A Study on a Fake News Tracking System Based on Block chain Technology

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Abstract: Background/Objectives: This research relates to how to track atomic volumes of fake news using smart contract technology in the block chain. Methods/Statisticalanalysis: Using smart contracts, it was used as a smart contract based on how the original work was authenticated by the author of the original work and how the source of the news was authenticated by the authentication procedure and legal basis. Findings: Protect original author's news articles using block contract's smart contract technology and generate false news by using original news articles to protect original works according to legal certification procedure so as not to view stolen news articles.

Improvements/Applications: Through the Smart Contract and the Distributed Settlement Procedures, the original work can be protected and avoided.

Keywords: Ethereum, fake news, tracking system, Blockchain, smart contract

I. INTRODUCTION

In this age of a mobile society, smartphones officers voice calling and text message exchange features basically. As the world connects further, additional services that require separate apps such as Internet banking are on offer. Blockchain has both basic features and additional application features. Currency issuing, smart contracts, and smart assets are examples of Blockchain's basic features. For example, if the current system e-documents a copy of a real estate register, this file only proves ownership. However, a blockchain computer can create digital assets cryptologically. In addition, the entity enters into a transaction for derivatives. Ethereum will function as a payment method in the economy, which is the blockchain of above. The study is about how to use Ethereum's smart contact technology to find the element of fake news.

II. MATERIALS AND METHODS

Before studying the main blockchain technology and how to protect the original story of fake news, we studied the use of ERC20 token in Ethereum before using it.

2.1. Ethereum and Blockchain

One of the blockchain technologies is ethereum. The advantage of ethereum lies in its technology to build it. Ethereumis divided into various application services. And each service operates in a single Ethereum ecosystem. Eventually, Ethereum will function as a platform for more services to operate. These advantages make it easier to implement eidery-related applications, etc. At the same time, the benefits of ethereum ecosystems can be built and divided into various application services, since it is advantageous to developers by allowing interworking with other ethereum based software.[1]

2.2. Ethereum and Smart contract

The Smart Contact first presented by Nick Szab is a computer protocol for e-commerce. Szabo has a computer transaction protocol that implements and defines contact conditions and aims to minimize the trust of a transaction to a broker, to meet contact conditions and to minimize malicious conditions. The blockchain supports smart contact, enabling automated direct transactions between parties without involvement by central agencies, and ensuring reliability and integrity by maintaining the information in the transaction in the distributed books.

This means that protocols that contain the desired conditions are programmed through smart contacts, stored in the blockchain, and executed and verified on the smart contact by participants in the other blockchain when the specific conditions are met.

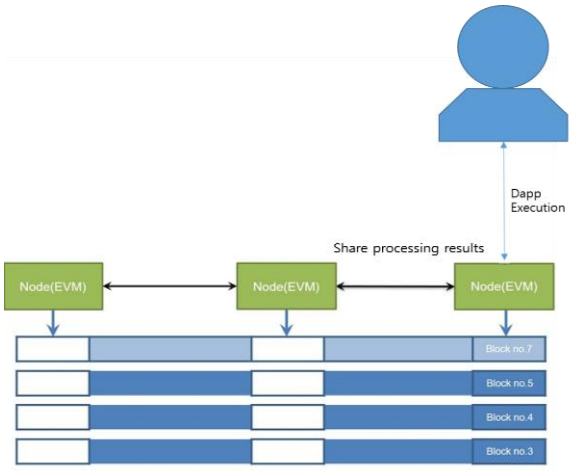

Figure1. Dispersal agreement procedure of etherium

This means that protocols that contain the desired conditions are programmed through smart contacts, stored in the blockchain, and executed and verified on the smart contact by participants in the other blockchain when the specific conditions are met.[Figure 1.] The results of the execution are then stored securely and so that information about the results of the transaction can ensure reliability and integrity. This concept was first commercialized in the Ethereum Block Chain and is being accepted

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as a protocol concept not only for financial transactions but also for new concepts. For devices with computing power, autonomous and automatic control is expected to be available in the block chain's smart contacts, and there are tokens used: ERC20, ERC223.

