

BALLOT HANDBOOK

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Abstract.

In India, the voting system generally uses the manual approach where voters queue up in a physical space to cast their votes for their choices. Manual voting system without any doubt does not lead to a 100% voting rate. This project primarily focuses to provide the people an authentic scientific community with parties' policy positions, with respect to their constituencies. A web application is developed using reactJS that aims to analyse the role of the existing political parties/independents who are contesting in the forthcoming state election. The project also helps the common man to take a survey with the questionnaire to express his/her willingness and views on the current/forthcoming state election. This web application also helps the state government in achieving 100% voting rate in the state elections by providing an e-voting system enabling Face Detection authentication.

Keywords.

E - Voting system, Face Detection, Face Recognition, Database Management, Node API Generation, Web application development.

1.Introduction.

The Ballot Handbook provides the people an authentic scientific community with parties' policy positions, with respect to their constituencies. This is a web application that aims to analyse the role of the existing political parties/independents who are contesting in the forthcoming state election. It also helps the common public to take a survey with the questionnaire to express their willingness and views on the current/forthcoming state election. This web application also helps the state government in achieving 100% voting rate in the state elections by providing an e-voting system enabling Face Detection authentication. The e-voting system also helps aged, sick people or other common public who were stuck at different places at the time of election, to cast their votes without any guilt which takes the state also a next step through the path of 100% voting rate.

2. Literature Survey.

The first paper which was studied was proposed by Huilin Li, et al. Student Member, IEEE,. It states that Artificial intelligence (AI) has demonstrated huge potential in a variety of real-world applications. However, some significant considerations like fairness, transparency and trustworthiness are still challenging when applying AI to trust-oriented applications such as E-voting. E-voting plays a significant role in democratic societies, which requires voters and initiators to have strong mutual trust. In this paper, we aim to facilitate the consolidation of AI ecosystems by developing a blockchain- based traceable self-tallying e-voting system. We take advantage of an event-oriented linkable group signature and a homomorphic time-lock puzzle to balance the anonymity and accountability, and the voting scale and efficiency of an e-voting system. The proposed e-voting protocol supports additional functions like multi-choice and self-tallying. We prove that the proposed protocol satisfies anonymity, time-bounded privacy, linkability and full-traceability. We also evaluate the time cost of off-chain operations and the gas cost of on-chain operations, which show the proposed e-voting protocol

is practical and can be adopted in real-world applications. The system ensures anonymity of the voter and security of the ballot. But the system does not provide a solution to improve voter awareness. [1]

The second paper which was proposed by Saber Saleh Kaleybar, Member, IEEE, et al. on Distributed Voting/Ranking with Optimal Number of States per Node It states that a network with n nodes, where each node initially votes for one (or more) choices out of K possible choices, we present a Distributed Multi-Choice Voting/Ranking (DMVR) algorithm to determine either the choice with maximum vote (the voting problem) or to rank all the choices in terms of their acquired votes (the ranking problem). The algorithm consolidates node votes across the network by updating the states of interacting nodes using two key operations; the union and the intersection. The proposed algorithm is simple, independent from network size, and easily scalable in terms of the number of choices K , using only $K \times 2^{K-1}$ nodal states for voting, and $K \times K!$ nodal states for ranking. We prove the number of states to be optimal in the ranking case; this optimality is conjectured to also apply to the voting case. The time complexity of the algorithm is analyzed in complete graphs. We show that the time complexity for both ranking and voting is $O(\log(n))$ for given vote percentages, and is inversely proportional to the minimum of the vote percentage differences among various choices. The system ensures E-voting but the system is not very secure. [2]

The third paper which we came across was proposed by Luis Panizo et al on E-voting system evaluation based on the Council of Europe recommendations: Helios Voting. It states that Despite the claimed benefits of e-voting initiatives, wider adoption of e-voting mechanisms and implementation processes is slower than expected. Several technical, social, and cultural challenges hinder generality and applicability of e-voting. Amongst them, the evaluation and harmonization of e-voting systems, given different legal and statutory frameworks, is still an important challenge to overcome. Yet, only a few works have addressed this topic in the field. This article aims to contribute to further understanding this unexplored topic by applying a practical evaluation framework to Helios Voting, one of the most widely used e-voting tools to date. Our framework, strongly based on the technical and security requirements issued by the Council of Europe in 2017, is a valuable source of information for election officials, researchers and voters to understand the strengths and weaknesses of Helios Voting and, as a result, to improve decision-making processes regarding the type and size of elections that can be securely handled by Helios Voting. The ultimate goal of our paper is to conceptually and practically support the gradual, secure and protocolized expansion of e-voting. The system effectively identifies the voting percentages effectively but it does not ensure improvement of voter awareness. [3]

3.Proposed System.

