

Biometric based Electronic Voting Machine

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Abstract: Voting is most important process of democratic society through which people determine its government. Governments around the world are increasingly considering the replacement of traditional paper-based voting schemes with electronic voting systems. In this we describe the design, construction and operation of a biometric electronic voting machine using a microcontroller immensely. The finger print was already stored in the government database. Hence this project provides a best solution to avoid the fraud voting.

Keywords: Arduino, Fingerprint module

1. Introduction

Voting is backbone of democracy. Election allows people to choose their choice and show their presence. Voting is use for taking various type of decision such as meeting, express an opinion, debates. Voting is an important factor in our country. for the trustful democracy previously there are various method of voting in system such as:

1. Paper Ballot
2. Electronic voting machine
3. Punched card

Method mentioned above are not much secure there are more chances of fraud voting. False voting can be avoided by using biometric system, face recognition or RFID. In this system we are using the fingerprint for the authentication purpose. Every - one has their own unique fingerprint, because of this it cannot be easily misplaced or shared.

2. Previous work

A. Paper ballot

A ballot is a temporarily sealed container with a slot on top to accept a ballot paper. A ballot paper is used to cast the vote. Each voter uses only one ballot paper [6].

Disadvantage

- More paper required.
- More man power required.
- Time required to display is large.

B. Punched card

A punched card system uses a card and small device for note the votes. These system is proposed in the mid-20th century. In these voter punch the hole on in card with marking instrument [1].

C. Disadvantages

- Not more Confidential.
- Required More Security.

3. Proposed system

To overcome the disadvantages of the previously used system (mentioned above) the biometric electronic system is implemented. In this system voter's fingerprint is stored in database. During the time of Polling the voters finger print matched with the database, if fingerprint matches then and only voter is allow to cast the vote else the voter is not allow to vote He/She is unauthorized. Once the voter cast their vote they cannot vote again [1].

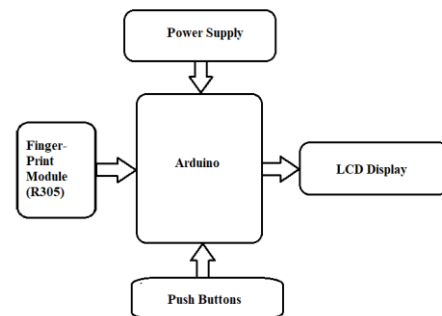


Fig. 1. Block diagram of biometric electronic voting machine

First of all, voter needs to enroll fingerprint with the help of push buttons. To do this user need to press ENROLL key and then LCD asks for entering ID where finger will be a store. So now user needs to enter ID by using UP/DOWN keys. After selecting ID user needs to press an Enter key. Now LCD will ask for placing finger over the finger print module. Now user needs to put his finger over finger print module. Then LCD will ask to remove the finger from finger print module and again ask for placing the finger. Now user needs to put his finger again over finger print module. Now finger print module takes an image and converts it into templates and stores it by selected ID in to the finger print module's memory. Now voter will be registered and he/she can vote. By same procedure all the voter can be registered into the system [7].

4. Flowchart

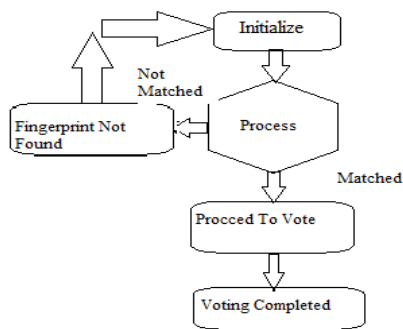


Fig. 2. Flowchart

5. Result

Fig.3 shows the actual project. EVM consist of finger print, LCD display & microcontroller.

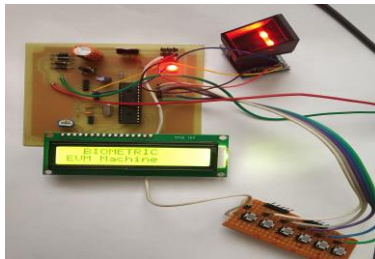


Fig. 3. Hardware setup

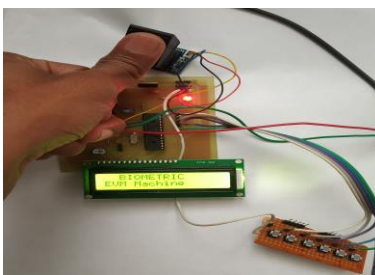


Fig. 4. Matching the finger

Fig. 4. shows the process of matching the finger print of the voter.

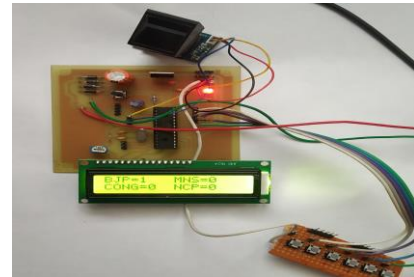


Fig. 5. Result after voting

Fig. 5. Shows the result after the voting.

6. Conclusion

By this project the false voting can be avoided and the secured voting can be done. In this project some new concept can be added in future like Iris recognition or Face recognition. We can implement this project using the aadhar card also.

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