IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

BIOMETRIC BLOCKCHAIN: BETTER SOLUTION FOR THE SECURITY AND TRUST OF FOOD LOGISTICS

[1]M H FATHIMA HAMEED, [2]AMBILY JACOB

[1]Msc Scholar, [2]Assistant Professor

[1,2]Department of Computer Science

[1,2]St.Joseph's College (Autonomous), Irinjalakuda, Thrissur, India

ABSTARCT

Blockchain has been emerging as a promising technology that might totally change the landscape of information security within the coming years, particularly for data access over Internet-of Things(iot) and cloud servers. However, blockchain itself, though secured by its protocol, doesn't identify who owns the information and who uses the information. Apart from simply encrypting data into keys, during this paper, we proposed a protocol called Biometric Blockchain (BBC) that explicitly incorporate the biometric cues of people to unambiguously identify the creators and users in a very blockchain-based system, particularly to handle the increasing must secure the food logistics. The advantage of using BBC within the food logistics is clear: it can't only identify if the info or labels are authentic, but also clearly record who is chargeable for the secured data or labels. As a result, such a BBC-based solution can great ease the issue to regulate the risks accompanying the food logistics, like faked foods or wrong gradient labels.

KEYWORDS

Biometric Blockchain, iot(Internet-Of-Things), Food logistics, Pesticides, Bitcoin Blockchain, Cryptocurrency, Wrong gradient labels.

INTRODUCTION

Food logistics as the most important assiduity for everyone's diurnal life, is generally facing great challenges in its security control. This subject has attracted a good attention by assiduity and experimenters following a recent incident reported on BBC and Sky News that a youthful teenager girl, after eating a sandwich vended at the field, failed of the mislike to the peanuts grade within the sandwich. Though it's been needed by the legislation that food suppliers must easily label the sources and slants in their handed foods, it's hard to observe the entire food product processes, while multiple grade providers could also be included in one food product, and it's not rare to mislabel one food grade with others or incorrect one source with another during the food logistics because it has been extensively anticipated, blockchain technology could give an answer to the loose control of food logistics, and transfigure the entire food assiduity by adding effectiveness, translucency and collaboration throughout the food system. With blockchain technology, consumers might be ready to trace the source of their lettuce in seconds, shippers could see if a truck is full

before they record a delivery, and grocery stores could corroborate if a tinderbox of eggs is really pen-free. As blockchain gets near to its business debut within the food system, it's a right time to check just how the blockchain technology will actually add food logistics. Blockchain was originally developed as a part of the cryptocurrency, videlicet Bitcoin. Still, the technology within the cryptocurrency environment looks different from how it's being developed for the food space. In the paradigm of Bitcoin, blockchain is an inflexible digital tally that works through a agreement of computer systems. Computing on the Bitcoin blockchain are basically contending to duly 2 break a computation, and when one " wins " the race, it wins a unit of cryptocurrency and a block of knowledge is added to the chain. The massive figures of computer systems on the Bitcoin blockchain are why there's a large energy cost related to Bitcoin, a point that may be mischievous within the husbandry space, where growers must grow more and use lower. Simply in food logistics, blockchain are frequently just a digital tally, a digitized record of whatever data is added by its members, with no capability to corroborate the delicacy of the underpinning data itself. Because the reality of that data is n't actually estimated, there's no aspect of blockchain technology that may confirm that the pen-free funk is actually pen-free or that the cabbage is really free from pestcides.

BLOCHCHAIN TECHNOLOGY

Technically supporting Bitcoin and other cryptocurrencies, Blockchain is transforming supply chains, industries, and the ecosystem by solving their urgent problem of lack of publicity visibility in real time.
The Blockchain market in the supply chain is projected to grow from $ 253 million by 2020 to more than $ 3 billion by 2026. This powerful data solution facilitates supply chain management not only by providing complete tracking of raw material or goods from its source to the consumer, but by improving collaboration among partners, reducing financial access, and removing unnecessary connectors, saving time and costs and opening the door to smart, fast supply chains , you are safe.Food supply chains are particularly challenging and can be detrimental to the health and well-being of consumers, which is why Blockchain tracking solutions have become an important tool for the industry. Read on to find out how Blockchain traceability works and how it tackles the major challenges of supply chains.

