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Efficient Delivery Of Government Schemes Using The Representation Of Blockchain

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Abstract:

The contemporary information society holds a common expectation for seamless, user-friendly, and efficient interaction between the government and its citizens. Addressing these expectations, electronic government solutions have gained prominence by automating decision-making processes on a national scale, thereby enhancing government operations and fostering improved social communications among members of society. Influencing a wide spectrum of functions related to document management and processing, the advent of electronic government heralds a transformative shift in the decentralized governance framework.

Belarus, as a case in point, has made significant strides in establishing an electronic government infrastructure and delivering associated services. This progress owes much to the accelerated advancement of information and communication technologies (ICTs). Nevertheless, citizen engagement in e-governance within Belarus lags behind the Eastern European average. This deficiency is primarily attributed to the limited availability of interactive functions and online services on the official websites of government entities and institutions.

Amid the array of technological solutions, each differing in speed, reliability, and data security, a few recent innovations shine through. These innovations are underpinned by revolutionary principles of compatibility and hold substantial promise for the future of electronic government.

Index Terms - blockchain technology, security, transparency, hash function, cryptography

I. INTRODUCTION

A blockchain essentially functions as a transparent and distributed database, recording all transactions performed by participants in the system. In the realm of electronic government, this technology serves as a means to store data related to interactions between citizens and government agencies. Notably, this data is interconnected, encrypted, and collectively maintained by all system members, with automatic updates reflecting any changes. Users effectively act as collective notaries, certifying data accuracy and guarding against potential abuses or fraudulent attempts. Blockchain technology acts as a control mechanism, counteracting selfish motives that can lead to corrupt practices detrimental to society and state sovereignty. It also encourages adherence to universally applicable rules, fostering a sense of collective responsibility. Technically, blockchain empowers participants to reach consensus on a wide array of matters without the need for intermediaries, forming a foundation for decentralized governance and consensus-based social agreements and ensuring an equitable balance of interests beneficial to society. An e-government registration system built on blockchain technology offers improved security compared to traditional registries. The elimination of state

duties and intermediaries Fees significantly reduce transaction costs, streamlining processes that are more efficient, transparent, and secure. The development of blockchain technology in e-government warrants comprehensive discussion to establish standards, robust management systems, and robust security protocols to ensure dependable, authoritative, and enduring services and platforms. While it holds great potential for reshaping various aspects of Indian society, its development comes with both opportunities and risks. Active collaboration among blockchain companies and market administrators, innovative solutions, and government experience serve as crucial initial steps in the evolution of blockchain-based public services. Nonetheless, achieving this goal will present challenges.

II. LITERATURE SURVEY:

"Comparison and Analysis of Governance Mechanisms Employed by Blockchain-Based Distributed Autonomous Organizations" by Stephen DiRose and Mo Mansouri, published in the 2018 13th Annual Conference on System of Systems Engineering (SoSE): This paper assesses governance mechanisms in blockchain projects, using the change in block size as an example. It describes, compares, and evaluates two key governance mechanisms, focusing on their effectiveness in reaching consensus and supporting the diverse needs of stakeholders.

"A novel triple DES to enhance e-governance security" by Raja Sekhar Reddy and G. Murali, published in the 2017 International Conference on Energy, Communication, Data Analytics, and Soft Computing (ICECDS): This paper discusses the use of a novel triple DES algorithm to enhance security in e-government, particularly in the context of banking transactions, addressing the need for data encryption.

"An approach to increasing awareness of e-governance initiatives based on cloud computing" by Sini Shibu and Archana Naik, published in the 2017 International Conference on Information, Communication, Instrumentation, and Control (ICICIC): This paper analyzes the cloud-based model of e-governance and proposes measures to raise awareness about government initiatives, particularly in the state of Madhya Pradesh, though it acknowledges the lack of focus on security parameters.

"A framework for the monitoring and evaluation of e-governance projects in developing countries" by Sylvester Hatsu and Ernest Ketcha Ngassam, published in the 2016 IST-Africa Week Conference: This paper presents a framework for monitoring and evaluating e-government projects, concentrating on life cycle aspects but not emphasizing transparency concerns.

"Implementation of e-governance: The Only Way to Build a Corruption-Free Bangladesh" by S. A. Ahsan Rajon and Sk. Ali Zaman, published in the 2008 11th International Conference on Computer and Information Technology: This paper offers a comparative analysis of the current government structure in Bangladesh and the potential for implementing e-governance to combat corruption in various governance sectors. It highlights the adaptability of e-governance, particularly in the participation of mass citizens in decision-making processes and ensuring transparency in government sectors.

