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# Blockchain Based Crowdfunding System

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**Abstract—**

Fundraising applications are growing increasingly popular on a daily basis. On a variety of venues, people raise money based on their needs. The platforms that are now accessible use centralized technologies. They lack transparency, scalability, and security. All those problems must be solved. De- centralization can help to tackle these problems. Decentralization is provided through blockchain. We can get rid of the problems with centralized systems by using the Ethereum blockchain. In essence, the decentralized application acts as a platform for users to Donate to already-existing Fundraisers and Create Fundraisers by inputting the relevant information. Until the host-set Expiry date or the host-set Goal is accomplished, the gift amount is stored in the smart contract. If the Goal amount is reached before the Expiry date, the funds are transferred to the Beneficiary's address.

***Index Terms*—Transparency, Blockchain, Decentralized, Ethereum**

## INTRODUCTION

The purpose of this research is to provide an alternate technique for the current crowdfunding platforms available online. There are several pre existing projects which looks for funds and people contribute to these projects as per their will. The main advantage of these systems is, people can contribute money without any trust factor.This is the place where traditional crowdfunding platforms lacks. Another problem of the existing approach is the centralised servers, which are subject to malicious activity. Another problem of the existing approach is the centralised servers, which are subject to malicious activities. while making a financial contribution Investors desire transparency; they want to know where their money is going to be used. To address the shortcomings of the present system, the Ethereum blockchain is brought into the system[1].

## LITERATURE SURVEY

The level of security required for financial transactions is additionally increased by various cryptographic hash al- gorithms of particular cryptocurrencies. The blockchain can be used in business and industry, as well as in financial and healthcare services. Numerous cryptographic hash algorithms are used by specific cryptocurrencies. Along with financial and healthcare services, businesses and industries can aslo use the blockchain Technology[1].

In the past research it is said that crowdfunding is a business terminology[2]. It has some distinctive features. Crowdfunding that uses blockchain technology may be affected differently by the success criteria that determine the outcome of traditional crowdfunding. Since last few years, the use of blockchain is at its peak and still it is not yet fully discovered. Hence we are not yet known the success criteria of blockchain based crowdfunding. In the research done earlier there is a compar- ison of success factors between decentralized based system and with the traditional system[3].This goes into great detail about the blockchain-based architecture for tracking donations. The system, which is based on blockchain technology, offers transparent accounting of activities to contributors, charitable organizations, and recipients. For users and contributors to be able to track where, when, and who received money, platform should have a clear donation channel. According to the analysis [4], implementing blockchain technology at the state level and at the individual levels in domestic charitable organizations, it will increase donations' efficiency and de- pendability as well as their donor appeal. Additionally, it will aid in boosting revenue or, at the very least, lessen criticism from those who object to budget cuts[6]. The results of this literature review offer recommendations for the direction of future research and development. Our study will help to clarify the distinctions and connections between traditional crowdfunding and blockchain-based crowdfunding.

## PROBLEM STATEMENT

Fundraising is the most popular way to collect money. In the most crucial times of COVID-19, Wars, and other natural calamities, many organizations are raising funds to help people and the government to distribute funds to the people in need. Our aim is to develop a decentralized platform to raise and track the funding using the Ethereum blockchain.

## BACKGROUND RESEARCH

***Smart contracts***

Smart contracts are the programs that runs when certain criteria are satisfied and are recorded on a blockchain. They are often used to automate the implementation of an agreement so that all participants will be confident of the conclusion instantly, without the participation of an intermediary or time lost.

***Cryptocurrency***

Cryptocurrency is a sort of digital money whose creation and management are based on cryptographic technologies[1].It is intended to function as a means of exchange via a computer network that is not dependent on any centralised authority, such as a government or a bank.

***Distributed ledger***

Distributed ledgers rely on independent computers (called nodes) to record, share, and synchronise transactions in their own electronic ledgers. A distributed ledger is a data structure in which an uncommitted group of copies can eventually reach a consistent state using a predefined consensus procedure.

## METHODOLOGY

We have chose Ethereum blockchain for this study be- cause it is adaptable to a wide range of use cases. For this research we used the concept of smart contracts. The solidity programming language is commonly used to create Ethereum-based smart contracts. A smart contract's purpose is to streamline business and trade between anonymous and identified participants, perhaps eliminating the need for a middleman.Smart contracts are basically accounts that are governed by code rather than humans.Contract accounts have attributes like balance that keep track of how much ether the account has. It contains several other fields include storage, which stores the data, and code, which contains the contract's raw machine code.

The smart contracts are written in solidity programming language. When the code is built in the Solidity compiler, the compiler generates two different files, the first of which contains the byte code that will be published to the Ethereum network. Another key file is an Application Binary Interface (ABI), which can interface with the deployed contracts. ABI essentially aids us in the development of a web-app based on Ethereum smart contracts.

The following significant step after deploying a contract is testing. Testing is required because their would be no. of transactions taking place. Testing is done to check whether the contract is working fine or not. We deploy these smart contracts on a local test network which is running on local device. The local test network is then created for deploying and testing of the smart contracts. The Ganache library, also known as TestRPC, is used to construct a local test network. On which we can demonstrate working of the project.

