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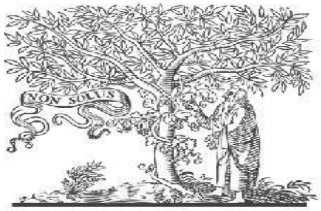

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Paper Authors
M Gnana tulasi, M Deva priya, M Bhavani, M Bhavya Sri, M V Sheela devi

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A New Innovative EVM for Indian Voting System With Biometrics

M Gnana tulasi[1], M Deva priya[2], M Bhavani[3], M Bhavya Sri[4], M V Sheela devi[5]
[1 2,3,4,5] KKR & KSR Institute of Technology and Sciences
[1]makinenitulasi02@gmail.com, [2]mvrao4567@gmail.com
[3]miriyampallibhavani@gmail.com, [4]mathangibhavya@gmail.com
[5]Sheela.softinfo@gmail.com

ABSTRACT:
In today's elections because of the corrupted politics, these elections are misguided and most of the people tend to vote more than one time. Being in a democratic country it is responsible for election commission to take care of elections. To remove this voting, we are proposing a mechanism which uses biometric information of every voter to cast their votes. When the voter wants to vote, he will place the finger print at the finger print sensor corresponding to the party they want to vote. The fingerprint is sent to the database for authenticity. If the fingerprint of the voter already exists, which implies that the voter has already voted, so the vote is not accepted. To achieve this Arduino is programmed by embedded c program, which perform required functionality.
KEYWORDS: Finger print module, Arduino, Data base, Ada Fruit Finger print Sensor library, match module, lcd

INTRODUCTION

Democracy is a word obtained from Greek word "demos" and "kratos" where demos stands for people and kratos stands for power. So, democracy can be viewed as power of the people. Democracy is the right of every nation where people get to choose their representatives through the process called elections. In elections there will be more than one parties who complete for the representative positions. The people choose their representative by voting a acceptance to the candidates whom they believe as a good one. Vote is the entity or representation of the acceptance of people. People give their vote to those who they think are best to represent them, and to the ones who can solve their problems. Voting is the process where people give their votes. By participating in the voting process, the people get power to choose their representatives. Every democratic nation held the elections once in a definite amount of time period. India is the parliamentary democratic secular republic nation. Since the independence, India is democratic and elections in India are held once in every five years. The candidates who participate in elections, campaign and express their ideas of how well they would rule the area if they won.

The Indian elections are held in two types.

- Ballot paper
- Electronic voting machine

Ballot paper is the process where the people or voters are given papers with the candidate names and their respective party symbols. The people vote or choose their favourable candidates and drop that paper in a ballot box. After the process of voting is completed then the authorities count the votes per each candidate.

But the politics is a game to the parties, so they try to forge the votes to win in the elections. The voters who are not

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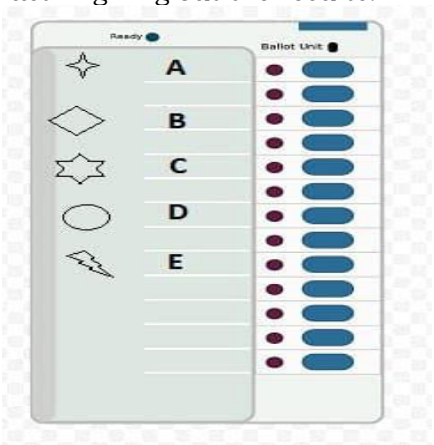
residents of the area are the voters who already voted also vote multiple times thus corrupting the process. To avoid this corruption, the authorities take measure to authenticate the users in two ways.

- Voter id
- Inking the finger

Voter id is given to all the rightful persons who are eligible to vote. In India, voter id is given to those who are eighteen years and above. Every voter has a unique number called identification number(id). The voters should carry their voter card, the authorities who check whether the voter is authenticated or not. If they are authenticated users of India then they are eligible to vote or else they will be sent to questioning. After the voting, the elections follow a procedure called inking the finger, this ink will not disappear for three days. So the voter cannot vote again after once they did.

