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E-VOTING SYSTEM

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ABSTRACT-

In developing countries like India, the election commission often employs manual voting mechanisms using electronic voting machines (EVMs). These machines are placed in polling centers and monitored by higher officials. However, instances of illegal activities and misuse of polling centers have occurred, leading to the denial of people's right to vote. This issue is prevalent in both rural and urban areas, as educated individuals may not be interested in voting for candidates representing their respective regions. To address these challenges, the introduction of biometric technology has been proposed. Biometrics involves the measurement and analysis of biological data to verify individuals' identities. With the increasing accessibility of electronic communication and computer technology, biometric systems have gained prominence in enhancing security and improving various processes, including elections.

The proposed system aims to leverage new technologies in the voting process, storing, recording, and processing election data as digital information. Electronic voting machines can significantly reduce the time taken by voters, as well as simplify the vote counting process compared to traditional paper ballot systems In this system, a secured electronic voting machine is developed using a unique identification number, such as the Aadhaar number in India. To provide additional security, biometric identification is employed alongside the Aadhaar number. During voting in elections, voter authentication can be performed through biometric patterns, with images captured at the time of authentication. The Aadhaar card number can serve as a primary key for fingerprint authentication. If the biometric information of the voter matches the database of Aadhaar, the person is allowed to cast their vote. By utilizing technologies such as Arduino and a fingerprint scanner, the proposed system can accurately identify each voter, count votes, and prevent the occurrence of fake votes.

Overall, this proposed system aims to enhance the efficiency, security, and integrity of the voting process in India by incorporating biometric identification and unique identification numbers like Aadhaar.

Keywords: *Electronic Voting Machine, Finger Print Scanner, Arduino, voter id, camera, Keypad, LCD*

1. INTRODUCTION

The proper conduction of elections is crucial to uphold the value of democracy. However, numerous problems have been observed in the electoral process in many countries, including India. These issues include low voter turnout, with the percentage of voting often not exceeding 60%. Additionally, instances of rigging and the discovery of fake voters have been reported, undermining the integrity of elections. For example, an article in the Times of India on January 24, 2009, revealed the discovery of 11 lakh (1.1 million) fake voters in Delhi. The Election Commission identified 30,000 illegal voters in Sheila Dikshit's constituency, with a total of 1,358,179 illegal voters found in Delhi. In Bihar, Ram Vilas Paswan alleged that 30% of voter cards were identified as fake. These incidents highlight the need for a robust electoral system to ensure that the chosen candidates truly represent the citizens and work for their welfare.

In developing countries like India, the current voting system relies on a time-consuming and sometimes unsafe paper-based ballot system. This system carries inherent risks of electing the wrong candidate. To address these challenges, a new voting system based on electronic voting machines is proposed in this project. The system incorporates an additional feature of biometric security, utilizing the fingerprints of voters. In a voting system, it is essential that the process is easy to authenticate and verify, while maintaining a high accuracy rate and reliability. Moreover, the system should be cost-effective and ensure the uniqueness of each vote. To achieve this, biometric data can be collected and stored in a secure database. The government's issuance of Aadhaar cards, which provide a unique identity to individuals, can be utilized to facilitate the voting process, ensuring that voters can cast their votes without difficulty.

By implementing these measures, the proposed system aims to enhance the efficiency, security, and integrity of the electoral process in India, reducing the risks associated with the current paper-based ballot system and ensuring that the right candidates are elected to serve the nation..

