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EduFund

Decentralized Platform for Funding Educational Projects

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Objective

To create a transparent and fair platform for raising funds for educational initiatives using blockchain technology.

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Problem

Current challenges in educational fundraising:

- High fees on traditional platforms (15–20%)
- Lack of transparency in fund usage
- Complicated withdrawal processes
- No incentives for donors
- Centralized control

Solution:

Blockchain + Smart Contracts = Transparency + Rewards

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EduFund Solution

What EduFund provides:

- Low fees: 10% to platform, 90% to campaign creator
- Full transparency: All transactions recorded on blockchain
- Rewards: Donors receive EDU tokens for contributions
- Automation: Smart contracts handle all processes
- Decentralization: No central authority

Reward formula:

100 EDU tokens per 1 ETH contributed

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System Architecture

1. **Blockchain Layer (Ethereum + Hardhat)**
   - Smart contracts written in Solidity
   - Storage of campaign data
   - Payment processing
2. **Smart Contracts Layer**
   - EduFundCrowdfunding.sol – core logic
   - EduFundToken.sol – reward token
3. **Frontend Layer (HTML + JavaScript + ethers.js)**
   - User web interface
   - MetaMask integration

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Campaign Lifecycle

Campaign States:

ACTIVE

- Accepting contributions
- Goal not reached
- Deadline not passed
- GOAL REACHED
- 100% funding achieved
- Automatically closed
- Ready for finalization

ENDED

- Deadline passed
- Goal not reached

FINALIZED

- Funds distributed
- Creator received payment (90/10 split)

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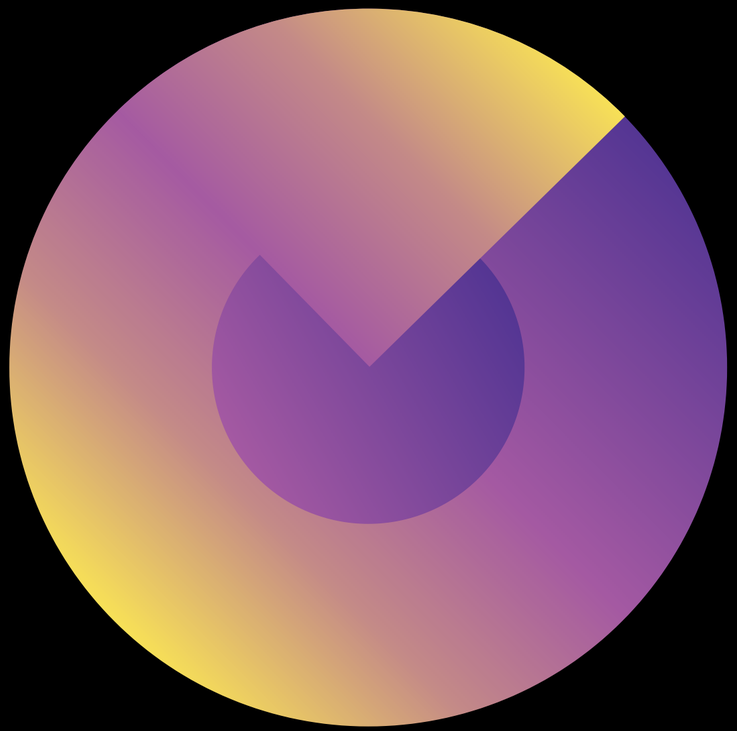

When a user contributes:

1. User clicks “Contribute” in the web interface
2. MetaMask requests transaction confirmation
3. Smart contract checks:
   - Campaign is active
   - Goal not reached
   - Deadline not passed
4. Funds distribution:
   - 90% → Campaign creator
   - 10% → EduFund platform
5. User receives EDU tokens
   - 100 EDU per 1 ETH
6. ContributionMade event recorded on blockchain

Contribution Process

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Technical Capabilities

Smart Contracts

- Campaign creation and finalization
- Payment processing with fee distribution
- EDU token minting
- User contribution tracking
- Contribution limits (cannot exceed goal)

Frontend

- Create campaigns
- Browse and filter campaigns
- Contribute to campaigns
- View user portfolio and history
- MetaMask integration

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Platform Features

For Campaign Creators

- Create campaigns with goal and deadline
- Track funding progress in real time
- Finalize campaigns after reaching goal
- Receive 90% of collected funds

For Donors

- Search for campaigns
- Contribute ETH
- Receive EDU tokens as rewards
- View contribution history

For Platform

- Receive 10% commission
- Monitor all transactions
- Ensure full transparency

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Security Reliability

Smart Contracts

- Protection against reentrancy attacks
- Access control (only creator can finalize)
- Input validation
- Overflow protection (Solidity 0.8+)

Frontend

- User input sanitization
- MetaMask for secure key management
- Network compatibility checks

Blockchain

- Immutable transactions
- Full operational transparency
- Tamper-proof payment records

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Results and Future Work

Implemented

- Smart contracts (Solidity 0.8.28)
- Web interface with MetaMask support
- EDU token reward system
- Campaign filtering by category and status
- User contribution history
- Protection against overfunding
- Finalization after goal or deadline

Future Improvements

- Deployment to public networks (Sepolia/Mainnet)
- Advanced funding models
- DAO governance
- Lido staking integration
- NFT certificates for donors
- Multi-language support

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Thank You

Samat, Ernar, Dauren & Artur