Facial Recognition Voting System (FRVS)

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Abstract: *Elections are essential distinguishing elements of every democracy when the people express their preferences or explain their thoughts. in the way of a vote. The voting process has advanced significantly since the days of straightforward handwritten ballots to include internet voting technologies. With the use of facial recognition technology, this project intends to create a smart voting system that would enable every Indian citizen to cast a ballot by travelling to the closest polling location from anywhere in India. High level biometric security is maintained with this project. The fundamental goal of this system is to develop a face-based voting system that will aid in reducing voter fraud in manual voting systems and earlier iterations of online voting via camera for face recognition. The main goal of this system is to provide a Face Based voting platform that will aid in preventing fraud in manual voting systems and earlier online voting platforms using cameras for face recognition.*

Keywords: Face recognition, Biometric security etc

1. Introduction

There are two different voting methods utilized in India nowadays. The first approach involves using a lot of paper for a secret ballot, while the second way uses an EVM, which has been in use since 2003. We must put out a strategy or plan for online voting that is safer than the current setup. Here, we provide a method with many levels of verification, including face verification with validation data, to guarantee the device's dependability. Each voter can only access the system after being identified and verified against the provided database of registered voters. The voter will be able to continue selecting their chosen candidate from the panel once the matching face has been matched with the data given. The face detection and recognition idea are employed in this project proposal to pinpoint the precise individual. In our suggested method, there are three different layers of voter verification. If your election commission id number is accurate, you must proceed to the third level of security, which is the primary security level, where the system recognizes the face of the real voter from the current database of face images provided by the election commission. The first level of security is the unique id number verification. The second level of security is voter card number. A voter may cast their ballot in an election if the taken image matches the appropriate image of the voter in the database. As you must be aware, the current system is not significantly more secure because its only form of security is the voter card, making it possible for anyone to grant another person the right to vote using that card. Here, however, we propose a method of voting that is more secure than the current system.

2. Related Work

S. Jehovah Jireh Arputhamoni M.E. et al Overall, the procedure takes longer. Voter fraud may be increased by using face and fingerprint identification. Because the distance between a person's brow and eyes does not change as they age, this procedure is no more secure. This research endeavour uses ten print photos to identify the voter's legal name. **[1]**.

Nandan Gowda S H et al The suggested method offers a two-phase authentication process. Face recognition comes in second behind RFID. Because the voter's facial patterns would be connected to their Aadhaar Card, no voter will be able to vote twice under this approach. Due to RFID being connected to the Aadhaar card and the respective facial patterns being saved in data storage, it is impossible for any user to attempt to vote twice using someone else's RFID card since they will not be matched **[2]**.

Sanjay Sange et al Machine learning-based face identification is the suggested solution, which enables voters to register and cast their votes from any place. This technique offers security and prevents one individual from casting numerous votes. This approach, in which we may cast our votes from many locations, is more dependable. Additionally, it reduces work, human needs, and time resources **[3]**.

E. Vetrimani et al as every procedure is completed online, thus it only has to be done once. government investment Considering that data is centralized depository, making data available whenever needed, as well as Data backup is an

option. intelligent voting system results in new information every minute. Also, fewer resources and labour are needed. The repository has to be updated before each election or annually so that the enrolment of newly qualified citizens, as well as those who are Voter lists are purged of the deceased **[4]**.

Gaddam Harsha Vardhan et al project is to build a fully working dap that largely relies on blockchain technology and smart contracts. The main goal shifted from simply building a calm machine to building a machine that was both dependable and scalable. We employed person identity and face matching verification to enhance the security of our project, and we also have an OTP verification device to verify the users identify **[5]**.

3. Problem Statement

The ballet machines, which display the insignia of different political parties, were utilized in the present voting system. Voting is completed when we hit the button bearing the insignia of the relevant political party. In the current system, there is a higher likelihood of bogus voters casting ballots. A fraudulent voting card might be used by a voter to cast their ballot, which could lead to complications. To cast a ballot under the current system, a person must travel a great distance to their district. As a result, we require a reliable technique to spot fraudulent votes at the polls.

Objectives
● The objective of the project is to develop a web application for online election system using AI concept to vote based on their face recognition with GPS based location identifier.
● To build model for Prediction Of Facial Recognition Of Voting System (FRV)
● To Test the Hypothesis that machine learning can predict the facial measurements and muscle lines to generate the vote of a single person.

Motivation
The goal of this project is to create a face-based voting system that will enable voters to cast ballots no matter where they are physically located. This system will use facial recognition registration and generate a unique ID number for each voter for each election.

4. Methodology

As part of this project, we are utilizing three distinct security tiers.

Level 1: A special ID number (UID). The voter's unique ID is requested by the voting system at the time of registration. The entered unique ID is checked against the database that the electoral commission provides.

Level 2: The ID number from the election commission. The voter must enter either the voter's id number or the electoral commission identification at the second stage of verification. The electoral commission's database is used to verify the entered ID number.

Level 3: Face recognition with the appropriate ID number from the electoral commission. At this phase, the voter's facial picture from the database given by the election commission is verified using the Eigen face algorithm. then classify your votes using GPS.

