The 16th International Ieee Conference On Computing Communication And Networking Technologies (Icccnt)

Paper Id - 1533

Title - EtherFund - Transforming Crowdfunding through Blockchain

Track Name: AIC2025

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Abstract

- EtherFund, a blockchain-based crowdfunding platform on Ethereum, ensures secure, transparent, and efficient campaign management with MetaMask integration and Solidity smart contracts for automated transactions.
- It enhances user experience with real-time monitoring, analytics, and receipt downloads while expanding global reach via social media integration.

Real time problem -

1. Lack of Transparency - Inadequate clarity on fund usage.
2. High Fees - Excessive platform and transaction fees.
3. Slow Payment Processing - Delays in fund disbursement.
4. Security Risks - Vulnerability to hacking and data breaches.
5. Limited Global Access - Regional restrictions limit audience reach.

Introduction

- Traditional crowdfunding platforms struggle with transparency, high fees, slow payments, limited global access, and complex campaign management, leaving key issues unresolved.
- EtherFund is a blockchain-based crowdfunding platform that uses Ethereum and smart contracts to ensure secure, transparent, and efficient campaign management.
- It integrates MetaMask for easy wallet connectivity, providing real-time monitoring and prioritizing data privacy.

Objectives

1. To deploy Solidity smart contracts to automate campaign creation, funding, and management with trustless, seamless user interaction.
2. To integrate Ethereum blockchain and MetaMask for secure, transparent transactions and real-time updates.
3. To develop an analytics dashboard for in-depth campaign tracking and data-driven decision-making.
4. To implement social media integration, feed extraction, and receipt downloads to enhance user engagement and experience.

Literature Review

Sr.no	Title	Author(s)	Year	Methodology	Drawback
1.	[1] The rise and fall of cryptocurrencies: defining the economic and social values of blockchain technologies, assessing the opportunities, and defining the financial and cybersecurity risks of the Metaverse.	Petar Radanliev	2024	The methodology employs a multifaceted approach, the research combines 20 interviews and 3 workshops for practical insights, surveys of new data sources like IoT contracts, and a literature review of existing studies on blockchain and the Metaverse.	The drawback of the initial search was limited, requiring a broader review. Integrating multiple methods added complexity and might have missed practical impacts. The interdisciplinary approach could also lead to gaps in specific areas.
2.	[2] Decentralized Transaction System for Detection and Prevention of Fraud in Crowdfunding Platforms.	Bafna, Bhavana & Daigavane, Vedant & Shaha, Shlok & Shinde, Gaurav & Shelke, Sachin.	2023	The methodology involves develops a decentralized crowdfunding system using Ethereum smart contracts. Investors vote to approve spending requests, with funds transferred directly to vendors. The system is built with ReactJS (NextJS), Express.js, and MongoDB, and ensures secure transactions using ThirdWeb SDK and Solidity smart contracts.	Creating a decentralized system with blockchain and smart contracts is technically complex and requires advanced expertise. Regulatory uncertainties and privacy concerns arise from blockchain's transparency, while integration with existing systems can be challenging. High transaction fees on networks like Ethereum may also deter smaller investors.

Literature Review

Sr.no	Title	Author(s)	Year	Methodology	Drawback
3.	[3] Decentralized News-Retrieval Architecture Using Blockchain Technology	Alexandrescu, Adrian, and Cristian Nicolae Butincu	2023	The paper proposes a decentralized system using blockchain to retrieve and verify news articles. It separates the extraction of webpage links (crawling) from the extraction of article information (scraping), allowing third-party actors to perform these tasks. A majority-rule mechanism ensures the accuracy of information, and the blockchain network provides traceability.	Implementing such a system is complex and requires advanced technical skills. There's also regulatory uncertainty around blockchain technology, and potential privacy concerns due to blockchain's transparency. Additionally, integrating this system with existing platforms can be challenging.
4.	[4] A secure email solution based on Blockchain.	Castillo, Diego & Bermejo, Javier & Machio, Francisco.	2022	The paper proposes a blockchain-based email solution to enhance security against viruses, spam, and phishing. It uses blockchain to ensure integrity, confidentiality, and secure interactions between email components.	The implementation of blockchain-based email security may face challenges in terms of integration with existing email systems, potential scalability issues, and the need for users to adapt to a new architecture. Additionally, the complexity and resource requirements of blockchain could lead to higher operational costs.

