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ONLINE VOTING SYSTEM USING AWS CLOUD

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ABSTRACT

India is the largest democracy in the world. It is necessary to make sure that the elections take place in the most secure fashion. Currently, Elections take place in India via EVMs (Electronic Voting Machines) or ballot paper. To conduct these elections large man force, time and effort is required. Also, the results are announced after a long time. Other than that disabled people can't vote and people who have migrated can't vote either. And there have been various instances of EVM theft and booth capturing which affects the result of the election. And panchayats still use ballot paper which is most unsafe form of voting because it can be manipulated easily. Therefore, the current system needs a change. The new method allows the person to vote from the comfort of their home in the most secure fashion, which makes the process whole lot easier and makes the process of conducting election really smooth. This research paper focuses on a system using which the person can vote from anywhere using their computer or mobile phone without having the need to physically be present at polling booths there by saving time, effort and cost significantly. To make things secure this system has two factor authentication which uses face recognition and OTP verification. On top of that this system is deployed on AWS cloud which makes it fast, secure, scalable and cost effective. This system also allows user to see the result anytime which can avoid situations that pave way for vote tempering. Keywords—Online voting system, AWS, Face recognition.

KEYWORDS

Digital Circuits, Wireless Network, Mobile Network, Virus, Worms & Trojon.

1. INTRODUCTION

Elections are bound to happen in a democracy. Therefore, it is the responsibility of the government and citizens of the country to make sure that they happen in safe, secure and efficient way. The voter can register before an election. At the time of registration, the voter has to provide his/her information such as username, email, password, etc. As soon as the user provides these details, they will receive an OTP on their email id. After using the OTP, the webcam will turn on and capture his images and store them in face dataset. All these details get stored in the database. The admin manages the users and has the privilege to start and end the election. The voter logs into the online voting system. In turn they will receive an OTP on their email id for verification purpose. The voter votes for the candidate according to his/her preference and as soon as they choose the candidate their webcam will turn on and they capture their photo. If the photo matches the photo of the voter in the face dataset, then, the vote will be counted. The website sends a confirmation to let the user know that the vote has been registered. The main aim of this system is to make sure that a voting system is designed using face recognition and OTP verification so that anyone can vote from anywhere in the world without any hassle which will motivate more and more people to vote which in turn may affect the result of the election. All the voting

information and data is stored in AWS cloud which no one has ever been able to breach therefore it guarantees that the elections are conducted in the safest possible way without any tempering. AWS cloud is very fast, very secure, highly scalable and elastic and has minimum downtime. The voters are never going to have any issue voting online. As the technology is evolving day by day our voting system should also be updated to the latest standards. In this new system the elections are conducted online and uses decentralized database for efficiency, security, cost saving and other advantages. Therefore, a online voting system has to be designed for a fair election to take place and at the same time for saving time, money and effort.

2. LITERATURE SURVEY

Hazzaa et al. [1] proposed a web based voting system using fingerprint design and implementation to improve the security of voting system and make it more secure. The anticipated EVS allows the electorate to investigate their unique mark that is facilitated with the current duplicate put away in the database. Ganesh Prabhu et al. [2] Proposed a system that allows the user to vote both online and offline. Online with two factor authentication using face recognition and OTP verification and offline voting system is improvised with the help of RFID tags instead of voter id. The user is enabled by the system to view the result at any time. Himanshu Agarwal et al. [3] The proposed model has a greater security in the sense that voter's high security password is confirmed before the vote is registered in the database. The voter has a way of checking whether the vote has gone to the correct candidate at his disposal. The system enables the voters who have migrated to other cities without any hassle. The tallying of votes is done automatically thereby saving huge time. D. Ashok et al. [4] proposed a system which condensed the need of ballot paper, ballot boxes, stamping, etc. into one unit. It utilizes biometric identifiers because of their reliability. EVM has to be improved based on the current technologies viz., biometric system. This research paper discussed various voting systems, voting devices and their issues. Virendra Kumar Yadav et al. [5] proposed a voting system which takes good care of authenticating and authorizing the voter . This approach collects information from UIDAI and uses this information in validating electorate, casting electorate vote during electronic voting procedure. This approach addresses issues such as voter frauds, voting accuracy, reliable voting, time delays, increasing electorate participation providing user friendly interface etc., thus providing a framework for fair elections. Srivatsan Sridharan [6] proposed a system that ensures that all users having universal identification number of their country is allowed to cast their vote. The authenticity was taken care of by allowing the voter to use any biometric identification. This is deployed in three phases – the voter registration, vote casting, online counting and result declaration. A secret password provided to voter during registration acts as an authentication mechanism which allows the user to securely cast their vote Smita B. Khairnar et al. [7] proposed a new secure authentication for online voting system by using biometric feature and steganography. Voter enters a password at the time of registration. Password is converted into secret message using timestamp and hashing. Steganography is used to store the secret message in an image. In this model, a person can also vote from outside of his/her allocated electorate or from his/her chosen location. Himanshu Vinod Purandate et al. [8] proposed a voting system using android application and the process becomes less time consuming. Voter can cast their vote from anywhere with the help of an android device and internet. It has also has higher level of security as it has two factor authentication i.e. Facial recognition and OTP which will be provided on users registered phone number. Julius Mutebi et al. [9] summarized the system into three phases. Access control process involved identification and authorization. In the second step the voter's electronic ballot was encrypted before being submitted to the server. The final result is then sorted through deciphering the received encrypted information. The proposed system is more efficient because voters can vote from their device without extra cost and effort and at the same time more secure because of encryption. Ramya Govindraj et al. [10] proposed the idea to implement a online voting system with features like the schemes that the specific party has implemented, based on the features we are going to vote. This has been implemented using C# as a programming language, Microsoft SQL server 2012 and Microsoft azure as cloud. (P et al., 2018). [11] Current voting process have many faults and the objective of this project is to minimize possibilities of manipulation. This project worked on implementation of fingerprint and facial recognition for vote verification. They used different technologies and tools like Python. Development Environment, Linux

Interfacing Engine and, Visual Basic. This dual authentication system reduces the chances of fraud and illegal activities and improves the security and efficiency of the voting process. Mohammad Hosam Sedky et al. [12] proposed a reliable cost effective secure electronic voting system that can be used in cost effective ways in many developing countries. The proposed voting system overcame various difficulties in conduction of elections. Dr. Z. A. Usmani et al. [13] discussed multiple voting systems in their research paper along with their pros and cons. The goal of the paper was to design a multipurpose voting system and make it work on any operating system. Hanady Hussein et al. [14] proposed a very secure e-voting system. It's implementation is based on homomorphic property. This system also utilizes blind signature scheme. The system is implemented on an embedded system which serves as a voting machine. The voting system uses RFID to store the conditions that comply with the rule of the government to check the eligibility of the voter. Naznin Fauzania et al. [15] described an implementation based on Fujiko-Okamato-Ohta protocol which made the voting system more efficient and secure. The implementation included the automation of an online voting system providing some features which were absent in the previous implementations.

3. CONCLUSION

Studying all these research papers we have gained knowledge about the advantages of online voting over the traditional voting system. The proposed system is developed to ensure safe and secure elections and utilizes two factor authentication to overcome all the drawbacks of existing voting system. The proposed system has various advantages like better ways of verifying the voter, convenience, efficiency, cost saving, etc. It eliminates the requirement of polling booths and saves a lot of cost by removing the need of EVMs to conduct the elections. The user only needs a computer or mobile phone to vote making the process whole lot easier.

4. FUTURE WORK

Online Voting System could be developed using Django framework and deployed on AWS to make it easy to vote and at the same time make the process fast and secure..

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