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Token Authentication based Election System with AI BOT

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Abstract: An online voting system makes use of the internet in order to cast a democratic vote. Traditional voting systems uses many hardware for voting process and the vote must be casted in the polling station. This application deals with token authentication, AI bot, google reCAPTCHA design, build and test online voting system that facilitates user, candidate, Election Commission Officer to participate in online voting. Token authentication reduces the false votes and AI bot clarify the queries raised by the voter and provides greater security. To provide higher security, SALT Algorithm is used. Online voting system will increase the voting percentage in India. The counting of votes will be automated, thus it saves huge amount of time and announce the result within a short duration.

Keywords : AI Bot, Token Authentication, Google reCAPTCHA, SALT Algorithm

I. INTRODUCTION

Voting is the process for a group community or an organization in order to make a collective decision or to express an opinion. At first the people conduct voting known as kudavolai system to elect their representatives. In a democracy the government is chosen by the people using voting in an election. As per the Indian constitution, all citizens who are above the age of 18 years have registered themselves as voters and they are eligible to vote. They have the rights to vote in the national, state, district and in local government body elections.

This right has been granted to the voters under section 19 of the Indian Constitution. In 1999 the Electronic Voting Machines are used to conduct elections. After the technological development to enhance the security and to reduce time consumption we move on to Online Voting System.

Online voting system is contemplated as an interesting topic in information security research. Online voting system is a way that helps public to select their representatives and express their preferences for how they will be governed. This system must ensure integrity and secrecy of the votes has been cast.

This system will increase the level of security and also the trust of voters. The proposed system provides peoples to vote in a secure manner without any fear. It reduces the time consumption and make it more flexibility and feasible for the people. The Characteristics that are guaranteed in this system includes eligibility, authentication, uniqueness, accuracy, verifiability, reliability, flexibility, convenience, testability, transparency and cost effectiveness.

II. EXISTING SYSTEM

A. Literature Survey

The survey for the online election system has been made on various papers. Over the years many systems and ideas have been implemented and initiated to achieve a feasible election system. Most of the systems use the techniques such as Biometrics, LCD displays, Finger print Recognition, Bar code Readers. It's hard to make the voting systems trustworthy because it needs high security such as confidentiality and Integrity. The security is provided by AES and DES algorithm. We moved on to automation mainly to rely on the security because the existing systems failed to ensure it.

B. Drawback

The traditional system takes long time as there is a lot of paper works first and then manual effort is also there for counting of the votes. If any problem occurs in hardware, the voter will suffer at the time of voting. Before voting the user has to enroll first. During the enrollment there may be a chance of giving the fake details. The voter id is downloaded at the time of voting. If any issue arise during that moment, its unable to download the voter id. It provides notification to the voter to cast their vote through email. Illiterate people couldn't have own e-mail id.

III. PROPOSED SYSTEM

Our proposed system is a web based that facilitates the running of elections and surveys online. The techniques used are AI Bot, Token Authentication and google reCAPTCHA. AI Bot is a computer program which conducts a conversation via textual methods. It uses sophisticated natural language processing system. It scan for keywords within the input, then pull a reply with the most matching keywords from the database. It solves questions doubts, issues, compliance by identifying the nature of questions and reply back with suitable answer. This system provides the high security through token authentication. Token authentication is a security technique that authenticates users who are attempting to log into server. A technique google reCAPTCHA provides security from automatic access of the system. At the time of voting if any complaint arises it will be notified to the election commission and when the same complaint arises more than 3 times the polling station regarding that compliance will be blocked immediately by the concerned authority. To provide higher security SALT Algorithm is used.

IV. TECHNIQUES USED

A. Token Authentication

Token Authentication is the security technique which authenticates the user who attempting to login to the system. The general concept behind a token based authentication system is simple. User enter their user id and password to obtain a token which allows them to fetch a specific resource. Once their token has been obtained, the user can offer the token which offers access to specific resources. To retrieve this token on client side login is required. The token contain the user's information as well as special token code that user can pass to the server with every method that supports.

B. Google reCAPTCHA

Google reCAPTCHA is a advanced security. It was originally developed by Luis Von Ahn, David Abraham, Manuel Blum. It is a free service from google that protects your site from spam and abuse. It predicts whether user was a human or bot. the main purpose of a reCAPTCHA system is to prevent automated access to a system by computer program. It were strong enough to prevent Brute force attack. The major advantages are advanced security, ease of use and creation of values.

