

Revolutionizing Crowdfunding: A Decentralized Model on the Blockchain

Guide
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Layout of this Presentation

- Motivation
- Objective
- Base Paper
- Problem Statement
- Literature survey
- Proposed Technique
- Work Plan
- Data Set
- Conclusion
- References

Motivation

- Traditional crowdfunding platforms are susceptible to fraud and misuse, leading to a loss of trust among contributors.
- The use of Solidity and smart contracts showcases the potential of blockchain technology in creating secure, transparent, and decentralized financial systems.
- Explicitly stating the cause of funding in the smart contract adds transparency and clarity to the campaign.
- Automation ensures that the predefined rules and conditions are consistently applied, enhancing the reliability of the crowdfunding mechanism.

Objective

- Introduce a transparent decision-making process by incorporating a voting mechanism, allowing contributors to collectively decide on fund withdrawal requests by the manager.
- Provide clarity on the purpose of the fundraising campaign by explicitly stating the cause in the smart contract, ensuring contributors are informed about where their funds will be allocated.
- Establish clear fundraising goals and deadlines to maintain focus, urgency, and a sense of purpose in the campaign.
- Successful implementation of this model can contribute to building trust in blockchain solutions for crowdfunding, paving the way for broader adoption.

Base paper

- Manish Sarmah, Shruti Saxena and Shyamapada Mukherjee
- "A Decentralized Crowdfunding Solution on top of the Ethereum Blockchain", in 2022 IEEE Silchar Subsection Conference (SILCON)
- IEEE Silchar Subsection Conference (SILCON), Silchar, India, 2022, pp. 1-6
- Publisher : IEEE
- Date : November, 2022
- DOI : 10.1109/SILCON55242.2022.10028843
- This paper aims to contribute significantly to the field of crowdfunding and blockchain technology by introducing a novel approach to address existing challenges.

Problem Statement

To implement Smart Contract for Crowdfunding using Solidity. The fundamental problem lies in the need to enhance security, transparency, and accountability, ultimately empowering stakeholders with complete control over their investments. Implement a secure and tamper-proof crowdfunding mechanism using Solidity smart contracts to mitigate the risk of fraud and unauthorized access.

