

Online Voting System Using Face Detection Based On OTP

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Abstract— There are variety of voting scheme using Biometrics which are based on the traditional method. But because of the inconvenient traditional voting system there is tremendous decrease in number of voters. Hence online voting system is introduced to overcome the drawback of traditional voting system This system itself should be intelligent to earn the trust and confidence of the user by providing enhanced security and reliability. The security is an important factor in any voting system.

Keywords: Online Voting System, Face Detection, OTP

I. INTRODUCTION

The online voting system where a person can cast his vote from anywhere in the world by logging onto a website is being adopted by an increasing number of governments and companies. Online voting system has the facility to complete voting process faster than the Electronic Voting Machines (EVM). This system itself should be intelligent to earn the trust and confidence of the user by providing enhanced security and reliability. The security is an important factor in any voting system. Elections are the foundation of any democracy as the true spirit of democracy lies in people choosing their own government. But, the way elections are conducted right now in our country has defects and loopholes which are being used to advantage by contestants and political parties. The current system has a lot of loopholes like the possibility of duplicate votes, rigging EVMs, faking the count, all of which tamper the true meaning of democracy. Moreover, the election conducting body, Election commission of India (ECI) uses Electronic machines for conducting elections in most of the places which is quite time-consuming, energy-consuming and should be done at an assigned place which is not comfortable to all. The EVMs have to be checked, transported, monitored with more human power and is an expense.

II. LITERATURE SURVEY

A. Iris Detection in Voting System

In this paper, the author focuses on the Iris Detection of the voters. Voter's Iris is detected and once it matches, the system confirms the voter to be the eligible individual to vote by checking his/her Aadhar details. Once confirmed the voter will be allowed to cast the vote.[1] As the existing Aadhar database contains all the information about voter's Iris, fingerprints and other details like address, blood-group voter can be easily tracked and checked. This approach requires less manpower and highly secure.

B. Voting System using OTP

The author focuses on OTP data of the voters to recognize the authentic voters. Once the OTP is confirmed the information will be sent to the web application through the microcontroller's serial port. After matching the OTP is confirmed with the existing image in the database the server

sends the message and displays it on the LCD confirming the owner's identity. If not confirmed, it displays the same as not eligible through LCD.

C. Smart Voting

The proposed system in the paper has 3 security phases. Information of individuals above age 18 will be taken from the Aadhar database. In the first phase, the voters will be given an Id and password through the registered e-mail Id before the voting process. The second phase is validating the voter using otp data and once confirmed voter will be allowed to cast the vote. After casting, as a part of the third phase, the voter id will be deleted leaving no second chance to vote again. Aadhar details that were used by the voter will be locked to track the voter for further access. The count will be updated parallel.

D. Location-free Voting System with the help of IoT Technology

In the paper voting process is done through the smartphone using its OTP. The OTP number of the phone will be linked to an application in the Smartphone to validate the voter and voter will be allowed to vote only on the day of the scheduled process. The voter can vote from anywhere and will be allowed to vote only once.

E. Secure Reliable Face Recognition

The author focuses on the facial feature extraction using component-based face detector. Once all the features are extracted they are compressed to a single feature vector and it is fed to the recognizer. The whole process is implemented using MATLAB. The same is done with the OTP number. Every number of OTP is analyzed whereas for facial images the distance between the facial marks or features is analyzed. The analysis is called principal component analysis. This approach helps to build a better version of the existing system.

III. EXISTING SYSTEM

Currently, voting systems are Electronic Voting Machines (EVM) and Secret Ballot Voting which require man-power and are time-consuming processes. Individuals above age 18 are eligible to vote. Voter's Id and others details are validated manually and only after confirmation he/she will be allowed to vote. The EVMs have to be checked and transported to different parts of the country wherever the election is taking place. It also needs manual power and security. The counting of the votes casted in EVMs also needs manpower and takes an entire day and ballot voting is entirely manual. So, there are a lot of ways the counting and the voting to not be clean. Hence the current system can be made a lot better, more accessible and more efficient.

