

DECENTRALIZED NGO BASED ON BLOCKCHAIN

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Abstract - Decentralization is seen as a mechanism in the humanitarian field for transferring strategic responsibility and jurisdiction from central offices closer to areas of operations. It also leads to a change in the power hierarchy, with decision-making authority sitting less and less at headquarter, depending on the degree of decentralization (localization, delegation, or devolution). Over the course of many decades, the term has grown in popularity in civil society. For example, as populations health status shifted and healthcare capabilities around the world expanded, so did the kinds of organizations the WHO worked with and their operations. Based on this, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) coordinated and funded the International Conference on Primary Health Care System in Alma-Ata, Kazakhstan, in 1978. (USSR). The event called for change, especially in the area of decentralization. Decision-makers are physically present in the program field in a decentralized environment, which has the benefits of more tailored responses, quicker funding turnover, increased policy implementation, greater leveraging of competitive advantages, stronger teamwork, and less bureaucracy. Despite these benefits, INGOs, on the other hand, have been reluctant to go past translation and delegate decision-making or administration to local workers.

1.INTRODUCTION

Non-Governmental Organizations (NGOs) are groups that advocate for and take action on a variety of issues. These factors vary depending on the NGOs' areas of interest. Each NGO is distinct from the others. While the probability of two NGOs sharing the same target area is high, their mission and vision, as well as their reasons for existence, would differ. Regardless of the topics, NGOs are generally focused on providing assistance and resources for future progress. However, NGOs are currently confronted with a number of issues for which they are not always organized.

The aim of the NGO is not simply to complete a mission. Following the completion of a mission, non-governmental organizations (NGOs) would like to maintain communication with their beneficiaries to ensure that continued progress is made. Aside from that, NGOs would like to be able to assist more people and groups based on their needs. To do so, non-governmental organizations (NGOs) must actively raise money.

Many brilliant thoughts can come to a position at times, but they can also create chaos and divert you away from the original target. Although many good ideas are generated, they do not always adhere to the goals that have been established.

One point of view is that NGOs should collaborate to achieve their targets more effectively. However, some non-governmental organizations (NGOs) see it as a means of competition. For some reason, some NGOs feel that collaborating with other NGOs or charities would increase their competitiveness when applying for grants.

Most developed nations suffer from a shortage of infrastructure, and non-governmental organizations (NGOs) claim that people deserve a decent quality of life. As a result, several non-governmental organizations (NGOs) have agreed to resolve this problem by establishing communities that benefit a large number of people. Initially, signs are visible, and people have happier lives. However, it can be noted that not all communities would uphold the same standard of living that was required of them. The advantages to their living conditions will only be transient if adequate maintenance is not provided. Furthermore, creating many initiatives that do not produce long-term returns would have an effect on the NGO's ability to raise funds. Grant-making organizations would like to offer to those who will demonstrate their ability to execute and sustain long-term projects.

NGOs are organizations that we look up to, and while they can seem to have it all, they, too, fail in more ways than one. NGOs, like all others, are not flawless and must go through a trial and error period. As a result, when things don't go as expected, it's important to be prepared to come up with solutions.

1.1 Prelude

This section formally describes the preliminaries employed in the projected framework. It describes the computer code platform used for development of this framework and its benefits. Ethereum and IPFS being the foremost outstanding and necessary for implementation of this framework also are mentioned within the following section.

1.2 Ethereum

Ethereum could be a distributed blockchain network that uses the concept of blockchain that was antecedently utilized in the favoured crypto currency Bitcoin. Ethereum was formally introduced in 2015 and therefore the plan behind Ethereum was to form a trust less sensible contract platform that may be ASCII text file and would also hold the feature of programmable blockchain. This technology conjointly shares the peer-to-peer networking that creates it. This platform conjointly makes use of its own crypto currency called Ethers. This crypto currency is used for sharing it between accounts connected on Ethereum blockchain. Ethereum conjointly provides the programmers a language during which they will customise their own blockchain, this language is thought as Solidity. it has been developed for sensible contracts that are the most feature of Ethereum.