C. AI Bot

Bot is an computer program that converses in natural language. Artificial Intelligence is the branch of computer science that has the ability of a digital computer or computer controlled robot to perform tasks commonly associated with intelligent beings. AI Bot is a computer program which conducts a conversation via textual methods. It uses sophisticated natural language processing system. It scan for keywords within the input, then pull a reply with the most matching keywords from the database.



D. Compliance Box

A small polling station will be arranged by the Election Commission for illiterate and disabled persons. At the time of voting, a party member tries to force the voters to vote for their parties. The user who feels any disturbance can lodge a complaint against the party member directly to the election commission through the compliance box. If two are more complaints arises from the same polling station the station will be blocked immediately and alternate measures for the election process will take place.

V. WORKING

Online voting system has several important steps. The system is also approachable from two sides:

- 1) From the voter side
- 2) From the Election Commission side (ADMIN)

A. Uploading/Updating Voter Information

The Online system provides the facility to add/upload all the information of voters in main database of Election Commission according to unique Identity Number. This number will be unique for every citizen or voter. In the next step the concern block level officer will check all the supporting documents for the registration of each individual. After the verification process the admin will registered in the system database and the password will be generated automatically and send it through the registered mobile number. The Voter will be able to login the system with the use of this unique id and password. Voter can also change the system generated old password.

B. Uploading/Updating Candidate Information

The Candidate who wish to participate in the election can submit their personal information and party details. After the verification the admin will register each candidate according to his/her constituency. At this stage, to make each candidate unique, a unique candidate id will also be provided by the admin. Candidate’s profile image, Party symbol, Background details of the candidate and other educational details will also be added in this phase with other information. A unique Identity Number issued by the government is compulsory for every candidate to register.

C. Date And Time Of Election

In this phase the date and time of the day on which election will be held, will be finalized by the admin along with the starting and ending time of the election. The Voters who are outside of their constituency area can also vote according to same time zone of related country on Election Day.

D. Vote Submission

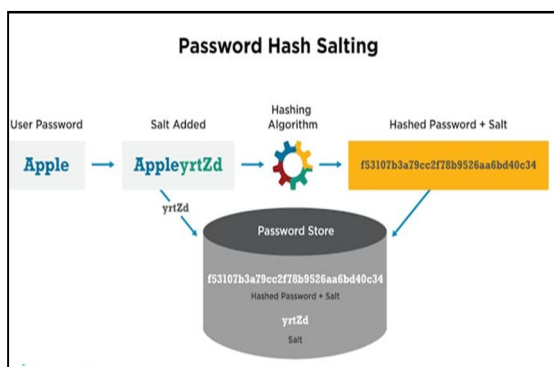
In this phase the voter will first login with their respective election account with his/her unique identity and password. After login the account, the voter will verify all his/her details and after verification the voter will move to the specific vote resource. The resource contains all the information of the candidate such as name, unique identity provided by the government, candidate’s party name and profile picture. The voter selects button of the favorite candidate and finally cast vote button. After pressing cast vote button the security checking will be done automatically by the server.

E. Declaration of Election Results

In this phase Results are announced immediately by Election Commissioner after verification/counting of votes which is automatically completed during the election period.

VI. SALT ALGORITHM

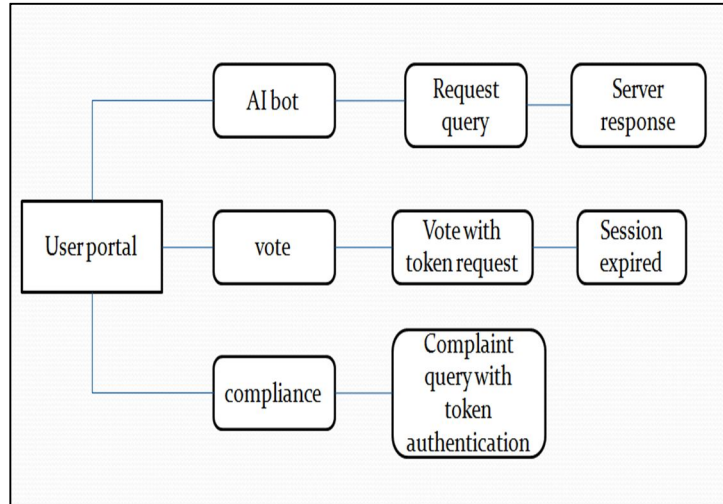
In cryptography, salt is a random data that is used as an additional input to the one-way function that hashes data, a password or passphrase during encryption. At first the password was stored as a plain text on the system. The salt gives additional safeguards to users password against being read from the system. A new salt is generated randomly for each user. It’s unique value that can be added to the end of the password to create a different hash value. This adds a layer of security to the hashing process, specifically against brute force attacks. Encryption is a two-way function where information is scrambled in such a way that it can be unscrambled later. Hashing is a one-way function where data is mapped to a fixed-length value. Hashing is primarily used for authentication. Salting is an additional step during hashing, it adds an additional value to the end of the password that changes the hash value produced.



