

# Simplified E-voting System using Procedural Oriented Language

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**Abstract:** *The trend of the Online voting system has become very famous among the foreign countries, and they have started implementing the technique in most of the parts as a test and they have resulted in a great sensation among the public and government. India is one such country which is one of the countries with a high population, elections over here have always been a mess. People find it really hectic to come over and cast their votes, and there is a huge problem of fake votes that affect the protocols. There is not even transparency in the vote counting, as it is done manually in most of the places. This paper focuses on a system where the user can vote remotely from anywhere using his/her computer or mobile phone and this project also allows the user to vote offline as well if he/she feels that is comfortable. Our project doesn't involve much security and it has a very simple code so that it is interpreted by the coders easily and club more with the code. It helps to integrate the problem very well and develop it into something better.*

**Keywords:** E-voting system, procedural programming language, visual studio code, clang, GCC compiler.

## I. INTRODUCTION

The Procedural programming language basically follows a simple flow of code with every work defined at different functions, each acting as a unique module. As mentioned above in the abstract, the e-voting system solves the issues faced by the public during election time. Citizens seeking registration are expected to contact the system administrator to submit their details. After the validity of them being citizens of India has been confirmed by the system administrator by comparing their details submitted with those in existing databases such as those as the Registrar of Persons, the citizen is then registered as a voter. And the voter doesn't need to go to the polling booth or the registered voting center to cast their vote, they can comfortably cast their votes from their homes. Votes are securely stored in the database, reducing the manpower as much as could. The votes are stored in the database so that voters can they can view the vote count and voters are given a space to view the leading candidate all by themselves without waiting for a news channel to report stats. The main motive is to ensure a voting system for the public and officials that is simple, adaptable, and easy to work on without any complications. According to the survey, most of the votes go waste that is the vote percentage has never been a hundred percent throughout the years, so this way of making everything online could a bring a change in the percentage, it is not suggested that it would achieve complete votes from the public but the increase in the voting percentage is for sure. It is also tested and confirmed that it is cost-efficient and time consumption reduced maximum in order to avoid the prolongment of the work for the voters, people often wait in a long queue to cast their votes leaving all their works behind, there is no need for such silly sacrifices here and there, so it is just great to operate.

## II. RELATED WORKS

There are various online voting system methods provided by various developers and authors used to solve the issues involved in the traditional voting system. Geetanjali Rathee et al. discusses the many features and has initiated the concept of E-voting attacks that occur during polling mechanism in smart cities. The privacy and security flaws are successfully resolved by computing the trust of each entity and further storing them in a Blockchain to analyze their continuous behavior when compared. Furthermore, the proposed mechanism has significantly outperformed the baseline mechanism by tracing the activity of every election process level. Further, the proposed framework shows a better success rate in all simulation results against baseline mechanisms over message alteration, DoS, DDoS threats, and authentication mechanisms, This

