Biometric Fingerprint Based Electronic Voting System For Rigging Free Governance

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Abstract— Biometric Finger print devices are used in the Electronic Voting machine for voter verification. We have designed a finger print based voting machine where there is no need for the user to carry his ID which contains his required details. The person at the polling booth needs only to place his Finger on the device, thus allowing the acquisition of an on-spot fingerprint from the voter which serves as an identification. This Finger print reader reads the details from the tag. This data is passed onto the controlling unit for the verification. The controller fetches the data from the reader and compares this data with the already existing data stored during the registration of the voters. If the data matches with the pre-stored information of the registered fingerprint, the person is allowed to cast his vote. If not, a warning message is displayed on LCD and the person is barred from polling his vote. The vote casting mechanism is carried out manually using the push buttons. LCD is used to display the related messages, warnings and ensuing results.

Keywords— Voter ID; Finger Print Module ; LCD ;

I. INTRODUCTION

Biometrics is the science and technology of measuring and analyzing biological data. Biometrics refers to technologies that measure and analyze human body characteristics, such as DNA, fingerprints, eye retinas and irises, voice patterns, facial patterns and hand measurements, for authentication purposes. The field of biometrics was formed and has since expanded on to many types of physical identification. Among the several human fingerprints remain a very common identifier and the biometric method of choice among law enforcement. These concepts of human identification have lead to the development of fingerprint scanners that serve to quickly identify individuals and assign access privileges. The basic point of these devices is also to examine the fingerprint data of an individual and compare it to a database of other fingerprints [1]. In our project we have used fingerprint for the purpose of voter identification or authentication. As the thumb impression of every individual is unique, it helps in minimizing the error. A database is created containing the fingerprint images of all the voters as required. Illegal votes and repetition of votes is checked for in this system with accurate coding. Hence with the application of this fingerprint based EVM system elections could be made fair and free from rigging. Further that the elections would are no longer a tedious and expensive job.

II. LITERATURE SURVEY

A. Electronic Voting in India

The Election Commission of India developed the country's EVMs in partnership with two government-owned companies, the Electronics Corporation of India (ECIL) and Bharat Electronics Limited (BEL). Though these companies are owned by the Indian government, they are not under the administrative control of the Election Commission. They are profit-seeking vendors that are attempting to market EVMs globally [7]. The first Indian EVMs were developed in the early 1980s by ECIL. They were used in certain parts of the country, but were never adopted nationwide. They introduced the style of system used to this day, including the separate control and ballot units and the layout of both components. These first-generation EVMs were based on Hitachi 6305 microcontrollers and used firmware stored in external UVerasable PROMs along with 64kb EEPROMs for storing votes. Second-generation models were introduced in 2000 by both ECIL and BEL. These machines moved the firmware into the CPU and upgraded other components. They were gradually deployed in greater numbers and used nationwide beginning in 2004 [3]. In 2006, the manufacturers adopted a third-generation design incorporating additional changes suggested by the

Election Commission. According to Election Commission statistics, there were 1,378,352 EVMs in use in July 2009. Of these, 448,000 were third-generation machines manufactured from 2006 to 2009, with 253,400 from BEL and 194,600 from ECIL.

The remaining 930,352 were the second-generation models manufactured from 2000 to 2005, with 440,146 from BEL and 490,206 from ECIL [4]. (The first generation machines are deemed too risky to use in national elections because their 15-year service life has expired [5], though they are apparently still used in certain state and local contests.) In the 2009 parliamentary election, there were 417,156,494 votes cast, for an average of 302 votes per machine [6].

III. BLOCK DIAGRAM

The system aims at developing a fingerprint based advanced Electronic Voting Machine (EVM) which helps in free and fair way of conducting elections which are basis for democratic country like India .This project consists of following units a Voting system, fingerprint module and ARM controller Unit. The voter first puts his finger on the fingerprint module which checks for the authentication of the user. If the voter is the authenticated one, he will now poll his vote in the voting system by simply pressing button against his favorite leader through a button. The control unit consists of a ARM controller, push button for different operations of EVM. The votes casted for particular candidate in that particular section of constituency is shown through an LCD display. To perform this intelligent task, ARM controller is loaded with an intelligent program written in embedded „C" language
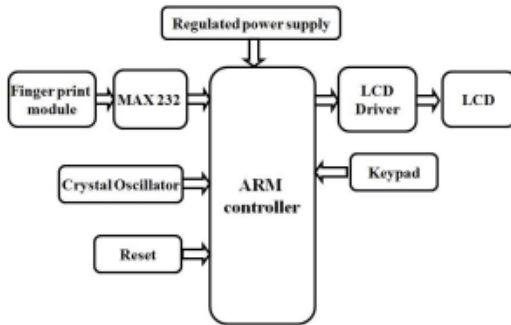
Fig. 1. Block diagram of biometric voting system

