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Android Based Voting System Implementation Using Facial Recognition Approach

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ABSTRACT: The android voting system is an android framework that gives provides a way of casting votes utilizing cell phones. This application can be utilized by government and other organizations to get general assessments at whatever point any new approach is executed or any issue is being researched or amid discussions. The venture gives a successful arrangement in settling every one of the contentions that happens in associations by considering all workers conclusions. The framework has an administrator login that has general control over it. Administrator feeds the issues in the framework alongside fancied choices. These inquiries can then be obvious to every one of the representatives through android devices. Representatives/voters need to make a record into the framework for submitting their votes. Toward the end of the voting procedure, the framework calculates the numbers of votes and creates a brief report of the aggregate votes. In the end, the report is made accessible to administrator and he/she may see the most extreme votes threw for. Henceforth the framework helps administrator to get suitable reaction from voters.

KEYWORDS: Image processing, Face detection, Feature extraction, Face Recognition, MCS (Microsoft Cognitive Services).

I. INTRODUCTION

The existing voting systems are running manually. The voter has to visit to booths to vote a candidate so there is wastage of time. The voter has to manually register into the voter list. Also vote counting has to be done manually. There are electronic voting machines which have certain drawbacks as chances of damage to machineries during violence, dummy votes etc. The proposed Android based voting systems enable voters to cast votes anytime at the comfort of their homes or offices. The main objective is to promote maximal participation in voting process via Android Mobile based Voting System through Facial Recognition. The implementation of Facial Recognition in our system provides a secure method for voting. In the proposed system we are going to use Microsoft Cognitive Services for Facial Recognition. It is an efficient service for face matching which provides a match percentage for the images. The match percent threshold for our system is seventy percent. If the match percent returned by MCS is below the threshold it is considered as a negative match that is the face of the voter/user didn't match with the image of the user in database, thus stopping him/her from casting vote. But if the match percent is seventy percent or above the user is allowed to cast vote

II. RELATED WORK

In research paper published in October 2011, polling system using GSM facility was proposed by HemalataSahu and AnupamChoudhari. This system utilizes the GSM technology for voting. A user is provided with unique mobile id to verify their identity. Then the voter sends a GSM message to the modem with his or her voter id and the candidate id. It was an innovative idea but had drawback that if some other person had acknowledgment and access to voter's id he or she can vote instead of the actual one. In May 2013, Gomathi B, Veena Priyadarshini proposed a secure method of casting votes in which users biometric characters such as finger prints were used to identify the user. Other two security measures namely: Magnetic coated strips scan, password scan were also used. But the major drawback of this system was its complexity and cost of implementation. Meanwhile Feng Li Lian, Yi Chum Lin Chin, Ting Kuo and Jong Hann proposed a few algorithm for transforming real time video data transmission under limited network bandwidth, but the



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image quality was not compromised. Later in Nov.2013, Trisha Patel, Maitri Chokshi, Nikhil shah proposed an election voting system which used facial recognition. This system uses live image of a person to verify the identity and for additional security measures, voters Adhar card details are also used for verification. The voting details and other credentials are sent to database in an encrypted manner. In May 2015, a more advance version of e-voting system for android based smart phones was proposed. It uses two security measures namely facial recognition and OTP. The techniques used for facial recognition is Eigenfaces which is very simple efficient technique for facial Recognition.

III. PROPOSED ALGORITHM

The system is designed for Android based smart phones. The user is required to Login to the system. After that the voter is asked to capture a live picture. While capturing the picture the user is asked to blink to verify that the image captured is of a person, and not from some photograph. The image is then sent to the MCS for facial recognition. If the image matches the user is verified and allowed to vote. Otherwise he/she will have to capture a new image or exit. The user is then redirected to the voting page and can cast vote. A confirmation dialog box appears on the screen. Once confirmed the vote is sent to the server and saved in the database. The proposed system has various modules mentioned as follows:

- 1) Registration Module: The users can create their account using credentials like name, Aadhar card number, email, mobile number, ward ID. If the user is already present in database an error message will appear on the screen saying user already exists and the user will be asked to login directly.
- 2) User Login Module: The user can login using his Aadhar number and password to login for voting. The password is an OTP sent on the user's mobile number or e-mail provided at the time of account creation.
- 3) Face Recognition Module: The user has to capture a live picture and this picture is then matched with the images of the user already present in the server database. For assuring the picture is captured live the user is asked to blink.
- 4) Candidate List Module: After a positive face matching the user is directed to the voting page, where the candidates to vote for, are listed. The user can then cast vote for the desired candidate by tapping the button in front of the candidate's name. A confirmation message appears in front of the user before sending the vote to server.
- 5) Update Vote Module: Once the user has casted his/her vote the vote column against his/her name in the database is set to 1. After that user is unable to vote again, thus eliminating the chances of multiple voting by a single user.

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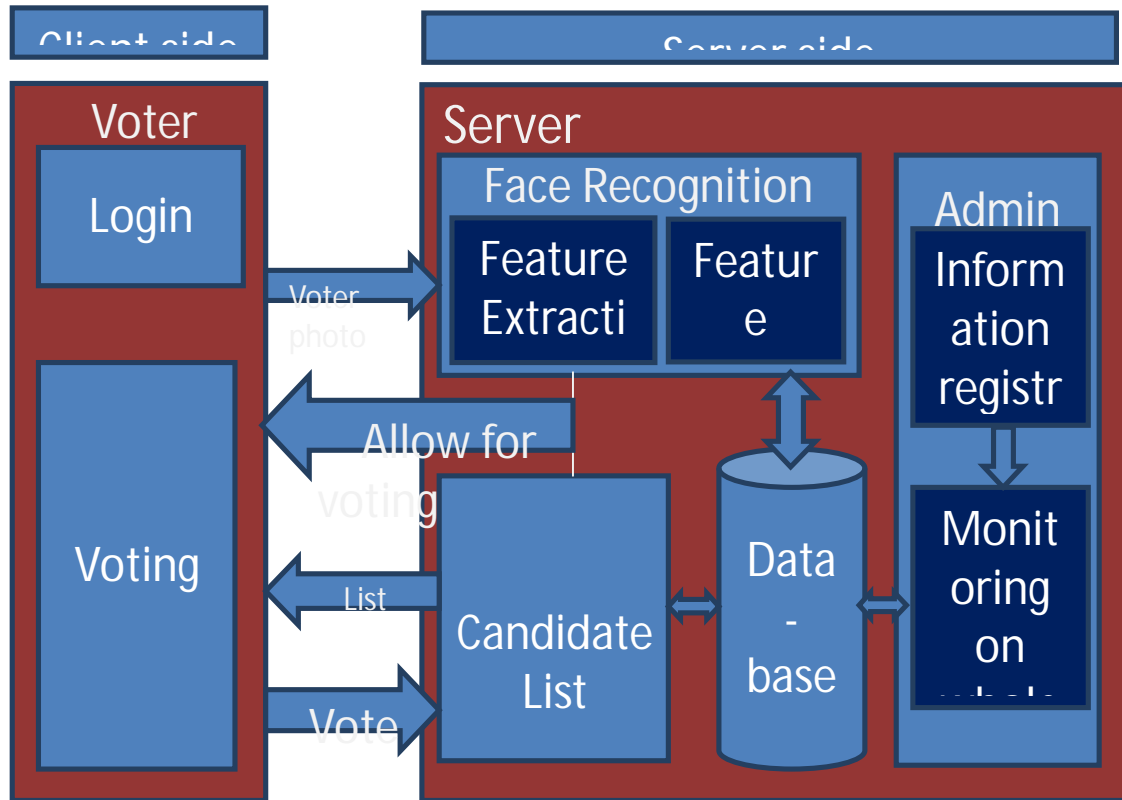


Figure: System Architecture Diagram

IV. CONCLUSION AND FUTURE WORK

We analyzed the problems in current voting systems and suggested improving them for Android smartphones. By making the voting process virtual we improved the voter's convenience and voting systems efficiency. Android is being widely used now-a-days, so participation in voting might gradually increase. Also the use of Facial Recognition provides an efficient security measure against dummy voting and multiple voting. We are also developing a website for the proposed voting system, which focuses on enabling the non-android users, i.e. voters who are not using Android smart phones to cast vote.

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