A Systematic Review of Block-chain Technology

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Abstract: In this paper, a detailed review of the use of blockchain technology has been carried out. The use of blockchain technology in real estate, healthcare, e-voting, and agriculture is discussed in the study. It was observed during the review of various papers that in each of the domain, blockchain technology is used to provide a model which gives data transparency and security to the users. The data security is a major concern in each domain because wrong use of data. It can be harmful but it was analyzed that after the use of blockchain technology in these fields. More transparency and data security can be achieved as it provides decentralized database where all the nodes are shared amongst the members so data discrepancy cannot be done. If a member tries to do so all the other members will also get informed about that. The review of various research paper proves that blockchain technology is far better than centralized database system because in centralized database. Only few people have control and access so data can be manipulated easily and for the same reason, use of blockchain is rapidly increasing.

Keywords --- Blockchain, Real Estate, Agriculture, Healthcare, E-Voting, Data security, Data Transparency.

1. INTRODUCTION

Blockchain is a technology which works on the basis of distributed database where the whole database is connected to computer networks in form of nodes. All the information in blockchain is stored in digital form. The fame reason of blockchain technology is its use in cryptocurrency such as bitcoin and the reason this technology is used in cryptocurrency is that it provides a secure and decentralized record management system. The innovation of blockchain has made a great impact in the current world as it provides the data security without using any third party [1]. The use of blockchain is widely spreading in various fields such as real estate, e-voting, healthcare, agriculture, education, and so on and so forth. This technology is taking over the world as it provides transparency and data security which has been a great problem in each and every field.

We have carried out a detailed study of various research where blockchain is used in different fields for making it secure and transparent to use [2]. Whether it is the corporate world or educational sector, information is one of the vital elements and nowadays the data security has been a major concern because there has been no transparency in data dealing which has been observed through the study of various papers and there comes the

need of blockchain technology which addresses this problem and each of the paper which has been reviewed so the data transparency and security problem was solved [3]. Blockchain provides a decentralized database system where all the nodes are shared with all the members which provides trust and confidence to the user and no change can be made in the data because it will be visible.

2. LITERATURE REVIEW

The concept of emerging 5G technology can totally evolve the healthcare systems as it can meet the conditions like low latency, high bandwidth, and high energy efficiency. It is going to provide the solutions for all aspects of human life related to ample amount of traffic and emerging services. Blockchain integration with 5G technology can overcome all the challenges which can be faced when deploying 5G in healthcare systems. With the use of Blockchain technology with 5G in healthcare system, it will fulfill all the associated requirements of 5G with very much less management. Block chain is the only available technology which can be used to eliminate this challenge while implementing 5G in healthcare system. The integration of 5G technology with blockchain can cope up with these issues as the advantages of these technologies such as transparency, data privacy, decentralization, energy efficiency and much more make it suitable for healthcare sector. The focus of the research is to construct and implement a network of emerging technologies [4]. The concept was to use various technologies which included the use of cloud computing, artificial intelligence, big data, and IOT for making a system which could be used to share information related to patients. Having patients from different regions will also require accurate and detailed diagnosis of patient to provide a clear picture of the disease. Here in this paper, we have introduced a framework over the concept of parallel healthcare system which is based on computational experiments, artificial intelligence, and parallel execution. Parallel healthcare system based on the concept of artificial system, computational experiments and parallel execution was introduced in the paper. The model first trains the data for the prediction of diseases. Blockchain technology is integrated with parallel healthcare system to make it secure, reliable, and trustable. It will be further made better to make it detect more disease scenarios [5]. It has been analyzed that people care less about health these days until and unless something major happens with them. There is a dire need of such systems which could easily predict the condition of a person and it can be shared with the experts so it could be very much beneficial and convenient for the people in their busy lives.