IV. PROPOSED SYSTEM

The designed and proposed smart voting system uses face recognition using image processing which is more secure than the already existing one. The main security level is where the system recognizes the face of the voter from the current database of face images given by the election commission. If the image captured matches the respective image of the voter in the database, then a voter can cast their vote in the election. Haar Cascade Algorithm is used to extract the facial features and to recognize the facial part of the image. Visual Studio and software like Python, HTML, and CSS were used to create the online platform and to implement the algorithm.

V. METHODOLOGY

This proposed concept is an entirely web-based system so the basic features related are web-based technologies such as database creation, image processing properties which determine the software requirement of the system. This application will be available online on authorized government sites, whenever or whichever day authorized. The voters will be able to cast their votes by use of this website. Eligible voters will be validated by facial recognition. The voter will open the website on the day of elections. The server will be run as to whenever the Election Commission authorizes. The voters can open the website with the link or the IP address provide. For example, the website we created has the IP address as <http://127.0.0.1:8000/>. Once you open the website and click on the vote button, the voter's face will be captured with the help of whatever device they are using the website from like a laptop, PC or their mobile camera. The captured image will then be received by the server. The server goes through all the images in the database and tries to find a match in the registered ones. If a matching face is found, the voter is registered and recognized by the election commission and hence is allowed to vote. If a match is not found, the page will say he or she is not recognized and would not be allowed to vote. The picture matched will be displayed along with their ID numbers and then be lead to the voting page where he or she can vote to any political party they prefer from the list of options displayed. Once they click on their preferred party, the choice cannot be changed and the rest of the options will be disabled as well. The server accepts the votes cast by the authenticated voters and stores them. The count of how many votes each political party's candidates will be stored as well. This way even the counting of votes is very easy and the commission or the candidates or the voters do not have to wait for days to know the results.

