Smart Online Voting System

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Abstract

The main goal of this system is to provide an online voting platform that uses face recognition, a face camera, and OTP generation to help prevent fraud in both physical voting systems and earlier generations of the online voting platform. We're also enforcing position free voting system to the voter for whom it isn't possible to come at the voting position.In order to ensure that the device is reliable,which includes face verification and also OTP confirmation data,then we propose a system in which there are several kind of layers of verification.Only when an admitted voter is acknowledged and verified in a given database of voters will each vote will be allowed to penetrate the system. The voter will be able to vote for his or her preferred candidate in the panel as soon as the relevant face matches the information.

Keyword

Open CV, Face Verification, Aadhaar card, winning party, voters's ID, OTP, facial recognition, Python, smart voting system, OTP generation.

1. INTRODUCTION

In a democratic society, elections are inevitable and the government and citizens have no other choice but to make sure that they're carried out safely and smoothly. The comparison between votes shall take into account both the elections and the same.A database of individuals shall be managed by the desktop application program.When a voter casts a ballot, the system sends a notification string that the vote was correctly registered , "voted successfully". When casting a ballot, stating your preferences, or forming opinions. The primary goal of this project is to use facial recognition technology and an OTP system to construct the voting system so that it may be used from anywhere in the nation where access is accessible. The database of the database server houses the voting data. Every day, the world is changing,and in order to thrive and uphold global standards, one must adapt to the electronic age.This innovative technology is used to describe online electronic voting systems that use a central database to facilitate smooth

data flow and result calculation. As a result, to hold fair elections, an intelligent voting system must be created and implemented.

2. LITERATURE REVIEW

1. Paper Name : SMART ONLINE VOTING SYSTEM
   Author : Ganesh Prabhu S, Prabhu.S,R,R. Thirrunavukkarasu, Nizarahammed. A, Rahul. S,P. Jayarajan

The Main objective of the paper is the solution for the giving system through design the two step authentication of face recognition and OTP System. For receiving the data it uses Arduino for receiving data from RFID modules and face data using mat lab. Through two-step authentication utilising face recognition and an OTP system, this also focuses on a system that allows users to vote remotely from anywhere using their computer or mobile phone and eliminates the need for voters to physically travel to the polling place. If the user feels more comfortable doing so, this method also allows for offline voting.

2.Paper Name : IMPLEMENTATION OF AUTHENTICATON AND SECURE ONLINE VOTING SYSTEM
Author: Srivatsan Sridan

The Main objective of the paper is the solution for the giving system through design the system using biometric identification Of voters and secret voting passwords provided to a voter during registration.This mainly focuses on the franchise excising terminal for smart card recognizer, authentication terminal to verify fingerprint impression, and the distributes database and central controlling server.

3.Paper Name : SECURE AND HASSLE FREE EVM THROUGH DEEP LEARNING FACE RECOGNITION

Author : Ishani Mondal

The Main objective of the paper is the solution for the giving system through design the system using Face Recognition as authentication. In this it mainly focuses on face recognition the author is trying use the neural networks after extracting the facial features of the voter and with the reference to vote during election.This feature uses if the details match the existing details of the user is allowed to vote.It generally to the face detection of the voter to identify voter in according to the system details.

4.Paper Name :SEVEP : VERIFIABLE SECURE AND PRIVACY PRESERVING REMOTE PULLING WITH UNTRUSTING COMPUTING DEVICES

Author : Aman Qureshi

The main objective of the paper is the solution of the giving system through design the system using biometric identification of a vote. In this it mainly focuses on the fingerprint Authentication. It allow the different devices which are available to the voter to do polling and no usage of polling sheets, and to generate poll tags.It simply Enables Fingerprint Authentication

3. PROPOSED WORK

The Main Objective Of Online Voting System is to Validating the voter while registering people to proceed means it will see whether the voter is verified or not and whether the voter is valid for the vote.Our Online Voting System will provide safe means of Voting by remaining untouched by anyone means it will provide safe voting without any disturbance.It will capture face and authentically correctly means Our algorithm will Capture Face with very good accuracy without any defect. Our system will provide very good security to the system and it will be more secure and accurate and precise. Our Security levels Our using Voter's Id, Face Recognition and OTP Authentication.