In the existing manual system of voting, the voters queue up in a physical location to cast their votes for their choices. The data collection, analysis of the political parties/ independents who are contesting in the current/forthcoming election is also very tough. The Drawbacks of the existing system include the threat

of misinformation while randomly researching on the internet about the political parties or about the election. People need to travel to the physical location and queue up and wait to cast their votes.

The proposed system primarily focuses on providing the people an authentic scientific community with parties' policy positions, with respect to their constituencies. A web application is developed using reactJS that aims to analyse the role of the existing political parties/independents who are contesting in the forthcoming state election. The project also helps the common man to take a survey with the questionnaire to express his/her willingness and views on the current/forthcoming state election. This web application also helps the government in achieving 100% voting rate in the state elections by providing an e-voting system enabling Face Detection authentication. Ballot handbook web application that includes API for online voting with face detection , front end design , back end db for the candidate flow where the candidate registers and awaits approval from admin, edits and updates the given details in the personal memoranda , people flow where the common public can register and view the candidate details either by candidate wise or constituency wise and opts for e voting system with face detection, admin flow where the admin approves/ rejects the candidates profile registration requests and edit requests and monitors online voting. The main objective of this system is to develop an effective technological solution to facilitate the citizens in the country to have awareness about their political candidate and develop a secure solution ensuring 100% voting rate in the country.

4.Face Detection Module.

Here for face detection we use Ultra light detector system. This model design is a real-time ultra-lightweight universal face detection model designed for edge. There are two versions of the model, version- slim (slightly #faster simplification), version-RFB (with the modified RFB #module, #higher precision). Provides pre-training models using widerface training at 320x240 and 640x480 different input resolutions to better work in different application scenarios.

Fig 4.1: face detection module

5.Node Api Integration.

In this project we develop the API (Application Programming Interface) using the javascript framework nodeJS. Node.js is a server-side platform built on Google Chrome's JavaScript Engine (V8 Engine). Node.js is an open source, cross-platform runtime environment for developing server-side and networking applications. Node.js applications are written in JavaScript, and can be run within the Node.js runtime on OS X, Microsoft Windows, and Linux. Node.js also provides a rich library of various JavaScript modules which simplifies the development of web applications using Node.js to a great extent.

6.Mongodb Integration.

MongoDB ,an open-source cross-platform document-oriented database program is used from database management. Database is a

physical container for collections. Each database gets its own set of files on the file system. A single MongoDB server typically has multiple databases. Collection is a group of MongoDB documents. It is the equivalent of an RDBMS table. A document is a set of key-value pairs. Documents have a dynamic schema. Dynamic schema means that documents in the same collection do not need to have the same set of fields or structure, and common fields in a collection's documents may hold different types of data.

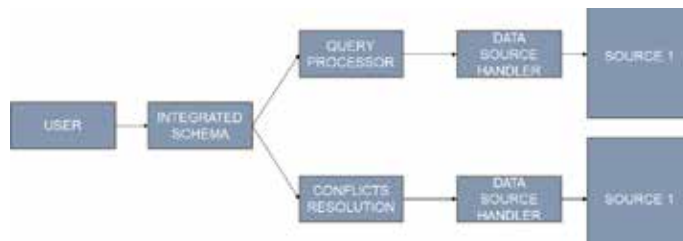


Fig 6.1: MongoDB integration

7.Reactjs Front-End Development.

React is a library for building composable user interfaces. It encourages the creation of reusable UI components, which present data that changes over time. Lots of people use React as the V in MVC. React abstracts away the DOM from you, offering a simpler programming model and better performance. React can also render on the server using Node, and it can power native apps using React Native. React implements one-way reactive data flow, which reduces the boilerplate and is easier to reason about than traditional data binding.

8.Future Scope.

The application can be enhanced with even more security and authenticity by adding Fingerprint Detection and Iris Detection along with Face Detection which makes the E-Voting system a 100% success.

9.Sample Output.



Fig 9.1: The above image is the login page

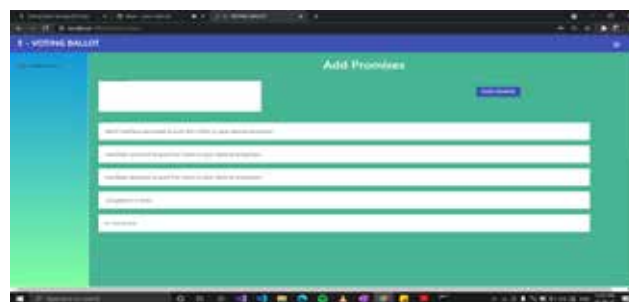


Fig 9.2: The above page is the candidate login page, where the candidate can add their promises

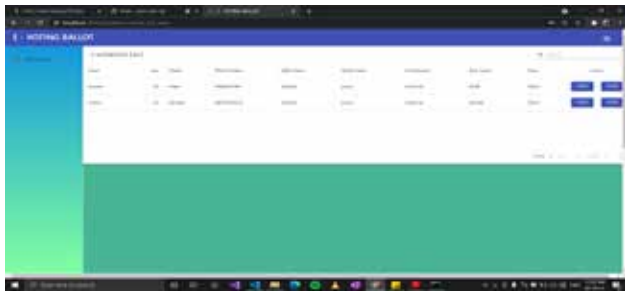


Fig 9.3: The above page is the Public login where the public can view the candidates details and their promises and also vote for their desired candidate

