International Journal of Scientific Research & Engineering Trends
Volume 7, Issue 1, Jan-Feb-2021, ISSN (Online): 2395-566X

Aadhar Based Fingerprint Electronic Voting Machine

Bhakti Salvi, Mrs. Rupali Shekokar
Department of Electronics and Telecommunication
Terna Engineering College (Aff. to Mumbai University)
Navi Mumbai, India
salvibhakti95@gmail.com, rupaliyawale@ternaengg.ac.in

***Abstract*- The main aim of the voting is to express their thoughts related to choose your government, political leader, citizen initiatives and so on. It is an important task for the election team to conduct fair voting in respective country. Every country spent lot of money to make election without any fraud and rampage free. But, in current situation it has become very normal for some sources to make illegal voting that may lead to a result contrary to the actual judgment of the people [2]. We refer some paper and design one machine to solve the above problem. By taking help of biometric system (finger print scanning) will make this project more secure and trustable. Biometric system has been increase speed of the system and accuracy. It also provide the security to system, avoid fake and duplicate voting etc. System uses to identify the user is thumb impression and Aadhar card number. Because as we know that Aadhar card is government trusted identification card and thumb impression of every person on the earth (human being) has unique pattern. Thumb impression increase security in the system, and that is the main task of this system, increase security. In this, as a pre-polling step create database consisting of the Aadhar card number and thumb impressions of all the eligible voters. At the time of elections, the thumb impression and Aadhar card number of a voter is entered as input to the system [1]. And then, that database records compared with the entered thumb impression and Aadhar card number. If that entered pattern and Aadhar card number matches with the database of the thumb impression and Aadhar card number respectively, grant permission to cast a vote. And in case any repetition in vote and if pattern doesn't match with the records of the database present in system, for that particular person permission to cast a vote is denied and system not go for next step, it come out from processes. And in other case the pattern match but Aadhar card number doesn't match with the records present in system, for that particular person also permission to cast a vote is denied and system not go for next step, it come out from processes. To cast a vote must is to match both Aadhar card number and finger print of that particular person, than and than only system allow for next step (For voting). As per voting going on counting has been done paralleled. This system maintenance cost is less and overall cost for complete election process is very less.**

***Keywords*- Voting, Aadhar card, Arduino, Thumb, Biometric, Fingerprint.**

I. INTRODUCTION

Voting is the fundamental right in the democracy of the every country. Government is the part of the democracy of the country. Through voting public of country decide leader of the country who will handle the hall country. Electronic Voting Machine (EVM) has an electronic device that is used to cast votes in India. This machine receive votes from voters, stores that votes and after completion of voting display candidate name and respected candidate got how many marks[5]. Now a days we are using Electronic Voting Machine (EVM), this machine also has few disadvantages.

Aadhar card system was introduced in India few years back, it is one of the government id proof. Now in India, aadhar card service is very trustable, popular, and unique service. And the best thing is each aadhar card hold a biometrical identification, unique identification number and some other details of the person. In India, government is allowing to use aadhar card for security related services [5]. In this voting system, while enrolling the aadhar card some personal information and fingerprint of that person taken, that information help to identify particular person during the election process.

In current voting system while going to the polling booth voters need to carry voter ID card and before going for casting vote need to show that ID. Than one authorized government employee check and verify voter ID with government record. If record is properly matched with government record than that card approved for voting and the individual will be allowed to poll his/her vote. That process is time consuming and same what depends on person who checked and verified the voters and more man

© 2021 IJSRET

power also required. This problems overcome by Aadhar based finger print voting system. In Aadhar based finger print voting system checking and verification of voter is done by system itself. So that accuracy and trust in voting is increase, and man power also reduce.

II. LITERATURE SURVEY

1. Issues in Existing Voting System:
Electronic Voting Machines (EVM), Idea mooted by the Chief Election Commissioner in 1977. The EVMs were devised and designed by Election Commission of India in collaboration with Bharat Electronics Limited (BEL), Bangalore and Electronics Corporation of India Limited (ECIL), Hyderabad [2]. The EVMs has been manufactured by the above two undertakings.

An EVM consists of two units,
- Control Unit
- Balloting Unit

With the help of cable that two units are joined. The Balloting Unit has placed inside the voting system and the Control Unit has with the a Polling Officer.

