A FINGER PRINT BASED VOTING SYSTEM

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ABSTRACT

Voter verification is accomplished through the use of biometric fingerprint devices in electronic voting machines. We developed a voting system that uses fingerprints, eliminating the need for the user to carry an ID with the necessary information. Simply placing his finger on the machine at the polling location allows the voter's on-the-spot fingerprint to be captured and used as identification. This finger print reader reads the data on the tag. This data is forwarded to the controlling unit for verification. The controller retrieves the information from the reader and contrasts it with the information that was previously recorded during voter registration. If the data matches the previously stored information on the registered fingerprint, the person is permitted to vote. Otherwise, an LCD warning message is displayed.

KEYWORDS : Voter identification; finger print module; LCD

I. INTRODUCTION

Fingerprint scanners are used by a biometric electronic voting machine to verify voters. The need for the voter to carry an ID that contains the relevant information is removed in a voting system that uses fingerprint identification. The voter's on-the-spot fingerprint can be taken and used as identification by just touching his finger on the gadget at the polling location. This fingerprint reader reads the data from the tag. This information is given to the controlling unit for verification purposes. Data is retrieved from the reader by the controller, who then matches it to information previously stored during voter registration. If the data matches the person's previously saved data and their fingerprint matches the registered fingerprint, they are eligible to vote. otherwise, a caution message on the LCD screen shows, and the user is barred from voting. The voting method is manually carried out using push buttons. An LCD displays the pertinent alerts, cautions, and findings.

Ⅱ. LITERATURE SURVEY

The design and implementation of a web-based voting system that uses fingerprint authentication is the topic of this study. Voters are required by the planned EVS to scan their fingerprints, which are then compared with preloaded images in the database. Being nationally linked, a user can only cast votes online from anywhere in the nation after successfully completing the validation processes. The cast vote will be immediately updated . The sophisticated voting method used in this study employs RFID and fingerprint technologies to ensure each ballot is cast uniquely. Voter ID is replaced by RFID, and the fingerprint sensor data produces an alert showing any mismatches. The voting preferences are chosen using a keypad. The user is shown the corresponding data for each key using an LCD . The proposed work leverages the Android mobile operating system to create an application and fingerprint-supported biometric control data to strengthen voting procedures. The system is stronger when used with an android smart mobile smartphone. The sophisticated voting method used in this study employs RFID and fingerprint technologies to ensure each ballot is cast uniquely. Instead of voter identification, RFID is used, and alerts are produced using fingerprint sensor data.

A. Electronic Voting in India

The Electronic Voting Machines (EVMs) for India were created by the Election Commission of India in collaboration with two government-owned firms, the Electronics Corporation of India (ECIL) and Bharat Electronics Limited (BEL). Although the Indian government owns these businesses, the Election Commission does not have administrative control over them. They are profit-driven vendors striving to promote EVMs across the globe. Early in the 1980s, ECIL created the first Indian EVMs. Although they were utilised in some regions of the nation, they were never widely utilised. They introduced the design of the system that is still in use today, including the arrangement of the separate control and ballot units. These first-generation EVMs employed software that was stored in external UV-erasable PROMs and were based on Hitachi 6305 microcontrollers up to 64kb EEPROMs for voting storage. 2000 saw the release of second-generation models from ECIL and BEL. These computers updated other parts and moved the firmware inside the CPU. From in 2004, they were gradually used nationwide in more and more deployments . Manufacturers adopted a third-generation design in 2006 that included additional adjustments recommended by the Commission on Elections. Statistics from the Electoral Commission show that in July 2009, there were 1,378,352 EVMs in use. 448,000 of these were third-generation machines, 253,400 from BEL and 194,600 from ECIL, produced between 2006 and 2009.

The remaining 930,352 were second-generation versions, of which 440,146 were produced by BEL and 490,206 by ECIL between 2000 and 2005.

B. Assessment of Voting Devices

Voting devices that have recently gained widespread adoption can be categorized into five categories.

