

- DECENTRALIZED
CHARITY
CROWDFUNDING
PLATFORM



Our Team



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Project Overview

This project is a decentralized charity crowdfunding platform developed as part of the Blockchain 1 final examination. The goal of the project is to demonstrate practical blockchain development skills, including smart contracts, frontend interaction, and MetaMask integration. The main idea of this project is to create a decentralized application that allows users to support charity campaigns directly through the blockchain. Instead of relying on a centralized platform, all rules and transactions are handled by smart contracts.

Problem & Motivation

Traditional crowdfunding platforms are centralized, which means users must trust a third party to manage funds correctly. This can lead to transparency and trust issues. Our project addresses this problem by using blockchain technology.

Architecture

User → MetaMask → Frontend → Smart
Contracts → Ethereum Test Network

The system follows a decentralized architecture. The frontend only provides the interface, while MetaMask signs transactions and smart contracts execute all core logic on the Ethereum test network. No funds are stored on the frontend.

Smart Contracts

Abilkhayr was responsible for implementing all smart contracts using Solidity. This includes the crowdfunding contract, the ERC-20 reward token, and generating the ABI files that allow the frontend to interact with the blockchain.

```
5
6  contract CharityCrowdfunding {
7      struct Campaign {
8          address creator;
9          string title;
10         uint256 goalWei;
11         uint256 deadline;
12         uint256 totalRaisedWei;
13         bool finalized;
14         bool goalReached;
15     }
16
17     CharityToken public rewardToken;
18     uint256 public campaignCount;
19
20     mapping(uint256 => Campaign) public campaigns;
21     mapping(uint256 => mapping(address => uint256)) public contributions;
22
23     event CampaignCreated(
24         uint256 indexed id,
25         address indexed creator,
26         string title,
27         uint256 goalWei,
```

> contracts > CharityToken.sol > ...

-License-Identifier: MIT

solidity ^0.8.20;

"@openzeppelin/contracts/token/ERC20/ERC20.sol";

"@openzeppelin/contracts/access/Ownable.sol";

t CharityToken is ERC20, Ownable {

structor(address initialOwner)

ERC20("Charity Reward Token", "CHAR")

Ownable(initialOwner)

ction mint(address to, uint256 amount) external onlyOwner {

_mint(to, amount);

Frontend

Decentralized Charity Crowdfunding Platform

Connect wallet: Connect

Address: 0x90f7...b906 Wallet: GoChain Testnet GO Balance: 9873.9991 GO Your Contributions: 126.00 GO

CREATE NEW CAMPAIGN

Title of campaign:

Need to collect __ GO:

Must be collected within __ days:

Create

CAMPAIGN LIST:

There are no campaigns

Refresh

CONTRIBUTE CAMPAIGNS:

Campaign ID:

Amount:

Contribute

CAMPAIGNS INFORMATION:

Total contributions: 0
Total campaigns: 0

Refresh info

TRANSACTION OUTCOMES:

[02:03:40] Wallet connected!

Abylay developed the frontend part of the application. This includes the website interface, campaign display, input forms, and buttons that allow users to create campaigns and initiate contributions.

