THINK INDIA JOURNAL

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

Revolutionizing Stock Market With Blockchain

Ishank Gupta
gupta.ishank11@gmail.com
Student, School of Computer Science & Engineering
Lovely Professional University
Phagwara, Punjab

Ariyant Meher
ariyant.meher99@gmail.com
Student, School of Computer Science & Engineering
Lovely Professional University
Phagwara, Punjab

Sahil Sharma
sahil.11061998@gmail.com
Student, School of Computer Science & Engineering
Lovely Professional University, Phagwara, Punjab

Abhish Bhawsar
abhish.bhawsar@gmail.com
Student, School of Computer Science & Engineering
Lovely Professional University
Phagwara, Punjab

Navjot Kaur
navjot.20506@lpu.co.in
Faculty, School of Computer Science & Engineering
Lovely Professional University
Phagwara, Punjab

Abstract— This paper gives a meticulous view of applications over numerous areas of Stock domains. The point is to research the ebb and flow condition of technology and its applications and to feature attributes of this ingenious innovation which can alter "As Usual" business implementations. The fundamental reason for this paper is to demonstrate that innovation may disrupt the current business models and to investigate how this may happen while proposing a solution. It is a proposition development paper which depends on a writing audit and work area research.

Keywords- *stock exchange, blockchain, distributed ledger, down exchange cost.*

I. Introduction

With an underlying purpose for an instrument behind digital forms of money, today the innovation has ventured a long ways past simply controlling the bitcoin or ether transactions. It is an amazing, powerful and secure innovation that is getting into pretty much every industry, from banking land records, medicine, government sector [1]. While the essential utilization of this innovation has until now been in the production of virtual monetary standards, for example, bitcoin, innovation offers more extensive aspects, including any exchanges requiring confirmation or authentication.

Blockchain is a decentralized advanced record that spares transactions on a great many computers around the world. These are enrolled in a manner that represses their resulting alteration. Innovation builds security and accelerates the trading of data in a manner that is financially savvy and progressively

Copyright © 2019Authors

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

straightforward. It likewise abstains from outsiders whose primary job was to give a trust and confirmation component in exchanges [2].

It expands on the possibility of the P2P network and gives an all-inclusive informational index that each character can trust other, despite the fact that they probably won't know or confide in one another [6]. It gives a mutual and trusted ledger of exchanges, where changeless and encoded duplicates of data are put away on each node in the system. Financial incentives as local system tokens are applied to make the system fault-tolerant and assault and conspiring safe.

A blockchain is essentially a chain of obstructs that contains data. Each block has a hash of the past block, a timestamp, and exchange information [3]. The high significance of has pulled in the consideration of associations in various areas, with banking segment being the most dynamic at this stage created as the innovation basic Bitcoin, has immediately ascended to distinction for its capacity to make a huge, all-inclusive dispersed record running on a great many gadgets, equipped for account anything of significant worth. A blockchain is fundamentally a progressed, scattered trade record with indistinguishable copies kept up on all of the people's PCs. All occasions can review past segments and record new ones.

In spite of the fact that the structure is basic, it is this plan which makes insusceptible to information tampering. Innovation is an open dispersed ledger that can record exchanges of two gatherings safely and proficiently. As it is appropriated, is customarily supervised by a common framework working at the same time together to deal with complex numerical issues in order to support new blocks[4]. At the point when recorded, the data in some irregular blocks can't be revived retroactively without changing each resulting block, which requires the certification of the predominant part in the framework. This is the principle motivation behind why innovation is secure and not susceptible to hacking. M.Ase et al. (2016) discuss about three stages of , where 1.0 alludes to , 2.0 to digital fund, and 3.0 to a digital society. The idea of first came to popularity in October 2008, as a major aspect of a proposition for Bitcoin, with the plan to make P2P monetary fund without banks. Bitcoin introduced a novel resolution with the well age-old human issue of trust.