VII. BLOCK DIAGRAM

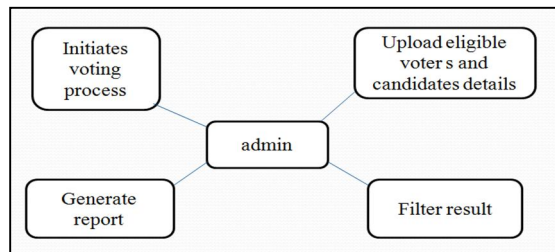
A. User Module

User has to login their account with respective login id and password. Then User cast their vote for particular candidate. If any queries or any doubt arise on the time of voting, using AI Bot User enter any type of queries, that will be clarified your doubt. Another one option is Compliant Box, a party member tries to force the voters to vote for their parties. The user who feels any disturbance can lodge a complaint against the party member directly to the election commission through the compliance box.



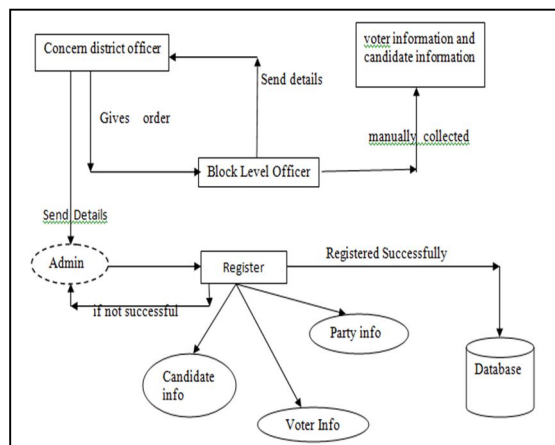
B. Admin Module

The Concern District Officer is collected the candidate and voter details manually. After Verification, Admin registered the details in the database. At the time of registration, the password will be sent to the registered mobile number. The people wants to change the system generated password. He/She has to initialize the election date and end of election time depends on the India time zone. The post election process is check the result and generate report based on result. Finally declare the result.

