

Fingerprint based Electronic Voting Machine

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Abstract

The project proposes an innovative idea that aims to construct an electronic voting machine which is based on voter's fingerprint. This project is designed for integrating Electronic Voting Machine with the data of the voter's fingerprint. Using its unique bio-metric identification system to prevent and alert the authorities against fake voting and voting on behalf of absent voters during election and prevent rigging during election. Protecting the voting rights of the citizen using fingerprint the identity of the person who is voting and also to ensure that no single person can vote more than once and aborting and alerting the authorities if otherwise. In this manner the citizen's trust in democracy is protected by ensuring a fair method for collection and counting of votes. Illegal voting by impersonation and multiple voting by the same person can be avoided. Also, money requirement and time consumption will get reduced added result can be seen once the voting process has finished.

Keywords: EVM, Fingerprint, Voting machine, automatic, minutiae, biometrics

INTRODUCTION

In democratic societies, voting is an important tool to collect and re-act people thinking's. Traditionally, voting is conducted in centralized or distributed places called polling booths. Voters go to polling booths and cast their votes under the supervision of authorized parties. Then the votes are counted manually once the election has completed. Existing voting system is slower, poses full day fatigue on people and chances of error are greater. Proposed system's 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. Authentication of voter is verified by his/her fingerprint, hence once the voter is authenticated he/she is a authorised voter to cast their votes. Active involvement of the public in the formation of the government is an essential aspect of a democratic government. This is confirmed by an election. It's a test to conduct elections for collection of candidates to signify the people of the country at

different levels. Even more important is the timely announcement of results. Fingerprint based Voting machine is an application where the user is recognized by his finger pattern. Since, the finger pattern of every person is different, the voter can be easily authenticated. The system allows the voter to vote through his/her fingerprint. One voter can cast their vote only once he/she cannot go for second attempt. The admin can be chosen to keep an eye on the whole process, system can be protected by password which will be given to admin to start the process. Once the process is started each voter has to put their finger on the fingerprint module and after their authorisation by the system voter can their vote. As soon as voter cast his vote he will get notified about the candidate whom he has voted [1].

DRAWBACKS OF EXISTING SYSTEM

Currently, the voting system in India is inefficient and vulnerable to outer threats, the only thing that the security checks is a voter ID card, which these days are faked

by many [2]. It is slow and counting the votes manually can take a long time. Also there are many possibilities which allows voter to cast their vote twice which is very

unfair with the whole process. Existing system is not temper proof. Also it provides several of bugs and pitfalls which may lead to various frauds [3].

Sr. No.	EXISTING SYSTEM	DISADVANTAGES OF EXISTING SYSTEM
1	Electronic voting Machine[1]	1.Authentication and authorization[1]
2	Solar Power Electronic Voting machine[2]	2.Economical and security problem[2]
3	Electronic voting machine with voter information[3]	3.Not followed by Indian Constitution[3]

