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Block Chain Based Disk Space Rental System

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Abstract

Now a day's electronic devices such as computers, smart phones and cameras produce enormous volumes of data each day, which require more and more storage resources. In order to fulfill this necessity, cloud storage renting systems were created. Cloud storage renting disk space allows people to expand their storage capacity without having to buy and maintain additional hardware. It can help users save money on hardware and reduce the need for physical space in their home or office. It can also be used to store large amounts of data in a secure and cost-effective manner. Renting disk space also allows for easier sharing of data between multiple users, making collaboration easier and faster Cloud storage renting disk space allows people to expand their storage capacity without having to buy and maintain additional hardware. It can help users save money on hardware and reduce the need for physical space in their home or office. Another issue with such systems is lack of trust.To overcome these problems we use block chain technology in disk rental system. This system is designed to be a peer-to peer services where users can rent out disks to each other without the need for a third party immediately. We use the smart contracts which automate the rental process Here we used Proof-of-Work (PoW) consensus algorithm. This algorithm is used to verify transactions and add new blocks to the chain and also solve complex mathematical problems. If this system is implemented it Enhance security, Transparency, Lower cost, Automation, and improved efficiency. Finally the system also provides a renting system to ensure that users are able to easily identify and reliable disk rental.

1. Introduction

Block chain-based disk rental system is a distributed system that enables peer-to-peer (P2P) disk rental transactions. It uses the block chain technology to record and manage the rental transactions of disks over a network. (Ma, X. Li, and Wu) This system helps to create a secure and transparent environment for disk rental transactions. (Y. Zhang et al.) It enables users to rent disks securely and easily without the need for any third-party intermediaries. It also allows users to track their rental transactions and maintain records of all their disks. Furthermore, the system also provides a secure platform to store data and information related to the disk rental transactions. (Tang, X. Chen, and W Li) This system enables users to securely and efficiently manage their disk rental transactions and also make payments in a secure and transparent way. (X. Zhang et

al.)

Block chain based disk space rental system is a system that allows users to rent and lease disk space from other users over the block chain. (P. Zhang and J. Li) The system enables users to rent disk space from other users over the block chain. The system enables users to rent disk space from other users on a peer-to-peer basis, and the transaction is secured by smart contracts on the block chain. (J. Li et al.) This system is decentralized, so users are not dependent on a single provider, and it eliminates the need for intermediaries. (Wang, Y. Chen, and H. Li) The system also allows for automated payments for disk space rentals, enabling users to pay for the disk space in a secure and transparent manner. (Xiong, Cao, and Zhou) The system also provides a platform for users to list their disk space and set their own prices, enabling a competitive market. This system is beneficial to both users and providers, a it allows users to rent disk space at a competitive rate and providers to monetize their unused disk space. (X. Li et al.)

2. Literature Survey

Literature survey shown in Table 1.

3. Existing System

In existing system, Traditional cloud storage systems rely on centralized servers controlled by a single entity or organization. This creates several security problems, including vulnerability to cyber attacks, lack of transparency, and limited control over data. In addition, traditional cloud storage providers often charge high fees for their services, making it difficult for small businesses and individuals to afford reliable data storage solutions.RSA based scheme has been implemented in existing model. (Zhou and Cao)

Cloud Security Alliance (CSA) scheme has been employed in existing system. Merkle Tree scheme has been employed in existing model system (H. Li and Xu)

3.1. Disadvantages

- Less reliability and secure.
- Data leakage

4. Proposed System

Block chain is a de-centralized and it is not control by any central authority. The proposed system for block chain based disk space rental system is a revolutionary concept that aims to solve the problem of limited storage capacity by providing a decentralized platform for users to rent out their unused disk space. This system utilizes block chain technology to ensure secure and transparent transactions between renters and providers, while also incentivizing users to participate in the network through a token-based reward system.

4.1. Advantages

- High secure
- Block chain data structures harden network security by reducing single-point-of-failure risk, making a database breach difficult.
- It prevents data tampering.

