Report for ClaimChain

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Problem Statement

To Implement Family tree on Blockchain to solve the verification issue at various stages in the application for succession certificate.
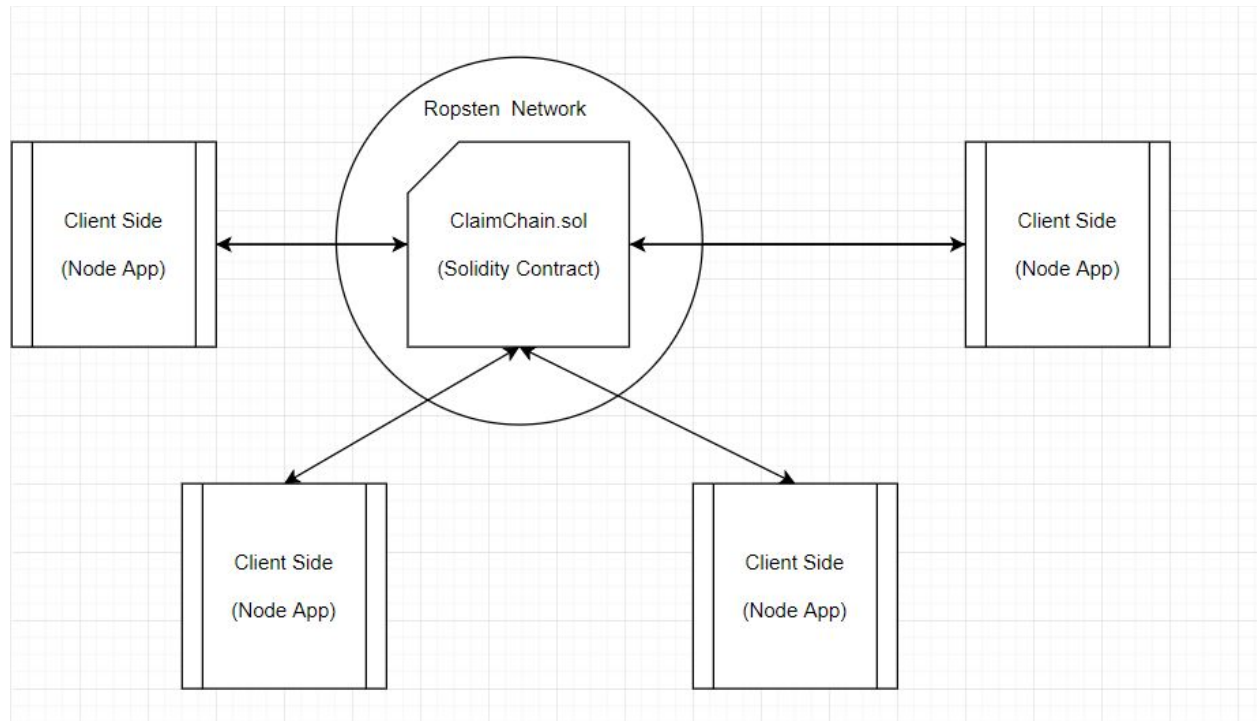
Abstract

Creating public permission distributed ledger to store family tree structure on the blockchain. This will help to map a parent and child relationship which indeed will help to track relationships. When a legal heir applies for succession certificate the involved administrative bodies and the court can verify the applicant relationship with the dead person for the claim.
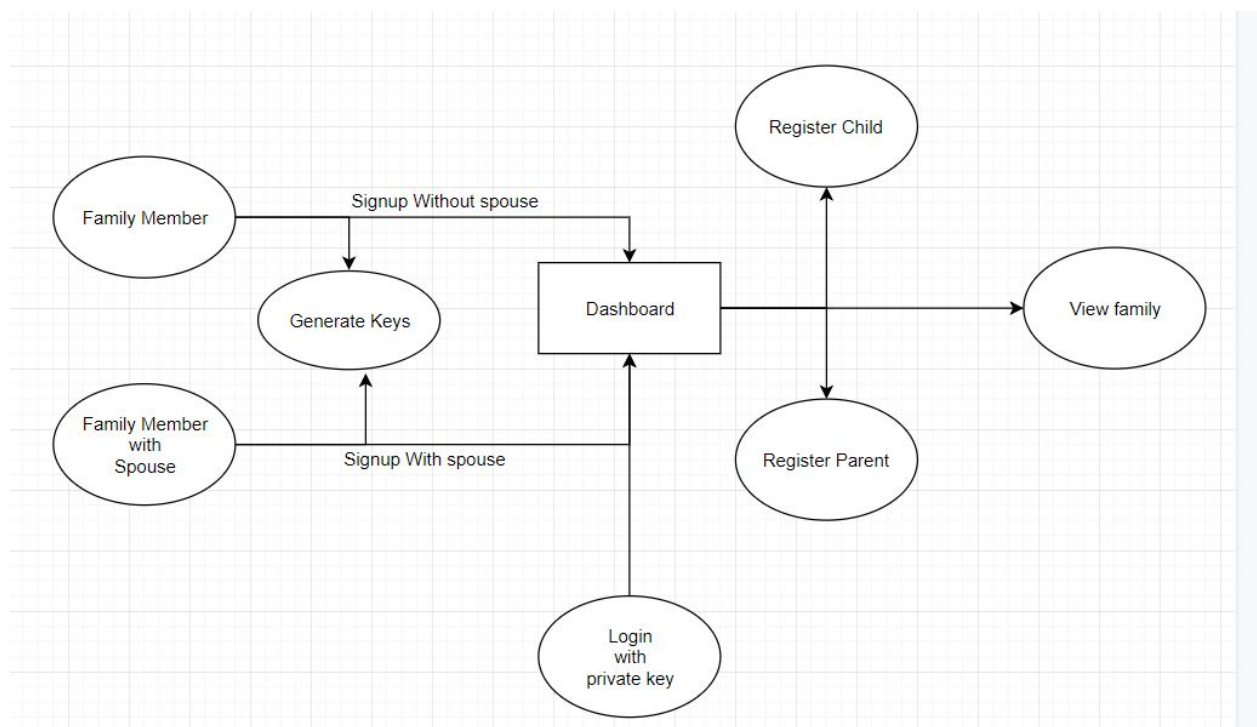
Technology Stack

