WellFund

Project Synopsis

PROJECT WORK PHASE-I

(EAI753)

BACHELOR OF TECHNOLOGY
(CSE – Specialization in AI, ML & DL)

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October, 2022

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Table of Contents

1. WellFund

WellFund is a decentralized application based on Ethereum blockchain platform that allows users to invest money to the campaigns that interest them. By using blockchain, we can make sure that the investors engage in low-risk support of new ventures and venture creators can gain more supporters globally making it easy for them to raise large amount of funds in minimal time. Especially in blockchain world at present, there are lot of projects created by individuals or small-distributed teams that want to raise funds by issuing tokens to the investors. Crowdfunding platform simplifies the whole idea of raising capital with help of global public that might be interested in the campaign for an incentive that is profitable to the investor.

2. Domain

BlockChain - The main purpose of the blockchain is to overcome the ever-increasing problems especially on how to build trust. Blockchains are digital ledgers that are resistant to damage applied in a distribution mode. Blockchain is a distributed database of a general ledger of all transactions that have been carried out which are verified by a majority of consensus in the system that will be shared with all parties concerned. And, once entered, information cannot be deleted. Blockchain contains certain records and can be verified every single transaction that has ever been carried out. Blockchain is a database of transaction records that are distributed, validated and managed by computer networks around the world.

How does BlockChain support Crowdfunding?

There are several areas where block-chain supports and improves crowdfunding, crowdfunding platforms powered by blockchain technology removes the need for intermediate third party.

- **Decentralization:**

  Since block-chain is decentralized it doesn't rely on any other platforms to create funds. for starters, no longer to be obliged to any rules and any project can get visibility and funded if the investors think to invest, eliminates fees which makes crowdfunding less expensive for the creators.

- **Access Equity:**

  To provide investors equity or ownership block-chain relies on asset tokenization. For example, a person who plans to create multiple new products with the incoming funds and grant small ownerships stake in the company. This could potentially open whole new world of opportunity.

- **Universal Opportunity:**

  Any project using a block-chain-based crowdfunding model can get funded. Any person with an internet connection can contribute projects.

- **Flexible Options:**

  Using block-chain as asset tokenization grants creators and entrepreneurs more liberties. Usually, asset tokens have their own currency to enable organizations to hire professionals and advertisers.

- **Peer-to-Peer:**

  The crypto-currencies are exchangeable on a peer-to-peer network. This usually help the people for their investment which even generates more interest in the entire process.

3. Problem Statement

Crowdfunding is one of the most popular ways to raise funds for any project, cause or for helping any individual in need. With the onset of Covid we have seen a rise in Crowdfunding activities across the globe which includes small campaigns to help people get oxygen and medical help to large funds such as PM Cares.

The major problems with the Current Crowdfunding Platforms that we wanted to solve were:

(a) Security: As the funds become larger, they need to be heavily secure, although stringent measures such as symmetric encryption are in place to make e-payment safe and secure, it is still vulnerable to hacking. Blockchain - which has never been compromised yet - can provide that level of security.

(b) Transparency and Anti-Fraud: We have seen, and continue to see a lot of crowdfunding scams happening around. There is no way to see where the funds are being used. We wanted to make the entire flow of funds transparent at every stage, so that there is no possibility of the money being misused.

(c) Global contribution: With some of the platforms being country specific, it becomes hard for people from other countries to contribute to various campaigns. Using blockchain anyone in the world can contribute to the campaign. Transactions are quick and convenient.

We were highly inspired by the CryptoRelief initiative (www.cryptorelief.in), which raised ~1 billion dollars for Covid Relief in India from the entire global community, in a highly transparent manner.

4. Project Description

Any web-based application is a centralized application which means that anything we do on the platform is managed by a server which is owned by a single company.

WellFund is a Decentralized Application powered by Ethereum Blockchain, where all the information about campaigns, contributions, withdrawal requests and funds are kept on a Blockchain Network, visible to all and decentralized. This means the funds and transactions are visible to and stored at every node on the blockchain, and prevents the data from being stored in a centralized server, single location. Hence not letting the money get into the hands of anyone and eliminating every possibility of it getting misused - an elegant and logical solution to the problem in hand.

