

Survey on Existing Online Election Systems

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Abstract- Traditional voting machines used are quite time-consuming, energy consuming and requires the tasks to be done at an assigned place. The basic idea of such systems is to create an Online Voting System that will help to reduce the use of the manual voting system with added security using various technologies to facilitate voting from a remote place. The proposed systems includes multiple layers of verification to ensure the reliability of the device which includes face verification, OTP, verification, biometrics etc with validation data. Each voter can access to the system only when being recognized and checked with the given database of enlist voter to proceed for the further process.

Keywords- Image Processing, Python, Voting System, Face Recognition, MySQL, OTP, RFID, GSM.

I. INTRODUCTION

Elections are the pillars of a democracy and its spirit lies in people choosing their own government. The current E voting machine system has a lot of inaccuracies like the possibility of duplicate votes, presence of the voter at the allocated booth for the casting of votes which affects migrated and physically challenged people. With our country running towards digitization it is necessary to make a transition from the traditional ballots.

The recent pandemic situation of shows the risk of the system. This can lead to failure of social distancing during voting process, as the voter needs to be physically present for casting the vote.

The Voting system aims at providing a facility to cast vote for the Indian democratic system. It has the flexibility to allow casting of vote from any remote place.

The election is held in full confidentiality by applying appropriate security measures to allow the voter to vote for any participating candidate. Internet voting focuses on security, privacy, and secrecy issues, as well as challenges for stakeholder involvement and observation of the process. A new approach can be proposed for the voting system where the identity of the also eliminates manual errors during verification and shows the polling results at a glance. voter is stored using facial recognition. The system captures the image and finds a match with the existing faces in the stored database. After confirmation of the valid image, the OTP is generated and send to the voters. Voter is validated for the further process of voting. This ensures safe and secure voting and reduces the burden of the conducting authority.

II. LITRETURE SURVEY

The suggested system [1] includes a prerecorded database of voters' biometric and personal information. The RFID card acts as the individual's security access. The RFID card is verified using an RFID reader module as part of the verification procedure. The reader detects the card and shows the information on it. After that, fingerprint verification and face recognition are performed. The sensor module compares the fingerprint to a database and allows the user to go to the next stage of verification if the details match. Object Detection using Haar feature based cascade classifiers was used for face recognition. This is a good way to cut down on personnel requirements and other illicit operations.

The study [2] discusses the Iris and DNAbased biometric voting method. In [2], biometric verification improves voting security and safety. The voter database is kept on the server, which also houses all of the storage. IOT is used to update the details, and fingerprint verification follows. After the biometric system has been successfully verified, the database will be checked. Following the voting, the server will be upgraded, and the GSM module will be enabled. It can reduce the number of manual errors that occur when counting. However, there is a disadvantage to compiling a voter database.

Biometrics Secured Voting System with Fingerprint, Face, and Iris Verification is discussed in detail in Paper [3]. The voting mechanism is more secure when [3] is used. It sends fingerprints to a fingerprint scanner (FM220 Starttek Scanner), which scans them using a minutiae matching method. The Viola-Jones technique is then used to detect Iris from a photo of the face. Iris matching and feature extraction are done using PCA (Principal Component Analysis) and the adaptive thresholding algorithm. MatLab is the programme that is used to

compare and verify the input data with the trained data. It eliminates the need to remember any user names or passwords.

The paper [4] focuses on an Arduino-based fingerprint voting system. Arduino of ATmega328 is used. There is the need to create a database of voters. There is a central database that can control the database. This is an offline version of the Arduino electronic fingerprint voting system. First, fingerprint is checked. For security reasons, button is located on the voting machine. Only the administrator can access the device and see the results. This system prevents access to illegal voters, provides ease of use and transparency, and maintains the integrity of the voting process shows the use of blockchain in electronic voting systems. [5] Can be used for small elections, such as elections in conference rooms or corporate buildings. The Ethereum smart contract is used for this implementation.

