NEXT GENERATION E-VOTING SYSTEM FOR ELDERLY AND BLIND USERS

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INTRODUCTION:

Traditional Voting Process

Traditional voting process can be divided into different phases:

Authentication: In this phase, voter authenticates himself or herself by showing his or her voting card, this step is public and verified by the presiding officer. At the end of authentication process, presiding officer give a ballot paper to voter to cast his or her vote.

Vote: The vote takes place in a protected booth where voter cannot be seen by any person. The voter cast their vote by writing it with a pen on the paper ballot, folds the ballot paper and put into the ballot box where all the votes are mixed.

Vote counting: At the end of voting time, the presiding officer collect the ballot box containing all ballot papers and submit it to the counting centre. After that with the help of members of the election committee nominated by election commission of India, the ballot boxes are opened and votes are counted and the results are then announced.

Verification: Various types of verification process are used, most procedure are public and verified by the representative of candidates of competing parties. Recount is also possible if there is any fraud or error.

Conventional voting systems are not efficient due to long period of preparation, bogus voting, include papers, punch cards, mechanical levers, optical-scan machines [1]. These systems are not efficient as they are conducted manually and therefore very often are not accurate. As a consequence, it is obligatory to carry the available voting through an electronic instrument.

OBJECTIVES:

This objective is to design a low cost, low power next generation EVM that has mp3 quality voice feedback for visually impaired people. To solve a major concern of bogus voting we introduce two levels of security using RFID and fingerprint scanning mechanisms.

Another objective is to save manpower required for polling officers as very little administration is required in this next generation voting machine.
METHODOLOGIES:

BLOCK DIAGRAM

![Block Diagram](image)

Fig1: Block Diagram

WORKING PRINCIPLE

CASE 1: Voter RFID and Fingerprint is valid
1. The RFID reads the voter’s smart card and sends the voter details like his fingerprint sample to the microcontroller.
2. If the details of the voter are present in the registry then using the audio output the voter is then asked to enter his fingerprint to the FINGERPRINT SCANNER. The fingerprint scanner then sends the collected sample to the microcontroller.
3. The microcontroller then compares the collected sample with the fingerprint sample stored in the fingerprint module.
4. When both the details on the RFID and collected fingerprint sample match, then only the voter is allowed to go to the next step to cast his vote.
5. The voter then uses the keypad, pressing one key at a time, to listen to the political party name and the candidate name.
6. The voter then presses the “ENTER KEY” on hearing the name of his desired candidate.
7. As soon as the vote is casted, a flag is set on the voter’s name barring him from voting again in the current election process.

CASE 2: Voter RFID is valid and Fingerprint is not valid
1. The RFID reads the voter’s smart card and sends the voter details like his fingerprint sample to the microcontroller.
2. If the details of the voter are present in the registry then using the audio output the voter is then asked to enter his fingerprint to the FINGERPRINT SCANNER. The fingerprint scanner then sends the collected sample to the microcontroller.
3. Fingerprint matching is failed as voters fingerprint is not valid. LCD displays “invalid voter”

CASE 3: Voter RFID is not valid
1. The RFID reads the voter’s smart card and sends the voter details like his fingerprint sample to the microcontroller.
2. If the details of the voter are not present in the registry. LCD displays “invalid id”
CASE 4: Voter has already voted

1. The RFID reads the voter’s smart card and sends the voter details like his fingerprint sample to the microcontroller.

2. If the details of the voter are present in the registry then using the audio output the voter is then asked to enter his fingerprint to the FINGERPRINT SCANNER. The fingerprint scanner then sends the collected sample to the microcontroller.

3. The microcontroller then compares the collected sample with the fingerprint sample stored in the fingerprint module. When both the details on the RFID and collected fingerprint sample match.

4. Then the flag condition is checked and if he has voted already then LCD displays “already voted”

RESULTS AND CONCLUSION:

The respective voter is allowed to place the RFID tag near the RFID reader if it is the authorised Tag (Interpret as a voter ID) then he is allowed to give the fingerprint. The fingerprint scanner will verify the voter and if he/she is the authorised person then the voter is allowed to cast the vote inside the voting compartment else he/she will be denied from casting the vote.

After the voter verification process the authorised voter will cast the vote in the Electronic Voting Machine (EVM). The party symbol and the candidate name will be displayed on the EVM and respectively push buttons are provided to select the party. As soon as the corresponding party is selected then the party name and the candidate name can be heard only by the voter who is currently casting the vote through voice feedback system provided along with the EVM. After confirming the selection the voter can cast the vote by pressing the enter key provided in the EVM. This system is very useful for blind people and also for elderly people whose visibility is poor. These people can randomly press the push buttons provided in the EVM and each time they get the voice feedback, once the selection is confirmed then they can cast the vote by pressing the enter key provided in the EVM. The enter key will be designed and located in such a way that the blind people can press it.

CONCLUSION:

In order to overcome the challenges faced by the manual voting system this project will contribute much by using RFID and fingerprint scanning system for the voter identity verification process. Their by reducing the man power, increasing the accuracy, speed and security in the process. Along with this voice feedback system will assist the voter for casting his/her vote for the selected candidate. Especially for blind people or elderly people with poor visibility this voice feedback system is helpful by keeping their casted vote confidential.

FUTURE SCOPE:

If the database of voters is maintained systematically and the interconnection between the polling stations is established then proxy voting can be avoided anywhere in the country. With this the election process will be free and fair.