Report On

FUND TRANSFER WITH ETHEREUM

Submitted in partial fulfillment of the requirements of the Course project in Semester VII of fourth year Computer Science and Engineering

by

Jignesh Gurav (Roll No. 16)
Jayesh Ingale (Roll No. 18)
Aman Mishra (Roll No. 35)

Mentor
Mr. Sumeet Shingi

University of Mumbai

Vidyavardhini's College of Engineering & Technology

Department of Computer Science and Engineering [Data Science]

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Vidyavardhini's College of Engineering & Technology

Department of Computer Science and Engineering [Data Science]

CERTIFICATE

This is to certify that the project entitled "**Fund Transfer With Ethereum**" is a bonafide work of "**Jignesh Gurav (Roll No. 16), Jayesh Ingale (Roll No. 18), Aman Mishra (Roll no. 35)**" submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **"Bachelor of Engineering"** in Semester VII of Fourth year **"Computer Science and Engineering (Data Science)"**

Mentor

Mr. Sumeet Shingi

Dr. Vikas Gupta
Head of Department

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Chapter 1
Introduction

1.1 Introduction

"Blockchain Technology" is the technique in which records of transactions made ethereum or another cryptocurrency are saved in blocks and maintained across all computers connected in a peer-to-peer network. It secures the transactions in such a way that any record of transactions that occurred in the past cannot be modified, as the modification changes the hash of several blocks. All the peers connected to that system do not support that modification, excluding the modifier. Ethereum is a cryptocurrency-based system based on blockchain technology with the currency "Ether" as its name. Ethereum is a platform that allows people to create decentralized applications or adopt them for short periods, and ethereum clients will be developed. It can construct trustworthy and transparent financial apps since it is built on the blockchain. An online, cryptographically secure system that lets individuals preserve ownership of their data benefits from managed property and contracts, social networking, and messaging platforms (Ethereum Community,2016). Cryptocurrency is a digital or virtual currency that may be used to make payments.

1.2 Problem Statement

In the rapidly growing landscape of decentralized finance (DeFi) and blockchain-based financial transactions, there exists a need for a more efficient, user-friendly, and cost-effective fund transfer mechanism using Ethereum. Existing solutions often suffer from high gas fees, network congestion, and complex user interfaces, making it challenging for the average person to seamlessly send and receive funds on the Ethereum network. Moreover, there is a lack of user-friendly tools and platforms that integrate with existing financial services and provide a bridge between traditional banking systems and the Ethereum blockchain. This creates a barrier to entry for individuals and businesses looking to harness the benefits of blockchain technology for fund transfers, such as increased security, transparency, and accessibility. Our aim is to develop a user-centric, secure, and interoperable Ethereum-based fund transfer solution that addresses these challenges. Success will be measured by the significant reduction in transaction fees, faster confirmation times, and a seamless user experience that caters to both cryptocurrency enthusiasts and mainstream users while enabling easy integration with traditional financial systems and services.

1.3 Objectives

The objectives for a fund transfer solution using Ethereum should be clear and specific. Develop a system that significantly reduces transaction fees, making fund transfers on the Ethereum network more cost-effective for users.Improve the speed of transaction confirmations to provide a quicker and more efficient transfer process, especially during periods of network congestion.Create an intuitive and user-friendly platform that simplifies the fund transfer process, making it accessible to both crypto-savvy users and those new to blockchain technology.Implement robust security measures to protect users' funds and information, reducing the risk of fraud or hacking.Establish a feedback loop to collect user input and continuously improve the system based on user needs and evolving technology.These objectives can serve as a roadmap for developing the solution.

