

International Journal of Advanced Research in Computer and Communication Engineering

Food Supply Chain Management Using Blockchain

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Abstract: This project explores the application of blockchain technology in transforming food supply chain management. Blockchain, with its decentralized, immutable, and transparent ledger system, offers a promising solution to address the current challenges faced by the industry. By recording each transaction on the blockchain, stakeholders can trace the journey of food products from farm to fork with greater accuracy and accountability.

The study presents an overview of how blockchain can enhance traceability, improve efficiency, reduce fraud, and ensure regulatory compliance in the food supply chain. Real-world case studies, system architecture, and potential implementation frameworks are discussed to demonstrate its practicality. The results indicate that blockchain has the potential to revolutionize food supply chains by promoting transparency, trust, and sustainability.

I. INTRODUCTION

Our project seeks to modernize the Food Supply Chain (FSC) using Ethereum blockchain, with a primary focus on enhancing efficiency, transparency, and security. By leveraging Ethereum's capabilities, we aim to streamline FSC operations, provide stakeholders with clear insights, and fortify transactional security for a more reliable supply chain. Traditional FSC methods face challenges, including inefficiencies, a lack of transparency, and susceptibility to fraud. Manual processes hinder traceability and compliance verification. Our project addresses these issues, recognizing the need for a more effective and secures approach.

To tackle the identified challenges, we integrate Ethereum blockchain and smart contracts. Blockchain is like a digital ledger that records transactions securely and transparently. In our case, it's used to store information regarding product origins, verification processes, and authenticity checks. Instead of having all the data in one place, blockchain stores records as blocks of data, each with a unique code called a hash. These blocks are distributed across multiple computers (nodes), making it much harder for anyone to tamper with the data or compromise the entire system. Blockchain offers several advantages. First, it's decentralized, meaning the data isn't stored in one vulnerable location. Second, it enhances security because the data is stored in encrypted format that's very difficult to alter or hack.

II. PROCEDURE FOR PAPER SUBMISSION

A. Review Stage

Submit your manuscript electronically for review. prepare it in two-column format, including figures and tables(untill it don't fit properly and data is not visible).

B. Final Stage

After your paper has been accepted. The authors of the accepted manuscripts will be given a copyright form and the form should accompany your final submission.

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As said, to insert images in Word, position the cursor at the insertion point and either use Insert | Picture | From File or copy the image to the Windows clipboard and then Edit | Paste Special | Picture (with —Float over textll unchecked).



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III. MATH

If you are using Word, use either the Microsoft Equation Editor or the MathType add-on (http://www.mathtype.com) for equations in your paper (Insert | Object | Create New | Microsoft Equation or MathType Equation). —Float over textl should not be selected.

IV. UNITS

Use either SI (MKS) or CGS as primary units. (SI units are strongly encouraged.) English units may be used as secondary units (in parentheses). This applies to papers in data storage. For example, write -15 Gb/cm² (100 Gb/in²).^{II} An exception is when English units are used as identifiers in trade, such as $-3\frac{1}{2}$ in disk drive.^{II} Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity in an equation.

The SI unit for magnetic field strength H is A/m. However, if you wish to use units of T, either refer to magnetic flux density B or magnetic field strength symbolized as μ 0H. Use the center dot to separate compound units, e.g., $-A \cdot m^2$.

V. HELPFUL HINTS

A. Figures and Tables

Because the final formatting of your paper is limited in scale, you need to position figures and tables at the top and bottom of each column. Large figures and tables may span both columns. Place figure captions below the figures; place table titles above the tables. If your figure has two parts, include the labels -(a) and -(b) as part of the artwork. Please verify that the figures and tables you mention in the text actually exist. Do not put borders around the outside of your figures. Use the abbreviation -Fig. even at the beginning of a sentence. Do not abbreviate

—Table.I Tables are numbered with Roman numerals.Include a note with your final paper indicating that you request color printing. Do not use color unless it is necessary for the proper interpretation of your figures. There is an additional charge for color printing.Figure axis labels are often a source of confusion. Usewords rather than symbols. As an example, write the quantity—Magnetization,I or —Magnetization M,I not just —M.I Put units in parentheses. Do not label axes only with units. As in Fig. 1, for example, write —Magnetization (A/m)I or—Magnetization (A · m⁻¹), not just —A/m. Do not label axeswith a ratio of quantities and units. For example, write—Temperature (K), not —Temperature/K.Multipliers can be especially confusing. Write—Magnetization (kA/m) or —Magnetization (10³ A/m). Donot write —Magnetization (A/m) X 1000 because the readerwould not know whether the top axis label in Fig. 1 meant16000 A/m or 0.016 A/m. Figure labels should be legible, approximately 8 to 12 point type.

B. References

i.A report from the Food and Agriculture Organization (FAO) that explores real-world opportunities for blockchain in the agri-food industry. It includes case studies, regulatory insights, and challenges in adoption.

► Usefulness: Provides policy-level insights and shows a global perspective on blockchain applications in agriculture.

1. Kamble, S. S., Gunasekaran, A., & Sharma, R. (2020) –

This academic paper presents a model-based approach to traceability in agricultural supply chains using blockchain. It uses real data and simulation to show how blockchain can improve transparency and operational efficiency. ► Usefulness: Shows how blockchain models can be implemented and tested in real supply chain contexts.

2. Galvez, J. F. et al. (2018) –

Focuses on future challenges and technical barriers in implementing blockchain for food traceability. It discusses issues like scalability, data privacy, and integration with IoT devices.

► Usefulness: Highlights the limitations and helps in critically analyzing blockchain adoption.

Be sure that the symbols in your equation have been defined before the equation appears or immediately following. Italicize symbols (T might refer to temperature, but T is the unit tesla). Refer to "(1)," not "Eq. (1)" or "equation (1)," except at the beginning of a sentence:

"Equation (1) is..."



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C. PUBLICATIONPRINCIPLES

The contents of the journal are peer- reviewed and archival. *International Journal of Innovative Research in Technology* publishes scholarly articles of archival value as well as tutorial expositions and critical reviews of classical subjects and topics of current interest.

Authors should consider the following points:

1. Technical papers submitted for publication must advance the state of knowledge and must cite relevant prior work.

2. The length of a submitted paper should be commensurate with the importance, or appropriate to the complexity, of the work. For example, an obvious extension of previously published work might not be appropriate for publication or might be adequately treated in just a few pages.

3. Authors must convince both peer reviewers and the editors of the scientific and technical merit of a paper; the standards of proof are higher when extraordinary or unexpected results are reported.

4. Because replication is required for scientific progress, papers submitted for publication must provide sufficient information to allow readers to perform similar experiments or calculations and use the reported results. Although not everything need be disclosed, a paper must contain new, usable, and fully described information. For example, a specimen's chemical composition need not be reported if the main purpose of a paper is to introduce a new measurement technique. Authors should expect to be challenged by reviewers if the results are not supported by adequate data and critical details.

D. CONCLUSION

The "Resume Screener using Streamlit and Google Generative AI" project represents a significant advancement in the recruitment process, offering a more efficient, accurate, and unbiased method for initial resume screening. By leveraging the power of AI and a user- friendly web interface, recruiters can quickly identify the most suitable candidates, reducing the time and effort spent on manual screening. The future enhancements, such as integrating with job portals, providing advanced analytics, and offering a course recommendation system, will further elevate the tool's capabilities. These improvements will not only streamline the recruitment workflow but also support candidates in their professional development. Overall, this project demonstrates the transformative potential of AI in modern recruitment, ensuring that the best talent is recognized and nurtured in an ever-evolving job market.

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