Enhances more security of the process [2]. Shiyao Gao et al. state that the code-based Niederreiter algorithm can be used to resist quantum attacks. In their scheme, the KGC in a certificateless cryptosystem is introduced as a regulator. It not only realized the anonymity of voters but also provided the feature of the audit by combining with the traceable ring signature algorithm, to maintain the fairness and correctness of the election. Through the analysis of their scheme, we get the conclusion that when the number of voters is small, it has some advantages in security and efficiency, which is suitable for small-scale elections; when the number is large, it achieves higher security by reducing part of efficiency. The whole idea is based on blockchain e-voting with an introduction of the audit function [7]. Basit Shahzad and Jon Crowcroft proposed something to do with the mistrust happening in the voting system, Mistrust in the voting is not an uncommon phenomenon even in the developed countries. Electronic voting, however, has emerged as an alternative but is still not being practiced on a large scale. Electronic voting is anticipated to have a great future yet the past is not that glorious. In some countries, e-voting is not an option while few are in the process to eliminate the security, verifiability, and anonymity concerns. Some issues require immensely deep consideration by the legislatures, technologists, civil society, and the people. This research has proposed a framework based on the adjustable blockchain that can apprehend the problems in the polling process, selection of the suitable hash algorithm, selection of adjustments in the blockchain, process of voting data management, and the security and authentication of the voting process. The power of blockchain has been used adjustably to fit into the dynamics of the electronic voting process[6]. Amna Qureshi et al. proposed an electronic polling system for small to medium-sized Internet-based public opinion systems that provides privacy of vote, voter anonymity, voter authentication, suitability, poll integrity, security against a coalition of malicious parties, double-voting prevention, fairness, and coercion resistance, and prevents the malware-infected voting device from manipulating the authenticated voter's voting choices [4]. Richard Buckland et al. proposed to support and extend the systems in-house and integrate all aspects of e-voting into the existing carefully designed procedures for executing paper elections. If e-voting can be made transparent and verifiable, eventually it could be extended to collect as many votes as would result in reduced paper voting logistics, project sets a new standard for transparency and scrutiny of electronic elections and ultimately maintain the high level of transparency and scrutiny that already exists for traditional paper-based elections as we transition to e-voting [1].

### **III. EXISTING SYSTEM**

The voting system in our country has been a mess and people find it very difficult to come all the way through long queues to cast their cast, there is no transparency and correctness in the vote-counting and they delay so much to announce the results. About DRE, integrates with the keyboard, touch screen, or buttons for the voter to press to poll. Some of them lay in voting records and counting the votes is very quickly. But the other DRE without keeping voting records is doubted about its accuracy. Sometimes people want something compact and easy to access as the technology is something that keeps getting upgraded all the time. When it comes to the optical voting machine, after each voter fills a circle corresponding to their favorite candidate on the blank ballot, this machine selects the darkest mark on each ballot for the vote and then computes the total result. This kind of machine counts up ballots rapidly. However, if the voter fills over the circle, it will lead to the error result of the optical scan.

### **IV. PROPOSED SYSTEM**

Our proposal to the existing problem is to bring an online voting system into the discussion. Online helps both public and staff in a lot of ways, it saves time and money the most of the time. First of all, we have a database that first registers the voters using their unique identification number and the same database is used to verify the voter when he casts his vote for the election. This new system is flexible to use as it provides the voter to comfortably cast votes from anywhere and anytime. The system is secure as well, the portal opens only on the day of the election and handles the traffic very well. People don't have to wait to know the results, they can simply press an alternate button to know the intermediate results of the ongoing election in order to display transparency to the voters without a doubt. By online voting system percentage of voting is increases. It decreases the cost and time of the voting process. It is very easy to use and it is very less time-consuming. It is very easy to debug.

## V. IMPLEMENTATION

Visual studio code is a platform to implement the code, we chose to deploy our code after trying turbo, which turned out to be quite lacking in being efficient. As we already know, Visual studio code is a multipurpose platform, it can be used to run and execute any sort of programming language. Procedural programming language probably comes with the C programming language, so we first installed the extensions of C in the visual studio itself. There is a section called extensions, where you can look for pieces of stuff that will help you code and intend to make it look better and more spacious. Now we started coding, first, we declared the candidates as macros so that they would remain constant and stable throughout the code. In the first segment, we get the values from the user, that is we collect their casted votes and store them in the database. Now the votes are safe, this voting system further provides two more options to the users to view the vote count and the leading candidate as of now. They are declared using switching statements to provide options to the user. Now the voters have two different options in front of their eyes. If the vote count is chosen by the voter, we had created multiple count variables to make note of them. So now we just simply call them and display the vote count to the voters. The other option is to find the leading candidate among the candidates, this is again redirected through the switching statements to the desired function of the leading candidate. In that block of function, we use conditional statements to compare the votes attained by each candidate, every candidate is compared with each other, and the one with the highest count will get displayed to the user or voter. That's the complete working principle of the e-voting system. E-voting could be done with either blockchain code or even using artificial intelligence but we chose to opt for the simplest method to provide better transparency to the public and making things would help the newly assigned developers to understand it easily and makes it very durable for them to work on it without any complications.

