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Fund Future: Empowering the Crowdfunding

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Abstract: ***This project uses blockchain technology to suggest a workaround for the drawbacks of conventional crowdfunding sites. The suggested platform, "Fund Future," is a decentralised platform for crowdfunding that enables people and organisations to raise money for their projects directly from their supporters. The platform is based on the Ethereum blockchain, which enables smart contracts to carry out the crowdfunding campaign's policies and processes automatically. The platform offers a clear, safe, and effective method of fundraising, making sure that money is delivered properly to the project developers. The project seeks to address the issues that traditional crowdfunding platforms have, like high fees, fraud, and a lack of transparency. With blockchain technology becoming more popular, Fund Future has the potential to completely transform the crowdfunding market.***

Index Terms: Crowdfunding, Security, Smart Contracts, Blockchain

I. INTRODUCTION

For people and organisations to raise money for their initiatives and ideas, crowdfunding has grown in popularity. Traditional crowdfunding platforms, however, have drawbacks like exorbitant costs, a lack of transparency, and restricted access. By enabling safe, open, and decentralised networks for fundraising, blockchain technology presents a viable remedy to these constraints. Support Future wants to use blockchain technology to build a platform that lets people and organisations support initiatives that are consistent with their values and worldviews..

II. OVERVIEW

1) The architecture of Fund Future is based on smart contracts, and users can interact with the contracts using a social network application that acts as the web interface. The platform's layout is comparable to that of a social media website like Instagram, but it largely relies on smart contracts.
2) FundFuture is a social network application with a smart contracts-based architecture that serves as the Web interface required to establish communication between users and these contracts. The platform's architecture should be compared to that of a social media platform (such as Instagram), but it heavily depends on a set of smart contracts..
3) Starting a Campaign: Just as on other crowdfunding sites and in the real world, anyone can start a campaign in a matter of minutes. Since the campaign data will be controlled by an Ethereum-based smart contract, it cannot be altered.
4) Starting a Campaign: Just as on other crowdfunding sites and in the real world, anyone can start a campaign in a matter of minutes. Since the campaign data will be controlled by an Ethereum-based smart contract, it cannot be altered.
5) Connecting Wallet: Before performing any transactions, including starting a campaign or making a donation to one, a user must first connect an Ethereum wallet to the website. In order to link the wallet and authorize bitcoin transactions, we used the MetaMask browser extension..

III. MOTIVATION

1) *Security:* Blockchain technology offers a decentralised network for transactions that is safe and secure, doing away with the need for middlemen and lowering the possibility of fraud and hacking.
2) *Transparency:* Because blockchain transactions are transparent and unchangeable, they can all be tracked down and verified, which boosts accountability and trust in the fundraising process.
3) *Lower fees:* Traditional crowdfunding platforms charge high fees for their services, which can eat into the funds raised. Crowdfunding using blockchain technology can reduce these fees, as there are no intermediaries involved, resulting in more funds going towards the intended projects.
4) *Global Reach:* Crowdfunding using blockchain technology enables individuals and organizations to reach a global audience, which increases the potential for fundraising success.
5) *Flexibility:* Crowdfunding using blockchain technology offers greater flexibility in terms of fundraising models, such as equity crowdfunding and tokenization, allowing fundraisers to tailor their approach to their specific needs.

IV. PROPOSED SYSTEM

A. *Identifying Stakeholders*

The stakeholders can be divided into two parts:

1) *Campaign Creators:* These are the users who have created a Campaign.
2) *Contributors & Approvers:* Contributors are the users who support campaigns with donations. Contributors who have made more than the Minimum Contribution are considered approvers, and they have the authority to approve withdrawal requests.

B. *Detailed Solution*

Any web-based programme is centralised, meaning that everything we do there is controlled by a server that belongs to just one business. We suggest a decentralised application powered by the Ethereum blockchain, where all data regarding campaigns, donations, withdrawal requests, and finances are stored on a decentralised, open-access blockchain network. This avoids the data from being maintained in a single, centralised server location and ensures that the funds and transactions are visible to and stored at every node on the blockchain. Thus, preventing the money from falling into the wrong hands and removing all potential for it to be misused is a beautiful and sensible solution to the issue at hand..