Research Gap(Limitations of existing systems)

- Current systems struggle with trust, privacy, and transparency.
- Centralized models are prone to breaches and misinformation.
- While blockchain offers improvements, its full potential especially when combined with AI/ML is underexplored in securing content and transactions.

Problem Definition

- Traditional crowdfunding platforms depend on central authorities, leading to high fees, fund mismanagement, and security risks. Limited transparency and global access reduce user trust and campaign reach.
- EtherFund solves this with secure, transparent crowdfunding using Ethereum smart contracts and MetaMask integration.

Scope

1. Develop a blockchain-based platform to eliminate intermediaries, ensuring secure and transparent transactions.
2. Deploy Solidity smart contracts to automate campaign creation, funding, and management with trustless user interaction.
3. Integrate MetaMask for secure user authentication, wallet management.
4. Implementreal-time updates and analytics dashboards for comprehensive campaign tracking and data-driven decision-making.
5. Create a platform that enables social media integration, feed extraction, and receipt downloads to boost user engagement and interaction.
6. Designa user-friendly interface using React.js, ensuring accessibility across devices.

Technological Stack

- **Frontend (Client-Side):**

  Next.js, TypeScript, Tailwind CSS: Fast, scalable, and styled UI development

  Web3.js: Connects frontend with Ethereum smart contracts

  MetaMask: Wallet extension for secure user interactions

- **Blockchain Layer:**

  Solidity: Smart contract development

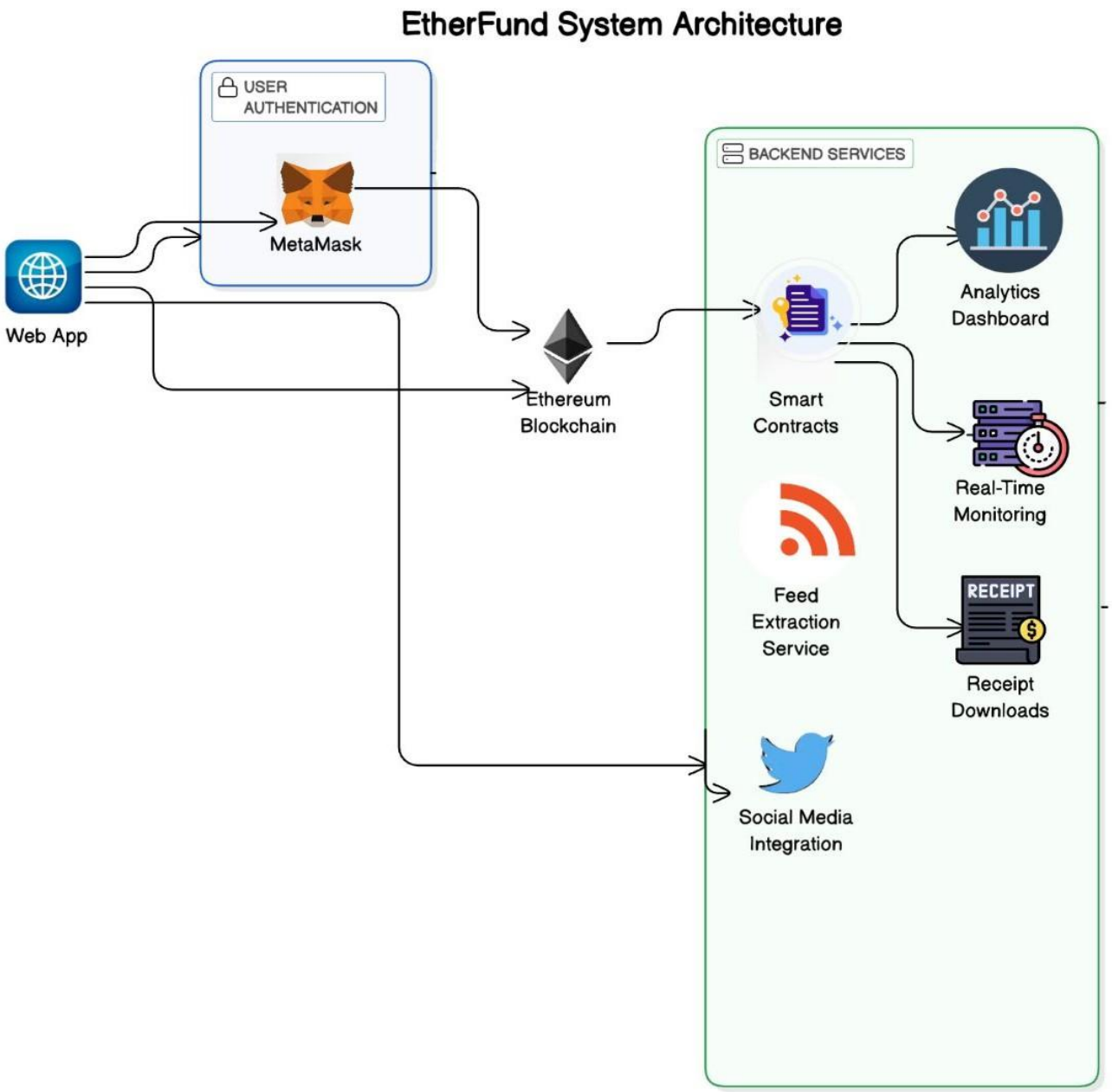
  Hardhat: Contract testing and deployment

