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Digital Voting Using Blockchain Technology

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ABSTRACT: India is the world's biggest democracy with a populace of greater than 1 billion; India has an voters of extra than 668 million and covers 543 parliamentary constituencies. Voting is the bridge between the ruled and government. The final few years have introduced a renewed center of attention on to the science used in the vote casting process. The modern vote casting gadget has many protection holes, and it is tough to show even easy protection residences about them. A balloting machine that can be confirmed right has many concerns. There are some motives for a authorities to use digital structures are to expand elections things to do and to limit the elections expenses. Still there is some scope of work in digital balloting device due to the fact there is no way of identification by means of the digital balloting device whether or not the person is real or now not and securing digital vote casting desktop from miscreants. The proposed device is to increase a like minded balloting computing device with excessive safety via the usage of Block-chain science in order to expand safety and transparency between the customers.

KEYWORDS: Electronic Voting System, voter ID, Security, Block Chain, Vote.

I. INTRODUCTION

Voting, whether or not ordinary ballet based totally or digital balloting (e-voting), is what present day democracies are constructed upon. In current years voter apathy has been increasing, mainly amongst the youthful computer/tech savvy generation. E-voting is pushed as a viable answer to appeal to younger voters. For a sturdy e-voting scheme, a variety of useful and safety necessities are special such as transparency, accuracy, auditability, machine and facts integrity, secrecy/privacy, availability, and distribution of authority. Block-chain technological know-how is supported by way of a disbursed community consisting of a massive range of interconnected nodes. Each of these nodes have their personal replica of the dispensed ledger that consists of the full records of all transactions the community has processed. There is no single authority that controls the network. If the majority of the nodes agree, they be given a transaction. This community permits customers to stay anonymous. A fundamental evaluation of the block-chain science suggests that it is a appropriate foundation for e-voting and moreover, it should have the possible to make e-voting greater suitable and reliable.

II.MOTIVATION

By growing e vote casting via block-chain science we can take care of chores of casting and counting votes. By growing this E-voting assist us in many exclusive ranges of usability, security, effectivity and accuracy. This revolutionary kind of E vote casting can enlarge voter participation both from enlarge accessibility, limit price and situation or any different approach simply as it gain to the large neighborhood thru the E-voting system. E-voting device additionally has potential to decrease fraud via getting rid of the possibility for ballot tampering.

III.RELATED WORK

Literature survey is the most essential step in any type of research. Before begin growing we want to learn about the preceding papers of our area which we are working and on the foundation of find out about we can predict or generate the disadvantage and begin working with the reference of preceding papers.

In this section, we quickly assessment the associated work on Online Voting System.

IV.LITERATURE SURVEY

This machine affords safety from all kind of attacks, when vote is traveling from balloting consumer to balloting server from their experimentation. These assaults encompass protection threats from passive as properly as lively intruder. For authentication of voter rather of USERNAME, if we can use thumb impact of voter or seize picture of his/her face and evaluate it with picture saved in our database, it will be greater secure. [7]

In this paper, a block-chain-based vote casting system. It wants time to popularize block-chain for a vote casting gadget as it is a novel notion and balloting itself is a critical rely in a democratic country. [8]

Basic digital desktop which is used presently has some laggings like a couple of vote casting from one member and invalidity of votes are checked automatically. To decrease this negative aspects the clever routinely and fingerprints are used to limit a couple of vote casting in easy way. [5]

The proposed mannequin is greater impenetrable than different fashions and it is appropriate for use in fundamental elections on a giant scale. After casting a vote with NCVVS system, the voter receives a affirmation e mail containing the ballot fingerprint (and additionally the fingerprint of the election) calculated through trendy hash feature SHA (256) [46]. [9]

The proposed technique is to construct a Smart balloting machine the use of fingerprint attention science that lets in any voter in INDIA to solid the vote to their respective constituency from any the place in INDIA with the aid of going to their nearest balloting sales space in the region of stay. Also to enhance a invulnerable clever balloting machine primarily based on biometric recognition. Provides the voter to vote from any location with in India to their Residential Constituency from the nearest Voting Booth with a impenetrable vote casting procedure except neglecting to vote. [3]

The proposed work is primarily based on the block-chain technology, which eliminate all the threats from the conversation link. It is a decentralized system, incorporate hashing and encryption idea for presenting the security. [10]

This paper, proposed impenetrable vote casting machine with quickly balloting consequences via RFID primarily based biometric vote casting system. In this paper, there are two verification steps involved. First, RFID tag is used which includes the verification records which is already saved in LPC 2148. Second, the Fingerprint scanner is used to take a look at whether or not the RFID is belonging that unique individual or not. The disadvantage of this paper is price maximized due to use of RFID method. [1]

In this paper, used of Aadhaar card furnished through UIDAI with QR code present in it. Online rather of offline mode and storing the vote casting statistics to secured on line server. Results can be displayed through admin after getting into consumer identification and password. [2]

This paper, proposes covered balloting device to keep away from the illegal voting. The authentication of an character are made the usage of biometric and functionality of the voter is affirmed the usage of the Aadhaar. In this machine the facts saved in the Aadhaar card act major standards for authentication and conformation. The protection is furnished thru biometrics such as fingerprint. The fingerprint records saved in the Aadhaar is taken as the reference and used for authentication at the time of voting. [4]