The advancement in IOT and Blockchain can be used to develop such systems which can control the complete access, transactions, and storage management. The main hurdle in such systems is privacy of data because it can be recently seen that the data of the people are manipulated by the companies for their own benefits. Hence, the presented system takes the data from the smart wearables to provide them reports related to the health of a person. But accuracy and the correct use of data becomes quite challenging in such system and there comes in play the blockchain technology which overcome these issues and that's how the proposed system would work towards efficient, accurate, and secure healthcare system [6]. The advancement in the field of machine learning and deep learning have produced remarkable results. Keeping the data safety and integrity in view, Blockchain technology has introduced healthcare new dimensions. The Blockchain keeps track of all the movement related to system and whatever updates are brought in the data, so it simultaneously takes place at each users end who have access to the platform. Machine Language technique namely federated learning which is used to train the model proves to provide the best accuracy as compared to the models which were trained using other platforms. If we think about the pandemic like situations so it makes us realize the need to build such robust AI model with data safety and protection and for doing it, Blockchain can be the most useful technology in current time. The application is not yet developed and tested in real time environment, but the study proves that the proposed model would definitely work well in real time environment [7]. The healthcare industry has been lacking in adopting the advanced technology for their supply chain management. In a report, issued by healthcare finance which stated that about $25.6 billion is spent on unnecessary supply chain activities in one fiscal year. Healthcare sector greatly depends on group purchasing organizations to run the supply chain of things related to healthcare sector. So, here we propose a system where GPOs will be integrated with Blockchain technology to automate GPO contract process and it will result in speeding up the distribution amongst healthcare system. Therefore, we have proposed a system which will collaborate blockchain and decentralized storage system for data transparency amongst various stakeholders. The system also makes sure that there is no error or changes in pricing and the communication between stakeholders is streamlined. The system only allows registered users to access and communicate which

eliminates the chances of any sort of trust issues because only authorized people will have access to the system which makes it transparent. We will work towards complete automation of other affiliated process for the stakeholders in future [8].

For development of detection systems, data is the most important factor because without the data, no processing can be done. There comes the need of Blockchain as it provides decentralized database which makes no compromise over data security and readability. Blockchain has interconnected nodes network which carry a copy of data of every single transaction. The data from Blockchain database can be directly sent to machine learning models for training because machine learning models have been significant in multiple sectors which includes healthcare, marketing, and e-commerce. Such models can play a vital role in advancement of healthcare sector as it directly deals with human lives that is why such accurate, secure, and precise models will be helpful for doctors as well as patients [9]. This technology is being explored and exploited by big organizations due to its several advantages. Healthcare sector is also making untiring efforts to adopt modern technology to improve the services which are provided to the patient. The integration of Blockchain in healthcare will fill the gap which is coexisting right now in the healthcare sector. This technology is currently being used for data management and security for smart healthcare platforms. In this paper, collective effect of smart health platforms alongside Blockchain technology has been explored. Improvement of healthcare sector services by bringing blockchain and context aware smart approaches together and such general frameworks must be motivated because such systems can overcome the challenges which are occurring in healthcare system. The study provided analysis over sharing of data in smart environment, consent management, and common research approaches [10]. It is being realized that the use of Blockchain technology is not only in finance sector in fact it can be used in various other applications such as IoT, supply chain management, healthcare, logistics, and may more. All the record of the patient is stored in decentralized database keeping the privacy of data intact.

