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E-Voting Biometric System

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ABSTRACT: The voting system plays a major role during elections. Traditionally, the election commission in India uses electronic voting machines which need more man-power, time-consuming and also, they are less trustworthy. For avoiding misconceptions during elections, there are lot of advanced techniques are being proposed using various methods. But in the field of biometric identification, we can get the better results and it is also trustworthy. We provide the various works which are being proposed based on the voting system which uses biometric identification as a major concept. The finger print module was already stored in the government database. Hence this project provides a best solution to avoid the false voting. The electronic voting machine was connected with the computer. The computer is having the full database list of the peoples who is having the eligibility to vote. The electronic voting systems can be employed that replace the incident and most importantly error-prone human component. Our project proposes and implements a simple and secured method of polling vote by using biometric. Due to the changes occurred in the technology, so many advancements were introduced in the field of voting. The improvisations aim at increasing the flexibility security, reliability, stability of the model and provide less time consumption to announce the result. But this electronic voting machine is a unique and new concept which saves a lot of time and avoids the multiple voting by a single person. In this system, the user has to use his fingerprint to poll the authenticated vote.

I. INTRODUCTION

In a manual, paper-based election, the electorates cast their votes to select their candidates, where they simply deposit their designated ballots in sealed boxes dis- tributed across the electoral circuits around a given country. By the end of the election period, all these boxes are officially opened and votes counted manually in the presence of certified representatives of all the candidates until the numbers are com- piled. This process warrants transparency at vote casting time as well as at counting time. Often times, however, counting errors take place, and in some cases, voters find ways to vote more than once, introducing irregularities in the final count results, which could, in rare cases, require a repeat of the election process altogether! More- over, in some countries, purposely introduced manipulations of the electoral votes take place to distort the results of an election in Favor of certain candidates

Here, all such mishaps can be avoided with a properly scrutinized election process; but when the electoral votes are too large, errors can still occur. Quite often international monitoring bodies are required to monitor elections in certain countries. This naturally calls for a fully automated online computerized election process. In addition to overcoming commonly encountered election pitfalls, electoral vote counts are done in real time that by the end of elections day, the results are automatically out the election process can be easily enhanced with various features base on the demand and requirements of different countries around the world.

II. LITERATURE REVIEW

This paper explained that already in India we utilized paper polls for voting process as this paper vote framework requires more labour and are along these lines less anchored. So further changes were made and electronic voting machines have come into picture in neighbourhood, state and general areas. Considering these issues, extra highlights of this system are biometric security which can be acknowledged by using fingerprints and face acknowledgement of the voters. In this framework it is anything to confirm and check the particulars of an individual and it will deny on the off chance that somebody endeavours to make a second choice and we can likewise screen the people who are entering in the survey corner with the assistance of the webpage through the video reconnaissance. GSM module is utilized to make an impression on endorsed client that he has voted successfully. If any unauthenticated individual endeavours to vote the signal will be ON.

In this paper we have explained that the project provides a best solution to avoid the false voting. The electronic voting machine was connected with the computer. The computer is having the full database list of the peoples who is having the eligibility to vote. The electronic voting systems can be employed that replace the incident and most importantly

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error-prone human component. This project proposes and implements a simple and secured method of polling vote by using biometric. Due to the changes occurred in the technology, so many advancements were introduced in the field of voting. The improvisations aim at increasing the flexibility security, reliability, scalability of the model and provide less time consumption to announce the result. But this electronic voting machine is a unique and new concept which saves a lot of time and avoids the false voting by a false person. In this system, the user has to use his fingerprint to poll the authenticated vote.

This paper the voting is an important process in which people can choose their own leader for the government. The device which we use for the voting process is an electronic voting machine with highly secured steps such as having unique number Aadhar card, biometric of face recognition with IOT. This had a secured database saved system. Voting was an important role in our democratic system as we have the right to select our leader for the government

III. METHODOLOGY OF PROPOSED SURVEY

The methodology for this project involves the design and implementation of a real-time biometric voting system that utilizes fingerprint authentication to ensure secure voter identification and streamline the voting process. The system operates in several stages to guarantee accuracy, efficiency, and transparency in the election process. Initially, voter registration is conducted where each voter's biometric data (fingerprint) is captured and securely stored in a central database. This process ensures that every voter is uniquely identified and can only vote once. On the election day, voters approach the system, and their fingerprints are scanned for authentication. The system then compares the scanned fingerprint with the stored data, and if a match is found, the voter is granted access to cast their vote. Once authenticated, the voter selects their preferred candidate or choice, and the vote is securely recorded in the system, ensuring that it cannot be altered or tampered with. The system processes the vote in real time, updating the central database and providing immediate confirmation to the voter, signaling that their vote has been successfully cast. After voting is concluded, the system generates results in real time, which are immediately available for announcement, ensuring no delays in the election process. Security measures are implemented throughout the system, such as encrypted data transmission and secure storage to prevent data breaches or tampering with vote counts. The system is also designed to be user-friendly, with a simple interface that guides voters through the process, ensuring accessibility for individuals of all ages and technical abilities. Additionally, the system can be adapted for various election sizes and types, from small local elections to large national polls. By integrating biometric verification with real-time vote processing, the system aims to address common issues in traditional voting methods such as fraud, human error, and delayed results. This methodology provides a modern, secure, and efficient solution to improve the overall election experience.

