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EIGENFACE ALGORITHM BASED ELECTRONIC VOTING MACHINE

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Abstract--*In the process of electing a leader , the earlier system used is ballot box which shows false data analysis and recently electronic voting machines are being used. In using these evm's the unique id (UID)and voter id (EID)is enough to cast the vote. But, these process leads to enhancing in fake results where the voters can vote for the multiple times and chances of getting tampered. Recently so many issues and queries has raised about the falseness of the voting system. Inorder to avoid these demerits a new voting methodology where atfirst the unique id is verified then election id is checked and then face recognition is performed by using eigen faces algorithm based on database given by election commission. This method gives precise results by preventing multiple voting and authorized voters can be allowed to cast the vote.*

Keywords--*evm,face recognition,election,eigen faces.*

I INTRODUCTION

To select the leader in a democratic country people can elect on their own by voting process. Earlierly so many methods has introduced to select the leader , in that ballot boxes are the mainly used method and then electronic voting machines are introduced with a rise in technology .

In order to unsufficient results performed by methods like ballot box where some illegal issues can take place easily for its unsecure process by adding votes for the fake results. All the election commission members have surveyed and designed the new process to take up the elections in a legal manner . Recently in many areas election commission has failed to conduct fair elections due to its demerits in system for polling extra votes. In some areas where the security is less like small villages it is very easy to poll multiple votes by a same person which leads to unfair results .To remove these barriers the election commission has implemented a new system that is electronic voting machine . The evm's are better than the ballot box system in which the unique identification is checked and moved to the second level verification , in this the election commission has given election id to the candidates individually that has been verified and then the candidate will be allowed to cast the vote. When compared to the ballot box system it has been given better results. But this method also fails to get accurate results in many areas , even now also the election commission is using the same technique to conduct the elections in india where fake results are also been performed by evm's .

This paper implements a system by adding face recognition to the current voting machine where like general technique first the unique identification will be verified and coming to next step election identification will be verified an then face recognition is performed by technique eigen faces algorithm where features of the face will

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be extracted and compared to the database given by election commission they can allow the person to vote. If the face has not detected then the person cannot be allowed to vote. Face values extracted crosschecked by data given by government where they have database about the candidates can be easily verified. By using this method we can restrict the same person to not to vote for many times because if the face has recognized then they cannot have access to vote. Only if the data has matched then only system can allow to vote. This method can give much better results when compared to any other technique. The members in the booth are to verified the candidate in the list, this we can remove time enhancing process with this method where it can directly matches and allows so no need to check again. If any tries to steal or break the machine then the security system can be initiated to the election commission. So we can perform secure method to conduct elections.

II RELATED WORK

Sanjay Saini et al.[1],In this paper they have introduced a secure online voting process to avoid spy listen to people around them. The candidates can vote in public environment securely by using methods of zero knowledge proof protocol and homomorphic addition to provide a environment of secure system to servers for candidates to cast the respective vote. This process helps in creating barriers like not to allowing a person to vote multiple times and cannot cast some one's vote secretly , the respected persons can check his/her vote casted for the persons they want to vote, they can check their vote afterwards to whom they have voted . This system avoids servers not to get manipulated and perform voting process accurately and systematically.

Gokselgunluet al.[2],In this paper they have implemented a face recognition technique using cmos camera and DM6437 digital video development system. This face recognition system consists of many sub regions , after the face get scanned in video it has been changed to many sub regions according to fixed size images by using DSP VPFE resizer. The features are extracted by using DCT process to every sub blocks that captured and variable size information has stored using captured data . Thus the faces are identified using video output that displayed on screen .they created a low cost face recognition system through DM6437 video system.

M G Gurubasavannaet al.[3],In recent years the voting process has changed from mechanical process or ballot box technique to electronic voting machine through advanced technology . By using this evm's the hardware is getting malfunctioned or process having illegal effects like rigging. In order to implement secure system and to make ease process to vote from any constituency where the candidate belongs to another constituency from authorized voting centers. To make this process more efficient the finger print and iris recognition has included. This can perform anti rigging process where the particular candidate can only cast their vote. This avoids the illegal activities in voting process and perform good result.