V. LANGUAGES USED

A. *React.js*

An open-source JavaScript package called ReactJS is used to create user interfaces quickly and declaratively. It is an MVC (Model View Controller) architecture-based front-end library that is exclusively in charge of the view layer. React is a tool for building modular user interfaces and it encourages the creation of reusable UI elements that show dynamic data. Applications can be successful and versatile because to ReactJS's use of a declarative approach. Each state in your application is given a straightforward view, and when your data changes, it quickly updates and renders the appropriate component. Your code becomes more dependable and troubleshootable when using the declarative view. In a React application, each component is in charge of rendering a distinct, reusable piece of HTML code.

B. *Solidity*

Ethereum, the second-largest cryptocurrency market in terms of market cap, introduced the brand-new programming language Solidity in 2015. Christian Reitwiessner founded Ethereum. These are a few fundamental qualities of solidity: For the use of smart contracts, a high-level programming language called Solidity was developed. It has static typing and is object-oriented (contract-oriented). Solidity (EVM) was greatly influenced by Python, C++, and JavaScript, which are all run on the Ethereum Virtual Machine. Inheritance, libraries, and complex user-defined programming are all supported by Solidity. Solidity is the primary language used by computers that run blockchains. Solidity can be used to create contracts for voting, blind bidding, crowdsourcing, multi-signature wallets, and other activities.

VI. SYSTEM ARCHITECTURE

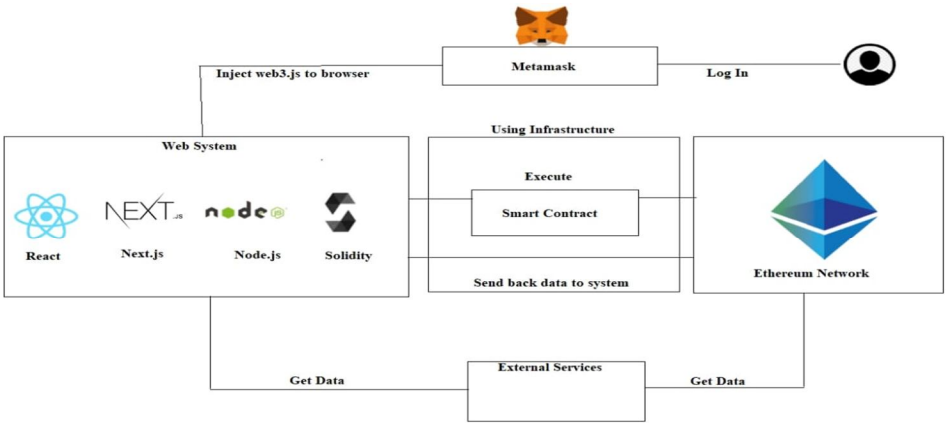

Fig. System Architecture

1) ReactJs is used as the front-end of the system, and NodeJS is used as the back-end. Solidity language is employed for contract development. Using the solc npm package, the contract is converted into ABI code in JSON format. After that, the ABI interface is parsed to a Web3 provider instance for contract deployment. We connected to the Ethereum network using Infura, as opposed to a local node. We must create a cryptocurrency wallet named MetaMask in order to use the system. A browser extension called MetaMask enables users to communicate with any dApp (decentralised application). The user can transfer Ethereum to his account after creating a MetaMask account. The user can begin interacting with the system once he has some Ethereum in his account.as MetaMask has injected a Web3 instance in the web browser
2) Following that, the campaign can begin constructing itself and receive contributions from other users. Additionally, the campaign manager has the ability to create requests that detail the intended use of the funds raised. Only the Ether will be delivered to the vendors once the contributors decide whether or not the expenses are appropriated, and if they are, a majority of the supporters must agree. Utilising Infura technology, the system is linked to the Ethereum network.. We chose the testnet, which performs similarly to the main Ethereum network, rather than the main Ethereum network because this system only serves as a prototype. In order to encourage user transactions in this system, we use a proof-of-authority blockchain called the Rinkeby network for this project. We cannot mine Ether because we are using the Rinkeby network; instead, we must make a request through the Rinkeby Test Faucet at https://faucet.rinkeby.io/. By using the Etherscan API, it is possible to view the specifics of user transactions, whether they were successful or unsuccessful.

