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Fundraiser A Blockchain based platform By Using NodeJs

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Abstract: *Traditional crowdfunding platforms face challenges such as lack of transparency, high transaction fees, and limited investor control. With the rise of Decentralized Finance (DeFi) and blockchain technology, these challenges can be addressed through smart contracts and decentralized platforms. This paper presents a* ***Blockchain-based DeFi Crowdfunding Platform,*** *a decentralized application (D-App) designed using the Cosmos-based Evmos blockchain and powered by smart contracts written in Solidity. The platform allows users to create and support fundraising campaigns in a decentralized and transparent manner. Backers are empowered with voting rights based on their contribution, ensuring community control over fund disbursement. The frontend, built with React and Web3.js, interacts seamlessly with the EvmosTestnet. This approach enhances security, reduces dependency on intermediaries, and increases user trust and control over crowdfunding campaigns*

Keywords: Crowdfunding, Blockchain, DeFi, Smart Contracts, Web3, D-App, Solidity, Evmos.

I. INTRODUCTION

Crowdfunding allows individuals and organizations to raise capital from a large group of contributors. While traditional platforms like Kickstarter and GoFundMe enable this, they also introduce intermediaries, management fees, and opaque fund flows. Blockchain and DeFi offer a promising alternative, removing intermediaries and increasing transparency through smart contracts. Our project proposes **a fully decentralized crowdfunding platform**, hosted on the **Evmos blockchain**, providing investors direct control over funds and enabling fundraisers to deploy campaigns without third-party involvement.

A. Problem Definition

Traditional crowdfunding platforms like Kickstarter and Indiegogo have enabled individuals and organizations to raise funds for various initiatives. However, these platforms are fundamentally centralized, introducing several limitations that affect transparency, control, and trust.

Key issues include:

- **Lack of Transparency**: Users cannot track exactly how and where their contributions are used. Fund flow details remain hidden behind the platform's backend.
- **High Management Fees**: Centralized platforms often charge high service or transaction fees,reducing the amount of funding that reaches the actual campaign.
- Limited Investor Control: Once funds are contributed, backers have no control over how or when those funds are used by the campaign creators.
- **Platform Dependency**: All operations— contributions, payouts, updates—are fully dependent on the platform's availability and rules.
- **Lack of Global Participation**: Legal, currency, or regulatory constraints often limit access to global backers or restrict campaign creators to specific regions.

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With the emergence of **blockchain technology** and **Decentralized Finance (DeFi)**, there is an opportunity to eliminate these intermediaries and empower both fundraisers and backers. However, implementing a decentralized crowdfunding model requires careful integration of blockchain principles, smart contracts, and a user-friendly decentralized application (D-App). This project aims to address the above limitations by developing a **decentralized, transparent, and secure crowdfunding platform** powered by blockchain and smart contracts, where contributors retain control and visibility over their investments throughout the campaign lifecycle.

B. Objectives of the Study:

1. Design and deploy smart contracts to manage crowdfunding campaigns.
2. Enable fundraisers to deploy campaigns independently via a factory contract.
3. Allow backers to vote on fund withdrawal requests based on token contribution.
4. Use React and Web3.js to create an intuitive D App frontend for campaign interactions.
5. Deploy the system on the Evmos blockchain for modularity and scalability.

II. LITERATUR EREVIEW

The rise of blockchain and decentralized finance (DeFi) has opened new possibilities in financial systems, especially for applications like crowdfunding.

Belleflamme et al. (2015) highlighted the role of traditional crowdfunding platforms in democratizing fundraising but also noted issues such as platform fees and limited investor control. **Schär (2021)** explored how DeFi can replace traditional intermediaries using blockchain and smart contracts to create open, trustless financial systems.

Further, **Chen &Bellavitis (2019)** discussed blockchain disruption in finance, emphasizing its potential for transparency, global accessibility, and efficiency. Tools like **Ethereum** introduced the concept of smart contracts but face challenges like high gas fees and scalability. To overcome this, projects like **Cosmos and Evmos** offer modular, interoperable environments that support EVM compatibility and cross-chain communication via the IBC protocol.

