Charitable Organization Money Trail - No More Mystery

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Agenda

Overview

Abstract/Intent

Contracts

Discussion

Postmortem

Questions

Blockchain for charity organizations

Why this is a problem, what is the magnitude, and why is this the best solution?

Solidity contracts

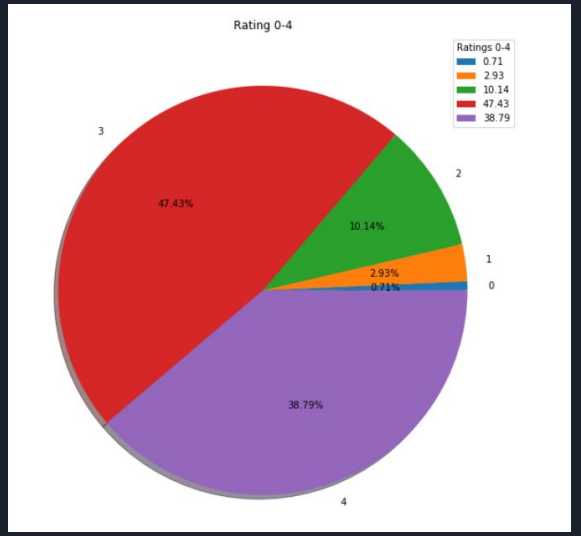
How the contacts solve the problem?

How to further improve the performance of contracts?

Answers

Introduction

- Charity fraud or misuse of funds can be hard to prove
- Lack of a charity's transparency makes it hard to track expenses.
- Charity Navigator ranks "Good Standing" organizations by Financial Health and Accountability & Transparency
- Large amount of "fake" charities that trick donors making life of good-standing-organizations harder

