Fingerprint Based Voting System

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Abstract-**The fingerprint based voting system is new revolutionary idea in traditional voting system. In this system, all drawback of previous system are recovered.it is more reliable, efficient than previous EVM machines and provides fair output to user.it manages all activities regarding voting from voter verification till saving votes.**

This system consist of web application which verifies valid user by scanning its details using QR code and saves Vote of valid user by its fingerprint. The whole system has GUI hence it is quite user friendly, easy to understand and efficient. In this first part of project we introduce web application of overall system.

***Keywords*:** Biometrics; QR Code; Illegal Voters; Primary Fingerprint;

I. INTRODUCTION

Biometrics is the science and technology of measuring and analyzing biological data. In information technology, biometrics refers to Technologies that measure and analyze humabody characteristics, such as DNA, fingerprints, eye retinas and irises, voice patterns, facial patterns and hand measurements, for authentication purposes.

In this project we have used thumb impression for the purpose of voter identification or authentication. As the thumb impression of every individual is unique, it helps in maximizing the accuracy. A database is created containing the thumb impressions of all the voters in the constituency. Illegal votes and repetition of votes is checked for in this system.

One of the major factors to be taken care of in a voting process is authentication and authorization of voters. Many conditions need to be checked to ensure these factors. Condition include:

1.Check authenticity of voter.

2. Authorize legitimate voters to vote.

3. Avoid double vote casting by any individual.

Checking above all these conditions is very complicated and exhausting task with many chances of human error. To avoid this we propose a 'Fingerprint Based Voting System' project. The system has list of eligible voters in it, the voting system tallies the recognized finger print against the ones stored in database. If match is found that person is allowed to vote. Once a vote is casted by that person his/her id is rolled out for that voting process. This avoids double vote casting. Thus our system provides for a fully

automated voting system with finger print based authentication.

This project will also include one of the method of image processing which will verify valid user i.e. QR code reorganization. Using this method initially voter will be identified by the system itself. As the voting process initialize, the system will verify whether the user is legal or not. If the user is illegal then the system will not process further, and if the user is valid then the further steps of voting process will start. The parameters for legal and illegal voters are on the basis of age, documentation proofs and fingerprint value which should be initially null. This system will allow each voter to vote only ones on the particular day of voting. Hence false voting and false voters are completely eliminated.

While registering, the system will generate unique ID for each individual user which will be used in overall voting process. Voter identification is required during two phases of the electoral process: first for voter registration in order to establish the right to vote and afterwards, at voting time, to allow a citizen to exercise their right to vote by verifying if the person satisfies all the requirements needed to vote (authentication).

Nearly everyone in the world is born with a fingerprint that is unique; a separate and comprehensively identifying attribute that sets us apart from the other 6.5 billon people that inhabit this world. It is because of this fact that the fingerprint has proven such a useful part of biometric security.

The very reason that fingerprint scanners are useful can be found in this fact as well. However, this is far from the only reason they are used.Another important reason fingerprint scanners are used is, they provide a quick, easy, efficient, and secure measure through which, an individual with the proper access privileges can authenticate. The fingerprint of an employee for example, is stored in a database that the scanner queries every time it is used.

II. LITERATURE REVIEW

This chapter concerns about the overall studies we have made related to our project. It also gives the overview of previous projects related to voting system. it also states the history of voting system and methods to do it.

2.1 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 [6].

A biometric system is essentially a pattern recognition system that operates by acquiring biometric data from an individual,

extracting a feature set from the acquired data, and comparing this feature set against the template set in the database. Depending on the application context, a biometric system may operate either in verification mode or identification mode. In addition, different from the manual approach for fingerprint recognition by experts, the fingerprint recognition here is referred as AFRS (Automatic Fingerprint Recognition System), which is program-based [1].

Independent experts are agreed that Indian EVMs meet none of the above criteria. And the concerns on these grounds are by no means theoretical or academic. There have been complaints galore at the ground level by ordinary voters, political parties across the spectrum, and candidates contending that they have been unfairly denied their share of the vote. The complaints, requests for information under Right to Information (RTI) Act, election petitions and legal challenges filed in various High Courts and the Supreme Court have all been systematically

Stonewalled by the Election Commission of India (ECI) which maintains the ludicrous refrain that Indian EVMs are unique and 'tamper-proof'. [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 [8]. 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.

2.2 Evaluation of Voting Equipment

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

1. **Paper-based voting:**

The voter gets a blank ballot and use a pen or a marker to indicate he want to vote for which candidate. Hand counted ballots is a time and labor consuming process, but it is easy to manufacture paper ballots and the ballots can be retained for verifying, this type is still the most common way to vote [2].

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; touch screen, 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:**

The voter uses metallic hole-punch to punch a hole on the blank ballot. It can count votes. Automatically, but if the voter's perforation is incomplete, the result is probably determined wrongfully.

5. **Optical voting machine:**

After each voter fills a circle corresponding to their favorite candidate on the blank ballot, this machine selects the darkest mark on each ballot for the vote then computes the total result. This kind of machine counts up ballots rapidly. However, if the voter fills over the circle, it will lead to the error result of optical scan.