BLOCK DIAGRAM FOR FINGERPRINT BASED ELECTRONIC VOTING MACHINE

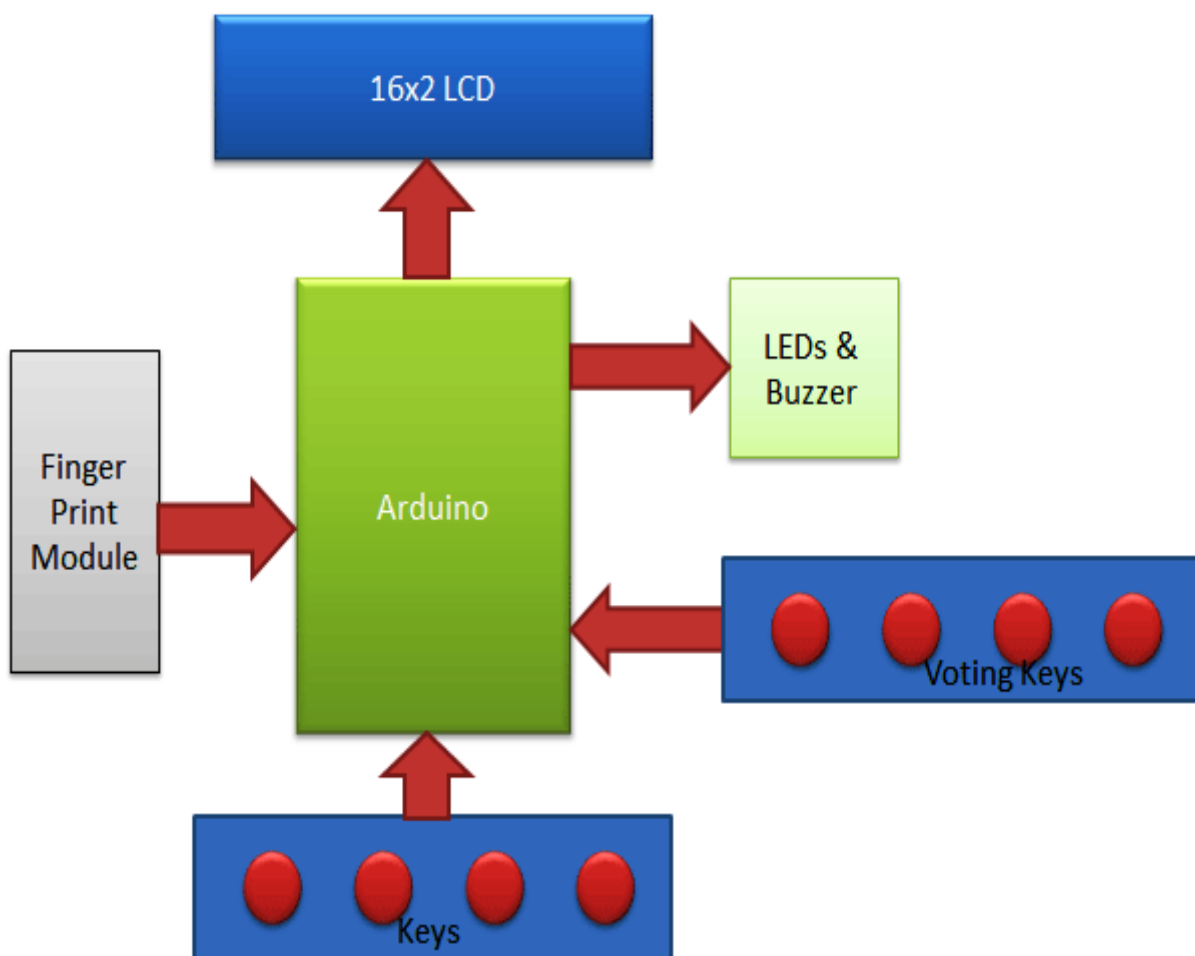


Figure 1: Block diagram for fingerprint based electronic voting machine.

Block diagram of circuit, consists of different modules which are being used in proposed system. We have used Arduino uno as a main processor for processing the data and storing it. Fingerprint module is used for capturing the images of thumb prints and storing them into the memory of

Arduino. LED and Buzzer are used for notification purposes. There are two modules of keys first module consist of keys for feeding the voters information and other key module is for voting purpose.16*2 LCD screen is used to see the output of the system [4].

