

Secure Online Voting System In Smart Device

Dr.N. Palanivel¹, Subhashini², Santhiya³, Umapriya⁴

¹Associate Professor, Department of Computer Science and Engineering, Manakula Vinayagar Institute of Technology, Pondicherry University, Pondicherry

^{2,3,4}UG Students, Department of Computer Science and Engineering, Manakula Vinayagar Institute of Technology, Pondicherry University, Pondicherry

Email: ¹npalani76@gmail.com, ²santhyakumaresan23@gmail.com,
³subha28subhashini@gmail.com, ⁴umapriya1230@gmail.com

Abstract: *Democracy and voting are essential intellectual rights of every citizen. Nowadays due to various manipulation in casting of voting which make critical issues in electronic voting systems. It includes server signs blank votes before users vote, it may cause undue multi voting. Furthermore, if users vote before the signing of the server, voting information will be leaked to the server and may be compromised. Blind signatures could be used to prevent leaking voting information from the server; however, malicious users could produce non candidate signatures for illegal usage at that time or in the future. In order to provide trusted and authorized voting system this paper proposes a novel oblivious signature scheme with a proxy signature function to satisfy security requirements such as information protection, personal privacy, and message verification. The proposed scheme based electronic voting system provides proxy signature scheme for Smartphone application. The experimental analysis and performance metrics provides higher efficiency and improved QOS of the proposed scheme with the state of art techniques.*

Keywords: *multi voting, information protection, personal privacy, message verification.*

1. INTRODUCTION

In the recent times there are many literatures on online voting has been developed. While online voting has been an area of research in the recent years, there are efforts made to make online voting system more secure. The use of insecure Internet, and there sulting security Breaches have been reported recently. So, the main issue now to resolve these security breaches such as denial of service attacks. Current voting system is the conventional voting system built on ballot machine where the voter are allow to cast their vote by pressing the button along with the symbol on the voting machine. So there arise some security risks that the person may cast their votes more than one time, fraudulent, breakage of the system, theft may happen. In this conventional system ballot begin before a week and the voters are go to the polling booth to cast their vote. In order to provide security huge manpower is required to avoid mal practices, to avoid such security issues and malpractices a new E-voting system have been introduced using biometric technology which use face detection and recognition to cast their vote on their place without moving to polling booth they can cast their votes through online.

Online voting system in Smart Mobile provides people who are authorized by the admin can cast his/her vote online without going to any physical polling station. There are many voting procedures which are being used for voting purpose, such as ballot paper, EVM machine but all these procedures require more time consuming and requires more

man power so to eliminate all these drawbacks we provide an online voting system which provides features such as accuracy, convenience, flexibility, privacy and verifiability. The proposed system provides user a platform where he can register himself to cast vote remotely. The proposed voting system by which any Voter can use his/her voting rights from anywhere. And for the smooth processing of voting system has an integrated chat bot. It can guide users at any stage of process to make accessibility easy. The main objective of this study is to make a step forward in the direction of onlinee mobile voting platform by providing all the essential security levels.

The objective of this study is to make the voting process easy, less time taking, and secure. Online voting system eliminates the bogus voting which can occur in tradition voting schemes which can occur in tradition voting schemes. The process, which is involved in the paper-based electoral system, is a rigorous one. First, all persons who are eligible to vote (normally eighteen years of age or older) should be a citizen of the country. These persons will have to go and get enumerated six months in advance after which the election workers will visit their residential addresses to ensure first that those persons actually live there and ascertain that they have given the correct information about themselves. After validation, a voter's Id will be issued. The complete procedure involves lot of paper work. Appropriate training will have to be provided for the staff members in charge of polling duty. During the day of polling, the concerned staff members are required to be present half hour prior to the opening of the polling booth/station to check that all arrangements have been done correctly.

LITERATURE REVIEW

The finger print verification is the uniqueness of this application which allows the casting of vote only once by an individual. He/ She will have a login in the mobile linked with Aadhar card analyze the voter to scan their finger print, which is then match with an already saved image within a database which is retrieved from Aadhar card database. At that time candidate will receive the OTP then the candidate can cast their vote where it is safely encrypted to a server. This creates an immutable chain, which is where the block chain gets its name from, and prevents tampering with the integrity of the previous entries in Ballot based Voting is present, but still there is no system to avoid Proxy Casting and 55 Recasting is implemented. There is no option to see our casted vote also. There is no security in this current application.