Chapter 2
Literature Survey

2.1 Analysis of Literature :

Sr. No.	Title of the Paper	Advantages	Disadvantages
1	Blockchain based Peer to Peer Money Transfer using Cryptocurrency	Eliminates the need for intermediaries, such as banks, in P2P transactions, allowing users to have more control over their funds and reducing the risk of censorship or control by centralized authorities.	The lack of regulatory oversight in the cryptocurrency space can lead to security and fraud risks, as well as potential legal issues in certain jurisdictions.
2	Decentralized Finance and Crypto Banking System Using Ethereum-based Blockchain Technology	Anyone with an internet connection can participate in DeFi and crypto banking, making financial services accessible 24/7 from anywhere in the world.	Cryptocurrencies are highly volatile, which can result in significant price fluctuations, leading to potential losses for users and instability in DeFi platforms.
3	Ethereum Blockchain based smart contract for Secured transactions between Founders /Entrepreneurs and Contributors under Start-up Projects	Ethereum smart contracts are transparent and provide all parties with a clear view of the terms and conditions of the transaction, enhancing trust and reducing disputes.	Creating and managing smart contracts can be complex, requiring a level of technical expertise that may be a barrier for some entrepreneurs and contributors.
4	Foreign money transfer using blockchain	Blockchain-based foreign money transfers can significantly reduce transaction times, with some transactions settling in minutes instead of days, as seen in traditional banking systems.	Blockchain technology may not be well-understood by the general population, potentially creating barriers to its widespread adoption for international money transfers.
5	Modeling and Understanding Ethereum Transaction Records via A Complex Network Approach	Complex network approaches can handle the vast amount of transaction data on the Ethereum network, making it scalable for research and analysis of large datasets.	Ethereum transaction data is complex and rapidly evolving, making it challenging to preprocess, model, and analyze effectively using complex network approaches.

2.2 Research Gap

While Ethereum is widely used for fund transfers, research could explore scalability solutions (such as Ethereum 2.0 or layer 2 solutions) and their impact on transaction speeds.Examine the security measures and privacy-enhancing techniques used in Ethereum-based fund transfers, and assess their effectiveness.Need to Analyze the user experience of Ethereum-based fund transfers and identify ways to improve accessibility and usability.Examine risk factors associated with Ethereum fund transfers, including the risk of fraud, technical vulnerabilities, and exchange rate fluctuations.Need to Explore the interoperability of Ethereum with other blockchain networks and traditional financial systems to enable seamless fund transfers between different platforms.

Chapter 3
Proposed System

3.1. Introduction

Fund transfer with Ethereum involves sending and receiving digital assets, typically in the form of Ether (ETH) or other Ethereum-based tokens, over the Ethereum blockchain. Ethereum is a decentralized blockchain platform that allows for the creation and execution of smart contracts, which are self-executing contracts with the terms of the agreement between parties directly written into code. This capability makes Ethereum a popular choice for various financial applications, including fund transfers, because it enables trustless and secure transactions without the need for intermediaries like banks.