5. System Architecture

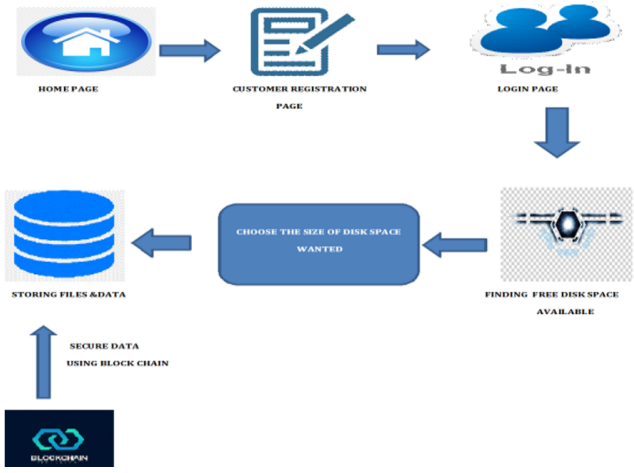

FIGURE 1. System Architecture

6. Results

6.1. Home Page

This the main page which contains the details about disk space rental system such as space and its price . The system allows users to rent out their disk space to other users in exchange for Cryptocurrency. This system is designed to be secure, transparent, and reliable. The home page module will allow users to create an account and log in.

6.2. Data Owner Registration

This page is used to collect the details of customer and create user name and password for them. This module is designed to enable users to register as data owners and rent out their hard disk space on the blockchain-based disk space rental system. It will

TABLE 1. Literature Survey

Year	Paper Title	Author Name	Survey
2020	A Block chain-based data storage system for cloud storage security.	Abhijeet S. Kulkarni, Sangeeta S.DeshmukhGaurav M.Kulkarni	This survey provides information about securing data stored on the cloud
2021	Block chain-Based Cloud Storage System for Data Security and Privacy Preservation	Jianxin Zhang, Yixin Li, and Jinyuan Jia	This survey provides information about technologies used for data security and privacy preservation.
2022	Block chain-Based Decentralized Storage System.	Chen, L., Chen, W.K., & Cheng	This paper provides information on the analysis of the security and privacy of a block chain-based decentralized storage system.

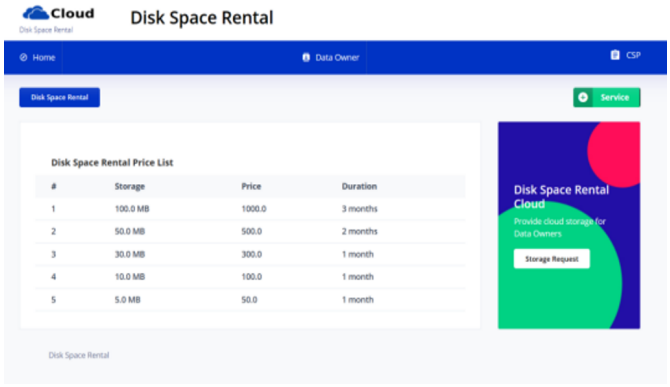

FIGURE 2. Home Page

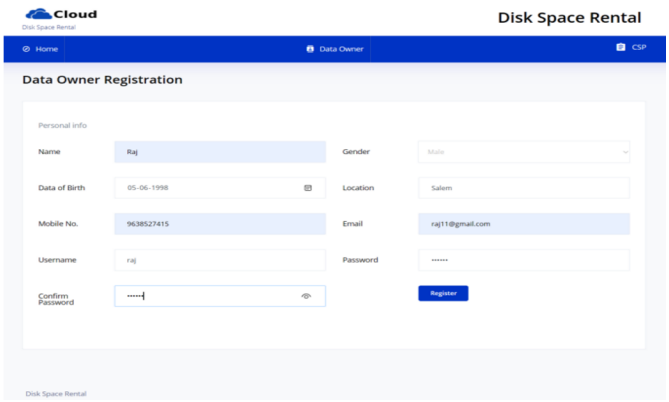

FIGURE 3. Data Owner Registration

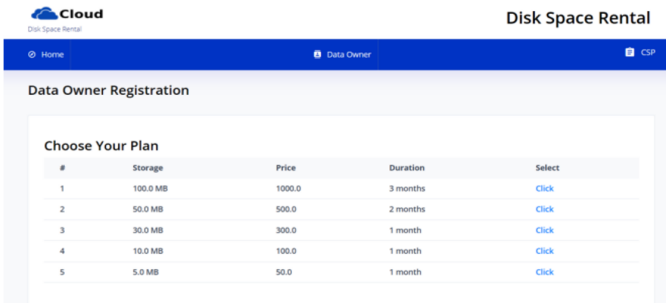

FIGURE 4. Plan Details

allow users to register their details, set up a profile, and manage their disk space rental arrangements. The module will allow users to securely manage their data and securely transfer it to other users. It will also provide users with detailed analytics on their data usage, rental payments and rental history. The module will also enable users to configure their rental settings and customize their rental agreement. Finally, it will provide users with a secure way to store and transfer their data over the blockchain.

