**DEFINE PROJECT**

**PROJECT NAME : FOOD TRACKING SYSTEM**

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The frequent occurrence of food safety accidents at the global level has triggered consumer sensitivity. Establishing a food traceability system can effectively guarantee food safety and increase consumer confidence and satisfaction. Existing food traceability systems often ignore environmental factors that affect food quality at all stages of the supply chain, and the authenticity of the information obtained through traceability is difficult to guarantee. In this study, a food supply chain traceability model was established based on blockchain technology. The model focused on the traceability of environmental data during the various stages of the food supply chain and combined a centralized database and blockchain for data storage. The lot identification data of the various supply chain stages were stored in a centralized database, while the environmental data were stored in a blockchain. Thereby, the authenticity and accuracy of the traceability data were ensured. The blockchain part of the model has been simulated in the Ethereum test environment, and the experiment has achieved traceability of temperature data.

Blockchain is a decentralized, distributed database technology. Using rigorous cryptographic algorithms, blockchain connects data-storing blocks in a chain structure according to the order of the generation time of blocks. Therefore, data stored using blockchain technology have a time stamp that cannot be tampered with or manipulated. All transaction records in a blockchain are verified with a complete evidence chain and a highly reliable traceability link. Therefore, the application of blockchain technology in a food traceability system can effectively prevent data tampering and manipulation by any users. Ethereum is a blockchain-based platform featuring smart contracts. Different from Bitcoin applications, which are only for transactions, Ethereum is a brand new, open blockchain platform that allows any user to develop and use decentralized applications based on blockchain technology on the platform. Ganache, which is an in-memory blockchain designed for development and testing, simulates the function of the real Ethereum network. Providing users with a readily available in-memory blockchain, Ganache supports the query of transaction logs and the status monitoring of smart contracts. In this study, a food traceability model was developed and tested in an Ethereum testing environment provided by Ganache.

Owing to its distributed consensus and anti-tampering capabilities, blockchain technology can be used for various applications and provides the highest level of security and trustworthiness [5]. Therefore, the application of blockchain technology to food traceability can effectively ensure the authenticity and reliability of the traceability data. Currently, there are few blockchain-based food traceability systems.