

Government Fund Distribution and Tracking System

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ABSTRACT

A blockchain, originally block chain, is a growing list of records, called blocks, that are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. By design, a blockchain is resistant to modification of the data. In this we propose a system to track funds allocated to the government as they travel through the government process at each stage. This system uses block-chain technology to maintain the transparency & security at every stage as the funds move ahead. This system allows o maintain the crystal-clear record with all users who are connected in the chain to transaction the data on a need to know basis. The system makes use of encryption to secure transactional data using hash values to maintain a block of transactions in a chain manner which is maintained & verified by every node involved to verify the transaction and save the data in a transparent form within the government. The system allows for a full proof, secure & authentic fund allocation & fund tracking system help to form an incorruptible government procedure.

Keywords : Blockchain, Security, Transparency, Encryption, Government Funds, Cryptography.

I. INTRODUCTION

Blockchain is touted for its potential to improve the trust and transparency of data- based transactions between individuals and organizations. The technology offers promise when strategically applied in the right contexts. But what are the conditions under which blockchain makes sense and how might the technology be useful when applied in government? Traditionally, organizations operating their own, individual IT systems seeking to collaborate must reckon with challenges including reconciliation of information, identifying a single source of truth, and facilitating accountability. Blockchain technology addresses these challenges by providing a technical

foundation that supports the execution of shared business processes in a way that no single entity controls the entire system. Government has an inherent need to build, sustain, and protect public trust in information and systems. In some situations, blockchain may help enhance this trust. Traditional relational database management solutions (e.g. Oracle and SQL), deployed globally across millions of applications, have one major operational constraint – the management of data is performed by a few entities who must be trusted. Distributed Ledger Technologies (DLT, commonly referred to as blockchain), an alternative architectural approach to managing data, and removes the need for a trusted authority to store and share a perpetually growing set of data. A

foundational characteristic of a blockchain is trust. Blockchain have digital signatures and use keys to authorize and check transactions and positively identify the initiator. Once recorded to the chain, a blockchain record cannot be deleted or manipulated. New blocks may only be appended to the chain, ensuring data integrity and creating a verifiable audit trail where the shared ledger provides visibility to all participants, simultaneously. Additionally, data elements can be individually permissioned, so participants see only appropriate transactions. Applications managed by a single entity would typically not benefit from using blockchain technology.

As the name connotes, blockchain is a chain of blocks. Each block represents a record or set of data, that is linked to others with cryptography. Each block contains some accessible information to provide public knowledge about the action, time, or some other feature of the record, creating a public transcript of how the information develops, known as a “ledger.” As transactions enter a blockchain system, a consensus model is employed to determine which next set of valid transactions, or block, should be appended to the ledger. Because consensus is established over a distributed network for nodes, there is no central authority that governs the validation and inclusion of new transaction data. As most blockchain software is open source, the rules that adjudicate the blocks and included transaction data are available for review. For public blockchain systems, the data itself is available for direct observation by anyone who cares to access it. This makes open blockchain datasets perceived of as more reliable to a greater number of users.

II. Motivation

Usually when a project is allocated funds, there is no knowledge as to how these funds are being used and a large part of it is never showing records due to corruption. To solve this problem, a system has been

proposed using Blockchain to provide the transparency.

- A major hurdle that the top government faces is the low-level corruption that is sometimes impossible to track which deprives the state progress.
- Blockchain technology is an upcoming technology and said to be one of the most promising technologies which would revolutionize the world.

III. Related Work

Literature survey is the most important step in any kind of research. Before start developing, we need to study the previous papers of our domain which we are working and on the basis of study we can predict or generate the drawback and start working with the reference of previous papers.

In this section, we briefly review the related work on Government Fund Tracking System using Block-chain Technology.

In this paper, the author proposes an innovative blockchain-based IIoT architecture to help build a more secure and reliable IIoT system. By analyzing the short-comings of the existing IIoT architecture and the advantages of the Block-chain technology. We decompose and reorganize the original IIoT architecture to form a new, multi-center, partially decentralized architecture. Thus, the proposed architecture represents a significant improvement of the original architecture, which provides a new direction for the IIoT development.[1]

This paper provides, through its methodology, a detailed analysis of the block-chain fit in the supply chain industry. It defines the specific elements of block-chain that affect supply chain such as scalability,

performance, consensus mechanism, privacy considerations, location proof & cost.[2]

Data mining framework for prevention & detection of financial statement fraud in this study. These informative variables are being use for implementing association rule mining for prevention & three predictive mining techniques namely K-means, Multi-Level Feed Forward Network, Genetic programming for detection of financial fraud. This research is able to prevent fraudulent financial reporting & identify it if management of the organization is capable of perpetrating financial statement fraud despite the presence of anti-fraud environment. [3]

Data mining framework for avoidance & revealing of financial statement fraud in this study. The framework used in this research follow the conventional flow of data mining. These useful variables are being used for implementing association rule mining for prevention and three predictive mining techniques namely K-means, Multi-Level Feed Forward Network, Genetic programming for detection of financial fraud.[4]

In this paper, the author proposes a block-chain enable well-organized data collection and secure sharing scheme combining Ethereum block-chain and deep reinforcement-learning (DRL) to create a reliable and safe environment. In this scheme, DRL is used to attain the highest amount of collected data, &the block-chain technology is used to guarantee safety & reliability of data sharing.[5]

Blockchain is characterized by its decentralized nature, integrity of the data stored in the chain and its openness. Due to these characteristics, another place where Blockchain can be used is to release government funds for a project. Usually when a project is allocated funds, there is no knowledge as to how these funds are being used and a large part of it is never shown in records due to corruption. To solve

this problem, a system has been proposed using Blockchain to provide the transparency.[6]

