

# Using Block Chain to make Land Registry

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**Abstract-** A blockchain-secured record-keeping process will collect, store and provide access to information quite differently than a conventional process. In this the disaster destroyed paper records, would be avoided with blockchain. With blockchain, we have a chance to fix many of these problems. The solution we are building incorporates many key benefits from the technology. An immutable history of transactional records, so no one can ever doubt the authenticity; records are permanently linked to the system so no one can ever tamper with or forge a record of their own and these records can be seen by any party, at any time. It is powerful and validating.

The problem is to overcome the current situation in land registry and see to that land registry system works transparently without falling prey to corruption . In dozens of cities across the developing world, land registries suffer from similar problems. Many citizens simply don't have confidence in the system. Some are unsure if they legally own a piece of land, even if they have a legitimate sale deed. Others who want to buy a piece of land are not sure if the seller legally owns it. In a situation like Haiti, where the disaster destroyed paper records. The project thus helps to overcome the fraud detection of land registry and avoid fakes.

Keywords: blockchain,hash,timestamp,nounce

## I INTRODUCTION

We can create a block chain which keeps track of the tallies of history of land register records in particular area. The solution will also increase citizens' confidence in the government and make the overall customer experience less cumbersome.

The word blockchain is related to cryptocurrencies, of people making tens of millions of dollars. Blockchain was first linked to the cryptocurrency, Bitcoin, but it is a technology that can enrich the lives of billions of people, in countless ways. We believe it will have a huge impact in the developing world, helping uplift the poor and marginalised, aid in fighting corruption and so much more.

The blockchain technology can improve the real-estate transaction process. It describe the basic function and value of the technology and why it is interesting for the future. To develop a working technical environment with the blockchain and the smart contract engine with user interfaces and Improve the process and look into the mortgage deed process. Continue the communication and the dialogue with external partners to gain a better understanding of potential weaknesses, security concerns, legal issues, process and integration issues. To make the world's first fully digital land registry transaction, and make all participants in the process confident in the technology and the agreement in both the land registry contract, and mortgage deed contract . To implement the blockchain solution so that the participating organizations can run a node independently, either in a proprietary test environment, i.e. an SQL based Consortium Database, or remotely . To develop a user friendly interface for non professional users such as buyers and sellers . To make a framework for possible governance structures of the blockchain and the contract engine, for wider Swedish or international use . To elaborate on further improvements of the process and new areas of development such as tracking promissory notes and the apartment registry.

The information in the contract is easy to validate Proof of all the signatures of the participants in the contract are easy to validate including mortgage deeds, contracts, transactions, payments etc. No other contract can be ongoing involving the same property without notice, i.e. this risk of double selling is eliminated Fraudulent overtaking of a property will be significantly more difficult. The process and who is about to do the next step is visible for everyone involved in the contract Information that should be kept confidential, like the promissory note, stay confidential and information that should be public can be made public.

The liquidity of the real estate can be improved since the ownership and value of the property can come into effect after the purchase contract and not after the bill of sale. The contracts will be finalized including commitment to down payment at the time of signing the contract – a significant improvement and comfort and time saving solution for seller, buyer, agents and banks. The time savings of the banks and the real estate agent will most likely bring down cost for both them and the consumer. The mortgage deed process will be secure and eliminate situations where the mortgage deed is not transferred to the buyers bank on time .The new source of accurate and early data will serve as a basis for further innovation and business development, within derivatives, cross selling, predictive analytics, macro analysis and more.

## II.LITERATURE SURVEY

[1]"*Untangling Blockchain: A Data Processing View of Blockchain SystemSystems.*"

Block chain technologies are gaining massive momentum in the last few years. Blockchains are distributed ledgers that enable parties who do not fully trust each other to maintain a set of global states. The parties agree on the existence, values and histories of the states.

In this paper, we survey the state of the art, focusing on private block chains (in which parties are authenticated). We analyze both in-production and research systems in four dimensions: distributed ledger, cryptography, consensus protocol and smart contract.

[2] "BlockChain Reaction A blockchain revolution sweeps into health care, offering the possibility for a much-needed data solution."

Electronic health records may have digitized patient data, but getting that data from one clinician to another remains a huge challenge, especially since patients often have multiple doctors tests, prescribing drugs, and providing treatment. Many experts now believe that blockchain technology might be just the thing to get a patient's pertinent medical information from where it is stored to where it is needed, as well as to allow patients to easily view their own medical histories. In addition, blockchain technology might also be able to help with other aspects of health care, such as improving the insurance claim or other administrative processes within healthcare networks and making health-related population data available to biomedical researchers.

