

# Aadhar Card based smart e-voting system

K. Lakshmi, R. Karthikamani, N. Divya

**Abstract---** *The paper proposes the need of an protected voting system to avoid the unlawful voting. The authentication of an individual are made using biometric and capability of the voter is affirmed using the Aadhar. In this system the data stored in the Aadhar card act main criteria for authentication and conformation. The security is provided through biometrics such as fingerprint. The fingerprint information stored in the Aadhar is taken as the reference and used for authentication at the time of voting. The proposed system prevent the bogus voting (i.e.) the voting of an illegal citizens.*

**Keywords:** *Fingerprint, biometric, Aadhar card and confirmation.*

## I. INTRODUCTION

India is considered as world's biggest majority rule governments with the network of around 1 billion[1]. Voting hypothesis started formally in the 18th century and recommendations for the voting framework are been made from that point onward. The Present voting instrument has numerous security issues. Over a significant time span involvement of the constituent process authorized to center around the utilization of most recent advancements in e-voting process. The improvement of the voting framework can be in the field of extra security in the verification process [2]. The headway in the present voting framework can be made utilizing biometrics [3]. Biometrics is the unique identity that contains palm print, iris, finger print etc. Nowadays it is compulsory for every citizen in our country to have an Aadhar which is embedded with the finger print mark and the iris. In this paper, Arduino and unique finger impression sensor are utilized to store the pictures of our finger impression in a database [4]. At the time of voting the voter can place his or her unique mark, in the event that it matches with beforehand put away one of every a database then he/she will continue for voting. When a wrong person attempts to vote at the time of voting the buzzer in the system starts buzz. The framework prevents the wrong person from voting [5].

## II. PREVIOUS WORK

### a. Paper Based Voting

To the degree India is concerned, the voting system began in the eighteenth century itself [1], [6]. There are distinctive voting systems open as demonstrated by its progression with advancements. Paper based voting came into existence before the invention of internet.

In this method voting is made through paper and decisions are taken according to the majority of voting. After the process of paper voting in the polling booth. The paper votes by the candidates are counted to find the majority of votes for the particular symbol or name.

Impediments of paper-based voting:

- It is extremely hard to gather the polling booths and transport to fundamental focuses.
- Errors may happen amid manual tallying.
- Need more labor for security [7].

### b. E-Voting:

Electronic voting is the voting procedure electronically, without using the paper and polling booths. In this e-voting the voters are requested to poll their votes in the respective symbols on the e-voting board [3],[8]. E-machine comprises of catches and images of individual hopeful which when squeezed the include of votes get put away the EVM.

Yet at the same time, there is a routine with regards to counterfeit votes in this framework. Thus, assist improvement ought to be actualized to keep these sorts of exercises.

**Impediments of e-voting:**

- Security issues one can modify the program introduced in the EVM and can make changes in the outcome after the surveying.
- Illegal voting which is looked at in each constituent methodology. One hopeful makes the choice of all individuals in the constituent rundown unlawfully. These outcomes in loss of votes in favor of different applicants partaking indecision [9].

## III. BIOMETRIC SYSTEM

The principal focal point of the proposed framework is the utilization of a unique finger impression picture of a voter to verify him/her and to make the choice safely [10]. A biometric framework is an example acknowledgment framework that works by getting parametric information about a person. It can be utilized either in the confirmation mode or ID mode. Character confirmation is commonly utilized for constructive acknowledgment, where the point is to keep various individuals from utilizing a similar personality.

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In the distinguishing proof mode [11], the framework perceives the person via looking through the personalities in the database for a match. Along these lines, the frame work also checks for number of correlation with the candidate in the database.

### Advantages:

- It can't give any opportunity to invalid votes.
- It lessens the planning of surveying.
- At the tallying focuses, it can give simple and exact checking with no inconveniences.

## IV. PROPOSED SYSTEM

The fundamental segments of the voting framework are recorded as takes after,

1. Arduino mega 2560
2. Fingerprint Identification Module
3. PC
4. Power supply

### a. Arduino Mega 2560:

Arduino Mega is a microcontroller based on Atmega. It can be used for testing applications of various fields. The controller is provided with data pins, UART ports etc

- A) Power-Mega can be powered through either outer power supply unit or else through Universal synchronous bus.
- B) memory- The arduino controller is provided with 250 KB of blaze memory and 8KB of Static RAM and 4 KB OF EEPROM [11].

### b. Fingerprint Sensor:

The finger print sensors are mainly used in identification and validation applications. Once the finger is placed on the sensors it takes the images of the ridges and valley point of the finger and makes them as an reference image for the future use. Here in this application it is used for validating the corrected candidate for voting using their identity such as finger print. The reference image from the Aadhar card is taken and it is compared with the present image of the finger for identification.

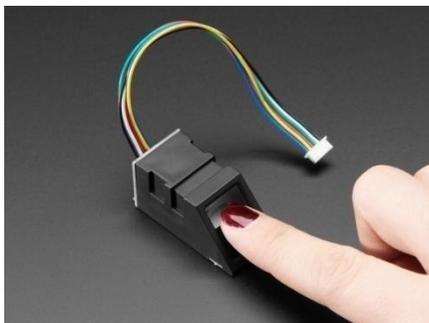


Fig (1) fingerprint sensor for the voting process

### c. Communication module:

By methods for serial interface, the Module may talk with microcontroller unit of 3.3V or 5V control: TD (stick 3 of P1) partners with RDX (tolerating pin of Microcontroller Unit), RD (stick 4 of P1) partners with TXD (trading pin of Microcontroller Unit). The upper (Personal Computer) be in RS-232 mode if it's not all that much inconvenience

incorporates level changing over the circuit, as MAX232, between the Module and Personal Computer [12].

