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BUILDING AN EXCHANGE FOR TOKEN

Taranjit Singh Bedi [1] Ashish Bansal [2]
Department of Information Technology
Maharaja Agrasen Institute of Technology,
Rohini, Delhi, India

Abstract –

The main benefit of this system is that it solves the biggest problem of the monetary system that is the depreciating nature of it. The value of currency is decreasing every year due the overprinting of the traditional currency as it is centralized therefore so the policy makers decide how much to print but with this project this problem is solved as the given token has fixed supply so it can be made more hence it wouldn't depreciate and therefore create a system which would help the society by controlling the inflation of various products. In this project, I have created the backend using smart contracts on the Ethereum blockchain. For the frontend, I used the React to create a exchange. The project covers basic operations - creating a token and linking into the blockchain using Web3 Ethereum wallets, transferring token from one account to another. I used Solidity programming language to write the smart contracts and wrote tests in JavaScript. To deploy and test the project, I used Truffle, Metamask and Ganache. It gives a basic idea of how Decentralized Token work in a real-time environment along with its various function.

Key Words: Blockchain, Ethereum, Decentralized, Token, Dapp, Smart Contract.

INTRODUCTION

An unknown person/group behind Bitcoin, Satoshi Nakamoto, described how distributed blockchain technology, a peer-to-peer link-structure, was used to maintain the order of transactions and solve the double-spend problem. can be avoided (Nakamoto, 2008). Bitcoin orders transactions and groups them into a finite-sized structure called blocks that share the same timestamp. The nodes (miners) of the network are responsible for interconnecting blocks in chronological order, with each block containing the hash of the previous block to form the blockchain (Crossbitel., 2016). Thus, the blockchain structure manages to include a huge and auditable registry of all transactions.

As the title suggests, the token will be used as alternative to the fiat currency and further increasing the security, privacy and solving the issues in the modern monetary system. In future the token can also be used for various other purposes such as, in a pre-build system this token can be integrated easily and providing various functionalities such as rewards, payment etc.

Need of the Study-

Fiat currencies, known as paper money or government-issued money, have always been the primary means for any monetary transaction around the world. This legal tender is not backed by any commodity such as gold and other precious metals but is instead reliant on its issuing government's economic and financial stability.

Since fiat money is printed, issued, and distributed by the central banks, the government regulates its circulation and value. However, as it is considered the dominant player in every country's monetary system, a vast number of people trust and are confident using it for any financial transactions. For easy, quick and convenient exchange of the token an exchange can be created

which would help to increase the reach of the said token and also allow it to reach to every nook and corner for its wide spread adoption. To overcome the issues such as the depreciating nature of fiat currency and conversion of one token to another this project has been taken up.

Scope of the Study

As the title suggests, the exchange will be used as a marketplace to convert one token to another and further increasing the resourcefulness, potential of the token. In future the many token can be listed on exchange so interoperability of the token increases also various other features such as farming, staking, lending can also be integrated with the exchange to provide user functions also a reward system can be added to incentivise the user to use the exchange for conversion of various token.

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Objective of the Study-

The exchange will be used as a marketplace to convert one token to another and further increasing the resourcefulness, potential of the token. In future the many token can be listed on exchange so interoperability of the token increases also various other features such as farming, staking, lending can also be integrated with the
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Methodology-

Blockchain provides a way to establish trust in a decentralized trust less network. Ethereum is a blockchain that supports the Turing complete programming language for developing smart contracts. The design of this project is divided into four phases as described below:

1. Website Design: Outlines the key characteristics and features of a website.
2. Website building: Building the website based on characteristics and its features
3. Website Testing- Testing the website and its various features.
4. Website Deployment: Deploying the website on local server

I have used Solidity to write smart contracts on Ethereum to deploy decentralized social networks. The tests are written in JavaScript. I used Remix, Ganache (personal blockchain), Truffle (development suite) and . have also used Metamask (Ethereum Web 3 Wallet).

TERMINOLOGY

Blockchain

A blockchain can be explained as a public database that is updated and shared across multiple computers in a network. "Block" means that data and state are stored in sequential batches or "blocks". "Chain" implies that each block cryptographically refers to its parent. The data in one block cannot be changed without changing all subsequent blocks, which would require the consent of the entire network. Each new block and chain must be agreed upon by each node in the network as a whole. This is because everyone has the same data. For this to work, the blockchain needs a consensus mechanism. Proof-of-Work and Proof-of-Stake are two widely used consensus algorithms. The original Blockchain is open-source technology which offers an alternative to the traditional intermediary for transfers of the crypto-currency Bitcoin. The intermediary is replaced by the collective verification of the ecosystem offering a huge degree of traceability, security and speed.