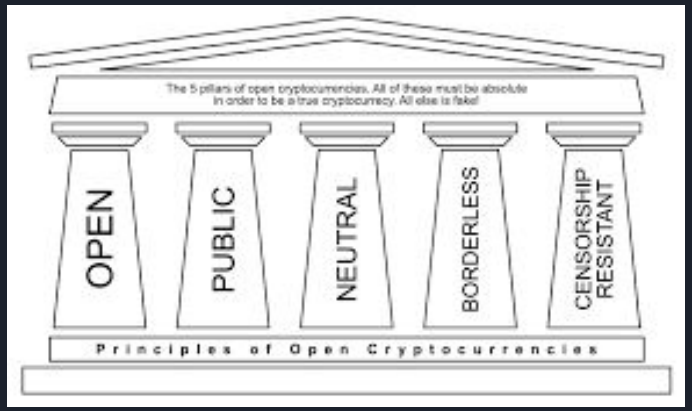


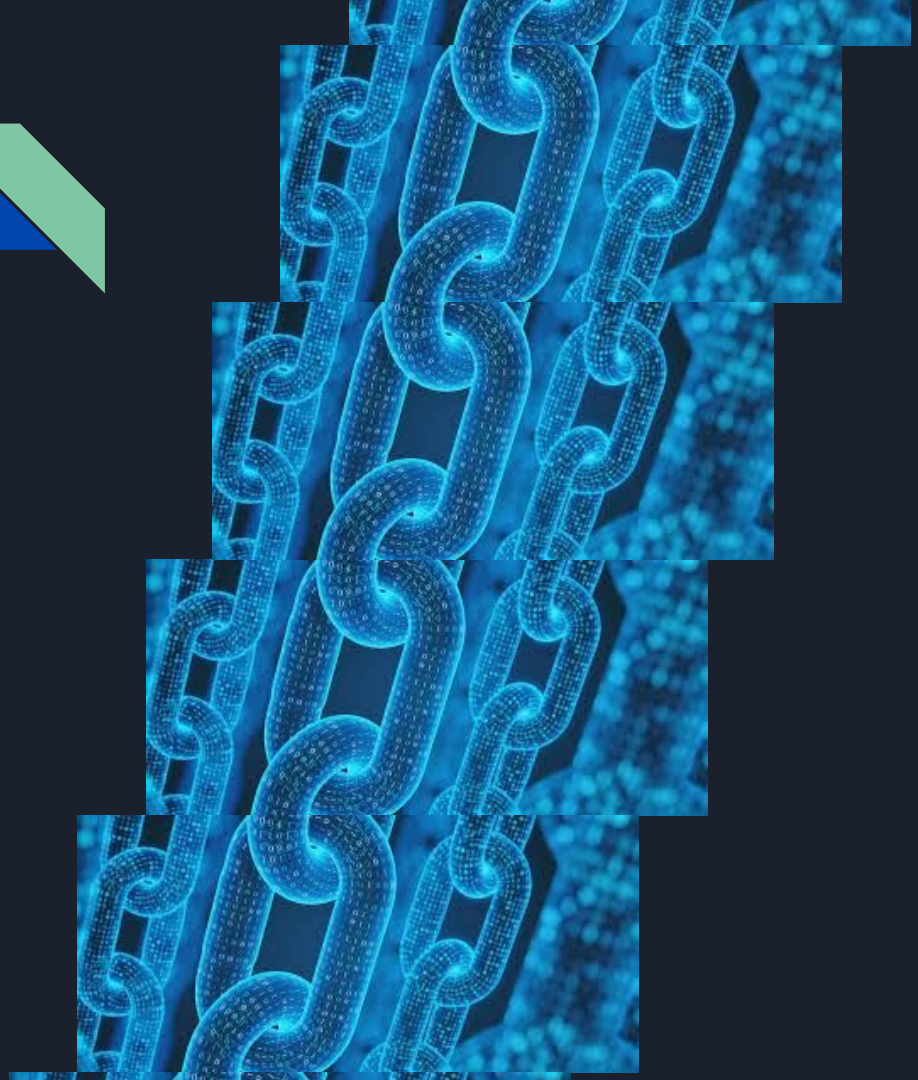
Identifying Opportunities

- Facilitate transparency of the money trail within an organization.

  Decentralized Project Tracking System or simply, DPTS.

- Setup a project budget, openly allocate money, crowdfund and pay recipients in one click.





Contract Ecosystem

In the process of attacking the issue, two contracts were created:

1. Trusted Institutions Donation Portal
    a. Organizationally set and controlled
    b. Basic recordkeeping
    c. One-way transactional security
2. Payment Per Project
    a. OpenZeppelin libraries
    b. Capped amount to be raised
    c. Open to donations, tokens deposited on receipt