Independent of the unsure eventual fate of digital forms of money, utilization of innovation in the developed markets is bounteous. Instances of organizations progressing in the direction of the utilization

Copyright © 2019Authors

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

of innovation incorporate major stock exchanges around the globe, among which are the NYSE, London Stock Exchange, , Australian Stock Exchange (ASX), Japan Exchange Group (JPX), and many more[7].

II. Blockchain for Stock Market

Blockchain can be the reaction to interoperability, trust and transparency issues in isolated market systems. Protections trade individuals, for instance, vendors, shippers, controllers and stock trades are required to encounter an ungainly technique (which takes 3+ days to complete exchanges, generally in light of the activity of agents, keeping up accounts with depositories and clearance houses and managerial strategies)[5]. Blockchain can make stock exchanges extensively increasingly perfect through computerization and decentralization.

It can provide with:

1. Automation of post-exchange settlements
2. Component for fairness and transparency
3. Lower exchange costs
4. System for risk control
5. Higher liquidity
6. Disinter-mediation

III. Recent Researches

In 2015, Nasdaq et.al unveiled the use of its Nasdaq Linq blockchain record development to record private stock exchanges for Chain.com—the debut Nasdaq Linq customer. It aims to apply a colored coin that recognizes the coins utilized for exchanging from different coins.

In 2015, Australian Stock Exchange picked U.S. based blockchain startup Digital Asset Holdings, LLC to make dispersed record-based answer for clearing and settling trades. It made a hypothesis of $14.9 million to get a 5% esteem eagerness for Digital Asset, which was later raised to 8.5% through an additional endeavor. The proposed CHESS Replacement targets to go-live where users wanted new functionality that would deliver near-term benefits. System will offers Electronic provision of holding statements, Electronic dividend reinvestment plan (DRP) and bonus share plan (BSP) elections Moscow Exchange (MOEX) successfully conveyed e-voting in favor of bondholders by methods for blockchain at the National Settlement Depository (NSD). MOEX was the primary Russian money

Copyright © 2019Authors

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

related establishment to join the Hyperledger Project in mid-2016 [8]. The solution suggested is the development of unified standards for e-voting based on distributed ledger technology in BRICS Pilot Launch which aims to determine the best way for the post-trade industry to benefit from distributed ledger technology areas of potential implementation. Mutual Funds, KYC Korea Exchange have moved Korea Startup Market (KSM) with Blocko's blockchain advancement to engage values of new organizations to be traded the open market. The proposed arrangement was focusing on Korea Start-up Market (KSM), an OTC-stage point, propelled a blockchain-fueled stage for the off-board exchanging market, connecting dealers and purchasers to exchange protections. This method offers utilizing blockchain innovation to empower value portions of new businesses to be exchanged the open market, encourage protections exchanging among purchasers and venders, legitimately, executing a blockchain stage called ' Coinstack ', created by Korean startup Blocko with a core interest on report and character validation[10].

In mid 2017, India's National Stock Exchange (NSE) directed a blockchain preliminary including nation's driving banks— HDFC Securities, IDFC, IndusInd, ICICI, RBL and Kotak Mahindra. This blockchain preliminary with know-your-client (KYC) information was empowered by a startup Elemental. The London Stock Exchange, is locked in with ways to deal with improve the post-trade space using the blockchain development. While the Luxembourg Stock Exchange has recently exhibited a blockchain enabled security structure wherein the legitimately created imprint by assigned framework (OAM), close by report type and chronicle URL, are taken care of in the blockchain. Santiago Stock Exchange (SSE) aimed to fabricate a blockchain-based protections loaning arrangement[9]. The new device helped empower Chile's protections loan specialists, banks, stock trades, institutional customers and controllers, to trade data, while altogether "lessening the time it takes for important back-office forms by 40%". It offered the arrangement to help decline goofs, possible coercion and getting ready time for each trade, while in like manner improving the exchange executions and cutting down costs.

Furthermore, JPX developed a proof-of-idea examine how blockchain could be utilized to make new frameworks for the exchanging of low-liquidity resources. JPX is likewise chipping away at preliminaries with Nomura Research Institute (NRI) to look at how blockchain innovation could be applied in the securities market.

