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Supply chain management using Blockchain

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INTRODUCTION

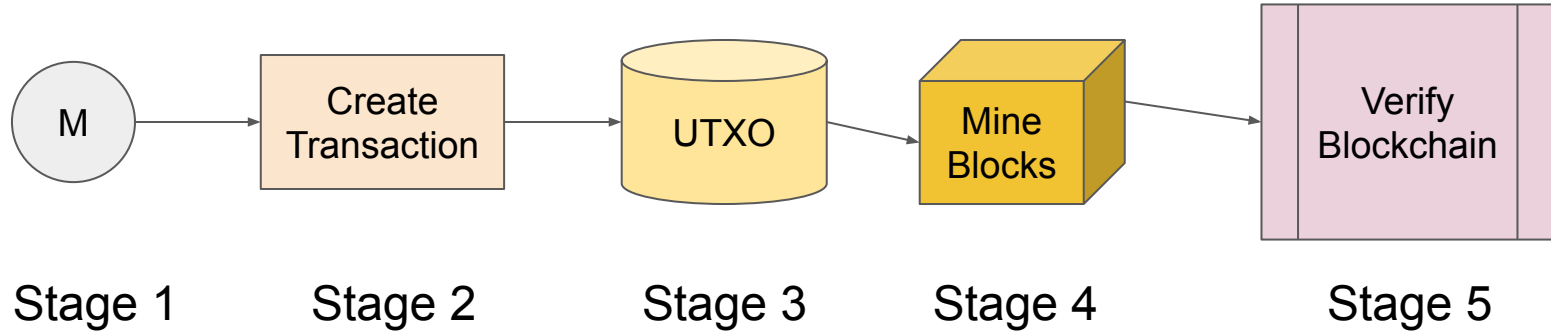
- **Supply chain management** is the management of the flow of goods and services, involves the movement and storage of raw materials, of work-in-process inventory, and of finished goods from point of origin to point of consumption.
- Blockchain make supply chain management more efficient.
- The implementation of blockchains will bring traceability, transparency, and accountability to the movement of goods and commodities.
- There will be no need for individual users to constantly share operational data and someone else to cross check it.

KEY FEATURES

1. **Data transparency** : Blockchain technology allows for a highly transparent network that is visible to each stakeholder at all times. This dramatically reduces the chances of illegal transactions.
2. **Immutable data**: Once a block with a set of transactions is verified by the consensus and stored in the chain, the encapsulated data can no longer be modified.
3. **Enhanced data security**: Blockchain technology utilizes asymmetric cryptography to ensure data security and individual identity.

METHODOLOGY

a) Architecture



METHODOLOGY

b) Consensus

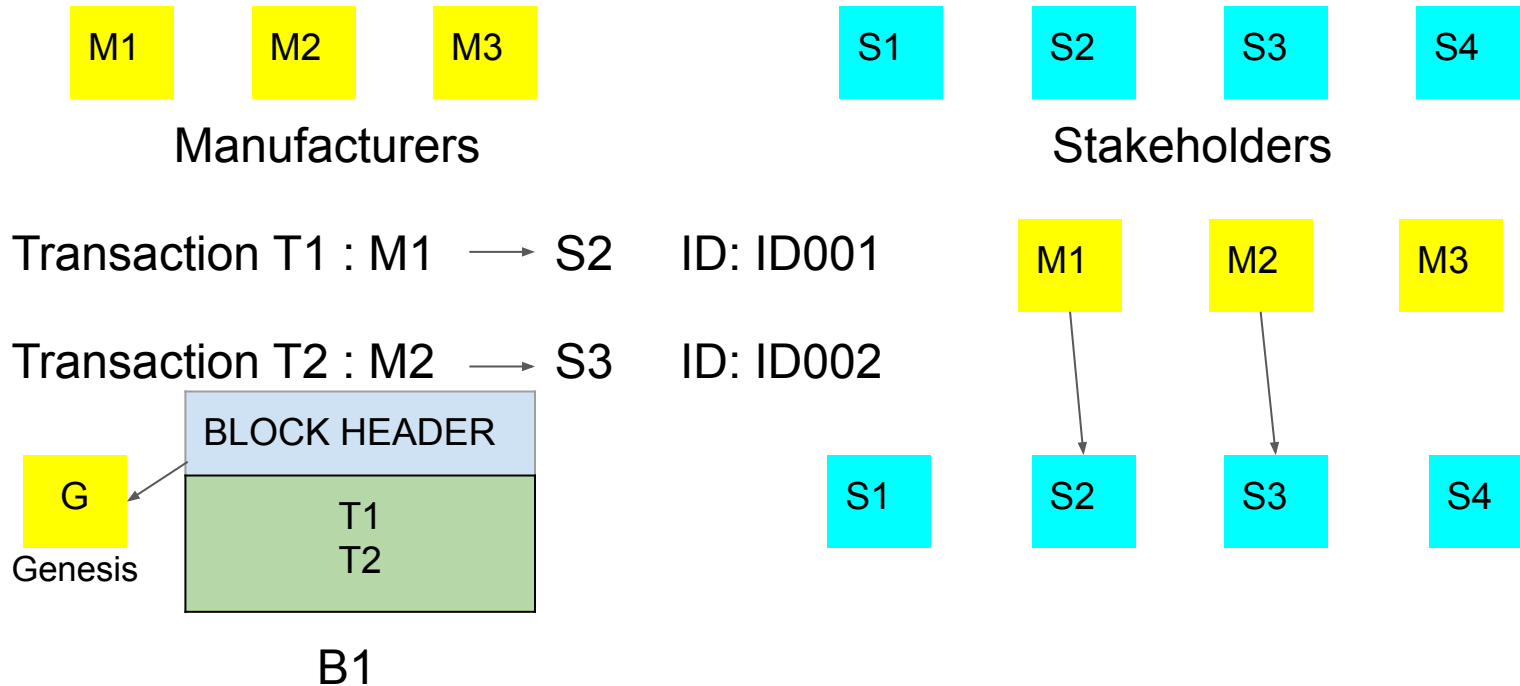
Proof of Work:

The implementation of proof of work uses SHA 256 hash function. The miner collects the transaction and starts mining the Proof of Work.



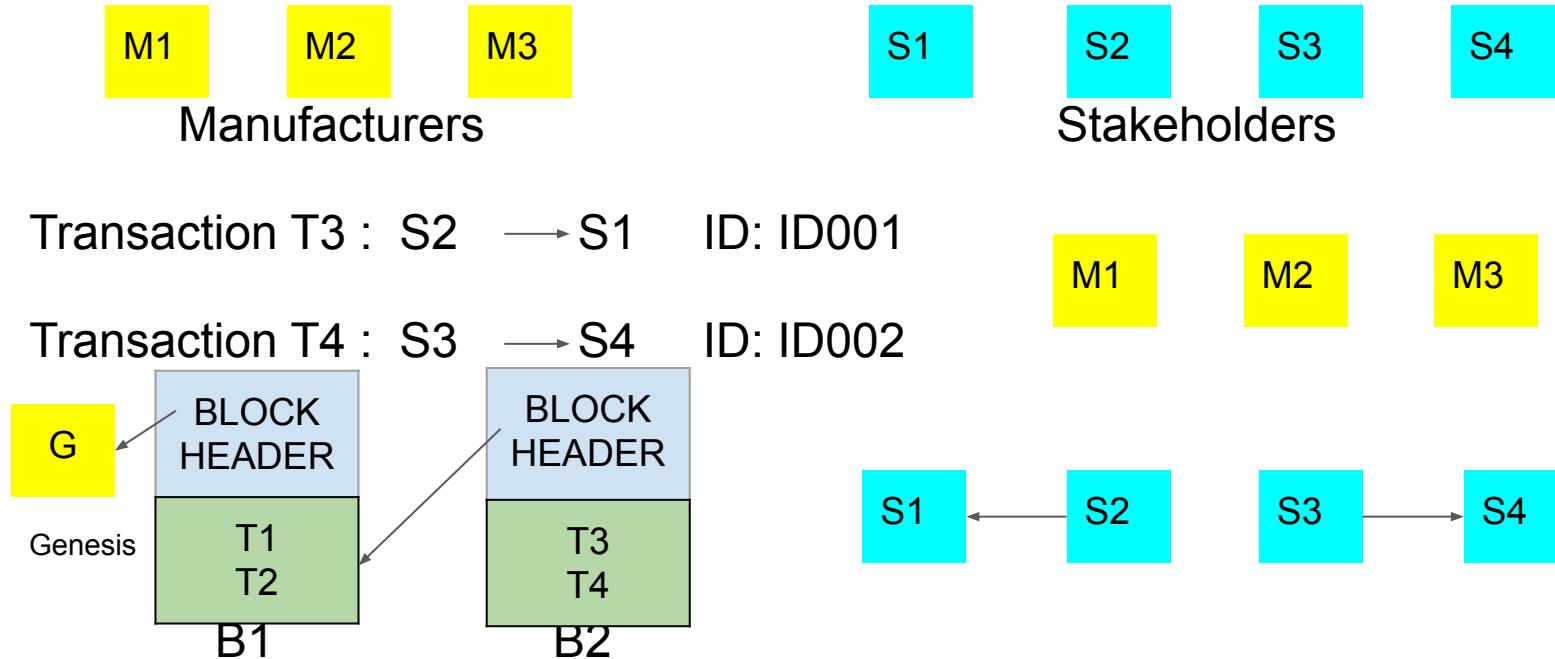
EXAMPLE

For number of manufacturers as 3 and Stakeholder as 4.



EXAMPLE

For number of manufacturers as 3 and Stakeholder as 4.



FUNCTIONALITIES

1. View the blockchain.
2. Enter a transaction.
3. View the UTXO array.
4. Mine a block.
5. Verify the blockchain.
6. Generate RSA keys.
7. Track an item.

ADVANTAGES

- Real time tracking of product (from making of product by raw material to selling to the end user).
- Make the supply chain data immutable.
- Reducing the cost to courier the product.
- Minimize the paperwork required to maintain data.

NOVELTY

- Tracking of product
- Tamper proof
- Denial of service mechanism applied
- Signature based system

CONCLUSION

- A blockchain enabled supply chain is created where manufacture and stakeholder using their public and private keys transfer the product from one to another.
- Supply chain of blockchain keep track of all the transaction happened in past and we can easily track the item history that when and by whom it was transferred .
- Supply Chain make the database tamper proof by using SHA cryptographic algorithm.

REFERENCES

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Thank You