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VALIDATION AND VERIFICATION of BLOCK CHAIN BASED DIGITAL CERTIFICATE

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Abstract— A blockchain is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain. A blockchain is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain. image manipulation has become very easy. In the digital world, each and everything is digitalized in which the certificate of SSLC, HSC, and academic certificate are digitalized in the educational institution and provided to the students. Students are difficult to maintain their degree certificates. For the organization and institution, verification and validation of certificates are tedious and cumbersome. Our project will help to store the certificate in the blockchain system and provide security. First, the paper certificates are converted into digital certificates. The chaotic algorithm is used to generate the hash code value for the certificate. Then the certificates are store in blockchain. And these certificates are validated by using the mobile application. By using blockchain technology we can provide a more secure and efficient digital certificate validation.

INTRODUCTION

Information technology has developed rapidly in recent years, data protection is more necessary than ever. Graduates, whether they choose to continue studying or start job hunting, require various certificates for interviews. However, they often find that they have lost their educational and commendation certificates. Reapplying for hard copies can be time-consuming because certificates are granted by different organizations and in-person application may be necessary. By contrast, applying for an e-copy can save paper and time. By providing information for identity verification, graduates are able to apply for any certificate easily. Advances in information technology, the wide availability of the Internet, and common usage of mobile devices have changed the lifestyle of human beings. Virtual currency, digital coins originally designed for use online, has begun to be extensively adopted in real life. Because of the convenience of the Internet, various virtual currencies are thriving, including the most popular—Bit coin, Ether, and Ripple —the value of which has surged recently. People are beginning to pay attention to block chain, the backbone technology of these revolutionary currencies. Block chain features a decentralized and incorruptible database that has high potential for a diverse range of uses. Block chain is a distributed database that is widely used for recording distinct transactions. Once a consensus is reached among different nodes, the transaction is added to a block that already holds records of several transactions. Each block contains the hash value of its last counterpart for connection. All the blocks are connected and together they form a blockchain. Data are distributed among various nodes (the distributed data storage) and are thus decentralized. Consequently, the nodes maintain the database together. Under blockchain, a block becomes validated only once it has been verified by multiple parties. Furthermore, the data in blocks cannot be modified arbitrarily. A blockchain-based smart contract, for example, creates a reliable system because it dispels doubts about information's veracity. Because information technology has

developed rapidly in recent years, data protection is more necessary than ever.

LITERATURE REVIEW

In this study, we developed a decentralized application and designed a certificate system based on E/thereumblockchain. This technology was selected because it is incorruptible, encrypted, and trackable and permits data synchronization. By integrating the features of blockchain, the system improves the efficiency operations at each stage. The system saves on paper, cuts management costs, prevents document forgery, and provides accurate and reliable information on digital certificates.

Generating E-Certificate and Validation using Blockchain

Lakhs of people getting Degree's year after year, due to the lack of effective anti-forge mechanism, events that cause the graduation certificate to be forged often get noticed. according to the Indian Ministry of Education statistics, document certify of of document verification is a complex domain that involves various challenging and tedious processes to authenticate. Certificate of Blockchain is a large and open-access online ledger in which each node saves and verifies the same data. Using the proposed system manual proposed block chain-based system reduces the Like hood of certificate forgery. The processes of generation certificate granting are open and transparent in the system. Due to the lack of an effective anti-forge mechanism, events that cause the graduation certificate to be forged often get noticed. In order to solve the problem of counterfeiting certificates, the digital certificate system based on block chain technology would be proposed. For students, educational certificates are the most important documents issued by their universities. However, as the issuing process is not that transparent and verifiable, fake certificates can be easily created. A skillful generated fake certificate is always hard to detect and can be treated as the original. With the increase of forged documents, the credibility of both the document holder and the issuing authority is jeopardized. In order to solve the problem of counterfeiting certificates, the digital certificate system based on blockchain technology would be proposed. By the modifiable property of blockchain, the digital certificate with anti-counterfeit and verifiability could be made. The procedure of issuing the digital certificate a in this system is as follows. First, generate the electronic file of a paper certificate accompanying other related data into the database, meanwhile; calculate the electronic file for its hash value. Finally, store the hash value into the block in the chain system. In this research, the authors have identified the security themes required for document verification in the blockchain. This research also identifies the gaps and loopholes in the current blockchain-based educational certificate verification. The system will create a related QR-code and inquiry string code to affix to the paper certificate. It will provide the demand unit to verify the authenticity of the paper certificate through mobile phone scanning or website inquiries.

Integration of Digital Certificate Blockchain and Overall Behavioural Analysis using QR and Smart Contract

The Main purpose of this study is to develop a theoretical framework for blockchain. Our aim is to identify the barriers and main drivers of digital innovation and explore the possibilities of applications of blockchain. A case study approach is applied: the Norwegian offshore industry. Primary data is collected through the interviews and secondary data is collected from reports of industries and companies, the Internet, and national and international media reports. We have discovered that intensions of cost reduction, and the amount of large data that maritime companies should process, along with the effective work intension, are the main drivers of digital innovation. On the other hand, the bad quality of internet, high-cost implementation, the technology-oriented

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culture, the lack of investment initiatives, and risk aversion are the main barriers. Some of the barriers and motives of digital innovation and the introduction to blockchain technology were pointed out by earlier studies. However, we have identified many unique drivers and barriers specific to the industry. Finally, the framework of blockchain process developed.

