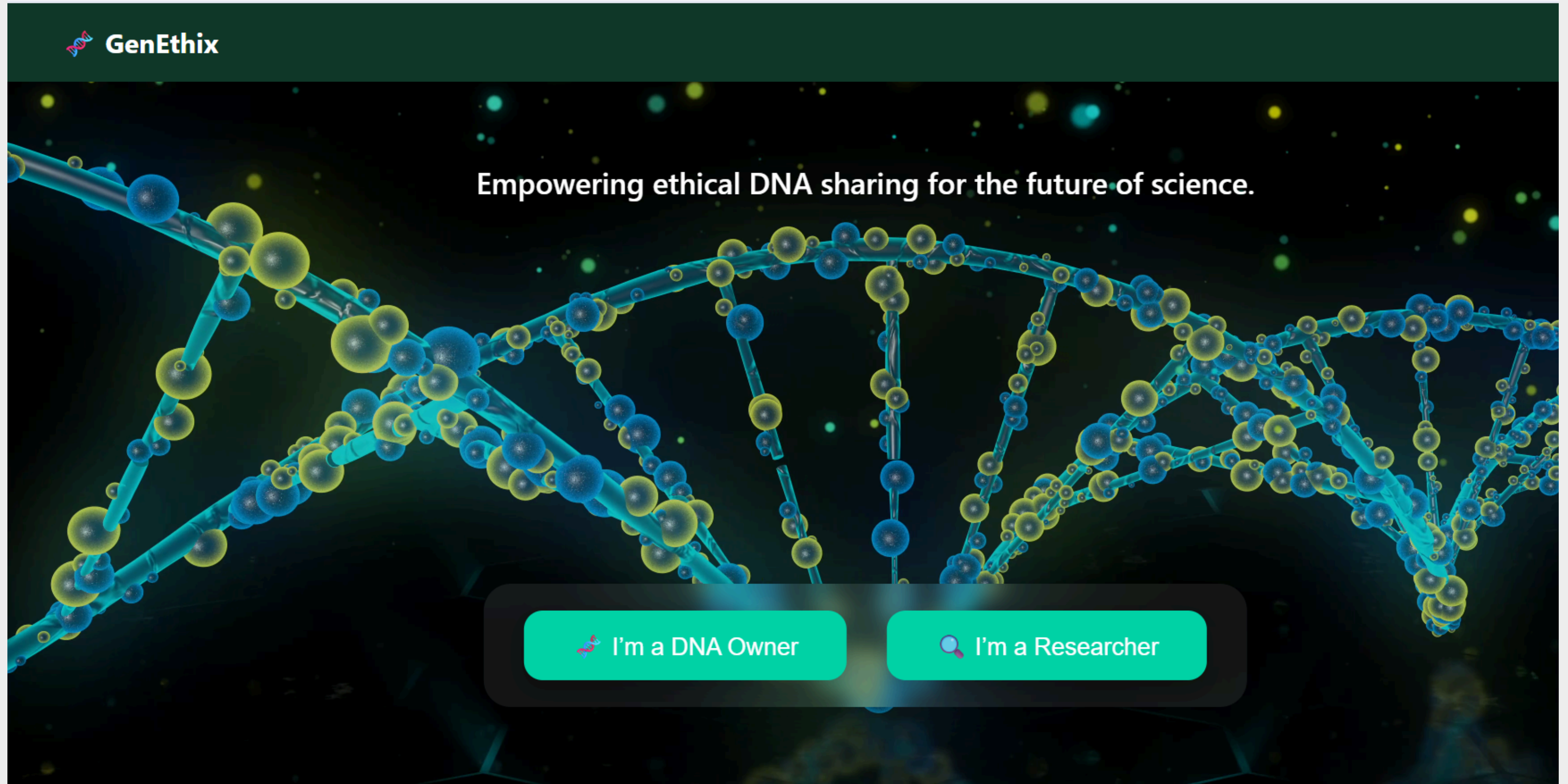
In this system:

- Users upload their DNA data securely. They define exactly who can access it, for what purpose, and for how long — all through smart contracts.

- Researchers or companies must request permission and pay in ETH for access.

- Access is only granted if it aligns with the user's consent conditions.

- Machine learning helps match relevant users with research needs based on genetic patterns (with consent).

Technologies Used:

- Ethereum + Solidity (Smart Contracts)
- IPFS (DNA File Storage)
- MetaMask + React (Frontend Wallet Integration)
- Python + Scikit-learn (ML model for genomic classification)

WORK FLOW :

🔒 Upload DNA & Set Consent

🔗 Connect Wallet

📂 **Upload DNA File (.txt)**

Choose File | No file chosen

🧬 **Research Purposes**

Cancer Research   Rare Disease Study   Drug Development   Neuro Disorder Research

Diabetes & Metabolic Studies   Ancestry Mapping   Genetic Marker Discovery

Gene Therapy Targeting   Pharmacogenomics   Alzheimer's Research   Autism Research

Population Health Study   Personalized Medicine   Academic Research Only

Open Research (No Restriction)

⌛ Access Duration

30

💰 ETH per Access

0.01

MetaMask   ─ □ ✕

Transfer request   ⚙

0 ETH

From		To ⚠ Alert ›
🔴 Account 2	›	⑦ 0x5FbDB...80aa3

Network	H Hardhat Localhost
Request from ⑦	⚠ HTTP localhost:3000

Network fee ⑦	✏ 0.0001 E ETH
	$0.21

Speed

Max fee ⑦	0.0001 $0.29

Nonce ⑦	✏ 5

Cancel	Confirm

---

localhost:3000 says

✅ DNA Consent successfully stored on blockchain!

OK

Tell us your research interests

Choose one or more areas so we can give you tailored suggestions.

Cancer Research   Rare Disease Study   Gene Therapy   Alzheimer's Research   Autism Research   Personalized Medicine

Continue

🔍 Matching DNA Records

Owner: 0xABC123...DEF

Tags: 🧬 Genetic Disorders, 💊 Personalized Medicine

IPFS: [Qm123abc456def...](Qm123abc456def...)

Access Duration: 30 days

Price: 0.02 ETH

Request Access

localhost:3000 says

🔒 Request sent to owner!

OK

Owner: 0x123456...7890

Tags: 🧠 Rare Disease Research, 🛠️ Gene Therapy

IPFS: [Qm789ghi012jkl...](Qm789ghi012jkl...)

Access Duration: 60 days

Price: 0.05 ETH

FUTURE PLANS:

Source Verification
- Ask for additional metadata like:
- Where was the DNA collected?
- Time, method, lab?
- Allow uploads only from verified labs or institutions, or require a QR code / signature file from the sequencing machine.

THANK YOU

@Reskilll

#AgenticHack

@Geodework