IV. WORKING

A. Flow Chart This process basically consist of two stages 1. Voter enrollment
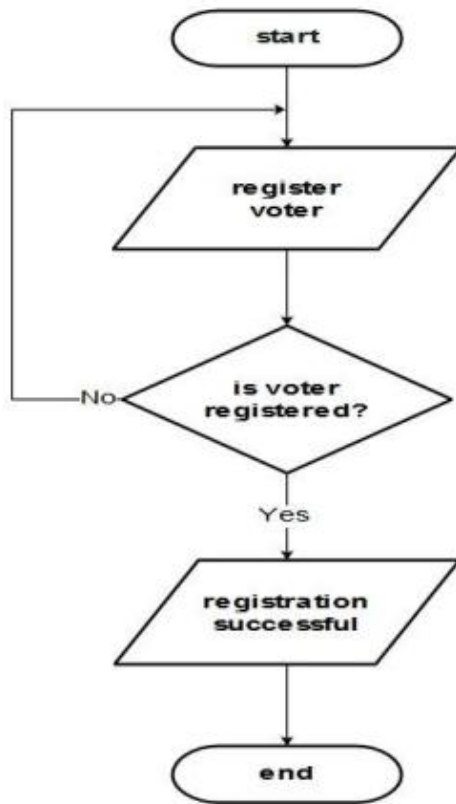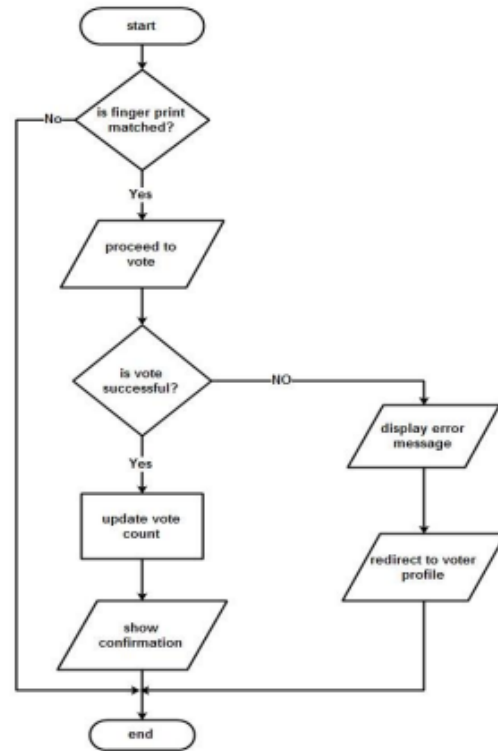

Fig. 2. Voter enrollment

2. Vote casting

Fig. 3. Vote casting

B. Methodology

This is implemented with both software and hardware using different tools as

1) Software

a)Keil TOOLS by arm version 4

b)Proteus

2) Hardware

a)Finger print module

b)ARM processor

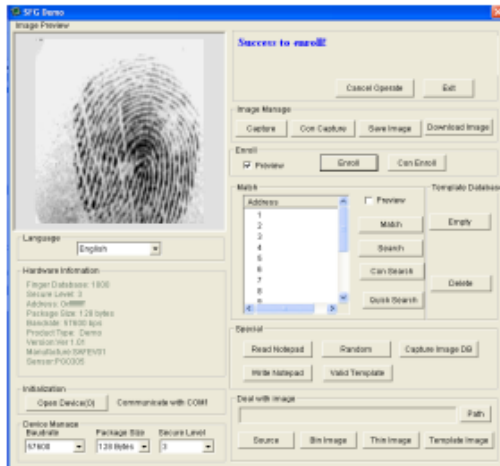c)LCD Display

V. RESULT

A. Enrollment

1) Voter enrollment

Fig. 4. Enrolling of the user

Fig. 5. Presearch of the registering user

1) *Placing of finger for identification*

Fig. 6. Fingerprint identification

Fig. 7. Vote casting

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Fig. 8. Vote being accounted for

Fig. 10. Unregistered Voter

Fig. 9. Preventing of re-vote by the same user

Fig. 11. Results retrieved by the Admin

VI. ADVANTAGES AND DISADVANTAGES

A. Advantages

• Cost effective

• This system allows only authenticated voting than the existing equipment as the person is identified based on his Fingerprint which is unique to each individual.

• Low power consumption

• It is economical

• Less manpower required

• Time conscious, less time required for voting & counting

• Avoids invalid voting as it prevents unregistered voters from voting.

• Ease of transportation due to its compact size.

• Convenient on the part of voter. B. Disadvantages

• Before voting the user has to enroll first.

• Sensitivity of finger print module causes sometimes Combine character error. VII. APPLICATIONS This project can be used as a voting machine to prevent rigging, during the elections in the polling booths. Fast track voting which could be used in small scale

• elections, like resident welfare association, "panchayat" level election and other society level elections, where results can be instantaneous. It could also be used to conduct opinion polls during

• annual shareholders meeting. It could also be used to conduct general assembly

• elections where number of candidates are less than or equal to eight in the current situation, on a small scale basis. CONCLUSION

The project "Fingerprint Based Voting Machine" was mainly intended to develop a fingerprint based advanced Electronic Voting Machine (EVM) which helps in free and fair way of conducting elections which are basis for democratic country like India. REFERENCES

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