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E-Voting: The Next Generation Election

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Abstract: Building a secure electronic voting system that offers the fairness and privacy of current voting schemes. "Vote", the word means to determine or to elect or select from a list or who will run the country or the organization or a group. To find leaders selected by people is the prime aim of voting. In this work-in-progress paper, we evaluate an application which providing security with OTP login.
Keywords: Voting, E-voting, electronic voting system, otp security.

I. INTRODUCTIONS

1) *Background:* E-voting plays a vital role in the evolution of a democratic society. The voting technique currently used involves voters to cast their votes by visiting polling stations. Polling stations are either installed from scratch or just some public places are used.
2) *Motivation:* To ensure 100% voting automation came into play. But this automated system have been approved only on some developed countries since security have not been ensured to a large extent. Our main aim of the proposed system is to develop a compatible voting machine with high security.
3) *Objectives and Goals*

a) To increase both the security and performance.
b) To achieve reliability, security, integrity of the data on the cloud.

II. RELATED WORK OR LITERATURE SURVEY

1) "Online Voting System for India Based on AADHAARID".Himanshu Agarwal, G. N. Pandey. (2013). An online voting system for Indian election is proposed for the first time in this paper. The proposed model has a greater security in the sense that voter high security password is confirmed before the vote is accepted in the main database of Election Commission of India. The additional feature of the model is that the voter can confirm if his/her vote has gone to correct candidate/party. In this model a person can also vote from outside of his/her allotted constituency or from his/her preferred location. In the proposed system the tallying of the votes will be done automatically, thus saving a huge time and enabling Election Commissioner of India to announce the result within a very short period.
2) "A Secure e-Government's e-Voting System". Mohammad Hosam Sedky, Essam M. Ramzy Hamed. (2015). This paper proposed a reliable cost effective secure electronic voting system that can be used in cost effectively way in many development countries like Egypt. The important obstacle in any e-voting system across the world is the security issue. Election's results may be modified when delivered to the Higher Elections Committee, unauthorized voter may vote instead of the eligible voter, a vote may not be calculated; also the voter has to ensure that nobody has the possibility to know his ballot data. The proposed Voting Model System overcomes these obstacles. Security evaluation experiments are performed successfully to the proposed system proving that it satisfies privacy, accuracy, reusability, eligibility and integrity.
3) "E-V oting System U sing Visual Cryptography & Secure Multi-party Computation". P. Sanyasi Naidu, Reena Kharat, Ruchita Tekade, Pallavi Mendhe. Varsha Magade. (2016). The paper aims at creation of secure voting system using visual cryptography and secure multiparty computation. Visual Cryptography is the method of encrypting the visual data for authentication of the voter. Visual cryptography scheme whieh is used to create 2 shares of fingerprint image. This system prevents voters for voting whieh try to vote using fake voter identification card (VIC). This system is developed robustly to ensure that all eligible voters having a voter identification card (VIC) is allowed to cast their respective vote. One share is stored at administrator side and one share is stored in VIC, so no one can access the full fingerprint image. For security of votes the principle of secure multi-party computation is used. Secure multi-party computation allows multiple parties to participate in a computation. Security, accuracy reliability and transparency are the major concern in these systems. The voters, who cast multiple votes during the voting process is ensured to be prevented by biometrie identification of the votes could be used for casting their vote and restrieting them to cast again. The process of Electronie-voting system could be deployed with four phases - the voter's enrollment, voter's authentication, vote casting and recording, and vote counting and election result publication.