  Thirdweb SDK: Easy frontend-to-contract integration

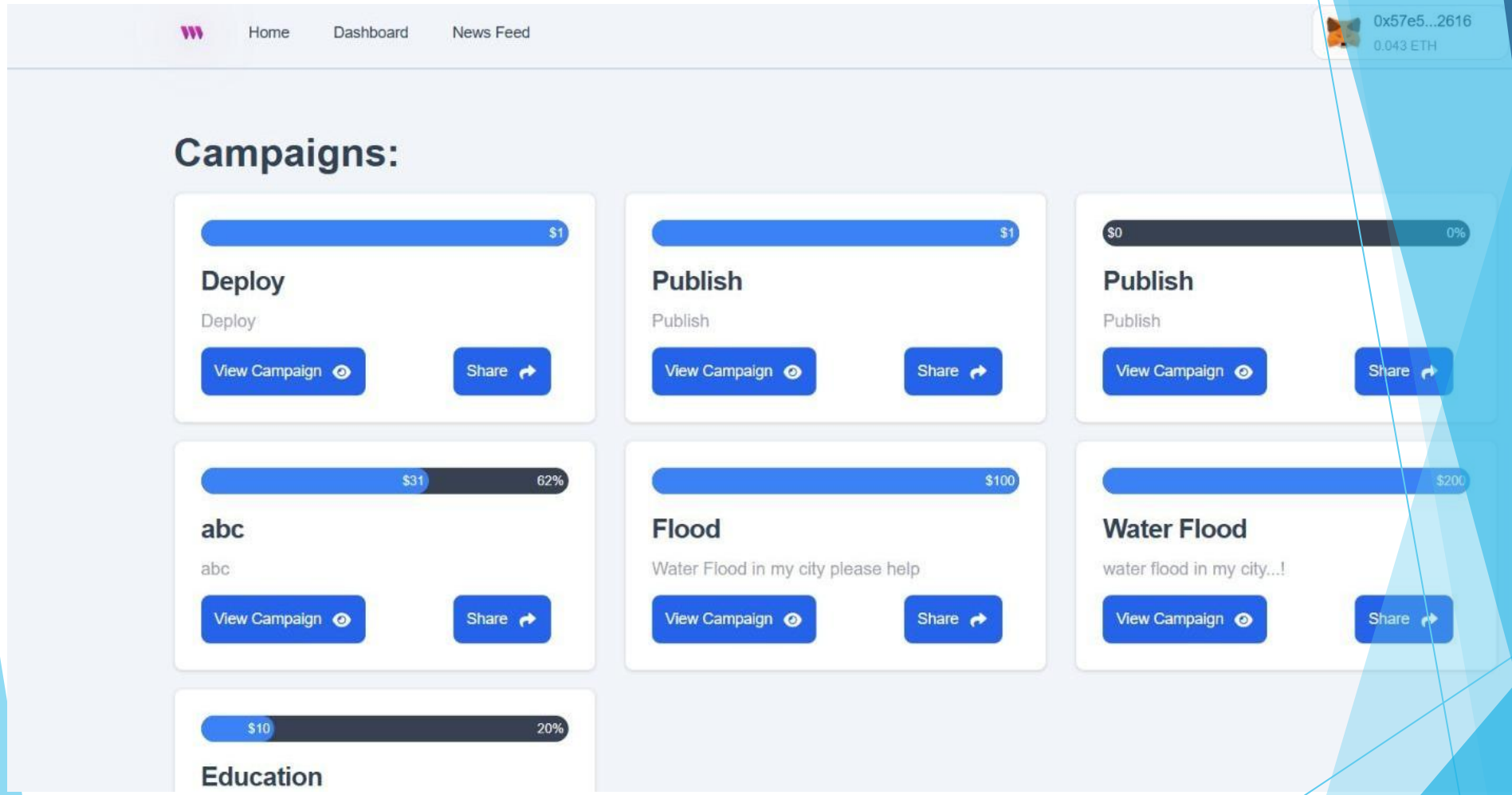
- **Wallet Integration:**

  MetaMask: Enables secure wallet connection and transactions.

