



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 13, Issue 4, April 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423

9940 572 462

6381 907 438

ijirset@gmail.com

www.ijirset.com

Smart Vault Token to Store Data on Blockchain

Praveen M, Praywin Samson E, Dr Aravind Swaminathan G

U.G. Student, Department of Computer Science and Engineering, Francis Xavier Engineering College, Tirunelveli, India

U.G. Student, Department of Computer Science and Engineering, Francis Xavier Engineering College, Tirunelveli, India

Professor, Department of Computer Science and Engineering, Francis Xavier Engineering College, Tirunelveli, India

ABSTRACT: In daily lives, deaf and mute people face lot of challenges while performing simple tasks. The major challenge is being able to communicate with others through sign language. Unfortunately sign language is used and practiced by only 0.2% of the population. This separates the deaf and mute from those who want to communicate with them. To overcome this our system "SignEase" aims to bridge that gap and we hope that it will help deaf and mute people to converse with people who do not know sign language. The main goal of this system is to translate speech into sign language and to create a two-way communication without the need for a mediator. Sign language serves as a vital means of communication for deaf and non-speaking individuals who rely on visual gestures, orientation, hand movements, body language and facial expressions to convey messages. But few people know sign language to make this process easier. The SignEase system is incorporated with lessons to learn and a way to practice sign language. In addition to this it converts audio and text input into sign language, making it a versatile and inclusive platform for improving accessibility and communication for individuals using sign languages.

KEYWORDS: Disaster recovery, Offsite data security, Resilient data protection, Ethereum blockchain, ERC20 token, Transparent framework, Secure data storage, Smart contract development, Blockchain-based data storage, Token implementation, Blockchain applications

I. INTRODUCTION

In the PC era, the need for decentralized and secure data management solutions has become the need of the hour. Twins with information leaks and cyberattacks, small businesses and individuals are finding a strong protection system to secure their personal data. Consequently, this primary necessity of people influences the EMERGENCE of a new project featuring the "ERC20 Token to Store Information on Blockchain," which aims to provide sustainable solutions to the problem of information management in the era of digitalization [1].

A subject of the assignment to have ERC20 tokens for secure and efficiently storage of information on the Ethereum blockchain. Given the fact that ERC20 tokens, a standard form of manner for generating fungible tokens within the Ethereum ecosystem, offers a great solution for blockchain-based information management [17]. Through a prominent design of blockchain growth such as replication, security and decentralization; this project hopes to achieve an assurance of safety and security of data.

The core of the attempt to this effect involves the guidelines of working within the set boundaries of the current information and communication structures. Traditional philosophies are frequently weak in records since information is segregated; in addition, they are highly vulnerable against weakness points and malicious attacks. In the same vein, the absence of directness or honesty in these means can lead into the emergence of issues concerning trust and responsibility [3]. On the flip side, blockchain management, with its decentralized nature of data storing and cryptographic security mechanism, provides a major impact in the context.

A much more transforming and filtering unit of blockchain does the effective check on issues which the board could never have been able to accomplish. Along with the deterioration of computer attacks to the current and their high level of targeting as it is now, there is growth in pressure of innovative strategies that emphasize on strength and resilience [10]. As well as this, the "ERC20 Token to Store Data on Blockchain" project aim to be a solution for centralized databases and also the tool for a new approach of transparency and trust in data management.

We aim through this initiative to contribute into the continued successful progress of the blockchain by studying the logical interpretation to govern ERC20 tokens for data cap. The object of this testimony entails an account of the strategies employed, alongside the endurance of research regarding ERC20 stands, intelligent ability upsurge, and data protection via the blockchain system. Thus, stakeholders can be equipped with effective information pertaining to the likelihood and viability of the system [21].

On the following pages we will be looking at the implementation of the chosen intervention strategies: assessing the roles they play on the way to the end result, noting down challenges we have faced along the way and giving innovative ways to surmount these checks [25]. Alongside that, a detailed investigation of results, which will look over the influence and effects of the decentralised blockchain token technology applied in data retaining will also be done.