Copyright © 2019Authors

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

Recently, Luxembourg Stock Exchange, Offered Appointed Mechanism (OAM) tool in which the system offers the notarization functions through Ethereum, a decentralized public blockchain. It provides a "digital signature" that ensures authenticity and proof of existence of all filed documents, public can store and access information over an indefinite period of time.

IV. Proposed Algorithm

A private key in Blockchain is just a random number between 1 and 2^{256}.

Generating Wallet Address:

Step 1: Generate a string of random data
Step 2: Convert random data to 256-bit number
SHA256<D> => D1(Hexadecimal
DECIMAL<D1> => D2
Step 3: Verify and Add 80 to D2
80 + D2 => 80D2 == D3
Step 4: Add 32 bit checksum
DoubleSHA256<D3> =>D4D3 + First 8 bits of <D4> == 80D2+ <8 bits of D4> =>D5 (Hexadecimal)
Step 5: Convert new hexadecimal to base58
Base58<D5> => public key

V. Proposed Flowchart

Copyright © 2019Authors

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

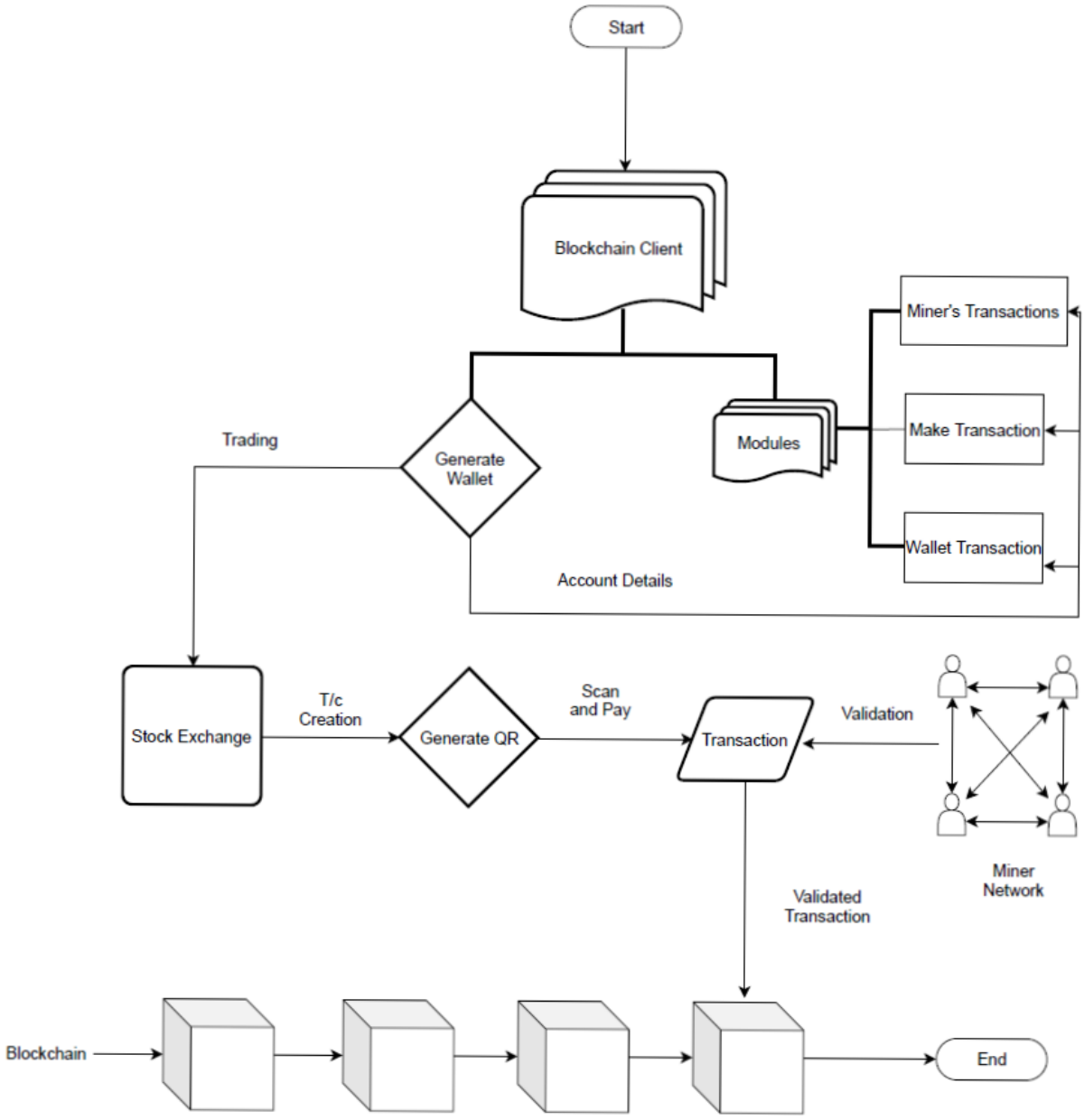


Figure 1: Flow Chart of Proposed Algorithm

VI. Conclusion

The paper aims to suggest three significant manners by which blockchain innovation can influence and distort plans of action in stock market:

1. By verifying exchanged merchandise
2. By means of disinter-mediation
3. Through bringing down exchange costs

Copyright © 2019Authors

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

VII. Future Scope

Blockchain is a public network and can be accessed by anyone and from anywhere. Use of Blockchain in the Internet of Things and Networking can be done in future. Any advancement in the consensus will result in the advancement of our system. New Cryptography and hashing techniques can be used in future to enhance security and Block mining.

References

[1] M.H. Miraz, D.C. Donald, "Application of Blockchain in Booking and Registration Systems of Securities Exchanges," IEEE International Conference on Computing, Electronics & Communications Engineering, pp. 16-17, August 2018.

