Project outline

Introduction:

This project is to solve the “trust issue” in the supply chain, track the goods from material to product in customers’ hands. These goods including the luxury products, the medicines, and daily use products. The blockchain technology is based on smart contracts can be used to track movements in supply chain, and validate the position and condition of the product. We should record all the information of the product, make each parties event and action to be captured and validated as the per condition of the contract.

The problems:

1. Fraud issue;

Using doubly-signed smart contracts, no fraud by middle man.

1. Centralization

Using decentralized nodes to check delivery states.

1. Tracking the travel information of the product.

Using merkle trees to verify the validity of product

1. Disruptions issue

When nature disasters happen, the system will be disrupted.

1. Complicate relationships between the parties, including many to many relationship

Using two hashmaps, Map<S, Set<C>>/Map<C, Set<S>> to solve the many to many problem. And also use the smart contract to make consensus between multiple parties.

Project goals:

1. Stack development.
2. A set of smart contracts on the Etherum platform based on the standard smart contracts.
   1. Rollback contracts
   2. Factory contracts
   3. Permission control contracts
   4. Identification contracts
   5. Authentication contracts
   6. Token contracts
   7. Exchange Token contracts

…

1. A web based front end to access these contracts.

This web will provide the user-friendly interface. It should be easy to pay the gas to get the services, and as stable and security as possible.

1. Technical testing

This software testing should make sure the software is security and stable that meet the software standard.

* 1. White box testing

This test should include statement coverage, branch coverage and so on.

* 1. Black box testing

Without internal structure, using the equivalence class partition method, boundary value analysis.

* 1. Gary box testing

Focusing on the programs internal condition.

1. Thesis

This thesis should include basic knowledge about the steps which I develop this system and the role of the smart contract, the future of this system.

Timeline:

W1 - W2: Confirm the direction and expected output， write the proposal.

W3 - W5: Deploy the smart contracts.

W6 - W8: Web based front end and testing.

W7 - W9: Write thesis and prepare presentation.

W10: Presentation