On the final point, "ERC20 token to store data on a blockchain" is going to have a basic development on the background to get decentralized and safe data on the mission of the board game. Through this, we will be able to use the limit of blockchain development and ERC20 tokens as we prepare ourselves for this future where not only is data being handled securely but also open and directs with people trusting one another.

II. SYSTEM ANALYSIS

A. Existing System

Current information stockpiling arrangements experience a few difficulties originating from brought together designs, which posture dangers like weak links and security weaknesses. Customary techniques transcendently depend on incorporated servers, leaving information powerless to possible breaks and functional interruptions. Also, the pervasive utilization of distributed storage presents concerns with respect to repeating membership expenses and information security. While cloud arrangements offer versatility, they frequently force monetary burdens on clients because of ceaseless membership models. As information volumes keep on expanding, these restrictions intensify, hampering availability and work process effectiveness for people and associations the same [17].

Concentrated information capacity models address a predominant worldview in the current framework, described by dependence on unified servers vulnerable to weak links. This unified methodology presents inborn weaknesses, making information vulnerable to breaks and undermining its respectability and secrecy [13]. Furthermore, the reception of distributed storage arrangements, while offering adaptability, achieves concerns connected with progressing membership expenses and information security. These monetary strains, combined with the raising volumes of information, highlight the squeezing need for elective capacity systems that address these inadequacies.

The expansion of information in current advanced conditions fuels the difficulties related with concentrated information capacity arrangements [2]. As information volumes extend, associations face elevated dangers of information breaks and functional disturbances. Besides, the monetary strains forced by ceaseless membership models for distributed storage arrangements further weight clients, influencing availability and work process productivity [8]. Considering these difficulties, there is a developing interest for imaginative methodologies that decentralize information capacity, upgrade security, and reduce monetary tensions.

Perceiving the impediments of brought together information stockpiling frameworks and the related dangers and expenses, there is a convincing requirement for elective arrangements. The mix of ERC20 tokens and blockchain innovation presents a promising road to successfully address these difficulties. By decentralizing information stockpiling and utilizing blockchain's inborn security highlights, for example, unchanging nature and straightforwardness, the venture tries to give a strong elective that improves information security, openness, and cost-viability [5].

B. Proposed System

The "ERC20 Token to Store Information on Blockchain" project presents an imaginative way to deal with information capacity, presenting a framework that use ERC20 tokens and blockchain innovation. This framework means to address the limits innate in existing unified and exorbitant information stockpiling arrangements. By tackling the force of ERC20 tokens on the Ethereum blockchain, the undertaking tries to lay out a decentralized and alter safe system for secure information stockpiling. This proposed framework not just offers an option in contrast to conventional capacity models yet additionally looks to ease the monetary weight related with never-ending membership charges.

The center idea of the proposed framework spins around the use of ERC20 tokens as a way to work with decentralized information capacity on the blockchain. Through the execution of smart agreements and adherence to ERC20 token norms, the venture means to make a straightforward, productive, and practical answer for putting away information in a decentralized way. By utilizing blockchain innovation's intrinsic highlights, for example, permanence and straightforwardness, the proposed framework attempts to improve information security and uprightness while moderating the dangers related with concentrated capacity designs.

One of the critical goals of the proposed framework is to furnish clients with a safe and dependable stage for putting away their information without depending on concentrated mediators. By decentralizing information stockpiling and wiping out weak links, the framework upgrades information strength and mitigates the gamble of information misfortune or unapproved access. Moreover, by utilizing ERC20 tokens, the framework offers a normalized and interoperable way to deal with information capacity, guaranteeing similarity and convenience for clients across various stages and applications.

Besides, the proposed framework plans to address the monetary obstructions related with customary information stockpiling arrangements by wiping out the requirement for repeating membership expenses. By utilizing blockchain innovation's expense productive framework and utilizing the utilization of ERC20 tokens, the framework offers a practical option for putting away information safely. This lessens functional expenses for clients as well as advances monetary inclusivity and availability to get information capacity answers for people and associations the same.

Generally, the "ERC20 Token to Store Information on Blockchain" project addresses a huge step in the right direction in the development of information the executives rehearses. By presenting a decentralized, alter safe, and financially smart answer for information capacity, the proposed framework can possibly reform how information is put away, got to, and oversaw in the computerized age.

