Decentralized Manufacturing Unit

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Issues Addressed:

The traditional form of paper and digital transactions in a supply chain between different entities is not fully transparent and often susceptible to security issues ranging from change of data in the invoices to incomplete delivery of actual orders. There is a lack of trust created due to these issues The involvement of a third party in the process of completion of transactions adds to the chaos as all the transactions are left at their mercy. In order to simplify the transactions and create an environment of trust between different entities involved in the manufacturing process, a blockchain based decentralized transaction system is proposed so that immutability and direct peer-to-peer transactions occur between these entities.

Abstract:

The fast-paced growth of blockchain technology has brought upon innumerable feasible solutions to problems that were faced in traditional systems. One of the major issues tackled is lack of security and trust between entities. We look at how traditional transactions systems used in ever-evolving manufacturing sector is hindering its growth and how blockchain technology can help overcome these obstacles. We propose the usage of smart contract to transact between manufacturers and retailers for the purchase of finished goods. This process involves verification, validation and immutable recording on the ledger which cannot be manipulated and is always accessible to anyone involved in the process. In this application, we will have a monitor who is the manager of a manufacturing plant. This role is not centralized as it is given to different managers of different manufacturing plants at different times. The manager can approve and allow an agent from each manufacturing plant to transact with retailers and also gives him an allowance to reward the retailers who meet certain conditions to be deemed loyal to the manufacturing plant. The manager also approves an agent of the retailers, who will be allowed to buy finished goods from the manufacturing plants. Approved agents of the plants and retail chains can transact between each other without the involvement of manager using the smart contract. Manufacturing plants also have a reward system that uses the smart contract to reward loyal retailers who buy finished goods to a certain amount. (Suppose a retailer purchased finished goods worth 1000 tokens, he will be rewarded 10 tokens for his loyalty.). The above process does not involve any third party to complete the transactions, it occurs directly between the manufacturing plants and the retailers.

Symbol:

DMU

We have chosen the symbol as DMU as it is the acronym of the topic of our project and also short, precise and easy to remember. We did not find anything offensive related to the symbol that could hurt the sentiments of anyone.

Decimal places: 2

Special Functions:

Reward(): This function is used to calculate the incentives in the form of tokens that will be awarded to the retailer who consistently buys up to a certain amount from the same manufacturing plant.

Approve(): This function is used by the manager of the manufacturing to approve the agents for the manufacturing plants and the retailers so that they can proceed to make the transactions.

Register(): This function is used by new agents of the manufacturing plants and retailers to put in a request to the manager to register themselves to start making transactions.