

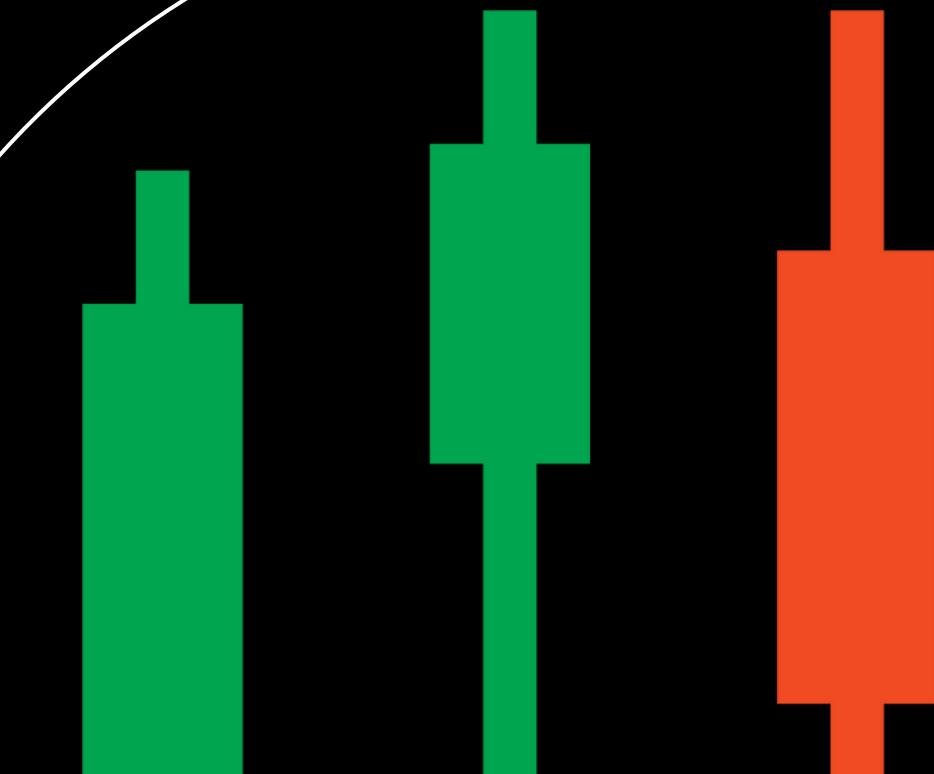


INVOICEFUND – DECENTRALIZED INVOICE CROWDFUNDING PLATFORM

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PROBLEM

- BUSINESSES WAIT LONG FOR INVOICE PAYMENTS
- CASH-FLOW PROBLEMS
- BANKS/INTERMEDIARIES = SLOW & EXPENSIVE



SOLUTION

INVOICEFUND — DECENTRALIZED CROWDFUNDING PLATFORM

- EARLY LIQUIDITY FOR BUSINESSES
- SMART CONTRACTS INSTEAD OF BANKS
- REWARD TOKENS FOR CONTRIBUTORS



INVOICEFUND OVERVIEW



InvoiceFund is a decentralized crowdfunding platform that:

- Operates on Ethereum Sepolia Testnet
- Uses Smart Contracts
- Uses MetaMask for wallet interaction
- Issues ERC-20 reward tokens
- Works only with free test ETH

Participants fund campaigns and receive reward tokens as proof of contribution.

TECHNOLOGY STACK

Technologies Used

- Solidity - Smart contracts
- Hardhat - Development & testing
- Ethereum Sepolia Testnet
- ERC-20 Token Standard
- JavaScript
- MetaMask
- HTML & CSS