6.3. Data Owner Login

By using this module the user can buy the disk space through their username and password. This module provides a secure and efficient system to rent out disk space on a blockchain-based platform. It enables both the owners of the disk space and the renters to keep track of the rental process and ensure a smooth transaction. The module allows owners to create a profile to list their disks pace for rent, and set the conditions of the rental, including the rental price, the rental period and any other desired terms. Furthermore, all transactions are recorded on the blockchain, allowing for complete transparency, accountability and traceability.

6.4. Data Owner Payment

In this module user pays the amount for the disk space they used as renting . Here the algorithm used

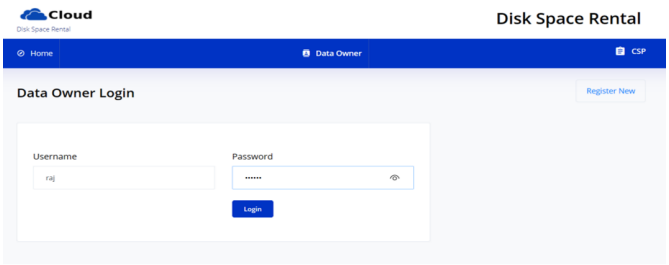

FIGURE 5. Data Owner Login

is proof-of-work, this is used to verify transaction. This ensures that only the correct transactions are added to the block chain, and it also prevents double spending. Renters can easily find and purchase the disk space they need without worrying about the security of their payment. The system also provides an integrated payment system that ensures that data owners can receive their payments in a timely manner. All payments are securely handled over the blockchain and the data owners can rest assured that their payments will be securely and safely handled.

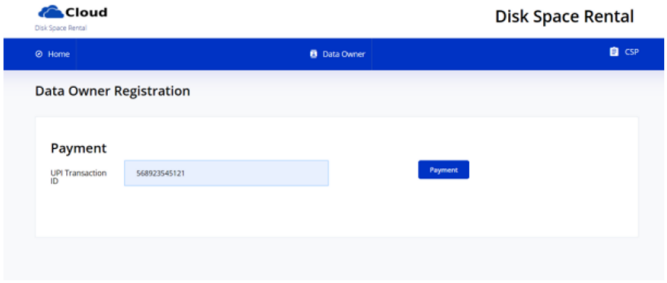

FIGURE 6. Data Owner Registration

6.5. File Uploading

In this page the user can upload their files and data. Here we uses the consensus algorithm. This algorithm helps to prevent malicious actors from manipulating the data stored on the block chain by requiring miners to agree on the most recent version of the ledger. This module is designed to provide users with a secure and reliable way to rent out their unused disk space. The system uses blockchain technology to track and manage rental transactions, ensuring that all data is securely stored and accessible only to those who have permission. The module also provides a secure way to store files, as all data is encrypted before being stored on the blockchain.

