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Smart Voting Web Based Application Using Aadhar

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Abstract: ***Elections are a crucial part of any democratic system, and it is essential to ensure that the voting process is conducted in a fair and transparent manner. In traditional paper-based elections, the process is time-consuming, resource-intensive, and prone to errors. In this context, the use of technology can significantly improve the efficiency, security, and accuracy of the voting process. In this project, we propose an online voting system that uses face recognition technology to identify and authenticate voters. The proposed system allows voters to cast their votes remotely, eliminating the need for physical ballot boxes and reducing the cost and time involved in the voting process. The system works by capturing the facial image of the voter and passing it to the server unit for verification. The server compares the facial image with the information stored in the database and verifies the identity of the voter. If the identity is verified, the voter is allowed to cast the vote; otherwise, an error message is displayed on the screen, and the person is not allowed to poll the vote. The system is designed to be secure and tamper-proof. The use of face recognition technology makes it difficult for anyone to impersonate another person and cast a fraudulent vote. The system also ensures that each voter can cast only one vote, and the voting process is conducted in a transparent and fair manner. Overall, the proposed online voting system offers numerous advantages over traditional paper-based voting systems, including increased efficiency, reduced cost, improved security, and transparency***.
Keywords: Smart Voting System, Voter ID, OTP, Facial Recognition, Winning Party, Python

I. INTRODUCTION

Election involves both public or private vote which depends on the position. Local, state, and federal governments are some of the most important positions. In paper based on election, Voters cast their votes by simply depositing their ballots in sealed boxes distributed across the electoral circuits around a given country. After ending of election period the boxes which contains of ballot control unit are opened and votes are counted manually in presence of the certified officials appointed by election commision. So it is a time consuming process and also requires a lot of resources to conduct voting process. In this paper we have proposed online voting system to cast the vote using face recognition . The information about the Face is passed to the server unit for the further verification. Then the server checks for the data from the database and compares that data which already exists in database. If the data matches with the already stored information, the person is allowed to poll the vote. If not, a message is displayed on the screen and therefore the person is not allowed to poll the vote. As per the records of TOI 24 Jan, 2009 11 lakhs fake votes were observed in Delhi. Then according to India News June2013: 30000 illegal voters were found in election commission under Sheila Dikshit constituency. Another news which was alleged by LJP(LokJanshakti Party) Chief, Ram Vilas Paswan saying that Bihar election were having 30% fake voter- cards. Election involves both public or private vote which depends on the position. Local, state, and federal governments are some of the most important positions. In paper based on election, Voters cast their votes by simply depositing their ballots in sealed boxes distributed across the electoral circuits around a given country.

After ending of election period the boxes which contains of ballot control unit are opened and votes are counted manually in presence of the certified officials appointed by election commision. So it is a time consuming process and also requires a lot of resources to conduct voting process. In this paper we have proposed online voting system to cast the vote using face recognition. The information about the Face is passed to the server unit for the further verification. Then the server checks for the data from the database and compares that data which is already existing in database. If the data matches with the already stored information, the person is allowed to poll the vote. If not, a message isdisplayed on the screen and therefore the person is not allowed to poll the vote.

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For voting representatives are appointed by electorates. In current scenario voter needs to show his/her voter ID card to cast the vote on the booth. So this process is time consuming as the voter ID card needs to be get verified by the officials. Thus to speed up the voting process and avoid such type of problems, we have proposed the new system.

II. LITERATURE REVIEW

Vigorous technique for naturally coordinating highlights in pictures comparing to the equivalent physical point on an item observed from two discretionary perspectives. Unlike conventional stereo matching approaches coordinating methodologies, the presumption like no earlier information about the relative camera positions and directions. Actually in this application this is the data wish to decide from the picture feature matches. Highlights are distinguished in two or more pictures and portrayed utilizing affine texture invariants.