[3]"A survey on the security of blockchain system"

Since its inception, the blockchain technology has shown promising application blockchain has been applied to many fields. Although here are some studies on the security and privacy issues of blockchain, there lacks a systematic examination on the security of blockchains systems.

In this paper, we conduct a systematic study on the security threats to blockchain and survey the corresponding real attacks by examining popular blockchain systems. We also review the security enhancement solutions for blockchain, which could be used in the development of various blockchain systems, and suggest some future directions to stir research efforts.

[4]"On Scaling and Accelerating Decentralized Private Blockchains"

The increasing popularity of block chain-based system has made scalability a primary and urgent concern. Compared with the completely open, uncontrolled public block chain system, private block chain can provide better access control management. This paper proposes an architecture for distributed private block chain.

At the same time, we propose three strategies to improve the scalability of private block chain: optimization of block construction, block size and time control optimization, and transaction security mechanism optimization.

### III. PROPOSED SYSTEM

By casting records of land as transactions, we can create a block chain which keeps track of the tallies of the records. The solution will also increase citizens' confidence in the government and make the overall customer experience less cumbersome. Proof of concept also check while every transaction Blockchain accounts or wallets nor will they experience a change in the way they currently interact with the land registry. The blockchain engine simply works quietly but powerfully in the background. Most importantly it will enhance data security and ensure authenticity of land records.

1. **Planned Approach Towards Working:** - The working in the organization will be well planned and organized. The data will be stored properly in data stores, which will help in retrieval of information as well as its storage.
2. **Accuracy:** - The level of accuracy in the proposed system will be higher. All operation would be done correctly and it ensures that whatever information is coming from the centre is accurate.
3. **Reliability:** - The reliability of the proposed system will be high due to the above stated reasons. The reason for the increased reliability of the system is that now there would be proper storage of information.
4. **Immediate Retrieval of Information:** - The main objective of proposed system is to provide for a quick and efficient retrieval of information.
5. **Immediate Storage of Information:** - In manual system there are many problems to store the largest amount of information.
6. **Easy to Operate:** - The system should be easy to operate and should be such that it can be developed within a short period of time and fit in the limited budget.

### IV. METHODOLOGY

In our project we use a algorithm namely SHA 256 (secure hashing algorithm). There are many cryptographic algorithms you can choose from, however SHA256 fits just fine for this example. We can import `java.security.MessageDigest`; to get access to the SHA256 algorithm.

Hash = Digital Signature.

Each block doesn't just contain the hash of the block before it, but its own hash is in part, calculated from the previous hash. If the previous block's data is changed then the previous block's hash will change ( since it is calculated in part, by the data) in turn affecting all the hashes of the blocks there after. Calculating and comparing the hashes allow us to see if a blockchain is invalid.

Create a land registry system:

Create a web page that contains admin login of india different land registry office .

Admin can add records to blockchain. Admin login using separate username and password.