1) Voting on paper: The voter receives a blank ballot and marks his choice of candidate with a pen or marker. Although manually counting ballots takes a lot of time and effort, paper ballots are simple to make and can be kept for verification. Despite this, this kind of voting is still the most popular.

2) Lever voting machine: A lever machine is an odd piece of machinery where each lever corresponds to a particular candidate. Voters pull the lever to cast their ballots for their preferred candidates. The ballots can be automatically counted by this style of voting equipment. since its voters need to be trained because the UI is not user-friendly enough.

3) A DRE, or direct recording electronic voting machine, includes a keyboard, touchscreen, or buttons that voters can press to cast their ballot. Several of them were found in voting records, and the votes were counted immediately. However, the accuracy of the other DRE that does not maintain voting records is questioned.

4) Punch card: The voter uses a metallic hole-punch to create a hole in the unmarked ballot. Even though votes can be automatically tallied, the results may be unreliable if the voter's perforation is incomplete.

III-Block Diagram

The technology seeks to deliver a cutting-edge, fingerprint-based Electronic Voting Machine (EVM) that helps hold free and fair elections, which are essential for a democratic country like India. This project is made up of an ARM controller unit, a fingerprint module, and a voting mechanism. The voter first presses his finger against the fingerprint reader to confirm his identity. If the voter is the one who has been confirmed, he will now cast his vote by simply pressing a button for his favourite candidate. The control unit is composed of push buttons for various EVM functionalities and an ARM controller. The ballots cast for a certain candidate in that specific electoral district are shown through It is loaded a clever embedded "C" programme.

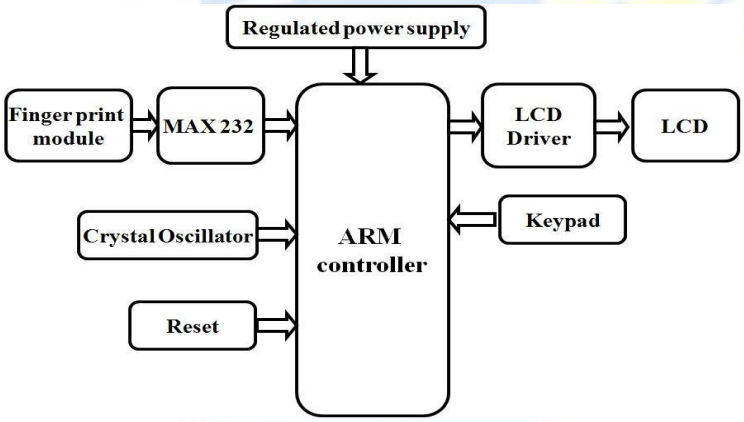

fig.1.Block diagram of biometric voting system

A. Controller for ARM

The brain of this project is an ARM controller, which packs the same 32-bit ARM7TDMI-S microcontroller characteristics into a compact LQFP64 chip.
On-chip flash memory ranging from 32 kB to 512 kB and static RAM ranging from 8 kB to 40 kB are both options. A 128-bit wide interface/accelerator enables high-speed operation at 60 MHz. These microcontrollers' varied 32-bit timers, single or multiple, make them suitable for industrial control and medical applications. dual 10-bit ADC(s), 10-bit DAC, PWM channels, 45 fast GPIO lines, and up to nine edge or level sensitive external interrupt pins.

B.The biometrics module

Due to its ease of acquisition and the variety of sources it can collect data from, the device is the most widely used of all identifying devices. It is often used for immigration and law enforcement purposes. R305 is the module in use here. Galton points, a set of features developed by Sir Francis Galton that can be used to identify fingerprints, are the foundation of this identification procedure. The scanned image is compared with an earlier version of your finger print in this module to determine your true identity

D.The crystal oscillator

A circuit that uses electricity to produce a sine wave or square wave that repeats repeatedly is known as an electronic oscillator. The intrinsic clock frequency of an ARM controller is 4 MHz. We are supplying an external source of 60 Mhz clock frequency to enhance system performance.

