IOSR Journal of Computer Engineering (IOSR-JCE)
e-ISSN: 2278-0661,p-ISSN: 2278-8727, Volume 18, Issue 2, Ver. II (Mar-Apr. 2016), PP 42-45
www.iosrjournals.org

Online Voting System (Android Application)

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Abstract:*Voting is the HEART of democracy. Voting provides a way to select a Leader to manage problems and other issues. The basis of this project is to create an Android application based on which voting can be performed. Also it will help to eradicate defrauding of the traditional voting system which involve voting by multiple votes cast by the same user. With an Android Application, one can login into the system using their VOTER ID and password to get authenticated further. Once the corresponding VOTER ID and password gets matched with the information provided in the database, the voter gets an option for OTP using SMS or EMAIL. This OTP will be encrypted using a PLAYFAIR CIPHER algorithm and gets verified. Once it is done voter is accessed to candidate list through which vote can be given for their preferred candidate. The respective candidate vote will be saved into the database and then gets logged off from the account. The voter will not be allowed to vote for multiple times. The proposed paper also carries the unique feature of being autonomous during the course of operation, which helps to reduce the chances of hacking and other attacks and frauds occurring in previous attempts of electronic voting machines and manual voting process.*

Keywords*: Android, ECLIPSE ADT, voting, encryption, play fair cipher.*

I. Introduction

Voting is a right to every citizen. It gives the choice of the people to whom they want to up hold the meaning of a system governed by the people's choice. However, representing elections have become a debatable issue. Different techniques of voting have evolved from simple manual voting to internet voting systems that only require the voter to come from the comfort of their home to vote their candidate from their personal computers. An election system should be able to overcome different hacking and fraud techniques. To overcome different complications and to reinforce the checking and calculating results, the project suggests the use of one time password. Authentication is made by voter id, OTP, encryption of OTP aadhar card no. We are using play fair cipher technique to enter the OTP. The system is more secured. Voter can view the voting History.

II. Literature Survey

Android e-Voting application on smart phone user gives user to vote. There is a DATABASE which is maintained by the ELECTION COMMISION OF INDIA in which complete information about voter is stored. Admin can update various voters' information and handle complete data of voters and candidates. Information about voters like their name, Nationality, Voter ID, address can be maintained by the admin. Even though the system allows voters to vote any candidate from anywhere, but the voters should have to authenticate themselves and get access to their account. Thistechnique is imposed to ensure that only the valid person is allowed to vote in the elections. The aim of this project is to design and develop a voting application for the Android platform that will help people to vote securely from anywhere from the country. The application aims towards being compatible with different devices and running different versions of the operating system. Electronic voting using android application refers to the use of smartphones to vote and use computerized voting equipment to vote.

The Caltech/MIT Voting Technology Project [6] developed a new efficient voting technology to overcome the problem of recurrence that threatened the 2000 U. S. Presidential Elections. The report assesses the root of the problems and tried to overcome it.They address a wide range of "What is" issues regarding voting systems, voting equipment, voter registration, polling places, absentee in early voting, ballot security, cost and public finance of elections, etc. and resulted into a new technique, that will process for innovation to be setup. A new framework "A Modular Voting Architecture ("Frogs")" [7,8,9] in which generation of votes is performed separately from vote casting, and the "Frog" forms a permanent audit trail, the importance of which cannot be overstressed. Here, the vote generation machine can be proprietary whereas the vote casting machine must be open-source and thoroughly verified and certified for correctness and security. Finally, the report provides a set of short-term and long-term recommendations on the various issues related to voting.

III. Existing System

There exist many ways to cast vote and held elections. These involves traditional means of voting which includes manually voting process else online through webpage. Security is an important part of voting. But issues of cheat in voting and other hacking techniques through online leads to difficulties and many challenges. There exist many security challenges to voting system which need to overcome.

IV. Proposed System

This Online Voting system will manage the Voter's information by which voter can login and use his voting rights. There is a DATABASE which is maintained by the ELECTION COMMISION OF INDIA in which complete data of voter with complete information is stored.