Ethereum

Ethereum is an open source, decentralized blockchain Contains smart contract functionality. Ether (ETH) is Ethereum's native cryptocurrency token
Decentralized platform. Ethereum is the second largest. Is Cryptocurrencies in the world. it is most popular Blockchain platform in the world. it was proposed late 2013 by cryptocurrency researcher and programmer Named Vitalik Buterin. development of Ethereum was funded by a crowd-sale that took place between July and August 2014. The system went live on 30 July 2015. The Ethereum Virtual Machine (EVM) is a decentralized Replication virtual machine, which can execute Turing-Complete the script and run the decentralized application.

Ethereum has been used for several initial coin offerings (ICOs) and is also used in decentralized finance. It is currently being actively developed and plans to implement a series of upgrades called Ethereum 2.0 with the proposed transition to a proof-of-stake consensus mechanism with specifications and transaction throughput using sharing technology. includes growth.

Dapps

Traditionally, participants do not write new code each time a computation is requested on the Ethereum Virtual Machine (EVM). Instead, application developers upload reusable snippets of code, also called programs, to EVM storage, and then users request these code snippets to be executed with mixed parameters. Programs uploaded and executed on the network are called smart contracts or decentralized apps (dApps). Thus, any developer can create a dapp and make it public to the network, using the blockchain as its data layer, for a fee paid to the network. Any user can then call the dApp to execute their code again for a fee paid to the network.

Smart Contracts

A smart contract is a transaction protocol or a computer program whose purpose is to automatically execute, control or document legally relevant events and actions in accordance with the terms of a contract or agreement. Using smart contracts, developers can build and deploy arbitrarily complex user-facing apps and services: marketplaces, games, financial services, etc.

Objective of the Study

To further demonstrate the use of tokens as an alternative to fiat currency, increasing security, privacy and resolving issues in the modern monetary system. In the future the token may also be used for various other purposes, such as in pre-creation System This token can be easily integrated and can provide various functionalities such as rewards, payments etc

IMPLEMENTATION

For this project, I used truffle (development suite), Ganache (personal development blockchain), Metamask (Ethereum Web3 Wallet), VsCode. I made smart Contracts in Solidity on the Ethereum Blockchain. For fronted part of project, the following tasks have been implemented in the project. Following components have been implemented in the project.

- **App.js:** This component contains every component that the whole webpage
- **BuyForm.js:** This component is used for buying the token by providing the necessary Ethereum for the transaction. The purpose of this component is to implement the buying part of website.
- **Main.js:** This component includes ever component apart from the navbar of the website.
- **Navbar.js:** This component is to implement the navbar of the website.
- **SellForm.js:** This component is used for selling the token by providing the necessary token for the transaction. The purpose of this component is to implement the selling part of website.

The test and deployment code were written in JavaScript. Tests can also be written in Solidity, to use functions, we use website deployed and connect it to Metamask Wallet. Along with ganache network selected on the wallet It will integrate Metamask Ethereum Wallet with website and we will see the unique public address of the wallet and in the upper right corner of the web Page. This means that we have successfully logged in.

