International Journal of Future Generation Communication and Networking
Vol. 13, No. 2s, (2020), pp. 502–506

Cashless Economy using Block-Chain Technology

R.S.Kothe[1], Sandesh Belgamwar[2], Rutuja Bajare[3], Prathamesh Patil[4]

[1,2,3,4] *Dept. of E & TC Engg., Smt. Kashibai Navale College of Engineering, Savitribai Phule Pune University, Pune*

Abstract

In 2016, the Indian government, led by Prime Minister Narendra Singh Modi, announced that the nation's two highest-denomination bank notes would cease to be legal tenders. At the time, the 2 denominations accounted for roughly 86 percent of money in circulation in India. people that possessed the banknotes were to deposit them within the bank. With the move, the Indian government aimed to punish tax evaders looking back. The logic was that individuals with hoards of "black money" would must answer questions if they attempted to deposit the demonetized banknotes. Banking and technology are very closely associated and innovations have changed banking drastically over the amount of your time. The digital innovations within the banking sector started with the introduction of cash that replaced the barter system and so the gradual replacement of wax seal with digital signatures. One such disruptive innovation which is changing the banking sector globally is Block chain Technology (BCT). Block chain is shared distributed ledger which stores business transaction to a permanent unbreakable chain which may be viewed by the parties in an exceedingly transaction. Block chain technology has the potential to disrupt the financial business applications because it provides permanent and tamper proof recording of transactions in an exceedingly distributed network.

Keywords—*Cashless economy, Security, Distributed database, Visual cryptography, Hash algorithm, etc.*

I. INTRODUCTION

India is currently the seventh-largest economy within the world. It currently has an estimated population of about 1.34 bln people, or about 18 percent of the world's population, in keeping with the planet Economic Forum. Despite its GDP dropping by roughly 5.7 percent within the quarter that ended June of this year, India remains the fastest growing large economy within the world — aside from China. If estimates are anything to travel by, India will have overtaken China because the world's most populous country by 2024, which might help solidify its position because the nation with the world's largest youth population. the planet Economic Forum also projects that India's economy are the second-largest economy within the world by 2050, with China occupying the primary position. Poor because the policy might need been for average Indians, though, there have been bright spots for proponents of a cashless economy. the planet Economic Forum reported that the quantity of digital transactions in India increased following the demonetization policy — a plus for the govt, who would now have increased ability to trace the flow of cash within the economy. the expansion in digital transaction in India is, in turn, a giant plus for Block chain and crypto currency. almost 0.5 percent of the people in India are into Bit coin, the crypto currency that popularized the Block chain technology. By inference, if such few people in India comprehend Bit coin, it's safe to mention that only about 0.5 percent of India's population is conversant with Block chain technology. However, on the national level, lots of labor goes on to integrate Block chain technology into various sectors of the economy – including the financial and health sectors. In 2016, the Indian bank, ICIC Bank, announced that it had completed a cross-border transaction executed on a Block chain. In September of this year, the Institute for Development and Research in Banking Technology, or IDRBT, founded by the banking concern of India, announced plans to launch a replacement Block chain platform. The banking concern of India is India's financial institution. The announcement followed a report published by the IDRBT in January of this year, that India could use Block chain to digitize its national currency, the rupee. Given the positives — increased tax payments, for example — that the demonetization policy in India has yielded through increased digital transactions, it's plausible that the Indian government will double down on its drive to grow a cashless economy. There

ISSN: 2233-7857 IJFGCN

are some challenges, but it seems promising. If, as in anywhere within the world, the Indian government wants to spice up its cashless economy, it has to find lasting solutions to the challenges confronting the propagation of a cashless economy. a number of those challenges include financial inclusion, high setup and transaction costs and transaction times. because of a substantial segment of the Indian economy remaining informal, there's still a large a part of the population that doesn't depend on traditional financial institutions for financial services. supported the cashless technologies employed today, the majority would wish a checking account so as to measure in an exceedingly cashless economy — an uphill battle. In essence, for you to run a cashless economy, you'll need an alternate to traditional financial services. this is often a decent entry point for Block chain. The Block chain technology almost entirely eliminates the requirement to belong within the tradition national economy, so as to be financially included. It costs a merchant between Rs 4,000 ($61.5) and Rs 8,000 ($123) to line up a card-swiping terminal in India. that's definitely not an issue for big-ticket merchants, but smaller merchants who collectively constitute a giant a part of the economy may not be happy to pay that much additionally to the next transaction fees. for example, The Hindu reported in May that Indian consumers are moving back to cash-based transactions, due to demonetization and high digital transaction costs. This makes a case for a less expensive way of conducting digital transactions. Again, Block chain fits the bill. If a cashless economy is ever visiting be the order of the day, it has to have a true time feature thereto. Today's technologies have done an excellent job in reducing the wait times between when a transaction is completed and when the funds become accessible. But, it's not yet at the extent where the complete populace are motivated to travel digital. And this is often another problem that the Block chain technology solves brilliantly.