PROPOSED SYSTEM

This Online Voting System will manage the Voter's information by which voter can login and use his voting rights. There is database which is maintained by the ELECTION COMMISSION OF INDIA in which complete data of voter with complete information is stored. At the time of registration voter will be asked for this: Full name, age, aadhar card no, mobile no. email id, finger prints and verified the details by administrator. At the time of requesting vote, voter will be asked to enter his aadhar id. Then voter will be authenticated, and he can give vote from one of the candidate from the list. If voter already has AADHAR Id then he/she don't need to register, else before voting he/she need register himself/herself in AADHAR database. The proposed system uses face recognition system and one time password system for authentication.

A facial recognition system is a technology capable of matching a human face from a digital image or a video frame against a database of faces, typically employed to authenticate users through ID verification services, works by pinpointing and measuring facial features from a given image. A convolutional neural network (CNN) is a type of artificial neural network

used in image recognition and processing that is specifically designed to process pixel data. CNN have their “neurons” arranged more like those of the frontal lobe, the area responsible for processing visual stimuli in humans and other animals. CNNs use image recognition and classification in order to detect objects, recognize faces, etc. They are made up of neurons with learnable weights and biases. CNNs are primarily used to classify images, cluster them by similarities, and then perform object recognition. A one-time password (OTP) is a password that is valid for only one login session or transaction. OTPs avoid a number of shortcomings that are associated with traditional (static) password.