The fundamental test is the way to improve the recognition performance when influenced by the fluctuation of non-linear effects that incorporate illumination variances, poses, facial expressions, occlusions and so on. A robust 4-layer Convolutional Neural Network (CNN) engineering is proposed for the face acknowledgment issue, with an answer that is equipped for dealing with facial pictures that contain occlusions, poses, facial expressions. There are many face recognition algorithms, just a bunch of them meet the continuous limitations of a software based arrangement without utilizing any committed hardware engine. This paper presents a real-time and robust solution for mobile platforms [which in general have limited computation and memory resources as compared to PC platforms. This solution includes joining two previous real-time implementations for mobile platforms to address the shortcoming of each implementation. The main execution gives an on the web or on-the-fly light source adjustment for the second usage which is seen as robust to various face postures or orientations. Pattern classification approach by considering every pixel in a image as a coordinate in a high-dimensional space is discussed in [6]. Along with the upside of the perception that the images of a specific face, under fluctuating illumination but fixed pose, lie in a 3D linear subspace of the high dimensional image space—if the face is a Lambertian surface without shadowing. In any case, since faces are not genuinely Lambertian surfaces and in fact produce self-shadowing; images will go deviate from this linear subspace. As opposed to explicitly projecting this deviation, linearly project the image into a subspace in a way which limits those regions of the face with huge deviation. The yield of this application is the importance of the traffic sign with two languages, Indonesia and English. In the SURF strategy, the littlest huge number of key focuses will influence the accuracy level to perceive a picture. Face detection is the premises of all the face processing system, while in video the face detection issue has more special importance. By examining the face detection dependent on Adaboost algorithm, this paper presents a quick and good robust face detection method. Firstly, the motion region which contains faces is obtained based on motion detection, excluding the background interference. Secondly, Adaboost algorithm is used to detect the face in the motion region and locate the face. The experiments show that this method can rapidly and accurately detect human faces The face recognition and tracking and the advancement of the customer side of system uses Android cell phones. For the face recognition stage, Viola-Jones algorithm is used that isn't influenced by illuminations.

III. METHODOLOGY

Database connection: The first step is to establish a connection to the MySQL database using the pymysql library. The connection parameters are passed to the pymysql. connect() method, and the connection is used to execute SQL queries and commit changes to the database.

1) *Flask Application Initialization:* The Flask application is initialized with a secret key to ensure secure sessions. The app.before_first_request() decorator is used to define a function that initializes session variables to False and None.
2) *URL routes and HTTP Methods:* The app.route() decorator is used to define the URL routes and the HTTP request methods that are supported by the application. The '/' and '/home' routes return the home page of the application. The '/admin' route handles the login for the administrator account. The '/add_nominee' route handles the registration of a new nominee. The '/registration' route handles the registration of a new voter. The '/verify' route handles the verification of the voter's email address. Finally, the '/capture_images' route is responsible for capturing the images of the voter.

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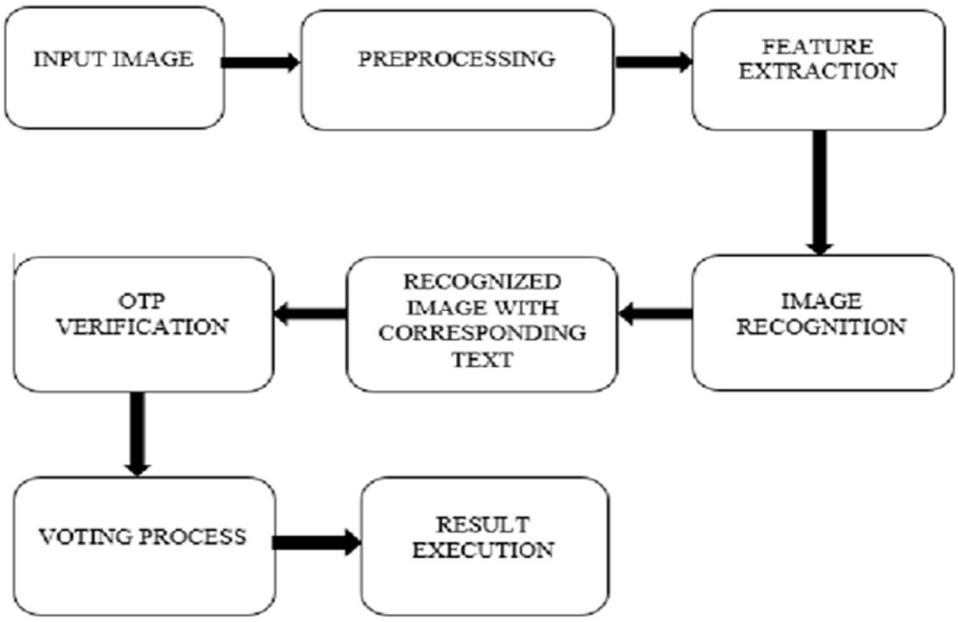
3) *Login Authentication:* The '/admin' route checks if the email and password entered by the user match the predefined credentials for the admin account. If the login is successful, the session variables 'IsAdmin' and 'User' are updated, and a flash message is displayed on the admin page.
4) *Nominee Registration:* The '/add_nominee' route checks if the nominee already exists in the database by executing a SELECT query and comparing the data entered with the existing records. If the nominee does not exist, it inserts the data into the database using an INSERT query and displays a flash message indicating successful registration.
5) *Voter Registration:* The '/registration' route checks if the voter is eligible to vote by verifying their age. If the age is above 18, it checks if the voter is already registered by executing a SELECT query and comparing the data entered with the existing records. If the voter is not already registered, it inserts the data into the database using an INSERT query and redirects the user to the verification page.
6) *Email Verification:* The '/verify' route sends an OTP to the voter's email address using the SMTP protocol and waits for the OTP to be entered by the user. If the OTP entered by the user matches the OTP generated by the server, the voter's email address is verified, and the voter's status in the database is updated to 'yes' using an UPDATE query.
7) *Image Capture:* The '/capture_images' route is responsible for capturing the images of the voter before allowing them to cast their vote. However, the implementation of this route is not shown in the code snippet provided.

