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Healthcare in Blockchain Tecnology

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ABSTRACT

Blockchain is a budding technology. It is used to create new ideas and solutions in different sectors, which also includes healthcare. A blockchain technology is mainly aims to provide secrecy and security, The blockchain technology in healthcare is responsible for maintaining patient records and details.

KEYWORDS: *Blockchain, Healthcare, Data storage, Clinical trials, Capabilities, Technology*

1. INTRODUCTION

Blockchain is a decentralised and public digital ledger that records transactions. The data about the transaction is being stored in blocks and the blocks are linked together. The data stored in blocks cannot be changed without proper authorization from network. Blockchain technology provides a secured transaction by giving zero chances of network getting hacked.

1.1 BLOCKCHAIN

Blockchain is a decentralised node network that stores the data. It protects confidential details within the system. The blockchain technology exchanges the important data and protects such data from being leaked or getting hacked. It gathers all the related documents and records in one place. There are different types of blockchain technologies like public, private, hybrid, or consortium. Each blockchain technology has its own pros and cons that has some significant changes in its application.

- The public blockchain is where bitcoin and other cryptocurrencies transaction takes place and it also involves distributed ledger technology (DLT). It overcomes the drawbacks of centralisation concept.

- The private blockchain works in a closed network or controlled by a single entity. It is similar to public blockchain.

- The hybrid blockchain has the advantages and properties of both private and public blockchain technologies. It is mostly used in business organisations to create private, permission-based system which allows people to access specific data.

1.2 USE OF BLOCKCHAIN IN HEALTHCARE

Day by day, there are many new emerging technologies and developments that are taking place in the field of medical science. Blockchain technology in the healthcare sector would provide new advancements along with facilities and improvements. The patient-centred approach plays a vital role which focuses on providing prolonged and quality life. The two aspects of patient-centred approach are: accessible services and appropriate healthcare services. The drawbacks in the traditional methods can be overcomed by blockchain technology.

2. ABILITIES OF BLOCKCHAIN TECHNOLOGY THAT HELPS HEALTHCARE FIELD

The blockchain technology provides many advantages. And one big ability of in blockchain is ledger maintenance technology. The ledger maintains secured patient medical records that helps the healthcare researchers to transfer medical records safely. The medical records also have details of drug supply chain. The features of blockchain for healthcare domain includes protection of healthcare data, personal healthcare record data management, point of care genomics management, electronics health record data management, managing electronic medical record data (EMR), interoperable electronic health records, tracking disease and outbreaks, safeguarding genomics, etc… The prescription for the patient becomes transparent process from manufacturing to pharmacy shops in blockchain technology.

Many healthcare fields in various countries have adopted this blockchain technology. In the upcoming days, the blockchain would definitely transform the healthcare system into an advanced system where the issues that are addressed in the system can be solved. The physicians, patients, and pharmacists can access the health records which results in improvement of lives. The medical firms all around the world are constantly discovering, exploring and experimenting new technologies in the blockchain technology. This technology has become an unavoidable instrument by providing features like improving payment options and decentralising patient health history records. The medical field is becoming highly dependent on blockchain technology. The blockchain technology uses blockchain monitoring technology to provide an advanced medical supply chain. A health record in blockchain consists of an individual's whole health history of diagnosis, test reports, prior regimes, and even measurements by intelligent sensors. Using this method a doctor can make the correct diagnoses and recommendations. The data is being stored safely in a single blockchain system.

The process of organisation's internal networks can be eradicated which results in saving time and cost. An organisation having many separate players and an encrypted blockchain database with various control levels can help such organisations from external risks and assaults. If an organisation successfully implements a blockchain network, it can be saved from rescue attacks and other issues like computer corruption and hardware failure.

3. RECOVERING HEALTHCARE SERVICES USING BLOCKCHAIN TECHNOLOGY ENABLERS

There are some on-ground industrial representatives of blockchain capabilities that are successfully implemented. There are many associated industrial or medical care supporters or providers, all those help in research and investigations. Some medical care supporters are BrustIQ, Guardtime, Robomed, Simply vital, Encrypgen, Chronicled, Tieion, etc., and they are responsible for supplying and favouring the practices of blockchain technology at basic levels.

In blockchain technology, new patient cards for medical practitioners are being developed in hospitals. New information is being added each and every day and this continuous process results in time loss. Blocks containing the medical information have a hash and it is connected to another block. Another big feature serves as a big advantage is data transparency which will lead to finding the issue and stopping the distribution of fabricated drugs.

4.WORKFLOW PROCESS OF BLOCKCHAIN TECHNOLOGY

The workflow of blockchain technology has its own merits and demerits from a healthcare perspective. The workflow process has several stages and they are claiming adjudications, supplying chain management, interoperability, single and longitudinal records and mastering patient indices. It is an interactive work process which delivers many benefits to the technology. The process starts with the distributed network flow, digitalised transactions, and shared data and ledger. All these help the blockchain drivers to work more efficiently to make healthcare services more healthier and more innovative.

The principle behind the workflow process of blockchain technology is straightforward and broadminded. They are continuously evolving, increasing the number of network blocks that adapt to the different industries according to their specific requirements. The framework of blockchain is independent which offers complete monitoring and fast refreshment results. Blockchain reduces financial failures during the transactions and minimises theft and illicit record transactions. It also provides solutions to arising problems and snooping of data. Blockchain technology plays a different role in various industries. It concentrates on establishing a good relationship between different parties and stakeholders. Blockchain provides an altered way from the present scenario where it provides an informed consent. The blockchain commits to exchange of clinical test records and this data paves way to new discoveries in the medical field. Patients can link to other hospitals and receive their medical information.

5. APPLICATIONS OF BLOCKCHAIN TECHNOLOGY

Blockchain is a new and upcoming technology. The services of blockchain technology have provided successful healthcare implementation. Many economical therapies are developed and treatments for complicated diseases are discovered with the help of blockchain technology services. The applications of blockchain technology are:

- Storing information of an individual patient
- Analysing the effects of a particular procedure
- Validating
- Safety and Transparency
- Clinical Trial
- Displaying Information
- Identification of false content
- Reducing needless overhead expenses
- Patient monitoring

- Creating research initiatives

- Maintaining financial statements in hospitals

- Improving safety

- Minimising data transformation time and cost

6. CONCLUSION

Due to the special features like decentralisation and encryption which lead to many applications from blockchain. One of the critical applications in blockchain technology is digital agreements allowed by intelligent contracts. This technology avoids the role of intermediaries during the payment transaction, by promoting the intelligent contracts. These intelligent contracts will minimise the unwanted expenses. The capability of blockchain technology in healthcare mainly depends upon the adoption of its new and advanced technologies. The emerging technologies includes:

- System tracking

- Healthcare insurance

- Medicines training

- Clinical trials

Blockchain framework provides the charting of hospital services. Like using the device tracking technology to record the complete lifecycle. This technology efficiently manages the patient's medical history that results in optimised data maintenance. It can be used to track the insurance mediation process as well. Therefore this blockchain technology could bring significant changes in the medical field, and it could change overall traditional methods to advanced way to treat patients and use clinical records efficiently and improve the quality of life.

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