Even if the patient changes its consultant so the record can be shared with the new one which will save a lot of time of patient through electronic medical report (EMR). In tele-healthcare system, data is transferred to the professional doctors and as it is done digitally so patient can access the Consulta from any part of the world and the advancement of Blockchain technology in healthcare will make our healthcare system better. The record of the patient is also stored in form of electronic medical report (EMR) with proper privacy and authentication by the use of blockchain technology. It will save patients from maintaining the manual records and carrying them on every visit to their consultant in fact the EMR will be there to access patient's record [11]. There has been minimal amount of research carried to bring together healthcare, blockchain and IoT to make one robust platform which could work towards the betterment of healthcare system. In this paper, different scenarios are being exploited which can be beneficial for Integration of all these things into one platform. This paper gives the essence of background of blockchain and IoT, optimum applications which can be implemented and how can all the data be processed securely by the use of these technologies. There shall be put more focus on implementation of this framework in IoB healthcare data flow by using cost effective and reliable technique. Machine learning algorithms must be analyzed as it may work best with electronic healthcare record systems [12]. Healthcare sector greatly involves data and the amount of data increases with each passing day. The block-chain in the start mainly focused to build virtual currency but slowly and gradually, other sectors also started to explore this technology and after the mid of 2017, the blockchain technology started to become part of other fields as well. Centralized and decentralized database both have their own pros and cons but, in this paper, it is explored that what impact will the implementation of blockchain make towards the quality of a particular system to discuss that how can it be used in healthcare as per the analysis made through various scenarios. The potential use of blockchain technology is classified as it has been stated that current EHR market is valued at $20.55 billion in 2016 which will increase to 169.2 billion by 2025. A block containing medical result will work as an off-block API that will be used to have a look at the whole medical records [13]. Importance of blockchain technology in the field of supply chain has been brought into view in the report published by 19th National Congress of the Communist Party of China which clearly stated that supply side reforms are need of the time because supply chain plays an important role in almost all the industries.

The integration of blockchain technology with supply chain financial platform will correspond amongst all the users to form cooperation and sharing of data with transparency. It will be challenging to implement all resources which are relevant to the supply chain because many participants will not agree to be the part of commercial landing. It will be the responsibility of big enterprises to start implementing it so that slowly and gradually others also become part of it [14]. Excel sheets were used in the start to store the data, but this method

was ineffective and viable. Hence, Cloud service providers came into play which provided centralized database that is either hosted on the sever owned by company or else some digital server provided by some other company. But this technique also has many problems such as the data stored can easily be lost because if any error occurs in the server so this would result in losing the data because centralized servers store all the data at one place. Another problem with such services is that the company becomes dependent on one vendor because switching between vendors for cloud storage service is costly. Here, by using blockchain technology, a cloud-based supply chain management platforms are designed alongside SELAT. This platform will work as a broker between company and the cloud service providers by providing suggestions to the user after making comparison between various offers given by different cloud service providers. CLOUDITY also keeps the data security in mind which is why blockchain technology is integrated in the system to make it secure. The proposed platforms works more effectively and in a better way for supply chain management [15]. This research focuses on the use of blockchain technology to build a sustainable management information system for medical equipment supply chain. Whereas it is considered that encryption, hash, digital signature, and P2P are part of core technology of blockchain but here it is used for such a system which will cover every aspect and person linked to the supply chain of medical equipment. The system will realize the full cycle of medical equipment and would strengthen the management of medical equipment so that safety and cost control can be attained in supply chain management system. Hence, deep analysis over the study has been carried out to ensure the safety of medical records, control the cost of medical equipment and enhancing the traceability of the system [16]. It is beneficial in FinTech, Identity management, cyber security, governance, e-voting, and data storage. It used a decentralized network of computers which offers secure transaction of data. Supply chain tracking has been greatly inclined towards blockchain technology as it provides trusted data collection and storage. It gives a secure method to perform peer to peer payments between end users and producers. Keeping all these needs in view.

A platform independent, generic purpose and blockchain driven supply chain tracking system is developed which enables transparent and trustable tracking. The system is not dependent on any sort of hardware as it can enable transfer of information and tracking among various objects [17]. The study work to build an application using blockchain technology which is going to generate opportunities for medium and small-scale business development. It can be done by using blockchain for big data analysis which will bring affirmative response towards improvement for resource information integration which can be used to control supply crisis. The two aspects of connecting supply chain with blockchain technology are that it will hinder the occurrence of fraud and it will also make supply chain work faster and more efficient. Tracing of objects, transactions and courier can be certain out with high accuracy. The blockchain technology will also make the transaction system more secure and it will have less cost by improving the overall supply chain management [18]. Block-chain system is used in supply chain management to ensure transparency and trust between the end users. The manual data is digitized by the companies which uses blockchain technology and then it creates a decentralized for access and transparency of data. Industries are moving towards implementation of such advanced blockchain systems for transparency, trust, and security. The paper discusses the issues which are faced by the use of blockchain technology in supply chain and the use of security of data and traceability which are part of new methods of blockchain. It has uncountable benefits as it gives a proper structure to the supply chain and makes it cost effective. It allows the users to make selection from the various offers through it can go for effective and cost-efficient method to fulfill the needs [19]. Supply chain management plays a paramount role in each industry as it controls and supervises all the work amongst different vendors, consumers, and manufacturers. The main purpose of this study is to highlight such framework which focuses on every issue faced in supply chain sector by checking the suitability of blockchain implementation.