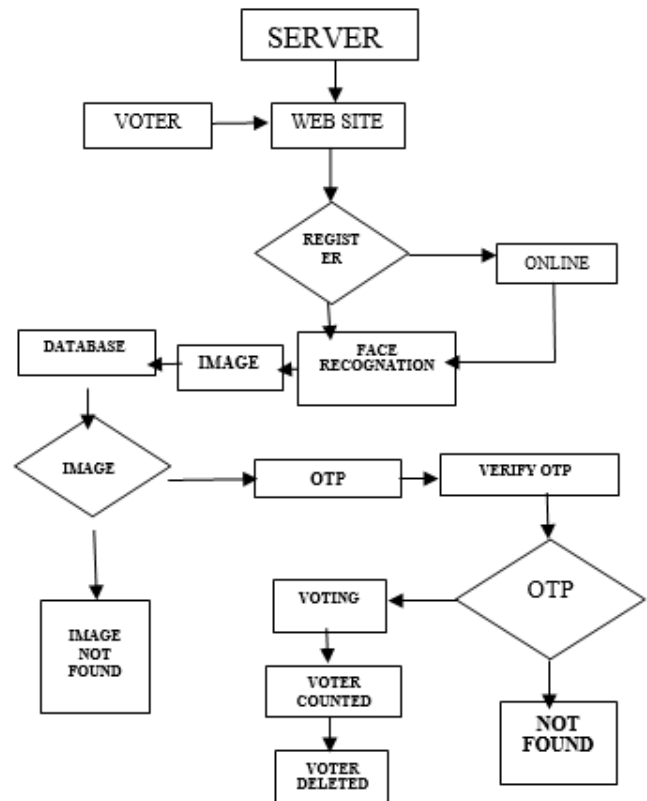


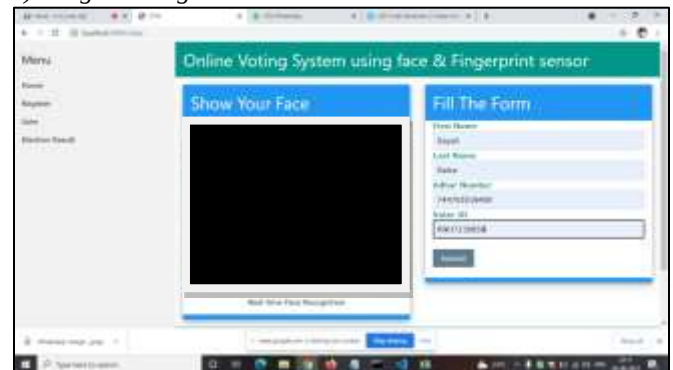
Fig. 1: Architecture Diagram

VI. RESULTS

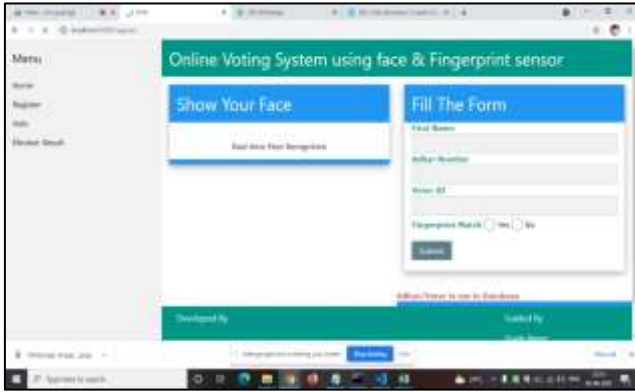
1) Home Page



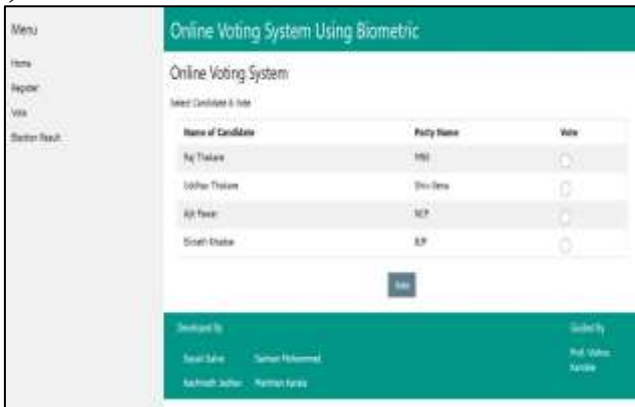
2) Register Page



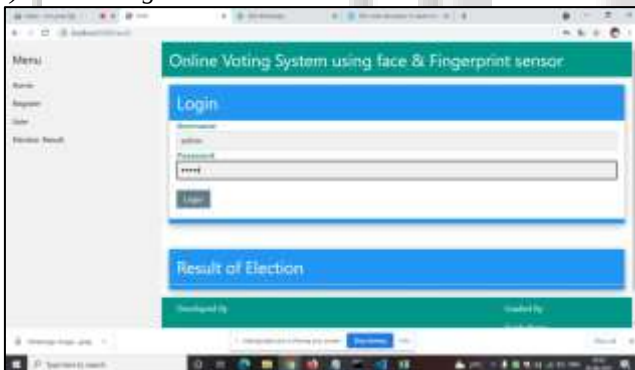
3) Vote Page



4) Candidate List



5) Admin Login



6) Election Result

Election Result		
votes		
	candiadate	votes
1	Uddhav Thakare	1
0	Raj Thakare	0
2	Ajit Pawar	0
3	Eknath Khadse	0

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VII. CONCLUSION

In total, this system overcomes most of the problems faced during the voting period by the paper ballot system and EVM. This will surely ensure a safer voting method which is very much what is required for a healthy growth of a developing nation. The proposed Fingerprint and Face Recognition based voting system which is better and faster than previous systems. The new system prevents access to illegal voters, provides ease of use, transparency and maintains integrity of the voting process

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