Collectively, these studies support the potential of blockchain-based DeFi solutions for building more transparent, efficient, and decentralized crowdfunding platforms, setting the foundation for this project.

Author(s)	Approach	Strengths	Weaknesses
Belleflamme et al. (2015)	Centralized Crowdfunding	Explains economic structure of platforms like Kickstarter and Indiegogo	Lacks transparency; limited investor control; high platform
Schär (2021)	Decentralized Finance (DeFi)	Removes intermediaries using smart contracts; offers transparency and access	Security risks; lacks regulatory
Evmos/Cosmos Docs (2022–23)	Modular Blockchain with EVM Compatibility	Enables app-specific blockchains and cross-chain smart contract deployment	Requires high technical knowle ecosystem still evolving

Table 2.1. Comparative analysis of blockchain and DeFi models based on their approach, strengths, and weaknesses.

III. METHODOLOGY

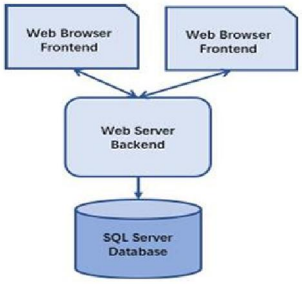

Fig. 3.1 D-App Architecture

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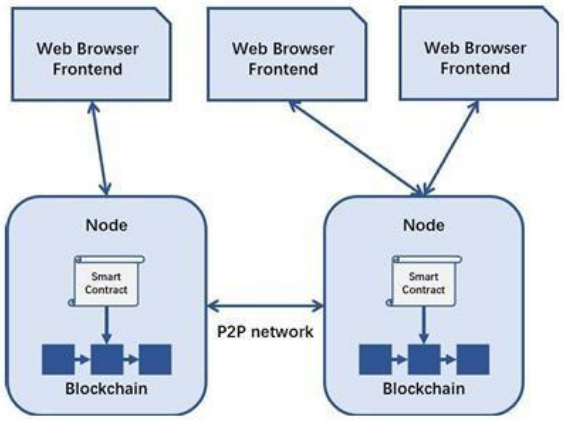

Fig.3.1. System Architecture

A. Platform Architecture

The system consists of two main layers:

1. **Blockchain Layer** – Built on EvmosTestnet, managing smart contracts and campaign data.
2. **Frontend Layer** – Developed in React and Web3.js, providing UI for interaction.

B. Blockchain Platform: Evmos

Evmos was chosen for:

- EVM support (Solidity-compatible)
- Cosmos SDK and IBC protocol for future cross chain scalability
- Lower gas fees and higher TPS compared to Ethereum Mainnet

C. Smart Contracts

- Written in **Solidity**
- Campaign Factory contract deploys individualized crowdfunding contracts
- Fundraisers can post campaigns, create withdrawal requests
- Backers can vote on requests proportionate to their token stake

D. Frontend Development

- **React**: Modular UI components
- **Web3.js**: Blockchain interaction
- **MetaMask**: Used to sign transactions and manage tokens.

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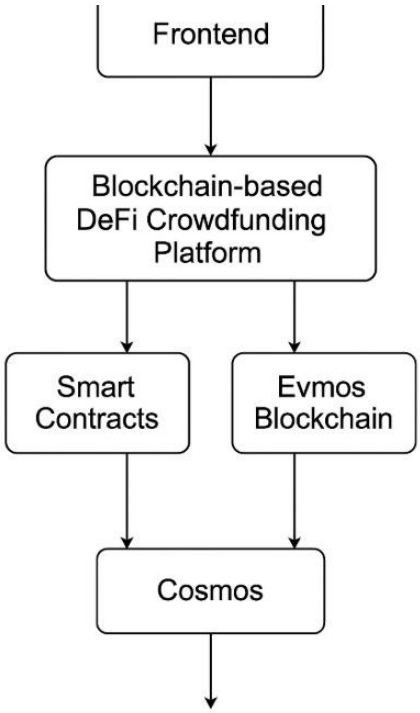

Fig.3.2 Flow Diagram

❖ **User Access & Authentication**

- Users access the platform through a decentralized web interface built with React.
- MetaMask or similar Web3 wallets are used to authenticate and sign transactions.

