

# TRUSTED SOCIAL NETWORK USING BLOCKCHAIN TECHNOLOGY

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**Abstract :** Now a days use of social media has been increased tremendously. Due to this large scale of rumors are spreading. This causes lots of social and economic damages. Rapid use of online networks causes rumour spreading more severe. To overcome such social and economic issues

We have researched and studied blockchain technology, and how blockchain technology can help to limit the spread of rumour. We try to develop a new paradigm for social networks embedded with blockchain technology which will create trusted network and secure the information exchanged. This results in avoiding rapid and intense rumour spreading and creates a social network.

**IndexTerms - Blockchain technology, social network, Rumour spreading.**

## I. INTRODUCTION

Rumour are existing from thousands of years in human history. Rumour is a currently circulating story of uncertain and doubtful truth. A rumour is an unverified information. In this age of internet where there is rapid information exchanged this transformation may leads to rapid rumour propagation and could cause more intense social impacts and negative effects.

Previous technologies were not proven perfectly for rumour spreading as it was not able to find the root of rumors. To overcome this problem blockchain technology was best-fitted to solve this problem. Blockchain technology was proved best to develop secure and trusted network. This has motivated us to redesign the information exchanged process as a “contract”-based process model social network.

We introduce a mechanism for smart contract design that makes expressive power fulfilled by blockchain technologies. To illustrate that such a mechanism can avoid large-scale rumour spreading through network, we design a trusted network.

## II. LITERATURE SURVEY

Prashant Bordia describes the advantages of computer-mediated communication networks (Internet, Bitnet, and Usenet) in the study of verbal interaction. Research involving observation and analysis of rumor transmission patterns is presented as a description. Issues related to the generalizability of findings and the ethics of observational research are also briefly discussed. Millions of people interact daily on the Internet, Bitnet, and Usenet networks with a large part of this interaction involving informal communication in public discussion forums. This provides researchers with a setting in which interpersonal communication can be observed and analyzed Reference(2).

W. A. Peterson and N. P. Gist, “Rumor and public opinion,” stated that rumor spreading, a constant recruitment, and varying total population is investigated. Introduction Rumor is a typical social issue that runs through the whole evolutionary history of mankind, and its spreading plays a significant role in a variety of human affairs. A rumor is “an unverified information or explanation of events transformed from person to person and pertaining to an object, event. Rumor is usually created to defame someone or to spread false information about public events; it not only infringes upon others’ interests, but also poses a threat to social stability, and it appears when a group tries to make sense of an ambiguous, uncertain, situation Reference(1).

B. Doerr, M. Fouz, and T. Friedrich, in the paper “Why rumors spread so quickly in social networks,” Social networks arise in a variety of contexts, formed by people connected by knowing each other, Facebook members agreeing to be friends , scientific authors having a joint publication, and actors appearing in the same production. As larger number of people are connected through different networks using different social media platform rumors spreads from one platform to another. As there is no source of detecting the fake information the spread of rumors continues. As use of social media increased the rate of rumor spreading also increased rapidly Reference(3).

W. Allport and L. Postman, In the paper “The psychology of rumor” describes that Social networks grow naturally, their graph structure is not designed for any particular use but still allows for the quick spread of news. The source of the speedy spread of information is fruitful interaction between the few nodes with many neighbors and the large number of nodes with few neighbors Reference (4).

R. L. Rosnow and G. A. Fine, I in the paper Rumor and gossip: The social psychology of hearsay. Psychological and sociological study of the transmission of and response to rumor and gossip, convince their neighbors than peripheral subjects. From extensive numerical simulations find that spreading is improved in scale-free networks when the transmission probability is proportional to the PageRank, degree, and betweenness centrality. In addition, the results suggest that spreading can be controlled by adjusting the transmission probabilities of the most central nodes. Results provide a conceptual framework for understanding the interplay between rumor Reference(7) .