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4) "SMART VOTING". Bhuvanapriya, Rozil banu, Sivapriya Kalaiselvi. V.K.G (2017). The main objective of the democracy is "vote" by which the people can elect the candidates for forming an efficient government to satisfy their needs and requests such that their standard living can be improved. In developing countries like "INDIA" the election commission follows manual voting mechanism which is done by electronic voting machine. This machine is placed in the poll booth centre and is monitored by higher officials. due to some illegal activities the polling centre are misused and people's vote to right has been denied. This seldom occurs in rural areas as well as in urban cities because the educated people are not interested in casting their votes to candidates who represent their respective areas. To ensure 100% voting automation came into play. But this automated system have been approved only on some developed countries since security have not been ensured to a large extent. Our main aim of the proposed system is to develop a compatible voting machine with high security . The proposed system is mainly designed for our country. It has three phases. First the details of the persons who are above 18years are extracted from aadhar card database since it had became mandatory in present scenario. Automatically a new voter id with necessary details will be created and an intimation will be given to the persons through their e-mail. At the time of voting, the user can specify their id and password. To ensure more security, finger prints of the voter is used as the main authentication resource. Since the finger pattern of each human being is different, the voter can be easily authenticated. The system allow the voter to vote through his fingerprint. Finger print is used to uniquely identify the user. The finger print minutiae features are different for each human being. Finger print is used as a authentication of the voters. As soon as they cast their vote, their voter id and other details will be erased automatically and the aadhar card details which they used will be tracked and will be locked to access. This is done to preserve the security. When people cast their vote the results will be updated automatically and on the same day of election, the results will also be published. Also our proposed system supports the online voting too.

5) "Blockchain-Based E-Voting System". Friðrik Þ. Hjálmarsson, Gunnlaugur K. Hreiðarsson, Mohammad Hamdaqa, Gísli Hjálmtýsson.(2018).Building a secure electronic voting system that offers the fairness and privacy of current voting schemes, while providing the transparency and flexibility offered by electronic systems has been a challenge for a long time. In this work-in-progress paper, we evaluate an application of blockchain as a service to implement distributed electronic voting systems. The paper proposes a novel electronic voting system based on blockchain that addresses some of the limitations in existing systems and evaluates some of the popular blockchain frameworks for the purpose of constructing a blockchain-based e-voting system. In particular, we evaluate the potential of distributed ledger technologies through the description of a case study; namely, the process of an election, and the implementation of a blockchain based application, which improves the security and decreases the cost of hosting a nationwide election.

III. EXISTING SYSTEM

In the early days, the voting process was performed using a paper ballot. The automated voting systems are developed before some years ago. The existing systems have only been approved in developed countries. That too, not in all developed countries. Because the security has not yet been fully preserved. We moved onto automation mainly to rely on security. But, the existing systems failed to ensure.

IV. ADVANCED SYSTEM AND ADVANTAGES

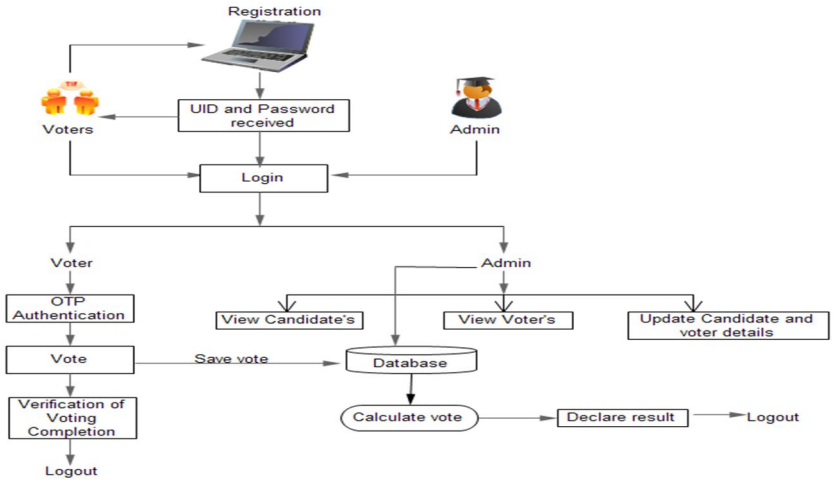

Figure: Advance System Architecture

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A. It has two main components: Voter and Admin/Election commission.
B. It consists phases: Registration/Login phase, and Voting phase.
C. Login done only when OTP is correct.

1) Advantages
a) Improve security
b) Increase the data privacy

V. CONCLUSION

Our new internet-based voting system manages the voter's information, which makes the life of the voter easier, they can just simply login with OTP and exercise their right to vote.
All the votes are recorded and stored on the backend databases. The result is evaluated in a few minutes through the pre-written code, which keeps tallying the results in real-time. This new solution conquers all the pain points with traditional methods of voting, like high cost and time involvement. The user-friendly design makes it easy to use, and also easy to fix.