❖ **Campaign Creation**

- Fundraisers use the frontend to create a new campaign by interacting with the CampaignFactory smart contract.
- Required inputs: campaign description, funding goal, and campaign duration.

❖ **Smart Contract Deployment**

- A new Campaign smart contract is deployed automatically by the factory for each campaign.
- All logic for contributions, voting, and fund withdrawal is embedded in this contract.

❖ **User Contributions (Funding)**

- Backers browse active campaigns and contribute tokens directly via the smart contract.
- Each contribution is recorded on the blockchain, updating the contributor's balance.

❖ **Request Generation & Voting**

- Fundraisers submit withdrawal requests (including amount and purpose) to the contract.
- Backers vote on requests using a weighted system based on their contribution share.

❖ **Fund Withdrawal Process**

- If a request receives more than 50% of total voting power, it can be finalized.

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- Approved requests allow the fundraiser to withdraw specified tokens from the pool.

❖ **Campaign Completion & Refunds**

- When a campaign ends, remaining funds can be claimed back by backers via a refund function.
- The contract ensures fund redistribution based on individual contribution proportions.

IV. IMPLEMENTATION

1. Blockchain Layer
   - **Platform**: Built on the EvmosTestnet, an EVM compatible blockchain within the Cosmos ecosystem.
   - **Smart Contracts**: Developed using Solidity and deployed via **Truffle**.
     - CampaignFactory.sol: Deploys and manages individual campaign contracts.
     - Campaign.sol: Handles contributions, withdrawal requests, voting, and refunds.
   - **Security**: All operations (e.g., vote approval, fund release) are recorded and verified on-chain, ensuring transparency and immutability.

2. **Frontend Layer**
   - **Framework**: Developed using **React.js** for a modular and responsive interface.
   - **Blockchain Interaction**: Managed via **Web3**.js to communicate directly with smart contracts.
   - **User Wallet**: Transactions are signed and authorized using **MetaMask** browser extension.
   - **UI Features**:
     - Campaign creation and browsing
     - Contribution and token transfer
     - Voting on withdrawal requests
     - Real-time campaign status updates

V. RESULT DISCUSSION

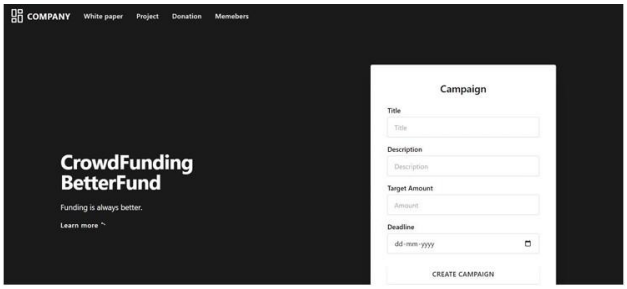

Fig. 5.1. Home Page UI

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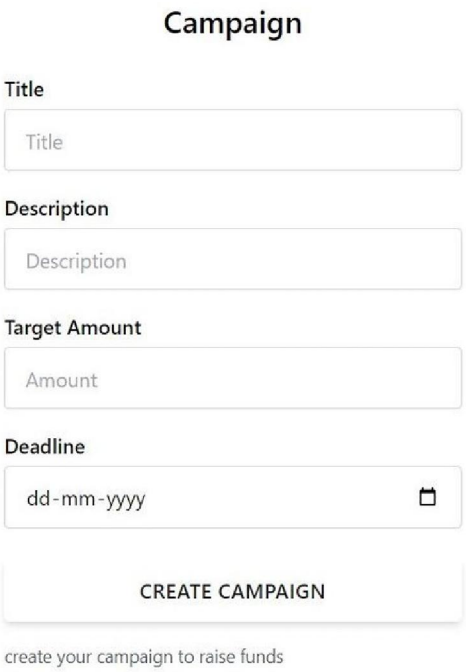

