



## SECURE E-VOTING SYSTEM USING BLOCKCHAIN

R.Rameshkumar<sup>1</sup>,T.Devipriya<sup>2</sup>,

R.B.Dhanendran<sup>3</sup>,S.P.Dheenadhayalan<sup>4</sup>

Sri Krishna College of Technology,

Coimbatore, India

### ABSTRACT

Building a connection to the internet polling method that answers the allowable necessities of legislators has been a challenge for a very long time. Distributed daybook electronics are an exciting mechanical advancement in the data processing globe. Blockchain sciences offer a limitless range of uses, enhancing giving savings. This paper aims to judge the use of blockchain to help implement delivery connected to the internet vote orders. The paper elucidates the necessities of construction connected to the internet polling schemes and recognizes the permissible and concerning restraints of utilizing blockchain as an aid for understanding specific methods. The paper starts by judging a few of the favourite blockchain foundations that offer blockchain as an aid. We propose a novel connected to the internet balloting scheme established on blockchain that addresses all the restraints we found. This paper evaluates the potential of delivered books in sciences through the writing of a record of what happened, that is to say, the process of choosing and achieving a blockchain-located use that boosts the safety and decreases the cost of accommodating a country's choice.

### INTRODUCTION

In each justice system, the freedom of choice is a matter of ethnic safety. Voting blueprints have developed from polls of people after voting in the early days to plans that involve paper, punch check, machinelike crowbar, and ocular-thumb through machines. Online balloting structures support a few characteristics different from the usual polling method, and they determine the revised visage of the balloting plan to a degree of veracity, availability, adaptability, solitude, verifiability, and manoeuvrability.

But it endures from differing disadvantages to a degree. It consumes an abundant book of paperwork, has no direct function for the taller commissioners, and damages machines on account of lack of consideration. Bulk renovation doesn't admit consumers to renovate and refine many parts together. These disadvantages are overcome by being connected to the internet balloting scheme. It is an individual type of polling by which some electors can use their vote rights from an unspecified area in the country.

### Blockchain electronics

Blockchain science admits that for the secure administration of public tables, table undertakings are confirmed and fixedly stocked on a network. A blockchain is a type of distributed account book for asserting a constant and alter-authentication record of a variable dossier. A blockchain functions as a distributed table, namely one governed by calculations owned by A peer-to-peer (P2P) network Each of the calculations in the delivered network upholds a copy of the account book for fear of a Single Point Of Failure (SPOF). In addition, copies are restored and validated together.



## LITERATURE REVIEW

This paper handles the polling method that is connected to the internet and that will create the smart balloting method. OVS (connected to the internet polling structure) is assured and it has a natural design. We will use the biography cast scheme in this place. That makes it more secure. We connected it to the accompanying aadhar calendar. In all realms, the fingerprints of all are singular. So we will use this method. The portion of the vote will be increased. And further, it reduces the wrong vote.[1]

Each freedom and arrangement is built on the balloting scheme. The balloting arrangement has undergone many effective changes in the last few decades. There are miscellaneous balloting methods secondhand in the way that paper ballot voting systems, E-Voting Systems, as known or named at another time or place, Electronic Voting Systems, Internet Voting Systems, SMS and Miss Call Voting Systems. In this paper, we have discussed miscellaneous votes and their benefits and troubles. The basic aim of this paper is to create the polling method multiuse and manage work multiplatform on some computer software for basic operation.[2]

The first appearance in this paper is expected to be connected to the internet vote order for Indian voting. The projected model has better protection in the sense that electors' extreme safety identification is habitual before the vote is approved, usually on the table of the Election Commission of India. In the projected scheme, the tallying of the votes will be finished instinctively, so it will be an enormous occasion and permissive Election Commissioner of India to publish the result in a very short time.[3]

In this paper, we have planned a connection to the internet balloting foundation that guarantees that the elector is capable of legislating a public environment outside of a welcome vote being overhung by a neighbour that is a welcome neighbour or a mediator when he marks a welcome choice on the applicant.[4]

A secure internet connection is required for the balloting method of today. We intend to create a new secure confirmation system for internet-connected balloting systems by utilising biometric features and steganography. Voters are asked to list an identification along with an enrollment activity. Password is converted into a secret world with the help of a timestamp and a hash. This rumour is stocked with representation utilising steganography. In this model, one can still vote, except for those assigned voters or from those preferred parts.[6]