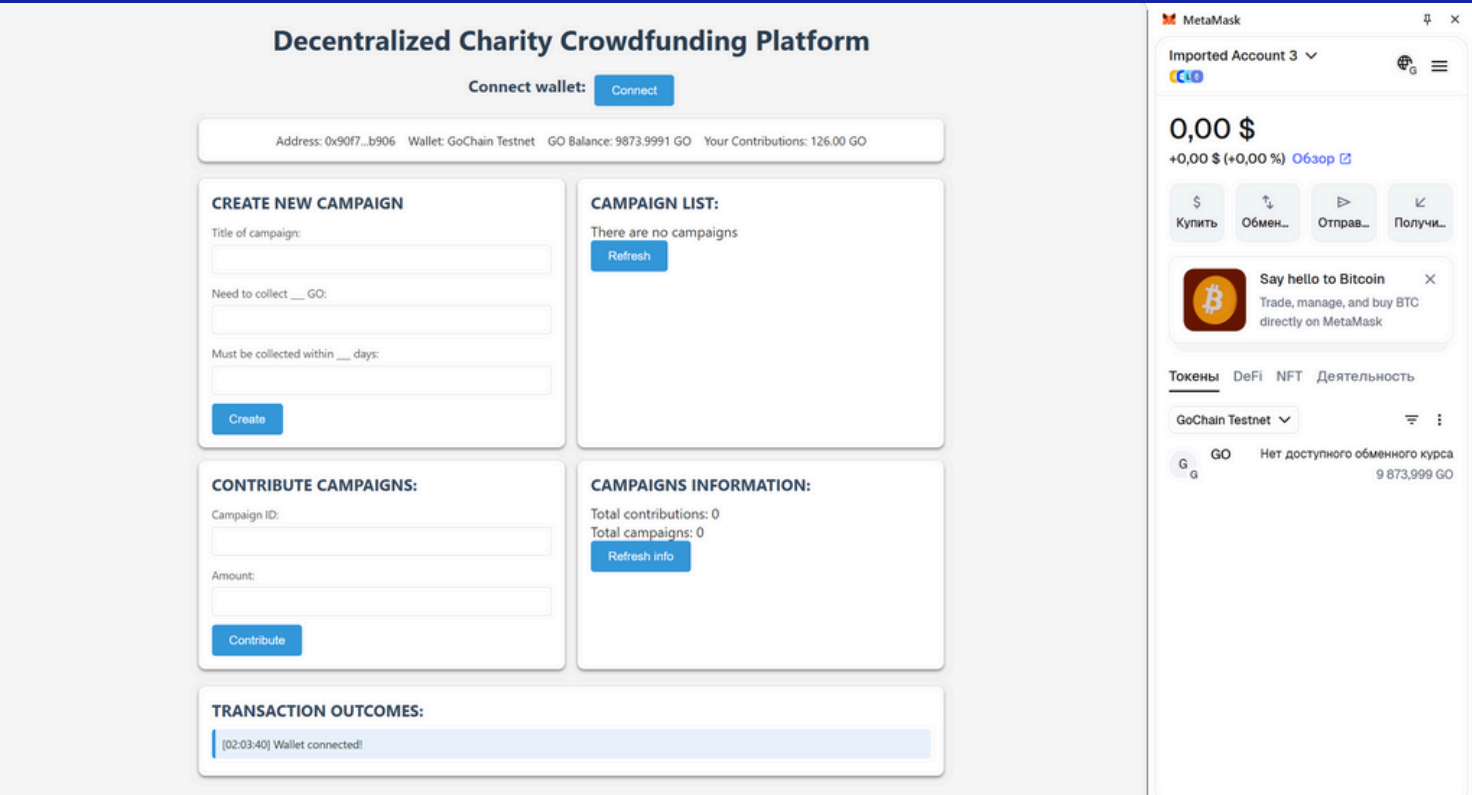
```
1  <!DOCTYPE html>
2  <html>
3
4  <head>
5    <title>
6      Decentralized Charity Crowdfunding Platform
7    </title>
8
9    <link rel="stylesheet" href="style.css">
10  </head>
11
12  <body>
13    <h1 id="heading">Decentralized Charity Crowdfunding Platform</h1>
14    <div class="wallet-container">
15      <h3>Connect wallet:</h3>
16      <button onclick="connectWallet()">Connect</button>
17    </div>
18
19    <div id="walletContainer">
20      <div class="walletContainerP">
21        <p>Address: <span id="walletAddress">Not connected</span></p>
22      </div>
23      <div class="walletContainerP">
24        <p>Wallet: <span id="network">Not connected</span></p>
25      </div>
26      <div class="walletContainerP">
27        <p>GO Balance: <span id="ethBalance">0</span></p>
28      </div>
29      <div class="walletContainerP">
30        <p>Your Contributions: <span id="tokenBalance">0</span></p>
31      </div>
```

```
1  const CROWDFUNDING_ADDRESS = "0xa513E6E4b8f2a923D98304ec87F64353C4D5C853";
2  const TOKEN_ADDRESS = "0x0165878A594ca255338adfa4d48449f69242Eb8F";
3
4  const crowdfundingABI = [
5    {
6      "inputs": [
7        { "name": "title", "type": "string" },
8        { "name": "goalWei", "type": "uint256" },
9        { "name": "durationSeconds", "type": "uint256" }
10     ],
11     "name": "createCampaign",
12     "outputs": [],
13     "stateMutability": "nonpayable",
14     "type": "function"
15   },
16   {
17     "inputs": [{ "name": "id", "type": "uint256" }],
18     "name": "contribute",
19     "outputs": [],
20     "stateMutability": "payable",
21     "type": "function"
22   },
23   {
24     "inputs": [{ "name": "id", "type": "uint256" }],
25     "name": "finalizeCampaign",
26     "outputs": [],
27     "stateMutability": "nonpayable",
28     "type": "function"
29   },
30   {
31     "inputs": [{ "name": "id", "type": "uint256" }],
```

