

## Block chain Enabled E-Voting System

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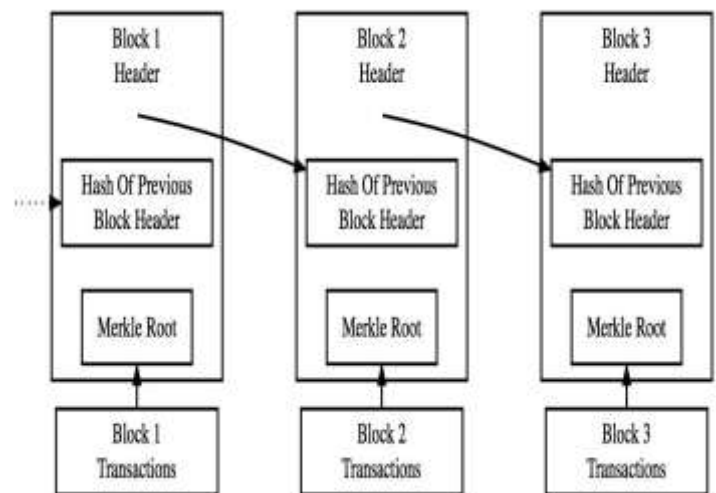
**Abstract** - The term “vote” is referred as to opt among the eligible candidates. The prime objective of registering a vote is to pick the best among the capable candidates who can serve the people in better way. Many nations like India have several obstacles during the elections. Several obstacles includes turn-over of votes at the time of election, uncertain or isolated polling terminals, poor polling stuff and lack of workforce skills. Developing a secure smart electing approach to offers simplicity & confidentiality over existing voting systems. It is challenging to provide flexibility through present voting systems. Using block chain as technique to enact this approach. Blockchain have few drawbacks in current approach and assess major block chain architecture for implementing a blockchain-enabled electing approach. This approach enhances safety and minimizes price of conducting elections.

**Key Words:** *vote, elections, candidates, secure, blockchain.*

### 1. INTRODUCTION

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- “ONLINE VOTING SYSTEM” is an online voting technique. The persons who hold citizenship of India and their age is greater than 18 year is eligible to register their choice. A specific database is preserved in which complete information about the users is kept.
- Voting and elections are necessary elements of democratic societies.
- E-voting briefs about registering choice of users voting through electronic means to look after the routine tasks such as choice of users and sum up the choices.
- It is significant widely known zone which is implemented using block chain approach.



- Block chain is shared database which preserves the information which is keep on increasing supervised by several units.
- In “Online Voting System” users who are eligible are given freedom to register their choice. Primarily, the users needs to register to elect their choice. Registration is majorly carried out by system admin for safety perspective. Users are asked to fill registration form to register their choice. Following Registration the users information will be validated to grant eligibility to elect and will be provided a unique voter identification which is helpful to log on to the portal and allowed to register their choice.
- If the information provided by the users is found to be wrong then the user is not allowed to participate in the electing process.

### 2. LITREATURE SURVEY

According to NirKshetri et.al [1], Electronic-Voting is one of the essential public sector that can be implemented byblock chain approach. To use digital currency analogy, block chain enabled voting which provide every user a pocket consists of aspirant information. Every user receives a coin indicates single occasion to register choice.

Registering choice sends the user coin to aspirant's pocket. User can use their coin only one time.

According to Fridrik P Hjalmarsson et.al [2], this paper directs to examine the block chain approach to build decentralized e-voting method. It analyses few of the major block chain configuration. More likely it analyse capability of decentralized log by detailed study.

According to Ahmed Ben Ayed [3], Blockchain is offering new platforms to implement new kinds of digital solutions. The block chain approach is secured and provides reliability. It helps in maximize the users and also belief of peoples towards the voting system.

According to Freya Sheer Hardwick et.al [4], this proposal hopefully offer a distributed design to aid voting system. It is configured in such a way that adhere to principles of electronic-voting characteristics as well as provides decentralization.

### 3. EXISTING SYSTEM

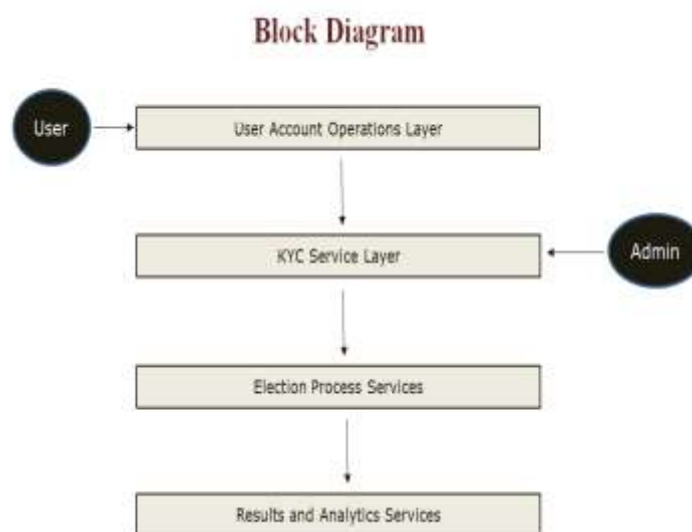
Currently many countries including india are using electronic voting machines which is generally called as EVM, which consists of mainly two components control unit which is supervised by polling officer in the voting booth and another one is balloting unit which is the point where people register their choice. The balloting unit

accepts input only when polling officer enables it in control unit.

