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A Survey on Smart Online Voting System

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ABSTRACT: The fundamental goal of this system is to provide an online voting system that will aid in reducing fraud in manual voting systems and earlier iterations of online voting that used a webcam for face recognition and OTP generation. For voters who are unable to travel to the voting location, we are also implementing a location-free voting method (hometown). Here, we provide a system with many layers of verification, including face verification and OTP 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. After the relevant face and the data are matched, the voter will be allowed to continue and select their preferred candidate from the panel.

KEYWORDS: Smart Online Voting System; OTP Verification; Verification; Candidate; Admin; Face Recognition.

I. INTRODUCTION

In India, there are two types of voting systems: direct voting and indirect voting. The first method, secret ballot paper, which required the use of a sizable amount of paper, has been in use since 2003. We must design a more secure means of conducting internet voting because the current system is not adequately safe. In this proposed project, the idea of face detection and recognition is applied to identify the person. In our proposed technique, the voters are examined at three different stages. When you get to the third level of security, the system searches a database of pictures provided by the election commission for your face and finds it. The verification of a unique identification number and the verification of an electoral commission identification number or voter card number make up the first two levels of security. You will be moved to level three, the greatest level of protection, if you confirm that the number on your voter card is accurate. Voters are only permitted to participate in an election if the photo they took corresponds to the image in the voter's record in the database. Otherwise, they will be disqualified from voting. Because the current system limits security to a voter card, anyone can use a voter card to cast a vote on someone else's behalf. On the other hand, our team has developed a voting method that is far more secure.

II. LITERATURE SURVEY

• SMART ONLINE VOTING SYSTEM

The largest democracy in the world is our own, India. Therefore, it is crucial to guarantee that the governing body is chosen in a fair election. India only has an offline voting method, which is inefficient and subpar because it needs a lot of laborers and takes a long time to process and broadcast the results. As a result, the system needs to alter to address these drawbacks and become effective. The new system makes things simpler by removing the requirement that voters vote based solely on their appearance. The technology discussed in this article allows users to cast ballots remotely from any location through a computer or mobile device, eliminating the need for two-step transportation to the polling place. The face scanning system is used to capture images of voters' faces before the election and is helpful when casting a ballot. Instead of voter identification, the offline voting method is improved with the use of RFID tags. Additionally, this technology allows users and citizens to view the results at any moment, preventing circumstances that could lead to vote rig.

• Online Voting Using Face Recognition and Password Based Security System

Anyone can vote via the internet the online voting method. We employ two degrees of security to stop voter fraud. In the first level of security, a web camera records the voter's face and uploads it to the database. Afterward, using Matlab, the person's face is compared to a face in the database for validation. The Local Binary Pattern method is used to

compare the two faces. The plan assigns a value to the centre pixel based on merging an image. Either 0 or 1 is assigned to these centre pixels. A histogram of the labels is produced and utilized as a description if the value is lower than the pixel. To build a single vector that represents the complete face image, LBP findings are combined. As the second layer of security, a password (OTP) is used. After entering the one-time password generated to their mail, it is verified and they are allowed to vote. It should be emphasized that this technique ensures that the users in this situation will have enough of time during the voting period. Before the election, they will receive training on how to cast an online ballot.

- **Smart Voting Web-Based Application Using Face Recognition, Aadhar and OTP Verification**

India now offers two options for casting a ballot. Although they use electronic voting machines and secret ballots, these two methods have some drawbacks. Moreover, the current system is unsafe. Simply because they must travel to the polling place and stand in line for several hours, many people lose the chance to vote. In this essay, we suggested a voting procedure. In our system, there are three security phases in the voting process. Face recognition serves as the first stage, election ID (EID) number verification is the second stage, and one-time password (OTP) verification using the user's registered mobile phone number is the third stage.

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- **Application For Online Voting System Using Android Device**

Voting is a crucial component of democracies. Elections determine the viability of a candidate and the course of a nation; as a result, they should be as transparent as possible and be conducted in an environment of high security. However, the current voting method has significant drawbacks, including a lengthy process where voters must wait in lines to cast their ballots and a lack of security. As a result, voters' propensity to vote and their participation rate both declines. We are developing an online voting system using an Android application to address these problems and enhance the current voting system. This system will improve system security, make voting less time-consuming, and produce better results. With an android device and the voting app on it, a voter can cast a ballot remotely from anywhere in the nation. Voters cannot cast ballots from faraway locations without an internet connection on their Android device. The Android application will work with practically all Android devices, allowing every voter to make use of the online voting system. Due to the two-stage authentication method, which consists of facial recognition and a one-time password, it has better security (OTP). The database will be used to store voter information such as voter ID and facial photographs. The server does the verification process itself.

An Android application will retrieve the voter's facial image, which will then be sent to a server for additional verification. The voter will then receive a Time Password on his registered mobile number for additional vote-casting verification. After successful face recognition and Time Password authentication, the voter can cast their ballot. To improve system performance, election results will be shown on each voter's device in the form of notifications, and voters will receive updates regarding the election.

- **Decentralized Online Voting using Blockchain and Secret Contracts**

A lot depends on the complicated procedure of voting. Creating an electronic voting system that simultaneously guarantees anonymity, verifiability, and openness is difficult. To attain these qualities, the voting mechanism is being improved continuously. Blockchain has recently entered the technology scene with a lot of promises, particularly to create transparent and verifiable decentralized systems. Yet, achieving user anonymity while assuring that only authorized voters should be allowed to vote, and that too only once is a significant challenge encountered by blockchain-based electronic voting systems. This study suggests a blockchain-based electronic voting system using concealed contracts to overcome these problems. We have created secret contracts using Enigma, a tool for secure

multi-party computation. The majority of the features needed to conduct free and fair voting electronically are covered by the proposed system.

