FACIAL RECOGNITION SERVICES IN THE E-VOTING SYSTEM USING BLOCK CHAIN

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Abstract: Elections are a democratic process of choosing candidates for public office. Basically,a ballot is a piece of paper used to cast a ballot during an election. Each voter uses a ballot paper in the ballot by paper voting system, which is essentially a piece of paper printed with the names and symbols of the candidates. In essence, the electronic voting machine is a memory recorder that captures the votes cast by the electorate. In this essay, the primary benefits of electronic voting systems for a nation are discussed. OTP through recognition is also one of the primary benefits; this project makes use of etherum and the block chain. In this study, a deep learning-based electronic voting system with face recognition.

INTRODUCTION

Voting is a technique for a group, such as a meeting or electorate, to come to a consensus or express an opinion. In smaller organisations, voting typically takes place after talks, debates, or election campaigns formally by vote to determine jobs for others, members of political organisations, or employees within a workplace. Informal voting can take the form of a verbal gesture, such as raising a hand, or it can be done electronically. In a democracy, citizens cast their votes in an election to select one candidate from among those running for office. Elections will, however, most likely be held between two rival parties. They will be the two the most well-known and well-established. For instance, the Republicans and the Democrats are in competition in the US. Voting is the means by which the person chosen (in charge) represents their policies and party while making decisions with reference to other authorities in an indirect democracy. The prime minister, for instance, must decide how to handle the House of Commons and the House of Lords in teak. In a direct democracy, the elected official has more independent control and is not required to get laws ratified by the entire government.

Figure1.1 Electronic voting

Figure1.1.1Using electronic voting machines, often known as "EVMs" in India, are the norm for conducting elections. They were gradually incorporated into Indian elections between 1998 and 2001. India used paper ballots and human counting before the introduction of electronic voting.In hindsight, a majority vote occurs when a large number of people support the same candidate. However, even though each person's vote counts, several nations utilise geographic criteria to determine the winner. In the UK, for instance, the candidate who wins the most constituencies may not always receive the most individual votes. Secret ballots may be used in other liberal democracies in an effort to shield voters from outside influence and preserve their right to political privacy. Secret ballots are used to ensure the most accurate results possible. The fundamental explanation for why this method of voting may yield better results has to do with social influence.

1.2 EXISTING-SOLUTON

Electronic Voting Machine (also known as EVM) is voting using electronic means to either aid or take care of the chores of casting and counting votes EVM is designed with two units: the control unit and the balloting unit. These units are joined together by a cable. The control unit of the EVM is kept with the presiding officer or the polling officer.
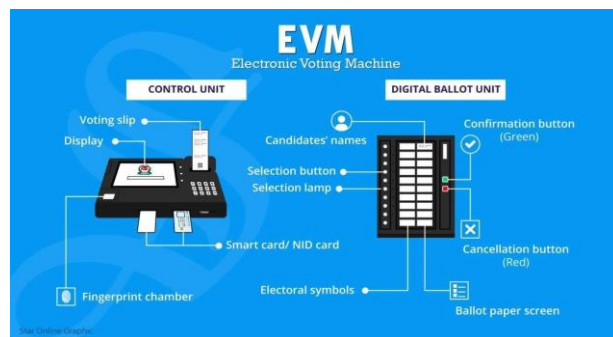

Fig 1.2.1 ElectronicVotingMachine

Fig 1.2.1 represents Electronic Voting Machine (EVM) it consists of two parts Control unit and Digital Ballot unit.