This paper has proven the opportunity of establishing E-Voting protocol primarily based on public-key encryption cryptosystem. The safety of the proposed E-Voting relies upon on RSA public key encryption protocol. It approves the voter to vote from his/her very own private pc (PC) except any more fee and effort. This protocol is proposed to substitute the unreliable preceding vote casting system, due to the fact that voters sense justifiably assured that their votes will be counted. [6]

V.PROBLEM STATEMENT

The current desktop had protection dangers that can doubtlessly undermine the election manner In addition to human error; net e-voting is inclined to a vary of threats such as hacking by using home and overseas saboteurs, technical glitches, voter impersonation and even device failure

VI.PROPOSED METHOD

The proposed system uses block chain for providing security of votes. The voter registered their details with government ID (Aadhaar card no.) Login with necessary details, for authentication the one time password is generated and sent on voter's mail id. The voter can select the area where they are located. And view the list of candidates belongs to selected area, and cast their vote.

Using this Online Voting System linked with AADHAR card the percentage of voting will be increase surly and also reduce the false and wrong voting system.

Advantage:-

1. Time Saving Working load reduced.
2. Information available at time and Provide security for data.
3. This is simple, safe & secures methods that minimum of time.
4. Using block chain Concepts the calculated time is reduces.
5. Integrity of result is granted, preventing the chance of false voting.

Architecture

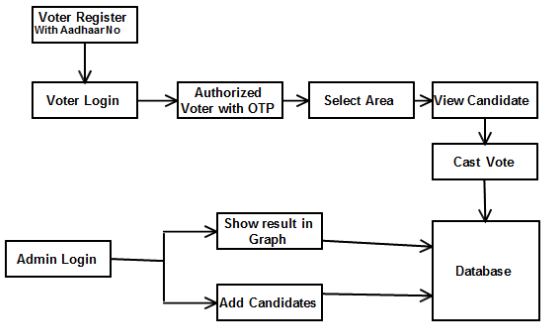

Fig.2 System Architecture

We have outlined the systems architecture, the design, and a safety evaluation of the system. By evaluation to preceding work, we have proven that the blockchain technological know-how presents a new opportunity for democratic nations to enhance from the pen and paper election scheme, to a greater cost- and time-efficient election scheme, whilst growing the securitymeasures of the todays scheme and provide new chances of transparency. Using an Ethereum personal blockchain, it is feasible to ship lots of transactions per 2nd onto the blockchain, making use of each element of the clever contract to ease the load on the blockchain. For international locations of larger size, some measures have to be taken to withhold higher throughput of transactions per second, for instance the father or mother & baby architecture[28] which reduces the quantity of transactions saved on the blockchain at a 1:100 ratio except compromising the networks security. Our election scheme lets in man or woman voters to vote at a vote casting district of their selecting whilst guaranteeing that every person voters vote is counted from the right district, which should doubtlessly enlarge voter turnout.

Algorithm

Advanced Encryption Standard:

1) Input:

2) 128 bit /192 bit/256-bit input (0,1)

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3) secret key (128 bit) + plain text (128 bit).

4) Process:

5) 10/12/14-rounds for-128 bit /192 bit/256-bit input

6) XOR state block (i/p)

7) Final round: 10, 12, 14

8) Each round consists: sub byte, shift byte, mix columns, add round key.

9) Output:

10) cipher text (128 bit)

MATHEMATICAL MODEL

Mathematical equation in Advanced Encryption Standard:

Initialization:

password, key, time, salt: string

time ← get_time

input (password) ←

key salt + time ←

Encryption:

Ciphertext ← AES Encrypt (password, key)

output(ciphertext)

Decryption:

key ← salt - time

for as much tolerance given time

if key = get_time

key ← salt + time

plaintext ← AES Decrypt(ciphertext,key)

end if

end for

output (plaintext)

VII.RESULT AND DISCUSSION

Experiments are done by a personal computer with a configuration: Intel (R) Core (TM) i5-6700HQ CPU @ 2.60GHz, 16GB memory, Windows 7, MySql Server 5.1 and Jdk 1.8.

Result between Algorithms:

S.No	Algorithm	No. of Voters	Rate of Vote counts	Result
01	Proposed System	30	30	90%
02	Existing System	30	24	83%

Table: Comparison Table

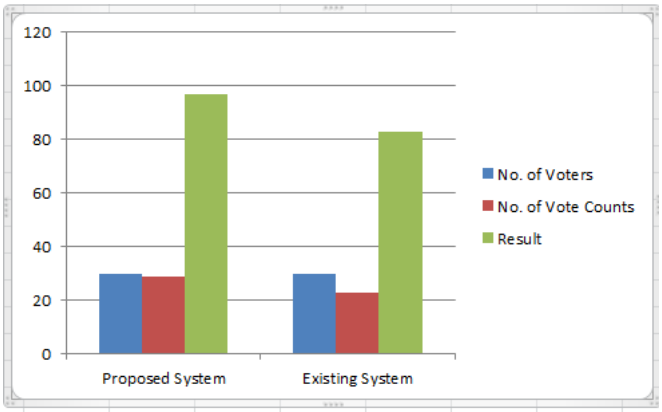

Fig: Comparison Graph Chart

VIII.CONCLUSION

This paper described, an smart online Voting system for small to medium sized Internet-based public opinion systems that provides privacy of vote, voter's authentication using One time password, auditability, security,Avoid De duplication of votes, time consuming for counting the votes.

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