E. Power supply unit

Here are listed the major components of the power supply: the transformer, rectifier, filter, and 7805 voltage regulator.They will deliver the unit's regulated power source after converting it to 12V AC.

F. Keypad

Push buttons are used in a keypad. A push-button, also referred to as a button, is a simple switch mechanism used to operate a device or procedure. Buttons are composed of durable materials and are typically made of metal or plastic.

G. Reset

This button resets the entire system, allowing it to be set up for the following election

IV.WORKING

A. Flow Chart

There are basically two parts to this process.

1. Voter registration

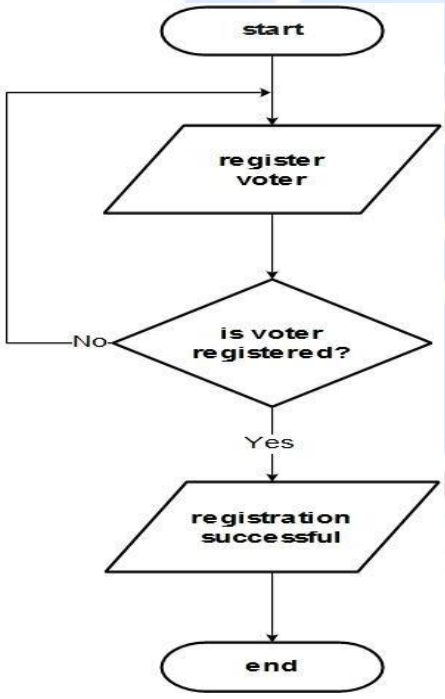

fig.2.registration of the voters

2)Casting of ballots

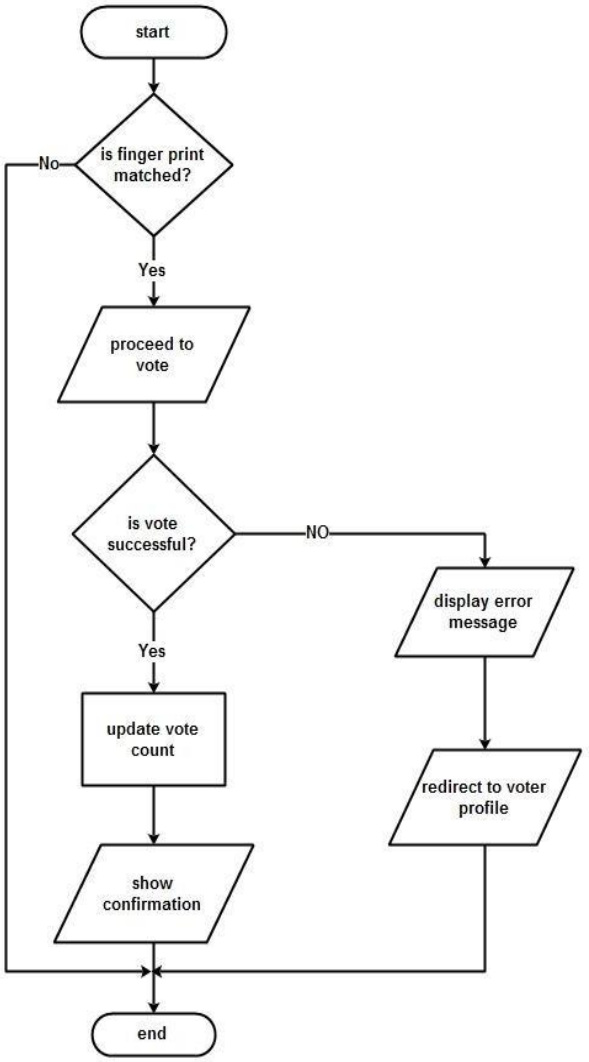

fig.3.casting of votes

B.Methodology

This is achieved utilizing a variety of tools,including the following:

1) Software:

Keil TOOLS by ARM version 4;

2) Hardware:

1)Biometric module;

2) Controller for ARM;

3)LCD display.