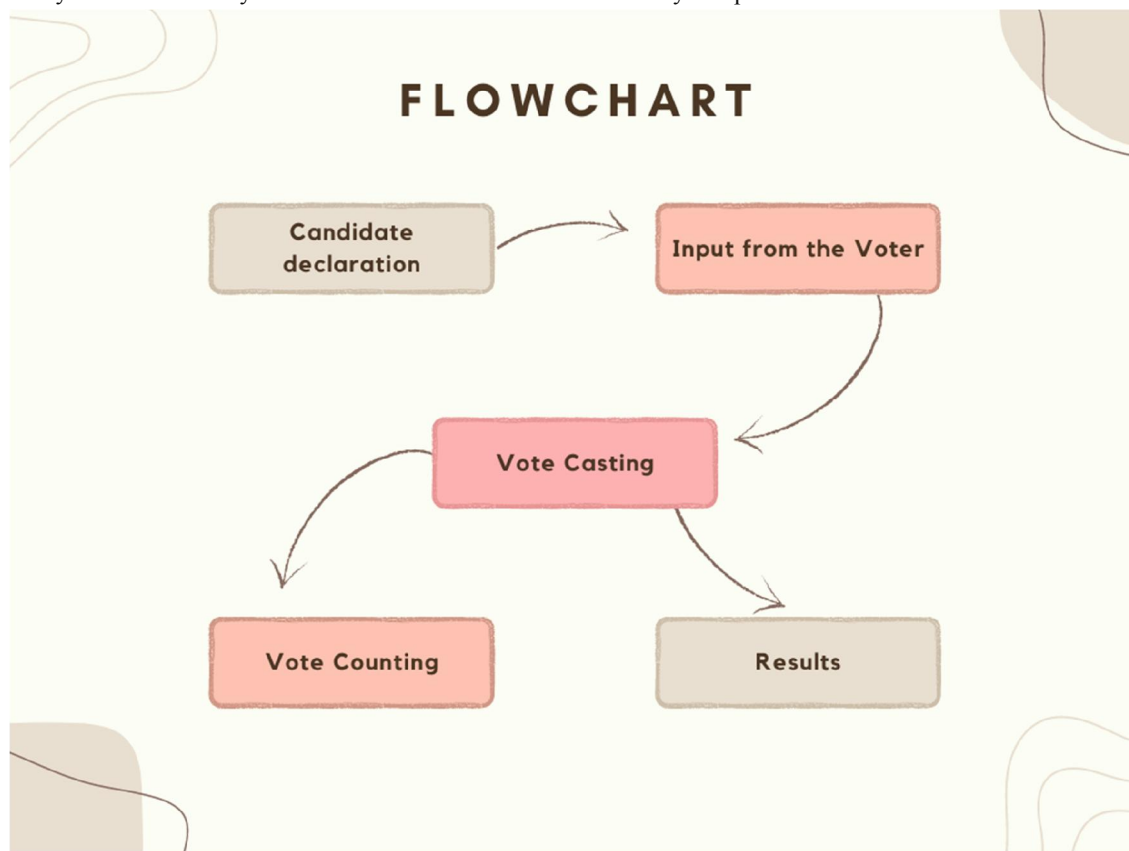


Fig 5.1

Fig 5.1 depicts the entire workflow of the E-voting system, from the candidate declaration to the results, every function has a very simple data flow structure between them.