EVM stands for Electronic Voting Machine. The EVM is a machine which is used to store the votes of the candidates. EVMs are created to overcome the difficulties of the ballot paper. EVMs are fast in giving out the results.



Biometric is the identification of the persons based on their unique characteristics. For example, iris, face, fingerprint.

Biometrics help us to provide security so that no one can forge or tamper our details. There are three types of biometrics used for security. They are

- Biological biometrics
- Behavioral biometrics
- Morphological biometrics

Biological biometrics are based on the genetics of the person like DNA. Behavioral biometrics are the unique patterns that each person make like the way they walk, speak. Morphological biometrics are based on the structure of the body like iris, fingerprint, shape of face.

Fingerprint is the morphological biometric which is used to authenticate the person uniquely. Everyone in the world has a unique fingerprint. So, fingerprint can be used for security.

BACKGROUND:

Existing System

In the present circumstances, some people are tampering the votes in the EVM, by voting more than once. In early days, the voting system used ballots, the voter keep the mark corresponding to the party they are willing to vote and then fold it and drops into the ballot box, there are huge amount of misconception in those days, to avoid this the election commission introduced EVM (Electronic Voting Machine). In this type of voting mechanism, the voter must press the button corresponding to the party they are willing to vote. But even then, we have some problems of overvoting. So, to avoid these consequences we need to use this EVM with people's biometrics.

Drawbacks of existing system

- Lots of political parties, use the weakness of the people, by attracting money. Hence, most people are trying to violate the rules of elections. Most of current voting mechanisms like ballot papers, EVM does not recognize the people who vote more than once.
- The ballot papers may get damaged during the voting process. The EVM may also get tampered so that one vote given to

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the X party may get credited to the Y party.

- Most of the electronic voting mechanisms can be hacked so that the other parties will get the votes instead of the ones whom the votes are given.
- There may be machinery defects and malfunctions. The memory storage may also go corrupted due to computer viruses.
- The ballot paper takes more time to count and the results are delayed because of the human counting.
- There may happen few anomalies, like missing the few ballot papers or intentionally tampering the results.

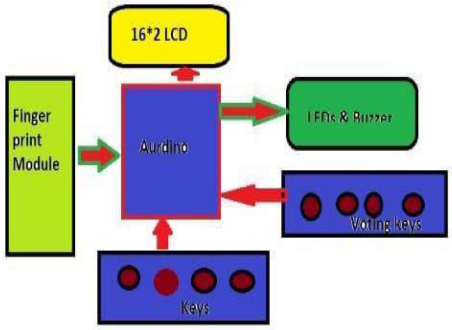
LITERATURE REVIEW:

[1] focuses on the design and development of a biometric authentication system for electronic voting machines (EVMs). In this case, the biometric data is a finger print. This paper is designed using the PIC16F877A microcontroller and other related peripherals like GSM module, Fingerprint module, LCD, etc. to implement the suggested fingerprint voting system, which enables the user to scan his/her fingerprint in order to check his/her eligibility by comparing his/her current fingerprint with the one already stored in the system database

[2] authors used Lab-VIEW to construct a completely automated biometric-EVM. The system connected to the integrated database system that held all the voter data. The amount of votes cast will be counted within the allotted time at the conclusion of the voting procedure.

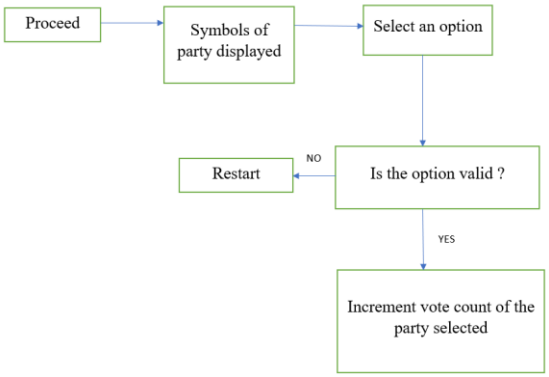
[3] In this research, we suggest a fingerprint scanner-based Arduino-based biometric voting mechanism. A person must enrol their fingerprint in this system so that it may be saved centrally in the Arduino. A voter can cast a ballot by placing their finger over the fingerprint scanner. If their fingerprint matches the data already saved, the LCD will show that they are an allowed voter.