Ⅴ.RESULT

A.Enrollment

1) Voter registration

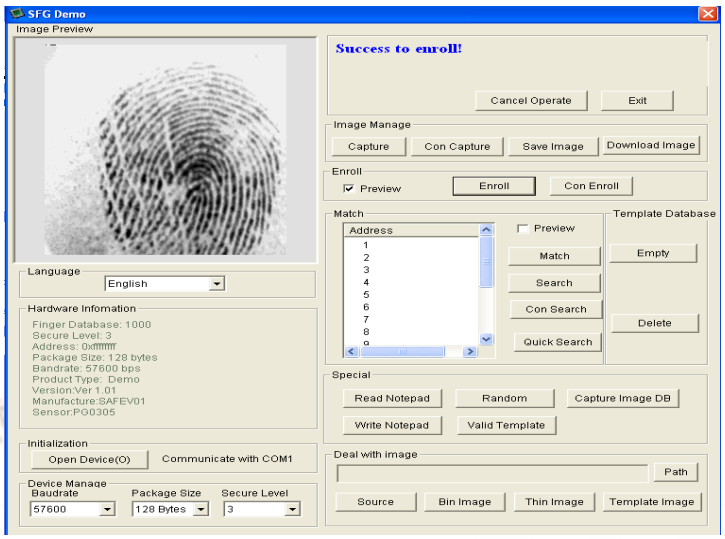

Fig.4. User Enrollment

2)identification of registered voter

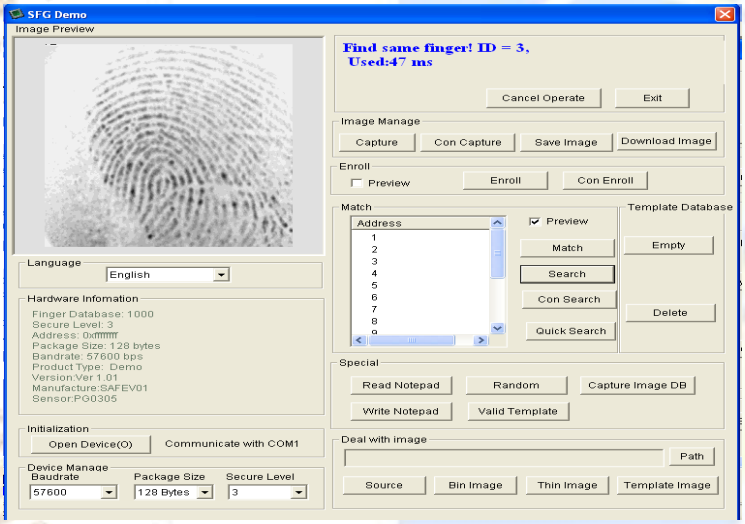

fig.5.Registration checkups before voting

VI. MERITS AND DEMERITS

MERITS

• Unlike existing technologies, this system only enables validated voting because each voter is uniquely identified by their fingerprint.

• Minimal use of electricity

• It is affordable

•Takes less time to vote and count because there is less work to be done.

It has the following benefits:

• Prevents invalid voting by keeping unregistered voters from casting ballots;

• Is portable due to its small size;

• Is simple for voters to use.

DEMERITS

- Character combinations can occasionally fail due to the finger print module's sensitivity.
  • Before casting a ballot, a user must register.

VII.APPLICATIONS

To prevent election tampering, this device can be used as a voting machine in the voting booths. Fast lane voting, which enables immediate results in small-scale elections for "panchayat" levels, various levels of society, and resident welfare associations as well as for opinion polling during annual shareholder meetings. Since there are now fewer than or equal to eight candidates, it may also be used to hold general assembly elections on a smaller scale.

CONCLUSION

The "Fingerprint Based Voting Machine" project's main objective was to develop a cutting-edge Electronic Voting Machine (EVM) that uses fingerprints to conduct free and fair elections, which are crucial to democracies like India.

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