The study focused on the four main approaches of supply chain management which are demand management, order fulfillment, management of manufacturing flow, and management of supplier relationship. As blockchain technology is more inclined towards decentralization which cater the need for trust [20]. Financial flow, material, information, and many more things are part of the supply chain management. Less transparency in supply chain cycle affects the overall decision-making capability of the vendors, manufacturers, and suppliers because until and unless they have clear picture of the cycle, robust and sustainable decision cannot be made. Blockchain technology provides a solution to this problem as it shares a copy of unchangeable data to all the parties related to the supply chain cycle which improves the transparency and makes it easier to take reliable decisions. The work would contribute towards the implementation of blockchain technology in the field of retail market. The full fledge implementation of blockchain in retail market does require deep analysis of each and every aspect but keeping the

numerous benefits in view, rules and standards shall be governed for implementation and use of blockchain in retail market [21]. Block-chain technology is used for the purpose of keeping track of perishable food product supply chain. Without the use of blockchain, it brings a lot of uncertainty in supply chain cycle been data can be manipulated which will bring trust issues between supplier and consumer as both the parties are aware of data discrepancy. Block-chain will provide data related to temperature control for products such as export of fish and the data will be shared at both ends so that it cannot be manipulated [22]. There are smart contracts in blockchain which are agreed by both the parties because it cannot be manipulated. The agriculture system requires the implementation of blockchain technology so that transparency can be brought in this sector. The deployment of blockchain technology in supply chain of Indian agriculture pointed out many issues which can now be eliminated. After the use of blockchain, data related tasks which are collection, storage, and verification so they are carried out in a more reliable and transparent way. All in all, improvement in the industry will be achieved through blockchain and it will also reduce wastage and would increase efficiency [23]. The damaged occurred to the environment has made the organizations to ponder upon the concepts of smart cities where operations such traffic and water management, public safety, voting and many more things are carried out through the use of technology.

Block-chain technology is rapidly growing among various sectors, and it is being given a thought to implement this technology for voting purposes as it will make the voting system more secure, reliable, and trust-worthy. The study highlighted attacks that may take place in smart city voting systems. The use of blockchain technology successfully alienates the threats related to privacy and trust issue [24]. There are various ways which are being used for voting such as show of hands, ballot vote, e-voting but all of them have great chances of discrepancy in the data. Block-chain technology is used to propose such a system which provides data integrity, security, and transparency by providing decentralization which doesn't allow control of one organization over the data. Ethereum network is used to deploy the electronic voting machine in the paper. The user interface of the machine can further be improved to make it more secure by integration of further authentication methods [25]. Recently a reform took place which gave birth to new democratic form which is the combination of direct democracy (DD) and Liquid Democracy (LD). It is next to impossible to bring any representative to the books in today's democratic world because there exists no such system but with the use of blockchain technology and Liquid Democracy, it can be made possible. A protocol for liquid democracy in collaboration with blockchain technology is proposed to bring accountability and trust in the voting system which has been missing from start [26]. Ballot vote or e-voting has issued that discrepancy and fraud in the data can be done due to centralized database whereas blockchain provides the solution for all the problems which are being faced in centralized voting system. With the use of Ethereum blockchain technology in the electronic voting machine, the system was made more secure and all the security issues and limitations which were found in centralized voting system were tackled by blockchain technology. Real time support makes the system more reliable, flexible, and safe for voting and there are no chance of duplicate votes [27]. The main focus of the paper is to eliminate the centralized voting system and bring into the use of decentralized system with the use of blockchain technology. E-voting system using blockchain is more reliable and secure than electronic voting machine because it will be online thus it will provide total confidentiality to the voter.