Solidity,Nodejs,Expressjs.

Modules/Functionalities

ClaimChain.sol : The smart contract for implementing Family Tree on blockchain. It has various functions such as register a family and deploy every family's smart contract on the ropsten test network, other functions such as AddParent,AddChild,etc.

Create Identity: Users can generate a public key, private key, address to uniquely/anonymously interact with the system.
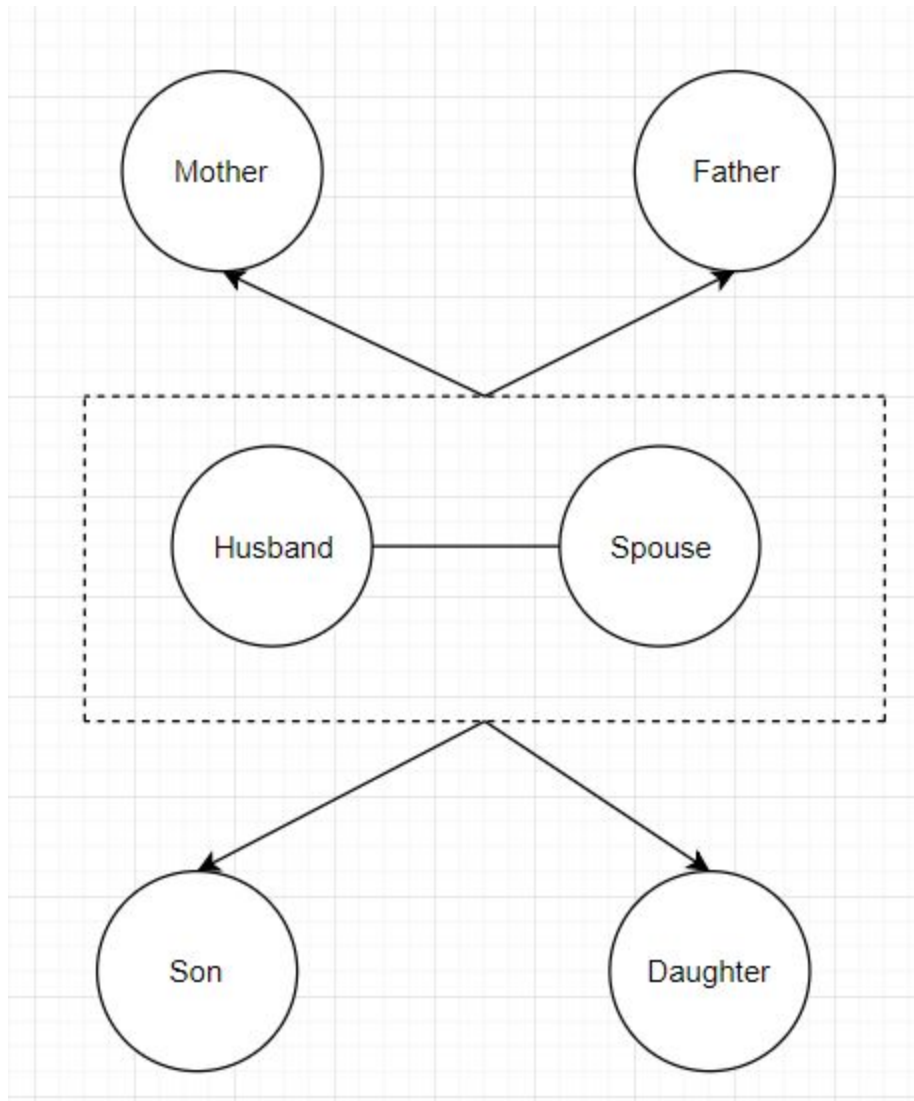
Login: The user needs to provide his private key to log in and it is then converted to the public key to verify his existence in the ClaimChain.

Signup : There are 2 ways to signup in ClaimChain. User can register with or without spouse. After successful signup, The Family Tree contract is deployed for that family.

Register : The Family member can register the child via the registration form. The hospital provides parents a digital copy of birth certificate encrypted with public key of parents and timestamp of childbirth which can only be decrypted by parents for verification.

Dashboard: The dashboard provides various features such as AddChild,AddParent, etc.

View Family: To view the family of the user and basic search to find a family member by public key or name.

- Public Key Stored on blockchain is compressed for storage efficiency.
- Used truffle-hd wallet as a generic crypto wallet for all ethereum users.
- Every Family has its own public and private key to uniquely identify a family in the chain.

Future Work :

1. Implement Notification service on the status of the death of a family member.
2. Implement the same service with Birth & Death Registrar for death certificate verification.