Proposed system architecture/Working



Implementation Status



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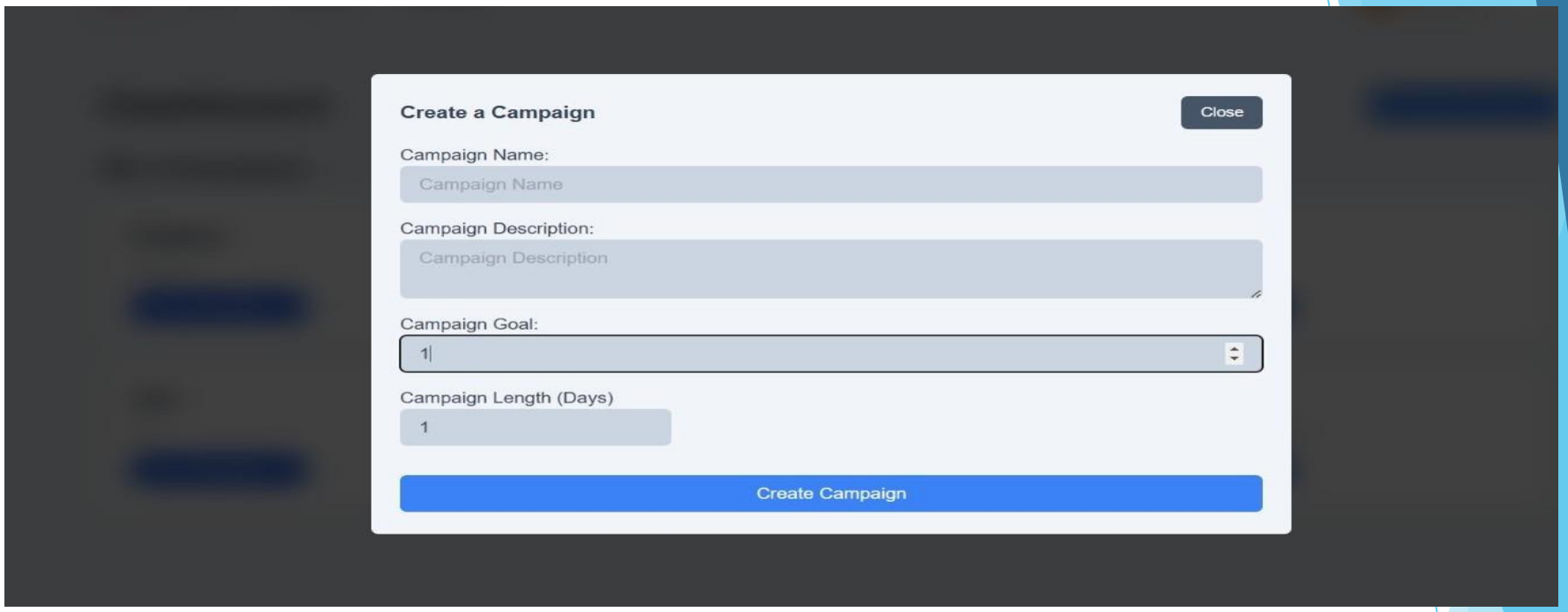
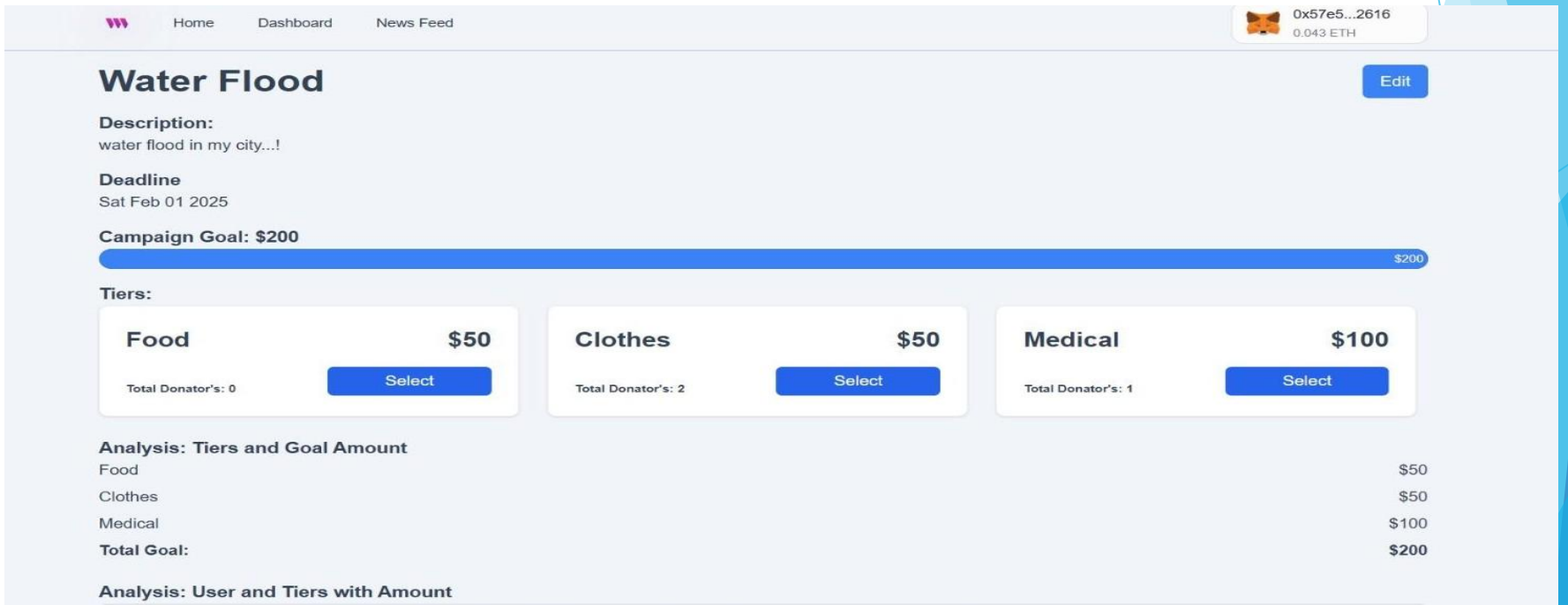