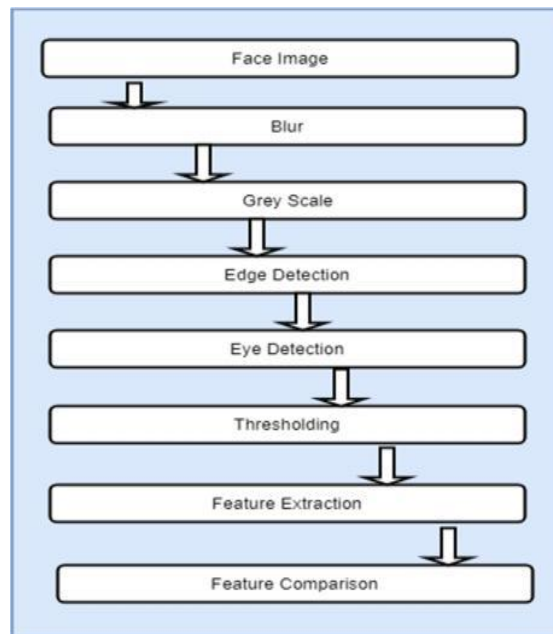


Figure 1: Working of Face Recognition system

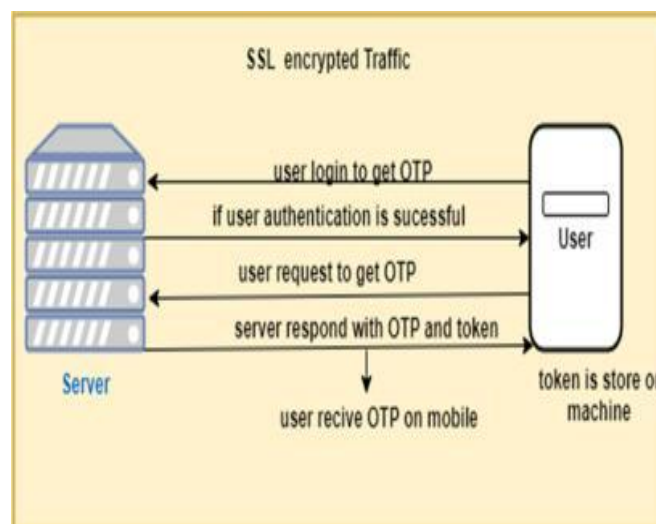


Figure 2: Working of OTP procedure

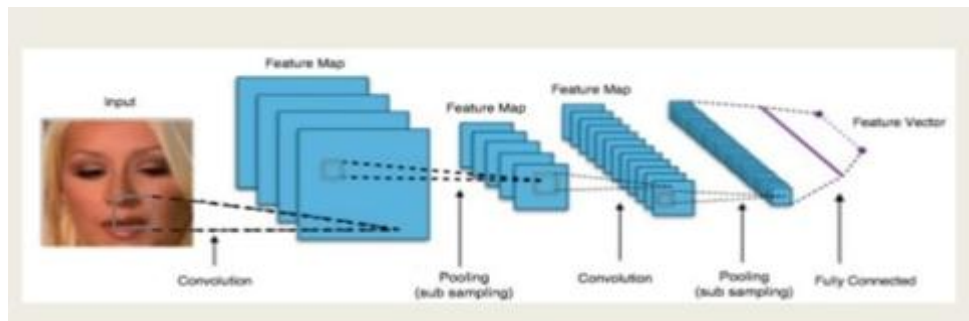


Figure 3: Working of CNN procedure

PRODUCT PROTOTYPE

The product is an election conducting tool with a simple capacitor for Android app in it. This system is developed using Mongadb for database and Nodejs for backend Though product is stand-alone. It requires a react for website.

MODULES OF OUR SYSTEM

Online voting is a portal through which a voter can cast his vote by registering themselves on the online voting platform. All the information about users is entered in database by which admin can verify the user. There are different tables in database for users, candidates, result, and admin. Each voter has to enter his all basic information like name, gender, state, and email-id. This is the first page of the website known as the welcome page. It has all the page options like Home, Polling Dates, Register, Login, about us, Contact us, FAQs.

ARCHITECHTURE OF E-VOTING

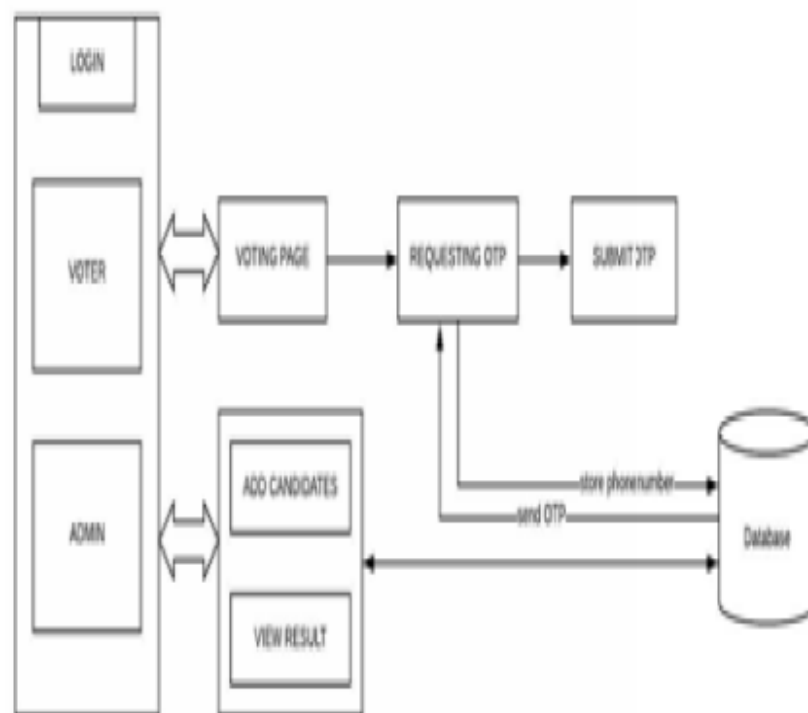


Figure 4: Architecture of E-voting system

Algorithm for E-Voting system

- Step 1: Get the android application.
- Step 2: Register by providing all the details and request for OTP using Email& Face Recognition
- Step 3: Face Verified Enter the received OTP and get registered.
- Step 4: Voter can login to the android application using username and password and can view the election info and candidate details in the application.
- Step 5: Voter will be allowed to enter the voting page and cast their vote only on the election day.
- Step 6: Admin should login to the web application and will be authorized to register candidate details and also modify voters as well as candidate's details.
- Step 7: Once the Admin opens the voting session, voter can cast their vote and will be logged out from the voting page.
- Step 8: Votes will be encrypted and will be stored until the result day.
- Step 9: On the result day the votes will be decrypted and displayed.

