

TO THE CREATION OF SPECIALIZED SOFTWARE FOR THE PURPOSE OF DATA SYNCHRONIZATION BETWEEN SMALL MACHINE-BUILDING ENTERPRISES

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One of the main tasks of modern mechanical engineering is a way to synchronize product data between individual firms. Using the traditional (centralized) way of storing data, there is a high risk of data loss or unauthorized modification. Since the data is stored in one place, it is enough to delete or change it in one place and it will be difficult to track.

The work aims to research and create a decentralized way of storing and exchanging data based on blockchain technologies. If the design and technical data about a product are stored not in one place, but several, this will greatly complicate their unauthorized change or deletion. Since when data is deleted from one place, it will remain with other users, and if one user changes inconsistently, the data will differ from the data of other users, which will make his data irrelevant. Also, the blockchain will store the chain of changes, which will allow you to view the order, time, author, changes that will be made to the documentation. To develop such a system, it is necessary to analyze existing blockchain-based technologies such as cryptocurrencies (Bitcoin, Ethereum, Litecoin, Monero, Dash, Zcash, VertCoin, BitShares. You should pay attention to blockchain projects not related to cryptocurrencies, for example from such giants as Microsoft. Based on Azure Blockchain as Service, many blockchain solutions have already been developed for various industries, for example, "the first international transaction for the transfer of carbon credits over the blockchain. Blockchain projects of IBM, the main direction of which is the creation of "smart string contracts" and the creation of cloud storage. However, as you can see, most blockchain technologies are focused on creating currencies, or contracts, which is an analog of banking systems, only decentralized, we will have to either modify something ready or write our own. First of all, it is necessary to create structures that will describe the data for storage and synchronization (drawings, technological maps, etc.). The next step is to find a way to synchronize this data, you need to select network protocols, and the way we will transfer data between users. It is also necessary to select a protocol that will encrypt the hash of the sum of the files. Two main types of data were identified, these are design and technological documentation. The design data will contain drawings (parts, assembly, general view, theoretical, dimensional, electrical, assembly, packing), specification, explanatory note, specifications, technical requirements, types of design documents. The expected result of the work will be software that will allow users to securely store, share technical data that will be protected by digital signatures.