NEW GENERATION VOTING SYSTEM USING FINGERPRINT

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Abstract-**This paper aims to present a new voting system employing biometrics in order to avoid rigging and to enhance the accuracy and speed of the process. Biometric Finger print devices are used in voting machine for voter verification. The suggested fingerprint voting system allows the user to scan their fingerprint, in order to check their eligibility by comparing their current fingerprint with the one already stored in the system database. Once the user complete the identification process, they will be allowed to cast their vote. The person at the polling booth needs only to place their finger on the device which serves as an identification. The fingerprint reader reads the details from the user. This data is passed to 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 the person is allowed to cast their vote. If an unauthorized person enters into the polling booth to cast their vote or if already vote casted person enters into the booth, buzzer will alert the booth level officer. Using this biometric system for voting purpose, we can easily avoid rigging in elections. The polled votes are saved in the online database which helps to show immediate results.**

    Keywords— Voter ID; Finger Print Module ; LCD ;

1.INTRODUCTION

Biometrics is the science and technology of analyzing biological data. Biometrics refers to technologies that analyze human body characteristics, such as DNA, fingerprints, eye retinas and irises, voice patterns, facial patterns and hand measurements, for authentication purposes. The user must show their voter ID card, whenever they enters the booth to cast their vote. The fingerprint based voting machine is designed, where the user no need to carry their voter ID. The user must place their finger on the reader which reads the information about the user which is already stored in the database.

The information is passed to the controlling unit for verification. If the data matches with pre-stored information the user is allowed to cast their vote. If not, a message is displayed on LCD and therefore the person is not allowed to cast their vote. Illegal votes and repetition of votes will be avoided in this system.

2.LITERATURE SURVEY

A. Electronic Voting in India

India is one of the world's largest democracy with a population of more than 1 billion. India has a electorate of more than 668 million and covers 543 parliamentary constituencies. Voting is the bridge between the governed and the government. The last few years have brought a renewed focus onto the technology used in the voting process[5]. The role of simplicity in electronic voting security shows that it focused on problems caused by software complexity and have proposed minimizing the size of the trusted computing based (TCB) as a partial remedy[9].

In "A novel design of electronic voting system using fingerprint"[1].This study explains fingerprints have een one of the most highly used methods for human recognition, automated biometric systems have only been available in recent years.

Secugen provides biometric solutions for physical and network security employing advanced fingerprint recognition technologyAncinet officials used thumbprints to seal documents thousands of years ago, and law enforcement agencies have been using fingerprint identification since the late 1800s.[6].

3.EXISTING SYSTEM

This system allows evil practices in the manual voting system. The process of collecting data and entering this data into the database takes too much of time, this process involves too much paper work and paper storage which is difficult with the population counts.

3.1.DISADVANTAGES

1)Evil practices will be held
2)Repetition of votes will be occurred
3)More manpower consumption

4.PROPOSED SYSTEM

The proposed system allows only authenticated voting than the existing system equipment. The person is identified based on their fingerprint which is unique to each individual. Invalid voting is eliminated and security is ensured..

4.1. Evaluation of Voting Equipment

In the recent years, voting equipment which were widely adopted may be divided into five types,.

1) Paper-based voting: Paper ballots, also called Australian Secret Ballots ,are marked by the voter with a pen, pencil, or other marking device and are hand counted

2) Lever voting machine: Lever machine is peculiar equipment, and each lever is assigned for a corresponding candidate. The voter pulls the lever to poll for his favorite candidate. This kind of voting machine can count up the ballots automatically. Because its interface is not user-friendly enough, giving some training to voters is necessary.

3) Direct recording electronic voting machine: This type, which is abbreviated to DRE, integrates with keyboard, touchscreen, or buttons for the voter press to poll. Some of them lay in voting records and counting the votes is very quickly. But the other DRE without keep voting records are doubted about its accuracy.

4) Punch card: Punch card systems require the voter to insert a paper card into a clip board sized device and punch pre-scored holes through the card to indicate votes. The punches out little rectangles called "chads". This method is currently used in United States.

5) Optical voting machine: With an optical scan systems, the voter hand-marks a paper ballot that is counted by a machine. Ballots are scanned and counted at the polling location or a central location for a jurisdiction.

5. FUNCTIONAL MODULES

1)User data collection :The details of users such as name. age .address, fingerprints, etc is stored.
2)Election commission: The voters and candidate details are stored.
3)User Authentication: The voters fingerprint are verified with the existing fingerprints.
4)Polling result: The votes stored in online databases show immediate results.

6. 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.
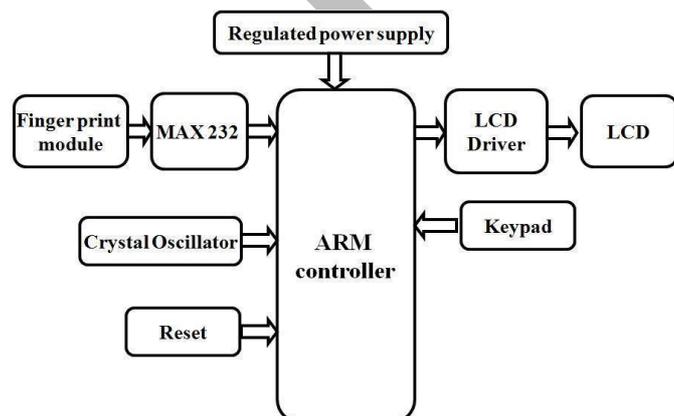
Fig. 6.1.Block diagram of biometric voting system

A.ARM Controller

ARM controller is Brain of this project, it has the features like 32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package.8 kB to 40 kB of on-chip static RAM and 32 kB to 512kB of on-chip flash memory. 128-bit wide interface/accelerator enables high-speed 60 MHz operation. Various 32-bit timers, single or dual 10-bit ADC(s), 10-bit DAC, PWM channels and 45 fast GPIO lines with up to nine edge or level sensitive external interrupt pins make these microcontrollers suitable for industrial control and medical systems.