2. EXISTING SYSTEM

The existing solution which includes a GSM module, SMS module, GPS, fingerprint sensor and an image scanner. This makes the system more secure and efficient than the current existing EVM. We use biometrics technology to identify the valid voter from the database which has the voter's details with his fingerprints. With the help of the GSM module and SMS unit, the message is notified to a valid citizen's portable device that he has effectively made the choice. So he can check effectively with no disarray. The given system also involves the Global Positioning System, which provides the Geographical location of the given system is located. The GPS module provided with the system helps in tracking the device in the case of stealing the device from the polling booth.
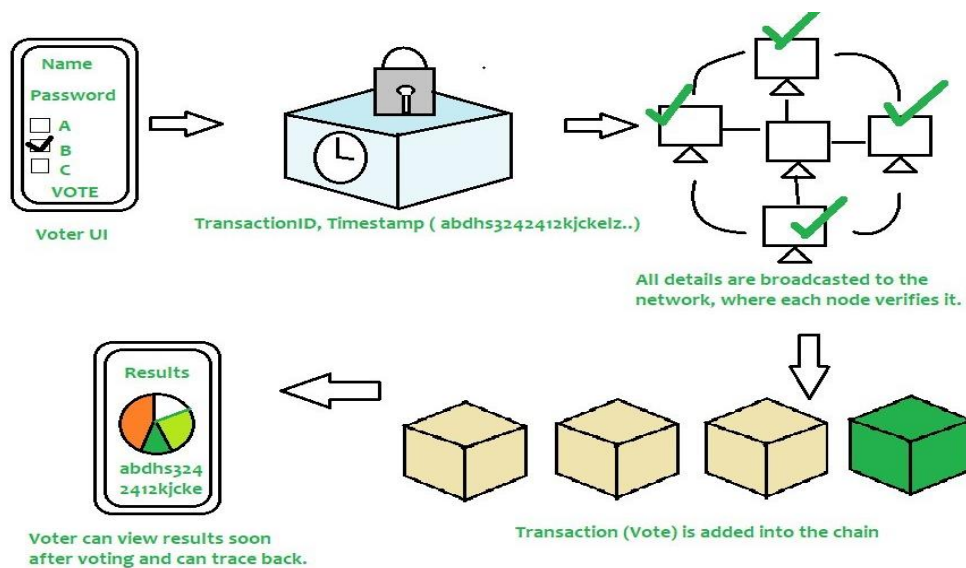

Fig 2.1 Voting System Using Block Chain Technology

3. PROPOSED SYSTEM

E-voting system helps the user to cast the vote without visiting the polling booth. We have two voting types I-Voting and SMS-Voting where as I-Voting (Internet Voting) is done remotely via internet. SMS-Voting is done by sending SMS to the Election Department.In the first step the registration process is done by the voters through an application. Then in the second step the application will start its process. Here we use already existed database or

centralized database, which contains voter's information with linked mobile number. Server sends the OTP (One-Time Password) to the voter's registered mobile number. Then voter enters that OTP, then database again verifies that entered OTP by voter and if it is correct that means he/she is a valid user. Face recognition will have done here if the data matches with database it will go to next step. After the Face recognition candidate's list will appears. This list contains the candidate name and in front of that name the button named 'Vote' is provided. Voter should have to press that button then only the voting is done and the voting procedure is completed.

We are using block chain technology we build block chain using python 3.7 programming language in this project.

These include:

- Easier access to debuggers through a new break point () built-in
- Simple class creation using data classes
- Customized access to module attributes
- Improved support for type hinting
- Higher precision timing functions
- More importantly, python 3.7 is fast and it is officially when compared to other latest versions of python.

Fig.3.1 Facial Recognition

3.1 BLOCK CHAIN TECHNOLOGY

Block chain technology fixed shortcomings in today's method in elections made the polling mechanism clear and accessible, stopped illegal voting, strengthened the data protection, and checked the outcome of the polling. The implementation of the electronic voting method in block chain is very significant . However, electronic voting carries significant risks such as if an

electronic voting system is compromised, all cast votes can probably be manipulated and misused. Electronic voting has thus not yet been adopted on a national scale, considering all its possible advantages.
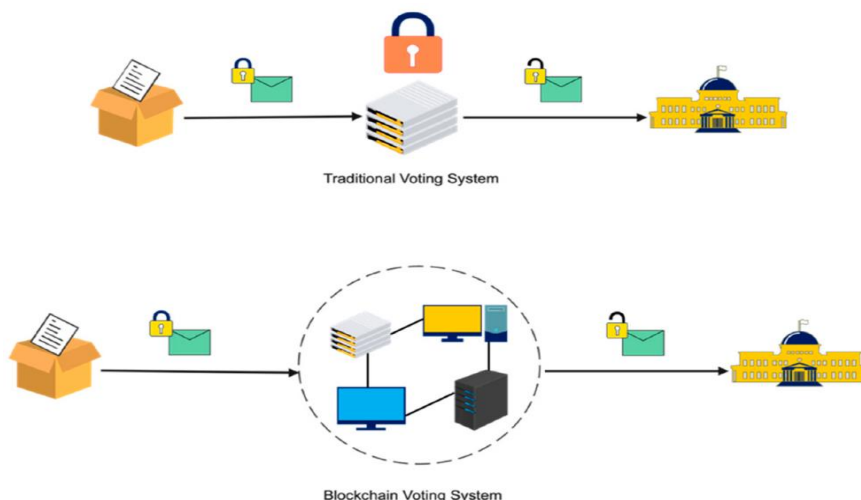

