A Framework to Make Voting System Transparent Using Block chain Technology

Alternate Title:

Block chain Based e-voting With Face Verification.

Aim:

We are presenting a new e-Voting System with Face Verification that will overcome the drawbacks of the current voting methods that are used in India.

Abstract:

Currently, the voting system in India is in efficient and vulnerable to outer threats, the only thing that the security checks is a voter ID card, which these days are faked by many. It is slow and counting the votes manually can take a long time. In some rural areas, where there is not much security available, polling booths are captured and often most ballots are destroyed. So, the development of such a system which is online will cut out these possibilities and many votes can be saved through this system even if such incidents occur. Most voting systems are not transparent enough; this makes it very difficult for the government to gain voters' trust. The reason behind the failure of the traditional and current digital voting system is that it can be easily exploited. The primary objective is to resolve problems of the traditional and digital voting system, which include any kind of mishap or injustice during the process of voting. Block chain technology can be used in the voting system to have a fair election and reduce injustice. The electronic voting has emerged over time as a replacement to the paper-based voting to reduce the redundancies and inconsistencies. The historical perspective presented in the last two decades suggests that it has not been so successful due to the security and privacy observed over time. This paper suggests a framework by using effective hashing techniques to ensure the security of the data. The concept of block creation and block sealing is introduced in this paper. The introduction of a block sealing concept helps in making the block chain adjustable to meet the need of the polling process. The use of consortium block chain is suggested, which ensures that the block chain is owned by a governing body (e.g., election commission), and no unauthorized access can be made from outside. The framework proposed in this paper discusses the effectiveness of the polling process, hashing algorithms' utility, contract and block creation and sealing, data accumulation, and result declaration by using the adjustable block chain method. This paper claims to apprehend the security and data management challenges in block chain and provides an improved manifestation of the electronic voting process.

Description:

A new voting system can be implemented, using login which requires a face verification and the name of the candidate. It is a web application, which supports all browsers. Valid voters will have their name, face verification, and other details in the government database in each state or district as seen fit. Therefore a Trained data will ensure that only legitimate voters can cast their vote. This application also ensures that the voting is anonymous, after the login, each user is given a unique and random block chain Address which will have no ties to the user's details , therefore there is no way to find out which user voted for which candidate. A simple, user friendly interface in used, which will help even the illiterate voters. The focus in more on the visual representation of data, and no unnecessary links are used, the interface is made as simple as possible with only basic functionalities.

Introduction:

Voting schemes have evolved from counting hands in early days to systems that include paper, punch card, mechanical lever and optical-scan machines. An electronic voting system which is used nowadays provide some characteristic different from the traditional voting technique, and also it provides improved features of voting system over traditional voting system such as accuracy, convenience, flexibility, privacy, verifiability and mobility. But Electronic voting systems suffers from various drawbacks such as time consuming, consumes large volume of paper work, no direct role for the higher officials, damage of machines due to lack of attention, mass update doesn't allows users to update and edit many item simultaneously etc. Therefore by implementing a decentralized Block chain based server environment we can prevent data loss.

Existing System

This is the current voting system used in India. In this system vote is cast using electronics ballet. In this we cast our vote in an electronics machine. This is a group of some counter and registers. This voting system is quite easy, simple. It has advantage like mobility, secure, flexibility for election commission. But in today world all people are so much busy that they don't have time to vote. This paper presents a perspective in the electronic voting process. That includes but not limited to identifying the polling process, The polling process the actual voting process used on the polling day.

Disadvantage

The problems of the existing manual system of voting include among others the following:

- **Expensive and Time consuming:** The process of collecting data and entering this data into the database takes too much time and is expensive to conduct, for example, time and money is spent in printing data capture forms, in preparing registration stations together with human resources, and there after advertising the days set for registration process including sensitizing voters on the need for registration, as well as time spent on entering this data to the database.
- **Too much paper work:** The process involves too much paper work and paper storage which is difficult as papers become bulky with the population size.
- **Short time provided to view the voter register:** This is a very big problem since not all people have free time during the given short period of time to check and update the voter register.

