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VoteFrame-Voting System Framework Using Blockchain Technology (Stage- II)

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ABSTRACT*:* Elections and voting are the fundamental instruments of a democratic based framework. There have been different endeavors to make present day elections more adaptable by utilizing advanced advances. The fundamental attributes of free and reasonable elections are recalcitrance, immutable, straightforwardness, and the protection of the elaborate entertainers. This relates to a couple of the numerous highlights of blockchain-like decentralized possession, the permanence of chain, secrecy what's more, disseminated record. This work-in-progress paper endeavors to do a similar investigation of different blockchain advances underdevelopment and propose a 'Blockchain-based Electronic Voting System framework' arrangement by gauging these advances dependent on the requirement for the proposed arrangement. The principle point of this paper is to introduce a powerful blockchain-based election system that not exclusively will be dependable yet in addition adaptable as indicated by present needs.

Record Terms—E-Voting, Blockchain, Ethereum,Voteframe.

KEYWORDS*:* Include at least 4 keywords or phrases

I. INTRODUCTION

Majority rule casting a ballot is an essential and genuine occasion in any country. The most widely recognized manner by which a national vote is through a paper-based framework, however, is it not an opportunity to carry casting a ballot into the 21st century of present-day innovation? Advanced democratic is the utilization of electronic gadgets, like democratic machines or a web program, to project votes. These are in some cases alluded to as e-casting a ballot when casting a ballot utilizing a machine in a surveying station, and I-casting a ballot when utilizing an internet browser. Security of computerized casting a ballot is consistently the greatest concern when considering carrying out an advanced democratic framework. With such fantastic choices in question, there can be no uncertainty about the framework's capacity to get information and shield against possible assaults.

One way the security issues can be conceivably addressed is through the innovation of blockchain. Blockchain innovation begins from the basic structural plan of the digital currency bitcoin. It is a type of a conveyed information base where records appear as exchanges, a square is an assortment of these exchanges. With the utilization of blockchain, a protected and powerful framework for 4 computerized voting can be conceived. This report diagrams our concept of how blockchain innovation could be utilized to execute a protected advanced democratic framework.

II. PROBLEM DEFINITION

Our objective is to design a Blockchain-enabled Voting System Framework that helps solve digital voting issues and increase ease of access to digital voting systems.

III. PROJECT SCOPE

In the 21st century, the archaic strategies for voting stress us, thus, building a straightforward web application isn't ideal for this reason because the votes can be changed, the voting rules can be changed and the trust of the voters is lost. Hence we are changing the voting process. An e-voting Voting System Framework using Block-chain System isn't just secure from defilement, yet additionally gives solid protection from hacking and different cybercrimes. It very well may be worked inside the given time and budget. The most significant factor of this application is that not even the software engineers can modify the votes once put together by voters. It is not difficult to sign into, doable and simple to utilize, straightforward, discernible – the central issues of the predominant voting frameworks.

IV. USER CLASSES & CHARACTERISTICS

- Voter: The voter is an end-user of our system. The voter can cast the vote & can see the results.
- Admin: Admin is the authorized person from the election commission or who is responsible to take voting. Admin can update his profile & submit the report.
- Candidate: The candidate is an election candidate who is actively participated election. The candidate can submit nominations & can cancel nominations. The Candidate can see the results.
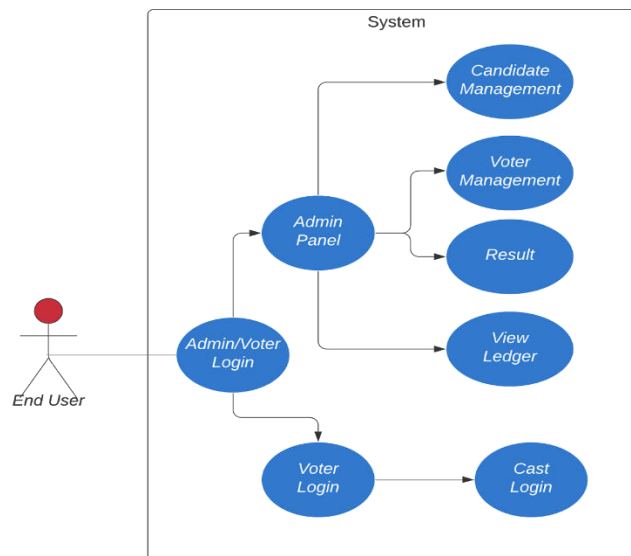

Fig 1: Use case Diagram

V. SYSTEM ARCHITECTURE

- **System Flow**

This system assists in automating the existing manual system. This is a paperless work. It can be monitored and controlled remotely. It reduces the manpower required. It always provides accurate information. Malpractice can be reduced.