C. System Design

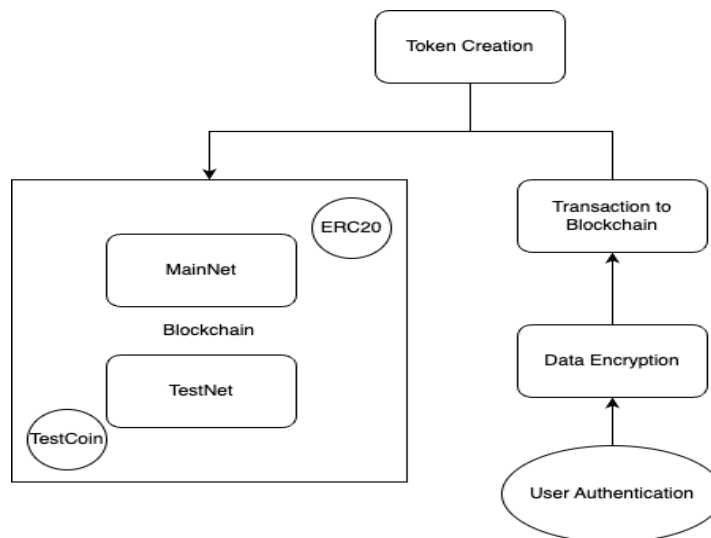


Fig. 1. Block Diagram

The above picture shows the block diagram of Smart Vault Token to Store Data on Blockchain.

The Block Diagram utilizes ERC20 token creation and the executives, incorporating with secure information stockpiling instruments connected to Ethereum blockchain exchanges. An easy-to-use interface works with cooperation, offering natural controls for token administration and information exchanges. The engineering guarantees consistent reconciliation with the Ethereum organization, conveying Sma contracts for ERC20 tokens and information stockpiling. Extensive documentation and announcing go with the undertaking, specifying targets, techniques, and specialized angles for future reference and improvement. The block chart frames the strong construction, underscoring the cooperative energy between token usefulness, information capacity, client connection, blockchain mix, and documentation.

III. IMPLEMENTATION

The execution of the "Smart Vault Token to Store Data on Blockchain" project incorporates a couple of indispensable stages to comprehend its objectives of decentralized and secure data amassing using ERC20 tokens on the Ethereum blockchain. Wide implementation, most importantly, will be coordinated to get a handle on ERC20 token rules and splendid understanding enhancement for the Ethereum stage. This assessment stage is critical for laying out the supporting of the endeavor and ensuring consistence with spread out standards.

Following the implementation stage, the improvement of splendid arrangements will be begun to engage the creation, move, and the leaders of ERC20 tokens expressly planned for taking care of data. These canny arrangements will serious areas of strength for solidify endeavors to ensure the decency and grouping of the set aside data, including encryption methodologies and access control frameworks. Meanwhile, the endeavor will focus in on arranging simple to utilize association focuses and APIs to work with predictable collaboration with the ERC20 token-based data limit system.

These association focuses will outfit clients with regular mechanical assemblies for moving, recuperating, and managing their data securely on the blockchain. Besides, the execution cycle will incorporate exhaustive testing and assessing of the adroit arrangements and structure parts to recognize and address any shortcomings or flaws. This testing stage is essential for guaranteeing the unwavering quality and vigor of the framework before its sending in a creation climate.

When the turn of events and testing stages are finished, the sending of the "Smart Vault Token" framework will initiate on the Ethereum blockchain. This organization interaction will include conveying the smart agreements to the Ethereum organization and arranging the important foundation to help the framework's activity.

All through the execution cycle, close cooperation with partners and specialists in blockchain innovation will be kept up with to assemble criticism, address concerns, and refine the framework iteratively. This iterative methodology guarantees that the last execution meets the necessities and assumptions for clients and partners, consequently amplifying the effect and adequacy of the "Smart Vault Token to Store Information on Blockchain" project.