Proposed System

The proposed system is the face Verified online voting system with Face Verification using Block chain Address. It determines the particular voter by his/her Block chain Address whether he/she is a valid voter or not. It allows particular voter to cast the vote online. The polling process continues until the voting time ends and update the database in the server. Face Verification online voting system uses Block chain Address to retrieve the complete details about the voter. And the votes are stored in a block chain server and viewed to the public this ensure a trustworthy environment.

Advantage

- Voter can cast their votes from anywhere in the country without visiting to voting booths, in highly secured way.
- This will increase the voting percentage in India and reduces the cost of voting process.
- By using Face Verification it provides enough security which reduces the false votes.
- The collection of the results is done from the stored data on the blocks through the significant organization of the nodes in the block chain.

Module Description:

- User Registration & Trained Voter Face
- Create Election
- Voting
- Publish Result

Module Explanation:

1. User Registration & Trained Voter Face:

User should register in our website *(User Voting Page Way)* Block chain as an initial step with their mobile name, email, aadhar id, Voter id , image Area, Block chain Address contact number to which an unique *USER-ID* register. Users who are all registered in this portal are also considered as voter. The voter image convert to trained image After registering successfully the admin verify the voter details, after user can login into their profile using their *USER-ID* and their registered password.

Admin:

Admin Login page with default user name and password. Admin can accept or reject an voter request by verifying the user detail and also admin can register another admin. User has to scan his aadhar card for verification process. After scanning he should enter his detail and send an request to the admin if the account get rejected due to some reason he will be intimated to register again by admin.

2. Create Election

The Admin can create an election with election type and election constituency. All the election gets triggered at the given date and time. And Verified user has to login and scan his Block chain Address if election and user constituency matches user can view Election details. And Block chain Address. To create Nominated account in block chain.

3. Voting

Voters must have access to any web browser to take part in voting. The voter's interface would be provided in English language to make it easy to use for all users. The proposed system can contain a large number of voters at the time of voting. A decentralized block chain system enables a voter to vote from any part of the world. A person can take part in voting from anywhere, even if he is in a foreign country, in this way his/her computerized National ID is verified from the national database so he can cast the vote. User has to face his registered finger during his registration process. In voting page voter has to scan his face if the User Face matches with registered Face , voter can cast his or her vote to the right candidate Source KNN an

algorithm for recognition of human face is used to compare two Face. Voting transactions are sent to a pool from which miners analyze them and remove the malicious request by taking the consensus from the other nodes before adding it to the chain. The votes are fully secured using a cryptographic hash. Each vote cast adds a new block in the chain. When the transaction completes and a node is successfully added to Vote Chain, the voter of that particular voting transaction is notified through an SMS to his registered email. The voter has provided with a unique transaction hash by which he can verify his vote through a web portal and upon successfully completion of transaction the vote has been counted in the whole voting activity.

4. Publish Result

Smart contracts are providing a secure connection between the user and the network while executing a transaction in the chain. These are the rules that are implemented on the entire Block chain and cannot be neglected under any condition. All the nodes have to follow the smart contracts to save the vote in the system successfully. When user completes his or her voting process votes are stored in Block chain. So the voter can trust his votes stored in block chain cannot be changed. User can view his or her vote in a pie chart retrieved from block chain.SHA256 algorithm has been used to hash the data. Admin Can publish the result of each constituency after the election process is fully completed.

Software Requirements

- Windows 10 and above
- JDK 1.8
- Python 3.6.3
- XAMPP
- GanaChe

Hardware Requirements

- Hard Disk : 80GB and Above
- RAM : 4GB and Above
- Processor : P IV and Above

Language:

- JavaScript
- HTML
- CSS
- AJAX,
- PHP
- Python
- Solitity

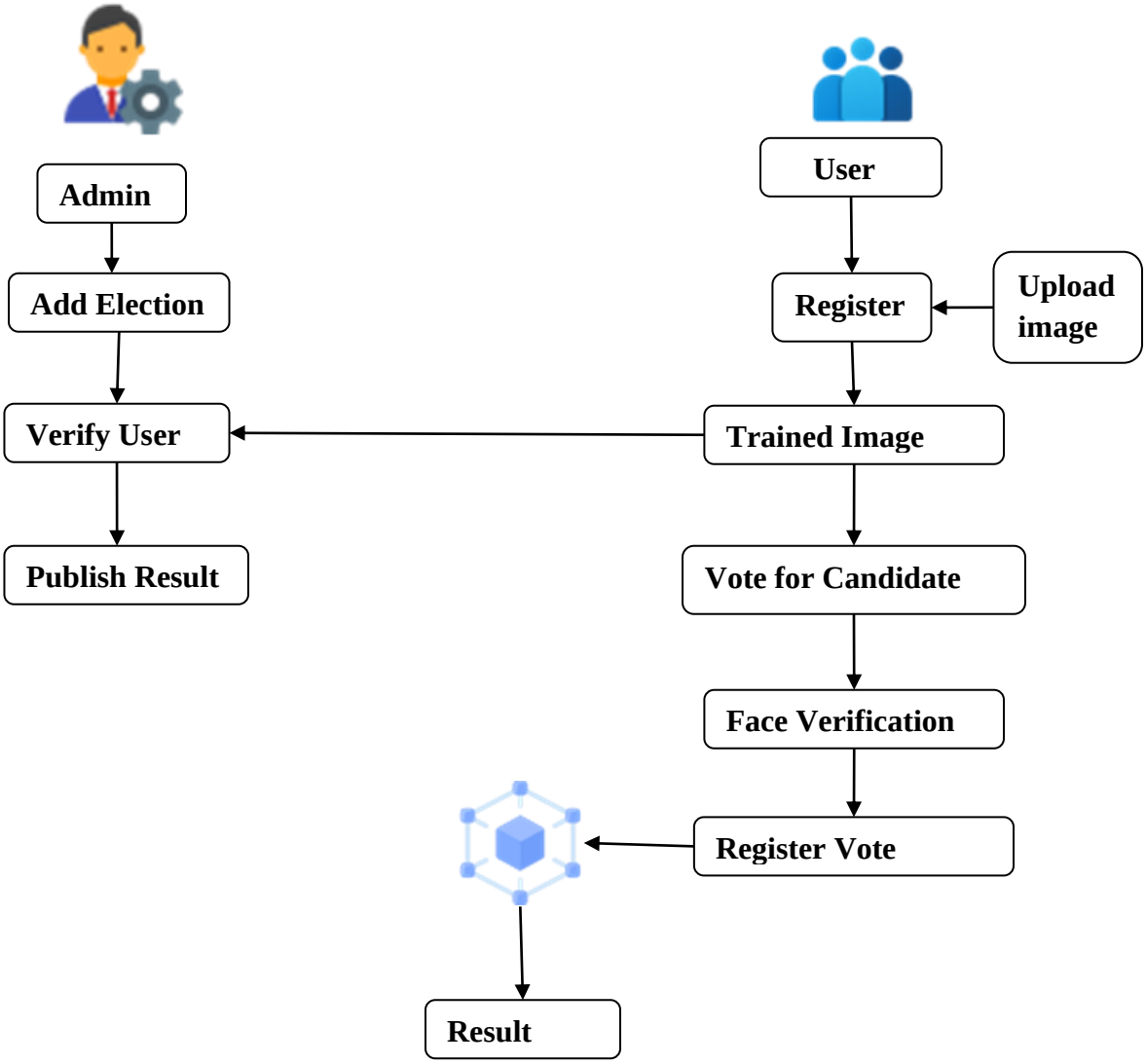
Technology Used:

- Block Chain

Algorithm:

- SHA-256
- KNN

Architecture



Future Work :

Block chain-based voting, which relies on a decentralized, distributed digital ledger is vulnerable to many of the security flaws inherent in internet voting, such as the potential for malware to alter votes on a voter's local device before the ballot is transmitted and the lack of secret ballots.

Conclusion:

The purpose of proposing a block chain-based solution for the voting system was to build trust between government and voters to make-believe that their voting integrity is kept safe. The block chain-based voting is also make the voting process transparent and trustworthy. Our proposal enables a voter to cast his/her vote through internet without going to voting booth and additionally registering himself/herself for voting in advance, proxy vote or double voting is not possible, fast to access, highly secure, easy to maintain all information of voting, highly efficient and flexible. Hence, by this voting percentage will increase drastically. The using of online voting has the capability to reduce or remove unwanted human errors. In addition to its reliability, online voting can handle multiple modalities, and provide better scalability for large elections. Online voting is also an excellent mechanism that does not require geographical proximity of the voters. For example, soldiers abroad can participate in elections by voting online.