SYSTEM ARCHITECTURE:



METHODOLOGY:

We observed that EVMs are implemented in many types. There are ballot papers and normal an authorized EVMs where we cannot check the identity of the voter. In our process of research, we observed the EVM with face recognition and face can be tampered. We observed different problems in EVM with face recognition, like due to corona the face will be covered with mask. To overcome this, we developed the EVM with fingerprint.



There are two steps involved

- Creation of the databases
- Check the eligibility for voting

Creating the database

Database is the collection of data in an organized manner. The data which is collected is represented in many forms. To manage this database, we use a system called Database Management System. There are

- Relational Database
- Object Oriented Database
- No SQL Database
- Cloud Database
- Self-Driving Database

The type of database we use is hierarchical. The hierarchy goes like from local wards to the city councils and municipalities and municipal corporations from there it goes to district and then up to the state government to the central government. So, the process of voting happens hierarchically all the way to the top.

Database that is used for the storage of information of voters can be built in relational database form. The relational database consists of rows and columns. Here, we specify columns like

- Voter ID
- Name of the voter
- Aadhaar Number
- Fingerprints

Rows consists of all the voters who participates in the voting process.

	Voter ID	Name	Aadhaar Number	Fingerprint
Voter 1				
Voter 2				
Voter 3				
. . .				

Check the eligibility for voting

If eligible for voting, then person can vote to the respected parties. Check the fingerprint matched with the linked Aadhaar. Because the Aadhaar number is already linked to the persons all 10 fingerprints. Now the voting at the voter end is done Then check with the database whether the vote is updated or not Then the count will be incremented at the respected party side by one. And this step continued for all the new voters for voting. If the person already voted he/she will not be allowed to vote again. And the screen is displayed as already voted, at the same time with the buzzer sound.

PROPOSED SYSTEM

Our proposed system is EVM (electronic voting machine) with biometric. The EVM is designed with the two units

- control unit
- balloting unit

these two units are joined through the cable. The EVM machine is designed for the to overcome rampant electricity problems in the country. In security point of view, it is very secure compare with old version the voting system. Each person cast their vote individually based on their opinion, no one can force them. No one can see the other's voting result by using biometric voting every vote is unique, one person can vote only one time, There is no chance to vote again and again. The biometric do not allow to do such kind of things Instead of biometric can use face recognitions also very secure. In entire world no two persons will have same face.

Uses of the proposed system

Electronic voting machine reduces the time.

EVM also reduce the for the counting votes to declare the results.

- EVM save the paper.
- In database votes can be store up to 10 years.
- EVM having security chip, that is the reason cannot be rigged without damaging the program.
- EVM eliminates the duplication of votes.
- EVM records the votes of 64 candidates at one point of time.
- One person can only vote one time, it is possible with unique identifiers only that biometric system in EVM.

RESULTS:

The project runs on a sole objective to return voting results accurately by the votes of the authenticated voters. There will be two kinds of outputs

- If the voters are legit
- If any voter is found to be fraud

If the voters are legit, then the output will be "The vote is recorded". If the voter has already voted and comes again then the output to be displayed is "The voter has already voted" along with the buzzer. If the voter that voted does not belong to that area then the output to be displayed is "Voter not found" along with the buzzer. At the end after the voting process ends the result to be displayed is the result of the candidate that has won.

CONCLUSION:

The existing systems, like balloting and non-authentic EVMs, may not be beneficial in detecting fraudulent voters.

They also have several other disadvantages, like an increased amount of time spent declaring results, inaccurate result declaration, etc. So, keeping all these disadvantages in mind, we developed an EVM that is used to store the votes of the voters only after authenticating them. This ensures that no voter can vote more than once. If any voter is found to have voted more than once, then the EVM buzzer will ring and the vote will not be accepted. This idea is useful in shaping Indian politics in the right direction.

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