

PES Hackathon for SIH 2020

Idea Title:

Goods Tracking using Blockchain

Team name: The Detectives

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Problem Details

- Problem Statement
 - Software to track the goods through its delivery path and ensure safe delivery
- Problem Description
 - Can some cost-effective digital solution (on the lines of RFID) be provided after packaging the bales to track the goods through its delivery path and ensure safe delivery at the consignee's end? This will help to ensure that no goods are lost in transit. In case of good lost, the same can be traced back and delivered to consignee.

Solution/Approach Details

- **Solution / Approach:**

1. A package delivery system based on the blockchain technology which would help enhance the security with data integrity and the verification of both users and data.
2. A web app will be built for the same.
3. Deploying the service on a blockchain service such as Microsoft Azure.
4. Tracking using RFID technology.

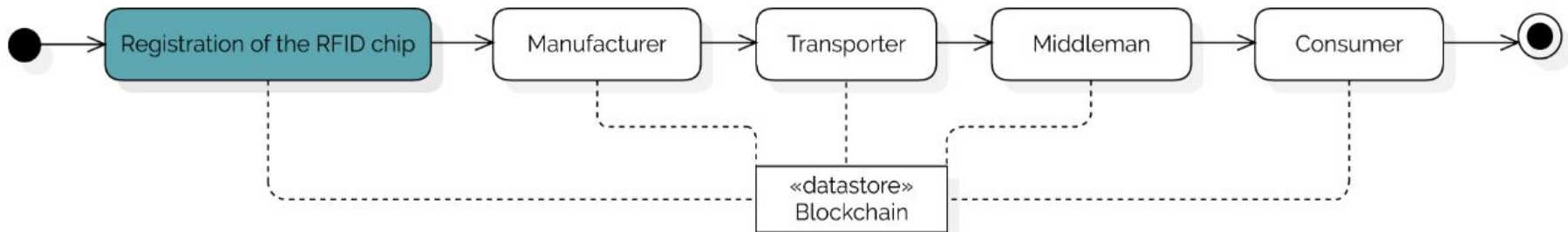
- **Technology**

- Web App Development
- Blockchain
- RFID

Solution/Approach Details

Blockchain approach has the following advantages:

- 1) Multiple parties are involved in transactions along a supply chain, and each typically has its own version of the truth. This results in many errors, duplicates and redundancies. A single common general ledger that is tamper-proof mitigates many of these inefficiencies
- 2) Decentralized: eliminates the risk of a single point of failure in the network.
- 3) Unchangeable: Data is written onto the blockchain in a way that cannot be altered without detection.
- 4) Consensus
- 5) Democratic: Ensures transparency
- 6) Provides efficient provenance tracking



Current Prototype

- 1) For our demo we chose the Ethereum Project.
- 2) “ProductManagement” smart contract will keep details about each part and shipping products.
- 3) The “ChangeOwnership” contract is used to add and change ownerships of parts, shipping products between the various parties involved.
- 4) We use Ganache for a local network and Truffle for testing and deploying.
- 5) We use Metamask to manage wallets and interact with ethereum network.
- 6) Sender address and part information on a bytes array is hashed. This is done even for the shipping product after verifying the constituent part.
- 7) Events are logged with transactions, so that will be the core of our “tracking” functionality.
- 8) We use the web3 library to call our smart contracts’ methods. A web app is built using Html, JS and Materialize.



*Thank
you*

A close-up of a fountain pen nib, showing the gold-colored metal and the black barrel of the pen. The nib is positioned at the end of the word 'you' in the cursive text.