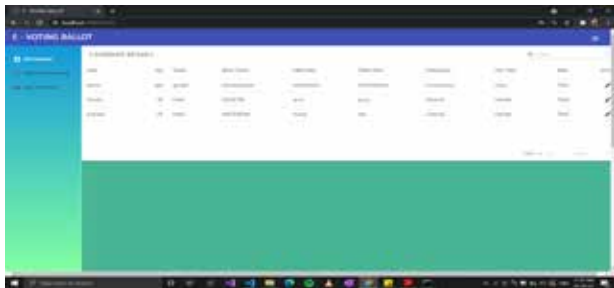


Fig 9.4: The above page is the admin login where the admin can reject or accept candidate requests.

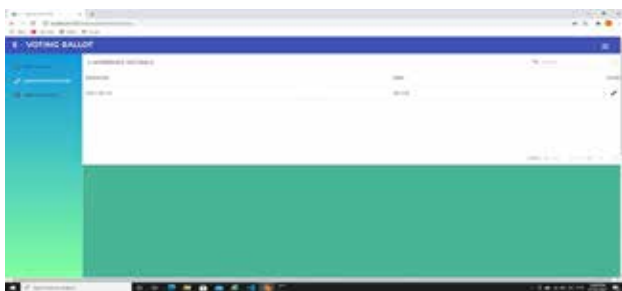


Fig 9.5: Here the admin can change the date of the election and can change the status of the election



Fig 9.6: The above page shows the result of the election

10.Conclusion.

This application ensures that the citizens of Tamilnadu are aware about the candidates across the state parties and independents who are contesting in the forthcoming state election and it also provides the facility to cast their votes online with a hustle free experience . This is the first step we take towards ensuring 100 % voting rate.

11.Reference.

[1] Huilin Li, [1] Huilin Li, Yannan Li, Student Member, IEEE, Yong Yu, Member, IEEE, Baocang Wang, Kefei Chen,”Huilin

Li, Yannan Li, Student Member, IEEE, Yong Yu, Member, IEEE, Baocang Wang, Kefei Chen”.[2020]

[2] Saber Salehkaleybar, Member, IEEE, Arsalan Sharif-Nassab, and S. Jamaloddin Golestani, Fellow, IEEE Dept. of Electrical Engineering, Sharif University of Technology, Tehran, Iran,”Distributed Voting/Ranking with Optimal Number of States per Node”[3] Luis Panizo, Mila Gascó, David Y. Marcos del Blanco, José A. Hermida, Jordi Barrat and Héctor Aláiz,”E-voting system evaluation based on the Council of Europe recommendations: Helios Voting”

[4] Nirnimesh Ghose, Bocan Hu, Yan Zhang, and Loukas Lazos,”Secure Physical Layer Voting”

[5] Somnath Panja, Samiran Bag, Feng Hao, and Bimal Roy,”A Smart Contract System for Decentralized Borda Count Voting”

[6] Jingxiao Zheng, Rajeev Ranjan, Ching-Hui Chen, Jun-Cheng Chen, Carlos D. Castillo, and Rama Chellappa,” An Automatic System for Unconstrained Video-Based Face Recognition”,

[7] Xiaojuan Cheng, Jiwen Lu, Senior Member, IEEE, Bo Yuan, Member, IEEE, and Jie Zhou, Senior Member, IEEE “Face Segmentor-Enhanced Deep Feature Learning for Face Recognition”.

[8] Lei Zhang, Senior Member, IEEE, Ji Liu, Bob Zhang, Member, IEEE, David Zhang, Fellow, IEEE, Ce Zhu, Fellow, IEEE “Deep Cascade Model based Face Recognition: When Deep-layered Learning Meets Small Data” IEEE transactions on image processing.

[9] Yuqi Zhang, Yongzhen Huang, Senior Member, IEEE, Shiqi Yu, and Liang Wang, Fellow, IEEE “Cross-view Gait Recognition by Discriminative Feature Learning”. IEEE Transactions on Image Processing.

[10] Christian Galea, Student Member, IEEE, and Reuben A. Farrugia, Member, IEEE “Matching Software-Generated Sketches to Face Photos with a Very Deep CNN, Morphed Faces, and Transfer Learning” IEEE transactions on information forensics and security.



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Dr.C.Sunitha Ram obtained her B.E (CSE) Engineering Degree from University of Madras in May 2000, received her Master Degree in Computer Science and Engineering, Sathyabama University, Chennai in May 2006 and received her Ph.D in CSE, SCSVMV UNIVERSITY in

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