Electronic voting machines has limitation that an individual ballot unit can consists of maximum of 16 candidates or party and for control unit 4 such ballot units are connected in series.

While voting the peoples who cast their votes are marked with electoral ink which is made up of phosphor which is semi-permanent, this process is done to avoid double voting by same set of individual peoples. In some cases ballot paper is used for voting which contains a set of eligible candidates and seal is pressed in front of candidates name and dropped into the box which is opened during the counting where every papers should be opened and evaluate the vote.

### 4. METHODOLOGY



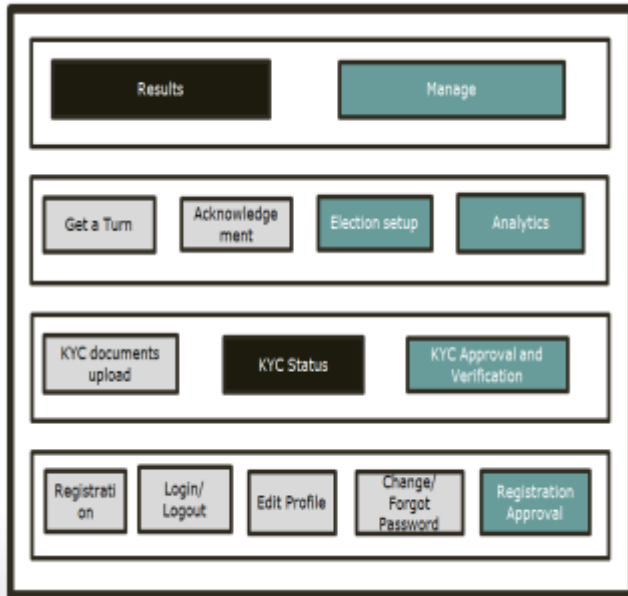
Using block chain technology as a method to implement the electronic voting which consists of blocks of particular block size and block header which is encrypted by the hash i.e unique for individual block and each block contain hash of the previous block. In this way the chain of blocks is created which is immutable i.e once entered data cannot be altered. The system also consists of transaction counter

which counts the number of transactions that occurs in the system in our case each vote is considered as a single transaction.

The block chain technology also protects the privacy of individual votes as the voted information cannot be revealed to third parties or any higher authorities and it

helps to verify that the casted vote is counted or not during announcing of results. As the block chain is decentralized no central authority will be controlling the process. It is secured, distributed and cannot be corrupted.

### 5. SYSTEM ARCHITECTURE



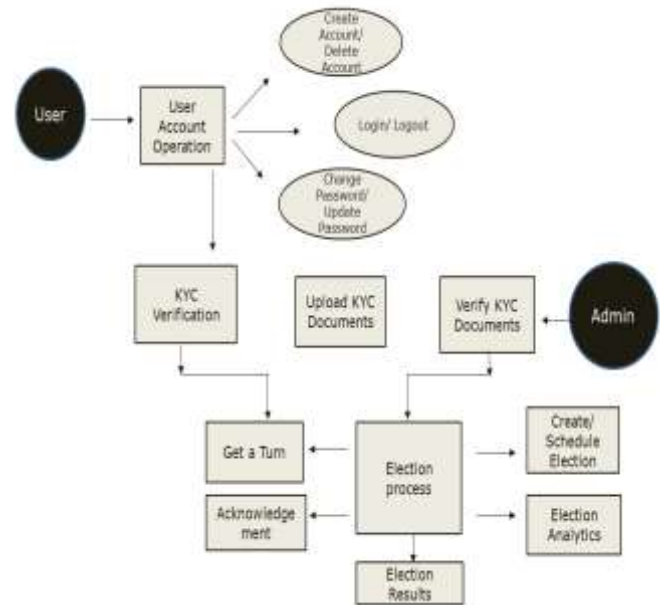
### 6. SYSTEM DESIGN

The two major units of voting system using block chain technology are users the one who cast their vote and another is admin the one who supervise transaction and hashing algorithm. Primarily, the user needs to register by providing necessary documents. Only the registered users are allowed to cast their vote. Once user is registered, the user can carry out operations like login and logout, creating account etc. After registration the user will be provided with unique identification ID from admin side. To cast vote, user needs to logon to the portal with unique identification ID provided and register their choice among the eligible candidates by confirming their vote through unique identification ID. The vote casted by user is recorded at respective district. After successful casting of vote the user will receive a transaction ID and will be given an option to print their the same. The votes casted by users are authenticated and one vote will be appended to the candidate to whom the vote has been casted for. All casted votes which were received and authenticated are deployed onto the block chain with each new vote appended to the block chain and respective district zone will updates the copy of log.

It consists of four layers:

- Client layer: It is designed using html, css, java script.
- Web layer: It has servlets and java server pages
- Business logic layer: It has configuration of classes, interface, implementation and logic instances

Database layer: It is the last layer which contains the transactions in tables by using relationships among them.



### 7. CONCLUSION

Blockchain approach is helpful to overcome the drawbacks which are in the current voting approach. By using this technology election can be conducted with good percentage of voting and we can involve the number of citizens in voting which provides good results for elections. No one can miss the elections in our country. Cost for conducting the elections are also reduced to maximum.. Thus helping the voters to vote from anywhere using this system.

The thought of having block chain voting approach to create the electoral process is speedy and simple in the modern society. The voting procedure is cheaper and quicker, simplifies in front of one who vote and eliminates power barrier that may exists between the user and the official who are elected. It opens up the door to the straight form of democracy, permitting one who votes to convey their will to individuals.

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