3.2. Algorithm and Process Design

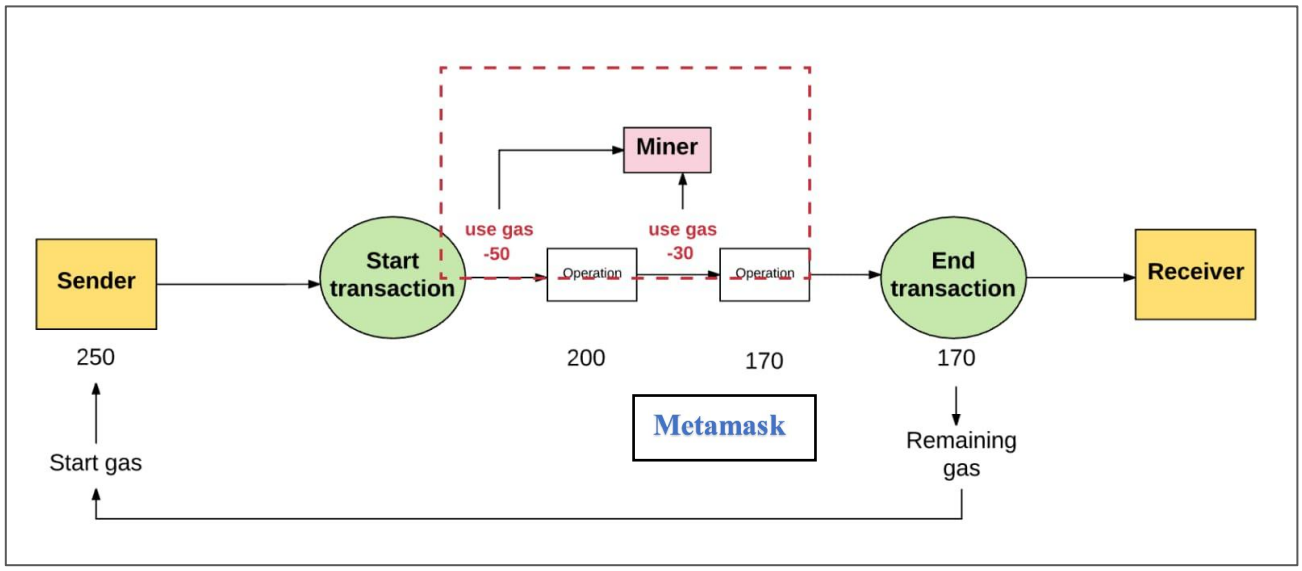

Fig 3.1 Fund Transfer With Ethereum (Working Process)

3.3. Details of Hardware & Software

Hardware Requirements:

- Processor : Intel Core i5 6th Gen.
- Ram : 8 GB
- System Type : 64 bit O.S

Software Requirements:

- Meta Mask
- Sepholia (Test Network)

Programming Languages:

- Solidity
- ReactJS
- NodeJS

3.4. Experiment and Results :

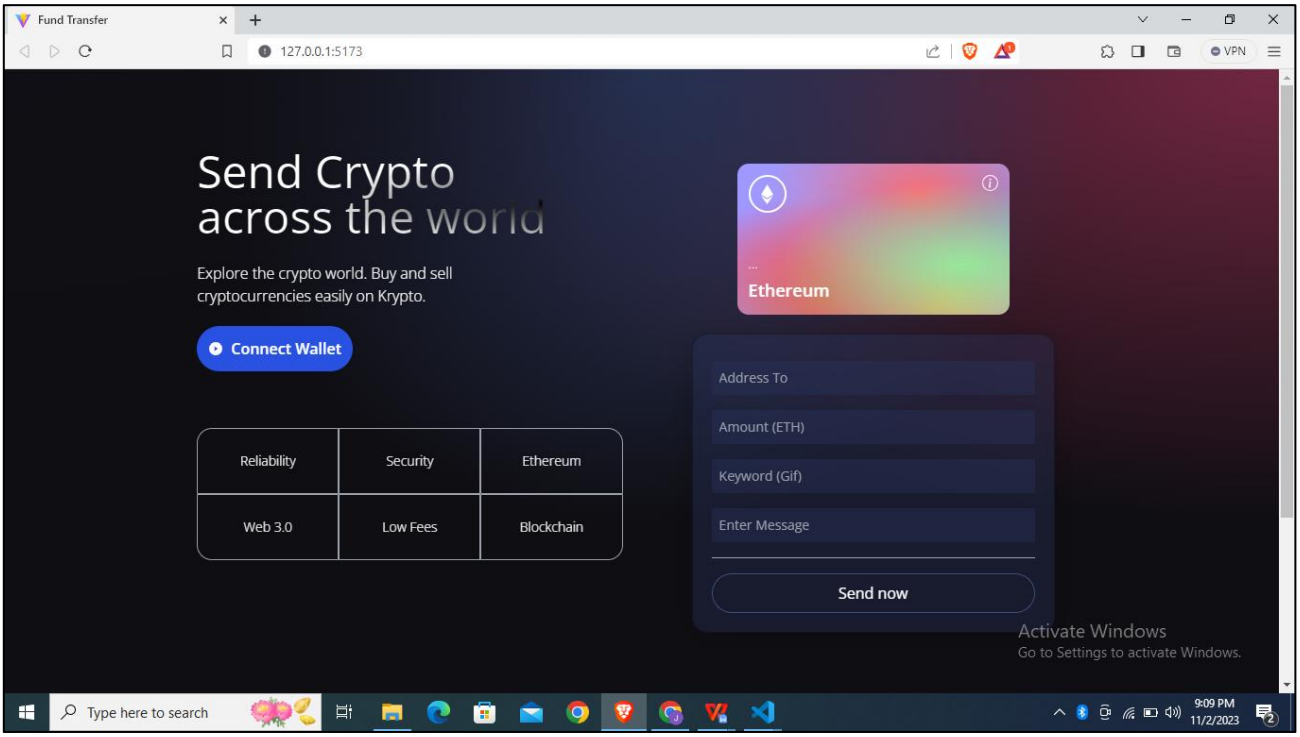

Fig 3.2 User Interface Before Connecting To Metamask

