PUBLIC RATION DISTRIBUTION USING BLOCK CHAIN TECHNOLOGY

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Abstract:

In this paper we will describe a block chain technology based prototype that can be used in a small website. There are presently many fraud activities and corruptions taking place in the food supply schemes present as it sometimes does not reach the poor or the other sections of the society. This project focuses on developing a block chain prototype that is used to record all the transactions/records and log all these transactions. A simple end-to-end web based app of this kind of the block chain prototype can be built that has most of the features and functionalities to carry out all kinds of the transactions between the central state government, the district office, ration shop and the customers, are recorded in the system. The user (government) of the system can view the transactions of any part of the public distribution system. The paper has some features that are guaranteed to provide the most important aspect, that is, the security using the concept of blockchain.

Keywords: public ration distribution, block chain, sha 256 AES, java, etc.

Introduction:

An increasing demand in society for greater information about food reflects the necessity for more transparency and therefore the lack of trust. One of the foremost frequently used words in India, corruption signifies a variety of things. In 2005, Transparency International, and Delhi located research Centre for Media Studies, a research firm, undertook the India Corruption Study. The survey covered 4,405 respondents over 20 states. The results, published within the same year, said that Indians pay about 21,069 crores as bribes while availing one of 11 public services. The study remains the foremost recent and most comprehensive report on corruption in India. Here we cover fraud in India's public distribution system (PDS), the chain of ration shops that provide supplies to only under 10% of the country's population (the government claims 16%) also Corruption in Education. Corruption in PDS Bulk users are from the rural area hinterland (7.6 crore). tips that could how rampant is corruption in a sphere where the govt as promised subsidized food for all through the PDS are: 1.5 crore households have admittedly paid bribe during the past year; States with a better poverty index have registered higher corruption (up to 67%); 60% households using PDS confirmed unavailability of rations; In high poverty incidence states, out-of-stock" situations were as high as 80%; 34% of those visiting ration offices had to make four or more visits before their voice could be heard and suitable action taken; and Nearly 50% paid bribe for obtaining a new, perfectly legitimate ration card While the Fair Price Owner is accused of cheating and being corrupt, he has his constraints which include: Low margins resulting in low profitability, especially post launch of targeted public distribution system (TPDS); credit provided is so low that they can't lift stock from government godowns; they have no control over quality of grains; they too may need to pay bribe to ration officials to get their quota of supplies from the Food Corporation of India; supplies from Food Corporation of India are erratic and late in coming.

Literature Survey:

1. The area and implication of the National Food Security Act (NFSA) 2013, and the structural process of the distribution service currently followed in India along with challenges regarding the leakage of food grains during transit and malpractices of selling food grains from ration shop to open market are discussed. The duties of FCI with respect to procurement, storage, and transportation to states as per allocation in terms of FIFO to avoid storage complexities (Balani, 2013).

2. The process related to the objective to ensure adequate food supply across the nation at a subsidised rate by creating substantial food and nutritional security, involving various procedures involved by organisations and government bodies involved in management and supply chain of the process at multiple disbursals points post verification and paper documentation are explained in the paper (Chhabra et al., 2018).

3. The paper discusses the current ongoing structure of allocation and distribution of goods in the distribution system over a web-based applications updated only at distribution centres as allocated by the government which involves major document based to be submitted to the centres by the shops and zonal office to book trades and demand grain for stock and report the sales and involves a paper trail in transportation orders and storage facilities. The challenges of semi-electronic

systems involve a time-consuming process in distribution. It also describes the functions of the PDS with roles and responsibilities of the parties involved in the process namely FCI, state government, fair price shops, and consumers (Report, 2009).

4. The paper describes the acceptability and applicability of the blockchain technology in the public service delivery in the government areas to create a block of a recordable asset in a digital medium to form a continuous chain flow of commodity with aid to transparency and verification through hash created in every transaction looped with previous the hash to maintain the chain of flow. Also, suggests the prototype for blockchain in public distribution service and MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) scheme (Prabhu, 2018).

5. The paper aids in developing a structure to enable transparent systems with proof of work for every transaction booked at nodes for verification in a central ledger with an unalterable transaction system with a flow to track commodities and payments. The lack of nodes in the current semi-electronic system is posing a challenge for the central government to monitor the transaction at the end node of the ration shop which is expected to exploit the power of goods distribution and involve in the manipulation of the transactions, providing smart blockchain solutions to block and fill theloopholes of the system (Famnaz & Kumari, 2019)

6. The Pros and Cons of RFID in Supply Chain Management This paper presents the pros and cons of using radio-frequency identification (RFID) in supply chain management (SCM). While RFID has a greater number of benefits than its predecessor, the bar code, it currently comes at a price that many businesses still consider prohibitive. On the one hand, RFID is advantageous because it does not require line of - sight scanning, it acts to reduce labor levels, enhances visibility, and improves inventory management. On the other hand, RFID is presently a costly solution, lacking standardization, it has a small number of suppliers developing end to end solutions, suffers from some adverse deployment issues, and is clouded by privacy concerns. Irrespective of the se factors, the ultimate aim of RFID in SCM is to see the establishment of it level tracking which should act to revolutionize SCM practices introducing another level of efficiencies never before seen.

7. The paper states the concept of IOT which is interconnected with the use of RFID tags for unique identification. The LoRa WAN which stands for low power wide area network which is introduced for industrial application to keep a monitoring check on the devices to achieve long range communication over an interval of time, the data is communicated through a unlicensed spectrum over long ranges and major applications are in the area of outdoor monitoring applications where continuous monitoring is not required only timely updates can solve challenges easily (Luvisotto et al., 2018)

Existing System

The existing system in the Indian public distribution is semi electronic and involves major paper documentation and reporting for the entries to be entered into the systems for further monitoring. The exact transactions details cannot be entered precisely and collective entries for the day/week are entered into the system which creates a room for manipulation and corruption in the process leading to frauds and malpractices.
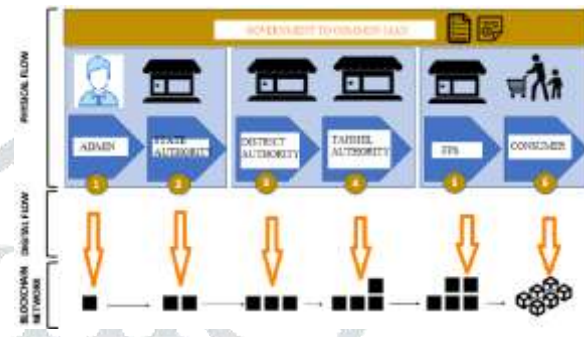
Proposed System:

Fig: Proposed System

Whenever any transaction will occur in the system, the record of that transaction is maintained in the form of hash value in a block. Each block will get attached to its previous block and in this way a virtual block chain will occur. The hash value of a current block is generated using the data of a current block and the hash of the previous block. In this way if any of the block is tempered the subsequent all the blocks hash must be changed. Such multiple copies are maintained at different servers, which will assure the data security and confidentiality. As everything is through application interface, it will maintain the transparency in the PDS.

Conclusion:

Thus we are going to implement a prototype web based software application in Java for application of PDS. We have implemented features such as: Visual Cryptography using java programming language. Thus it is possible to track PDS supply chain and so that ration will reach the common man without any corruption.

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