ERC20 stands for Ethereum Request for Comment (ERC) 20 and is a token (Token) issued as standard in an EtheriumBlockchain network. [2]Eitherium can be seen as a platform network designed to be implemented as an application that can be de-centred in different shapes on a blockchain basis. The Dapps used make it easy and fast to access the ethereum platform and use the smart contact feature to issue compatible tokens over it. The Ethereum is the currency used in the blockchain (Either), and the Dapp using the blockchain of it publishes tokens that can be applied in a variety of areas. In a simple comparison, iOS and Android serve as a platform and apps are being distributed in places such as Playstore and App Store. And using an app, it seems impossible to incorporate points that occur in a given part, as well as PC-based, but not just in the same company's line. Ethereum is implemented on a platform in its own right, and since the implemented solutions are core technologies of decentralization based on blockchain rather than single central control, they are owned by as many participants as possible. The company's tokens may look like stocks, but they are priced when moving. This exchange of tokens within the Dapp made in the EthereumBlockchain, and the token of Dapp on the other ethereum, was made for this purpose by the ERC20 Token Standard. ERC223 can randomly design smart contacts for the Ethereum block chain. However, rules for scheduling smart contacts to create tokens are determined so that third-party software such as MyEtherwallet and Mist can easily access them. These rules include variables, functions, and names. Ethereum token developers strongly recommend following this rule. Otherwise, the token may not be recognized by EthereumWallets.The ERC20 guarantees that the created token can be simply transferred between the wallet and the contact, which has three functions. The first is 'transfer', the second is 'transferFrom' and the third is 'allow' and all three must exist in all ERC20 contact. People can simply use 'transfer' to send their tokens to send their own tokens, and if someone wants to use the transfer to a contact, the contact must be 'allow' before the token is sent from the contact and then a new standard set of 22. ERC223 is backward compatible with ERC20 and all software that supports ERC20 supports ERC223. ERC223 also merges token delivery between the wallet and the contact into a single function 'transmission'. The biggest change is that ERC223 can no longer retract or transfer tokens. Before ERC223, sending one's token to a contact that has made it unusable will lock hundreds of thousands of dollars worth of ERC20 token because the token will lock and not leave the contact.[3]

2.3. Ethereum and Distribution Agreement

Distributed agreements are protocols that elicit agreement on specific data values between airfields and processes in order to achieve overall system reliability when faulty processes exist in areas such as multi-airfield systems and distributed computing. To this end, the Distributed Agreement protocol has the following characteristics. Validation: If all processes propose correct and identical data, all processes make a decision (valid, valid) on the proposed data. Integrity: If one data has been adopted by the correct processes, that data is the data proposed by the other processes. Consent: You must agree on the correct processes for any data. Termination: All data must be made correctly for the processes. In the above blockchain, the distributed agreement protocol is designed and agreed among participants on the information or transactions resulting from it. It is one of the key parts since only information and transactions are maintained in blockchain after appropriate agreements. In addition, depending on how the distributed agreement protocol is used, the characteristics of the block chain are distinct and the reliability of the system is affected.[3]

Bitcoin, a representative blockchain, uses a proof of operation called a distributed protocol.

This proof of operation protocol is a 'work' protocol agreement for which transactions and data are made for the blocks of participants to be stored, and specific hash values are found in an trial and error manner. However, task-proven, decentralized agreement protocols require an average time of 10 minutes, and at the same time there is a huge waste of computer resources and power, making them less scalable and less likely to be used in block chains after Bitcoin. The recent blockchain launch mostly uses an equity-verification algorithm called the voting-based consensus algorithm, which resolves the issue of electricity waste and consensual speed, although security was lower than the task-verification agreement.Algorithms such as Practical Byzantine Fault Tolerance (PBFT), Delegated Proof-of-Stake (DPFT), andTendermint based on Proof-of-Stake (POS).[4][5]

2.4. Ethereum and Distributed books

Distribution books are records stores of information shared, replicated and synchronized by consensus among participants.[6] In particular, for the P2P network to be eligible, consensus on the distributed bookkeeping of participants is required.[6ributed books retain their characteristics in the blockchain, and distributed books record all information and transactions that occur in the blockchain through verification by all participants and maintain the same information for all participants. When each participant validates the information or transactions, only the links and information already recorded for the distributed books kept in the distributed books are checked and properly executed by the participants' consent are stored in the distributed books of the blockchains. When each participant validates the information or transactions, only the links and information already recorded for the distributed books kept in the distributed books are checked and properly executed by the participants' consent are stored in the distributed books of the blockchains. When storing information or transactions, the time is accumulated and stored in a storage unit called blocks, and the information is stored in a distributed book with the connectivity between these blocks.