4. ARCHITECTURE
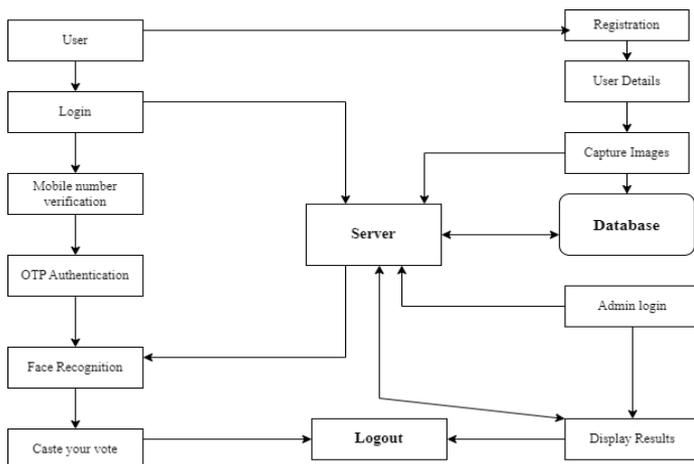
This is the architectural Design for Our Smart Online Voting System.Here server and Database interconnected to each other. This architectural Design will help to develop our Smart Online Voting System through Face Recognition and OTP Authentication.

5.METHODOLOGY

1.For the face detection, Viola Jones algorithm is used. The algorithm has four stages:

Phase 1: Haar Feature Selection Haar Feature Selection are computed on subsections of the input image. To discriminate between image subsections, the difference between the sum of the pixel brightness of neighbouring rectangular parts is determined. A large number of Haar-like features are required to obtain facial features.

Phase 2: Create an Integral Image - Performing operations on all pixels will take too many calculations, so an integral image is used, reducing the calculation to just four pixels. This makes the algorithm quite fast.

Phase 3: Adaboost Training – In the Viola-Jones algorithm, given a 20 x 20 pane size, there are a total of 45891 possible features. The most significant Haar features are found using trainers (like Adaboost), which contain hundreds of images. Adaboost can still be trained using numerous face datasets.

Phase 4: Cascade Classifiers – Using the appropriate face classification features from the faceless algorithm provides further improvements using the concept of cascade classifiers. Each image region is not a face region, so it is not useful to apply all features to all image regions. Instead of using all the elements at once, group the elements into different stages of the classifier. Apply each stage one by one to find the area of the face. If at any stage the classifier fails, that region will be dropped from further iterations. Only the face region goes through all the stages of the classifier.

2. For the face recognition, Local Binary Patterns Histogram algorithm is used. The algorithm has three stages:

Phase 1: Application of LBP surgery:
It is the first step of the computational steps. Here, an intermediate image was created to better represent the original image through the concept of a sliding window, considering two parameters: neighbor and radius. New values are created in the form of binary values by comparing 8 adjacent values with a threshold value. For each neighbor value greater than the threshold, the value is set to 1 and 0 for each neighbor value less than the threshold. This forms a matrix of unthresholded binary numbers. The center value of the matrix is created by converting a binary number to a decimal value that corresponds to the pixels of the original image.

Phase 2: Histogram Extraction
The image obtained in the step is divided into multiple grids using the X and Y grid parameters. This image is in grayscale, each of the histograms of each grid is supposed to represent the intensity of occurrences of each pixel.The qualities of the initial image are represented by a new histogram that is produced by combining each histogram.

Phase 3: Accurate Face Recognition:
Each of them produced a histogram for an image in the training data set. The two histograms are compared to output the image with the closest histogram match to the input image. This output contains the image's ID or name. This algorithm also returns a confidence measure, which is the calculated distance. The correctness of the image recognition algorithm is estimated automatically using confidence and threshold. Correctness is indicated by a confidence value that is lower than a defined threshold.

6.CONLUSION

The proposed system is to develop a very secure internet voting system based on OTP authentication and face recognition which tries to overcome all the drawback which occurs in a traditional or current voting system. It also has many strong features like verifiability, convenience, correctness, etc.For this system, there is no requirement of an election officer, paper ballot, or any electronic voting machine only the internet connection, mobile phone for OTP authentication and desktop/laptop with a camera for face authentication is required so that one can vote from anywhere secure.

7.FUTURE SCOPE

The future scope of the proposed system will focuses on adding more authentication ways for securing the voting process of online voting systems. One of the authentication ways will be Blockchain which will be used for encrypting and decrypting votes of selected candidates caused by voter making online voting process more secure. More authentications ways to lead to a more secure online voting process in the online voting system.

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