Blockchain And Decentralized Blockchain Network

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Building our very own blockchain and decentralized blockchain network by using the JavaScript programming language. Purpose of this project is to learn how blockchain technology works under-the-hood, how decentralized blockchain networks function, how the code behind these technologies work, and why blockchain is such a secure and valuable technology.

Features of this project:

A **proof of work** algorithm to secure the network.

Hashing algorithms to secure the data within the blockchain.

•The ability to **mine (create) new blocks** that contain data.

•The ability to **create transactions** and store them in blocks.

•An **API/server** that will be used to interact with the blockchain from the internet.

•It will be hosted on a **decentralized blockchain network**.

•A **consensus algorithms** to verify that the network nodes have valid data and are synchronized.

•A **broadcasting system** to keep the data in the blockchain network synchronized.

Problems:

1.Double Spending Issue:

Forgery on a non-existing coin is impossible in a public decentralized ledger because of proof of work algorithm.However, different from a physical coin, a digital coin can be easily replicated by duplicating the data. In this context, it is critical to prevent the dishonest behavior of spending a coin more than once.hash-linking feature of the blockchain, each coin in the ledger can be traced back to the first record when it was created.

2.Centralized systems & Transparency Issue:

Centralized systems are criticized for the single-point-of-failure (SPOF) issue. Decentralized systems implemented in a distributed manner suffer from the data synchronization issue,In other words, the participants in the decentralized ledger system need to achieve consensus, an agreement upon every message being broadcast to each other.

References:

1.https://ieeexplore.ieee.org/abstract/document/8466786
2.http://cse.stfx.ca/~blockchain2018/