

Computer Science 3A PROJECT(Network Based Block- chains) -2021

UTOPIAN SMART CONTRACT



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PROBLEM STATEMENT

I find it readily exhaustive to decentralize the pawning of goods/assets during the pandemic as it constitutes a lot of exposure to the external domain, whereas some processes can be automated by the facilitation of network based blockchains . The signing of physical contracts between consumers and pawn brokers can be time consuming and contagious in this current era ,even if all covid-19 safety measures are adhered to.

4 SOLUTION

After drawing closely to problems that can resolve this complication and improve on the current existing system amongst pawn brokers and consumers, the Utopian Smart Contract happens to be an optimal solution. The deployment of smart contracts in collaboration with courier services can effectively minimize the timeously , and long queues at pawn stores, remarkably when the resources and services are temporarily out of reach .Through the block chain model usage, the collateral can be contractually bridged successful ,while maintaining social distancing and curb the viral spread. This course of action will not only flatten the coronavirus curb but also shape South Africa to grow rapidly, in automation advancements.

RECORD STRUCTURE(Utopian Smart Contract)

The Utopian Smart Contract is a cryptographic record stored in the blockchain , which contains data and behavior which allows it the flexibility of being self executable in pawning/buying of goods without the involvement of the third party. It is a feasible application because it is structured in a way that all parties involved are equal in a pledge ,and no party may sway further ,or alter a historic pledge .This type of contract follows a protocol that disperse the funds deposited into the contract to either the business or consumer once the rules and actions governing the contact have been adhered to , and is invoked genuinely without any discrepancies to either party . The contract is endowed with the functionality to return funds to the depositor if the underlying pledge is invoked ,in events of cancellation of the ordered of goods or failed deliveries by the courier company aligned with the pawn store.

Command Structure

6 The Peer to Peer (P2P) Network architecture that uses a graph ADT is used to facilitate data communications for the application.

This is made possible by storing data needed for data communications in an undirected graph data structure. In the network the block generated through encryption is persisted and at least 2 other clients in the network need to validate the block using the Proof of Work Algorithm before it can be vetted.

The following commands are used to facilitate the entire communication to the end between clients on the network.

CONNECT-Peer request to connect to other peers who are on the network stored as vertices of the graph instance ,and are connect to other peers though edges of the graph .

FILLRECORD-*Utopian Smart contract record information is filled and once agreement is concluded by all parties,the next command can follow and record can be encrypted permanently allowing no backtracking or cyber security.*

VETANDUPDATE-Record gets persisted on the blockchain and block gets validated added to the blockchain ,if the minor successfully mines with the level of difficulty being four and decryptes the block using a valid private key .The blockchain and copy of the graph that each client has are equally updated accordingly for all peers in the network.

REFERENCES

- 1)Kore,(2018). Implementing a simple 'proof of work' algorithm for the Blockchain.Available from: <https://cryptocurrencyhub.io/implementing-a-simple-proof-of-work-algorithm-for-the-blockchain-bdcd50faac18>
- 2)Ciaran, Ryan(2020). Why invest in smart contracts?.Available from: <https://www.moneyweb.co.za/in-depth/revix/why-invest-in-smart-contracts/>
- 3) Khyoon, A. I. (2005) "Modification on the Algorithm of RSA Cryptography System," Al-Fatih Journal, ISSN: 87521996, Volume: 1 Issue: 24 Pages: 80-89.