Fig 3.1.1 represents how information is Traditional vs. block chain technology,
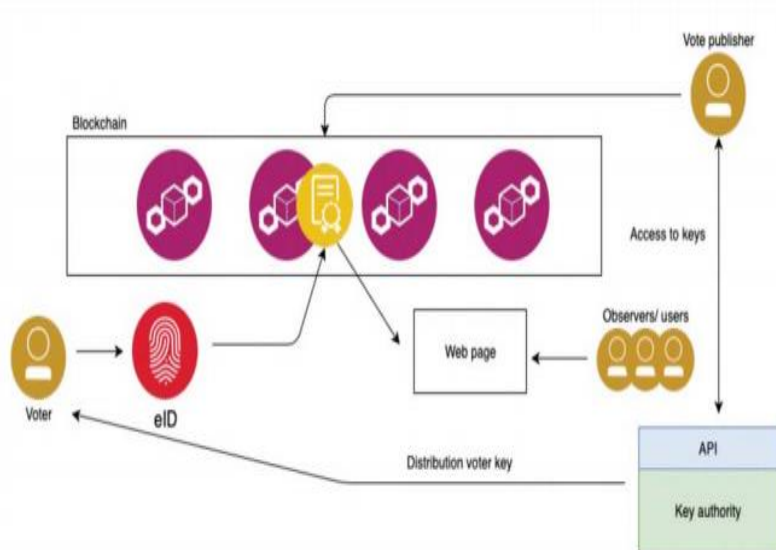
4. SYSTEM ARCHITECTURE

Fig 4.1 System architecture

- **Admin:** this user is responsible for adding new party and candidate information, seeing party information and voting numbers. Admin system login by using 'Admin' username and 'Admin' password.
- **User Module**: This user must register with the website by using the name of their user as their ID and then upload a face photo via a camera. You can go to the log-in after

registering which validated user ID and go to the cast vote module that runs following functionality after successful registration.

- First user is connected and the picture captured in his PC webcam
- With the OpenCV application, faces are detected and CNN application predicts the user identity, then the application displays all voting candidacies if user identification matches CNN predicted face. If you don't vote, you can vote to your wishes by clicking on the link next to the name of your party. When applying for votes, the voter and the candidate details will be collected and then the data will be crypted and stored in Blockchain. Below is the code of Blockchain's storage.
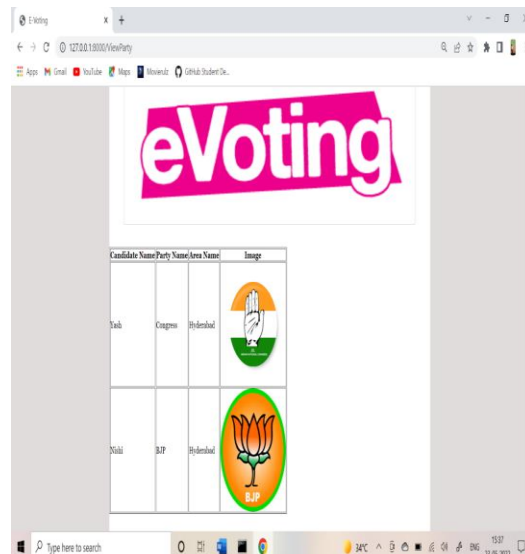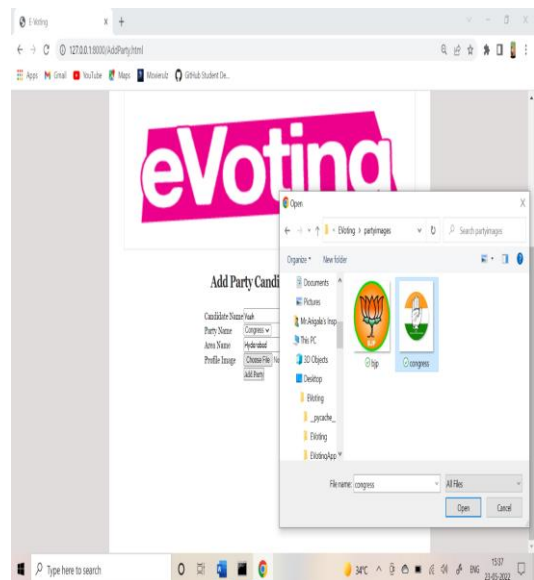
5. RESULTS
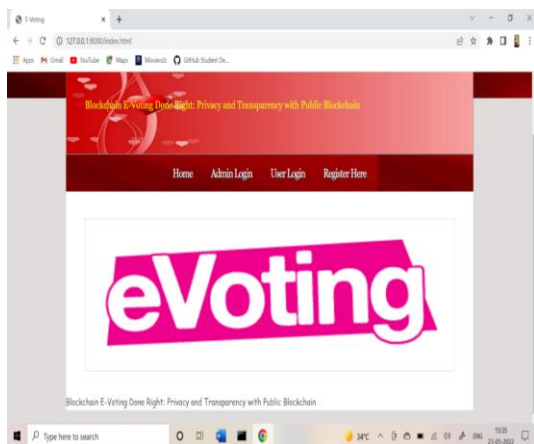
5.1 Website Page of E-Voting