VII. IMPLEMENTATION

1) *Smart Contract Development:* Use the Solidity programming language to create a smart contract. The terms of the crowdfunding campaign, such as the financing target, deadline, and token distribution, will be outlined in this contract. Truffle or Remix are examples of development frameworks that can be used to write, compile, and deploy smart contracts.
2) *Set a Development Environment:* Set up the tools and dependencies required for developing smart contracts. This entails installing a code editor like Visual Studio Code, Node.js, and npm (Node Package Manager).
3) *Configure MetaMask:* Install the MetaMask browser extension and setup an Ethereum wallet to configure MetaMask. Connect MetaMask to the selected Ethereum network To test on a testnet, make sure you have some test Ether (ETH) in your MetaMask wallet.
4) *Front-End Development:* Create a user interface for the crowdfunding campaign so that users may engage with it. This might be a web application created with JavaScript, CSS, and HTML. To create the UI, you can utilize well-known frameworks like React, Angular, or Vue.js.
5) *Use the Web3*.js library to link your front-end interface to the MetaMask wallet. link MetaMask to the Front-End. This library enables interaction with smart contracts and connection with the Ethereum blockchain. Create an instance of Web3.js with MetaMask set as the provider.
6) *Deploy the Smart Contract:* Utilize software like Truffle or Remix to compile and publish your smart contract to the Ethereum network. You will receive the address of the contract as well as the ABI (Application Binary Interface), which outlines the methods and events of the contract.
7) *Interact with the Smart Contract:* Use the address of the deployed smart contract to communicate with it from your front-end application. The contract's methods, such as adding money, checking the funding status, and reclaiming tokens, can be called using Web3.js.
8) *Implement Crowdfunding functionality:* Build the functionality required for crowdfunding within your front-end application, such as showing the funding status, receiving donations, and changing token balances. Make sure to adhere to the token distribution logic and other rules specified in your smart contract.
9) *Testing and Deployment:* Use the MetaMask wallet connected to a testnet to extensively test your crowdfunding application. Verify that all features operate as intended. Release your application and smart contract to the live Ethereum network as soon as you are pleased with the testing findings.

VIII. FUTURE WORK

We address some potential future work that may be done to enhance blockchain-based crowdfunding systems in this section.

1) *Smart Contract Optimization:* Smart contracts are used by blockchain-based crowdfunding platforms to automate the financing and payment procedures. Future work can concentrate on improving the performance of smart contracts and lowering petrol costs to raise the platform's effectiveness and affordability.

2) *Investor Protection:* Blockchain-based crowdfunding platforms use smart contracts to streamline the financing and payment processes. Future development can focus on enhancing smart contract performance and reducing fuel prices to increase the platform's affordability and efficacy.
3) *Global Accessibility:* Numerous crowdfunding sites have geographic restrictions that reduce their user base and funding options. A fully worldwide crowdfunding platform that enables people from all around the world to engage in financing campaigns can be the main goal of future work.
4) *Decentralization:* A key component of blockchain technology is the decentralization of crowdfunding sites. The platform's decentralization can be improved in the future by implementing peer-to-peer networking protocols and decentralized storage solutions.
5) *Incentives and Rewards:* The majority of rewards offered by current crowdfunding platforms to investors are non-monetary. Future research can concentrate on developing incentives and rewards that give financial returns to funders, including revenue-sharing models or profit-sharing agreements.

IX. CONCLUSION

1) The "Fund Future: Empowering Crowdfunding" project is finished, operational, and live.
2) Lack of transparency and fraud have long plagued traditional crowdfunding techniques. It is a preventable issue, and we think we've put in place a strong remedy that can eliminate these persistent issues.
3) To a large extent, the goal of having a transparent, anti-fraudulent, decentralised platform has been accomplished. In order to increase openness in the crowdfunding process and foster more public trust, this initiative has addressed the flaws of existing crowdfunding platforms. As a result, individuals may now donate their money to worthy causes without worrying about being scammed.