At first any new voter has to register through booth (System Administrator) i.e. on the Internet web site through provided web services.At the time of registration voter will be asked for this voter id, Full name, age, aadhar card no, mobile no. email id and verified the details by administrator.Also an Android application will be provided to voter for voting purpose. At the time of requesting vote, voter will be asked to enter his voter id. Voter has provision to select SMS or mail option to request for OTP.Also one time password (OTP) will be generated and sent to the phone number of the voter or mail will be sent to the voter's email id. Then for more security voter has to enter his generated OTP using play fair cipher technique. Then voter will be authenticated, and he can give vote from one of the candidate from the list.Voter can view the voting history.On Request from the candidate, Admin can update or cancel candidate list from the database.

V. System Design and Consideration

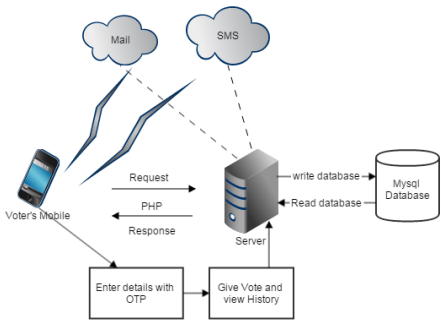

Figure 1:Block Diagram

Steps to be followed:

Step 1: Register yourself at ELECTION COMMISION OF INDIA and get updated online.
Step 2: Get the android application.
Step 3: During Election period, open the application and provide your Voter ID and enter.
Step 4: Request for OTP using Email or SMS and put it as password by encrypting it by PLAYFAIR CIPHER method.
Step 5: User will get authorized to vote and hence can vote and logout.
Step 6: It gets stored into Database and Results are calculated accordingly.

VI. Methodology Used

One Time Password:

A one-time password (OTP) is a password that is valid for only one login session or transaction. OTPs helps to overcome the problem of number of shortcomings that are related with traditional passwords which were static. The problem caused by static OTPs was that, they are vulnerable to various attacks. The even digit of OTP will be generated at server side and through mail or SMS, it will receive to the voter's email id or mobile number respectively. Then voter has to use following technique for authentication.

Pair-based Authentication scheme Module:

The grid is of size 6 x 6 and it consist combination of alphabets with numbers. These combinations are randomly placed on the6 x 6 matrix.Once the User gets the OTP, he has to enter the password depending upon the OTP. User has to consider his OTP in terms of pairs that need to be encrypted. This encrypted session password consists of combinations ofalphabets with digits. The first letter in the pair is used to select the row and the second letter is used to select the column. The intersection letter is the new password which user has to

enter in text field so as to get authorized to vote.

Figure 2: Grid Matrix

Playfair cipher

This project involves a cipher that is more complicated than the simple substitution cipher so as to securely get authenticated and vote. The PlayFair Cipher is a technique used for encryption of OTP. The technique encrypts pairs of letters i.e. OTP received by the user through Email or SMS, instead of using simple substitution cipher and rather more complex. The Playfair is more complex and thus difficult to break.This project involves use of A-Z 26 letters and 0-9 digits for 6*6 grid matrix to encrypt the OTP.

VII. Advantages

- The system can be used anytime and from anywhere by the Voters.
- No one can cast votes on behalf of others and multiple times.
- Saves time and reduces human intervention.
- The system is flexible and secured to be used.
- Unique Identification of voter through Aadhar number/Voter-ID.
- Extremely secure system with one time password.
- Improves voting with friendly Android Interface.
- No fraud vote can be submitted.

VIII. Future Scope

There exist various methods to secure the Voting process. Our project Used Play fair Cipher Method to encrypt the data and made it secure using 6 X 6 Grid Matrix. In future more complex Grid Matrix can be used and make it complex for hacking and related issues. It can be extended to more Security Using various level of Authentication and Verification. More Security and Privacy Issues can be maintained by using various aspects.

IX. Conclusion

Online Election systems have many advantages over the traditional voting system. Some of these advantages are less cost, faster generation results, easy accessibility, accuracy, and low risk of human and mechanical errors. It is very difficult to develop e-voting system which can allow security and privacy on the high level. Future development focused to design a system which can be easy to use and will provide security and privacy of votes on acceptable level by proper authentication and processing section. In case of online e-voting some authentication method like play fair cipher and unique voter id and aadhar card number is used.By online voting system percentage of voting is increases and cost and time of voting process is decreases. It is easy to use and it is less time consuming. It is very easy to debug.

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