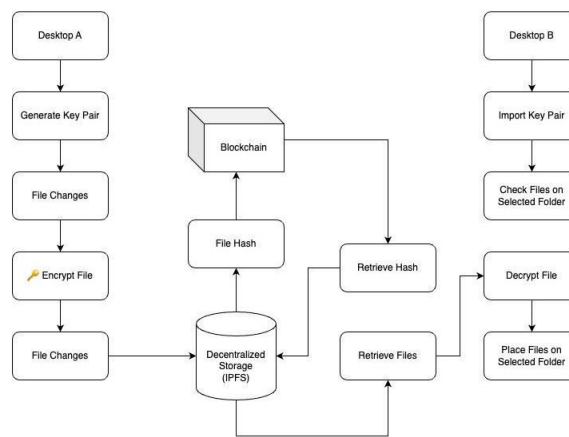


Fig. 2. Architecture Diagram

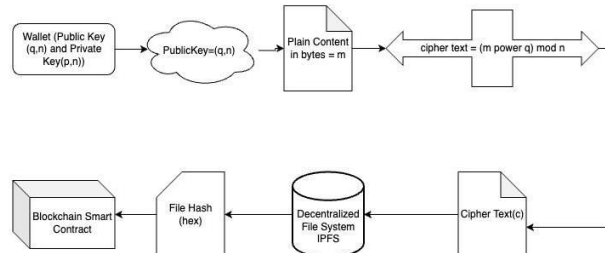


Fig. 3. Encryption File before store in Blockchain

Decentralized Storage such as IPFS will allow ties to read public view because of transparency. To avoid the third party view we can perform encryption.

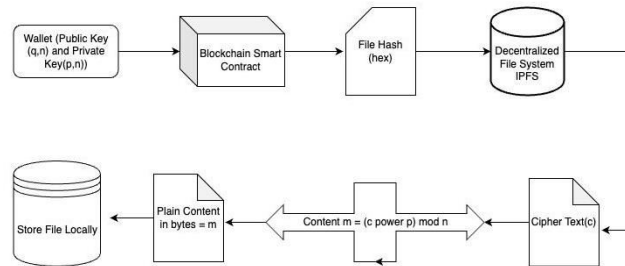


Fig. 4. Decrypt File before store in Local Folder

Because of performing encryption before uploading in IPFS. We need to perform decryption before store it in local folder which is connected to blockchain

IV. RESULT

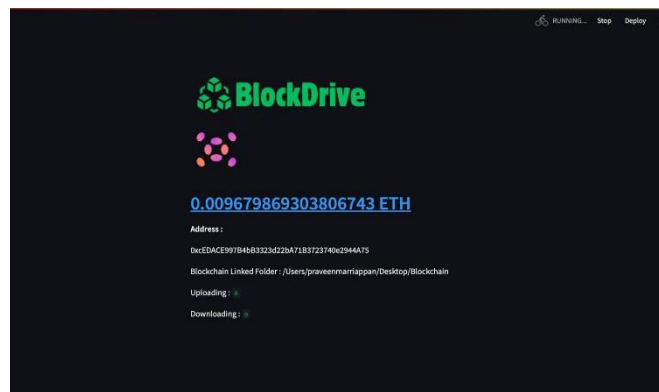


Fig. 5. Web App using Streamlit

In fig. 5. It shows the dashboard of a user. This dashboard displays the current status along with the coin balance and address. All files stored in this address will be stored on the blockchain.

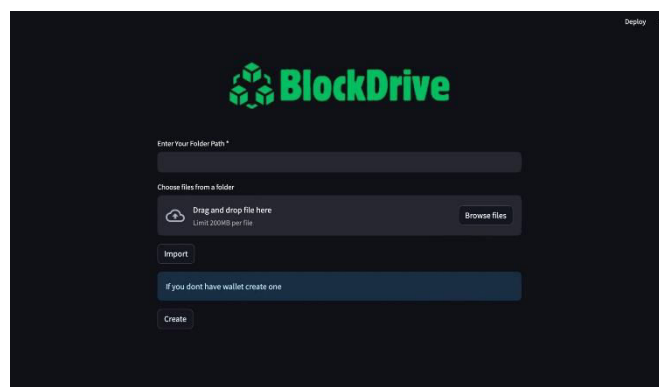


Fig. 6. Login Page

In the Login page, user login by providing the Private key. Each user can have their own private key. Users can login and access their data anytime. New users can create new key if needed. Otherwise, they import the key from key-wallet.json file.