## **VI. CONCLUSION**

Procedural-oriented programming language is one of the most simplified forms of coding, we opted for this to ensure the simplicity of the code we are working on. And we attained what we expected, the self-satisfaction is immense. These traditional voting systems are useless, to be precise. They need to be stopped as soon as possible, it majorly affects the democratic government very much. E-voting must be implemented with utmost protection throughout the entire country. The cost of introducing e-voting can already be very high, but to remain secure and trustworthy e-voting systems need continuous reviews, upgrades, and replacements as well as adjustments to new requirements. When considering the costs of e-voting it is important to consider the total cost of ownership over time rather than the one-time purchase costs. While it can take a long time for an e-voting system to be socially accepted, the loss of trust can happen fast if there are serious technical problems or political disagreements. A badly implemented or failed e-voting solution can halt the further development of this technology for years.

## **VII. FUTURE WORK**

Beginning from issues faced by the traditional voting systems, we have developed something quite simple, easy, and portable for the voters. E-voting is still a work in development. Currently, none of the discovered systems are perfect, nor is there agreement on what such a perfect e-voting system would look like. One can only decide to implement a solution that best fits the local context in terms of needs, urgency, costs, and timing. And we believe that we have achieved something concerning all those e-voting systems designed by other developers and researchers. We thought of making our program more complex by collaborating with python for more security purposes like overcoming and stopping fake votes at any costs. Facial recognition and biometrics recognition were in our mind while constructing the code for this system but we recognized that it would take a lot of time to process and learn about it, and bringing in python and C programs together wasn't an easy job. Either we got to make it fully in the form of python or the c-program needs to be completely altered which would ruin our code of trust. So we just chose to stick with the plan of making it simple, easy, and durable. We had many discussions regarding the enhancement of the code into something extraordinary, but then again we thought the mini-project would need a small-scale profile in it and we decided to put the plans on a hold as of now. Blockchain is again a great concept, and the implementation is not as complicated as artificial intelligence. Time is one of the demons we were facing and blockchain needed more concentration and studying it completely was very mandatory to implement in our code.

## **REFERENCES**

- [1] R. Buckland, V. Teague, and R. Wen, "Towards Best Practice for E-election Systems: Lessons from Trial and Error in Australian Elections" in VOTE-ID 2011, Springer, pp. 224-241, 2012.
- [2] G. Rathee, A. Sharma, R. Iqbal, M. Aloqaily, N. Jaglan, and R. Kumar, "A blockchain framework for securing connected and autonomous vehicles", *Sensors*, vol. 19, no. 14, pp. 1-15, 2019.
- [3] A. O. Santin, R. G. Costa, and C. A. Maziero, "A three-ballot-based secure electronic voting system", *IEEE Secure. Privacy Mag.*, vol. 6, no. 3, pp. 14-21, May 2008.
- [4] A. Qureshi, D. Megías and H. Rifà-Pous, "SeVEP: Secure and verifiable electronic polling system", *IEEE Access*, vol. 7, pp. 19266-19290, 2019.
- [5] P. Tarasov and H. Tewari, "The future of E-voting", *IADIS Int. J. Comput. Sci. Inf. Syst.*, vol. 12, no. 2, pp. 1-19, 2017.
- [6] B. Shahzad and J. Crowcroft, "Trustworthy electronic voting using adjusted blockchain technology", *IEEE Access*, vol. 7, pp. 24477-24488, 2019.
- [7] S. Gao, D. Zheng, R. Guo, C. Jing and C. Hu, "An anti-quantum E-voting protocol in blockchain with audit function", *IEEE Access*, vol. 7, pp. 115304-115316, 2019.
- [8] D. F. Aranha and J. van de Graaf, "The good the bad and the ugly: Two decades of E-voting in Brazil", *IEEE Secur. Privacy*, vol. 16, no. 6, pp. 22-30, Nov. 2018.
- [9] F. P. Hjálmarsson, G. K. Hreiðarsson, M. Hamdaqa and G. Hjálmtýsson, "Blockchain-based E-voting system", *Proc. IEEE 11th Int. Conf. Cloud Comput. (CLOUD)*, pp. 983-986, Jul. 2018.
- [10] N. Kshetri and J. Voas, "Blockchain-enabled E-voting", *IEEE Softw.*, vol. 35, no. 4, pp. 95-99, Jul. 2018.