EXPERIMENTAL RESULTS AND CONFIGURATION

The experimental setup is simulated and it is created using HTML, CSS and Bootstrap programming as front end along with PHP, JavaScript as back end which is maintained in the database of MySQL in XAMPP server with JSON, PYTHON, and DIALOGFLOW. The proposed system helps in reducing the time for voting process. It helps the voter to cast their vote without going to the polling booth. It reduces the fraud votes and also reduces the error that occurs while counting the vote manually. Hence paper work can be reduced. It will be very much helpful for the aged people because it does not require travelling for a long distance to cast the votes in the polling booth. Since it is an online process, the results can be viewed very easily and quickly.

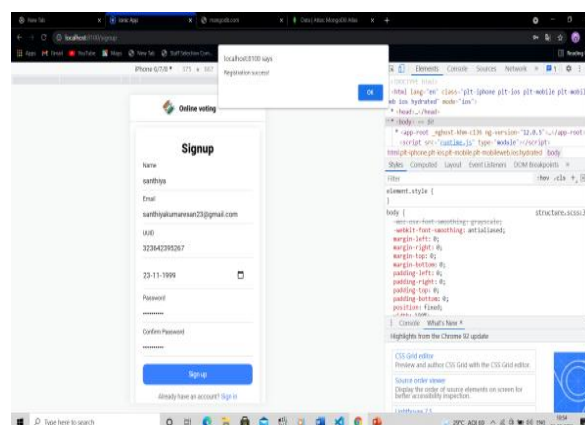


Fig 5: Home Page of Online Voting System

This is the registration page, where the voter can register themselves. The users have to enter their details which are required by admin through registration page. All the detail registration on the portal are saved in the respective database. The Admin has authority to accept eligible user, otherwise he has right to reject their registration by proving reason of rejection.

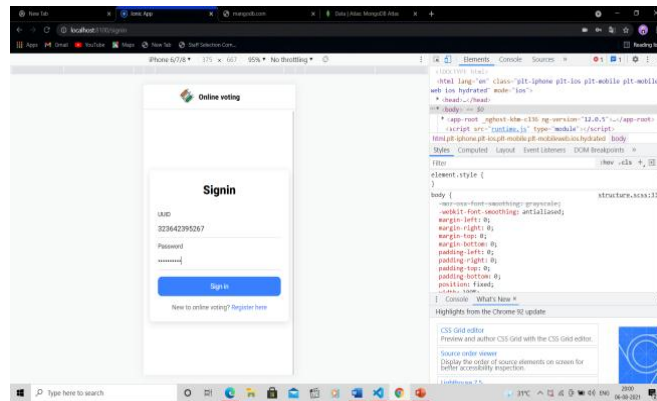


Fig 6: Registration Page for Online Voting System

The E-voting application consists of login for voter and admin. The voter will login by giving Voter id, Name and Region where admin will login by giving username and password.

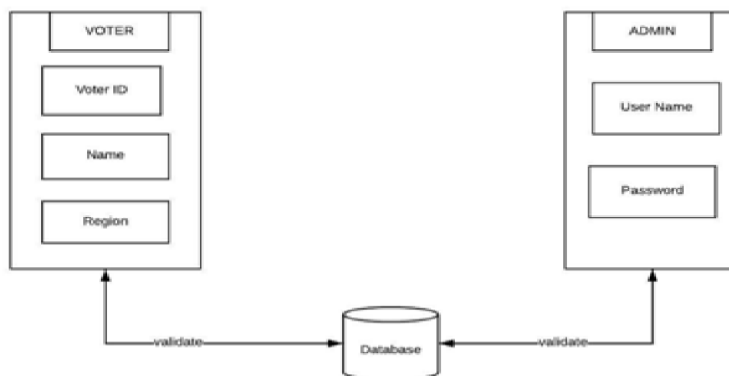


Fig 7: Login process of online voting system

This module which gives a list of all ongoing elections, this module is accessible only to the users who have been verified by admin. By this module, a user can cast their vote by selecting a candidate of a particular election.