First Contract; Primary Donation Portal

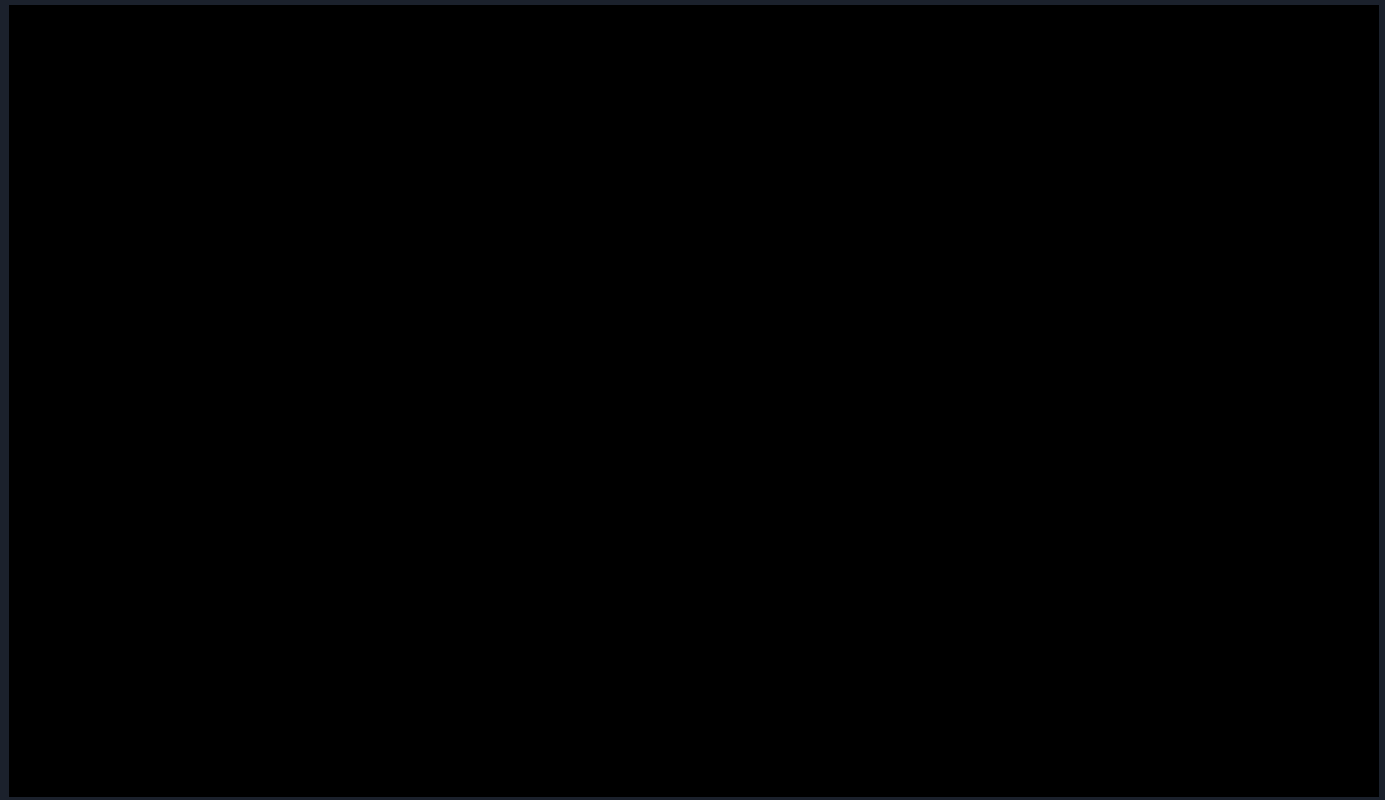
Designed for organizations

Allows percentages to decide donation division

Deposit function public, Percentage setter restricted

One way transaction

Intended for trustworthy institutions and trusting donors



Second Contract; Payment Per Project

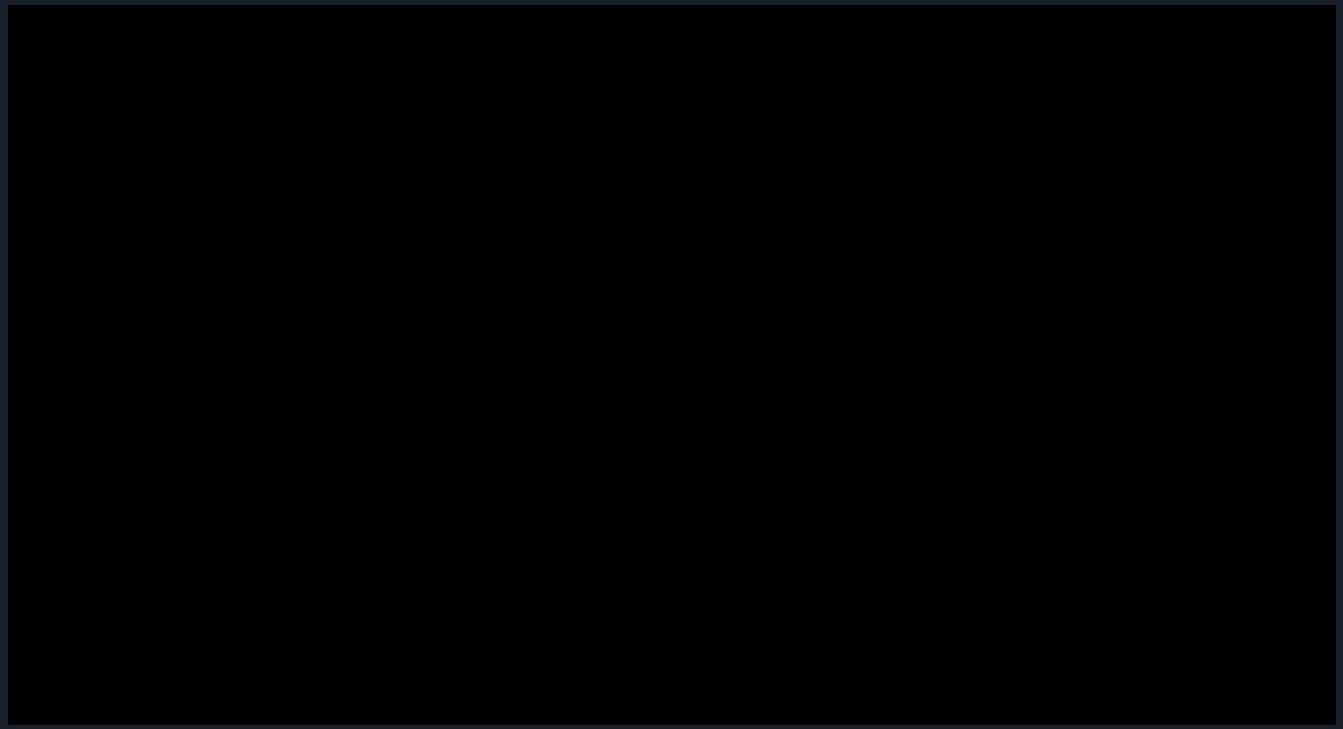
Crowdsale contract

Has a cap on the amount that can be raised.