III. METHODOLOGY

It consist of two stages.

4.1 voter enrollment

4.2 vote casting

4.1. Voter Enrolment:

The description of above flow chart is as follow

- Start: In this flow chart start indicates the user is initializing the registration page of web application.
- User Registration: In this parameter, user is enrolling his/her basic details along with finger print for voting purpose which will be saved in the database.
- Registration Confirmation: After fill the registration details, in the background system will check whether the registering user is valid voter or not.

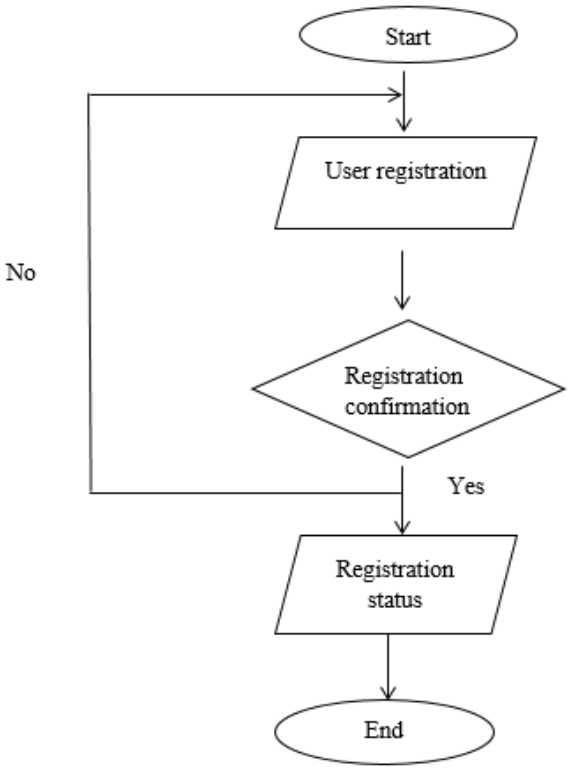

Figure 4-1: Voter Enrolment.

- Registration Status: It will display the registration status whether the registration is succeeded or not. If not, then it will show the error message.
- End: After registration the page will be redirected to home page.

4.2. Vote Casting

- Start: In this flow chart, start indicates the voter is initializing the voting page of web application.

- Fingerprint Scanning & Matching: In this phase the system will ask for thumb print. After scanning, the system starts the matching process of current thumb print with the previous fingerprint from database.
- Vote Status: If the scanned thumb print is successful then it will go to next phase or it will go to display error message. Show confirmation: It will show the positive response is saved in database.
- Display error message: It will display the voting status whether the voting is succeeded or not. And if not, then it will show the error message.
- End: After voting the page will be redirected to home page.

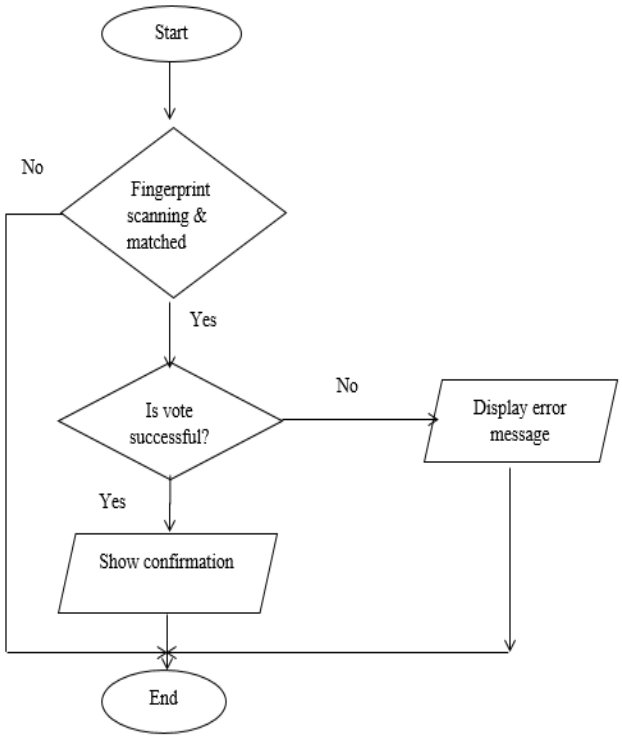

Figure 4-2: Fingerprint Scanning and Detection Process

IV. FUTURE SCOPE

Till date we had created registration page of our project also we had written basic code for fingerprint scanning and matching. If we scan our thumb print with current system then it will show the name of person to whom it belongs. Now we will manipulate this code according to database and image processing i.e. QR code.

In next few months we will work on image processing i.e. QR code reorganization and fingerprint scanning and matching. Also we will create link for voting which will execute overall voting process along with user authentication and actual voting process. We will also establish the connection between database and overall voting process.

We have been also suggested and will work on the face detection and iris recognition, which will be helpful in the time of voting to eliminate the false voter or any forceful voting done by any voter. We will run this overall project on local host. At last we will work on CSS and removal of error.After removal of error final testing of project will start.

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