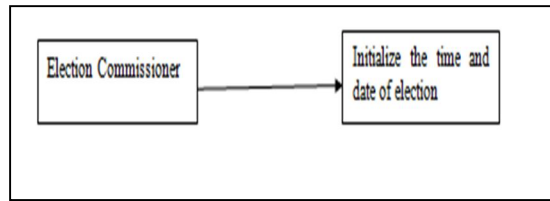


VIII. ARCHITECTURE

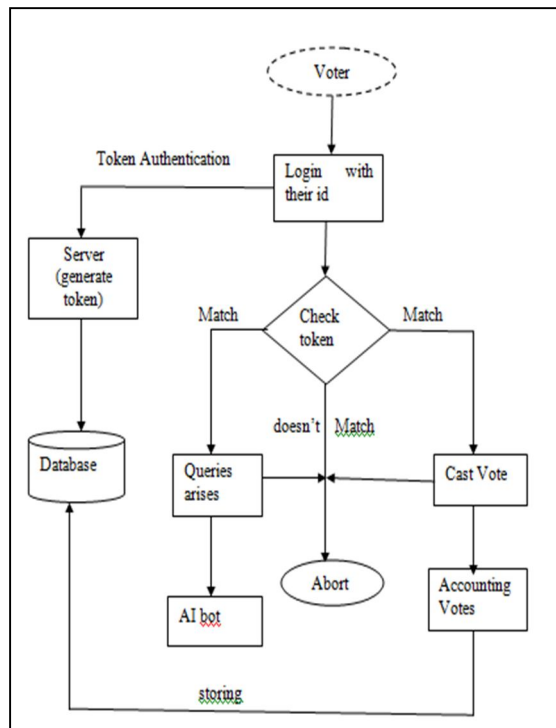
A. Pre Election



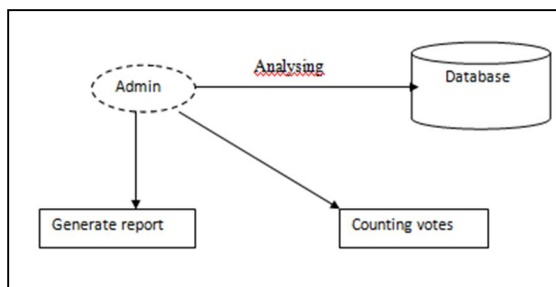
B. Election Commission



C. Election



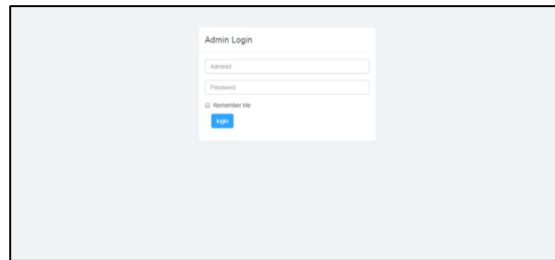
D. Post Election



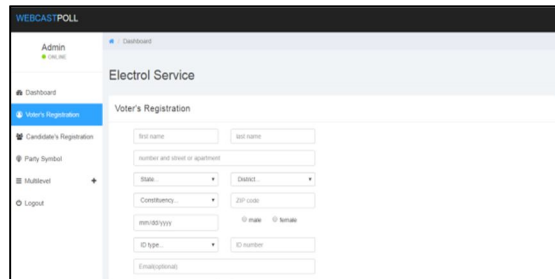
IX. OUTPUT



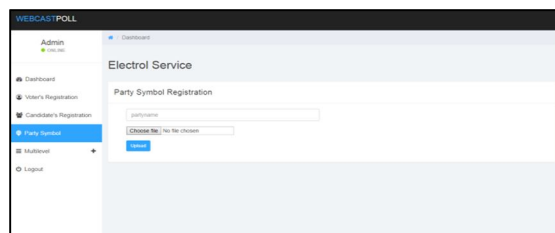
A. Admin Login



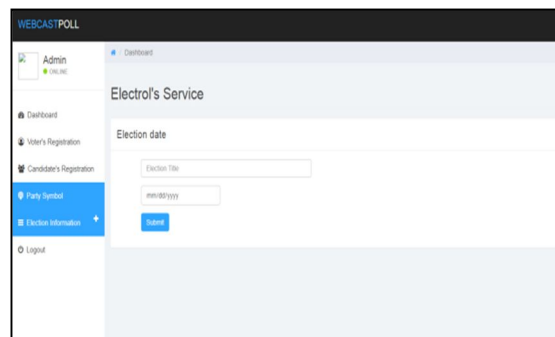
B. Voter Registration



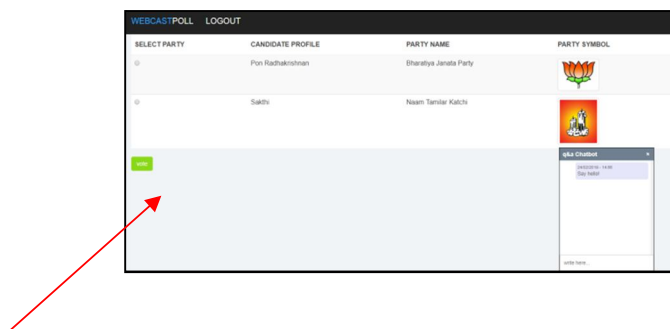
C. Candidate Registration



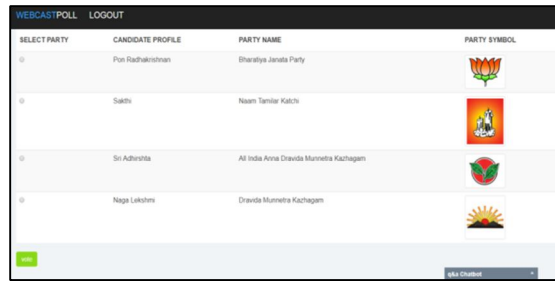
D. Party Symbol Registration







E. Caste vote and AI Bot

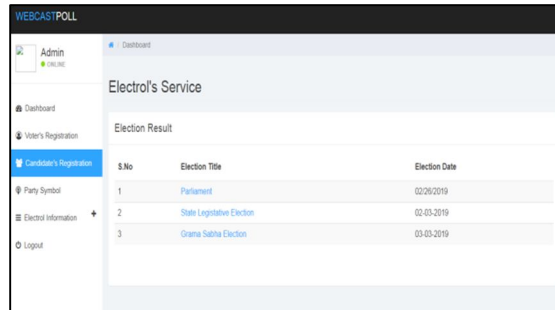


F. Voting



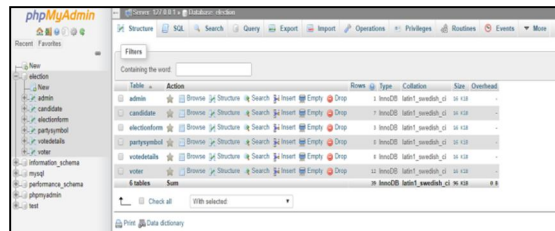
SELECT PARTY	CANDIDATE PROFILE	PARTY NAME	PARTY SYMBOL
<input type="radio"/>	Poo Radhakrishnan	Eharalya Janata Party	
<input type="radio"/>	Saithi	Naam Tamilar Katchi	
<input type="radio"/>	Sri Adhrita	All India Anna Dravida Munnetra Kachagam	
<input type="radio"/>	Naga Lakshmi	Dravida Munnetra Kachagam	

G. Check Result



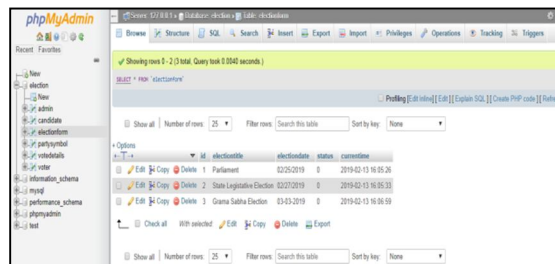
S.No	Election Title	Election Date
1	Parliament	02/05/2019
2	State Legislative Election	02/05/2019
3	Grama Sabha Election	03/03/2019

H. Database field



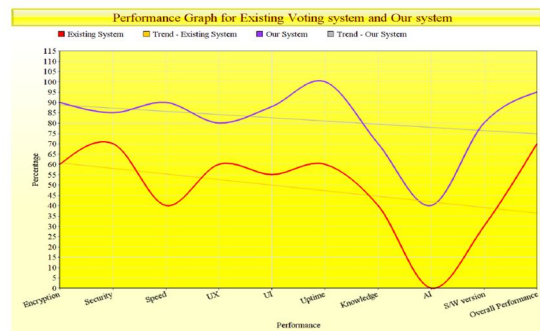
Field	Action	Rows	Size	Collation	Index	Overhead
admin	Structure SQL Search Query Export Import Operations Privileges Routines Events More	1	1000B	latin1_swedish_ci		
candidate	Structure SQL Search Query Export Import Operations Privileges Routines Events More	7	1000B	latin1_swedish_ci		
electiondate	Structure SQL Search Query Export Import Operations Privileges Routines Events More	3	1000B	latin1_swedish_ci		
