Online Voting System Using Fingerprint Authentication

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Abstract—Online voting system is very necessary for proper functioning of our Indian society. The various traditional ways of conducting voting during elections in India are now outdated and time consuming. So, we present an online voting system which makes use of Raspberry Pi (model 3 B+) which has way too better reliability and transparency over our current voting systems. Use of biological traits such as biometric would help elections be fair enough and free from rigging.

Keywords*—Fingerprint sensor R305 module; Raspberry Pi 3 B+; Online Voting System; biometrics.*

I. INTRODUCTION

The present voting system is very time consuming and non-reliable due to long queue at the booth, need for transportation, and specific polling locations.

Online voting system is the solution to cast the vote from anywhere in the country, since it is compulsory for the voter to be present at his/her city for vote casting.

This system will employ fingerprint as biometric for authenticating the voter. Also, this system will web cast the whole voting process simultaneously as the casting of votes is done from time to time. Thus minimum use of the personnel and transparency are the major aspects of the system.

It will also facilitate live counting or streaming of votes and thus save a huge time.

II. PROBLEMS OF EXISTING VOTING SYSTEMS

a) People don't vote as they away from their hometown on the day of Elections.

b) Many youngsters between age group 18-25 are studying in college. If their college is away from their home, then they won't spend thousands of rupees and 2-3 days of travel to cast a single vote.

c) Similarly, people in the age group 25-50 are working in different places like Pune, Chennai, Mumbai, Delhi, etc from where they are not able to come home on various important occasions and so we cannot expect them to cast a vote.

d) The most commonly known problem Illegal voting, is faced in every election process. One candidate casts the votes of the other members in the list illegally and it results in the losing of votes for the other candidates participating.

III. EASE OF USE

A. Accessibility

The voters can cast their votes from anywhere in the country by locating the nearest polling booth.

B. Eco-Friendly System

Online voting system reduces the paper usage that is associated in any election.

C. Empowerment

Online voting system will majorly enhance the polling percentage as the voter can cast the vote easily from any place.

D. Integrity

The system will by all means will assure the privacy of all votes and also correct counting of votes.

IV. HARDWARE DESIGN

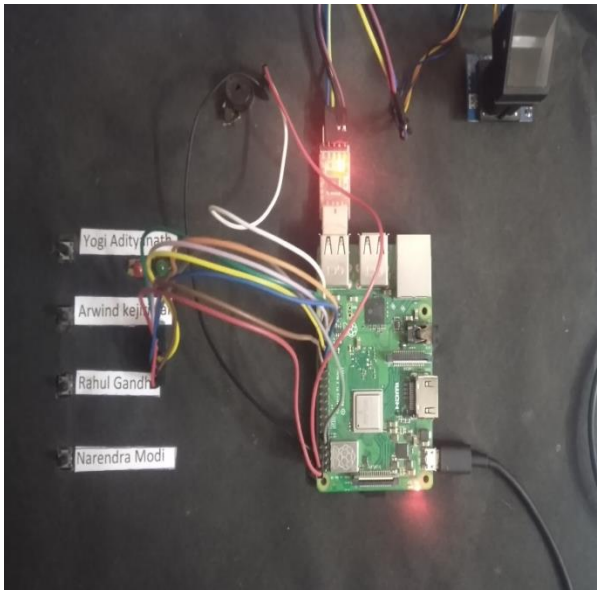

FIG 1: HARDWARE OF SYSTEM.

V. STEPS FOLLOWED DURING BIOMETRIC AUTHENTICATION

Step 1: The process of Enrollment is done prior to any other process. Biometrics such a fingerprint doesn't have any problems like being stolen, copied or misplaced.

Step 2: The fingerprint sensor R305 module will then sense, scan and identify as well as verify the biometric features and patterns of the voter.

Step 3: Once the verification and identification of the biometric traits is completed, the extracted features will be stored in the database respectively.

Step 4: During the time of voting, the voter has to first verify his/her biometrics by pressing and scanning the fingerprint.

Step 5: The scanned fingerprint will be then matched with the template already stored in the database and display the information of the verified voter.

Step 6: The voter will be allowed to cast the vote if the fingerprint is matched, otherwise access to vote won't be granted to the voter.

Step 7: Also, if the voter has already casted the vote and scans the fingerprint post the voting, access will be denied to the voter and would not be able to vote again.

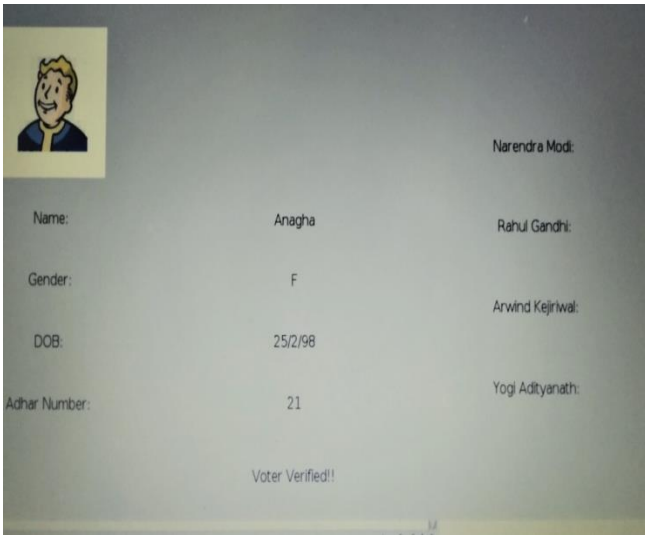

FIG 2: VOTER VERIFIED

As in the above Fig 2, once the voter scans his/her fingerprint and the same is already in the database, then the various credentials of the voter stored in the database such as name, age, date of birth, etc will be displayed on the screen.

If the fingerprint doesn't match, the voter will not be allowed to cast the vote.

VI. ADVANTAGES

a) The system is more reliable and easy to operate.

b) There is immediate storage of information and large amount of information can be stored.

c) Time consumed is less and workload is reduced.

d) We can easily keep the track of voters.

e) Vote can be casted only by authentication of voter.

f) The maintenance cost of this system is less as compared to the existing systems.

VII. CONCLUSION

Our Project is not only an innovative way but also a secure process of voting. The citizen's trust in democracy is protected here by fair counting of votes. The biometrics authentication voting system is designed with a vision to improve reliability, efficiency and transparency in election process.

We aimed at making this project in such a way so as to maximize the polling percentage and thought of designing this system so that any voter can utilize his/her vote from any place in the country.

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