BLOCHCHAIN IN FOOD LOGISTICS

Although blockchain is considered a technology that can solve the challenges it faces food items, it is not yet clear why a blockchain is better than something like a website or something type of digital information storage. Companies can simply build a website instead of building a blockchain, especially as one of the first features of the Bitcoin version, such as infidelity validation, is not a common feature.
It may not be entirely clear why blockchain is an excellent technology for conversion work
the food industry, and may or may not be the case. It may be the one that is currently being considered,especially as technology professionals look for ways to transfer their knowledge and make their mark a growing food supply sector.When the blockchain begins to reach its potential it is used with other technologies and systems.At the same time that the blockchain is used for food tracking, for example, manufacturers can
it also incorporates systems such as improved water testing systems or expanding barriers within green farmers and livestock operations. Blockchain can be used to collect data resources and use them in the field when used with sensors and systems for the effective delivery of pesticides and water are all connected to the network, such as the Internet Of things. Fig.1 shows the general framework for using blockchain in food supply management, over time a data-based blockchain is like a food chain too. Although the blockchain cannot guarantee that egg surgery is not really a cage or that cage does not.functionality, it seems, may provide a way for food service providers to obtain more verified information consumers. Food suppliers, especially those who do not sell their food to end users and can not get the opportunity to connect with customers, you often have trouble figuring out how to engage with customers,looking for ways to explain details and appropriateness of how they grow or process food.

Blockchain empowers food suppliers at all supply chain stages to obtain data from consumers. That's the thing consumers can really benefit from more information about their purchased food.

Fig 1. Blockchain can be exploited in many key stages in the food logistics

Blockchain may be used to tell consumers that corn has grown on pesticides, for example.It may even provide a clue as to why such a pesticide is used, or a comparison
pesticide is another way to control pests. The complex agricultural environment is not permanent very good interpreting on a smartphone app, which can be a very big technical challenge blockchain to solve anyway.To help understand the real emergence, tracking and validation of the food supply chain important in finding and helping to address the sources of gradients in the global food supply chain.Blockchain provides a permanent record of transactions collected in non-existent blocks changed. It may serve as an alternative to traditional paper-based tracking and manual testing systems, which can leave supply chains at risk for accuracy.When used in the food supply chain, digital information on farm food products source details, collection numbers, industry and processing data, expiration dates, storage temperatures and shipping details are electronically connected to each food item, and the information is entered blockchain in every step of the process.

The information included in each section of the food supply chain is agreed upon by all members food supply network; once there is consensus, it becomes a permanent record that will never exist changed. Each piece of information provides important data that can be associated with food and product safety issues. Blockchain records can also help retailers to better organize the shelf life of products in individual stores, and to strengthen food-related safety and authenticity.

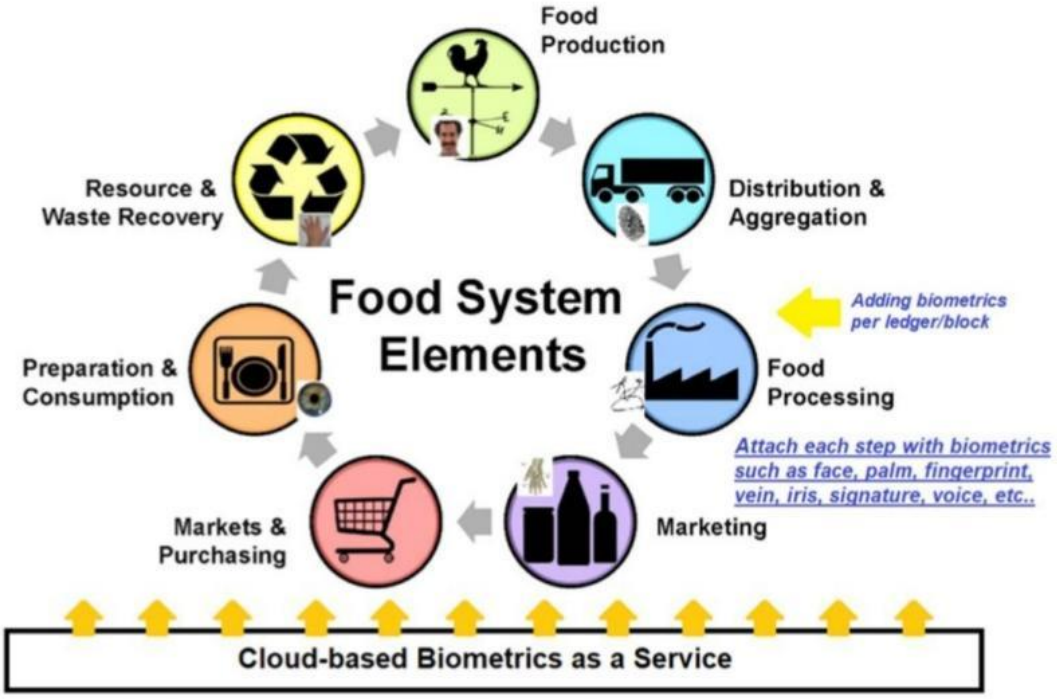

Fig 2. The proposed biometric blockchain framework for food supply chain.