A voter will be able to cast only one vote because the system will not allow to cast the vote more than once and for doing so, the user will have to break into whole system and would have to introduce a new node of another vote which is not possible. The e-voting system based on Ethereum blockchain technology is used to store candidates and voter's data and other important details and this system outcaste all the boundaries which are faced by centralized voting system [28]. The research on Real Estate is a one complex assets class. It differs from buyers to assets classes by having very high transaction investment; land area uses other carriers to entry, long lasting improvement, and a relatively slow reaction of suppliers to change in demands. These types of categories have paying roll of implications for the overall efficiently of the market based. In return process a greater accuracy of advance technology. Blockchain technology has impacted the real estate industry in a variety of ways, including offering a new means for buyers and sellers to connect with one another. Block-chain technology has the potential to drive competency, accountability, and profitability within the real estate industry by removing the existing at a particular time in the system [29]. In this paper, successful solution to incorporate with blockchain. Defining a blockchain mechanism free exchange between various users and making each transaction verifiable and auditable and describing about accelerating the process where a distributed database will create by blockchain and land recording platform to allow everyone to record and access information. The goal of this study is to access whether introduction of blockchain technology into existing land record manage business process is provide flexible

solution. A literature review is conducted to discover the problems to buying a land three aspects are required in blockchain characteristics are i) using cryptography information is saved ii) link within the network to other nodes. iii) Distributed records can access add information to the network centralized authority [30]. Main focus on formation performs digital environment for managing all components to ensure a vast of activity in real estate. The goal of this work gets it from accounting in a develop system for mutually settlement.

A block diagram shows flow chart of transaction execution algorithm. Mathematical models describe distributed ledger is based on client server architecture. A petri-Markov net model is also solving for diagrammatic way. As in computer simulation result shows request rate (quantity/msec); and number of requests; application server queue (quantity) and database server queue (quantity) these entire on test wise basis [31]. Real estate transactions are often conducted face to face involving arrangement with their entities. The introduction of smart contracts in blockchain platform now allow assets like real estate to be tokenize traded cryptocurrencies like bitcoin and other. Researcher more write over here about i) platforms and marketplaces ii) No intermediaries iii) Liquidity iv) Fractional Ownership v) Decentralization and vi) Costs. Some of Investopedia requires primary source to support their work. Blockchain could be used to cut intermediate out of the real estate transaction process, thereby reducing cost. In this technology help the practicing of fractional ownership of real estate [32]. A researcher can work on paper files and extra mortgage documents insurance papers bills whenever you buy a new house all these things need of this type of legal issues, we faced but a new technology is called blockchain connect and track the owner puts all thing. The manual approach is taken by the blockchain in a distributed manner but not having the central appraoch. Authenticate a transaction occur agree that it's accurate. Once the block transaction page filled it's permanently recorded and new blockchain is working on. Blockchain can't be change once it's verified. It means every single transaction retrieved forever, creating a radical of new kind of transparency. Block-chain environment tells the person trust on it. A house will continue collecting records this information through a network of blockchain-enabled services, including identity, storage, and transaction token. You can buy a cheaper comfortable and good service provider house [33]. Block chain provides such kind of security that needs in real estate. Think in a mind to buy a house. All the records are maintained in form of paper along with the agreement which has been provided and legislated by the government while purchasing a new house. This procedure is simple; you can buy a home get it registers in ledger and you have got you property. If possible, your page is damaged or you lost or may be torn, might be your home apart from the deed.

