浙江大學

Open Report

Research Topic: Blockchain and Smart Contract

Group Number: 1

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Chapter 1: The Understanding About the Topic

A smart contract is a computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract. Smart contracts allow the performance of credible transactions without third parties. Since third parties are omitted, the cost of each credible transactions will be reduced a lot. Usually, third parties are banks, or other lending institutions. Smart contracts help people exchange money, property, shares, or anything of value in a transparent, conflict-free way while avoiding the services of a middleman. Smart contracts not only define the rules and penalties around an agreement in the same way that a traditional contract does, but also automatically enforce those obligations.

Obviously, a smart contract should be executed in a secure environment that directly controls digital assets. In fact, **blockchain technology provides such an environment because of its properties of sharing, publicity, transparency, unforgeability, traceability and many other well properties.** The blockchain technology begins with Bitcoin, using distributed data storing, point-to-point transmission, consensus mechanism, encryption algorithm, and other computer technologies. The blockchain is a database without a center, and as the foundational technology of Bitcoin, it consists of a series of data block, with every block stored the information of one network transaction, which makes its information effective and traceable.

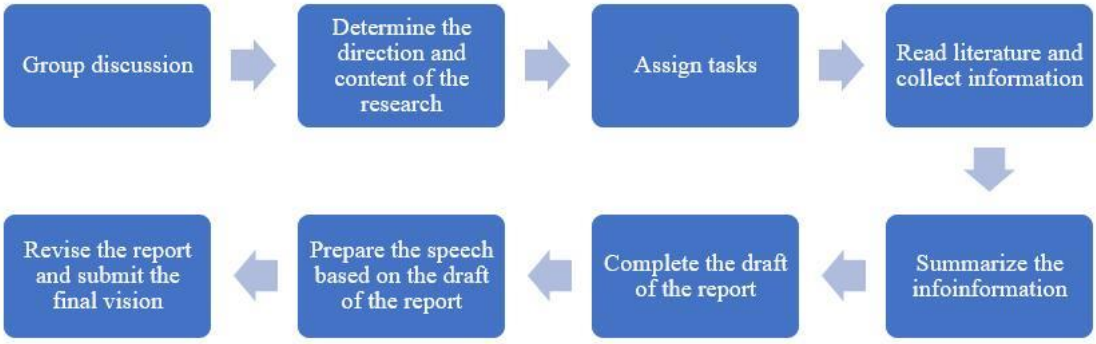
There are many applications of smart contracts. In finance, the natural accountable blockchain makes smart contracts enjoy the visible advantages. Smart contracts can not only encapsulate complex financial behavior of nodes with automated code to improve the level of automated transactions, but also can write any asset on the blockchain into the code or mark it to create smart assets, enabling programmable currency and programmable finance system. More important, the cost of dealing contracts have been decreased a lot. In addition, smart contracts can also provide efficient, secure and transparent contract guarantees for the insurance industry, increase the speed of claim processing, and reduce the cost of manual processing of claims.

Another example, in management, traditional organization and management is top-down “pyramid” structure, which is prone to bloated institutions, high management costs, unclear definition of responsibilities, poor information transmission, and other issues. Smart contracts can code management rules. After the code is set, the organization can run autonomously in accordance with the established rules. Each individual in the organization, including decision makers, performers, supervisors, etc. Equity, or the form of providing services to become shareholders and participant of the organization. In addition, all management rules coded smart contracts are open and transparent, which also helps to prevent all kinds of corruption and misconduct.

At present, the development of smart contracts also faces many challenges, such as

privacy issues. Fully public transaction information will make it difficult for smart contracts to ensure user privacy. There are also legal issues, mainly reflected in how to convert traditional contracts to smart contracts in the contract layer. And the most important security issue, smart contracts that have been deployed on the chain are irreversible. Once their potential security problems are triggered, they will be difficult to repair, and the economic losses caused by them will be anonymity of the blockchain, which may provide convenience for malicious users, and then cause real-world security issues.

Chapter 2: Task Flow



Chapter 3: Work Distribution

Group Leader：张溢弛

Open Report：王晨露、康锦辉

Speech：朱王逸、康大凯、季奕君

Report：求昊泽、张琦、袁浩然、聂俊哲、张溢弛

Chapter 4: Schedules

DATE	PLAN
3.1—3.8	Determine the direction and content of the research; Assign tasks; Complete the open report.
3.9—3.22	Read literature and collect information; Summarize all the information.
3.23—3.29	Set type and complete the draft of the report.
3.30—4.5	Prepare the speech.
4.6—4.17	Revise the report and submit the final vision