Ethereum could be a blockchain-based computer code platform that's primarily wont to support the world's second-largest cryptocurrency by capitalization once Bitcoin. Like different cryptocurrencies, Ethereum is often used for causing and receiving worth globally and while not a 3rd party looking or stepping in unexpectedly.

Value exchange is the main use case of the Ethereum blockchain nowadays, usually via the blockchain's native token, ether. However, several of the developers are units functioning on the cryptocurrency owing to its long-run potential and therefore the bold vision of its developers to use Ethereum to administer users a lot of management of their finances and on-line knowledge. The bold plan – that typically ends up in Ethereum being said as “world computer” – has been met with its share of critics UN agency say it most likely won't work. However, if this experiment rolls out as planned, it'd spawn apps terribly totally different from Facebook and Google, that users wittingly or unwittingly trust with their knowledge.

1.3 Smart Contracts

Smart contract is thought of because the piece of code that's accustomed performs any task on the blockchain. This piece of code is dead once the users send the transactions. They run on the blockchain directly, creating themselves secure from any quiet meddling and alterations. sensible contracts usually use solidity language and that they may be accustomed to program any quiet operation that a technologist needs to try and do on the blockchain. Once programming the desired operations, the programmers will compile them by victimisation EVM bytecode that will be explained in the next section. And once collecting them it might be dead and deployed on the Ethereum blockchain. The artificial language of JavaScript and Python are encapsulated with

the Solidity language provided by Ethereum to jot down code in sensible contracts.

The term good contract has been used over the years to explain a large sort of completely different thing. Within the Nineteen Nineties, decipherer Nick Szabo coined the term and outlined it as “a set of promises, laid out in digital type, together with protocols among which the parties perform on the other guarantees.” Since then, the idea of good contracts has evolved, particularly once the introduction of suburbanized blockchain platforms with the invention of Bitcoin in 2009. In the context of Ethereum, the term is truly a small amount of a name, on condition that Ethereum good contracts are neither good nor legal contracts, however the term has stuck. During this book, we have a tendency to use the term “smart contracts” to ask for changeless pc programs that run deterministically within the context of associate. Ethereum Virtual Machine as a part of the Ethereum network protocol—i.e., on the suburbanized Ethereum world computer.

1.4 Interplanetary File System

IPFS could be a protocol that uses a peer-to-peer network for knowledge storage. It provides secure knowledge storage as knowledge kept on IPFS is shielded from any alteration. It uses a cryptanalytic symbol that protects the info from alteration as any conceive to build amendment on the info keep on IPFS may solely be done by dynamically the symbol. All the info files kept on IPFS contain a hash price that's generated cryptographically. It's distinctive and is employed for identification of keep files on the IPFS. This secure storage strategy of IPFS protocol makes it a favourable alternative for storing essential and sensitive knowledge. The cryptanalytic hash that's generated may well be kept on the suburbanized application to scale back the complete procedure operations over the blockchain. IPFS protocol works by employing a peer-to-peer (P2P) network, this network contains a knowledge and information structure called IPFS object that contains data and links in it. knowledge is unstructured binary knowledge associate degreed link consists of an array. The IPFS protocol works within the following means

- Files keep on IPFS are appointed a novel cryptanalytic hash
- Duplicate files aren't allowed to exist on the IPFS network
- A node on the network stores content and index data of the node

2. LITERATURE SURVEY

Some may consider the normal activities of a Non-Profit Organization (NPO) or Non-Governmental Organization

(NGO) to be unclassified. However, like with every other organization, the activities of an NPO and NGO are focused on specific priorities and programs. These groups work on a variety of issues that benefit many people. These groups include the poor who live in developed countries. NGOs and NPOs host a variety of programs to raise living standards, eliminate inequality, boost schooling, and build more inclusive communities in a variety of settings. These programs will be implemented as part of the organization's fieldwork. However, before they can begin their fieldwork and reach their projects, NGOs and NPOs must collect more funds.