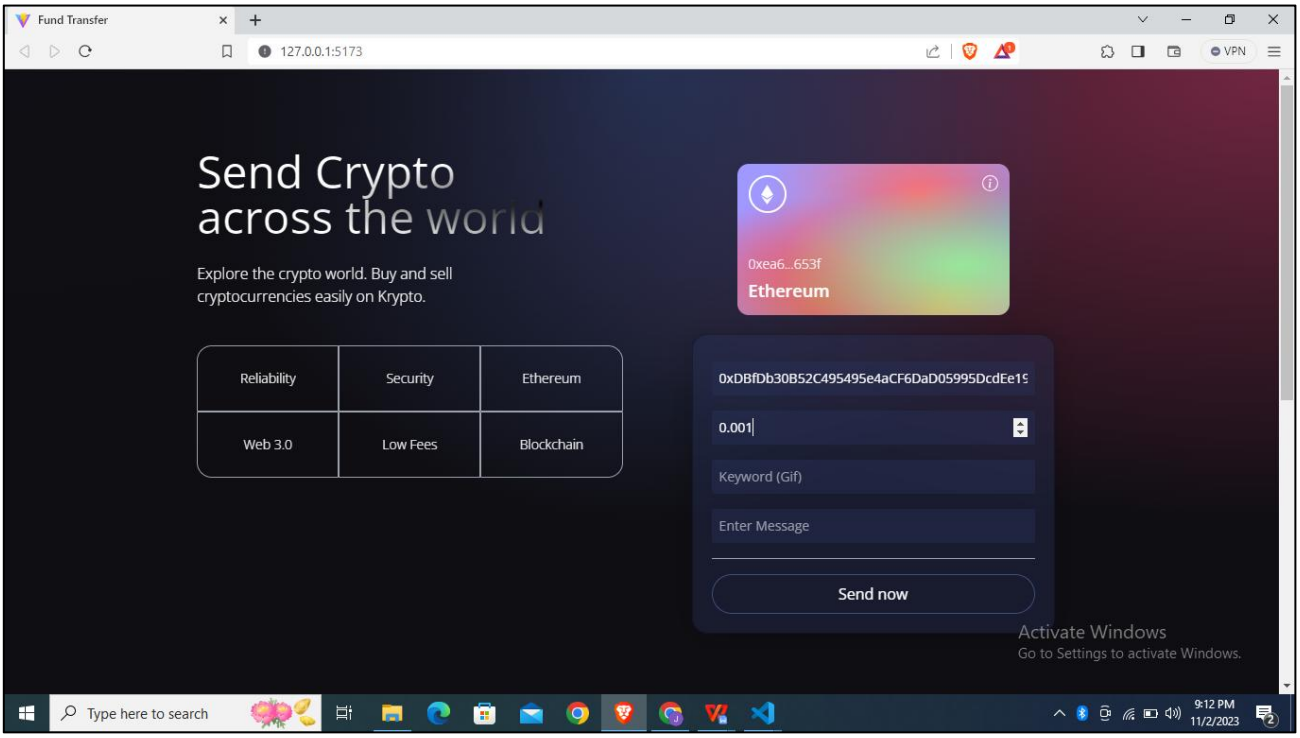

Fig 3.3 After Connecting To MetaMask

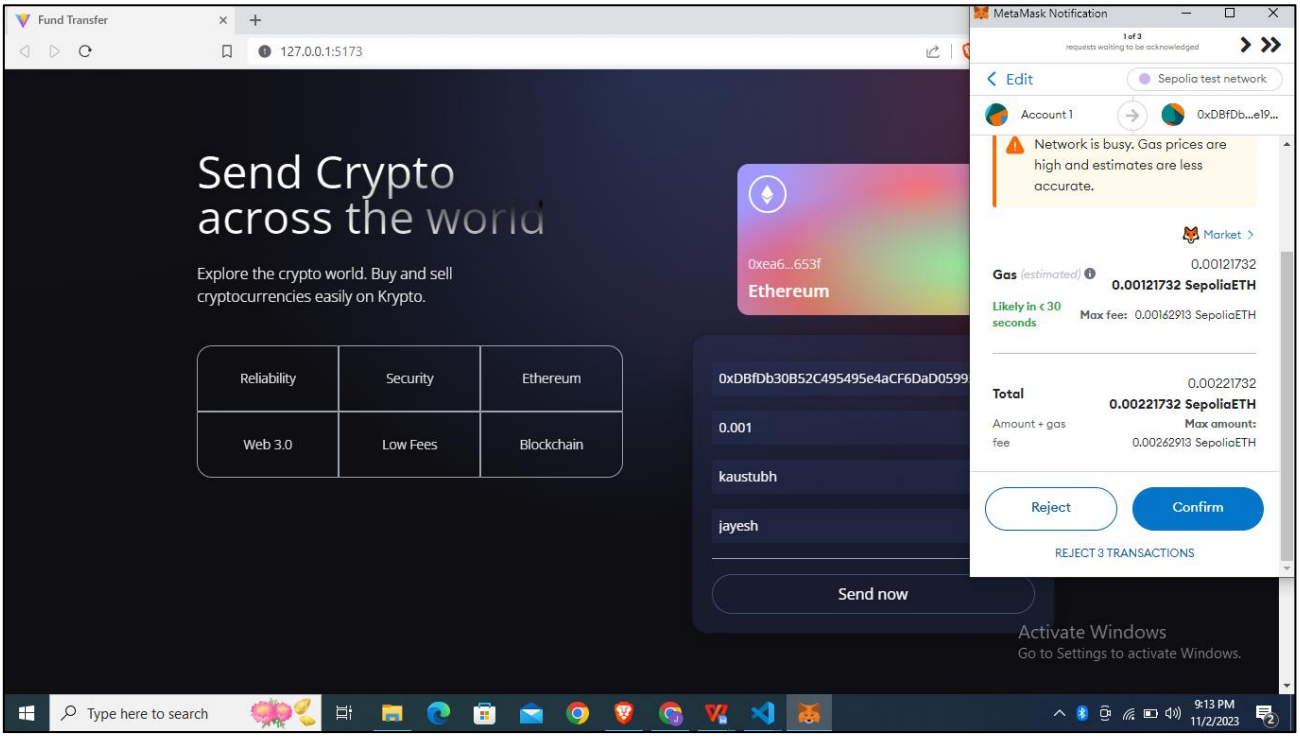

Fig 3.4 Process to Send Token To Another User (Unique Public Address)