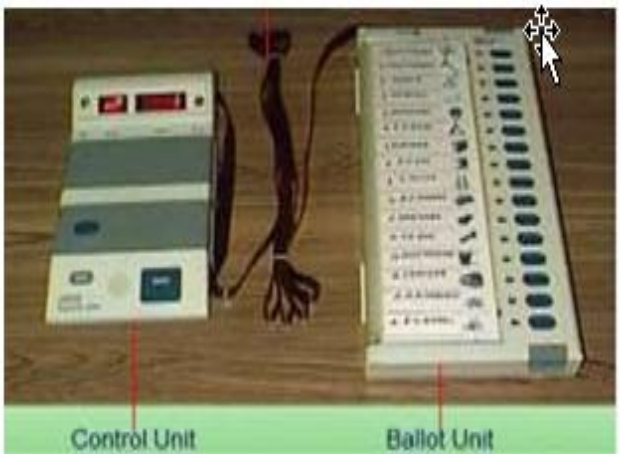

Fig 1. Sub-units of EVM.

Nowadays used EVM having number of problems that are:

1.1 Security Problems: In current voting system possibility that program installed in that EVM can change and change the result after voting.

1.2 Accuracy: The main aim of the voting system is provide accuracy into a work of system that being used for casting a vote.

1.3 Illegal Voting (Rigging): This is very common problem in every election. One candidate casts the votes of few amounts of members. Result of this, deserving candidate loss the chance of winning and the non-deserving candidate win in voting. Like that problem present in current voting system [2].

1.4 Democracy: It compulsory only eligible voters to vote and, it make sure that eligible voters vote only once.

1.5 Verifiability: verification of counted votes have been done correctly.

1.6 Privacy: Anyone can link any ballot to the voter.

1.7 Availability: Anyone can check system properly works or not and anyone can have access to it from the beginning to the end of the voting.

1.8 Speed: Voting systems should produce result quickly. This is particularly important in the United States,where people expect to learn the results of the day's election before bedtime.

1.9 Anonymity: Secret ballots are fundamental to democracy, and voting system must be designed to facilitate voter anonymity.

2. Securies provied by Aadhar Based Finger print Voting system:
The main aim of a Aadhar based finger print voting system is to provide privacy, security to the votes [4].

An Aadhar based finger print voting system will fulfill following requirements,
- **Vote And Go:** just cast a vote and then go, no any other options open after cast a vote.
- **Eligiility:** only votes of eligible voters shall be taken into account and all other votes system not accept.
- **Fairness:** partiality not possible in this system.
- **Anonymity:** Votes are set secret, high security apply on that votes.
- **Public Verifiability:** anyone from that respected country person able to check the accuracy of whole voting process.

III. DESIGN AND IMPLEMENTATION

Aadhar based fingerprint voting machine is ease to use, simple design reliable and person who don't know this machine previously that person also can easily use this machine. Till now there was number of voting methods use for voting but every voting method having same disadvantage. To solve this problem we made one system that is transparent, reliable, easy to use and more secure for voter. Aadhar based fingerprint voting system will help to increase verifiability of the system so that voter also verify that result is correct or not, completely removal defrauding while voting and reduce man power.

The propose system that includes multiple layers of verifications i.e. fingerprint as well as Aadhar Number of respective voter to ensure the reliability of the device. This Systems consists of Arduino Nano as main controller to process all the functioning, Fingerprint sensor to verification of voter, total 9 number of keys are given in which 5 keys are used for Aadhar number entering and verification and remaining 4 keys are used for respective Parties/ candidate.

© 2021 IJSRET

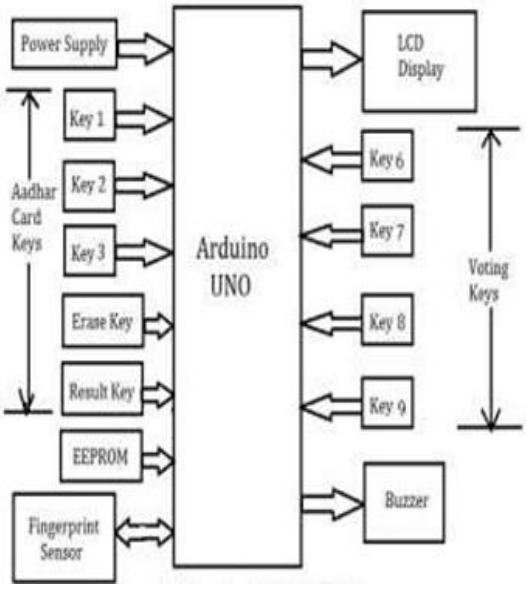

Fig 2. Block Diagram of Aadhar Based Fingerprint voting Machine.