Implementation Status

Medical $100

Total Goal: **$200**

Analysis: User and Tiers with Amount

Tier Name: Food
Amount: $50
Donator's: 0

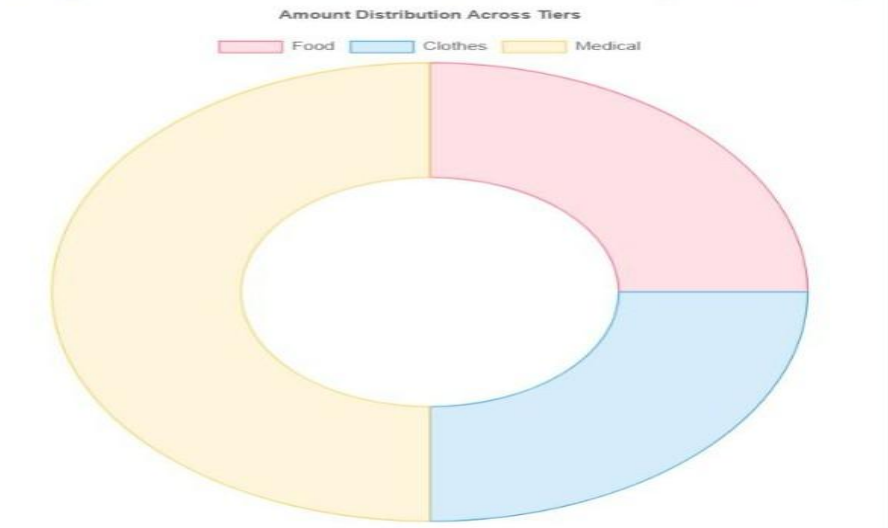
Tier Name: Clothes
Amount: $50
Donator's: 2

Tier Name: Medical
Amount: $100
Donator's: 1

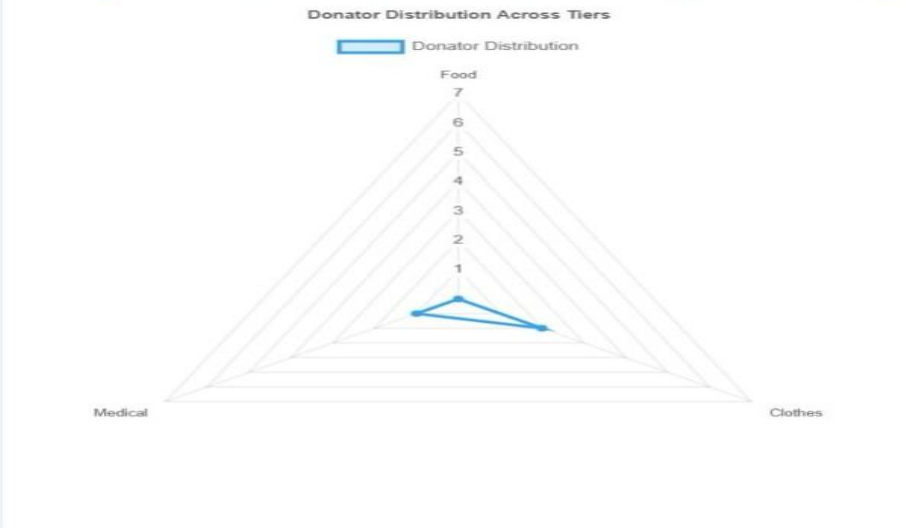
Campaign Owner
Address: 0x57e5f74c4E413B3ccB5B27dd90740D95d7da2616