L. Zhao, H. Cui, X. Qiu, X. Wang, and J. Wang, “Sir rumor spreading model in the new media age,” Information has a great effect on social network, which is a double-edged sword. In this paper, information spreading model with isolation. For the dynamical model, they obtained the global stability of the equilibria and bifurcation behaviors, based on both mathematical analysis

and numerical results. In a word, information spreading model can have rich dynamics which may provide some new insights for policy decisions on information. Results are based on the information change process and avoid large scale spreading of untrusted piece of messages we adopt the blockchain technology and design a protocol consisting of private contract and public contract. We allocate and accumulated virtual information credit for each participant in the network and used such credits to motivate the propagation of trusted information.

Viewing connection between the dynamics of social exchanges and the consumption of goods and services Reference(5).

Y. Moreno, M. Nekovee, and A. F. Pacheco, in the paper “Dynamics of rumor spreading in complex networks,” It was found that such a model has rich dynamics including Hopf bifurcation. The results showed that, for a wide range of parameters, there is a bistable phenomenon in the process of information spreading and thus the information cannot be well controlled. Moreover, the model has a limit cycle which implies that the information exhibits periodic outbreak which is consistent with the observations in the real world Reference(6).

D. A. Vega-Oliveros, L. da F Costa, and F. A. Rodrigues, describes in the paper

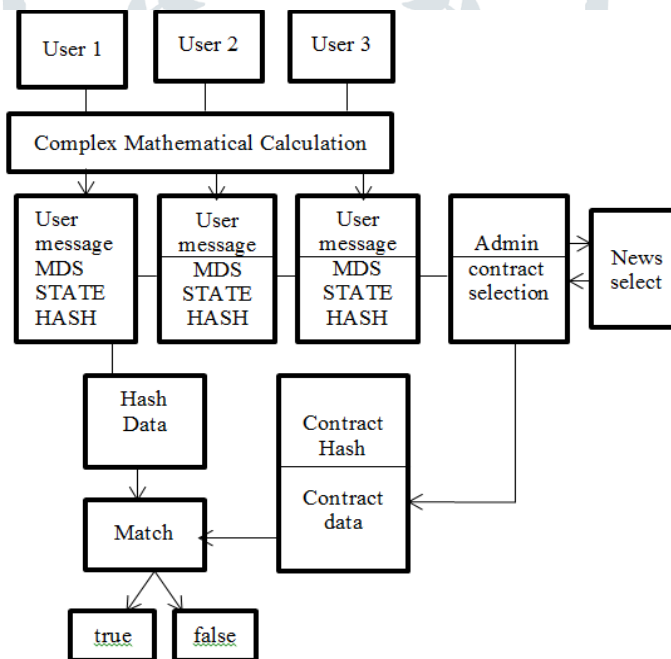
“Rumor propagation with heterogeneous transmission in Social networks,” Rumor models consider that information transmission occurs with the same probability between each pair of nodes. However, this assumption is not observed in social networks, which contain influential spreaders.

### III. METHODOLOGY

#### 3.1 System Description:

In this chatting application, we are using blockchain technology to build the trusted network for the detection of the fake news. Various collection of data sets are used to build chain of blocks. When this various data sets are applied this constructed chain of blocks are detected by smart contract. Each block has its own unique hash value which compares its hash value with another block, if it matches the hash value then message passing takes place. If the message containing news which is valid then it popups true or else the message is invalid, and it popups false and simply discard the news.If some user spreading the false news the system will detect the user and simply kicked it out of chain by recognizing it as a ‘SPAM’ user. For different users various transaction Id and hashcodes are generated by the system.

#### 3.2 Proposed System



#### 3.3 System Architecture

In trusted social network system blockchain technology is used to detect the rumors spreading through social media. It limits the spreading of rumors. To ensure both security and privacy of the information change process and avoid large scale spreading of untrusted piece of messages we adopt the blockchain technology and design a protocol consisting of private contract and public contract. We allocate and accumulated virtual information credit for each participant in the network and used such credits to motivate the propagation of trusted information.

### IV. CONCLUSION

We concluded the dynamics of rumors spreading in social networks with and without blockchain enabled technology. We firstly introduce the graphical model setup model for social networks .We then illustrated how to incorporate the blockchain contract into peer-to-peer information exchange process by employing virtual credits. The redesigned blockchain enabled rumor spreading model along with numerical simulation demonstrated that blockchain technology would help in avoiding large-scale rumor spreading. Such model setup and simulation results would motivate us to design trust based information exchange system with blockchain technology enabled.

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