partyname	Structure SQL Search Query Export Import Operations Privileges Routines Events More	3	1000B	latin1_swedish_ci		
partyymbol	Structure SQL Search Query Export Import Operations Privileges Routines Events More	3	1000B	latin1_swedish_ci		
votername	Structure SQL Search Query Export Import Operations Privileges Routines Events More	11	1000B	latin1_swedish_ci		
voterid	Structure SQL Search Query Export Import Operations Privileges Routines Events More	11	1000B	latin1_swedish_ci		
voter	Structure SQL Search Query Export Import Operations Privileges Routines Events More	11	1000B	latin1_swedish_ci		
Sum	Structure SQL Search Query Export Import Operations Privileges Routines Events More	36	1000B	latin1_swedish_ci		

I. Storing The Data



id	City	electiondate	status	candidate
1	Parliament	02/05/2019	0	2019-02-13 16:55:26
2	State Legislative Election	02/07/2019	0	2019-02-13 16:55:33
3	Grama Sabha Election	03-03-2019	0	2019-02-13 16:56:59

X. COMPARISON GRAPH



XI. CONCLUSION

We are living in the democratic society. We have the right to choose our own representatives with the help of elections. The system we have developed is used to conduct elections in secure manner. The online election system we have developed has successfully provided the security using the token authentication. The queries arise by the user were clarified by the help of AI Bot. Thus it is more secure and interactive. The future scope of the system is it can be enhanced by applying image processing techniques.

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45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



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