**BLOCK CHAIN BASED LAND REGISTRY**

**Abstract:**

Being advanced in the technology, we still face problems. One of them is illegal acquisition of lands. This a problem for every set people in the society. To minimise this problem, we should get a Solution which is reliable.

Common problems faced in land registry:

1: Multiple Registrations

2: Lack of proper land documents

3. No proper information about the current land status

To overcome these problems we have to introduce a system which digitalize and decentralize, so that there can’t be any further frauds. The solution we thought which may be apt for the above problems and meet the requirements is “Block -Chain”.

A block Chain is a decentralized, distributed and public digital ledger that is used to record transactions across any computers so that the record cannot be altered retroactively without the alteration of all subsequent blocks and the collusion of the network.

INTRODUCTION:

Digitalization and the development of new information technology (IT) is one of the strongest forces of change in society. The technology called ”block-chains” is one of the most talked about technologies in recent years, both within the IT community, but also within the financial services industry. The influential bank, Goldman Sachs, stated the following in December 2015 regarding block-chain technology.

The technology involves creating digital vouchers or verification records for digital files, e.g. documents or transactions. These verification records can be considered as fingerprints or digital signatures for the digital files. These fingerprints are saved together in groups into block”. The block is then linked in a chain of blocks where the subsequent block also has a verification record, a ”fingerprint” from the previous block. Therefore, it is impossible to add new information to older blocks (links) in the chain without changing the subsequent blocks. The chain’s ability to secure data and history is why it is called ”The Trust Machine”

Block-chains are divided into different groups. The two main groups are open block-chains and private block-chains. In a private block-chain, there is one or a limited number of actors who approve the hashes that are to be saved in the block-chain, using digital signatures. For example, it could be a group of governmental agencies. In an open block-chain, practically anybody can approve the block according to predetermined rules. The largest open block-chain is the one that builds up the digital currency or crypto-currency, Bit-coin if the system and participants in an open block-chain accept the block, they start building on the next one.

The block-chain is called a block-chain because each block is linked back to the previous block. Each subsequent block gets a hash, i.e. the verification, of the previous block, which makes it difficult to cheat by creating another version of what happened. For example, it is not possible to enter a new verification into an old block without changing the subsequent blocks. If a lot of people have saved the block-chain, they can see that changes have been made and that the manipulated block-chain is not correct.

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**Ledgers** are the system of record for a business.

Businesses will have multiple ledgers for the multiple business networks in which they participate.

* **Transaction:** an asset transfer onto or off the ledger
  + John gives a car to Anthony (simple)
  + **Contract:** the conditions for a transaction to occur
  + If Anthony pays John money, then car passes from John to Anthony (simple)
  + If car won't start, funds do not pass to John (as decided by third party arbitrator) (more complex)
* Block-chains for business are generally permissioned and private, and prioritize:
  + Identity over anonymity
  + Selective endorsement over proof of work
  + Assets over crypto-currency
* Block-chain for business requires **trust**
* **Shared Ledger:** Append-only distributed system of record shared across business network.
* **Smart Contract**: Business terms executed with transactions.
* **Privacy:** Transactions are secure with appropriate visibility.
* **Proof:** Transactions are provably endorsed by relevant participants

**Problem statement:**

**Solution:**

**#!/usr/bin/env python**

**import hashlib as hasher**

**class Block():**

**def \_\_init\_\_(self, index, timestamp, data, previous\_hash):**

**self.index = index**

**self.timestamp = timestamp**

**self.data = data**

**self.previous\_hash = previous\_hash**

**self.hash = self.hash\_block()**

**def hash\_block(self):**

**sha = hasher.sha256()**

**sha.update(str(self.index)**

**+ str(self.timestamp)**

**+ str(self.data)**

**+ str(self.previous\_hash)**

**)**

**return sha.hexdigest()**

**Digital Signature:**

**This is the `solution we thought and this may work and there will lot of advantage to government.**