An Overview of Donation based Crowdfunding Platform Using Smart Contracts

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Abstract:

In the rapidly evolving landscape of fundraising and investment, our project introduces a crowdfunding platform empowered by blockchain technology. This platform combines the advantages of transparency, security, and efficiency offered by blockchain with the flexibility and accessibility of crowdfunding. It enables project creators to reach a global audience and provides contributors with a trusted and secure environment to support their chosen initiatives. With robust identity verification, integrated cryptocurrency wallets, and transparent reporting, our platform ensures a seamless and trustworthy crowdfunding experience. As a symbol of the future of fundraising, our project aims to revolutionize the way innovators and supporters connect, fostering innovation, trust, and collaboration on a global scale.

Keywords **— Crowdfunding, Ethereum , Blockchain , Metamask**

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I. INTRODUCTION

Raising money is a difficult process since it involves a lot of trust between a number of people, including funders, middlemen, and organizations that act as a place to hold cash until the recipient needs them. The primary asset that fundraising organizations use to entice donors to contribute their money to recipients of funding is trust. A large number of nonprofit organizations work as fundraisers. Their difficulty in getting people to give money to the organization is building trust. Few nonprofits make advantage of technology to make it simple for people to make financial contributions to them. The key to raising as much money as possible is trust, but technology also has a big part to play in this. In light of this, the blockchain is linked to an uncorrupt digital ledger used in nursing that keeps track of every transaction. Since the system is dispersed, every record is stored on every node in the localized network.

Sensible Contracts, which are apps that run on the blockchain, are supported by Ethereum. Every intelligent contract operates within the Ethereum Virtual Machine. The issue with these crowd sourcing companies is that numerous frauds are being detected, and they charge exorbitant fees. Using blockchain technology to implement a crowdfunding plan can help prevent these kinds of problems. Sensible contracts for crowdfunding eliminate typical trading and platform expenses associated with competing crowdfunding platforms by using blockchain technology.

II. MOTIVATION AND OBJECTIVE

In the evolving landscape of online crowdfunding, the burgeoning popularity of donation-based initiatives is accompanied by an increasing demand for secure, transparent, and user-friendly platforms. Existing solutions often grapple with issues related to transaction integrity, user identity verification, and regulatory compliance. Our motivation stems from a commitment to address these challenges comprehensively, fostering an ecosystem where contributors can engage confidently in philanthropic endeavors. By leveraging advanced technologies and incorporating robust security measures, we aim to instill trust, reliability, and efficiency in the crowd funding process.

Objectives are

Security and Transparency: Implement advanced blockchain technologies, including Ethereum, MetaMask, and Web3.js, to enhance the security and transparency of donation transactions, ensuring tamper-resistant records and a secure environment for users.

User Identity Verification: Incorporate KYC checks through AutoIdent's verification services to establish and verify the identity of users, fostering a trustworthy and compliant platform that adheres to regulatory standards.

III. SYSTEM DESIGN

System Architecture

1. Ethereum Network:

- The foundation of the architecture, the Ethereum network serves as the decentralized and distributed ledger for all transactions within the crowdfunding platform.

- Consists of nodes that validate and record transactions, ensuring transparency and security through consensus mechanisms like Proof of Work (PoW) or Proof of Stake (PoS).

2. Smart Contracts:

- Deployed on the Ethereum blockchain, smart contracts define the rules and logic governing crowdfunding operations.

- Includes contracts for project creation, donation acceptance, and other functionalities, ensuring trustless execution of transactions without the need for intermediaries.

3. Backend:

- Manages the server-side operations, handling data processing, business logic, and communication with the Ethereum blockchain.

- Implements APIs to interact with smart contracts, ensuring seamless integration between the frontend and the Ethereum network.

- Utilizes a robust framework such as Django to streamline backend development and facilitate efficient data management.

4. Frontend:

- The user interface that interacts with users, presenting project information, donation options, and transaction details.

- Developed using React.js, HTML, and CSS to create a responsive and engaging user experience.

- Communicates with the backend through APIs to retrieve and display real-time data while ensuring a smooth and intuitive navigation for users.

5. MetaMask Integration:

- Serves as a crucial component for user wallet management and interaction with the Ethereum blockchain.

- Allows users to securely store and manage their Ethereum wallets, sign transactions, and authorize smart contract interactions directly from the browser.

6. KYC/AML Verification (AutoIdent):

- Provides the KYC/AML verification service, ensuring the authenticity and compliance of user identities.

- Integrated into the system to enhance security, build user trust, and comply with regulatory standards.
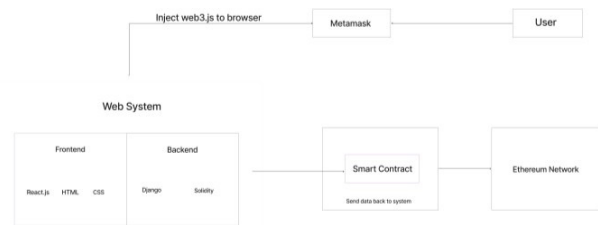

Fig.1.: System Architecture

Proposed Algorithms :
Smart Contract Execution:

Smart contracts on the Ethereum blockchain are written in Solidity. Solidity defines the rules and logic executed by the Ethereum Virtual Machine (EVM).

IV. EXPECTED OUTCOME

Our donation-based crowdfunding platform aims to provide users and stakeholders with a safe and revolutionary experience. By utilizing technologies like as React.js, AutoIdent's KYC checks, and the Ethereum blockchain, the platform seeks to offer

enhanced security, transparent transactions, and an intuitive user interface. The goal of the positive social impact is to enable people and groups to collect money for worthwhile initiatives that advance social concerns and community development. All things considered, the expected outcome is a progressive and flexible platform that keeps up with new developments and offers crowdfunding projects a reliable and interesting environment.

V. LIMITATIONS

Our donation-based crowdfunding platform, while emphasizing security through blockchain technology, acknowledges potential challenges in ensuring complete immunity to unforeseen cyber threats. Ongoing vigilance and adaptation to evolving security standards are essential. Similarly, as our user base expands, scalability considerations may arise, necessitating careful planning to ensure seamless functionality and user satisfaction. These considerations highlight the need for a vigilant and adaptive approach to security and scalability in the development and maintenance of our platform.

VI.   CONCLUSION

By using a decentralized approach, the suggested Blockchain donation mechanism for crowdfunding aims to increase transparency. Better authenticity and security are two requirements that this technology will meet. Moreover, it will increase transparency throughout the entire process. This will assist in eliminating intermediaries between creators and donors.

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