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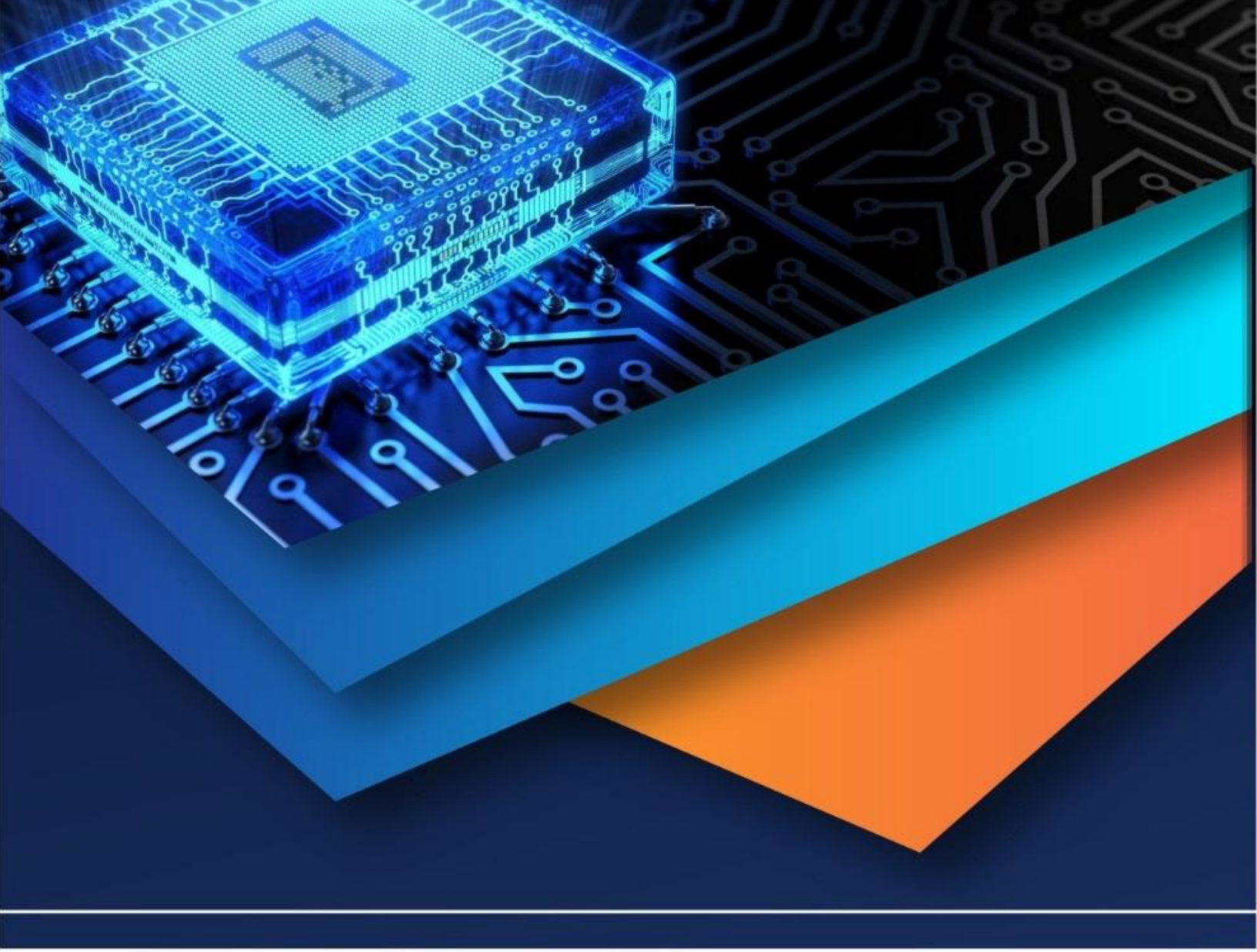

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