- **Module**
  - **Election**

Basically elections were set by the admin. Admin needs to create a smart contract for the election. Once an election contract is deployed Voters can access the election. Voters are able to vote only once. Module will not allow any one to temper vote or to add any miscellaneous vote.

- **Voter**

    Voter is the end user of the system. In this module we check the private key and public address and Metamask connection. If everything is good then voter can cast a vote.

- **Authentication**

    Authentication modules help to authenticate voters. In this module we check the credentials of users that are voters.

VI. TOOLS AND TECHNOLOGY USED

- Front End:
    - HTML, CSS , JS
- Back-End:
    - Web3.js
    - Ganache
    - Truffle
    - Remix IDE
    - MetaMask
    - Node.js

VII. TOOLS AND TECHNOLOGY USED

- **Smart Contracts**

    Smart contracts are simply programs stored on a blockchain that run when predetermined conditions are met. They typically are used to automate the execution of an agreement so that all participants can be immediately certain of the outcome, without any intermediary's involvement or time loss. They can also automate a workflow, triggering the next action when conditions are met.

- **How Smart Contracts work?**

    Smart contracts work by following simple "if/when…then…" statements that are written into code on a blockchain. A network of computers executes the actions when predetermined conditions have been met and verified. These actions could include releasing funds to the appropriate parties, registering a vehicle, sending notifications, or issuing a ticket. The blockchain is then updated when the transaction is completed. That means the transaction cannot be changed, and only parties who have been granted permission can see the results.

Within a smart contract, there can be as many stipulations as needed to satisfy the participants that the task will be completed satisfactorily. To establish the terms, participants must determine how transactions and their data are represented on the blockchain, agree on the "if/when...then…" rules that govern those transactions, explore all possible exceptions, and define a framework for resolving disputes.

Then the smart contract can be programmed by a developer – although increasingly, organizations that use blockchain for business provide templates, web interfaces, and other online tools to simplify structuring smart contracts.