Such kind of problem researcher can solve and made a smart contract by you lightly and provide as a new block chain. First block is called the genesis block. One frame of the blockchain represents one part of whole chain while the other shows the server. Personal smart contracts and blockchain is created using Ganache. It allows running and executing chains and controls all operations that you can perform on it [34]. Real estate is the safest way to invest their payment get after few years return double or triple benefits. Such as their rate according to research or survey-based result come from real estate class is the single largest asset globally with over 147.08 GBP. Commercial real estate is slow and problematic to transform its business way. Brokers can manage to handle cash flow and gather real and authenticated data from buyers. Here researcher gives their idea about using blockchain technology it's quite difficult of their concept, but its core concept is simple. It's a digitalized system over connected with network of all systems linked via blockchain (Conway 2020). It's also work as database, but the difference is centralized. Blockchain make secure copy of all records [35]. In this paper importance of real estate enhance the country economy. There are many of current people searching for a property, lease agreements, sale and purchase, money transactions, involvement for commercial real estate and residential real estate. Using the most common algorithms; SHA-1 and SHA-2 (secure hash algorithms). Discussed more in public blockchain it is a central authority controlling not restricted a single entity. Most important algorithms like proof of work or proof of stake etc. All connected nodes executed crypto currency, bit coin and ether. Smart contracts show their work on diagrammatic model. Light on some problems had faced in real estate business like, frauds, liquidity, and others. Benefits by using blockchain in real estate like; cost saving and efficiency, smart contracts trust and transparency, financing, and tokenization. Researcher more focused on blockchain in all problem one solution in real estate [36]. Motivated the recent interest around in blockchain they made a good fit here internet of things (IOT). Here blockchain allow to multiple steps for processes and move into the internet of things domain and combine both into one frame. Facilitate according to market level required give service between two devices.

Allow the user by cryptographically verifiable and time-consuming workflow. This technology explosion of interested with a blockchain place applications that previously run through intermediary operate decentralized fashion need for central authority. IOT devices made up contracts in physical world. Hope more work in future

this field much better and safe any biggest frauds [37]. In real estate area a vital role plays by blockchain in smart cities. Blockchain distributed publicly registers / ledgers for all type of transactions between user and the administrative to control the system through network of computer nodes in the peer-to-peer (P2P) networks. Block-chain 3.0 used for decentralized the digital society relate to internet of things (IOT), health and government entities. In this paper discuss about smart contracts for real estate and smart cities domains. Researcher cans their work into two groups 1) Key contributions of Proposed Work and 2) Background and Related Work. In Table1: describe Network types of blockchain with smart contracts Ethereum /Hyper ledger and with cryptocurrency transaction bitcoin in multichain. Researcher made a real time model for proposed illustration of blockchain layers. Some of smart contract in blockchain technology for real estate are Different parties can modify database, Trust less among entities and parties, Advantage of disintermediation and Transactions advantage [38]. This system involved so many peoples and middleman and currently depends on huge workplace for a nation which could be done by a proper and authenticate system and also reduce the smaller people. People faced the incomplete or damage records. All these types of issue researcher highlighted the system have a blockchain. Blockchain distributed and decentralized in nature nodes of blockchain network. Transferring the property by cryptographically secured with public and private keys and blockchain secured for data records. Researcher writes in the paper about secure and existing system of land registry through block-chain technology [39]. Drawbacks of real estate over 200 trillion USD largest globally class not complicated but also costly, non-transparent inefficient. Commercial real estate industry is slower than the international industry. Commercial brokers and other middleman are work hard with old traditional technology.