## PROPOSED SYSTEM

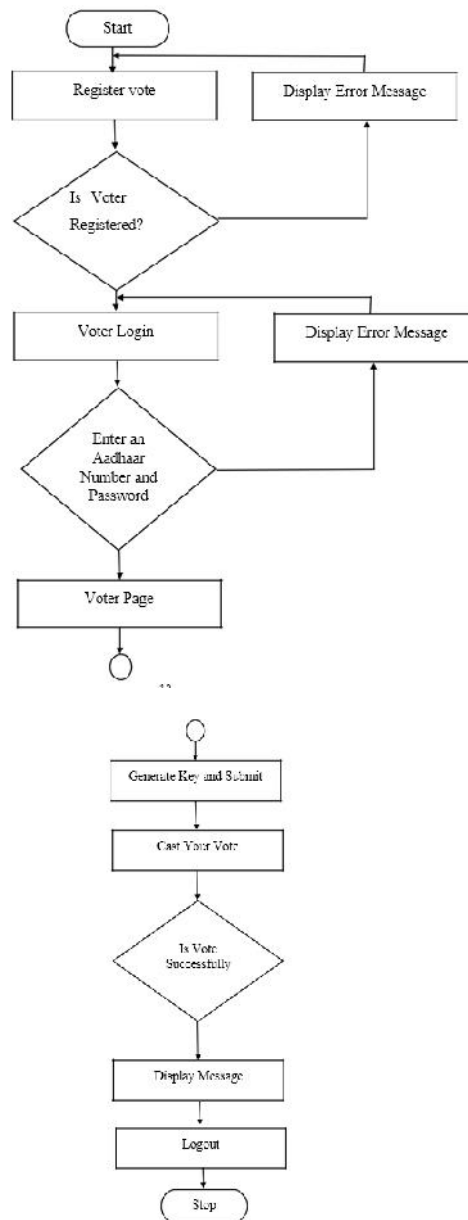
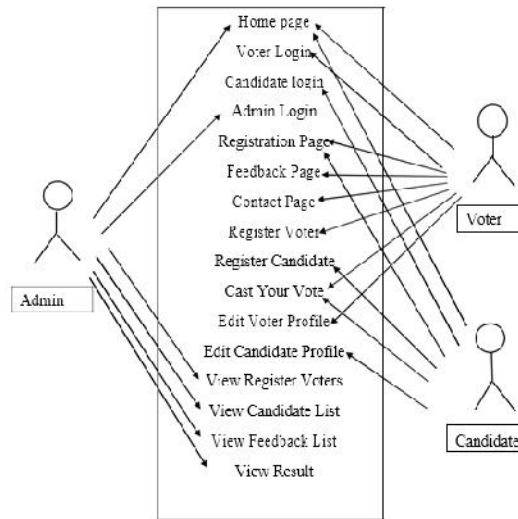


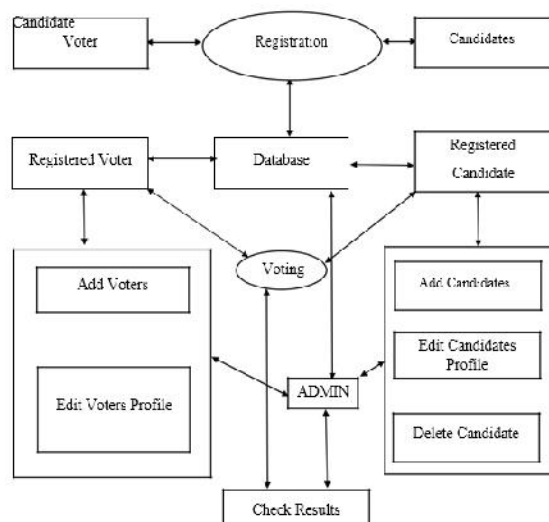
FIGURE 1. FLOW CHART



**FIGURE 2. USECASE**

Use case drawing is a most natural likeness of a consumer’s interplay with bureaucracy and describes the requirements of a use case. Use the drawing amount to create a three-player admin, elector, and nominee. The admin's activities in the use case drawing include controlling the balloting process and adjoining contestants, viewing and refining the competitor list, and so on. of electors in the use case: drawing enrollment, deciding on representation, rewriting elector characterization, etc., In the use case, the competitor's activity includes drawing enrollment, deciding on representation, rewriting the contender sketch, and so on.

