

UrbanImprover - Crowdfunding dApp for Urban Development

Subject: Blockchain Technologies 1

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Introduction

Problem

Traditional crowdfunding has high fees and lacks transparency.

Solution

A Decentralized Application (dApp) for city projects (parks, playgrounds, lights).

Main Idea

Funds are safe in a smart contract. The creator can only withdraw money if the goal is reached.



Technical architecture

Solidity Smart Contract Hardhat Network

The "brain" of the dApp. It manages money, projects, and security.

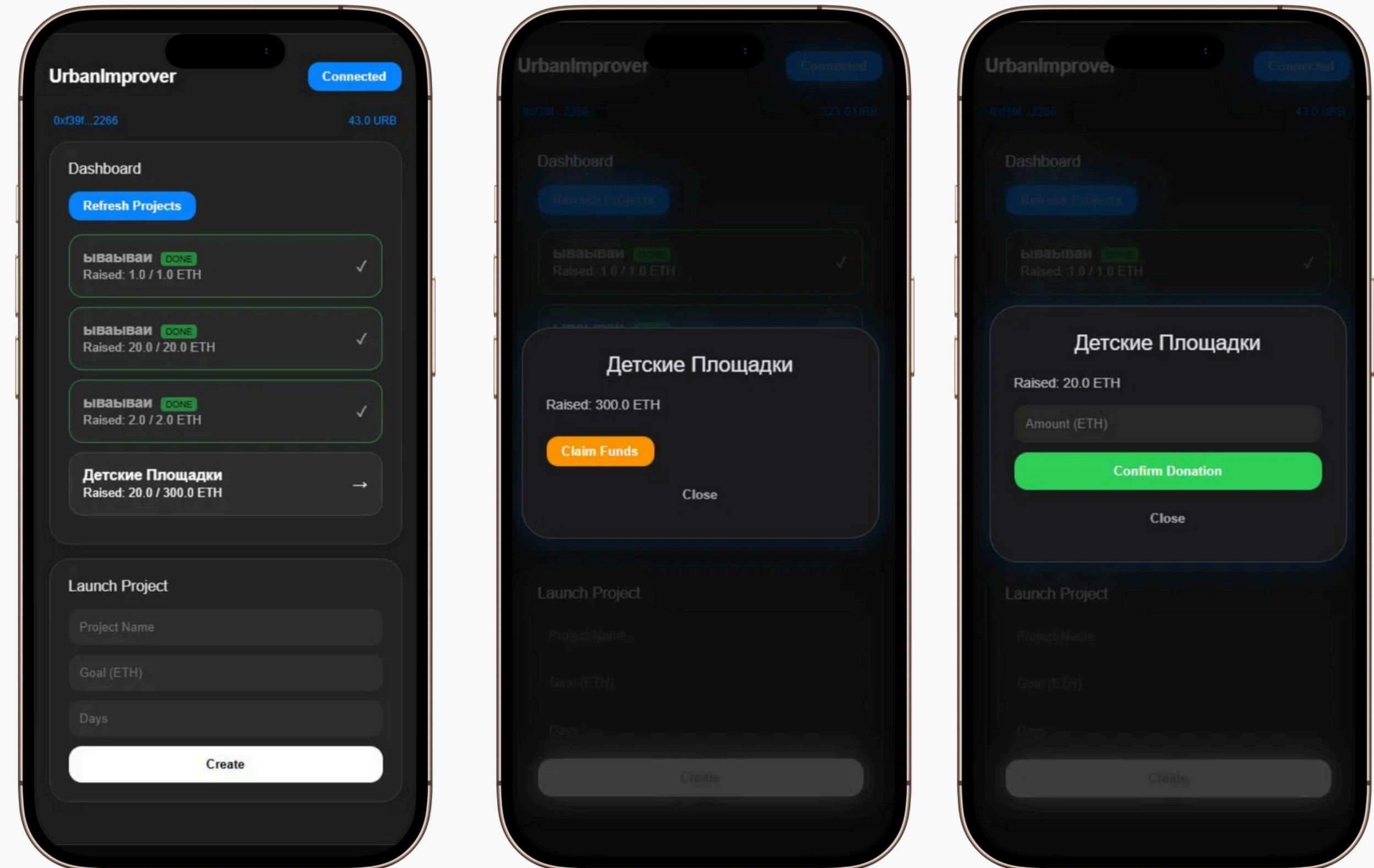
Local blockchain for fast testing and deployment.

Frontend

Web interface built with JavaScript and Ethers.js to communicate with the blockchain.



Prototype



Core functions

createCampaign

Users start projects with a title, goal, and deadline.

contribute

Anyone can send GO tokens to support a project.

withdrawFunds

Only the creator can take the money, but only if the campaign is successful.



Reward system (urban token)

URB Token

For every 1 ETH donated,
the user gets 1 URB token.

Automatic Minting

The tokens are sent instantly to
the donor's wallet by the smart
contract.

Proof of Contribution

Tokens show how much a citizen helps the city.



Future government privileges

Governance

Users with many URB tokens can vote for the next city projects.

Real-life Benefits

We plan to connect the dApp with government services:

- Lower city taxes for active citizens.
- Priority access to public events or parks.



Testing & Security

Automated Tests

We ran scripts using Mocha and Chai (6 successful tests)

Checks

We verified campaign creation, token rewards, and security rules.



Conclusion

Result

A working prototype of a transparent and secure crowdfunding system.

Next Step

Launching on a real testnet (Sepolia) for public use and etc.....

Impact

Code, not a person, controls the money, which build trust.