Current User
Address: 0x57e5f74c4E413B3ccB5B27dd90740D95d7da2616

Analysis: Amount Distribution Across Tiers (Donut Chart)



Analysis: Donator Distribution Across Tiers (Radar Chart)



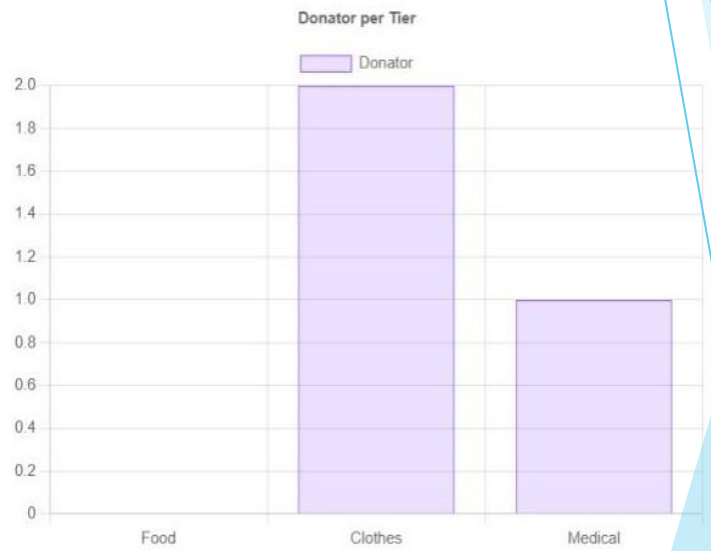
Implementation Status

Current User

Address: 0x57e5f74c4E413B3ccB5B27dd90740D95d7da2616

Analysis: Goal Amount and Donator Over Tiers (Line Chart)

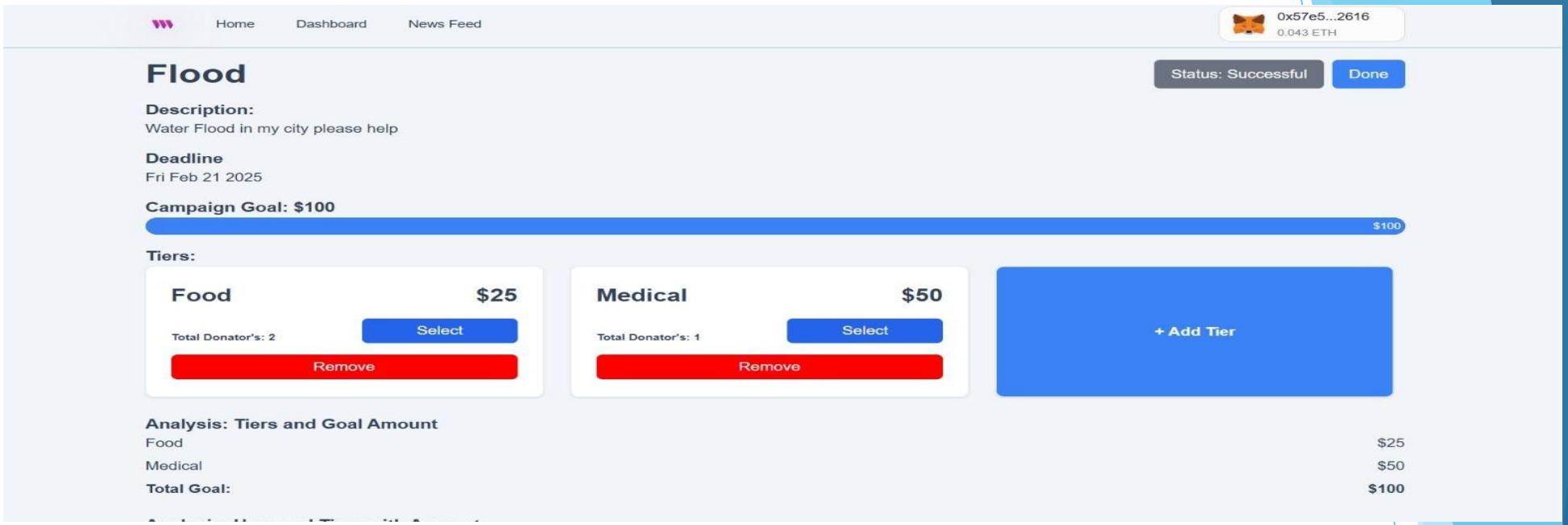
Analysis: Donator per Tier (Bar Chart)