"On SHEL model analysis and constitution: The research on the Chinese government's e-governance system based on the concept of good governance" by Liu Liu and Xiao-ming Liao, published in the Proceedings of the 2011 Cross Strait Quad-Regional Radio Science and Wireless Technology Conference: This paper introduces the SHEL model, encompassing software, hardware, environment, and liveware as a basis for government e-governance in China. However, it also points out that the trust-based model could lead to potential corruption issues due to citizens' reliance on government authorities.

III. Proposed System:

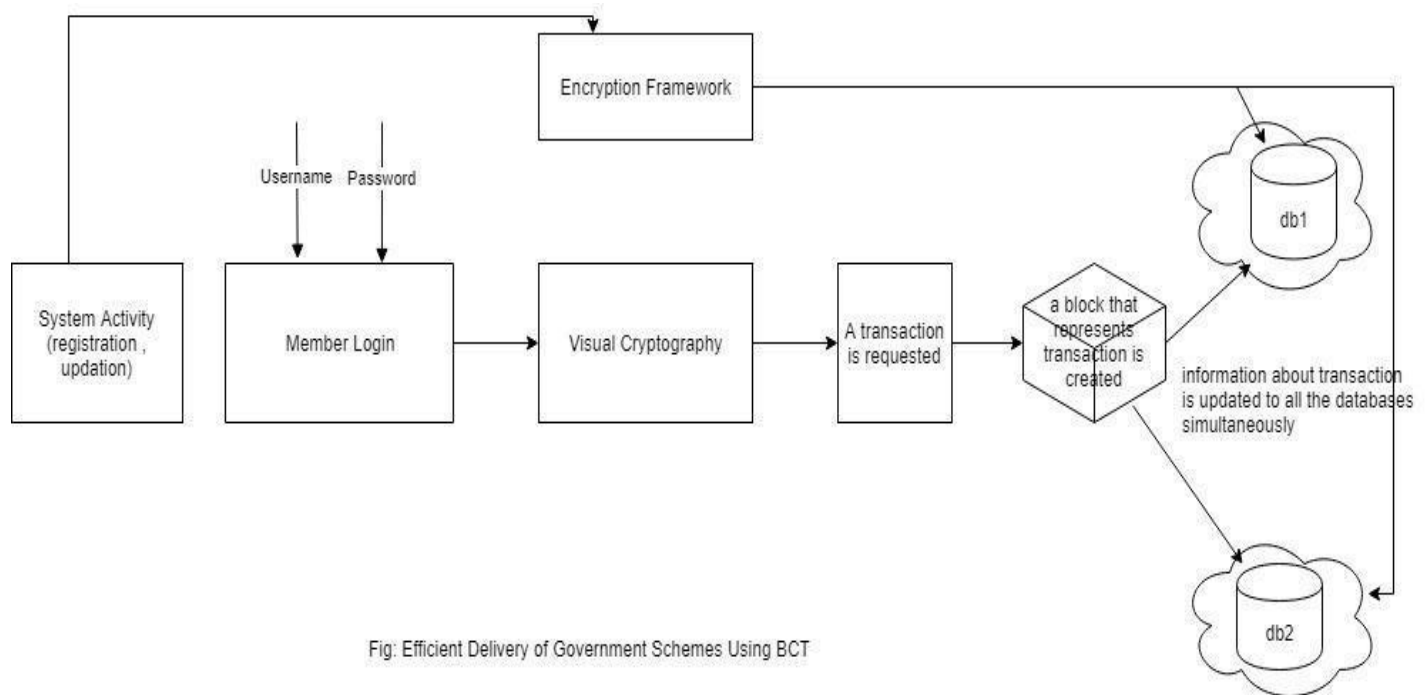


Fig: Efficient Delivery of Government Schemes Using BCT

IV. Algorithm:

SHA 256: Hash Function

SHA-256 (secure hash algorithm, FIPS 182-2) is a cryptographic hash function with a digest length of 256 bits. While the hash produced by SHA-256 is not truly unique (as there are a finite number of possible hash values and an infinite number of possible inputs), it is designed to be collision-resistant. Collision resistance means it should be extremely difficult to find two different inputs that produce the same hash value.

AES:

AES is used to encrypt the database. AES encryption involves key expansion, initialization of the state array, several rounds of state manipulation (each consisting of substitution, permutation, mixing, and key addition operations), and a final round that excludes the Mix Columns operation. The final state array represents the encrypted data, which is the ciphertext. The number of rounds depends on the key length (128, 192, or 256 bits). The described steps provide a high-level overview of the AES encryption process.

V. Conclusion:

We are embarking on the implementation of a system aimed at efficiently delivering government schemes through blockchain technology (BCT). This proposed system, operating under the umbrella of e-governance, is designed to be the epitome of security, transparency, user-friendliness, and a deterrent against corruption. We firmly believe that, with the adoption of this proposed system, every facet of government scheme delivery can be meticulously tracked, effectively putting an end to any corrupt practices carried out by intermediaries.

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