SYSTEM ARCHITECTURE

Frontend ↔ MetaMask ↔ Smart Contracts ↔ Blockchain

Frontend



Smart Contract

Blockchain

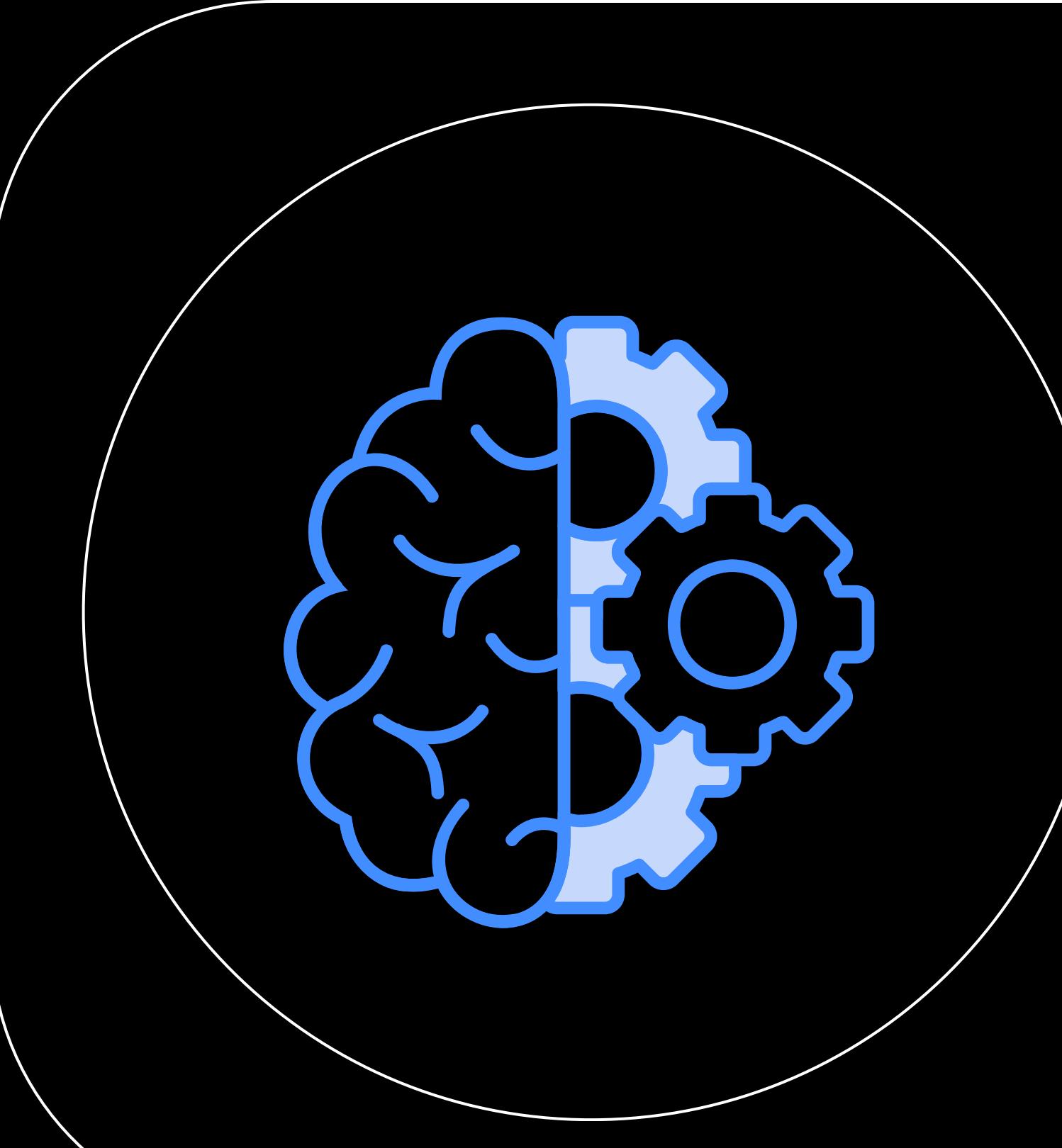
SMART CONTRACTS

InvoiceFund Contract

Responsibilities:

- Create crowdfunding campaigns
- Accept ETH contributions
- Track individual contributions
- Finalize campaigns
- Mint reward tokens





CROWDFUNDING LOGIC

Campaign Parameters:

- Title
- Funding Goal
- Deadline

Functionality:

- Contribution in test ETH
- Mapping for tracking contributions
- Campaign finalization after deadline

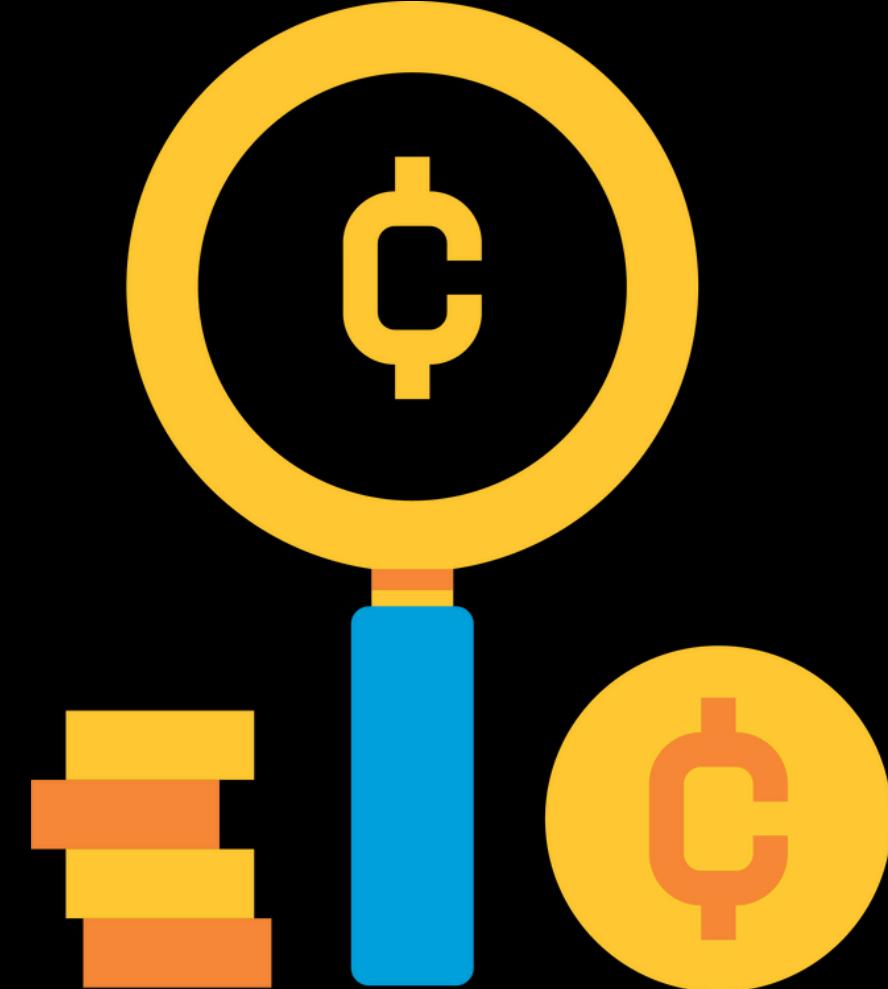
Each contribution is recorded on-chain and is transparently accessible.

ERC-20 REWARD TOKEN

RewardToken Contract

- Custom ERC-20 token (INV)
- Minted automatically after contribution
- No real monetary value
- Used for educational purposes
- Demonstrates tokenization concept





REWARD FORMULA

Reward Calculation

$\text{Reward} = \text{contributionWei} \times \text{REWARD_RATE} / 1e18$

This ensures:

Fair distribution

Transparency

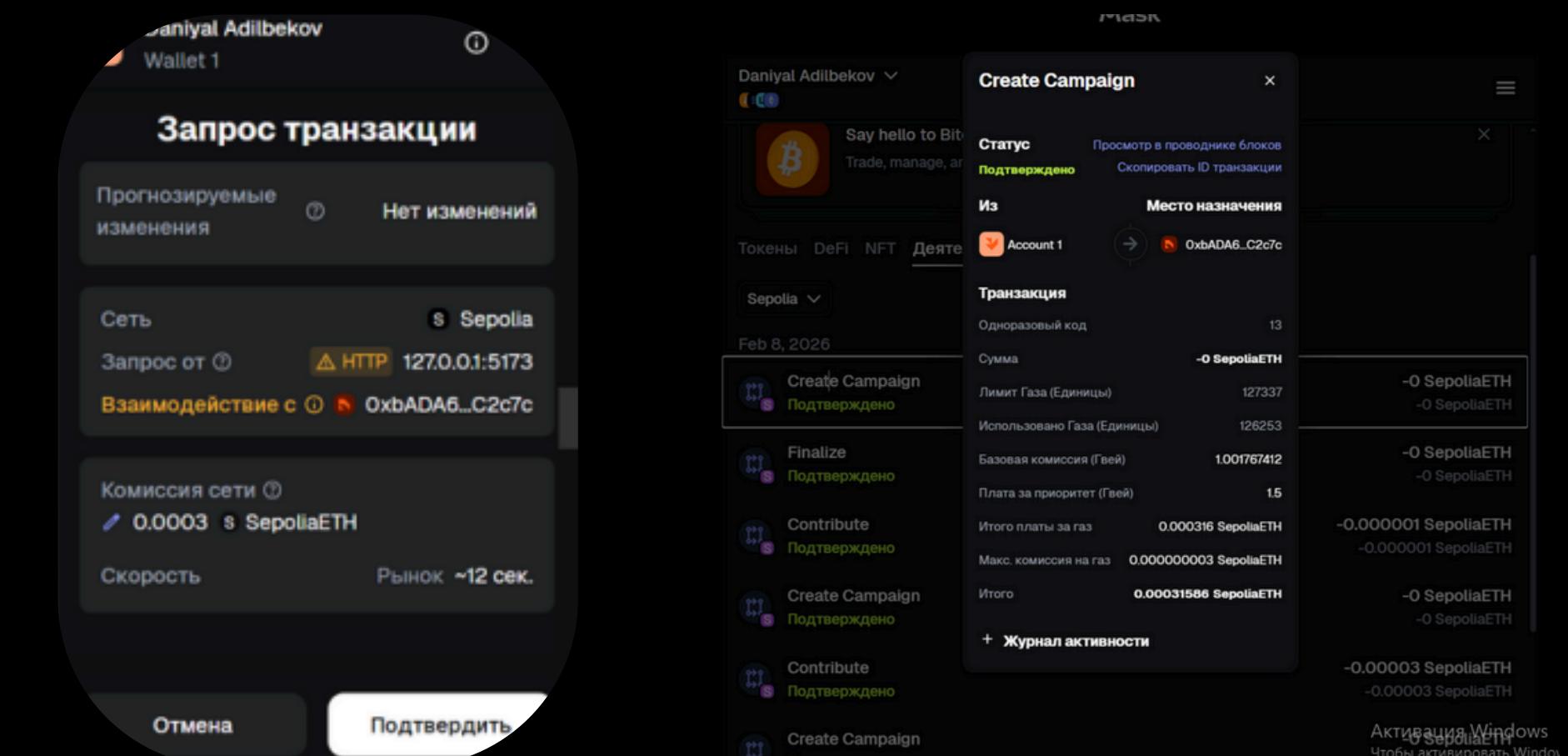
Proportional rewards

METAMASK INTEGRATION

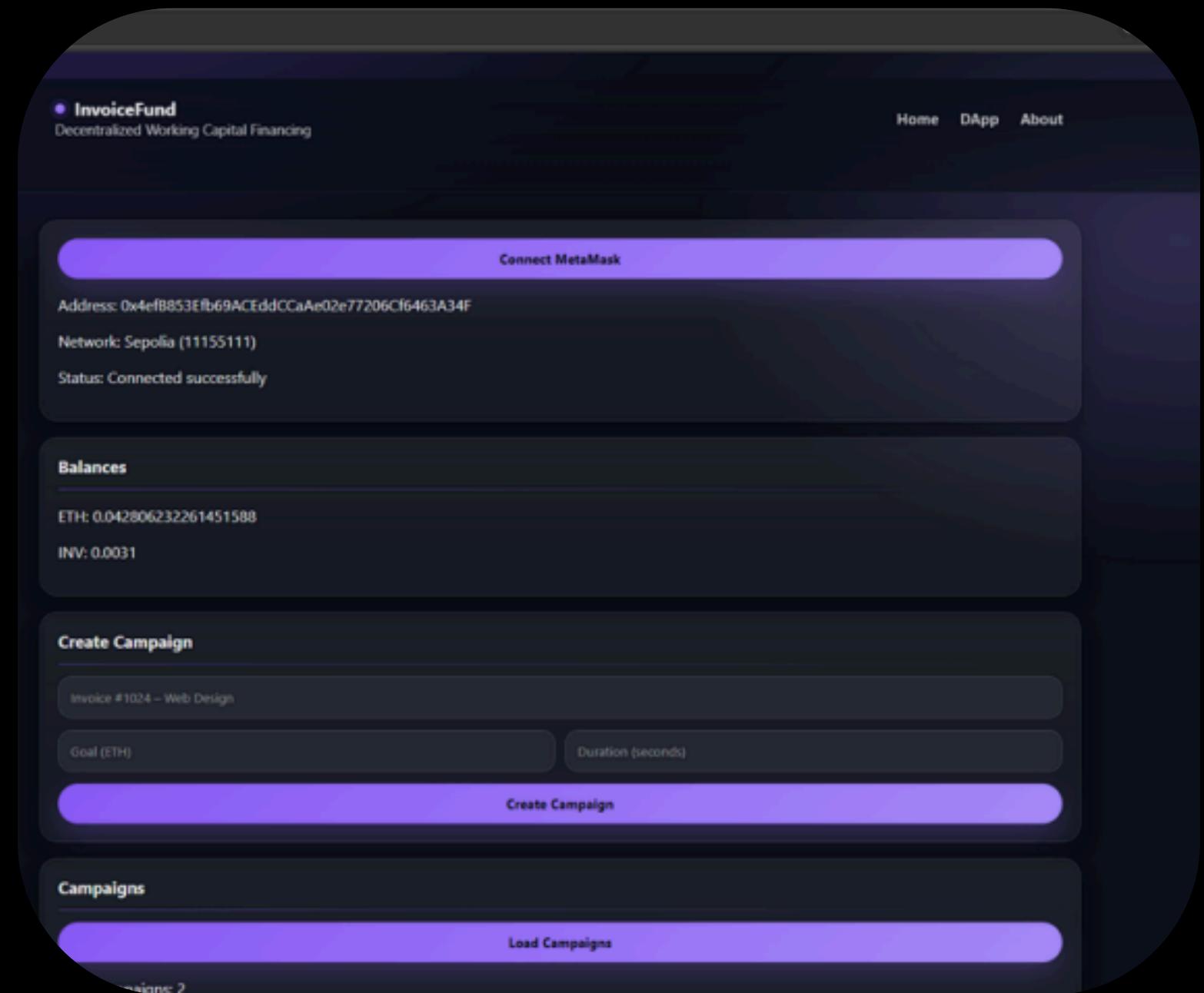
MetaMask Functions

- Request wallet permission
- Validate Sepolia network
- Sign transactions
- Listen to account changes
- Listen to network changes

Ensures secure blockchain interaction.



FRONTEND FEATURES



User Can:

- Connect MetaMask wallet
- View wallet address
- Check ETH balance
- Check INV token balance
- Create campaigns
- Browse campaigns
- Contribute ETH
- Finalize campaigns



All transactions are confirmed via MetaMask.