A schematic diagram of the blocks stored in the distribution book ensures that these distributed books are based on the integrity of the data. Because all users participating in the block chain, such as Figure2, maintain the same distributed data for an attacker outside, half of the computing efforts held by participants in order to double-trade, false-modulation, and so on. However, distributed accounts, one of the core technologies of the block chain, have limitations to the usability and scalability of the blockchain, requiring a high storage capacity and recording of all the information generated.[7]

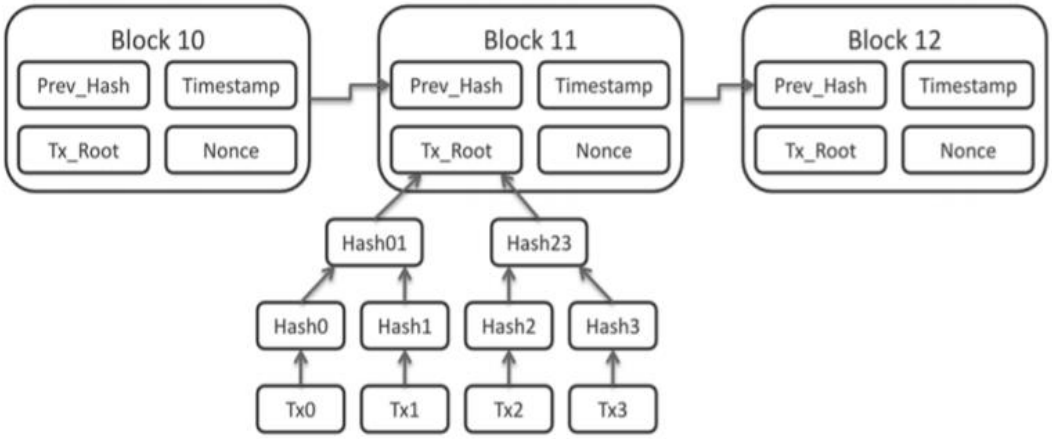

Figure 2.Block Chain Core Technology and Domestic and Foreign Trends

III. RESULTS AND DISCUSSION

The company is proposing to develop and apply a protocol development architecture that tracks transactions between contractors electronically using Ethereum's smart contact technology to prevent forgery and alteration of original works of fake news.

3.1. Ethereum and Fake news

Ethereum has an advantage in smart contact. Smart contact is an electronic guarantee of transactions between parties and contractors. [8][9] Use the hash function as the underlying technology. Seal transactions between the two parties as a hash function. A sealed transaction is not modulated by a third party or parties to the transaction. Once implemented, smart contacts are not falsified and must be executed according to the conditions. [10,11] The original work of fake news can be tracked based on the characteristics of more smart contacts. A protocol that effectively tracks this can be developed.

Examples of original crop issues are given in Table 1. Effectively tracks this can be developed.Examples of original crop issues are given in Table 1.

Table 1.Issues on fake news and original works when applying Smart Contact

issue	content
technology	Due to the nature of the blockchain, the principal whose transaction was recorded is jointly owned by all participants. This is why everyone owns the original story of the news. This will allow all participants to see the original work of the news and prevent news sources from making corrections. "Considering the laws concerning the rights of press arbitration and damages, the "principle of freedom of speech, freedom of speech, freedom of speech, and freedom of speech" (the principle of copyright), the "newspaper, etc.). Finally, if the encryption rules are released even if the contents of smart contacts are encrypted, serious fake news can cause damage to the media, such as deleting and modifying original works.
law, system	Personal information may be inevitably entered into when a contract is written. For example, under the Enforcement Decree of the Act on Arbitration for the Preparation of Real Estate Transactions, the parties' personal information is essential to items. However, the Personal Protection Act and the Information and Communication Network Act strictly regulate the collection and processing of personal information. The provisions of Article 23 of the Information and Communication Network Act 2 stipulate that the restriction on the use of resident registration numbers prohibit the collection and use of resident registration numbers and, if allowed, provide alternative means of identification.

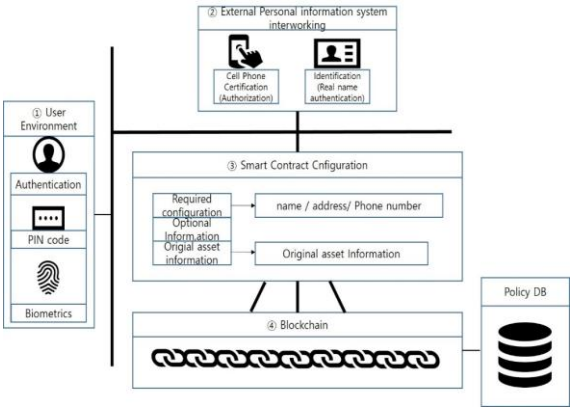

Figure3.Gives a diagram of the ethereum and smart contract

① Smart context-based technology application to the management architecture of original works, biometric authentication of original authors, and user access control environment using PIN codes

② In conjunction with the external authentication system for identification or mobile phone authentication, authentication of essential and optional information required for smart contact and inputting original production information.