Analysis: Amount Distribution Across Tiers (Donut Chart)

Analysis: Donator Distribution Across Tiers (Radar Chart)

Implementation Status



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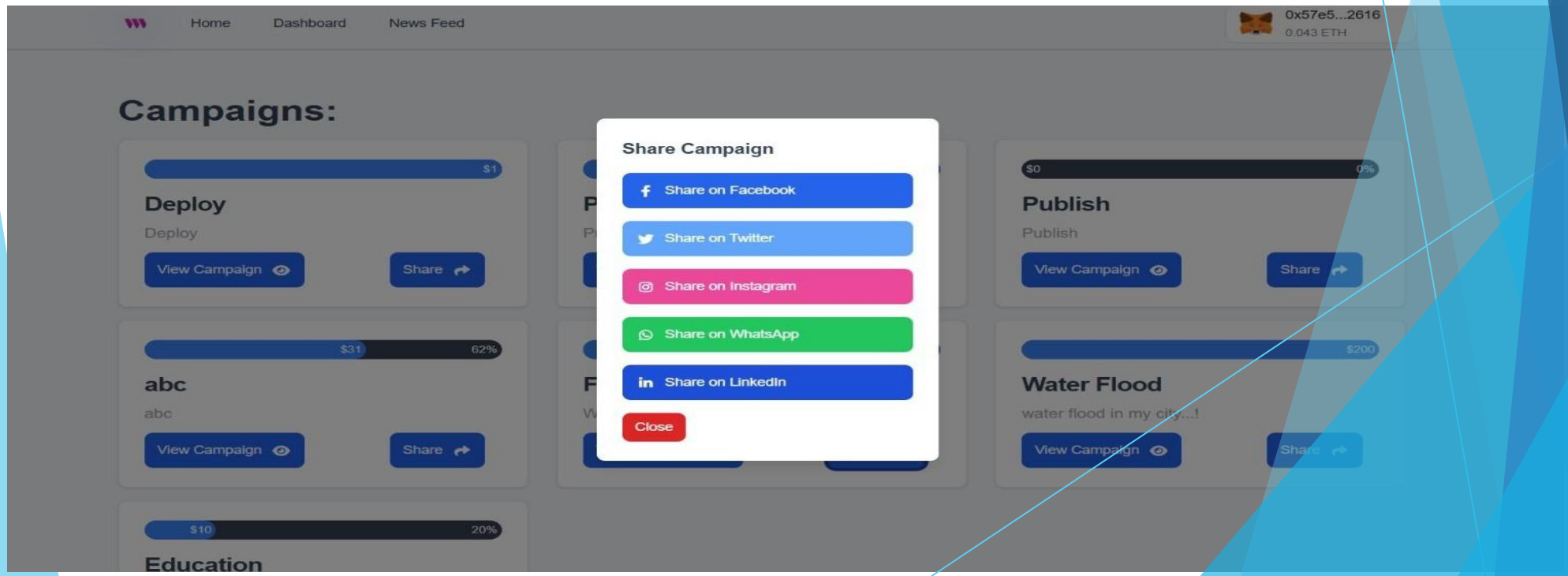

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ThankYou...!!