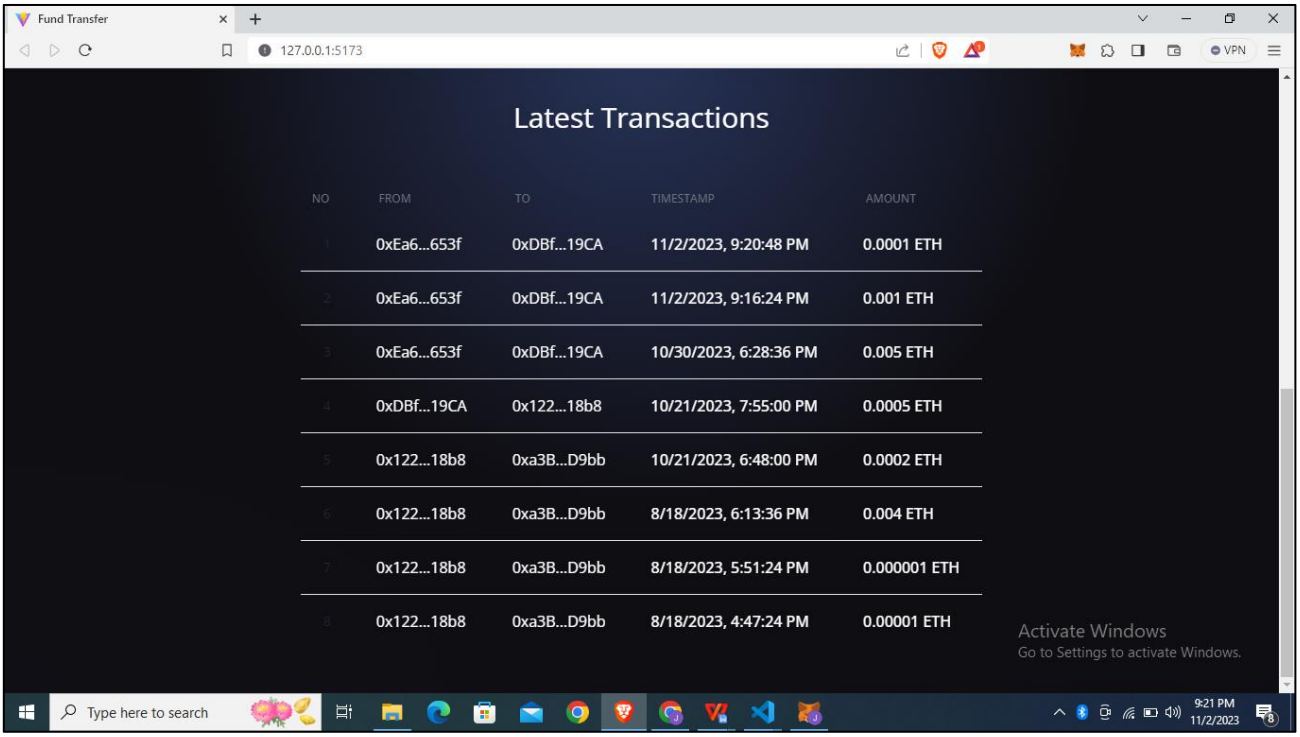

Fig 3.5 Successfully Sent Token (Database)

3.5 Result Analysis

A Fund transfer system with Ethereum involves evaluating the system's performance, efficiency, and its impact on users and the broader financial landscape,assess transaction speed and efficiency, collect data on the time it takes for transactions to be initiated, confirmed, and settled on the Ethereum network.Used for the usage of supported cryptocurrencies and tokens within the system. And Examine how users engage with different digital assets, conduct exchanges, and utilize tokens for fund transfers. System Conduct a comparative analysis by benchmarking the system's performance against traditional banking systems and other blockchain-based fund transfer services.The analysis of a fund transfer system with Ethereum is a critical process that assesses its performance, efficiency, security, user experience, and overall impact on the financial landscape. Through a comprehensive evaluation of the system's various facets, we gain valuable insights into its strengths, weaknesses, and potential areas for improvement.

3.6 Conclusion

In Conclusion, fund transfers with Ethereum provides valuable insights into the benefits and challenges encountered during token transfer or money transfer through ethereum , offering a foundation for continuous improvement and innovation in the field of blockchain-based financial transactions.The thorough examination of the system's performance and user experiences also plays a vital role in driving trust and confidence among users, ensuring their assets and data are secure, and contributing to the ongoing development of blockchain technology within the financial sector.

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