II. LITERATURE REVIEW

Didik Haryadi ; Harisno ; Victor Harris Kusumawardhana ; Harco Leslie Hendric Spits Warners,"The Implementation of E-money in Mobile Phone: A Case Study at PT Bank KEB Hana" 2018 Indonesian Association for Pattern Recognition International Conference(INAPR) [1].

This paper tells about to analyze the design of e-money, as well as provide some development ideas that must be done related to the implementation of e-money. Here the system uses e payment using QR code and encryption technology.

Zhao fang Li ; Qinghua Lu ; Shiping Chen ; Yue Liu ; Xiwei Xu , "A Landscape of Crypto currencies" 2019 IEEE International Conference on Block chain and Crypto currency (ICBC) [2].

This study offers a breakthrough understanding of the crypto currencies through the generated landscape which report the state of crypto currencies, and can be used as a framework for crypto currency analysis .crypto currencies are the base currency of DLT (Distributed Ledger Technology)And normally baked into the core DLT platform. there are more than 2000 crypto currencies so far, most of which are managed through the basic platform capabilities of specific DLT

Christian Killer ; Bruno Rodriguez ; Burkhard Stiller , "Security Management and Visualization in a Block chain based Collaborative Defense" 2019 IEEE InternationalConference on Block chain and Crypto currency (ICBC) [3].

This work presents the design of a security management dashboard for BloSS, designed for interactive use by cyber security analysts. This work is about DDos attacks in defense system. This work presented an applicable and operational management dash board reducing operationalcomplexity of block chain based cooperative defense. Thus human decision maker (ex. security analyst) can decide whether a threat is safe and defines a course of action based on an overview of all attacks relevant data in security management tool.

Sean Kang ; Kideok Cho, Kyle Park, "On the Effectiveness of Multi-Token Economies" 2019 IEEE International Conference on Block chain and Crypto currency (ICBC) [4].

This paper addresses the token classification, the reason for adopting multi-token economies and the effectiveness of them. They analyze the Steemit as a representative example of multi-token economies and describe how the multi-token economy has been working and show the distinctive

ISSN: 2233-7857 IJFGCN

features of multi-token economies. They also propose the evaluation criteria for multi-token economies.

Van-Cam NGUYEN; Hoai-Luan PHAM; Thi-Hong TRAN; Huu-Thuan HUYNH; Yasuhiko NAKASHIMA, "Digitizing Invoice and Managing VAT Payment Using Block chain Smart Contract" 2019 IEEE International Conference on Block chain and Crypto currency (ICBC) [5].

This paper proposed implementation of VAT system as an online system using BCT. A distributed database system is used in online system. System can be prevented from hacking using BCT. In this paper,we propose a system that digitizes invoice and automatically calculates VAT by using Block. Chain smart contract. The smart contract has been implemented on the emix IDE using solidity language based onethereum platform.

Dr.Kavita Saini, "A future Dominant Technology Block chain: Digital Transformation" 2018 International conference on computing, power and communication Technologies [6].

The paper discuss about the emerging technology block chain .Block chain a cryptographically secure digital currency and can perhaps transform how the world works. The paper discuss about the challenges and how digital transformation is taking pace. paperall discuss about future scope of Block chain. The electronic ledger where electronic transaction are done without relying on trust.

III. Proposed system

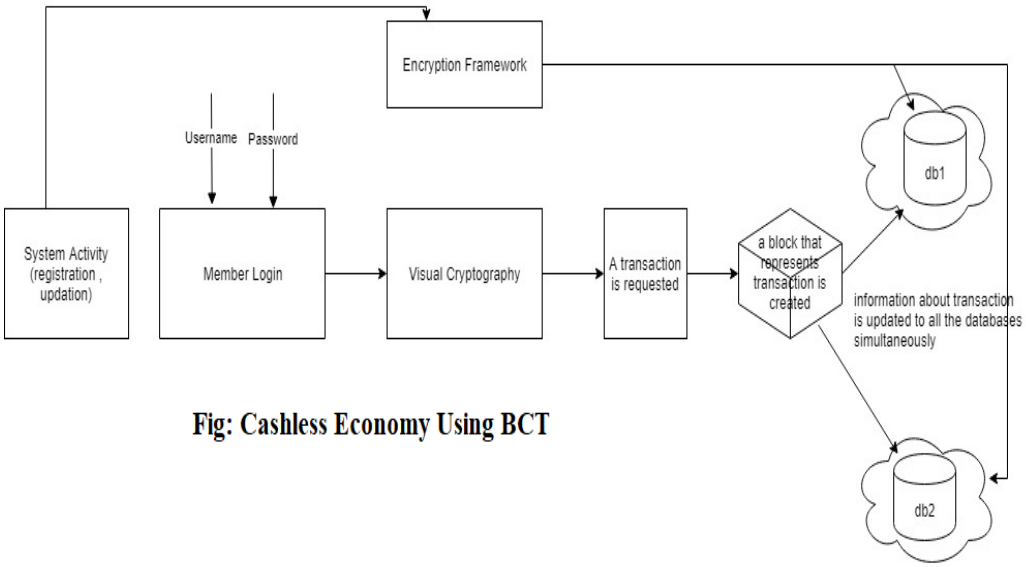

Fig: Cashless Economy Using BCT

Fig.1Cashless Economy Using Block-chain technology.