LCD display is used to display result of voting count as well as parties/candidate name when we give vote to them. Buzzer is used to just indication that your vote is done for particular parties/Candidate.

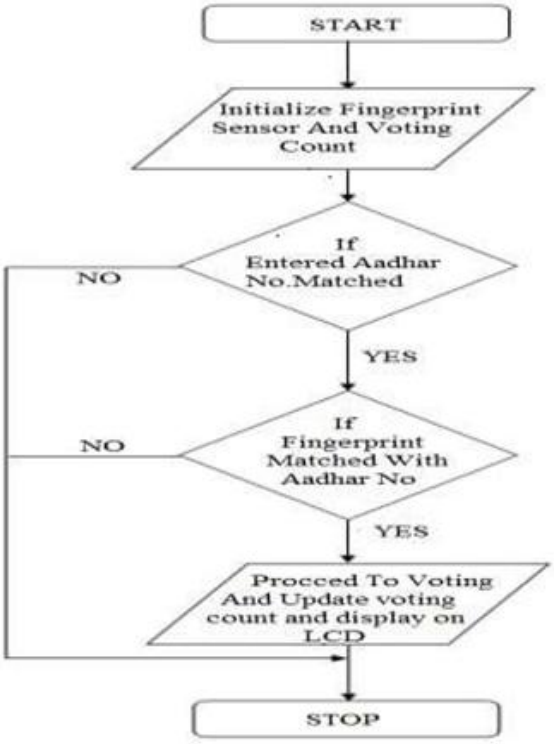

Fig 3. Flowchart.

As we looking for details working of systems as when we press key number 1, LCD display will show message to voter that "Enter Your Aadhar Number" so with help of Keys 1,2,3 and 4(Erase key) we able to enter our respective Aadhar number, when given Aadhar number is matched with our saved database of aadhar numbers in EEPROM of Arduino then next Verification i.e. Fingerprint of that voter whose Aadhar number matched with our systems then voter have to place their finger on Fingerprint Sensor and when both verification are True then Voter Allowed to vote their vote to respective Parties/Candidate with help of remaining four keys i.e. keys 6,7,8,9.

Then that particular vote is saved on EEPROM and also that candidate name display on LCD Display. Finally when we want result of election the Key 5 i.e. Result key will show the result of election. Key 6 is for erasing data, next year new record storing purpose.

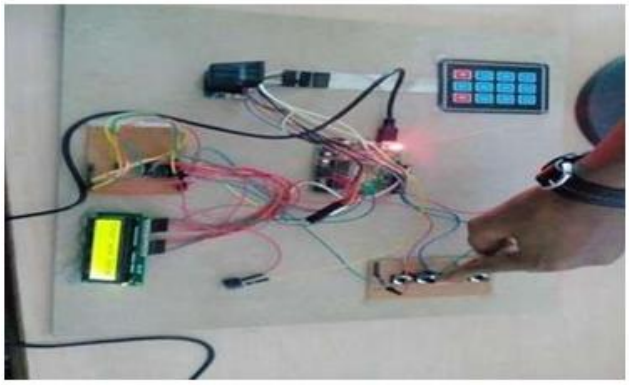

Fig 4. Voter Authentication.

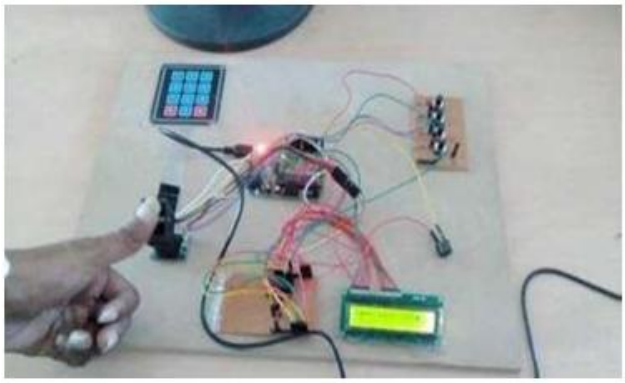

Fig 5. Casting Vote.