Diagram of Data Flow



**FIGURE 3. DFD**

This portion details painstakingly the dossier flow plan method. It is used to comprise information to guide the lecturer in expanding dossier flow plan abilities.



The dossier diagram, or graph, consists of three stars: admin, electors, and contenders. Voters and bidders register the analyses and stratum their votes, and they can still refine our characterizations. To socially classify their votes, they must have an Aadhar Number and a Voter ID. only directs the polling process and views the result.

## **SYSTEM IMPLEMENTATION**

### **Home page**

Home pages involve an applicant page and a login page. The login page exists for electors or consumers' Aadhar numbers and identification. The applicant page exists of the aspirant's Aadhar number and identification.

### **Login page**

There are 3 logins for admin, electors, and contenders. Each will login, accompanied by their attestations and will be able to visualise the analyses as well as vote. Secondhand login form for confirmation purposes. The Login ID search is used to label and identify you among additional consumers. Login reduces the unjustified approach. Only registered administrators, electors, and aspirants have access to the login form. It guarantees purity and safety concerning this administration. When the login ID and identification are invalid, the wrong meaning will be displayed.

### **Registration page**

The registration piece is secondhand, enrolling electors in the polling commission list. Therefore, he could be smart to vote. He will be ready with the singular key. This helps you vote all the while choosing an opportunity. Without that, he decided on representation. The admin will approve bidder registration, and the attestations will be supported by the contender.

### **Admin page**

The Admin creates a login ID and identification for all contestants. All progress can be monitored and controlled by the administrator. Admin can also view contenders and elector characterizations, but experiences cannot be exchanged by admin. Set up dossier only on the admin piece for safety. likely the type of task.

### **Feedback page**

The Feedback page incorporates the consumer's name, contact number, and comments on the overall site. Feedback is sent to the admin ingress. The response comments are only believed by one admin.

### **Contact us**

Contact us only to incorporate the election commission's analyses.

## **RESULTS**

The proposed work was implemented for the performance. Consensus protocol algorithm was used. The user can register only once in the application, if he/she tries to register using the already used Aadhar number or mail address the result will be unsuccessfully. So each individual can have a single identity. If the user attempts to cast their vote using incorrect cipher key or tries to vote for a candidate with already used mail address/same registration id, it would be the unsuccessfully method will be handled by the



system, so no one can make fraud activities while casting their vote. The performance of the system model was analyzed as per the parameters sketched in [15][16][17] for any voting system to work securely and correctly.

**Security:** The votes are very safe and secure due to the use of strong encryption algorithms so voters can feel safe of their vote and they can choose their candidates

**Fast and accurate Results:** The counting of votes will be extremely speedy. Moreover, anyone can examine the blockchain and verify the results.

**Digitization:** With a full and secure digital system, users can cast their vote online. There is no need of election booths or manual vote counting.

**Transparency:** With the use of the blockchain technology, the entire voting will be public, and at the meantime maintaining the secrecy of ballots. As the citizens of the country users can see the blockchain, statistics like the final results and the percentage of voters, so that they can cast their vote will be publicly verifiable.

**Paperless Voting:** Our system is fully digital, and requires no paper ballots. In add to, as voting will be done by each voters through online, so the need of associated paperwork also decreases.

**Cost and Resources:** The expense in the security of the booths, personnel required for booth management, voting machines will be reduced. As the equipment required to maintain the integrity of the system are bots, the only expense will be the computation power required for the bots.

The verification process to set the voting and key delivery in the e-voting system is the important one. When the key is successfully sent then when the user registered mail id starts the "initialization phase" then the server appears finish key generation. The key will be used as the One Time Password(OTP) for the voter so that they can easily cast their vote through the online application.