Algorithm:

MD 5:

Step 1. Append Padding Bits. The message is "padded" (extended) so as that its length (in bits) is congruent to 448, modulo 512. ...

Step 2. Append Length. ...

Step 3. Initialize MD Buffer. ...

Step 4.Process Message in 16-Word Blocks. ...

Step 5.Output.

In cryptography, MD5 (Message-Digest algorithm 5) may be a widely used cryptographic hash function with a 128-bit hash value. As an online standard (RFC 1321), MD5 has been employed in an exceedingly wide selection of security applications, and is additionally commonly accustomed check the integrity of files. An MD5 hash is usually expressed as a 32 digit hexadecimal number.

ISSN: 2233-7857 IJFGCN

AES:
AES is utilized to encrypt the database.
The encryption process uses a bunch of specially derived keys called round keys.
These are applied, along with other operations, on an array of information that holds exactly one block of information, the information to be encrypted.
This array we call the state array.
STEPS:
1. Derive the set of round keys from the cipher key.
2. Initialize the state array with the block data (plaintext).
3. Add the initial round key to the starting state array.
4. Perform nine rounds of state manipulation.
5. Perform the tenth and final round of state manipulation
6. Copy the last word state array out because the encrypted data (cipher text).

IV. CONCLUSION

Thus we are visiting implement a system for cashless economy using Block chain technology. The proposed system under e governance are the foremost secure, transparent, user friendly and corruption free system. We believe that with the help of this proposed system, every activity in transaction are tracked and corruption of intermediate banks are totally removed.

REFERENCES

[1] Didik Haryadi ; Harisno ; Victory Haris Kusumawardhana ; Harco Leslie Hendric Spits Warners,"The Implementation of E-money in Mobile Phone: A Case Study at PT Bank KEB Hana" 2018 (INAPR) .
[2] Zhao fang Li ; Qinghua Lu ; Shiping Chen ; Yue Liu ; Xiwei Xu , "A Landscape of Crypto currencies" 2019 IEEE International Conference on Block chain and Cryptocurrecy (ICBC) .
[3] Christian Killer ; Bruno Rodrigues ; Burkhard Stiller , "Security Management and Visualization in a very very Block chain-based Collaborative Defense" 2019 IEEE International Conference on Block chain and Crypto currency (ICBC).
[4] Sean Kang ; Kideok Cho, Kyle Park, "On the Effectiveness of Multi-Token Economies" 2019 IEEE International Conference on Block chain and Crypto currency (ICBC).
[5] Van-Cam NGUYEN ; Hoai-Luan PHAM ; Thi-Hong TRAN ; Huu-Thuan HUYNH ; Yasuhiko NAKASHIMA , "Digitizing Invoice and Managing VAT Payment Using Block chain Smart Contract" 2019 IEEE International Conference on Block chain and Crypto currency (ICBC).
[6] Dr.Kavita Saini, "A future Dominant Technology Block chain: Digital Transformation" 2018 International conference on computing, power and communication Technologies.
[7] F.LvandS.Chen,"ResearchonEstablishingaTraceabilitySystemofQuality and Safety of Agricultural Products Based on Blockchain Technology," Rural Finance Research, vol. 12, pp. 22-26, 2016.
[8] Y. Yang and Z. Jia, "Application and Challenge of Blockchain Technology in theFieldofAgriculturalInternetofThings,InformationTechnology,vol. 258, pp. 24-26, 2017.
[9] S. Nakamoto, "Bitcoin: A peer-to-peer electronic cash system, Consulted, 2008.
[10] Y.YuanandF.Y.Wang,"Blockchain: TheStateoftheArtandFutureTrends," Acta Automatica Sinica, 2016.
[11] Y.Yuan, T.Zhou, A.Y.Zhou, Y.C.Duan, andF.Y.Wang, "BlockchainTechnology: From Data Intelligence to Knowledge Automation," Zidonghua Xuebao/acta Automatica Sinica, vol. 43, pp 1485-1490, 2017.
[12] Y.-b. Zhang, "The New Ecosystem of Cross-border E-commerce between EU and China based on Blockchain," China Business And Market, vol. 32, pp. 66-72, 2018.

ISSN: 2233-7857 IJFGCN

[13] T. Hong, ”Accelerating the Application of Blockchain in the Field of Agricultural Products E - commerce in China,” Journal of Agricultural Information, pp. 18-20, 2016.

ISSN: 2233-7857 IJFGCN