



OST

Ostschweizer
Fachhochschule

Blockchain Testat

Donation Service with Tiers

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BICH - Blockchain

Main Idea

A tool for donations where a donator can mint an NFT according to the amount donated which is represented in multiple tiers.

- **Concept:** A tool for donations leveraging NFTs.
- **Functionality:** Donors can mint NFTs corresponding to their donation amounts across multiple tiers.
- **Donation Storage:** All contributions securely stored within the smart contract, ensuring transparency and accountability.
- **Funds Withdrawal:** Only the contract owner has the authority to withdraw funds, adding an additional layer of security and trust.
- **Log Visibility:** All transactions are transparently displayed on the frontend, granting donors bragging rights and fostering a sense of pride in supporting the project.
- **Innovation:** Blending traditional donations with blockchain technology for transparency and uniqueness.

Technologies Overview

- **Smart Contract:** Developed in Solidity, operating on the Sepolia testnet.
- **Frontend Framework:** Built using Django for server-side logic and efficient database management and utilizing Tailwind CSS for a sleek and modern user interface.
- **Containerization:** Docker containers streamline deployment and ensure consistency across environments.



Architectural Design Decisions

- Web App → Docker Compose
 - Start with one command
 - Health checks
 - Scaling (future)
 - Services:
 - Django frontend with Tailwind css → to display and interact with Smart Contract
 - Postgres → to save transactions in DB with audit trail
 - Traefik → As reverse proxy
- Smart Contract
 - Solidity → huge (openzeppelin) libraries
 - Remix IDE → simple fast dev env with online compiler
 - Sepolia → Ethereum testnet

Demo

BlCh Project - DonationNFT

Donation Tiers

Tier 1: 0.03 Ether

Tier 2: 0.06 Ether

Tier 3: 0.15 Ether

e.g. 0.05

Mint NFT

You are the owner of this contract.

Withdraw Funds

Transaction List

0xB3835065eb811bAF1f4f34a2CC36D7652C2Ba842 minted token 0 with donation 0.04000000 Ether

0xdB5158Fa6CF8f1f2CA0A4FB80721Ab0f19Daa9a2 minted token 1 with donation 0.06000000 Ether

0xB3835065eb811bAF1f4f34a2CC36D7652C2Ba842 minted token 2 with donation 0.03000000 Ether

0xB3835065eb811bAF1f4f34a2CC36D7652C2Ba842 minted token 3 with donation 0.03000000 Ether

0xB3835065eb811bAF1f4f34a2CC36D7652C2Ba842 withdrew 0.16 Ether

Future Improvements

- **Dynamic Contract Ownership:** Exploring the possibility of enabling users to dynamically set the contract owner during the donation setup process, fostering a more decentralized and user-driven model.
- **Tier Customization Features:** Considering future enhancements that would allow for on-the-fly adjustments to donation tiers without necessitating the deployment of a new contract, providing a more agile and user-friendly donation experience.
- **NFT Personalization:**
 - **Donor Visibility:** Providing donors the ability to view and track their minted NFTs.
 - **Tier-specific NFTs:** Introducing different NFT designs for varying donation tiers to enhance recognition and exclusivity.

Want to invest?

Send money here: 0xB3835065eb811bAF1f4f34a2CC36D7652C2Ba842