NEED OF BIOMETRIC IN BLOCKCHAIN TECHNOLOGY

Despite seemingly reliable and simple services provided blockchain features application technology, there are a lot of concerns and security issues and its understanding goes with the research community, governments, investors,regulators and so on participants.Considering the complexity and infrastructure of the central blockchain, it is not surprising there may be some decline especially in data sharing between different systems or regions, as well protecting centralized data data is challenging task from a potentially exploitative attack it leads to a single point of contact that requires the trust of this individual authority. This means more a research effort needs to be made to ensure that information is protected in terms of privacy, ensures that only authorized users can access the data. To address these challenges, recent research has begun thinking about delivering biometric on the blockchain in the hope of finding better security, durability and privacy. Based on this program we have proposed a new blockchain framework, namely biometric blockchain (BBC) for food storage.Fig.2 shows our proposed framework, while each planning step is associated with a biometric record that can be verified over Biometric-as-a-Service in the cloud.The benefits of this BBC-based framework are evident. First, we can easily pin the key a person who is responsible for each step, and makes managers visible, manageable, and secure.Second, the supply chain can be powerful in any attack, such as tracking any unknown.Inclusion of unwanted gradients in food logistics. Therefore, the BBC as proposed in Fig.2 could be a useful solution for applications that work in food logistics.

PRIVACY ISSUES IN BIOMETRIC BLOCKCHAIN

Biometrics can cover data, and on the other hand is sensitive to the sequestration of particular information.The advertisement of a BBC frame grounded on a food force chain will surely ask for biometric information from individualities, similar as food builders or transport motorists. Thus, the transparent BBC needs a way to cover sequestration where biometric information is collected during mess planning.Recent exploration has stressed the sequestration issue with a good result through encryption biometrics. As shown inFig. 3, a set of biometric features similar as faces can be translated and collected into a tally as a inked

hand. Ultramodern technology has shown that there's no need to decipher this biometric information and we can corroborate it directly translated sphere, which makes the use of biometrics less sensitive during sequestration enterprises there used for blockchain technology.The launch of the BBC may be linked to online biometric verification, and it may be grounded on multimodal biometrics. Generally, a point grounded biometric confirmation is popular although it may be time consuming. Recent styles similar as deep neural networks appear to be sluggishly taking over the background of biometric authentication.Enterprises about computer services may arise while biometrics- as-a-service is penetrated through platforms, as shown in Fig. 2. Still, in the BBC- grounded food logistic series, biometric verification is only possible for the needed test, which means that similar biometric information is possible. They frequently don't sleep and that's why the need for fresh computers can be reduced.

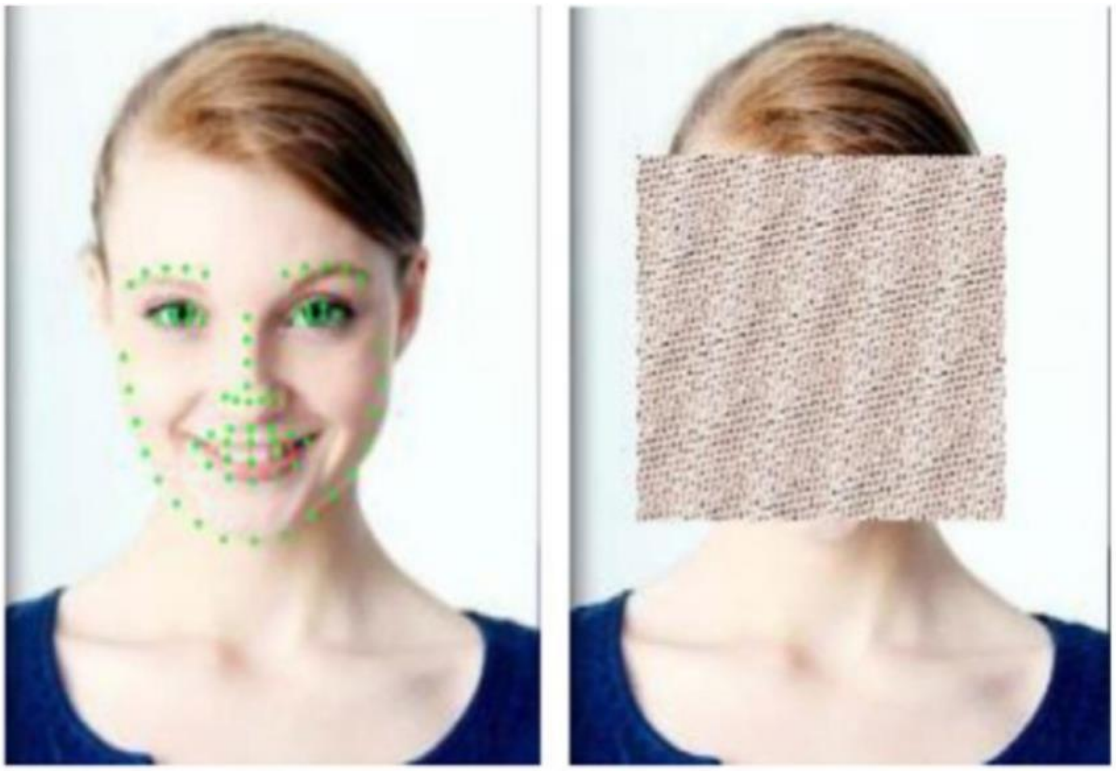

Fig 3. Privacy protection using encrypted biometrics in blockchain.

