

THE USE OF "BLOCKCHAIN" TECHNOLOGY IN E-LEARNING

Nowadays the Blockchain popularity is rapidly growing. There are a couple of effective solutions based on "Blockchain" already today, such as "Bitcoin" which is an innovative payment network and cryptocurrency. Another example is a "Brave" browser that allows everyone to pay for sites and content anonymously, etc.

Basically, "Blockchain" is a distributed database. Everyone can securely access it and execute a transactional code. All transactions are stored in blocks of data. These blocks are created in such a way, that it becomes very difficult to manipulate them after they are added to "Blockchain". In order to add a block to "Blockchain" it is necessary to verify this block and after that it can be added. This procedure is called "mining". It is very ineffective to try to cheat a system, a giant amount of resources and computed power is needed for that, because the whole network is responsible for transactions verification and adding them to "Blockchain". So "Blockchain" can solve a security, high availability and transactions speed problem.

The architecture of "Blockchain" makes it a very powerful tool for usage in cryptocurrencies, building chronologies, certifications, safe information transferring, virtual products and many solutions in "Internet of things" field, for example your washing machine can safely order a washing powder, when it is needed.

One of the potentially interesting fields of "Blockchain" usage could be an E-Learning. A blockchain-based distributed, highly available learning management system can be a good example.

Such a system can have a blockchain-based certification method for students who completed the courses successfully. This way the network is responsible for the authenticity of course results, transactions in this case are results of course completion.

In addition, the encouragement mechanism to actively pass courses, to share knowledge, to write feedbacks, to share the content and other encouragement mechanisms for students can be implemented in this system based on "Blockchain". On the other hand a similar mechanism can be implemented to encourage course authors to publish their courses, to share knowledge and to improve their learning resources. To achieve that, an internal currency can be created and used. This currency will be paid to miners for the course results verification, to authors for content sharing, to learners for feedbacks, successful completion of a course and other things.

Everyone will be able to buy some resources like courses, certificates, learning content inside the system using internal currency. It allows network participants to have a reward for an active participation in a learning system improvement.

Besides, everyone will be able to buy an internal currency for real money and, probably, sell his/her own internal currency for real money. It will make system more flexible.

One more potentially effective way of using internal cryptocurrency is paying it for posting and watching advertisement inside the learning content. It allows to make resources cheaper, and get additional bonuses for network participants.

Internal cryptocurrency can be widely used inside a system for a safe money transferring from course learners to course authors, without any third parties, commissions, and it can be done really fast.

The "Blockchain" technology is a new page in architecture of highly reliable and highly available distributed systems and databases. It perfectly solves complicated accessibility, reliability and speed problems. A couple of effective solutions in different fields based on "Blockchains" have been already shown to the world. This technology can be effectively used in E-Learning, it allows to implement innovative methods in modernization of learning management systems field, it can solve motivation problems in a new way, more effectively.

REFERENCES

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