Has a time limit for accepting donations

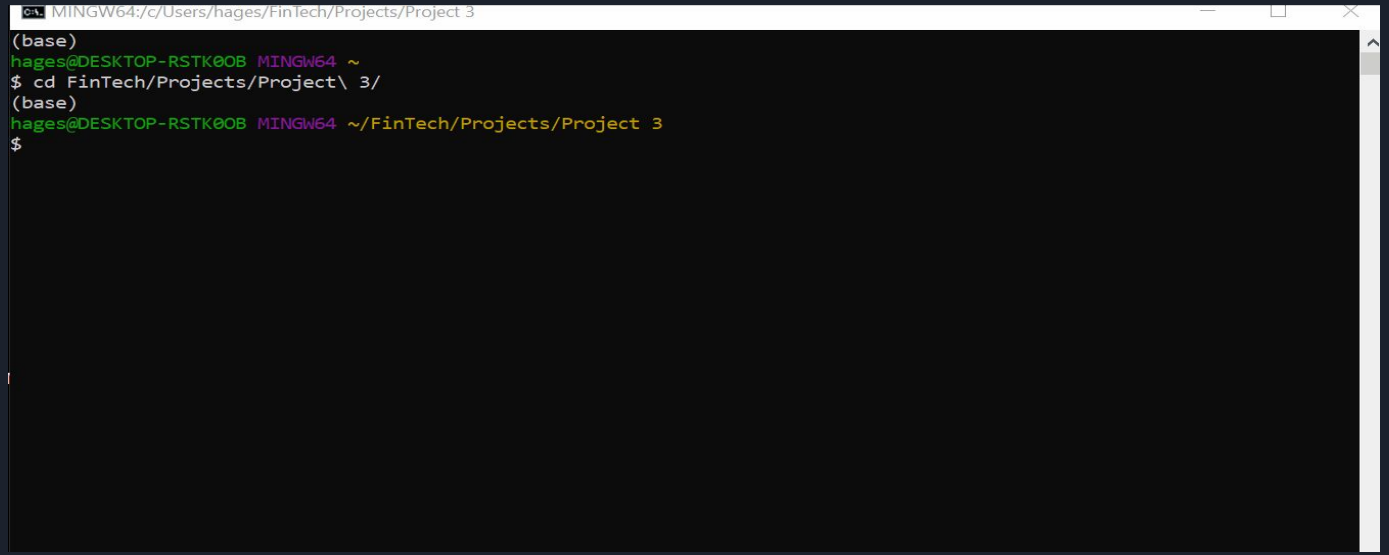
Credits tokens to depositors upon donations

Can be replicated for multiple projects in the organization.



Conversion Rates

- Increase contract functionality / understanding
- Python script converts fiat denomination values to crypto values
- Conversions based on $1 fiat currency



GitHub Pages

- Higher level, alternative view of project repository
- Provides code snippets
- Ropsten deployed contract addresses
- Link: https://hageslel.github.io/Charity-Donations-on-Blockchain/

./ Charity-Donations-on-Blockchain

Track your donations to charitable organizations on the blockchain and eliminate the mystery of donation spending.

View on GitHub

Welcome to our Charity Donations Project GitHub Page!

The goal of this project was to leverage blockchain technology to create a streamlined process for individuals to donate to desired foundations. By leveraging smart contracts, donated funds can be tracked on the blockchain, providing visibility to donors of where their donations are being spent. The grand scope of this project is to enhance donor contribution power and hold foundations accountable for their spending.