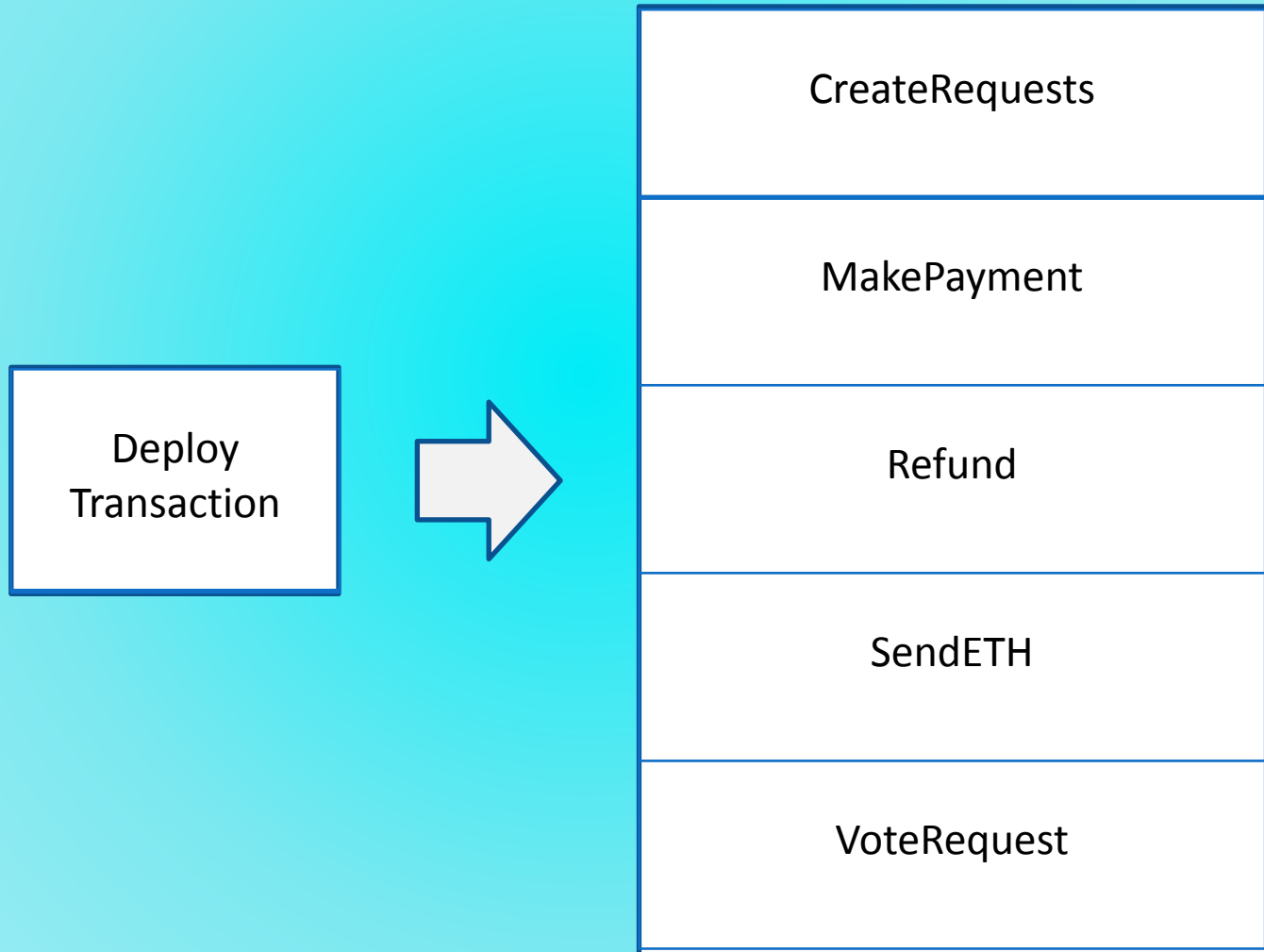
Literature survey

Date	Authors	Title	Model	Positives	Drawbacks
2021	Abdullah Omar Abdul Kareem Alassaf Fakhrul Hazman Yusoff	Multi-point Fundraising and Distribution via Blockchain	Multi-pronged approach	Transparency is essential to preserving public trust while raising money, it should be the top priority for philanthropic organizations	Middlemen
2020	Ashutosh Ashish Khanolkar Ashish Rajendra Gokhale Amrish Sanjay Tembe	Blockchain based Trusted Charity Fund-Raising	Decentralised system that blends blockchain technology, cryptocurrenci es, and charity initiatives	Authenticity and security, removing middlemen	Volatility can lead to fluctuations in the value of funds raised and distributed, impacting the financial stability of the system