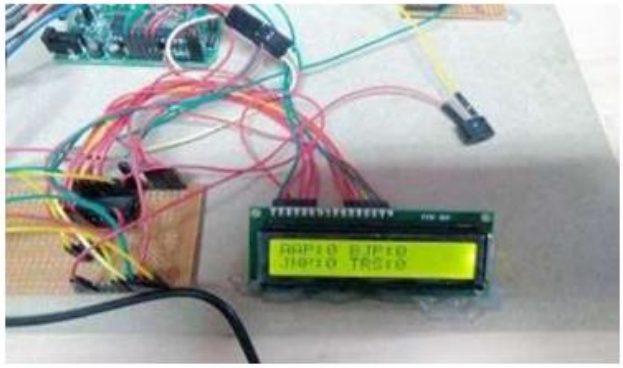

Fig 6. Final Results on LCD.

© 2021 IJSRET

IV. RESULT

As the present work is focused on the design and development of EVM, for increasing security in voting and authentication of voter. The developed system input is Aadhar card number and fingerprint, and if both Aadhar card number and fingerprint match than system allow voter for next step (voting).After all voters done with voting, for checking result on system one button is available. Result can visible for authorized person only.

For checking result need to press key 5 than system display message on LCD is 'Scan fingerprint of authorized person'. If that fingerprint of authorized person is correct than and then only system display the result on Excel sheet and it display candidate name and how many votes respected candidate got. By seeing this Excel sheet it easy to find who is the winner.

V. ADVANTAGE

Aadhar based fingerprint voting system is more portable, flexible and effortless untestable as compared with traditional and other electronic systems. System reduce use of man power which the drawback in current voting system. As compare to other system available for voting, Aadhar based fingerprint voting system is more secure.

VI. FUTURE SCOPE

We can use this system as a current voting system in INDIA. Current voting system use in INDIA having same disadvantage such as required man power (for checking voter is valid or not, for counting votes), possibility of illegal voting etc. That all problem possible to solve with the help of Aadhar based fingerprint voting system.

VII. CONCLUSION

Aadhar based fingerprint voting system is more portable, flexible and effortless untestable as compared with traditional and other electronic systems. This EVM will gives confidence in voting because only the legal voter can vote, and if the system found that the voter is illegal than system not allow for next step of voting. The system is user friendly; person who don't know this machine previously that person also can easily use this machine.

This all feature we implement on Aadhar based fingerprint voting system and it possible because of the designing techniques we use to implement this voting machine. For EVM there is a good scope for research and development to implement this system with an advanced features. This Aadhar based finger print electronic voting system support,

- To avoid Illegal Voting.
- To avoid time consumption.
- To make trustable EVM system.
- To keep the voter's information more secured.
- Reduce use of man power.

REFERENCES

[1] Ashok Kumar D., Ummal Sariba Begum T., "A Novel design of Electronic Voting System Using Finger print", International Journal of Innovative Technology & Creative Engineering (ISSN:20458711), Vol.1, No.1. pp: 12 19, January 2011.

[2] Dr. N. Kaliammal, S. Gayathri, J. Maria, Veena, M, Swathi, Rekha S. Thilagavathi, "Aadhar Based Electronic Voting Machine", Iternational Journal Of Emerging Techologies in Engineering Research, Volume 5, Issue 4, April(2017)

[3] Gritzalis D., [Editor]., "Secure Electronic Voting", Springer- Verlag, Berlin Germany, 2003.

[4] Varsha V, Pushpalatha S, "Aadhar based fully automated EVM with High End Security Network using ARM7 and Arduino", International Research Journal of Engineering and Technology, Volume:04, Issue:07, July- 2017

[5] Benjamin B., Bederson, Bongshin Lee., Robert M. Sherman., Paul S., Herrnson, Richard G. Niemi., "Electronic Voting System Usability Issues", In Proceedings of the SIGCHI conference on Human factors in computing systems, 2003.

[6] N. N. Nagamma, Dr. M. V. Lakshmaiah and T. Narmada, "Aadhar based Finger print EVM System", International Journal of Electroinics Engineering Research, ISSN 0975-6450, Volume 8, Number 6(2017) pp. 923-930.

[7] Darcy, R., & Mc Allister, I., "Ballot Position Effects", Electoral Studies 9(1), pp.5-17, 1990.

© 2021 IJSRET