2. LITERATURE REVIEW

The voting system is set of rules which define how the desire of people may be express and how results may be achieved from it. For this purpose an electronic voting machine EVM is introduced in this paper which replaced con- ventional methods of voting i-e manual voting. Proposed machine in this paper is faster, efficient, and reliable and error free as compared to manual voting system which is slower, poses full day fatigue on people and chances of error are greater. Its main feature is its ease to operate .Voter polls a vote very easily and final results are displayed in no time by just pressing a result button, after the elections have been conducted[2] : Biometrics is the identification of an individual using a distinctive aspect of their biology, such as fingerprint or iris scan. This information can never be the same for two individuals. The Aadhaar scheme requires every citizen of the country to register biometric data along with other demographics.Once the data is retrieved, the administrator matches the photo associated with the UID with the person present. If it is okay, the voter is allowed to proceed to vote. The EVM can only be switched on by a verified fingerprint. Once the fingerprint of the voter is matched with the fingerprint retrieved from the database, the EVM registers the vote of the voter. The EVM will record the vote if and only if the fingerprint or biometric data is authenticated. The person is marked in the system that the vote has successfully been registered. This way, one voter cannot vote more than once. The voter is rejected if anyone condition is not met. The Database will be very large for every constituency, and every polling booth of the constituency will have access to the server, which means that there will be many Concurrent Users. Data Management and Retrieval will be a difficult task, with so many users. [5]

3. AIMS AND OBJECTIVE

1. The main aim of this project is to develop a secure and very fast to display the results as well as human comfort.
2. The purpose of our project is to develop a secured electronic voting machine using fingerprint identification method, for fingerprint accessing we used AADHAR card database model which is a safe and secured system to avoid misconception taking place in elections.
3. System that aims to protect an election from fraud and disruption it is a question of correctness and integrity.
4. A voting system is secured in the sense that we can trust that the result of an election are fair and correct.

4. IMPLEMENTATION

In the implementation of this

1.User Voting: The proposed system would schedule elections by going through the following:
•Voters access the online voting portal and logs on with their personal Voter's Identification Number, in order to view to the voting page.
•On submission of the login request, the system checks to see if the specific voter is eligible to vote in the particular election and performs appropriate actions based on the result status returned from the check.
•If ineligible to vote, the system displays a corresponding message to the voter (staff) that he/she is not permitted to vote. If on the other hand, the voter is eligible to vote – an OTP (One Time Password) is sent to the voter's registered phone and email. The OTP is then required to be entered on the appropriate screen after which the voter is shown the voting screen to select their choices for the given election.

2.Voter Authentication: This achieves our objective of ensuring a secured method of validating voters before they are allowed to cast their votes. Voters would be authenticated by verifying the unique identity details possessed by them. A common and easily implemented mode of verification is by OTP combined with the unique personal Voter's Identification Number.

3.Data Collection and Verification: Before voters (staff) can be verified, there's a need for pre recorded data in the memory i.e. database of the system. Consequently, the data of every prospective voter (staff) needs to be collected to allow verification. Data of currently employed University of Ibadan Staff would simply be obtained from the University's ITeMS unit after.

4. Data Communication: The proposed system would operate on an internet. This allows all voters to have access regardless of location as well as increase their ability to use a range of devices to cast their votes. This is a network only accessible by members of a particular organization. In this case, the university information would be sent over this network, from the hall. This information is not necessarily complex, but simply a list of students permitted to exit the campus from the hall. Essential additional information about the student may be sent. Other information concerning destination name of host, need not be sent. This information is simply required in the hall as this is the current requirements, to take a leave. At points of exits, precisely the school gate, information required is whether or not you have been cleared at your residential hall to exit school.

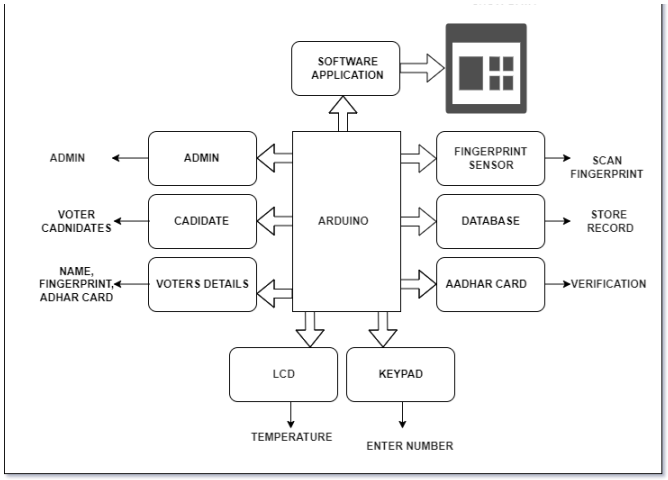

Fig. System Architecture

S/W & H/W used:

Hardware:

1. Processor – i3 and above
2. Hard Disk – 5 GB and above
3. Memory – 1GB RAM
4. Microcontroller (Arduino)
5. Fingerprint Module
6. LCD
7. Keypad

Software:

1. Operating System:Windows XP and later versions Front End:HTML,CSS
2. Programming Language: Java, Python
3. JDK 8 or above
4. Apache tomcat server 7.0
5. Dataset:Xamp server/Mysql workbench

5. MATHEMATICAL MODEL

Description:
S= I, O,F,DD,NDD, Failure, Success
Where,
S=System
I= Input
O=Output
F=Failure
S=Success

I is Input of system
Input I = set of Inputs
Where,
I= {I1,I2 ,I3,I4}
Where,
I1={ User}
I2= {Fingerprint}
I3= {Aadhar Card }
I4={User Voting}

F is Function of system
F = set of Function

Where,
F1={Login }
F2={OTP Geanration }
F3={Data Collection }
F4={Data Authentication }
F5={Data Communication }
F6={ Fingerprint Scan }
F7={ Voters Identification}
F8={ Count Vote }
F9={ Prevent Fake Vote }
F10={ Voting Record}

O is Output of system
Output O= {O1 }
O1 = { E-Voting}

•**SuccessConditions:** Product working Smoothly. Develop E-Voting Application successfully.

•**Failure Conditions :**if internet connection Unavailable.

6. RESULT:

Fig 6.1. HomePage

Fig 6.2 Log in

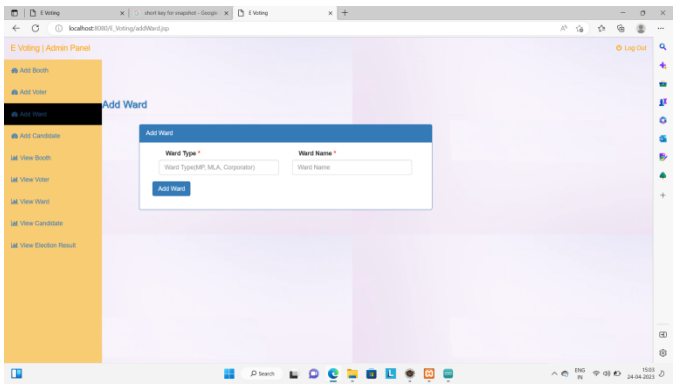

Fig 6.3 Admin Panel

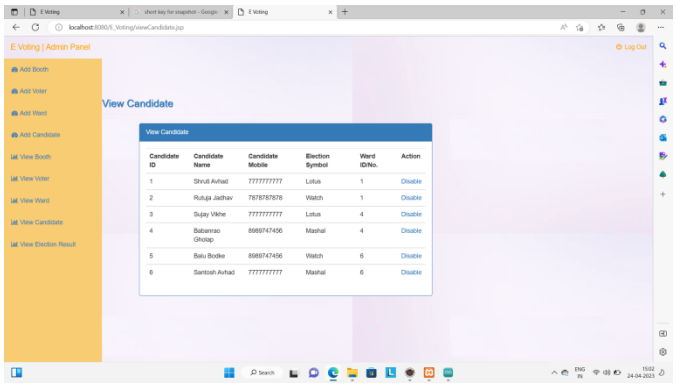

Fig 6.4 Candidate Details

APPLICATIONS:

1. Fast track voting which could be used in small scale elections, like resident welfare association, “panchayat” level election and other society level elections
2. It could also be used to conduct opinion polls during annual share holders meeting
3. It could also be used to conduct general assembly elections where number of candidates are less than or equal to eight in the current situation

7. CONCLUSION

In this system, a framework for electronic voting machine based on biometric verification proposed and implemented. The propose framework ensures secured identification and authentication processes for the voter and candidates through the user of fingerprint biometric. In the project we have try to reduced the search time by using the local database instead of using one centralized database. This system provides transparency in the counting process and capturing the image. The advantages of this system are economic, faster tabulation of results, improved accessibility, greater accuracy and lower risk of human and mechanical errors. Database consisting of the details like age, bio- metric of the people should be updated every time before election. Our project enables secured voting and reduces manpower.

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