METAMASK & INTEGRATION

```
74 let provider, signer, userAddress, crowdfundingContract, tokenContract;
75
76 async function connectWallet() {
77   if (!window.ethereum) { alert("MetaMask not installed!"); return; }
78   try {
79     await window.ethereum.request({
80       method: 'wallet_switchEthereumChain',
81       params: [{ chainId: '0x7A69' }]
82     });
83   } catch (switchError) {
84     if (switchError.code === 4902) {
85       await window.ethereum.request({
86         method: 'wallet_addEthereumChain',
87         params: [
88           {
89             chainId: '0x7A69',
90             chainName: 'GoChain Testnet',
91             rpcUrls: ['http://127.0.0.1:8545'],
92             nativeCurrency: { name: 'GO', symbol: 'GO', decimals: 18 }
93           }
94         ]
95       });
96     }
97   }
98   provider = new ethers.BrowserProvider(window.ethereum);
99   const accounts = await provider.send('eth_requestAccounts', []);
100   userAddress = accounts[0];
101   signer = await provider.getSigner();
102
103   crowdfundingContract = new ethers.Contract(CROWDFUNDING_ADDRESS, crowdfundingABI, signer);
104   tokenContract = new ethers.Contract(TOKEN_ADDRESS, tokenABI, provider);
105 }
```

```
81 crowdfundingContract = new ethers.Contract(CROWDFUNDING_ADDRESS, crowdfundingABI, signer);
82 tokenContract = new ethers.Contract(TOKEN_ADDRESS, tokenABI, provider);
83
84 document.getElementById("walletAddress").textContent = userAddress.slice(0, 6) + "..." + userAddress.slice(-4);
85
86 const network = await provider.getNetwork();
87 document.getElementById("network").textContent = "GoChain Testnet";
88
89 const balance = await provider.getBalance(userAddress);
90 document.getElementById("ethBalance").textContent = parseFloat(ethers.formatEther(balance)).toFixed(4) + " GO";
91
92 const count = await crowdfundingContract.campaignCount();
93 let totalContributed = 0;
94 for (let i = 0; i < Number(count); i++) {
95   const amount = await crowdfundingContract.contributions(i, userAddress);
96   totalContributed += amount;
97 }
98 document.getElementById("tokenBalance").textContent = parseFloat(ethers.formatEther(totalContributed)).toFixed(2) + " GO";
99 showStatus("Wallet connected!");
100
101 async function createCampaign() {
102   const title = document.getElementById("campaignTitle").value;
103   const goal = document.getElementById("campaignGoal").value;
104   const duration = document.getElementById("campaignDuration").value;
105
106   if (!title || !goal || !duration) { alert("Fill all fields"); return; }
107
108   showStatus("Creating campaign...");
109 }
```