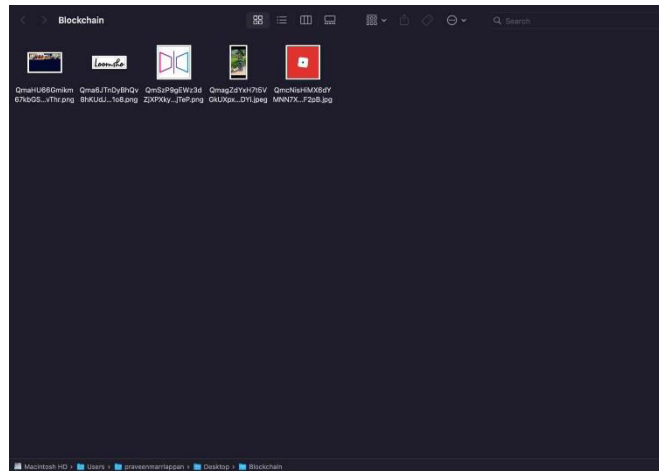


Fig. 7. Folder where images are stored

V. CONCLUSION

"Smart Vault Token to Store Data on Blockchain" addresses fundamental types of progress while actually looking at creating interest in safeguarded and decentralized data. Through the organization of the ERC20 token breaking point and blockchain improvement, the endeavour gives a keen and creative method for managing data limit the board on the Ethereum blockchain. The drive focuses on the use of ERC20 tokens as a dependable and direct technique for limiting data, showing its obligation to fulfil the necessities of data pioneers in the contemporary period. All through our endeavour, critical resources have been assigned to looking at ERC20 rules, considering sharp plans, and doing blockchain-based data limit parts. These endeavours have achieved the productive creation and execution of a great ERC20 token expected for quick and secure data assortment. The endeavor has shown its commitment to conveying specific results and advancing positive change in the field of blockchain applications by outlining the popular execution process, noticing difficulties experienced, and giving steady methodologies. An urgent examination of the errand's outcomes in like manner looks at the meaning of secured and decentralized data combination using ERC20 tokens. The endeavour adds to disturbing data security, straightforwardness, and limit by giving an unquestionable and sensible cycle for adding data to the Ethereum blockchain. Moreover, the endeavour's accentuation on consistency and responsiveness lines up with the board's demonstration of giving data and inferring that reflects risk and trust. Later on, the experiences procured from the "Smart Vault Token to Store Data on Blockchain" trip can coordinate future drives concerning decentralized data and blockchain applications in all cases. Through recording the errand's particulars, issues, techniques, and results, this report fills in as an important device for specialists, subject matter experts, and colleagues who are keen on directing related drives. The task's prosperity additionally mirrors the blockchain's astonishing ability to overturn information capacity rehearses and work on the overall security and trustworthiness of refreshed resources. The "Smart Vault Token to Store Data on Blockchain" gives a persuading answer for the critical issues related to engaged and expensive information-gathering frameworks. The undertaking has progressed the field of blockchain applications and moulded the expected fate of decentralized information for pioneers with its inventive methodology and commitment to straightforwardness, security, and productivity. Drives like this one will probably assume an essential part in progressing blockchain improvement and making new roads for information cutoff points and bosses.

REFERENCES

- [1] S. Dolev, B. Guo, J. Niu and Z. Wang, "SodsBC: A Post-Quantum by Design Asynchronous Blockchain Framework," in IEEE Transactions on Dependable and Secure Computing, vol. 21, no. 1, pp. 47-62, Jan.-Feb. 2024, doi: 10.1109/TDSC.2023.3243588.
- [2] S. S. Kushwaha, S. Joshi, D. Singh, M. Kaur and H. -N. Lee, "Ethereum Smart Contract Analysis Tools: A Systematic Review," in IEEE Access, vol. 10, pp. 57037-57062, 2022, doi: 10.1109/ACCESS.2022.3169902
- [3] H. Su, B. Guo, Y. Shen and X. Suo, "Embedding Smart Contract in Blockchain Transactions to Improve Flexibility for the IoT," in IEEE Internet of Things Journal, vol. 9, no. 19, pp. 19073-19085, 1 Oct.1, 2022, doi: 10.1109/JIOT.2022.3163582.