Syed Mahmud Hasan et al.[4],In this paper they stated that in now adays, the electronic voting machines are getting tampered which leads to loss of people's faith towards voting system. The evm'sdonot have sufficient security which made lots of issues in recent years . This process provide tamper resistant system which includes multimodal verification through finger print and near field verification smart card entry to cast the vote . In this process candidate should press the button where it leads to visual conformation and final vote sends to pos printer

which leads to ballot box. This system can perform resistance of repeated voting by same person and can show proof which printed on the slip if the person claimed that he/she not voted.

N.N.Nagamma et al.[5],In this paper they stated in our country earlier voting process ballot box system is driven into wrong results . To improve the voting system with technology, electronic voting machines with vnc server based raspberry pi 3 voting machine is introduced. Inorder to make secure and efficient voting process with aadhar card and fingerprint database can be used. The candidate can check whether they had voted for their party or not using through their personal id individually where data is send to servers through iot.

RahilRezwanet al.[6]In this paper they explained that in a democratic country the voting process is used to elect their leader with ballet box system . nowadays the ballot boxes system are became unsecure due to fake results. In the updating era of technology the arduino and finger print scanner is used to vote, by using this process prevention of fake votes can be done. This system perfoms accurate results in voting process by accessing a person not to vote multiple times.

III PROPOSED APPROACH

In the time of elections the electronic voting machines are getting in to the hands of intruders to make changes in results . This situation occurring in many polling booths and tries to make any hardware changes. Generally this occurs with machines that are using now, by implementing face recognition with voting machine we can overcome the barriers that they cannot hack or break the machines and cannot do any malpractice. The face recognition based electronic voting machine system consists of microcontroller connected to pc with camera and these are connected to voting interface along with rfid reader. The working principle of the proposed system is the candidate unique id is verified and smart card contains number is verified by rfid reader and checks with the rfid stored data which is given by election commission and then third step face recognition performed using eigen faces algorithm which uses appearance based approach. It performs variations in image collection of face and the formed smaller images are formed in to a original face image, that extracted image and the image in database is verified, if the candidate is valid then it allows to cast the vote and the voter face is not recognized then it will not allow the person to vote. It reduces the fake votes and after polling completes any intruder tries to break the box to do any malpractice then mems will intimate to the election commission immediately. This helps in not to do any irrespective practices to change the results and helps to implement the fare elections.

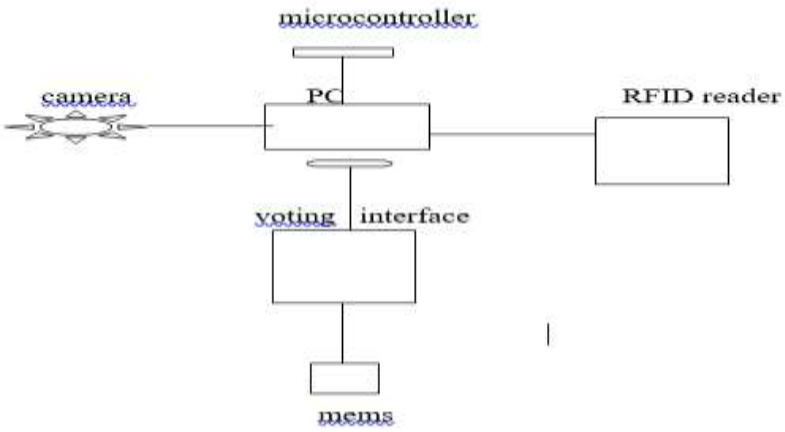

Figure 1: Proposed system of the system

IV CONCLUSION

Every major in our country have right to vote and can select leader on their own. In the process of electing, voting methodology plays a prominent role in conducting fare elections. By using old methodologies we cannot give accurate results so this paper implements face recognition technique to avoid the barriers. This works as if the face recognized verified with the data base then it allows to cast the vote or if face is not recognized then it wont allow to vote with doing this,fake voters can be restricted and much better results can be performed when compared to any other technique. This face recognition module works easily and can give accurate performance.

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