In many developed nations, NGOs and NPOs are deeply concerned with hunger and its abolition. Among these strategies is changing the healthcare infrastructure in order to save thousands of lives. This can be accomplished by providing clinics and physicians with the tools they need to practice new and more accurate approaches. Donations with advanced technology may also be made to support the ongoing introduction of newer methods. Similarly, patients are offered free check-ups in order to spot potential infections early, when they can be treated more quickly. Sanitation is still an issue in many countries, as it can lead to a variety of diseases and infections.

Aside from hygiene and sanitation, which will undoubtedly save many lives, education is often stressed to help people live happier lives. Out-of-school teenagers are allowed to return to school, and bridges and means of transportation are built for schools that are impossible for certain people to access. Scholarships to colleges are also eligible for qualified students seeking to improve their quality of living.

Livelihoods are also taught to groups such as women who were formerly uneducated and were taught to stay at home. They teach them skills to help them make a living while keeping an eye on their household. Similarly, several NGOs are worried about the atmosphere and the current state of waste materials that our world is subjected to. As a result, ecological approaches are being adopted in cities to prevent the more devastation that our world is actually experiencing. As previously mentioned, NGOs and NPOs would need funds to carry out their numerous initiatives. The arrangement of a charity is similar to that of many other organizations. A board of directors is there, as are the many divisions that normal offices have, such as finance and human resources.

Inside the organization, there are others tasked with raising money to make a variety of programs a reality. Funding options for non-profit organizations are actively sought. These funding opportunities will take the form of grants, for which NGOs must submit an application alongside several rivals vying for the same grant for their initiatives.

There are also several funding options available to non-profit organizations, the majority of which are very unique. When it comes to granting funding organizations, they are very particular about the applications they want to hear from those eligible for their grants. If a specific grant does not align with the programs or priority areas of the NGO or NPO, there is no use in applying so you will not be considered. This is why nonprofits would have in-house study time to look for different grants to apply for.

A study team will be in charge of looking for potential grants, and another team will be in charge of raising the funds. A nonprofit's activities are identical to those of a company, with each individual having their own responsibilities and duties. The distinction is between where the money is spent and the extra fieldwork that NGOs and NPOs must undergo.

3. FEATURES OF ETHEREUM

3.1 Decentralization

With ethereum the data is distributed across the network instead of at one central purpose. This conjointly makes the management of knowledge to be distributed and handled by accord reached upon by shared input from the nodes connected on the network. The information that was before focused at one central purpose is currently handled by several trustworthy entities.

3.2 Data Transparency

Achieving information transparency in any technology is to possess a trust-based relationship between entities. the information or record at stake ought to be secured and temper-proof. Any information kept on the ethereum isn't focused at one place and isn't controlled by one node; however, it is instead distributed across the network. The possession of information is currently shared and this makes it clear and secure from any third-party intervention.

3.3 Security and Privacy

Ethereum technology uses scientific discipline functions to produce security to the nodes connected to its network. It uses the Keccak-256 cryptographic hash function program on the hashes that the area unit keeps on the blocks. SHA stands for Secure Hashing Algorithm; these hashes give security to the

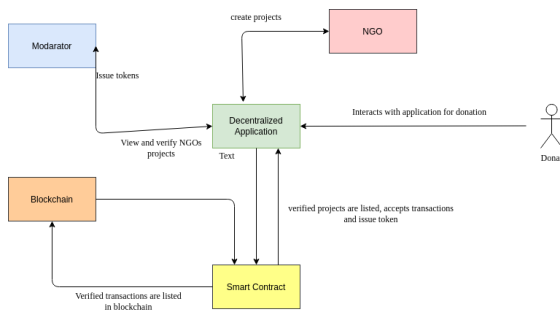


Fig -1: Basic Block Diagram

4. METHODOLOGY

We would eliminate the middleman entities that are a remnant of pre-internet days. People would no longer need to donate money to an opaque intermediary because they can give it directly to groups on the ground prepared to take decisive action. We use autonomous proposal curation, and projects that are accepted must show evidence that they have taken the steps outlined in their funding application, as well as reporting on the outcome. Users will be able to monitor the proposal funding through the blockchain and see concrete examples of the outcomes of their donations.