③ Configuration the policy database, including account information required to execute smart contacts

④ Resulting blockchain of smart contact in ethereum and policyDB

Table 2.A Study on the Application of Smart Contact considering the issues related to original works of fake news

issue	apply measure	
technology	**certified**	Prepare alternative resident registration number by using PIN CODE and biometric authentication when the author of the original work requests the consent to use personal information
	blockchain	When the original author's personal information needs to be registered in the block chain, the security is improved by using the advanced cryptographic technique (e.g. Merkle tree). If the author's personal information needs to be destroyed for reasons such as the expiry of the original author's personal information retention period, the block cannot be modified or deleted by allowing access only to users who have access to the block.
	law, system	Provide users with the ability to select the retention period of personal information collected Individually marked when the original author's personal information needs to be displayed Efficiently manage personal information using policy database when it is inevitable to keep personal information

IV. CONCLUSION

In this study, blockchain technology can be extended to a variety of application services. A typical example is when block chains and cryptographic bills are combined into media services. The study looked at the application technology that tracks the original work of fake news based on ethereum, an encryption money. As a result, it is analyzed that [Figure 3] will have significant effects by using Ethereum-based smart contact technology to find fake news. Based on this, specific and detailed ethereum and other technology protocols are expected to contribute to further research.

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REFERENCES

1. Dong-Young Lee, Ji-Woo Park, Jun-Ha Lee, Sang-Rok Lee, Soo-Yong ParkCommunications of the Korean Institute of Information Scientists and Engineers 35(6), 2017.6: 22 1-7. http://www.dbpia.co.kr/Journal/ArticleDetail/NODE07503549
2. Kim, YoungMin, Document Type Certification-Based Index Search Algorithms for Searching Transaction in the Blockchain, 2018. 9P http://dcollection.hanyang.ac.kr/jsp/common/DcLoOrgPer.jsp?sItemId=000000105132
3. Cho, SeongGeun, Proposal of Integrated Model based on Artificial Intelligence for Cryptographic Currency Analysis, 2018, 6 p http://dcollection.hanyang.ac.kr/common/orgView/000000106556
4. Myeong-soo Kim, Eun-JinIm, Ethereum Smart Contract Vulnerability Checker.
Korea Computer Convention2018.6 1940-1942. 1941.P http://www.dbpia.co.kr/Article/NODE07503549
5. SeohyeonJeong, Choonghyun Lee, Yongwoon Jang, Junyoung Choi, Jongyoon Choi, Jeongwoo Huh, SungraeCh A Study on the Blockchain and Distributed Consensus Problem, The Journal of Korean Institute of Communications and Information Sciences2018.1, 1254-1255http://www.dbpia.co.kr/Article/NODE07369155
6. Jin-seok Nam, A Study on The Blockchain-based Financial Information Service Model - Focused on National Housing Bond Transaction, Hoseo University 2017.12 11phttp://hoseo.dcollection.net/common/orgView/200000008429
7. Chul-Jin Kim.An Online Voting System based on Ethereum Block-Chain for Enhancing Reliability, 2018.4 http://koreascience.or.kr/article/ArticleFullRecord.jsp?cn=SHGSCZ_2018_v19n4_
8. Hyo-Yon, Chung*, Mi-Suk Lim*, Heau-Jo Kang**, and Yoon-Ho Kim**, Block Chain Based Smart Contract Technology Trend, kitsy&kdcs, 2018.6, 60-62,

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication

3phttp://www.dbpia.co.kr/Article/NODE07467609

9. Hwang, Yong Suk, Jeong, Jae Kwan, Jung, Da Woon. An analysis of consitutional limitations of political legislation bills on Fake news 2018.6, 25-2 101-123, 23 p, http://www.dbpia.co.kr/Article/NODE07491881
10. Lee Su Hyeon, Kim HyeRi, Hong Seung Phi, A Study on Design MEthod for Privacy Protection in Smart Contrac, The Journal of Korean Institute of Communications and Information Sciences2018.1, 604-605 (http://www.dbpia.co.kr/Article/NODE07218283)
11. Nallapaneni Manoj Kumar, **Pradeep Kumar Mallick**, "*Blockchain technology for security issues and challenges in IoT*", Elsevier Procedia Computer Science Journal, Volume 132, Pages 1815-1823 , 2018, ISSN:1877-0509, UGC Sl No: 46138 and 48229, DOI: https://doi.org/10.1016/j.procs.2018.05.140.