Blockchain and Smart Contract for Digital Document Verification

Every year lakhs of students graduating from different university, after passing from university different students have different plans. All students who graduated will have different certificate such as marksheets, degree certificate, best performance certificate and etc. Some students have plans to get employed in companies or to do higher studies. Wherever students go they need submit the certificate for important reference. Due to lack of anti-forge mechanism some started to forge the certificate to get the employed or for further steps. In the digital certificate verification based on blockchain done only for the degree certificates. In the proposing system along with the degree certificate entire personality and behaviour activities of the person using personal id will be uploaded in blockchain. Because of unmodifiable property it is stored in block chain. Initially the student request for the e-certificate by uploading certificate or personal id to electronic certificate system. If requesting for e-cert then the system will review certificate from the university or schools or from organization and get the assurance and store the serial number and e-certificate to the block chain. The system will be generating the QR code and send it to the user. when applying for company user will send only the certificate serial number and QR code received from the e-certificate company

RELATED WORK

Save Certificate with Digital Signature: Using this module admin user can upload student details and student academic certificate and then application convert certificate into digital signature and then signature and other student details will be saved in Blockchain database.

Verify Certificate: In this module verifier or companies or admin will take certificate from student and then upload to application and then application will convert certificate into digital signature and this digital signature will get checked/verified at Blockchain database and if matched found then Blockchain will retrieve all student details and display to verifier and if match not found then this certificate will be considered as fake or forge.

EXISTING SYSTEM

Existing system based on consortium block chain technology. They used a secret sharing scheme. It can validate the digital certificate to protect the user's information and also the property of the user. The digital certificate revocation lists have collaborated among the CA The trust and reliable CRL (Certificate Revocation List) are more compared with the traditional system. If the user wants to verify the certificate, they only need to decrypt the signature with the public key. And the result will be compared with the hash operation of the original message. If the result is consistent, it proved that the digital certificate not tampered. But there is a false sense of security.

Disadvantage of Existing System:

1. Security is less.

PROPOSED SYSTEM

In this proposed system the academic, sports certificates are converted into digital certificates using sampling and quantization. Then the certificates are added with the hash values generated for the digital certificate and store it into the blocks. The chaotic algorithm used for generating the hash value. Each block consists of the hash value, timestamp, and hash value of the previous block. These blocks are linked together in

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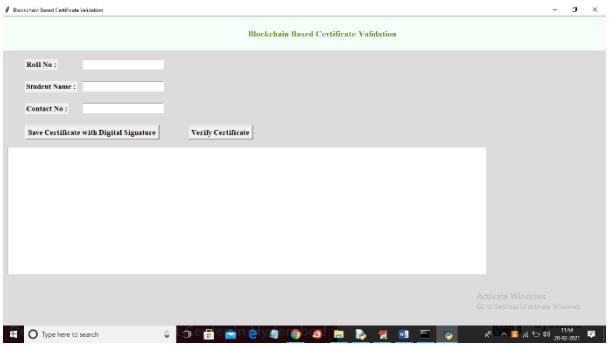
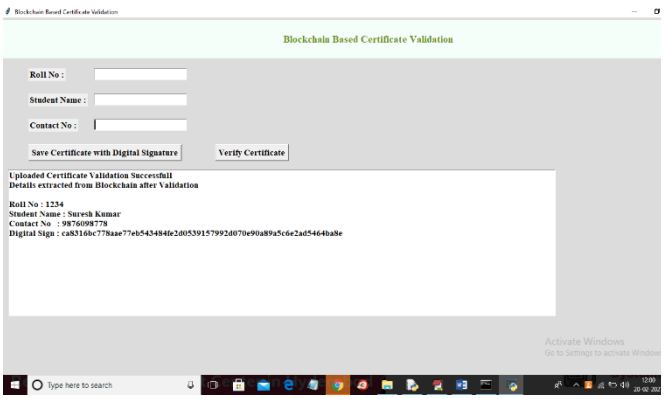
the form of blockchain. The institution registers the student details in our interface (application) by providing details like name, email id and these are stored in the database. The certificate issued by the registrar is stored in the application and they form a blockchain. The employer or verifier can validate the certificate by entering the student details. By using the un-modifiable property of blockchain provide more security. Confidentiality is transparent with each transaction visible to all the peers. Our application runs in offline mode. The certificate is validated rapidly. Provide accurate and reliable information.

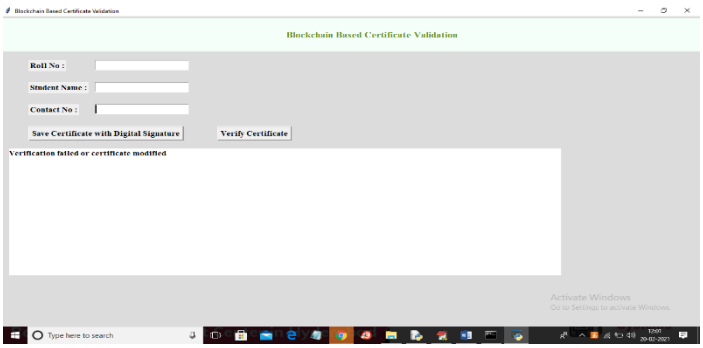
Advantages:

1. Security is more.

SAMPLE SCREENSHOTS







CONCLUSION

In this paper, we propose a Data security is one of the major features of blockchain technology. Blockchain is a large and open-access online ledger in which each node saves and verifies the same data. Using the proposed blockchain-based system reduces the likelihood of certificate forgery. The process of certificate application and automated certificate granting are open and transparent in the system. Companies or organizations can thus inquire for information on any certificate from the system. In conclusion, the system assures information accuracy and security.

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