Block-chain introduced smart contracts for new sets of frameworks to create new generation of markets where supply and demand of transaction secure. Difficult thing to remove middlemen classical issues in real estate for that purpose using blockchain technology helps to fulfill these plans. Secured and benefits with a stable price token in real estate. Other benefits are their longevity, faster transactions, and lower transactions cost [40]. While the procedures of second-hand transaction houses are sale make a contract, paying and clear bill taxes and then apply for transferring registration. Most of buyer and seller purchases intermediate agent or contact the agencies. While all occur, problems faced by the multiple issues solution in one blockchain decentralized ledger. The platform of real estate registration is department system database. The financial department participate directly commercial housing [41]. Idea of researcher in this paper to secure and safe the sensitive data and information like land and property paper. Introduced the new technology is blockchain where's the blockchain transactions decentralized ledger recording the data and manage by cluster of computers not owned by any one of single person. Anyone can access the network it automatically receives any changes the data. Concept of smart contracts computer protocols perform digitally for smart contracts. Current centralized system has issues failure and chances to forgeries frauds. Thus, for that problems blockchain can solve the problems of current centralized system. This system is designed for secure, safe the data to store and retrieve for authentic person [42]. Researcher can work on this paper about South African sector can be describe third parties involving and high transaction cost taken risk of frauds in real estate business. This issue is not only South Africa whole the world faced the same type of problems. The process of buying and selling the property transaction cost increasingly high. For these reason blockchain technology introduced to modify the alternatives distributed technology and share information through network. Provide a secure framework to store data into database. Blockchain introduced online platforms and portals. In this researcher can implement the conceptual models which highlighted in different processes in real estate transaction. Two different diagrams are unique study to resolve the problem in real estate by using new technology blockchain system [43].

3. TECHNIQUES

Here in this section of the paper, we have discussed the methodologies which have been used in those forty papers which we have reviewed. We have created a table which contains name of paper and methodology:

Reference No	Methodology
1	Block chain based network consisting of D2D communication, Edge Computing, NFV technology and SDN methodology.

2	Artificial trained system for healthcare in parallel manner to carry out execution and computation in a parallel appraoch.
3	Fetching and sensing data through Internt of things. Blockchain is utilized for management of ample amount of data transactions of patients. ML algorithms are used to train and test the model.
4	Federated Learning technique based on Machine Learning to train the algorithms by using blockchain technology.
5	The system is built with approach of using smart Ethereum contracts based on GPO Blockchain and decentralized system for storage.
6	Various ML algorithms such as support vector machine, decision tree and naive bayes with Blockchain.
7	Blockchain and context aware smart contracts. The techniques of longitudinal healthcare records, automated health claims adjudication, interoperability, online patient access and medical operations management.
8	Creating electronic medical record and smart contracts in decentralized database storage by using blockchain and machine learning.
9	Comparison of various blockchain platforms for E-healthcare. Carrying out analysis on different use cases of medical records, supply chain management, IoT based blockchain integrated framework.
10	Performing in depth study to check blockchain quality requirements in healthcare systems under following conditions: Availability, transparency, security, performance, and usability.
11	Digital bulk commodities service platform based on blockchain under key steps for optimization: Using electronic warehouse receipt, connect bulk e-commerce resources, expansion of support platform, and satisfy financial needs of customers.
12	CLOUDITY has four main parts: SELAT system based on JUGO architecture, SCM system, CSPs, and Blockchain system.
13	Full life cycle theory based on blockchain for medical equipment methods such as production management module, Access management module, storage management module, and traceability management module.
14	Decentralized application using Ethereum blockchain technology for supply chain tracking.
15	Methodology for basic architecture of blockchain in supply chain is checking application characteristics, continuous improvement, and integration.
16	Supply chain model, development and constraints of supply chain finance model, adaptability analysis of supply chain model based on blockchain, Supply chain financial model solution using blockchain technology.
17	In depth analysis of various blockchain technologies to check the characteristics and decentralization concept for building a generalized platform for supply chain management.
18	Analysis on blockchain implementation in retail industry, loyalty programs and supply chain.