NURZHAN WAS RESPONSIBLE FOR CONNECTING THE FRONTEND TO THE BLOCKCHAIN. THIS INCLUDES INTEGRATING METAMASK, CONFIGURING THE SCRIPT.JS FILE, HANDLING WALLET CONNECTION, AND IMPLEMENTING THE CONTRIBUTION LOGIC SO THAT TRANSACTIONS ARE SENT AND CONFIRMED THROUGH METAMASK.

Contribution Process

Connect wallet: Connect

Address: 0x90f7...b906 Wallet: GoChain Testnet GO Balance: 9873.9991 GO Your Contributions: 126.00 GO

CREATE NEW CAMPAIGN

Title of campaign:

Need to collect __ GO:

Must be collected within __ days:

Create

CAMPAIGN LIST:

ID: 0 - y Active

Goal: 6.0 GO | Raised: 6.0 GO

Deadline: 15.02.2026

ID: 1 - charity Active

Goal: 10.0 GO | Raised: 20.0 GO

Deadline: 19.02.2026

ID: 2 - charity 2 Active

Goal: 100.0 GO | Raised: 100.0 GO

Deadline: 20.05.2026

Refresh

CONTRIBUTE CAMPAIGNS:

Campaign ID:

Amount:

Contribute

CAMPAIGNS INFORMATION:

Total contributions: 126.0 GO




Total campaigns: 3






Refresh info

THIS SLIDE SHOWS THE CONTRIBUTION PROCESS FROM THE USER'S PERSPECTIVE. WHEN A USER ENTERS AN AMOUNT AND CLICKS CONTRIBUTE, THE FRONTEND CALLS THE SMART CONTRACT FUNCTION AND CREATES A BLOCKCHAIN TRANSACTION.

(02)

Transaction Result

Contribute		×
Статус		Просмотр в проводнике блоков
Подтверждено		Скопировать ID транзакции
Из	Место назначения	
 Account 6		 0xe7f17...F0512
Транзакция		
Одноразовый код	9	
Сумма	-5 ETH	
Лимит Газа (Единицы)	94133	
Использовано Газа (Единицы)	94133	
Базовая комиссия (Гвей)	0.179455181	
Плата за приоритет (Гвей)	1	
Итого платы за газ	0.000111 ETH 0,33 \$	
Макс. комиссия на газ	0.000000001 ETH 0,00 \$	
Итого	5.00011103 ETH 14 645,11 \$	

GoChain Testnet		
Feb 8, 2026		
 ?	Contribute	-5 ETH
	Подтверждено	-14 644,79 \$
 ?	Create Campaign	-0 ETH
	Подтверждено	-0,00 \$
 ?	Contribute	-10 ETH
	Подтверждено	-29 289,57 \$
 ?	Create Campaign	-0 ETH
	Подтверждено	-0,00 \$
 ?	Contribute	-100 ETH
	Подтверждено	-292 895,71 \$

Here we can see a successfully confirmed transaction. This confirms that the contribution was processed on the Ethereum test network and approved through MetaMask, demonstrating real blockchain interaction.

Conclusion & Compliance

In conclusion, the project fully complies with academic requirements. It operates on an Ethereum test network, uses only test ETH, and demonstrates smart contracts, frontend development, and MetaMask integration for educational purposes.

THANK YOU

FOR YOUR ATTENTION

REPOSITORY LINK:

[HTTPS://GITHUB.COM/NURZHAN-
ZHUMABEKOV/BLOCKCHAIN-1-
PROJECT/TREE/FEATURE/CONTRACTS-
HARDHAT](https://github.com/NurZhan-Zhumabekov/blockchain-1-project/tree/feature/contracts-hardhat)