In this paper, an universal adaptive fuzzy control scheme via output tracking error feedback has been proposed for practical output tracking of a class of uncertain nonlinear systems with unmeasurable states and completely unknown dynamics including parametric and/or structural uncertainties and external disturbances. The proposed scheme provides a powerful tool for target tracking of unmanned vehicles, missiles, mobile robots, etc., whenever only tracking error (discrepancy) can be available. [7]

This paper describes a method for combining user knowledge with automatically generated rules. The performance did in some cases provide better results but overall the improvement was not significant, this may be because of the strategies that were tested. Another observation that is made from these results is that although there was some variation in the performance with respect to returns, the risk-adjusted performance was much more stable.[8]

In this paper, we propose a product traceability system based on blockchain technology, in which all product transferring histories are perpetually recorded in a distributed ledger by using smart contracts and a chain is formed that can trace back to the source of the products. Our system has obvious decentralized characteristics, which significantly reduces the possibility of privately tampering with data within enterprises. our system is characterized by data accessibility, tamper proofing, and resistance to man-in-the-middle attacks. [9]

This paper proposed a new information sharing scheme based on blockchain technology. Users can manage their data and understand the data being collected about them and how to use it without trusting any third party. However, the scheme did not

take into account the possibility of the enterprise itself tampering with data.[10]

IV. Problem Statement

Governments need to cater to a huge number of responsibilities of a state. The working of state governments involves huge number of transactions towards various operations that need to be carried out throughout the state. This includes new projects, repair and maintenance works, awarding contracts, paying of government employees, farmer schemes and so on. A major obstacle that the top government face is the low-level corruption that is sometimes not possible to track which deprives the state progress. Tracking it is a very complicated task due to the current system.

V. Proposed Method

The proposed system is used to track the funds allocated to the state government as they travel through the government process at every stage. We here make use of block-chain technology to secure the transactions at each stage while maintaining transparency in every transaction sealing every transaction with proofs as the funds move ahead. This allows maintaining crystal clear record with on-demand right to transactional data on a need to know basis. The system makes use of encryption to secure transactional data by means of hashes to maintain a block of transactions in a chain manner which is maintained and verified by every node involved to authenticate the transaction & save the data in a transparent form within the government. The system allows for a full proof, secure & authentic fund allocation and fund tracking system to help form an incorruptible government process.

In this we are using 2 modules i.e. User and Admin.
Module 1 - Government: - Government will give the fund which is requested by the user. **Module 2** -

Authority: - This will authorize or verify the user that it is a valid user as well as valid request or not. **Module 3** - User (Customer): - User will request for the fund according to their needs.

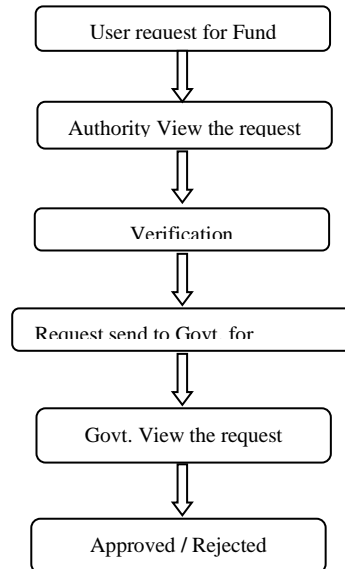


Fig.1 Flow diagram

Architecture

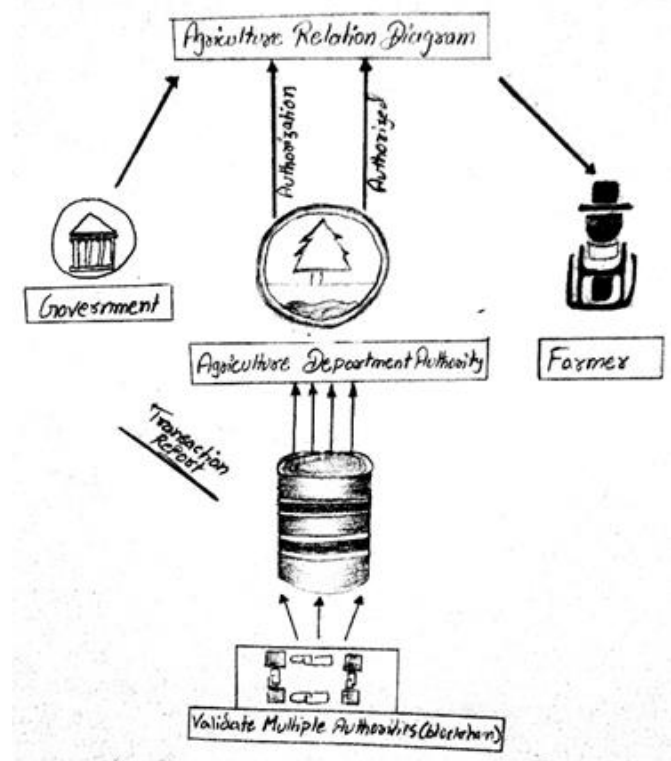


Fig 2. System Architecture

VI. Conclusion

In this paper, we considered about the blockchain applications, we even have to consider the access and privacy challenges though. Even then, with further enhancements, this blockchain model can provide a transparency in all the government transactions. There will be no discrepancies of any kind. Because of the decentralized ledger all the transactions can be verified and cannot be altered. The money that is released can be tracked, anyone and everyone can find out how the money is being used. Such a blockchain will surely reduce the ongoing corruption It will create a huge impact on the economic development of a country.

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