4.1 Scope of the Work

- Scope: With WellFund we aim to make the crowdfunding process transparent, anti-fraudulent and secure.
- Technical Feasibility:
  - It is to be a ReactJS based application, which will be supported by any web browser.
  - Internet connectivity will be required.
  - Users will require 'Metamask' browser extension to sign transactions.
- Social Feasibility:
  - Crowdfunding over the years has helped people but has also seen heavy frauds in the name of Crowdfunding. With WellFund we want to bring transparency to the process of crowdfunding and build trust among people to contribute to all the causes.
- Economic Feasibility:
  - Given the Ethereum Blockchain provides us with most of the security features, the development does not require much cost.
  - The only cost would be the server cost of the deployed application.

4.2 Project Modules

(a) Creating a Campaign: Just like Crowdfunding in the real world as well as on other crowdfunding platforms, anyone can create a campaign in a few minutes. The campaign information will be managed by the Ethereum-based smart contract and thus cannot be tampered with.

(b) Contributing to a Campaign: Once a campaign has been created, users can share the campaign and anybody can contribute to the campaign. The funds will go to the address of the campaign and not to the creator of the campaign, thus making the process more efficient and anti-fraudulent.

(c) Withdrawal of Funds: The Creator of a Campaign can propose how to use the funds in the form of a Withdrawal Request. Anybody who contributes more than a particular amount is called an approver, and will be able to approve or deny the request. Funds can't be withdrawn without the approval of 50% approvers.

5. Implementation Methodology

Crowdfunding dapp is divided into various activates a user can perform in the platform. Anyone who lands on the platform can browse through all the campaigns listed and explore more about each campaign. The application extensively uses JavaScript libraries to build the user interface, handle user inputs and communicate with Ethereum network. The application is built on model view controller architecture so that there is clear distinction on each layer's responsibilities. The landing page uses

CampaignRegistry contract to get all the campaigns registered on the platform. Once it gets the campaigns then it accrues campaign related data from IPFS and builds the user interface of the landing page. Next section gets into the code level details of CampaignRegistry contract and user interface implementation.

6. Technologies to be used

6.1 Software Platform

a) Front-end

- NextJS: Next.js is an open-source React front-end development web framework that enables functionality such as server-side rendering and generating static websites for React based web applications.

b) Back-end

- Solidity: It is the programming language for implementing Ethereum based Smart Contracts.
- Web3: web3.js is a collection of libraries that allow you to interact with a local or remote Ethereum node using HTTP, IPC or WebSocket.
- Ethereum Smart Contract: It is the collection of functions and data that reside at a specific address on the Ethereum Blockchain.

6.2 Hardware Platform

- AMD Ryzen™ 5 3500U with Radeon™ Vega 8 Graphics
- Windows 10 Home Single Language 64
- 12 GB DDR4-2400 SDRAM (1 x 8 GB + 1 x 4 GB)
- 256 GB PCIe® NVMe™ M.2 SSD
- AMD Radeon™ Vega 8 Graphics

6.3 Tools

- Solidity
- Remix IDE
- Visual studio code
- Metamask
- Testnet

7. Advantages of this Project

- In this blockchain-based system, data is recorded and stored in blocks that are arranged chronologically and connected by cryptographic proofs.
- Blockchain technology has many benefits in a variety of industries, including increased security in environments where there is no trust.
- It prevents data tampering.

8. Team Details

Project Name & ID	Course Name	Student ID	Student Name	Role	Signature
WellFund		TCA1959024	SAIYAM JAIN	Developer, Tester, Designer	

9. Conclusion

"WellFund: Crowdfunding Platform powered by Blockchain", is complete, live and fully functional. Conventional crowdfunding methods have long suffered from lack of transparency and fraud. It is an avoidable problem, and we believe that we have implemented a solid solution that can do away with these long-standing problems. The aim to have a transparent, anti-fraudulent, decentralized platform has been achieved to a great extent. This project has covered the weak points of general crowdfunding platforms to provide transparency to the process of crowdfunding and build trust among people, so that they may contribute their wealth to good causes without fear of fraud.

10. References

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