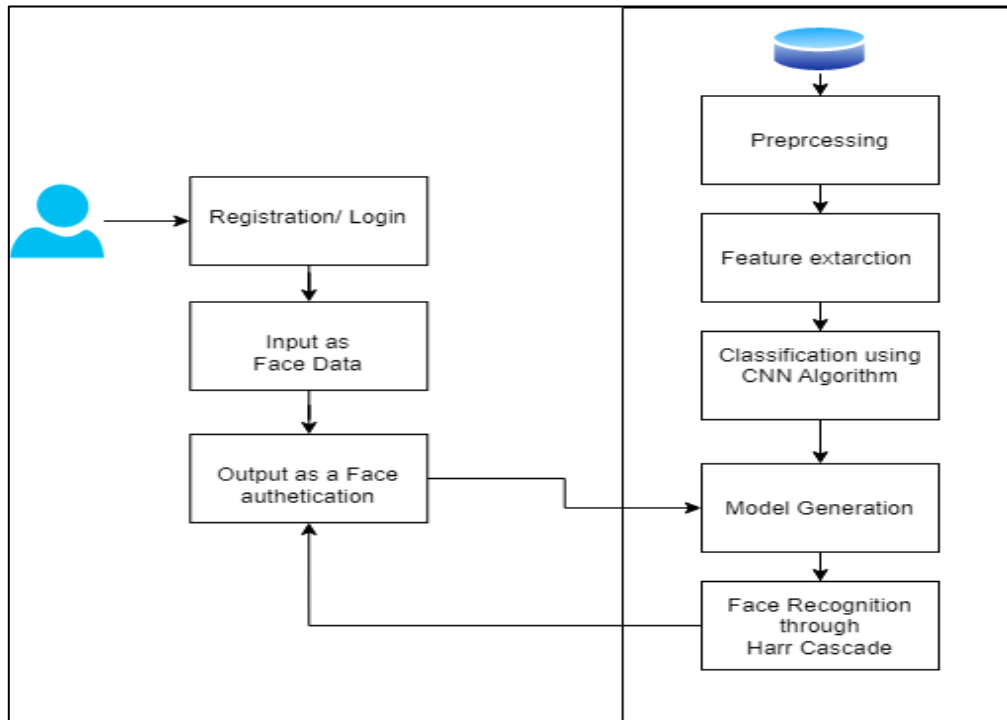
- **Smart Voting System using Facial Detection**

India, the largest democracy in the world, still holds elections using either Electronic Voting Machines (EVM) or Secret Ballot Voting, both of which are ineffective, expensive, and labour-intensive. So, the system needs to be improved to make it efficient and prevent the use of undesirable voting methods. The current approach requires everyone to be physically present, which many people find to be inconvenient. In contrast to the old approach, which requires voters to be physically present, the system discussed in this paper uses faces to unlock the voting system, much like your phone does. The procedure takes a lot of time. Voters can cast their ballots from any location in the world thanks to the system's solely online nature. The use of face detection technology reduces the possibility of duplicate votes being cast, and individuals who registered before to the election and are recognized by the system will be permitted to cast a ballot. Every face contains distinctive characteristics, similar to fingerprints, such as the space between the eyebrows and the eyes, which doesn't change as people age, making the system safer. As a result, the method makes the system the best way to cast a ballot.

III. PROPOSED METHODOLOGY

There are two types of voting systems in India: direct voting and indirect voting. The original voting technique, which required a substantial amount of paper to utilize, was secret ballot paper, and it has been in use since 2003. We must design a more secure means of conducting internet voting because the current system is not adequately safe. In this proposed project, the idea of face detection and recognition is applied to identify the person. In our proposed technique, the voters are examined at three different stages. When you get to the third level of security, the system searches a database of pictures provided by the election commission for your face and finds it. Verifying a unique identification number and verifying an electoral commission identification number or voter card number make up the first two levels of security. When confirming that your voter card number is accurate, you will be transferred to level three, which is the maximum degree of protection. Voters are only permitted to participate in an election if the photo they took corresponds to the image in the voter's record in the database. Otherwise, they won't be allowed to cast a ballot. Because the current system limits security to a voter card, anyone can use a voter card to cast a vote on someone else's behalf. The project's main objective is to find a mechanism to boost voting in municipal, state, and federal elections. We are therefore attempting to develop a voting system that enables people to vote remotely using a previously captured picture of their face and an OTP to verify their identity. The objective of this study is to speed up facial recognition. To handle these challenges, as well as the computational complexity and time constraints, various techniques and strategies for feature extraction, normalization, selection, and classification are required. It's possible to use embedded facial recognition technology in daily life.

We must design a more secure means of conducting internet voting because the current system is not adequately safe. In this proposed project, the idea of face detection and recognition is applied to identify the person. In our proposed technique, the voters are examined at three different stages. When you get to the third level of security, the machine searches a database of pictures provided by the election commission for your face and recognizes it. Verifying a unique identification number and verifying an electoral commission identification number or voter card number make up the first two levels of security. You will be moved to level three, the greatest level of protection if you confirm that the number on your voter card is accurate. Voters are only permitted to participate in an election if the photo they took corresponds to the image in the voter's record in the database. If not, they won't be able to cast a ballot, and an OTP will be generated using their registered number. Because the current system limits security to a voter card, anyone can use a voter card to cast a vote on someone else's behalf. On the other side, our team has developed a voting method that is significantly more secure than the current method.



IV. CONCLUSION

Our suggested approach combines facial identification with machine learning to enable voters to register and cast ballots from any location, regardless of where they are. This technique offers security and prevents one person from casting multiple votes. This approach, in which we can cast our votes from many locations, is more dependable. Also, it will reduce the amount of work, human resources, and time needed.

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