The funds will be used for community service, civil system reconstruction, and gadget construction. Any non-profit organization (NGO) may set up a fundraising project on the internet. The NGOs will accept contributions from everyone on the internet that has an Ethereum wallet, and the proper use of these funds is then moderated by volunteers on the Moderators website. Moderators verify completed NGOs' withdrawals and grant credibility tokens to the appropriate NGOs. Tokens incentivize NGOs to continue sending proof and doing legal transactions so that they can make further withdrawals in greater numbers. Tokens are sent to Moderators in exchange for validating the transactions.

A smart contract is a computer code or a transaction protocol that is designed to perform, manage, or register legally valid activities and activities in accordance with the provisions of a contract or agreement. Solidity Compiler is used to compile smart contracts. Use npm to install solcjs, a Solidity compiler, in a quick and portable manner. The solcjs package is less feature-rich than the methods for accessing the compiler discussed further down this list. The manual for Using the Command Line Compiler suggests you're using the full-featured compiler, solc.

Ganache is a personal blockchain that allows for the accelerated growth of Ethereum and Corda distributed applications. Ganache can be used during the development cycle, allowing you to MetaMask is a software extension that connects internet browsers, Ethereum, and decentralized applications built on the Ethereum network.

MetaMask does not have access to all of the user's data, and all data is encrypted on the user's browser and shielded by the user's MetaMask password. MetaMask is a software plugin that serves as a bridge between internet browsers, Ethereum, and Ethereum-based Dapps such as MyEtherWallet. It allows users to run Ethereum dApps directly in their browser without having to run a complete Ethereum node. Users may use MetaMask to store, transmit, receive, and communicate with the Ethereum network. MetaMask is a browser plugin that works for Google Chrome, Opera, Firefox, and Brave.