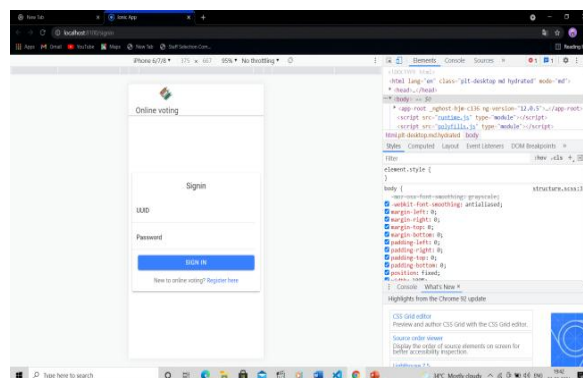


Fig 8: Election panel

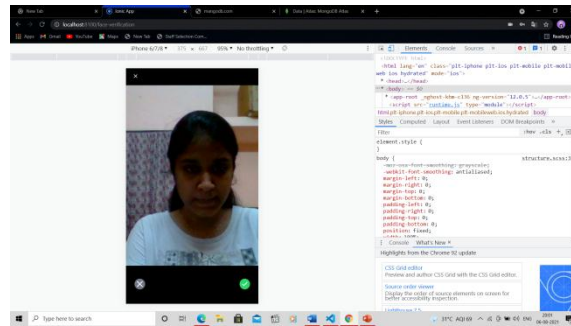


Fig 9: Face Recognition System

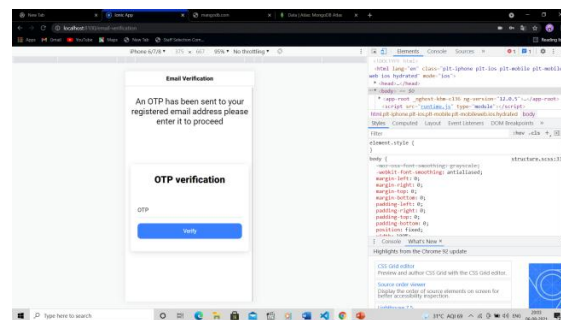


Fig 10: OTP Verification

The voter will login to the application. After login the voting page will be displayed after chosen the candidate the voter should enter the mobile number for generating the OTP after that OTP will be received by the voter then they should submit the OTP to consider the vote as valid.

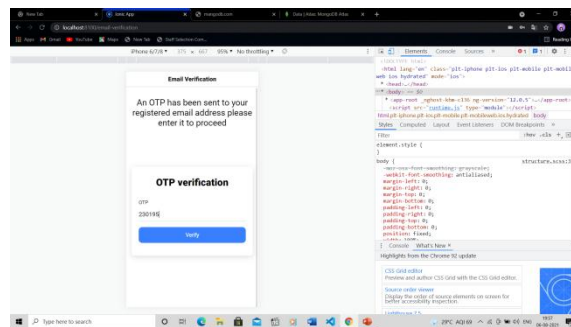


Fig 11: OTP Generation

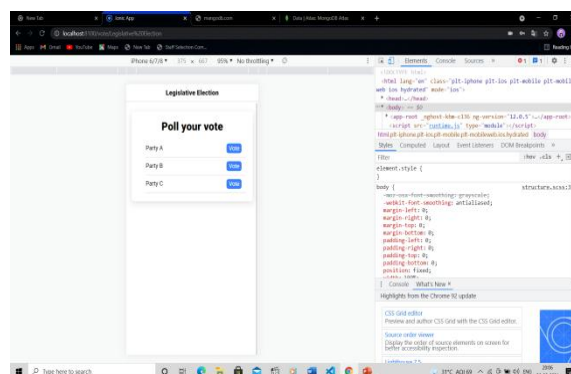


Fig 12: Polling System

2. CONCLUSION

Online portal gives voter a smart way to think and cast his vote via internet without going to voting booth. Our portal provides special options also that will resolve any issue faced by user during the whole voting process. This system gives fast access, more security levels, high flexibility and efficiency. It also eliminates the chances fake person casting vote or bogus voting. It also reduces man power and unwanted human errors. It provides quick results of elections which are completely accurate. Our system focuses on reducing the time and paper work. Hence the online voting system make all the voting system make all the voting process fast and give security to the vote.

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