[2] Z. Zheng, S. Xie, H. Dai, X. Chen, H. Wang,"An Overview of Blockchain Technology: Architecture, Consensus, and Future Trends," IEEE 6th International Congress on Big Data, pp. 557-564, June 2017.

[3] M. Pärssinen, M. Kotila, R. Cuevas Rumin, A. Phansalkar, J. Manner, "Is Blockchain Ready to Revolutionize Online Advertising?," IEEE Access, vol. 6, pp. 54884-54899, Oct. 2018.

[4] C. Pop, C. Pop, A. Marcel, A. Vesa, T. P., T. Cioara, I. Anghel, I. Salomie, "Decentralizing the Stock Exchange using Blockchain An Ethereum-based implementation of the Bucharest Stock Exchange," IEEE.

[5] W. Nowiński, M. Kozma, "How Can Blockchain Technology Disrupt the Existing Business Models," EBER Open Access, vol. 5, No. 3, pp. 174-188, 2017.

[6] A. Kibet1, S. Maina Karume, " A Synopsis of Blockchain Technology," International Journal of Advanced Research in Computer Engineering & Technology (IJARCET), vol.7, issue 11, pp. 789-795, Nov. 2018.

[7] K. Zīle, R. Strazdiņa, "Blockchain Use Cases and Their Feasibility," Applied Computer Systems, vol. 23, no. 1, pp. 12–20, May 2018.

[8] Zyskind, G., Nathan, O., "Decentralizing privacy: Using blockchain to protect personal data.", Security and Privacy Workshops (SPW), IEEE, pp. 180-184, 2015.

[9] Belle, I., "The architecture, engineering and construction industry and blockchain technology", Digital Culture, pp. 279-284, 2017.

[10] Chalaemwongwan, N., Kurutach, W., "State of the art and challenges facing consensus protocols on blockchain", International Conference on Information Networking (ICOIN), pp. 957-962, Jan 2018.

Copyright © 2019Authors

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

[11] Tschorsch, F., Scheuermann, B., "Bitcoin and beyond: A technical survey on decentralized digital currencies", IEEE Communications Surveys & Tutorials, pp. 2084-2123, 2016.

[12] Metke, A. R., Ekl, R. L., "Security technology for smart grid networks", IEEE Transactions on Smart Grid, pp. 99-107, 2010.

Copyright © 2019Authors