The idea behind the implementation of [5] is to combine blockchain technology with homomorphic encryption and secret sharing schemes for trusted third-party secure distributed voting applications. It provides a public and transparent voting process that protects the anonymity of the voter's identity and the privacy of data transmission and voting verification during the billing phase. [5] Is based on the Ethereum blockchain.

The client-side UI is created to use Ethereum account for voting. The Truffle Framework is used to test smart contracts in this implementation and deploy them to the blockchain. Truffle Framework makes it easy to develop, test, and deploy the application. [6] Includes the third party authentication server which is served as a controller. CloudSim device is used for the simulate of the cloud surroundings. It is an open supply device consisting particularly of Java libraries advanced for diverse responsibilities which emulate an actual cloud surroundings setup inside the digital mode. Key responsibilities in [6] are: encryption of price price tag on the controller, decryption of price price tag on the cloud, encryption of ACK on the cloud, and decryption of ACK on the Controller. To make sure the secured communication among the components, cryptographic algorithms specifically Blowfish, AES and RSA are employed. Speed and Security elements are the important overall performance measures.

III. COMPARISON OF EXISTING SYSTEMS

Table 1. Comparison table.

Title Of The Paper	Author	Features	Advantages	Dis advantages
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Biometrics secured voting system with fingerprint, face and Iris verification	Kavitha. S. N, Shahila. K, Dr. Prasanna Kumar.S. C[3]	Use of FM220 Fingerprint scanner Use of minutiae matching Fingerprint algorithm Use of ViolaJones	1) No need of remembering ID's and passwords 2) Advanced security 3) Minimum human involvement	1) Implementation cost is high. 2)Limited remote voting access 3)Equipment requirements
SmarT Electronic voting based on biometric identification	J. Deepika, S. Kalaiselvi, S. Mahalakshmi, S. Agnes Shifani[2]	• Iris and DNA verification • Updation using IOT • Use of GSM module	1) Avoid manual errors during counting 2) Enhanced security	1) Need for database creation for all voters 2) Implementation cost is high. 3) Limited remote voting access
Design and realisation of RFID based smart voting system	Priyadarshini, M. R., Shangamithra, M. D., Swathi, M. T., Subaharini, M. G., & Sreenivasan, M. L[1]	• Use of RFID card verified using RFID reader • Finger print verification and face recognition using HAAR de classifier	1) Minimum human involvement. 2) Simple process 3) Good security	Impl 1) Implementation cost 2) No provision for r remote voting 3) Equipment requirements

Online voting system using cloud	K S, Gururaj & Thippeswamy, K.[6]	Use of CloudSim Tool Blowfish Cryptographic algorithm	1)Use of secured cryptographic algorithm 2) Less payload on the cloud. 3) Faster than AES secured system.	1)Software and 1 internet issues) 2) Security risks 2)
Decentralized E-voting portal using Blockchain	Patidar, Kriti, and Swapnil Jain[5]	Ethereum implementation Combines blockchain and homomorphic encryption. Truffle framework	1)Data privacy 2)Transparent	1) Security risks 2) Prior knowledge of the application required.
Finger print voting system using ARDUINO	A. Piratheepan, S. Sasikaran, P.Thanushkanth S.Tharsika, M. Nathiya, C. Sivakaran, N. Thiruchelvan, K. Thiruthanigesan [4]	Use of ATMEGA328. Offline version of voting. Use of fingerprint verification	1) Prevent success to illegal voters. 2)Ease of use 3)Transparent	1) No remote voting access 2) Need for equipments 3) Security risks

IV. CONCLUSION

With the rapid digitization progress, there is the need to adapt to newer, easier and beneficial voting process. Considering security and various technologies used, the different existing systems are studied and

compared. The provision for remote voting and the corresponding security factors are taken as the performance factors and the corresponding security factors are taken as the performance factors.

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