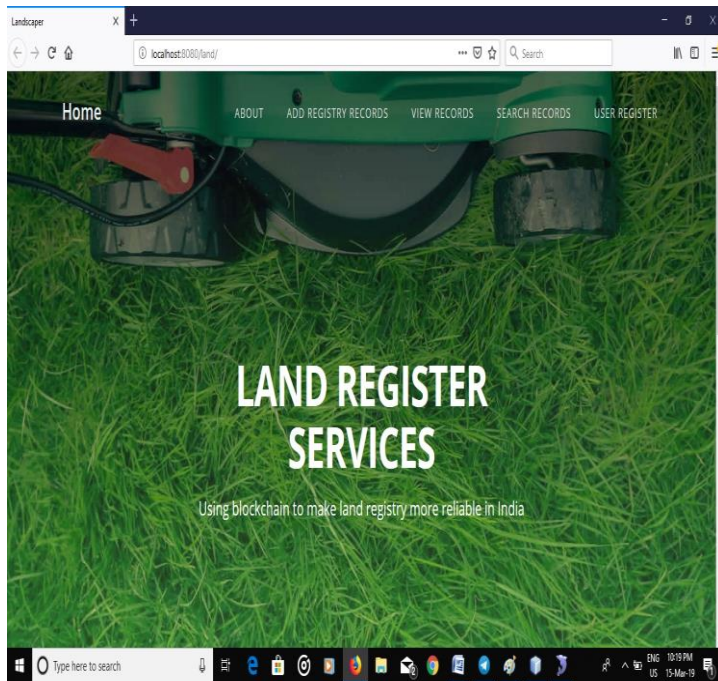
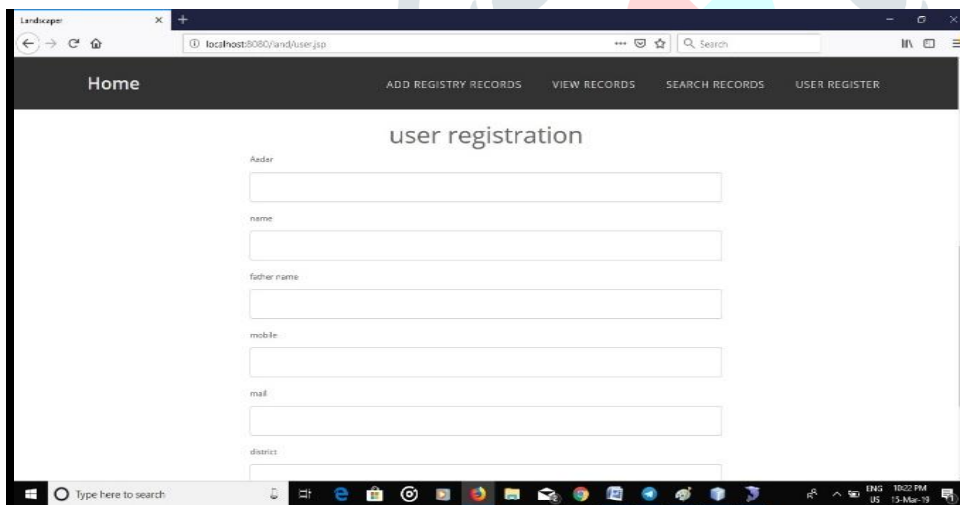


Figure 1

User login and view records

People once register with their details next they will login. They search land details. If transaction happens the detail will be sent to responsible mail id



Create a blockchain

Create a blockchain that contains following information. Timestamp store date and time of creating blockchain. Nonce is calculated by using difficulty. Hash will be calculated using SHA256. Data will be store in the block chain

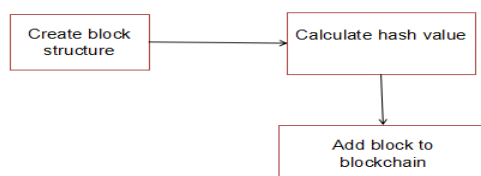
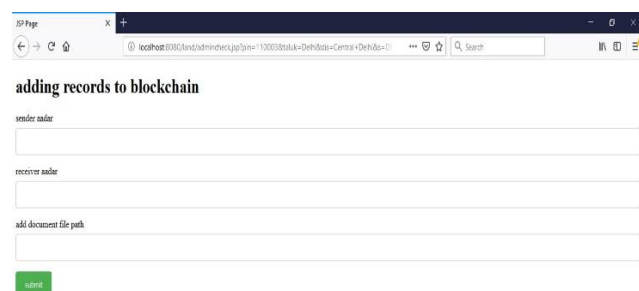


Figure 3



## Adding records to blockchain

Blockchain which keeps tails of records of land registry information. Users and admin will be search the results they wanted



adding records to blockchain

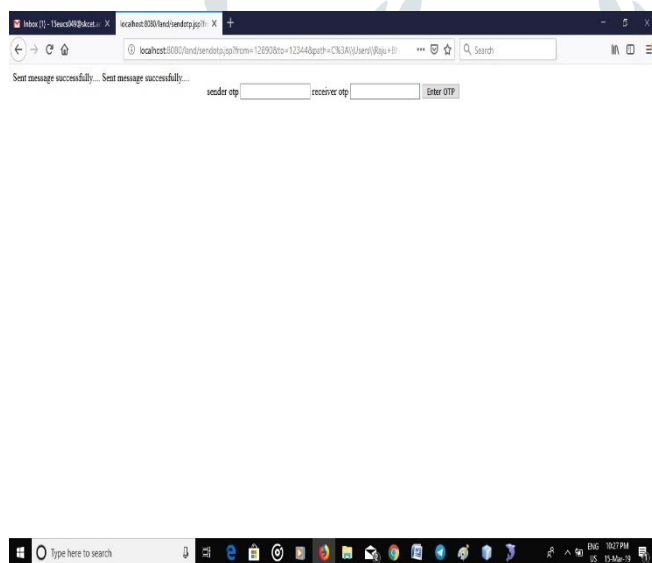
sender aadar

receiver aadar

add document file path

submit

Figure 4



Sent message successfully... Sent message successfully...