EXPERIMENTAL RESULTS

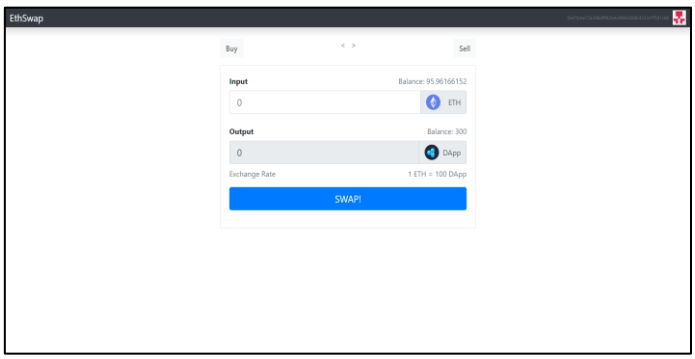


Fig 1: Homepage of Exchange

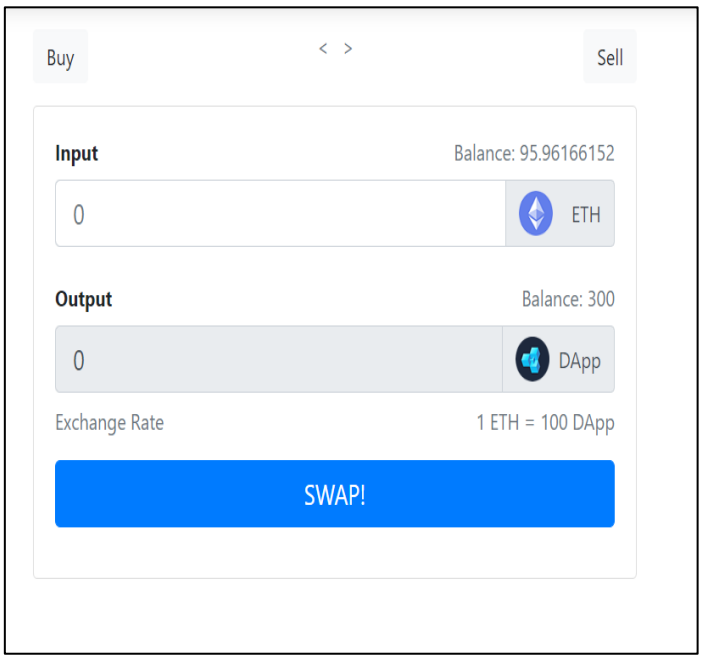
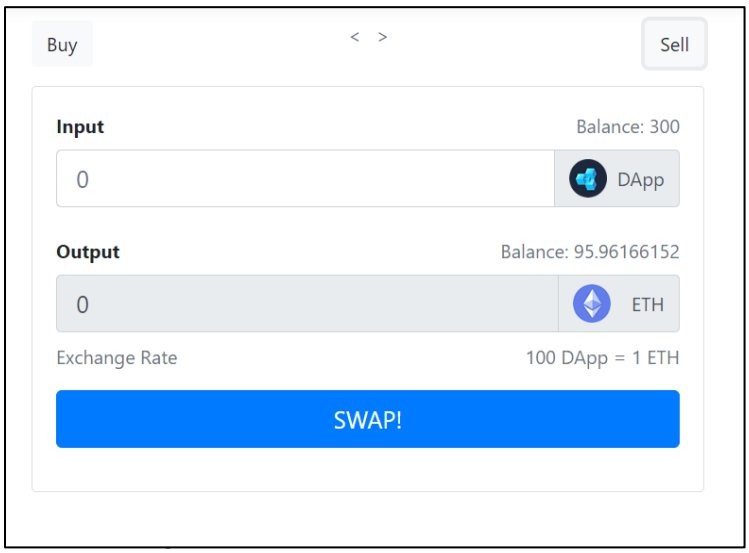


Fig 2: Buy form of Exchange



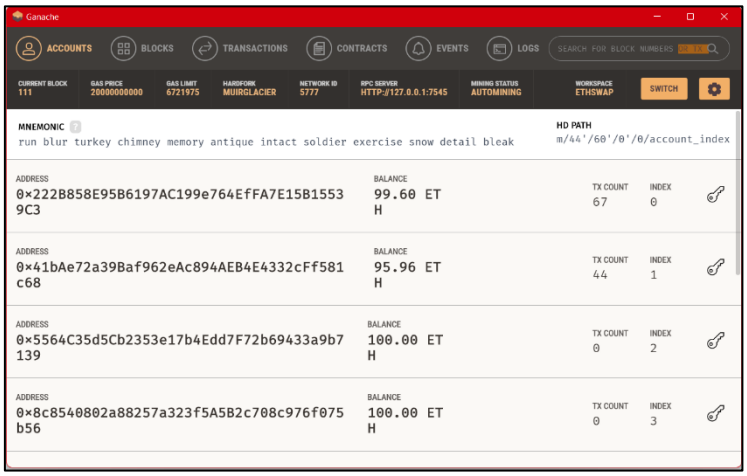


Fig 4: Ganache Interface

CONCLUSIONS & FUTURE SCOPE

The exchange helps a naïve user to enter the world of cryptocurrencies and it also provides them security against some frauds happening in the crypto world. It also helps in increasing the reach of crypto assets around the remote parts hence increasing its reach.

Furthermore, many tokens can be listed on exchange so interoperability of the token increases also various other features such as farming, staking, lending can also be integrated with the exchange to provide user functions also a reward system can be added to incentivise the user to use the exchange for conversion of various token

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