19	Distributed ledger design for cold supply chain based on blockchain technology and analysis of detailed study on cold supply chain.
20	Implementation of blockchain for agriculture supply chain improvement and using decentralized database.
21	Constructing a blockchain based e-voting system by checking it in various parameters such denial of service and distributed denial of service attack, message alterations and delay.
22	Ethereum blockchain network created by using Ganache under proposed system architecture with four main constrains: Registration, authentication, voting, and results.
23	Distributed ledger for liquid democracy voting based on blockchain and study of democratic models.
24	Truffle framework for decentralized application by the use of Ethereum network based on blockchain. Tackling of data manipulation issues by using blockchain.
25	Ethereum for smart contracts. Ganache used for testing. Development, testing, and deployment by using truffle framework and meta mask as browser wallet.
26	The methodology which is utilized is qualitative in nature. The connection amongst practitioner, literature study, and development work is emphasized. The motive is to make platform for bringing practical and theory concept together so that a practical implementing solution is achieved related to real estate management processes.
27	Satisfying quicker completion, property automatic warnings, clearer transactions, versatility, and flexibility improve a blueprint of the implement by using blockchain. Applying postman by (schema mapping) Node.js by JavaScript. Implement of blockchain for land registry.
28	Author can apply different strategies and technique some of block diagram wise researcher explain of theory like flowchart transaction execution algorithm present, petri-Markov net model present image and performing of computer simulation models here is also develop a smart contract system for electricity supplies and class diagrams and much more technique apply.
29	A blockchain digitally distribute, decentralized, public ledger that exists across a network. It is work on cryptocurrencies and NFTs. Applying bitcoin maximalism over cryptocurrencies and more future. And much more applying financial technology- Fintech Definition and Non-fungible token (NFT).
30	Blockchain is poised to make a sea change in just about every industry and business, even real estate.
31	The proposed model makes the purchase and sale of property reliable and convenient by deploying blockchain. Angular framework is used to build the front end of the model. It is an easy to code and maintain programming language. Whereas truffle framework is deployed for the backend.
32	Discussion based approached in blockchain making smart contract in real estate. Older traditional contracts can replace over smart contracts which are automatically controlled and maintain records and data of payments transactions on regular basis without any requirement or any type of discussion.
33	Impact of blockchain using in real estate, blockchain trade, blockchain worth, blockchain decentralization, blockchain cost, source of blockchain, security of blockchain, integrated blockchain activities, blockchain growth and blockchain development.

34	Describe the reaching consensus on the network, transferring digital assets on a blockchain show the transaction in block diagram way how the inputs and output assets and its quantity work on tokenization. How smart contract work, blockchain taxonomy, explain how blockchain and IOT work together and deployment consideration.
35	In making design phase real estate smart contracts functions, Functions-Created and Functions started, and function rent collection and functions terminated. Real estate smart contracts processes making rent contract signature process and rental payments process in last termination of rent contract process. All schemas made by real in diagrammatic way to understand and how system works. In Implementation phase code.
36	In this paper researcher write the coding in each their classification. Identity mapping UID, property mapping UID, genesis transaction, key generation for UID and transaction procedures this system worked on any framework APIs.
37	Set the real estate in entities wise owner receive monthly profit using smart contracts tenant also using smart contracts investors has platform's token by using smart contract where's the buyer want to sell their house using smart contract and in end seller want to buy a house using smart contracts. Discussion is based in facilities and innovation formal representation.
38	Real estate transaction platform based on blockchain, system design shows flow of system in each steps system structure using web application layer, smart contract layer, consensus layer, network layer and data layer describe in pictorial form and descriptive form.
39	System architecture work on admin/ land inspector government authorized. Buyer contacts he government authority where's seller person whose property details stored into the database system more explained in working.
40	This paper researcher implements within the paradigm. Opportunities for blockchain in real estate are immutable records keeping, smart contracts, cost, accessibility, speed, and transparency.

4. CONCLUSION

A detailed study of use of blockchain technology in various fields resulted that the blockchain is the most useful technology in current times as it is solving the issues in almost all the domains and the use of blockchain technology is expanding with every passing day. It is being used in healthcare, agriculture, education, e-voting, music royalties, real estate and so on and so forth. This technology is getting a boom because it is providing the solution for data transparency and security which has been a biggest challenge till now but through study, it has been analyzed that if blockchain is implemented over a system so it is next to impossible to manipulate the data as it provides decentralized database system where the nodes which contain the data are shared with all the members so in case of any change, all the members get notified and the study proves that blockchain can be implemented in any domain and it can tackle best with the discrepancies which are underlying in current systems.

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