CONCLUSION

Blockchain emerging as a promising technology can completely change the state of data security years to come, especially access to data via internet-objects and cloud servers. However,the blockchain itself does not contain any information about who owns the data and who uses the data.This paper, in addition to encrypting key data, has proposed a new protocol called Biometric Blockchain (BBC), where biometric demographics are explicitly included in the BBC a protocol for explicitly identifying creators or users in a blockchain-based system. Such innovations regulations can address particularly the growing need to protect food security, accordingly a recently reported incident about a misdiagnosed diet that resulted in the death of a passenger flight. The appropriateness of using the BBC in food logistics is pretty obvious: it can't pinpoint only if data or labels are authentic, but also clearly record who is responsible for secure data or labels. Therefore, such a BBC-based solution could jeopardize the complexity of managing sensitive issues in food planning, such as food authenticity and gradient inconsistencies.

REFERENCES

1. Zhong R, et al, 2017, Food supply chain management: systems, implementations, and future research, Industrial Management & Data Systems, 117(9), p.2085-2114.
2. Storey G, et al, 2017, Role for 2D image generated 3D face models in the rehabilitation of facial palsy, IET Healthcare Technology Letters.
3. Jiang Z, et al, 2019, Social Behavioral Phenotyping of Drosophila with a 2D-3D Hybrid CNN Framework, IEEE Access, p.1.
4. Storey G, et al, 2018, Integrated Deep Model for Face Detection and Landmark Localisation from 'in the wild' Images, IEEE Access, p.2.
5. Bashir I, 2017, Mastering Blockchain, Packt Publishing Ltd.
6. Puthal D, et al, 2018, Everything you Wanted to Know about the Blockchain, IEEE Consumer Electronics Magazine, 7(4), p.06–14.
7. Garcia P, 2018, Biometrics on the blockchain, Biometric Technology Today, 5, p.5-7
8. Jiang R et al (Editors), 2019, Deep Biometrics, Springer-Verlag, in Press.
9. Jiang R et al (Editors), 2016, Biometric Security and Privacy - Opportunities & Challenges in The Big Data Era, Springer-Verlag.
10. Jiang R, et al, 2017, Emotion recognition from scrambled facial images via many graph embedding, Pattern Recognition, 67, p.245-251.
11. Jiang R, et al, 2016, Face recognition in the scrambled domain via salience-aware ensembles of many kernels, IEEE Trans. Information Forensics and Security, 11(8), p.1807-1817.
12. Jiang R, et al, 2016, Privacy-protected facial biometric verification via fuzzy forest learning,IEEE Trans. Fuzzy Systems, 24(4), p.779-790.
13. Jiang R, et al, 2010, Multimodal Biometric Human Recognition for Perceptual Human–Computer Interaction, IEEE Trans. Systems, Man, & Cybernetics Part C, 40(5), p.676.
14. Jiang R, et al, 2010, Face recognition in global harmonic subspace, IEEE Trans. Information Forensics and Security, 5(3), p.416-424.
15. Jiang R., et al, 2010, Live-cell tracking using SIFT features in DIC microscopic videos, IEEE Tran. Biomed Eng., 57, p.2219–2228.
16. Crosby M et al, 2015, BlockChain Technology: Beyond Bitcoin, Sutardja Center for Entrepreneurship & Technology Technical Report, University of California, Berkeley.
17. Jaikaran C, 2018, Blockchain: Background and Policy Issues, Congressional Research Service, Washington DC.
18. Kakavand H, et al, 2016, The Blockchain Revolution: An Analysis of Regulation and
19. Technology Related to Distributed Ledger Technologies, Luther Systems & DLA Piper.
20. Mazonka O, et al, 2016, Blockchain: Simple Explanation, Journal of Reference,http://jrxv.net/x/16/chain.pdf
21. Tapscott D and Tapscott A, 2016, Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business and the World, London: Portfolio Penguin.
22. Saito K and Yamada H, 2016, What's So Different about Blockchain? Blockchain is a
23. Probabilistic State Machine, IEEE 36th International Conference on Distributed Computing Systems Workshops, Nara, Japan, p.168-75.
24. Raval S, 2016, Decentralized Applications: Harnessing Bitcoin's Blockchain Technology,Oreilly. ISBN 9781491924549.