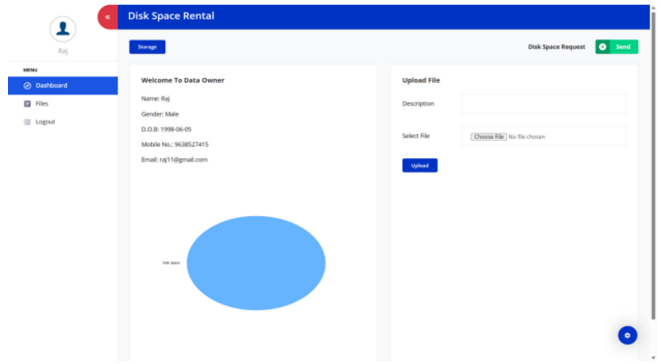

FIGURE 7. File Upload Form

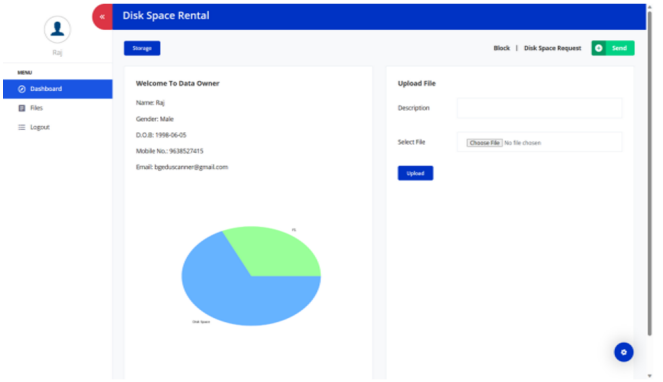

FIGURE 8. Availability View

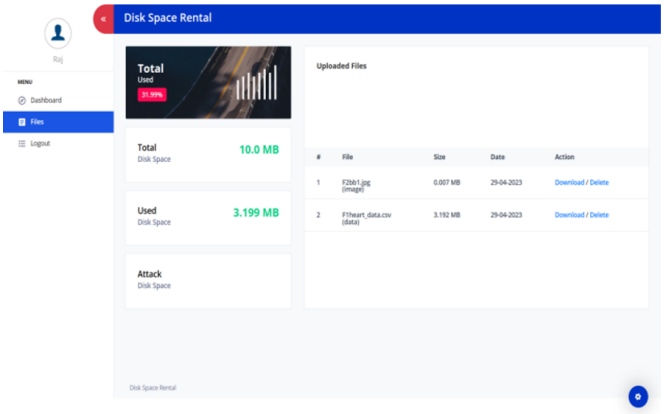

FIGURE 9. File View

6.6. Service Provider Page

The service provider consists of all the details about the user, like amount of space used remaining space, rent amount, etc. The Blockchain Based Disk space Rental System is a decentralized platform that enables users to securely rent out disk space to other users with the help of blockchain technology. The platform is designed to provide users with a secure and reliable way to transact and store data. The system is powered by smart contracts, which will

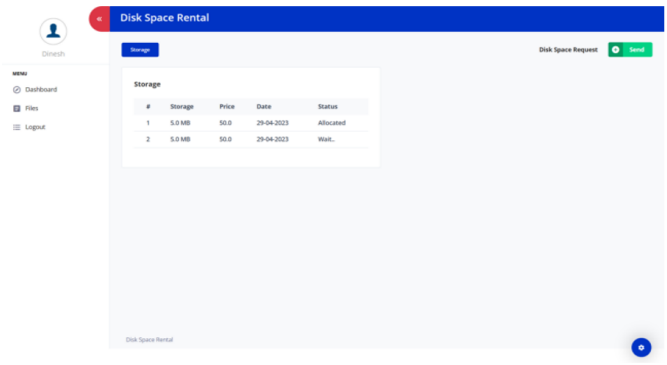

FIGURE 10. Allocation View

facilitate the rental process and ensure that all payments are made securely. The platform will also use encryption to protect users' data, and it will allow users to monitor their disk space usage in real-time. With the help of the Blockchain Based Disk space Rental System, users can easily rent out or purchase disk space without worrying about the security of their data or the payment process.

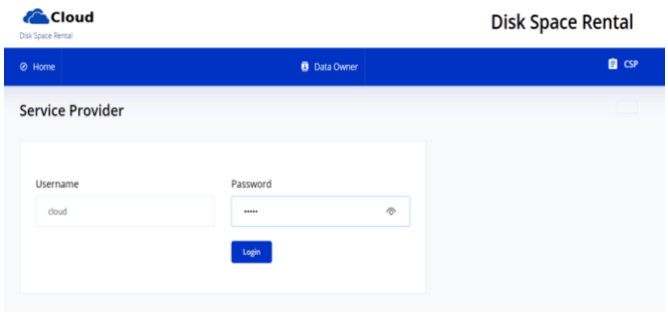

FIGURE 11. Service Provider Login

7. Conclusion

In conclusion, a blockchain-based disk space rental system has the potential to revolutionize the way we think about storage and data sharing. By providing a secure and decentralized alternative to traditional cloud storage providers, it offers cost savings, increased privacy and security, and greater user control. The disk space rental system using block chain provides a secure, reliable and cost-effective way to access disk space in the cloud. It offers a decentralized, distributed and immutable ledger to store data securely, while providing a trusted platform for customers to rent disk space without having to worry about the security or dependability of their data. Block chain technology also provides a platform for both providers and renters to transact quickly and efficiently, allowing for lower transaction fees and faster transaction times. While there are still challenges to be overcome, the potential applications of this technology are vast, and it will be exciting to see how it develops in the coming years.

8. Future Enhancement

As blockchain technology continues to evolve, so too will the possibilities for a blockchain-based disk space rental system. One potential future development is the integration of artificial intelligence and machine learning algorithms to improve the matching process between renters and providers. Another potential development is the use of decentralized storage solutions such as IPFS (Inter Planetary File System) to further enhance the security and efficiency of the system. Ultimately, the future of a blockchain-based disk space rental system is limited only by our imagination and willingness to innovate.

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