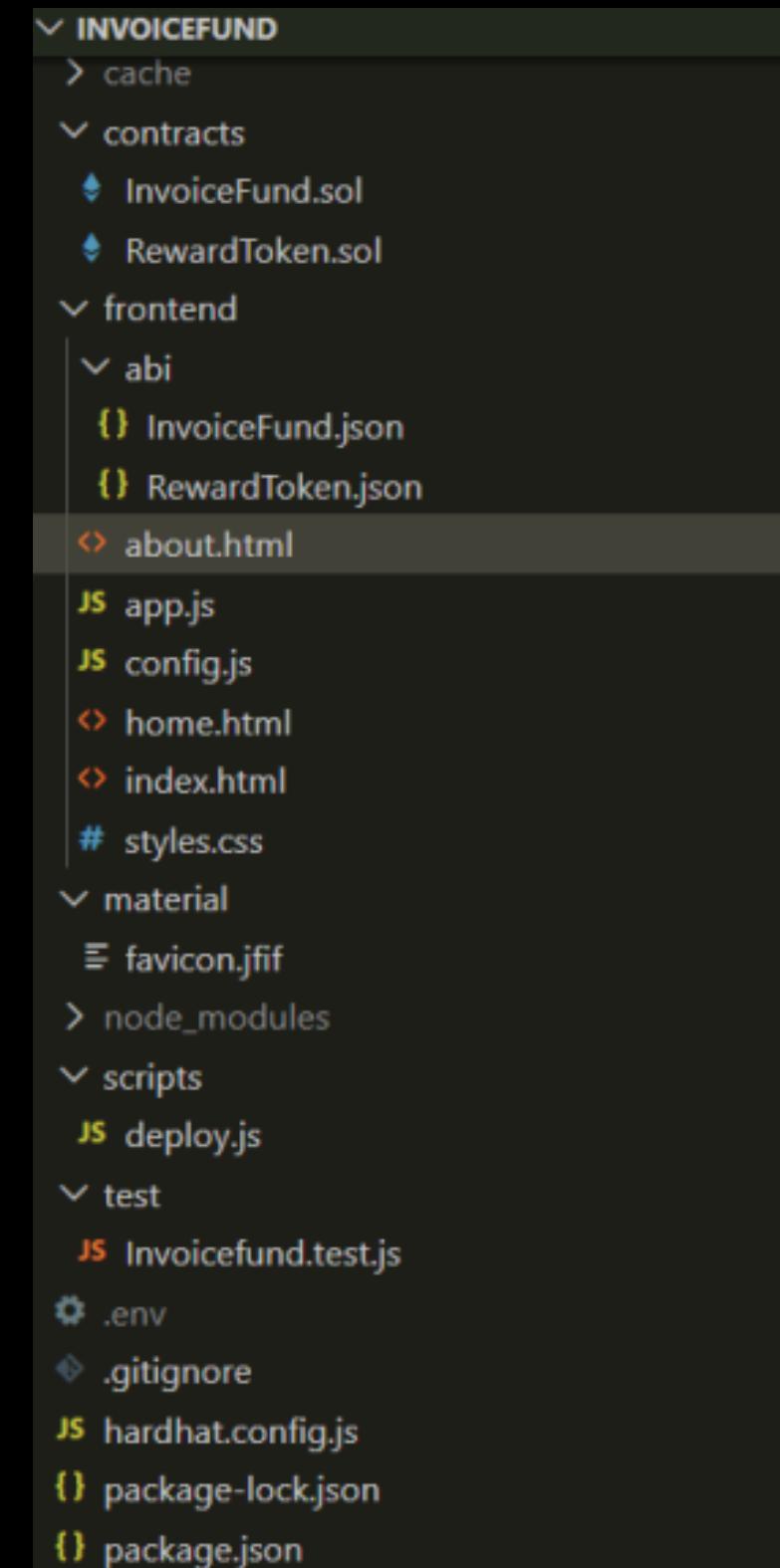
PROJECT STRUCTURE

contracts/
InvoiceFund.sol
RewardToken.sol

frontend/
app.js
index.html
styles.css

scripts/
deploy.js

test/
InvoiceFund.test.js



A screenshot of a file explorer window titled "INVOICEFUND". The structure is as follows:

- cache
- contracts
 - InvoiceFund.sol
 - RewardToken.sol
- frontend
 - abi
 - InvoiceFund.json
 - RewardToken.json
 - about.html
 - app.js
 - config.js
 - home.html
 - index.html
 - styles.css
- material
 - favicon.jfif
- node_modules
- scripts
 - deploy.js
- test
 - Invoicefund.test.js
 - .env
 - .gitignore
 - hardhat.config.js
 - package-lock.json
 - package.json

DEPLOYMENT

DEPLOYMENT STEPS

1. NPM INSTALL
2. NPX HARDHAT COMPILE
3. NPX HARDHAT RUN SCRIPTS/DEPLOY.JS --NETWORK SEPOLIA

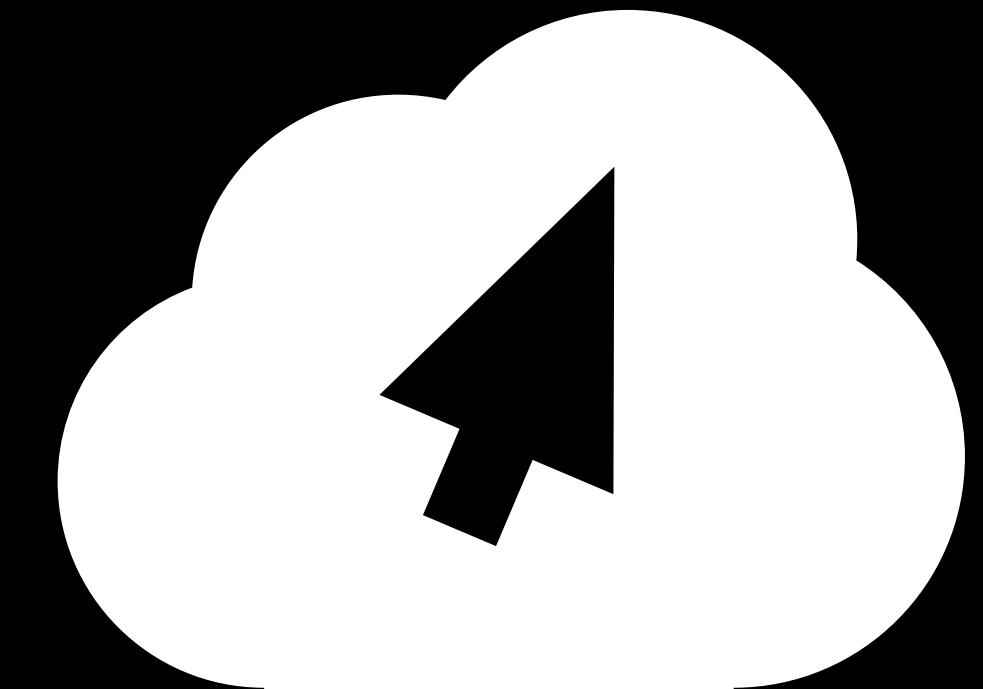
GET SEPOLIA ETH FROM FAUCET:
GOOGLE CLOUD WEB3 FAUCET

TESTING

WE USED HARDHAT AUTOMATED TESTS TO VERIFY:

- CONTRACT DEPLOYMENT
- CAMPAIGN CREATION
- CONTRIBUTION LOGIC
- REWARD MINTING
- FINALIZATION

COMMAND:
NPX HARDHAT TEST



DEPLOYED CONTRACTS

Sepolia Addresses

InvoiceFund:

0xbADA66D973aa12c43f06F8f46b846F04f3CC2c7c

RewardToken:

0xaC3C1F55973Ea2c1137b3295D52fBB556C11569e

CONCLUSION



InvoiceFund demonstrates a full decentralized crowdfunding workflow.

The project successfully shows:

- Smart contract logic
- ERC-20 token usage
- MetaMask integration
- Frontend-blockchain interaction
- Secure transactions
- Real blockchain deployment on testnet

This project proves practical understanding of blockchain development.

THANK YOU