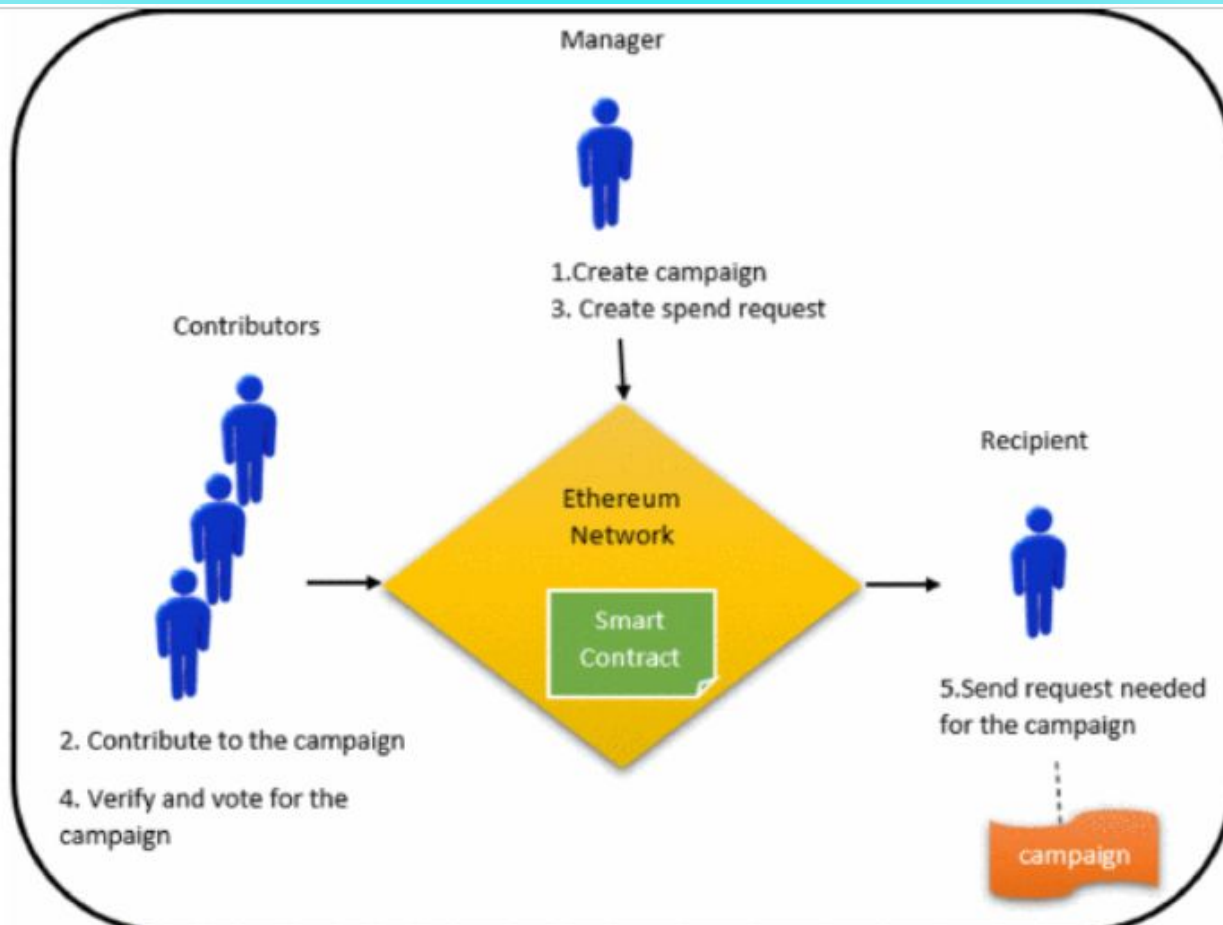
Date	Authors	Title	Model	Positives	Drawbacks
2020	Hu Baokun and He Li	Research on charity system based on blockchain	Philanthropy with blockchain technology	Transparency , trust, and then Dapp-based verification	Navigating and ensuring compliance with diverse regulations poses challenges for charities adopting blockchain
2019	Baber Hasnan	Blockchain-based crowdfunding: A 'pay-it-forward' model of whirl	Pay-it-Forward approach	Everyone starting a campaign has already paid their dues and only allows people to start their campaign after assisting someone else complete their project	Donors may be hesitant to participate if they feel their transaction details are exposed on a public ledger

Date	Authors	Title	Model	Positives	Drawbacks
2021	Jadye Siddhesh Swarup Chattopadhyay Yash Khodankar Nita Patil	Decentralized Crowdfunding Platform Using Ethereum Blockchain Technology	Proposed a blockchain-based system to remove the drawbacks of ancient crowdfunding platforms	Decentralization, Secure systems with Smart contracts	High cost,time taking
2016	Jacynycz Viktor Adrian Calvo Samer Hassan Antonio A. Sanchez-Ruiz	Betfunding: A distributed bounty-based crowdfunding platform over ethereum	Proposed approach doesn't need a centralised, trustworthy organisation	Users can bet on whether a project will be executed within a specific time frame in Betfutding, boosting the reward and motivation for potential developers to carry it out	If the platform struggles to attract and maintain an active user base, it may face challenges in achieving its crowdfunding objectives

Proposed Technique



Work Plan





0x2cd4cdb8d4e7d1cfc6468f82a4e54141947384e7 Connected

Logout


~ Welcome To *EtherX* ~




I want to invest ...



I want funding ...