Fig. 5.2. Create Campaign UI

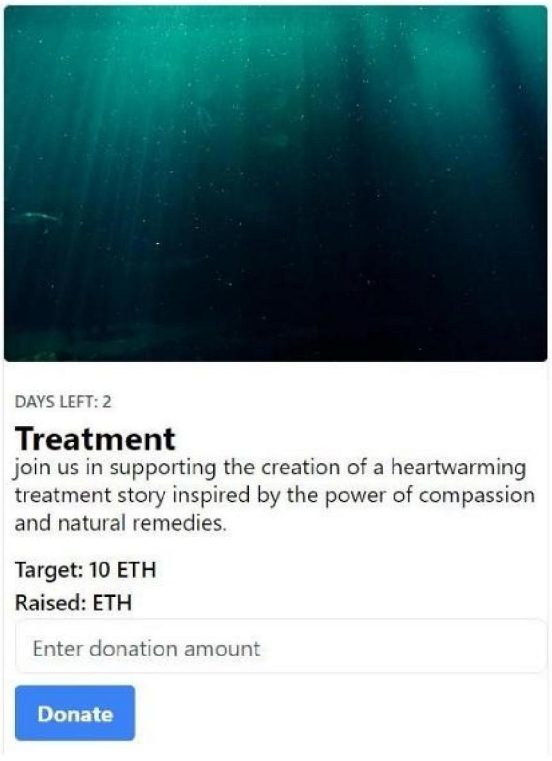

Fig. 5.3. Campaign Detail Page UI

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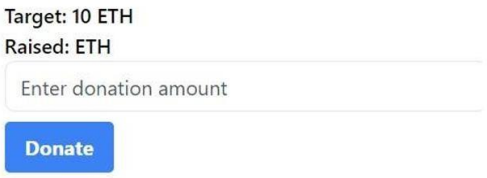

Fig. 5.4. Create Request UI

Fig. 5.5. Sign Transaction

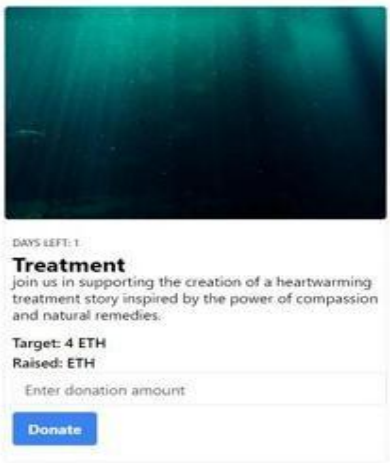

Fig. 5.6. Block Explorer

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VI. CONCLUSION

The implementation of a Blockchain-based DeFi Crowdfunding Platform addresses the major limitations of traditional fundraising systems by introducing decentralization, transparency, and user empowerment. Through the integration of smart contracts on the Evmos blockchain, the platform enables trustless interactions between fundraisers and backers, eliminating the need for third-party intermediaries. Fundraisers can create campaigns with clear goals and timelines, while contributors retain control through token-based voting on withdrawal requests. The use of modern web technologies such as React and Web3.js, alongside MetaMask for wallet integration, ensures a smooth and intuitive user experience. Furthermore, the choice of Cosmos-based Evmos allows for future scalability and cross-chain interoperability. This project not only showcases how DeFi can be applied to realworld problems but also lays the foundation for more secure, efficient, and democratized crowdfunding models in the future. Continued development and user-focused enhancements could transform this system into a powerful tool for global fundraising initiatives.

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