CIRCUIT DIAGRAM OF GIVEN SYSTEM

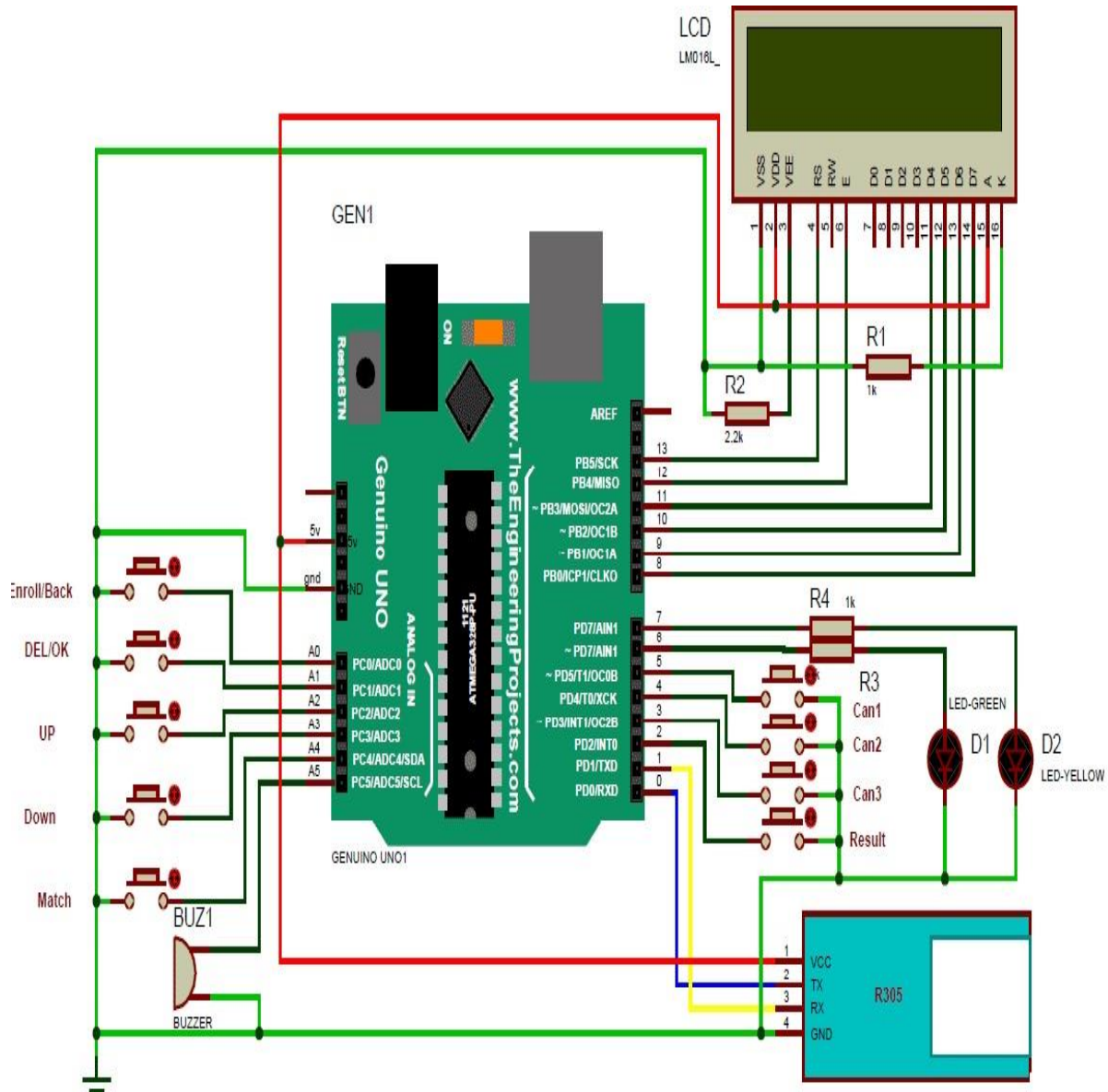


Figure 2: Circuit diagram of fingerprint based electronic voting machine [8].

CONSTRUCTION AND WORKING OF SYSTEM

As shown in circuit diagram and circuit block diagram, circuit is consisting of 5 main modules i.e. LCD display for displaying output, LED light for notification purpose, R305 which is a fingerprint module which takes the images of thumb impressions and stores them to the Arduino, then voter information input module, and lastly voting module [5].

The working of the system is stated as follows: when we start the machine it displays the initial comments and then we have to enroll the

voters information using their respective user ID and their fingerprints. There are five buttons used for this purpose. The proposed system can store up to 25 voters in the system as per memory requirements and availability. This number of voters can be increased using a higher version of Arduino and using memory IC.

Buttons are: 1. Select/Enroll 2. Ok/delete 3. up key 4. Down key 5. Match key
After storing voter's information, we have to press the match key to initiate the voting process. There are four buttons in the voting module:

CAN 1 2. CAN 2 3. CAN 3 4. RESULT



Figure 3: Electronic voting machine using fingerprint

After pressing match key, we have to authorize the voter by fingerprint module then once the voter is authorised he can cast his vote by pressing any of candidate buttons stated above. Once the vote is cast same voter cannot cast another vote which prevents double voting, system itself gives the notification of “ALREADY VOTED”. Once the voting process is done, one have

to press “RESULT” button to see the result of voting process. After pressing the button system will give statistical analysis of votes with respect to each candidate in tabular for and after analysing it system announces the result [6-8].

RESULT

Result of the voting process shown as

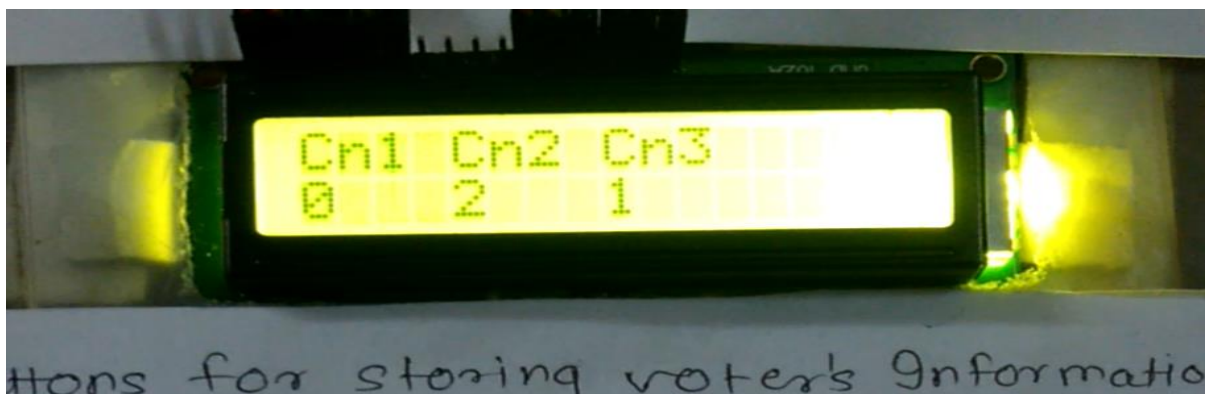


Figure 4: Statistical analysis of votes with respect to each candidate



Figure 5: Result of voting process

CONCLUSION

In total, this system overcomes most of the problems faced during the voting period by the people. As this system comprises of fingerprint module, It makes the system secure easy to use and reliable, also avoids double casting of votes. Voter will get notified and acknowledged about the vote they casted. Proposed system will reduce the time consumption by overall process by making it easier to use. Number of human resources also will get reduce, conspiracy issues will get reduced because of systematic authorization technique of the system, hence as a result one can say that due to implementation of such system, it will indirectly increase the voting ratios, and hence political quality growth of country can be established.

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