Connected Wallet :

0x54141947384E7 0x2Cd4cdb8D4e7d1CFC6468f82A4e54141947384E7

11:24:26 PM

Last Transaction

Fund Request created successfully! Transaction deployed to

0xd7A29705b2E944862ce3839c0D615255d938e445

Amount asked : 100000 Wei

Description

0x2Cd4cdb8D4e7d1CFC6468f82A4e54141947384E7

Target(in Wei)

Deadline(in days)

Accept fund if target is not met? (0 or 1)

Profit percentage to investors (%)

Create Fund Request

Investor's Portal

11:24:44 PM

Connected wallet: 0x2Cd4cdb8D4e7d1CFC6468f82A4e54141947384E7

ABOUT : Test 1

Target Asked : 1000000 Wei

Deadline : Expired!

Accept if amount raised less than target : YES

Profit Percentage to Investor : 4%

Fund

ABOUT : Test 2

Target Asked : 100000 Wei

Deadline : Expired!

Accept if amount raised less than target : YES

Profit Percentage to Investor : 3%

Fund

ABOUT : Test Test Test

Target Asked : 100000 Wei

Deadline : 00:00:01:23

Accept if amount raised less than target : YES

Profit Percentage to Investor : 17%

100000



Fund

Log Out

ABOUT : Test 1
Target Asked : 1000000 Wei
Deadline : *Expired!*
Accept if amount raised less than target : YES
Profit Percentage to Investor : 4%

Make Payment

ABOUT : Test 2
Target Asked : 100000 Wei
Deadline : *Expired!*
Accept if amount raised less than target : YES
Profit Percentage to Investor : 3%

Make Payment



ABOUT : Test Test Test
Target Asked : 100000 Wei
Deadline : *Expired!*
Accept if amount raised less than target : YES
Profit Percentage to Investor : 17%


Make Payment



Transactions Internal Txns Erc20 Token Txns Contract ✓ Events									
🔼 Latest 8 from a total of 8 transactions									
Txn Hash	Method ⓘ	Block	Age	From ⓘ		To ⓘ	Value	Txn Fee	
🔍 0x04424a845f6e932aa4...	Make Payment	11052966	12 secs ago	0x2cd4cdb8d4e7d1cfc64...	IN	📄 0xd7a29705b2e944862c...	0 Ether	0.0000564	📄
🔍 0x3cfa9d43da9e251757...	Send Eth	11052943	5 mins ago	0x2cd4cdb8d4e7d1cfc64...	IN	📄 0xd7a29705b2e944862c...	0 Ether	0.000021	📄
🔍 0x8f8744d626e0e012d8...	Create Fund Requ...	11052938	7 mins ago	0x2cd4cdb8d4e7d1cfc64...	IN	📄 0xd7a29705b2e944862c...	0 Ether	0.00046061	📄
🔍 0xa2616e744bc204f755...	Make Payment	11044448	1 day 11 hrs ago	0x2cd4cdb8d4e7d1cfc64...	IN	📄 0xd7a29705b2e944862c...	0 Ether	0.0000564	📄
🔍 0x3172dfd0d8eb87838a...	Send Eth	11044440	1 day 11 hrs ago	0x2cd4cdb8d4e7d1cfc64...	IN	📄 0xd7a29705b2e944862c...	0 Ether	0.000021	📄
🔍 0x96afa078c7a75cb179...	Create Fund Requ...	11044436	1 day 11 hrs ago	0x2cd4cdb8d4e7d1cfc64...	IN	📄 0xd7a29705b2e944862c...	0 Ether	0.00046047	📄
🔍 0xae69c3cbae086b0c17f...	Create Fund Requ...	11044424	1 day 11 hrs ago	0x2cd4cdb8d4e7d1cfc64...	IN	📄 0xd7a29705b2e944862c...	0 Ether	0.00060066	📄
🔍 0x1262500c040c7db257...	0x50905040	11044340	1 day 12 hrs ago	0x2cd4cdb8d4e7d1cfc64...	IN	📄 Contract Creation	0 Ether	0.0061612	📄
[Download CSV Export 📄]									
🔍 A contract address hosts a smart contract, which is a set of code stored on the blockchain that runs when predetermined conditions are met. Learn more about addresses in our Knowledge Base .									

