Idea/ Approach Details

Ministry/Organisation Name: Hughes Systique Pvt. Ltd.

Problem Statement: Secure Distributed Transaction Recording System

Team Name: TwoTrinity

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Idea/ Approach Details

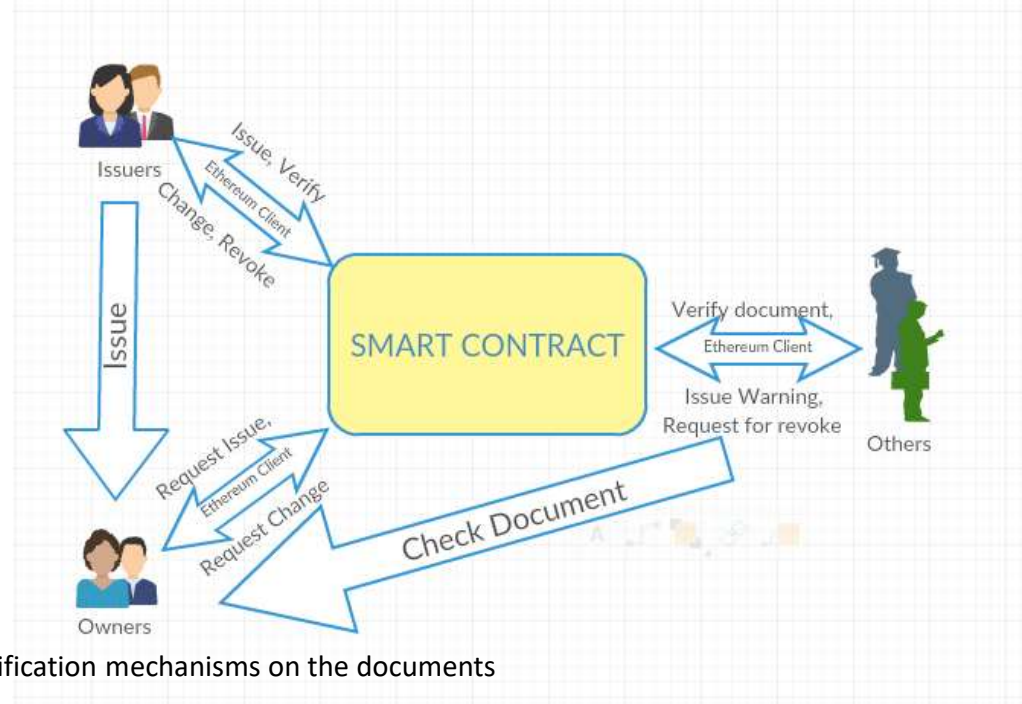
Description

We propose a “trusted peer” network based on private permission-less blockchain protocol, Ethereum to create a decentralized distributed database of government issued documents. These trusted peers will be government issued Ethereum Virtual Machines (EVMs) and will run the consensus and maintain the distributed ledger for the network. Peers will be divided into three categories- Issuers, Owners and Others, with the issuers being the issuing body of the document, owned being the entity the document is being issued to and others, all other nodes on the network. Smart Contracts will be maintained which will limit the functionality of each account and verify the completion of tasks. These peers will have externally owned accounts accessible by private keys and supported by reactionary Contract Accounts in accordance with the Ethereum protocol. Management process and access control policies will be encoded using the blockchain protocol, thus ensuring data security and privacy. Further QR codes, NFC and embedded microchips, already present in some documents like newly issued Driving Licenses, ATM Cards and RCs provide easier and faster communication with quicker queries from the distributed ledgers.

Technology Stack

- JavaScript and HTML5
- Ethereum Client
- Solidity (Contract Oriented Language)

Use Case



Dependencies

- QR Codes, Barcodes, RFIDs or other unique identification mechanisms on the documents
- Ethereum Client services
- Ether (currency to run an Ethereum network)

Future Work

As the blockchain technology and specifically ethereum will shift from Proof of Work model to newer less computationally heavy models, the system will need to be updated after the introduction of the new protocol.