## PROPOSED SYSTEMS

In this system, there are three entities namely donor, bene- ficiary, and organization.The terms are stated below:

**Donor :** They are the ones who will look at the specifi- cations. published by numerous organizations, as well as the selected bid according to their means and preferences, choose to the root.

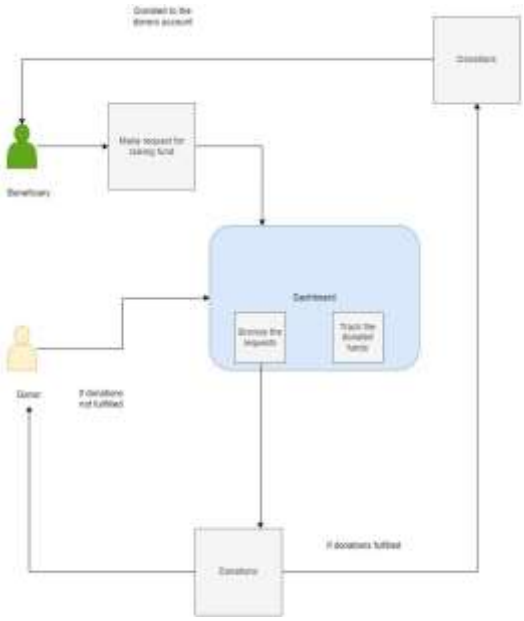

Fig. 1. Architecture Diagram

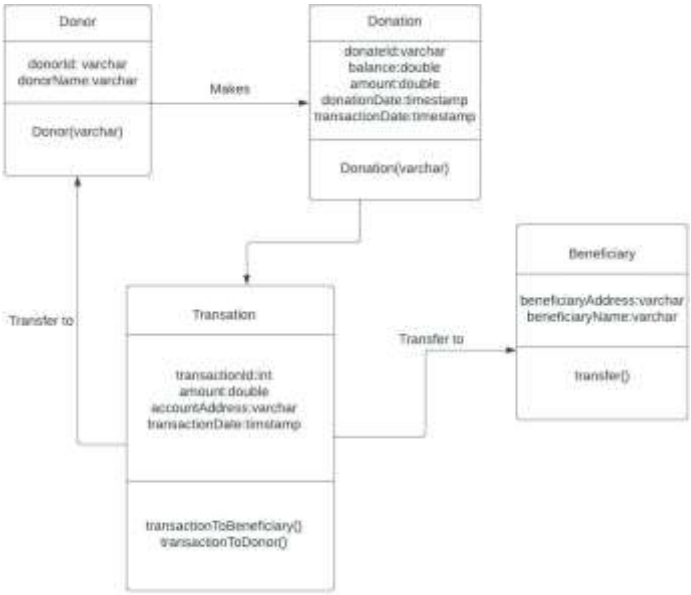


Fig. 2. Class Diagram

**Beneficiary :**These organizations are nonprofitable individ- uals, NGOs, or other social ventures in need of resources (financial or otherwise). They will be able to post their needs on the Charity-Chain platform in a predetermined format. They'll be crucial in the mining industry as well.

**Organization :**These are the NGOs where the donated amount is going to be spent as per the requirement.

In the **Architecture diagram**, the user has two options. He can go to raise request for the funds. In this option, he has to set the time as well as the amount of donation he wants. After the request submission the other donors can donate the fund till the amount fully gets filled or till the due date has been given by the user.

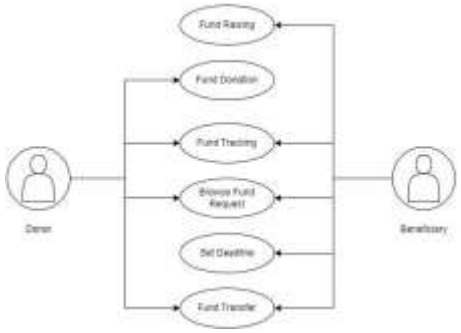


Fig. 3. Use case diagram

In the **class diagram**, there are three entities namely donor, beneficiary, and organization. There has been shown a rela- tionship between all of them.

In the **User case diagram** the number of the functions and their relationship with each other has been shown. The function of each entity and the aggregation type of relationship with the entity have been shown in the figure 3.

## BLOCKCHAIN PLATFORM ANALISYS

Blockchain is a ready-made tool that developers use to build other platforms rather than building a blockchain from the ground up. There are countless platforms that can be utilized to implement blockchain-based projects. Most of them have similar functions to one another.Therefore, selecting a platform for developer's work is difficult.

## TOOLS OF IMPLEMENTATION

The project uses the Ethereum test network For communi- cation with blockchain. The server part uses a standard library called Web3.js. And the Smart contracts are implemented on Solidity language.

## ACKNOWLEDGMENT

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## CONCLUSION

In this research we are implementing a decentralized fundraising system using the Ethereum blockchain. With the help of Etherscan API, we are going to build the system where the user can track donations to beneficiaries. To enhance the proposed system we can make use of InterPlanetary File System (IPFS) to store the transaction information and reports about the fundraisers. The InterPlanetary A file System is a peer-to-peer network, protocol, and hypermedia system for sharing and exchanging files in a distributed file system. Each file in a global namespace connecting IPFS servers is uniquely identified via content-addressing, which is used by IPFS.

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