- **Election Smart Contract**

```
pragma solidity 0.4.25;

contract Election {
    // Model a Candidate
    struct Candidate {
        uint id;
        string name;
        uint voteCount;
    }
```

```solidity
// Store accounts that have voted
mapping(address => bool) public voters;
// Store Candidates
// Fetch Candidate
mapping(uint => Candidate) public candidates;
// Store Candidates Count
uint public candidatesCount;

// voted event
event votedEvent (
    uint indexed _candidateId
);

constructor () public {
    addCandidate("Abhay Pande");
    addCandidate("Mahesh Deshmukh");
    addCandidate("Rohit Agarwal");
}

function addCandidate (string _name) public {
    candidatesCount ++;
    candidates[candidatesCount] = Candidate(candidatesCount, _name, 0);
}

function vote (uint _candidateId) public {
    // require that they haven't voted before
    require(!voters[msg.sender]);

    // require a valid candidate
    require(_candidateId > 0 && _candidateId <= candidatesCount);

    // record that voter has voted
    voters[msg.sender] = true;

    // update candidate vote Count
    candidates[_candidateId].voteCount ++;

    // trigger voted event
    emit votedEvent(_candidateId);

    }
}
```
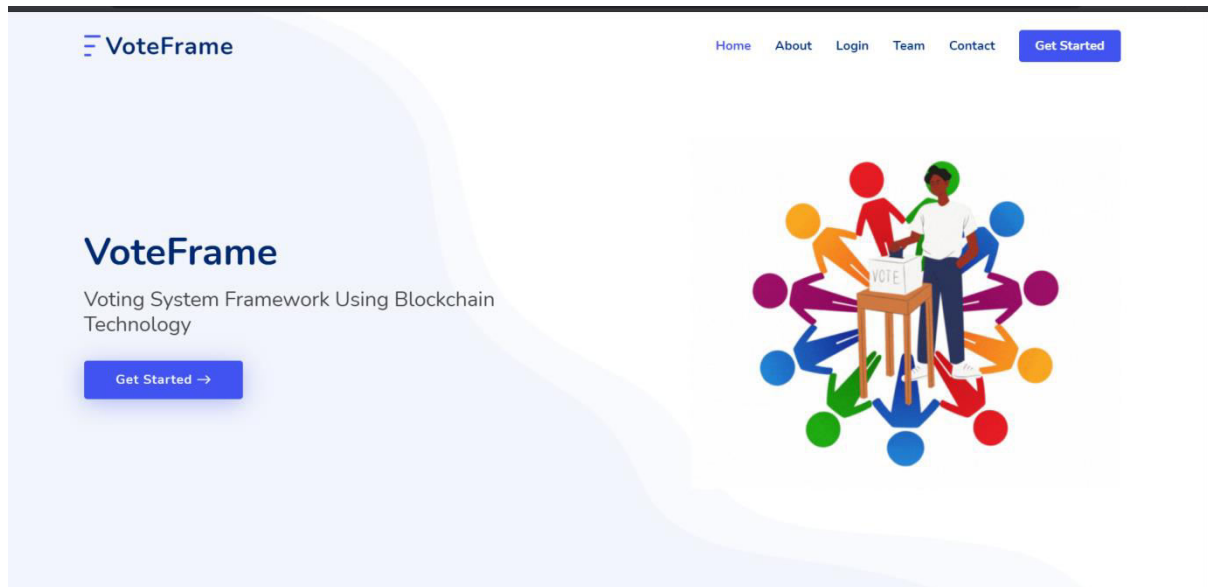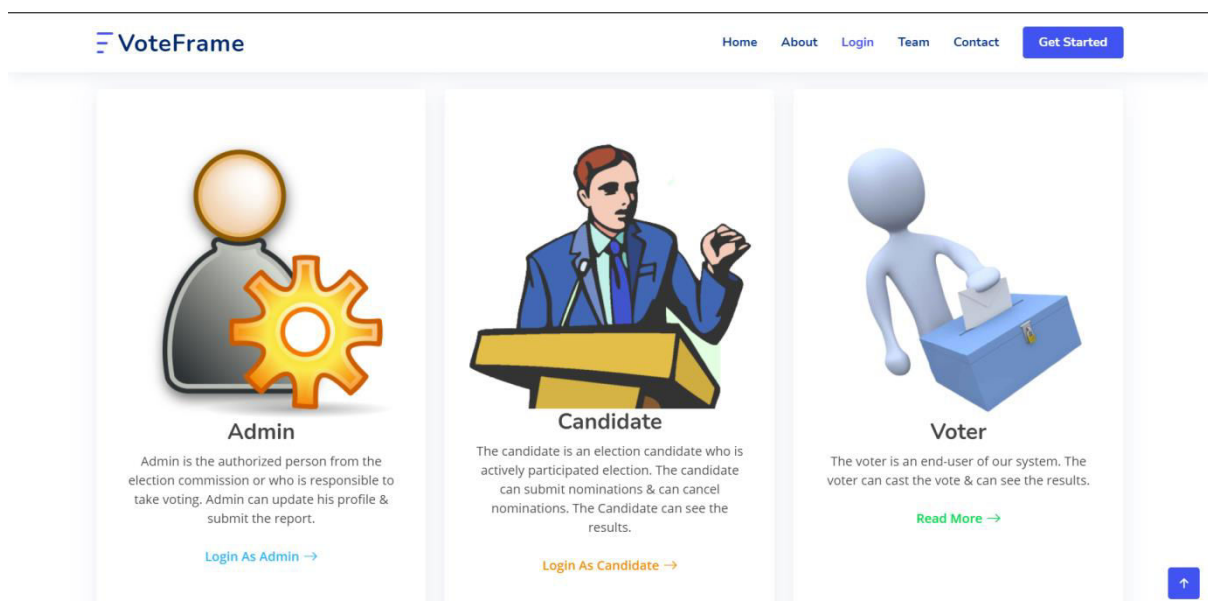
VIII. PROJECT SCREENSHOTS
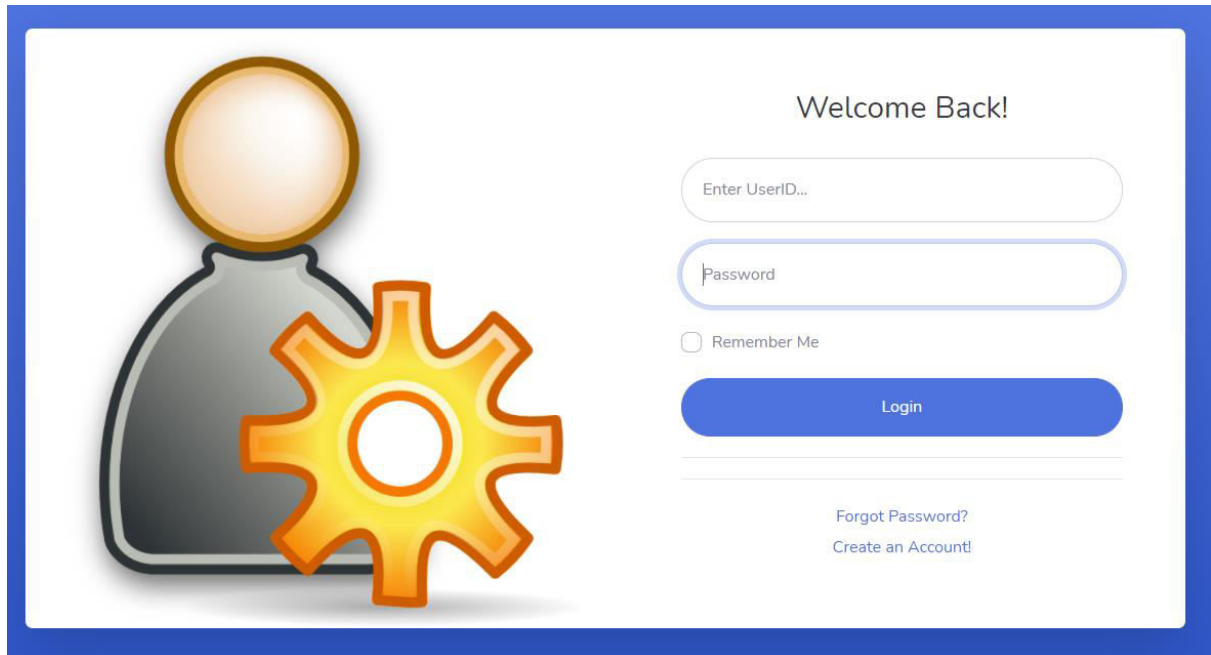