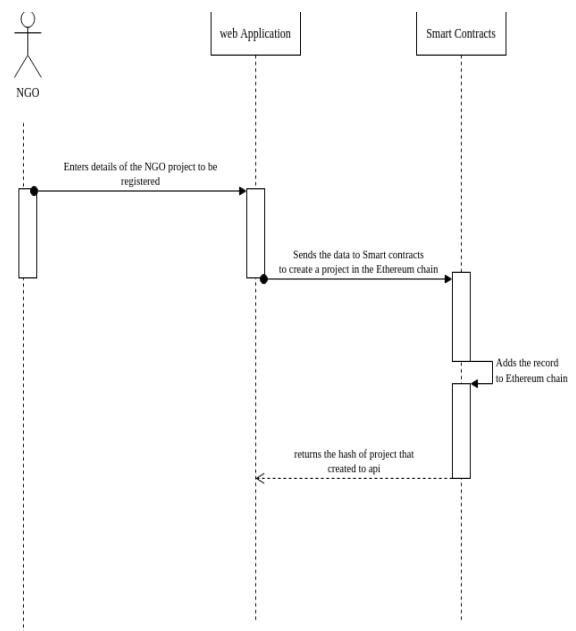


Chart-1: Sequence diagram of NGO

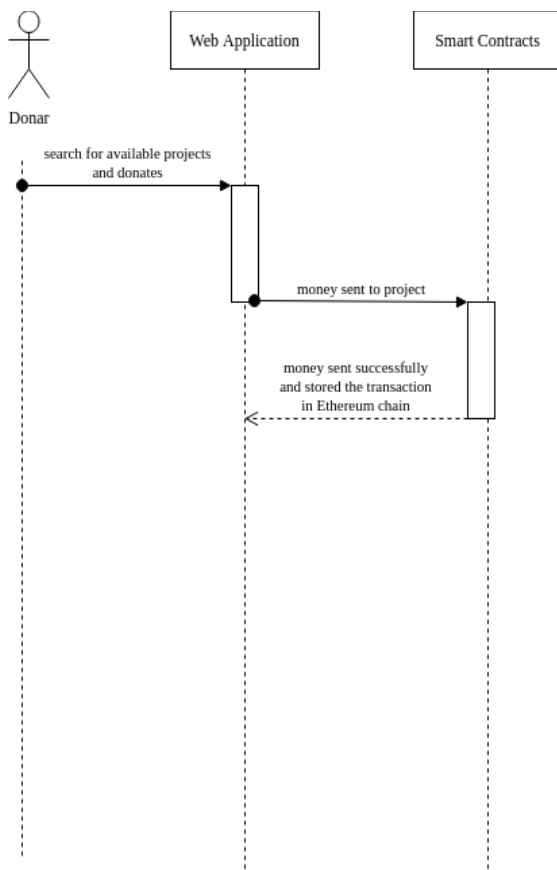


Chart-2: Sequence diagram of Donar

5. PERFORMANCE EVALUATION

Every transaction on Ethereum contains an information payload field. knowledge payload is enclosed in this dealing that is supposed to be hex-serialized and has bytes related to it. Here we might discuss 2 functions from formula one so as to know the info payload enclosed within the transactions being generated. knowledge payload is that the non-obligatory castrate of a dealing that is barely used once there's some style of interaction with contract functions. it's 2 necessary elements,

1. Operate Selector
2. Operate Arguments

The operate selector area unit 1st four bytes of Keccak-256 hash, it's used for identification of the sensible contract operate

Which is being invoked. The operate arguments embody numerous static and dynamic component sorts that have totally different rules for coding them in payload. allow us to currently perceive the payload of outline Roles operate from formula one to induce AN understanding on however the info payload is generated. Firstly, we might separate the operating selector and arguments. The operate

selector is actually, the operate signature that during this case is: Define Roles (string, address)

For the on top of operate the Keccak-256 hash is as follows,

```
0x6c0abd24edce8ce20a2dfb1cd2026179214468cde47681e871b6e14bf9d39efd
```

The first four bytes of the generated hash (0x6c0abd24) are the unit of the operate selector that points to the operation being invoked from the contract. When the operating selector is calculated, allow us to currently perceive however the operating arguments are unit encoded.

For this we have a tendency to cipher the pinnacle as a part of 2 arguments, the address is that the static kind and string is that the dynamic kind.

The static kind is passed directly whereas for the dynamic kind the offset in bytes area unit is used, it's additionally measured from the beginning of the coding. the primary four bytes containing the hash of the operating signature isn't counted in it.

6. CONCLUSIONS

DApps can run on either a peer-to-peer or a blockchain network. BitTorrent, Tor, and Popcorn Time, for example, are programs that operate on machines that are part of a P2P network, on which many users are consuming content, feeding or seeding content, or executing all functions at the same time. In the sense of cryptocurrencies, dApps operate on a blockchain network in a distributed, open-source, autonomous world, free of regulation and intervention by any particular authority.

Since the currency is independent, there is no central bank or government that can regulate its use. Instead, the ETHEREUM network gives community energy. This ensures that anybody with access to the internet can monitor and check transactions.

No one has to know or believe someone else in a shared blockchain network. In the type of a distributed ledger, each member of the network has a copy of the very same data. If a member's ledger is distorted or compromised in some manner, the majority of network users will oppose it.

Data is often exchanged between NGOs and their partners. This data is normally converted and processed in each party's data silos, only to resurface when it is required to be transferred downstream. Any time the data is transformed, it introduces the possibility of data loss or

inaccurate data entering the workstream. Any person has access to a real-time, shared view of the data thanks to a decentralized data store.

Decentralization can help to reduce points of vulnerability in processes that rely so much on individual actors. These flaws can result in structural failures, such as failure to deliver promised services or inadequate service due to resource exhaustion, periodic outages, bottlenecks, a lack of adequate rewards for good service, or corruption.

Decentralization can also aid in the optimization of resource allocation, resulting in higher efficiency and continuity, as well as a lower probability of catastrophic loss.

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