DEPLOY & RUN TRANSACTIONS

ENVIRONMENT

JavaScript VM (London)  


ACCOUNT 

0x5B3...eddC4 (99.999999€)  


GAS LIMIT


3000000

VALUE

0 Wei 

CONTRACT


CrowdFunding - crowdfunding.sol 


Deploy 1000, 3600 


☐ Publish to IPFS


OR

At Address Load contract from Address

Transactions recorded **1** 


Deployed Contracts 


createRequests string _description, address _ 

makePayment uint256 _requestNo 

refund

sendEth

voteRequest uint256 _requestNo 

contributors address 

deadline

getContractBa...

manager

minimumCont...

noOfContribut...

numRequests



Data Set

	contact_id [PK] integer	first_name character varying	last_name character varying	email character varying
1	4661	Cecilia	Velasco	cecilia.velasco@rodrigues.fr
2	3765	Mariana	Ellis	mariana.ellis@rossi.org
3	4187	Sofie	Woods	sofie.woods@riviere.com
4	4941	Jeanette	Iannotti	jeanette.iannotti@yahoo.com
5	2199	Samuel	Sorgatz	samuel.sorgatz@gmail.com
6	5650	Socorro	Luna	socorro.luna@hotmail.com
7	5889	Carolina	Murray	carolina.murray@knight.com
8	4842	Kayla	Moon	kayla.moon@yahoo.de
9	3280	Ariadna	Geisel	ariadna.geisel@rangel.com
10	5468	Danielle	Ladeck	danielle.ladeck@scalfaro.net
11	3064	Tatiana	Thompson	tatiana.thompson@hunt.net

Tools Used

The following are the list of tools and libraries used in this project.

- 1 Remix Editor
- 2 Web3.js Library
- 3 Node Js
- 4 Metamask Wallet Provider
- 5 Next.js Framework
- 6 React Framework

Variables

Variable	Type	Description
<code>`manager`</code>	<code>`address`</code>	Address of the manager initiating the crowdfunding campaign.
<code>`projectDescription`</code>	<code>`string`</code>	Description of the project and why companies should invest.
<code>`projectAddress`</code>	<code>`address`</code>	Address where the collected funds will be transferred.
<code>`targetAmount`</code>	<code>`uint`</code>	Target amount to be raised during the fundraising campaign.
<code>`deadline`</code>	<code>`uint`</code>	Deadline for the fundraising campaign (timestamp).
<code>`minimumContribution`</code>	<code>`uint`</code>	Minimum contribution required from each contributor.
<code>`contributors`</code>	<code>`mapping`</code>	Mapping of contributor addresses to their contributed amounts.
<code>`requests`</code>	<code>`struct[]`</code>	Array of funding requests containing description, recipient, value, approval count, and contributor approvals.
<code>`Request`</code>	<code>`struct`</code>	Structure defining a funding request.

Functions

Function	Description
<code>`sendETH()`</code>	Allows a supporter to become a contributor by sending ether, given the campaign is active and the minimum contribution is met.
<code>`refund()`</code>	Enables a contributor to request a refund if the campaign is unsuccessful and the deadline has passed.
<code>`createRequest()`</code>	Permits the manager to create a funding request specifying project details, recipient address, and the amount to be transferred.
<code>`voteRequest(uint index)`</code>	Allows a contributor to vote on a funding request, ensuring they haven't voted previously.
<code>`makePayment(uint index)`</code>	Allows the manager to make a payment to the specified recipient if the majority of contributors approve the request.
<code>`restricted modifier`</code>	A modifier ensuring that only the manager can execute certain functions.

Conclusion

In summary, our solution using Ethereum Blockchain and Solidity simplifies crowdfunding by making it secure, transparent, and user-friendly. By removing centralized risks and introducing smart contracts, we empower contributors, ensuring their control over funds. This approach not only tackles existing problems but sets a new standard for trustworthy and accountable crowdfunding practices. The future of crowdfunding is decentralized, transparent, and in the hands of its contributors.

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Thank you