## CONCLUSION

The Online Voting System calculates the results faster, reduces the opportunity lost to making long queues at the polling stations all day, reduces human exertion, and likewise allows electors to cast their votes from anywhere in the world. Occurrences of vote miscount were intensely lowered because at the backend of this method is a shapely table. The proposed approach has been implemented with Multichain and an in-depth evaluation of the approach highlights its effectiveness concerning achieving fundamental requirements for an e-voting scheme. In continuation of this work, we are focused on improving the resistance of blockchain technology to the double spending problem which will translate as 'double voting' for e-voting systems. Although blockchain technology achieves significant success in the detection of malleable change in a transaction however successful demonstration of such events has been achieved which motivates us to investigate it further. It too supplies handy graphical interfaces and finishes that make the **vote smooth and pleasing.**



## REFERENCES

- Himanshu Vinod Purandare; Akash Ramswaroop Saini; Freddy Donald Pereira; Bibin Mathew ;Pratiksha S. Patil 2018 Application for Online Voting System Using Android Device International Conference on Smart City and Emerging Technology (ICSCET) Year: 2018.
- Xuechao Yang; Xun Yi; Surya Nepal; Andrei Kelarev; Fengling Han IEEE Access Year: 2018 A Secure Verifiable Ranked Choice Online Voting System Based on Homomorphism Encryption.
- Xizang Yang ; Chao Liang ; Miao Zhao ; Hongwei Wang ; Hao Ding ; Yong Liu ; Yang Li ; Junlin Zhang Collaborative Filtering-Based Recommendation of Online Social Voting IEEE Transactions on Computational Social Systems Year: 2017.
- Z.A. Usmani; Kaif Patanwala; Mukesh Panigrahi; Ajay Nair 2017 Multi-purpose platform independent online voting system International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS) Year: 2017.
- Himanshu Agarwal; G. N. Pandey 2013 Online voting system for India based on AADHAAR ID Eleventh International Conference on ICT and Knowledge Engineering Year: 2013.
- Smita B. Khairnar; P. Sanyasi Naidu; Reena Kharat 2016 Secure authentication for online voting system International Conference on Computing Communication Control and automation (ICCUBEA) Year: 2016.
- Andria Rodriguez Perez 2017 Secret suffrage in remote electronic voting systems Fourth International Conference on eDemocracy& eGovernment (ICEDEG) Year: 2017.
- B Madurai; M G Adarsha; K R Pradhyumna; B M Prajwal 2017 Secured Smart Voting System using Aadhar 2nd International Conference on Emerging Computation and Information Technologies (ICECIT) Year: 2017
- Silvia Bartolucci; Pauline Bern at; Daniel Joseph 2018 SHARVOT: Secret Share-Based Voting on the Blockchain IEEE/ACM 1st International Workshop on Emerging Trends in Software Engineering for Blockchain (WETSEB) Year: 2018.
- Abdullah Meraoumia; Hakim Bendjenna; Mohamed Amroune; Yahia Dris 2018 Towards a Secure Online E-voting Protocol Based on Palmprint Features 3rd International Conference on Pattern Analysis and Intelligent Systems (PAIS) Year: 2018.
- X. Yang et al., "A verifiable ranked choice Internet voting system," in Proc. Int. Conf. Web Inf. Syst. Eng. (WISE), 2017, pp. 490-501.
- J. Dreier, P. Lafourcade, and Y. Lakhnech, "Defining privacy for weighted votes, single and multi-voter coercion", Proc. Eur. Symp. Res. Comput.Secur. (ESORICS), 2012, pp. 451-468.



- A. O. Santin, R. G. Costa, and C. A. Maziero, "A three-ballot-based secure electronic voting system," IEEE Security Privacy, vol. 6, no. 3, pp. 14-21, May 2008.
- Vishal; Vibhu Chinmay; Risabh Garg; Poonam Yadav, "Online voting system linked with AADHAAR", 2016 3rd International Conference on Computing for Sustainable Global Development (INDIACom)
- X. Yi, R. Paulet, E. Bertino, Homomorphic Encryption and Applications, New York, NY, USA: Springer, 2014
- Vanessa Teague, Steve Schneider, Peter Y.A. Ryan, "End to End Verifiability in voting system from theory to practice" June2015.
- Prosser, Alexander. (2014). Transparency in eVoting. Transforming Government People Process and Policy. 8. 10.1108/TG-09-2013-0032.