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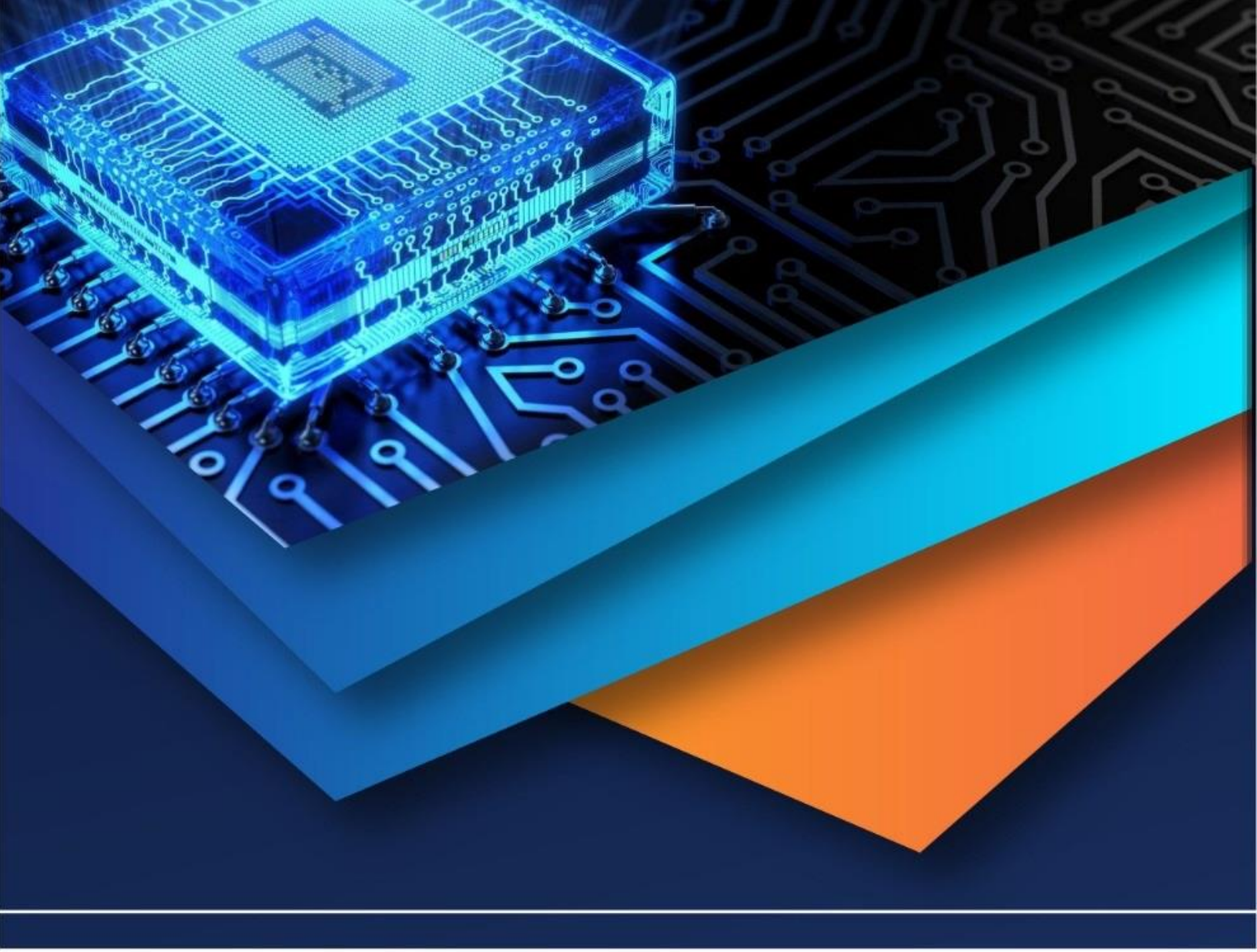

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