Fig 2: Landing Page-1

Fig 3: Users Portal

Fig 4: Admin Authentication

Fig 5: Voting Process

IX. ADVANTAGES

- Exact outcomes and speed in vote tally.
- Low expense of arrangement on the grounds that just web association cost is needed to vote across all the accessible e-casting a ballot stages
- Enhanced security as casting a ballot occur over secure correspondence channels
- Accessibility from any edge of the world just by having a web association
- Fraud counteraction because of less human intercession in this way keeping away from the misrepresentation that might actually occur at the surveying stations

X. APPLICATIONS

- E-Voting System Framework can be used in multiple ways. We can use it as a polling system.
- These framework can be include in voting on :
    - Rules & Regulations (By Laws , Policy Decision)
    - Selections (e.g. award show nomination)
    - Employee preferences (e.g. workplace scheduling)
- Can be Used in any kind of election, it would be most feasible & effective option in situation such as electing
    - Organizational leaders
    - Staff

XI. CONCLUSION

The idea of adapting e- Voting System framework using Blockchain to make the public electoral process cheaper, faster and easier, is a compelling one in modern society. Making the electoral process cheap and quick, normalizes it in the eyes of the voters, removes a certain power barrier between the voter and the elected official and puts a certain amount of pressure on the elected official. It also opens the door for a more direct form of democracy, allowing voters to express their will on individual bills and propositions.

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