Using face matching with Local Binary Patterns Histograms (LBPH) for voting involves using facial recognition technology to verify the identity of a voter before allowing them to cast their vote.

IV. ARCHITECTURE DIAGRAM



V. CONCLUSION

In conclusion, an online voting system that utilizes face recognition technology can offer a more efficient and secure method of casting votes. This system eliminates the need for paper ballots and manual counting, which can be time-consuming and costly. Instead, the system uses facial recognition to verify the identity of voters and prevent fraudulent activities. However, it is important to note that implementing such a system would require significant investment in terms of infrastructure and security measures. The system must also be designed to ensure accessibility and usability for all voters, including those with disabilities.

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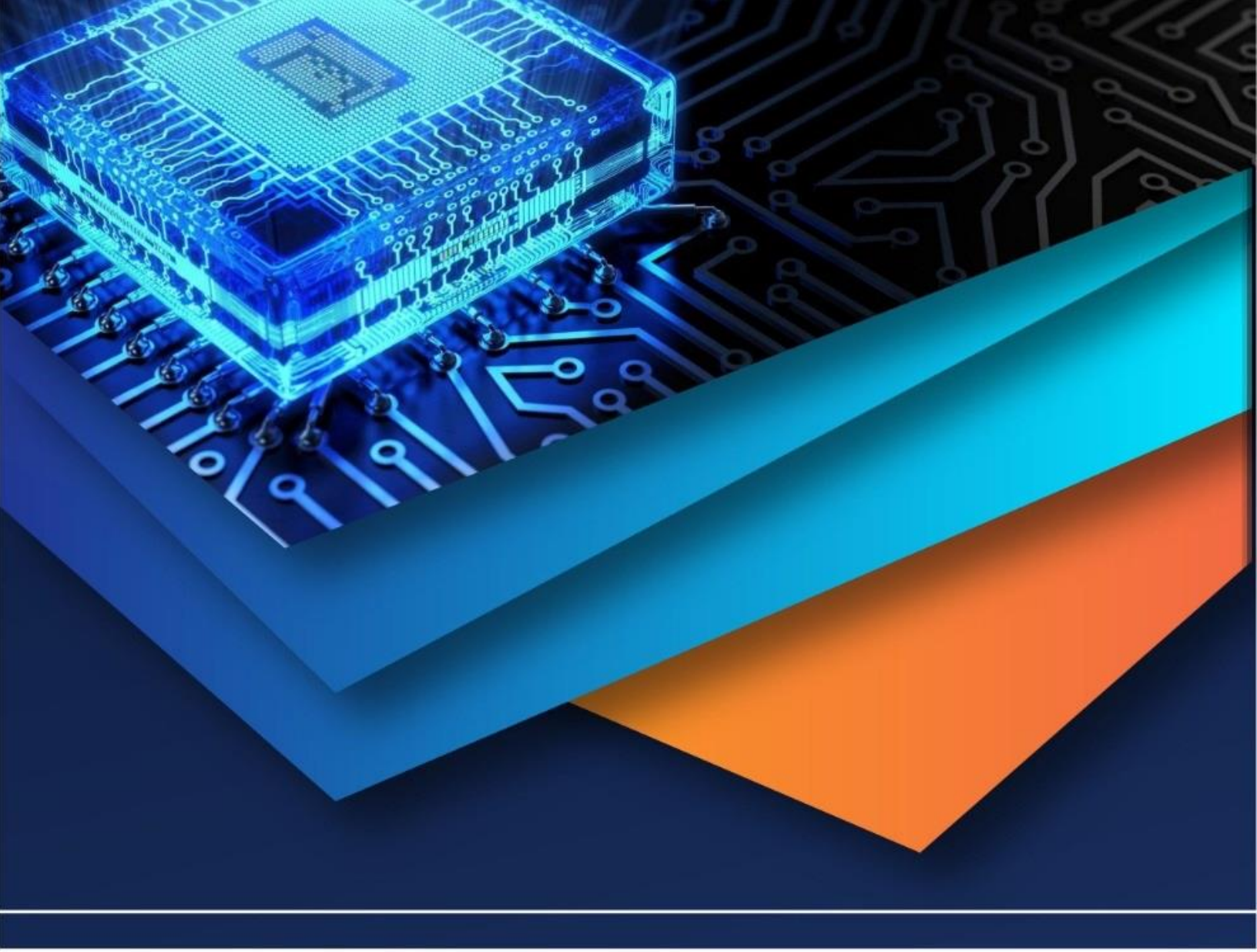

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