Research

Charity Navigator was utilized to research charitable organizations and review organization ratings. Numerous factors are considered when providing ratings, but the below outline provides a brief scope of the ratings:

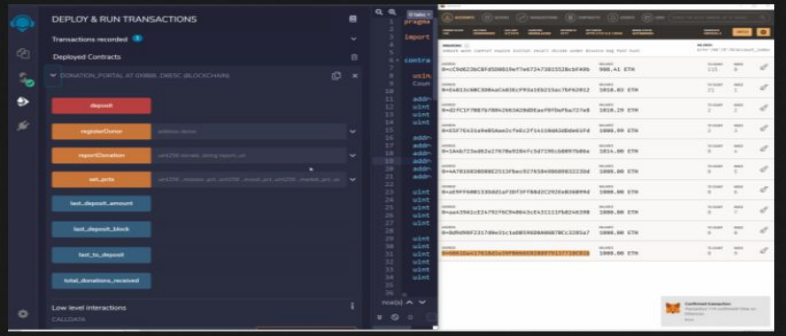
>> A ranking of 4 means that more than 75% of the money raised goes to the program
>> A ranking of 3 means 66% or more of the money raised goes to the program
>> A ranking of 2 means 50% or more of the money raised goes to the program
>> A ranking of 1 means 33% or more of the money raised goes to the program
>> A ranking of 0 means 33% or less of the money raised goes to the program.

Following this research, we identified an opportunity to improve potential shortfalls of fund utilization, which will help organizations gain trust with donors.

Solutions: Smart Contracts

Two contracts were created for this project - one to allow direct donations to a desired charity, and another to deploy a crowd sale for donors to participate in to support a charity.

The Donation_Portal contract accepts donations and distributes funds to set divisions within the charity. Each division within the charity receives a percentage of each donation. Percentages by division are defined when interacting with the contract. An example of this contract in action is below.



The Wingcoin_deployer contract deploys a capped crowd sale and gives donors the ability to purchase WING tokens. This contract was created as an alternative use case to accept donations and possibly provide donors a stake (token) in the charity following their donation. The Donation_Portal contract is the primary contract to support the project initiative. An example of interaction with this contract can be found in Resources folder.

Ropsten Test Network Deployment

All contracts were deployed to the Ropsten test network to allow outside user interaction of the contracts. The addresses for each contract are provided below. Each can be viewed by visiting the Ropsten Testnet Explorer on Etherscan.

>> Donation_Portal: 0xB53cFb3F0ADA965eFeA53dd4Bc89416017924E10
>> Wingcoin: 0x35f6179788F983e476E1Add22D504829aFE221db
>> Wingcoin_Deployer: 0xE94535635Ebe26F18F6C732281807732e9e1131f
>> Wing1: 0x2185e03D389d5D9BcC0573E15D2A0b3d3D6Db198

GitHub Repository

The repository that hosts this project can be viewed here. Enjoy our project!

Postmortem

With More Time:

- Additional contract to increase donor power
  - Donors can donate directly to desired wing
- Additional contract or functionality for direct fiat-crypto conversions
- More charity / foundation research and analysis
- Identify more potential use cases

Difficulties:

- Automation of Counters functionality to count donations and amounts donated per address
- Eliminate set_pcts function visibility to donors
  - Currently visible, access restricted
- Gas efficiency

Questions?

Thank You!

Peter

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Lee

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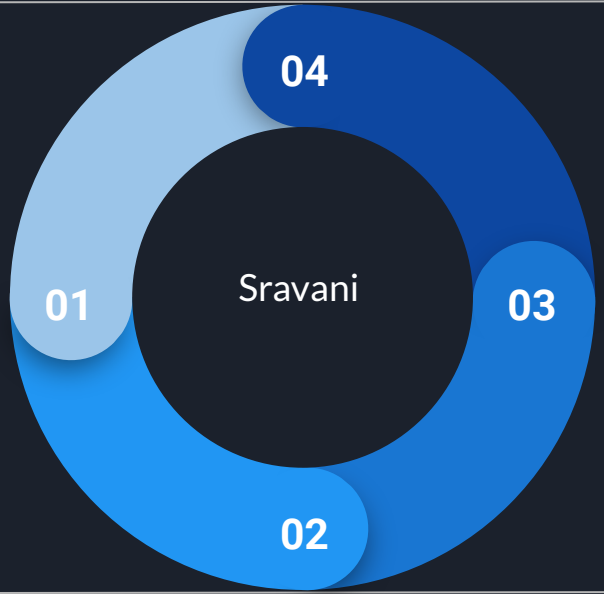

Roman

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Simon

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