1. Requirements Analysis: Understand system needs and stakeholder roles.
2. Setup Hardware and Software: Procure and configure necessary components.
3. Integrate Biometrics: Connect biometric devices to EVMs, Develop biometric software.
4. IoT Integration: Connect IoT devices for EVM security, Establish real-time data transmission.
5. Database Setup: Create a secure database, Implement database interfaces.
6. System Design: Plan system architecture and user interfaces.
7. Software Development: Develop server-side and user interface software.
8. Security Measures: Implement robust security protocols.
9. Testing: Conduct comprehensive testing.
10. Deployment: Install the system at polling stations.
11. Operation and Monitoring: Monitor system performance and security.
12. Result Collection: Collect and store election results.
13. Maintenance and Updates: Regularly update and maintain the system.
14. Compliance and Legal: Ensure legal and ethical compliance.
15. User Education: Educate users on system usage.
16. Documentation: Maintain detailed records and documentation.

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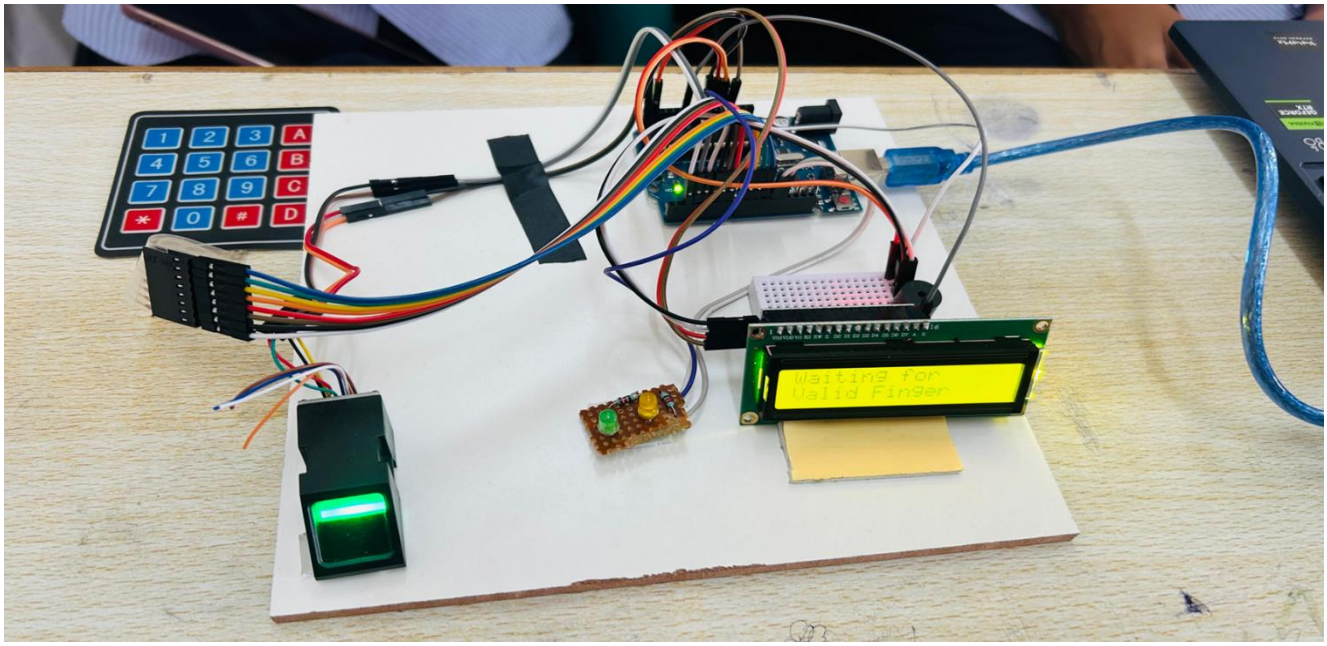
IV. HARDWARE INFORMATION



R307 fingerprint module: It is a finger print sensor with TTL UART interface. The user can store the fingerprint data in the module and can configure it in 1:1 or 1: N mode for identifying the person.
RG 1602, 16x2 LCD Display: In a captivating blue hue, perfect for your electronics projects. This versatile and reliable LCD screen features a 16x2 character layout, allowing for clear and crisp text display.
This 16-button keypad: It provides a useful human interface component for microcontroller projects. Convenient adhesive backing provides a simple way to mount the keypad in a variety of applications. The Keypad 4x4 features a total of 16 buttons in Matrix form.
Pin configuration of the buzzer: It includes two pins namely positive and negative. The positive terminal of this is represented with the '+' symbol or a longer terminal.
Microcontroller: ATmega328P

- Digital I/O Pins: 14
- Analog Input Pins: 6
- Reset Button:
- ICSP Header: Yes
- Power Supply: USB or external DC source
- Operating Voltage: 5V

Jumper wires: Jumper wires are used in breadboarding, microcontroller for connection purpose.

V.CONCLUSION

In conclusion, the real-time biometric voting system represents a groundbreaking solution to the longstanding challenges faced by traditional voting methods, including security concerns, human errors in vote counting, and delays in result processing. By utilizing fingerprint authentication, this system ensures secure voter identification, eliminating the risk of voter impersonation and multiple voting. The biometric verification process guarantees that each eligible voter can cast their vote only once, which significantly reduces fraud and maintains the integrity of the election. Furthermore, the system's real-time vote processing ensures that votes are securely recorded and counted immediately, removing the need for time-consuming manual counting and reducing the potential for human errors in tallying results.

VI. FUTURE SCOPE

- Artificial Intelligence for Voter Assistance
- Integration of Additional Biometric Modalities
- Integration with Election Monitoring and Auditing Systems

- In future it can be use in education sector, small scale sector etc.

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