Voting Dapp with blockchain

...

Guide : Dr. S. U. Ghumbare

Team Members : 1] Shrishailyam Patil - 18121051
2] Vaishakh Autade - 18121022
3] Abhishek Waghmare - 18121001

Introduction

“Voting dapp” is a blockchain network based app which is used to conduct voting in elections by using smart contracts which is deployed on Ethereum network.

Smart contracts are written in solidity programming language using remix IDE. It uses ethereum blockchain network and metamask extension to do voting in current ongoing poll.

Need for this system

Hey you know, elections are very much rigged and not honest.

Yes, I know because in our village, I have seen candidates party peoples manage and pressurized the voters.

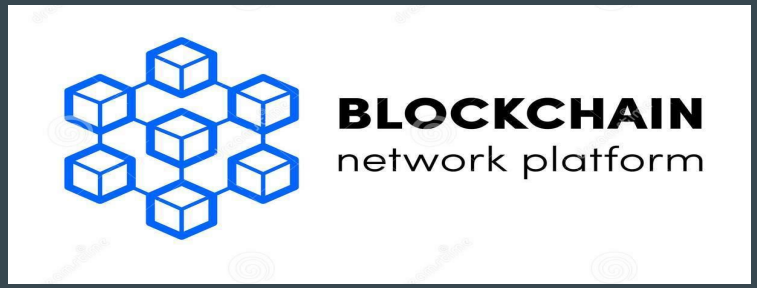
There is less trust in today's election system as they used old EVM device which can be rigged and changed the number of voting.

Yeah, and also there are been human errors in counting also.

True, there is no improvement in this system.

Current Process

- There is always a chance to modify or change the voters count during election by political power.
- There is no immutable entity for storing voters votes.
- From 1982 EVM's there is no new significant change in election voting.
- Current Process requires more time, cost and travel.
- Current process is inefficient during like pandemic situations.



Blockchain

★ A blockchain is a decentralized, distributed, digital ledger consisting of records called blocks that is used to record transactions and data.

★ Any operations on the blockchain can be done through smart contract.

Smart Contracts

★ Smart contracts are simply programs stored on a blockchain that run when predetermined conditions are met.

★ It is a self- Executing Contract with the terms of the agreement of both the parties being directly written into lines of codes.

Smart contracts in voting Dapp

- ★ Check if the account has sufficient balance.
- ★ Retrieve the vote count of the candidates.
- ★ Check if the account is already voted.
- ★ Add a vote to respective candidate.

Advantages of using blockchain

- ★ Data security.
- ★ Decentralised database.
- ★ Immutability.
- ★ Transparency.
- ★ No individual authority or entity.
- ★ Trustworthy.
- ★ Speed.
- ★ Reduced cost and travels.

Processes

Offline Methodology

- First person have to register their name to the paper at election center
- The ticket is provided to the user associated with the private key and committee people put ink on finger and the voter votes.

Online Methodology

- Voter have to go on website and to enter the private key (government will provide) on the metamask and have to vote for particular candidate.
- After that he can confirm the transaction for vote. The voter's voting is noted on the blockchain.

Local blockchain

- We joined ganache to metamask which is running on local server at port 7545 having chain Id 1377.
- After joining, we can import accounts to metamask.
- We use boilerplate code name “pet shop” from truffle boxes as a base code.
- We wrote smart contract in solidity language for voting functions in “Election.sol”.
- Then, we deploy the smart contract on blockchain.

Live ROPSTEN Test Network

- We wrote this smart on remix.ethereum.org and connected to our front-end which is connected using ABIcode and SmartContractAddress of smart contract.
- Metamask is used to transact on blockchain Network. Two extensions are used for transacting on blockchain network namely metamask and metamask legacy extension which support transacting on current blockchain network and previous version.
- For connection, we use contract.js and for voting home page voting.js.
- In the backend, we used node.js and to install dependencies we used npm also, install web3.

Key Features

- Only one vote per account, no false voting or misconduct.
- Votes can be verified later on whenever needed.
- Storage of Candidate Profile with number of votes they received.
- Once data uploaded, modification/manipulation cannot be done.

Technology Stack

- Html, Css, Javascript, Bootstrap.
- Web 3.0 JS.
- Node JS.
- Ethereum network.
- Ganache.
- Metamask.
- Truffle.

Thank You!

Dr. S. U. Ghumbare

Project Guide, Head of department , Computer Engineering

Shrishailyam Patil

Student , BE Computer 2022

Vaishakh Autade

Student, BE Computer 2022

Abhishek Waghmare

Student, BE Computer 2022