B.Fingerprint module

The device is the most popular among all the identification devices because of its ease in acquisition, and also the number of sources that are available for its data collection. It has found its vast use in law enforcement and immigration purposes .The module used here is R305. The basics of this identification process comes from "Galton points" – a certain characteristics defined by Sir Francis Galton, through which the fingerprints can be identified. In this module the scanned image are compared with an earlier existing finger print of yours to get the correct identity. The comparison is carried out by the processor and the comparison is made between the valleys and ridges though your whole fingerprint is recorded, the computer takes only parts of the print to compare with other records

C.MAX-232

The MAX-232 is an integrated circuit that converts signals from an RS-232 serial port to signals suitable for use in TTL compatible digital logic circuits. The MAX-232 is a dual driver/receiver and typically converts the RX, TX, CTS and RTS signals .The drivers provide RS-232 voltage level outputs (approx. ± 7.5 V) from a single + 5 V supply via on-chip charge pumps and external capacitors.

D.Crystal oscillator

An electronic oscillator is an electronic circuit that produces a repetitive Electronic signal, often a sine wave or a square wave. ARM controller internally having 4 Mhz clock frequency. We are giving the 60 Mhz clock frequency as an external source for increasing the system performance.

E.Power source module

The major blocks of power supply are given below Transformer, Rectifier, Filter, 7805 voltage regulator .These will provide the regulated power supply to the unit which is first converted into 12V AC .12V AC is converted into DC using rectifier circuit .Finally the 7805 voltage regulator provides constant 5V DC supply which will be given to circuit.

F.Keypad

Push buttons are used in keypad. A push-button or simply button is a simple switch mechanism for controlling some aspect of a machine or a process. Buttons are typically made out of hard material, usually plastic or metal.

G.Reset

This button is used to reset the whole system so that it can be configured for next election.

7. WORKING

7.1 *Flow Chart*

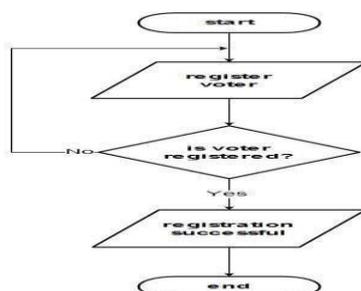   This process basically consist of two stages

1..Voter enrollment
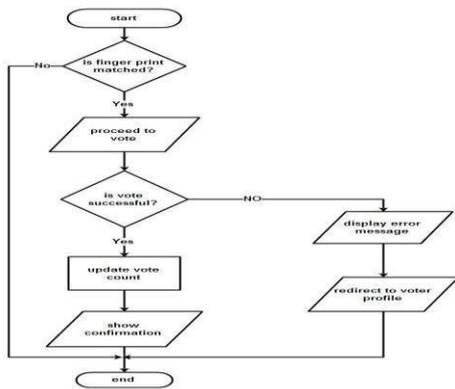
Fig.7.1.1.Voterenrollment

2.Vote casting

Fig.7.1.2.Vote casting

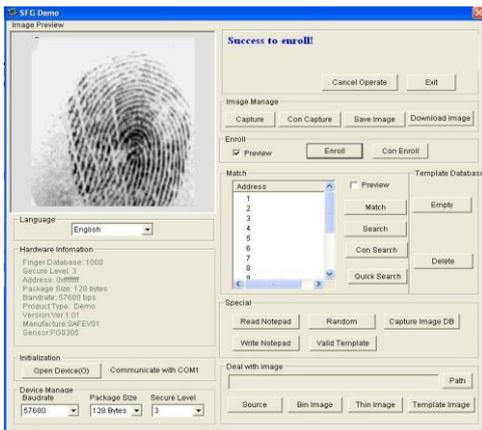**8.RESULT**

8.1 Enrollment

1) Voter enrollment

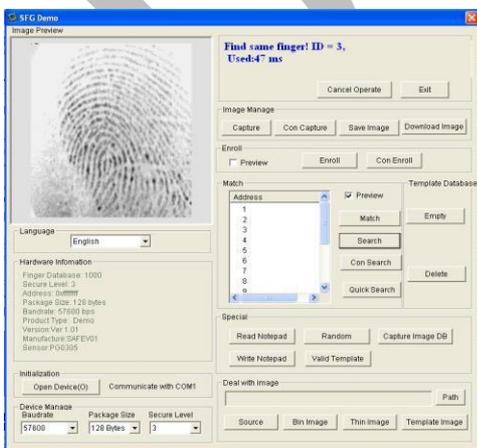Fig. 8.1.1.Enrolling of the user

2)search of registered votes

Fig.8.1.2.search of registered user

9. ADVANTAGES

1)Cost effective

2)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.

3)Low power consumption

4)It is economical

5)Less manpower required

6)Time conscious, less time required for voting & counting

7)Avoids invalid voting as it prevents unregistered voters from voting.

8)Ease of transportation due to its compact size.

9)Convenient to the voter.

10. APPLICATIONS

This project can be used as a voting machine to prevent rigging, during the elections in the polling booths.

1)Fast track voting which could be used in small scale elections, like resident welfare association,

2)"Panchayat" level election and other society level elections, where results can be instantaneous.

3)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 AND FUTURE SCOPE

In total, this system overcomes most of the problems faced during the voting period. The efficiency of this system depends upon the web interface, its usability, this will ensure a safer voting method which is very much required for a healthy growth of nation. Soon every Indian citizen can have a similar identity card and all the government will have all the necessary information required to bring such a system.

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