- [4] W. Chen, M. Tang and Z. Zheng, "Exploring and Analyzing the Token Ecosystem: A Complex Network Analysis Perspective," in IEEE Journal on Emerging and Selected Topics in Circuits and Systems, vol. 13, no. 3, pp. 720-733, Sept. 2023, doi: 10.1109/JETCAS.2023.3266396
- [5] T. M. Hewa, Y. Hu, M. Liyanage, S. S. Kanhare and M. Ylianttila, "Survey on Blockchain-Based Smart Contracts: Technical Aspects and Future Research," in IEEE Access, vol. 9, pp. 87643-87662, 2021, doi: 10.1109/ACCESS.2021.3068178.
- [6] Z. Meng and Y. Wang, "Asymmetric Encryption Algorithms: Primitives and Applications," 2022 IEEE 2nd International Conference on Electronic Technology, Communication and Information (ICETCI), Changchun, China, 2022, pp. 876-881, doi: 10.1109/ICETCI55101.2022.9832032.
- [7] S. L. Garfinkel, "Public key cryptography," in Computer, vol. 29, no. 6, pp. 101-104, June 1996, doi: 10.1109/2.507642.
- [8] J. Anthal, S. Choudhary and R. Shettyar, "Decentralizing File Sharing: The Potential of Blockchain and IPFS," 2023 International Conference on Advancement in Computation & Computer Technologies (InCACCT), Gharuan, India, 2023, pp. 773-777, doi: 10.1109/InCACCT57535.2023.10141817.
- [9] W. Choi and J. W. -K. Hong, "Performance Evaluation of Ethereum Private and Testnet Networks Using Hyperledger Caliper," 2021 22nd Asia-Pacific Network Operations and Management Symposium (APNOMS), Tainan, Taiwan, 2021, pp. 325-329, doi: 10.23919/APNOMS52696.2021.9562684.
- [10] S. -P. Lu, C. -L. Lei, C. -Y. Ho, S. -S. Hwang and H. -C. Chen, "Distributed Ledger Technology Based Architecture for Decentralized Device-to-Device Communication Network," in IEEE Access, vol. 10, pp. 92006-92022, 2022, doi: 10.1109/ACCESS.2022.3199880.
- [11] U. Mukhopadhyay, A. Skjellum, O. Hambolu, J. Oakley, L. Yu and R. Brooks, "A brief survey of Cryptocurrency systems," 2016 14th Annual Conference on Privacy, Security and Trust (PST), Auckland, New Zealand, 2016, pp. 745-752, doi: 10.1109/PST.2016.7906988.
- [12] M. Amara and A. Siad, "Elliptic Curve Cryptography and its applications," International Workshop on Systems, Signal Processing and their Applications, WOSSPA, Tipaza, Algeria, 2011, pp. 247-250, doi: 10.1109/WOSSPA.2011.5931464.
- [13] I. Setiadi, A. I. Kistijantoro and A. Miyaji, "Elliptic curve cryptography: Algorithms and implementation analysis over coordinate systems," 2015 2nd International Conference on Advanced Informatics: Concepts, Theory and Applications (ICAICTA), Chonburi, Thailand, 2015, pp. 1-6, doi: 10.1109/ICAICTA.2015.7335349.
- [14] R. Ali, "Elliptic Curve Cryptography a new way for encryption," 2008 International Symposium on Biometrics and Security Technologies, Isalambad, Pakistan, 2008, pp. 1-5, doi: 10.1109/ISBAST.2008.4547662.
- [15] B. M. Goud, D. Lilaramani and M. Swain, "Generation and Authentication of Digital Certificates using Ethereum based Decentralized Mechanism for Mitigating Data Fraud on RISC-V," 2021 International Conference on Computational Performance Evaluation (ComPE), Shillong, India, 2021, pp. 905-909, doi: 10.1109/ComPE53109.2021.9752130.



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details