5.2 Admin Login Screen

5.3 Add Party Candidate   5.4 View Party Details
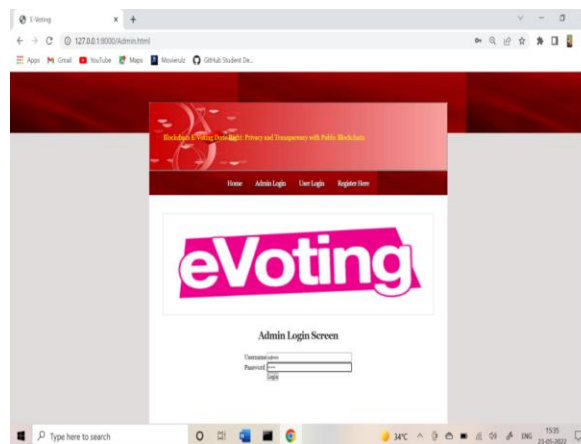
6. CONCLUSION

Block chain technology can be used to address several voting-related concerns, making electronic voting more convenient, secure, and cost-effective than utilising any other network. Over time, research has brought to light certain issues, such as the necessity for additional research into block chain-based electronic voting and the technological difficulties associated with such systems.

- Scalability and Processing Overheads are features of block chain technology.
- It has a significant chance of lowering administrative expenses and raising participation rates.
- It eliminates the need to print ballot papers or open polling stations.
- Voters can vote from wherever there is an Internet connection.

This system includes double verification to increase security. It already has data saved in it, and we can use that data or add other data to help citizens identify themselves when voting. The voter can confirm that his or her vote was cast for the candidate of their choice by receiving a confirmation message via GSM about which candidate received the vote. People with physical disabilities and those who live elsewhere can utilise it to vote without having to wait in lines, which is quite helpful.

7. FUTURE SCOPE

We are fortunate to have the constitutional right to vote. We take it for granted, yet the constitution gives us the freedom to choose our representatives and implement change. It should also be mentioned that many people might hold the overall belief that a single vote is unimportant. But we frequently overlook the fact that even one vote has a significant impact. It is sometimes observed that a single vote can significantly distinguish between a competent and powerful leader and a weak one. So voting every time is hard. Because of the benefits it has over more conventional monitoring methods like biometrics, facial recognition is predicted to gain even more traction over the next years. The technique enables highly accurate long-range matches, simultaneous matching of several visits in high-traffic locations, real-time database matching, and high accuracy despite hats, hoodies, glasses, and other clothing. The following issues can be investigated by additional fieldwork:

  • We can incorporate any additional hardware for enhanced performance, and other technological advancements can also be made to the system.

  • Solving the biometric voting system's issues.

  Through the use of iris and retinal scanning technology, we can advance.

We are aware that voice assistants are essential in today's world, allowing us to advance verbally as well.

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