Advantages
● Calculating votes obtained takes less time.
● Automated method
● Inexpensive mechanism
● No phony voters
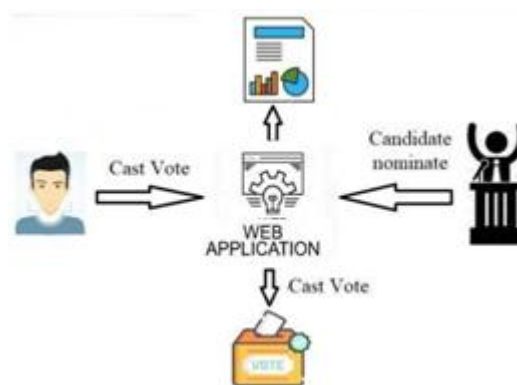
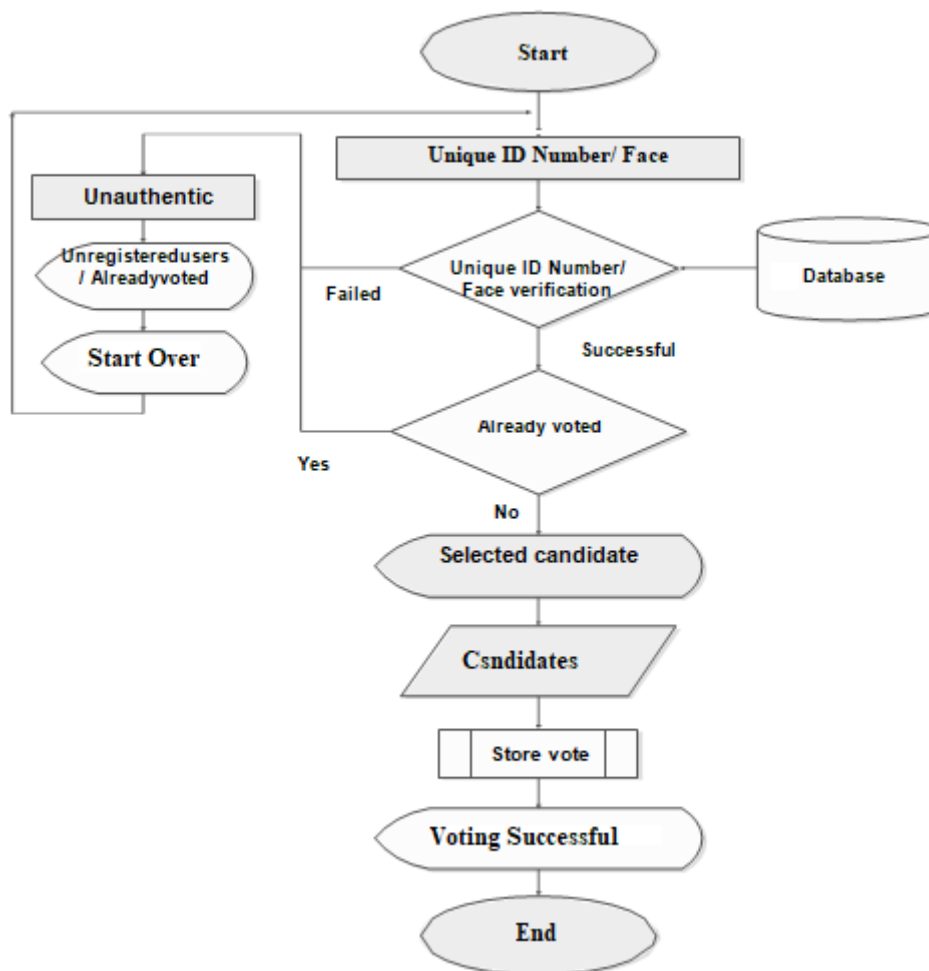## 5. Proposed Model Architecture

Tools and Platform-Hardware & Software requirements
● Operating system: Windows 7 and above
● Front End: ASP.NET (HTML5, CSS3, JavaScript)
● Coding Language: C#.Net
● Database: MS SQL Server 2014
● IDE: Visual Studio 2015
● Processor: Intel i3 2 .4GHz
● Hard Disk: 40GB
● Ram: 4 GB or above

System Architecture

Flow Diagram of Proposed System

6. Conclusion

As we can see, the current voting method has numerous flaws, including a long procedure that takes a lot of time, is not safe, allows for fake voting, and has no security level. However, we can now state that our technique is more advantageous and secure than the current system. The fraudulent voters may be easily discovered since this suggested method has three levels of protection. We can prevent phoney votes during the election commission by using the facial authentication approach to identify fraudulent voters. The voters may cast their ballots from any location by logging into our suggested smart voting system online. It is a one-time expenditure for the government because internet access is required for every function. Voters' voting is more significant than where they live. Data may be backed up and is available at any time since it is kept in a centralized repository. The results of the smart voting system are updated every minute. also uses less resources and laborers. Every year or right before an election, the database must be updated to allow for the addition of new eligible citizens and the removal of deceased individuals from the voter list.

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