## V. WORKING AND RESULT

The information base is made utilizing visual essential studio which is provided with the Aadhar card subtle elements of the voter. At the time of voting when the candidate keep the fingerprint the image is compared with the reference image stored in the Aadhar.

On the off chance that the unique mark is perceived then the voter is permitted to vote. The fig (2) represents the enrollment of an individual during a voting process.

The system implies basic fingerprints for the further proceeding of the voting and it is more efficient for the users to activate by the username and password. At once the system is turned on the system been actuated for the counting process. The visual basics studio is used for the process, and it takes pre-parameterized values for the data processing.

The system is the user-friendly everyone can access the system by knowing just the user id and the password but they are highly confidential.

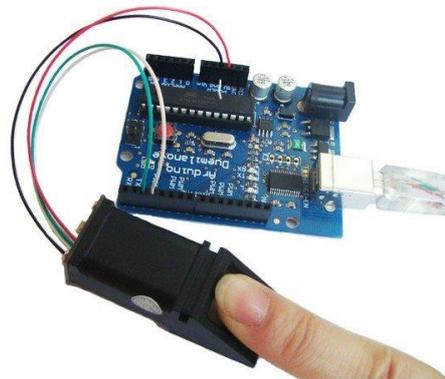


Fig (2) the proposed module

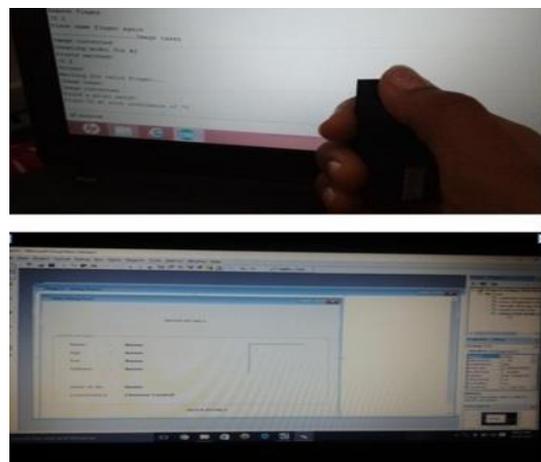


Fig (2.a) Results of fingerprint voting system.

## VI. CONCLUSION

The present voting framework manages a number of issues, for example, counterfeit voting and extortion either by actualizing misbehaviors while voting or by doing breaking down with the voting machine. Because of this the bothersome and most noticeably awful case applicants get chose. So to maintain a strategic distance from this and make the way toward voting straightforward in nature, a framework can be created which would completely add to the precision of throwing of votes and would invalidate the odds of acts of neglect as it includes an aggregate full confirmation electronic framework. This errand is to develop an endorsed voting system. The Aadhar card detail makes a unique profile of the individual to keep up a key separation from false voting. So simply the qualified contenders can cast their votes in the race. This endeavor in like manner diminishes the work and enhances the security. The future work extends the voting system with multimodal model biometric security such as iris, palm print, and signature etc.

## REFERENCES

1. Anandaraj S, Anish R., Devakumar P.V, "Secured Electronic voting machine using Biometric", IEEE sponsored second Intern. Confer. (CICS), 2015.
2. E-voting machine design with inclusion of biometrics RFID and GSM ", 2016 IEEE International Conference on Ad. Computing.
3. S. M. Hasan, A. Mohd. Anis, H. Rahman, Jennifer Sherry Alam, Sohel I. N. and Md. Khalilur Rahman, "Develop. of e-voting machine with the inclusion of NFC ID
4. X. Yi, and E. Komodo, "Practical Mobile Electronic Election, " IEEE/SICE International Symposium on System Integration (SII), 20-22 Dec. 2011
5. R. Lakhotia, R. K. Jarial, and P. K. Tiwari, "Designing a Secure Protocol for Mobile Voting Through SMS, " IOSR Journal of Engg Vol. 2(5), May 2012
6. A. D. Rubin. Security considerations for remote electronic voting. Communications of the ACM 45(12):39-44 December 2002.
7. Mc Galey Margaret McCarthy Joe "Transparency and e-Voting: Democratic vs. commercial interests" www.cs.nuim.ie/~mmcgalley/Download/Transport ency.pdf
8. Online Voting. Parliamentary Office of Science and Technology. May 2001. www.parliament.uk/post/pn155.pdf
9. Mc Galey Margaret. "Irish Citizens for Trustworthy Voting." 6 July 2004. http://evoting.cs.may.ie/
10. Alaguvel.R and Gnanavel. G," Offline and Online E-Voting System with Embedded Security for Real Time," International Journal of Engg Research
11. Gomathi.B, Veena Priyadarshini. S "Modernized Voting Machine using Finger Print Recognition," International Jour. of Scientific & Engg Res.
12. Smart voting system using aadhar card, G.Sathya, B.Abinaya, B.Aasma, Christina John and N.Divya Asian Journal of Applied Science and Tech.