sender otp  receiver otp  Enter OTP

Figure 5

## V.ALGORITHM

SHA-256 stands for Secure Hash Algorithm – 256 bit and is a type of hash function commonly used in Blockchain. A hash function is a type of mathematical function which turns data into a fingerprint of that data called a hash. It's like a formula or algorithm which takes the input data and turns it into an output of a fixed length, which represents the fingerprint of the data. A cryptographic hash (sometimes called 'digest') is a kind of 'signature' for a text or a data file. SHA-256 generates an almost-unique 256-bit (32-byte) signature for a text. See [below](#) for the source code.

The input data can literally be any data, whether it's the entire Encyclopedia Britannica, or just the number '1'. A hash function will give the same hash for the same input always no matter when, where and how you run the algorithm. Equally interestingly, if even one character in the input text or data is changed, the output hash will change. Also, a hash function is a one-way function, thus it is impossible to generate back the input data from its hash. So, you can go from the input data to the hash but not from the hash to the input data.

SHA-256 is a one-way function that converts a text of any length into a string of 256 bits. This is known as a hashing function. In this case, it is a cryptographically secure hashing function, in that knowing the output tells you very little about the input. It is a modified version of SHA1, which in turn is a modified SHA0. All three are now broken, to some extent.

SHA-256 is a member of the SHA-2 cryptographic hash functions designed by the NSA. SHA stands for Secure Hash Algorithm. Cryptographic hash functions are mathematical operations run on digital data; by comparing the computed "hash" (the output from execution of the algorithm) to a known and expected hash value, a person can determine the data's integrity. A one-way hash can be generated from any piece of data, but the data cannot be generated from the hash.

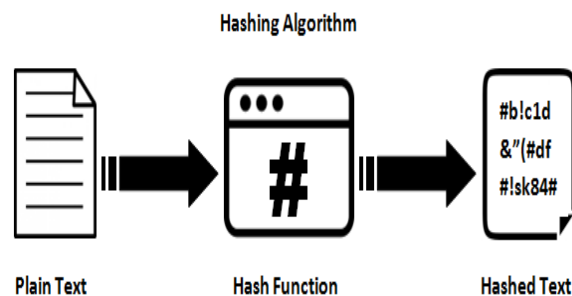


Figure 6

Hashing algorithms are used in all sorts of ways – they are used for storing passwords, in computer vision, in databases, etc. There are hundreds of hashing algorithms out there and they all have specific purposes – some are optimized for certain types of data, others are for speed, security, etc. For the sake of today's discussion, all we care about are the SHA algorithms. SHA stands for Secure Hashing Algorithm – its name gives away its purpose – it's for cryptographic security. If you only take away one thing from this section, it should be: cryptographic hash algorithms produce irreversible and unique hashes. Irreversible meaning that if you only had the hash you couldn't use that to figure out what the original piece of data was, therefore allowing the original data to remain secure and unknown. Unique meaning that two different pieces of data can never produce the same hash. The fundamental difference is that while encryption is a two way function (given the key) hash is only a one way function: given some data you can compute the hash, given the hash it is difficult (and mathematically impossible) to have the data back. It is mathematically impossible

to find the data from the hash because typically a hash function has a small codomain (for example 256bit for SHA256) but a big domain (you can hash any string), so there will be collisions: different strings with the same hash. For this reason if your password is saved in a hashed form then there exist infinite password (but they can be very long) that unlocks your account. The good news is that collisions are rare when you use cryptographic hash functions, so your account is still safe. SHA-256 (secure hash algorithm, FIPS 182-2) is a cryptographic hash function with digest length of 256 bits. It is a keyless hash function; that is, an MDC (Manipulation Detection Code). A message is processed by blocks of  $512 = 16 \times 32$  bits, each block requiring 64 rounds.

## VI.CONCLUSION

By using block chain in land registration system we can safe guard our documents and also it allows transparency in this process. Records are permanently linked to the system so no one can ever tamper with or forge a record of their own .Fraud in the documentation can easily be identified.As of now it is one of the best securing means.

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