

“A Secure E-voting System using Biometrics Authentication Methods for Android”

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Abstract: The android voting system is an android application that provides a new technique of casting votes using mobile phones. This application is especially developed for organizations, corporations and commercial businesses to get employees opinions whenever there is any new policy implemented or any issue being investigated or during controversies. The project provides an effective solution in resolving all the arguments that occurs in organizations by considering all employees opinions. The system has an admin login that has overall control over it. Admin feed the issues or arguments in the system along with desired options. These questions can then be visible to all the employees through android devices. Employees have to first create an account into the system for casting their votes. At the end of the voting process the system counts all the votes casted and generates a brief report of the total votes accounted for yes, no and neutral. Eventually, the report is made available to admin and he may view the maximum votes casted for. Hence the system helps admin to receive appropriate response from employees for the matters in question.

Keywords: Android Application, Biometrics, Authentication Methods, Organizations, Corporations.

I. INTRODUCTION

Voting for any social issue is essential for modern democratic societies now a day. So it is becoming very important to make the voting process more easy and efficient. In other hand the rapid development in operating system of the mobile phones gives rise to the application development on the large scale. The main reason behind the tremendous development in android application development is that the android is an open source operating system. It means that the software developers can have customization rights. As well as the software development kit provides tools to build and run android applications. The paper will be describing the basic idea of the project E-voting system on android and its advantages, disadvantages and applications. The paper is divided in five parts. The first part describes the literature survey i.e. the previous work done on the voting process. Then the further parts will describe about the E-voting methodology, architecture, advantages, disadvantages and its applications.

II. LITERATURE REVIEW

All computer scientists who have done work in or are interested in electronic voting seem to agree that online voting does not meet the requirements for public elections and that the current widely-deployed voting systems need improvement. Voting on the Internet has disadvantages based on the areas of secrecy and protection against coercion and/or vote selling. It's such a truly bad idea that there seems to be no credible academic effort to deploy it at all. The Kenyan General elections of 2007 brought national attention to problems with current methods of casting and counting votes in public elections. Most people believe that the current system should be changed;

there is much disagreement on how such changes should be made.

Kenyans in the Diaspora have begun signing a petition in a fresh attempt to force the electoral body to allow them vote online in the next General Election. They advocate using the OVS since it reduces cases of uncounted, unmarked, and spoiled ballots and the cost of travelling to cited polling stations. They are opposed to the use of High Commissions and embassies as polling stations and embassy officials as returning officers. The IEBC has in the past recommended that Kenyans abroad vote at the embassies and consulates closest to them. In the US, for example, Kenyans are expected to vote in Los Angeles and New York. Their report even proposes a framework for a new voting system with a decentralized, modular design. Other researchers have done work in electronic voting; while they may not explicitly mention voting from remote poll sites, their work is nonetheless relevant to any effort at designing or implementing a remote poll site voting system. Lorrie Cranor acknowledges the problems inherent in each kind of voting apparatus, but doesn't make an overt recommendation on her site for one technology over the rest. Some other academicians like Peter Neumann focus on the immensity of the problem one faces when trying to design and implement a truly secure voting system. They often remind us of Ken Thompson's Turing acceptance speech and the fact that we really can't trust any code which we did not create ourselves. Therefore, they tend to be extremely suspicious of proprietary voting machines and their makers who insist that we should "just trust [them]." Neumann gives a list of suggestions for "generic voting criteria" which suggests that a voting system should be so hard to tamper with and so resistant to failure that no commercial system is likely to ever meet

the requirements, and developing a suitable custom system would be extremely difficult and prohibitively expensive. A voting machine must produce human-readable hardcopy paper results, which can be verified by the voter before the vote is cast, and manually recounted later if necessary. David Chaum presents a very interesting scheme, whereby voters could get receipts for their votes. This receipt would allow them to know if their votes were included in the final tally or not, and to prove that they voted without revealing any information about how they voted. The security of this scheme depends on visual cryptography developed by Naor and Shamir, and on voters randomly choosing one of two pieces of paper. Mercuri and Neumann advocate the use of this technique in electronic voting systems. In the recent years, voting equipments which were widely adopted in many countries may be divided into five types.

1. **Paper-based voting:** The voter gets a blank ballot and use a pen or a marker to indicate he want to vote for which candidate. Hand-counted ballots is a time and labor consuming process, but it is easy to manufacture paper ballots and the ballots can be retained for verifying, this type is still the most common way to vote.
2. **Lever voting machine:** Lever machine is peculiar equipment, and each lever is assigned for a corresponding candidate. The voter pulls the lever to poll for his favorite candidate. This kind of voting machine can count up the ballots automatically. Because its interface is not user-friendly enough, giving some training to voters is necessary.
3. **Direct recording electronic voting machine:** This type, which is abbreviated to DRE, integrates with keyboard; touch screen, or buttons for the voter press to poll. Some of them lay in voting records and counting the votes is very quickly. But the other DRE without keep voting records are doubted about its accuracy.
4. **Punch card:** The voter uses metallic hole-punch to punch a hole on the blank ballot. It can count votes automatically, but if the voter's perforation is incomplete, the result is probably determined wrongfully.
5. **Optical voting machine:** After each voter fills a circle correspond to their favorite candidate on the blank ballot, this machine selects the darkest mark on each ballot for the vote then computes the total result. This kind of machine counts up ballots rapidly. However, if the voter fills over the circle, it will lead to the error result of optical-scan.

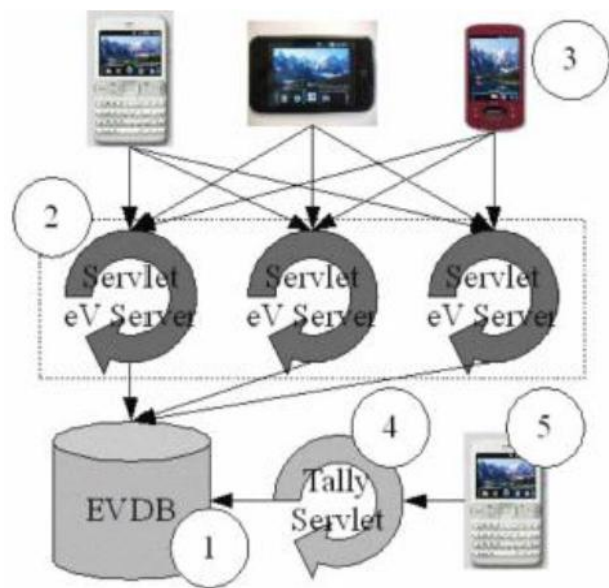
Recent years, a considerable number of countries has adopted E-voting for their official elections. These countries include; America, Belgium, Japan and Brazil.

Modules:

- **Admin Login:** Admin administers the system and feed it with queries and arguments with desired options.

- **User Login:** Employees will have to register into the system for login and can view all the issues being reported or matters in question.
- **Voting System:** There will be three options available for voting- yes, no, neutral. Employees can cast their vote by selecting an option. One voter can only post one vote for an argument.
- **Votes Calculation:** The system automatically keeps a track of all the votes being casted for each option and simultaneously calculates the total votes casted.
- **Report Generation:** At the end of voting system, it generates report for admin to take further action.

III. ARCHITECTURAL WORK



Advantages:

- The system can be used anytime and from anywhere by the employees.
- It excludes the use of manual voting process.
- Employees can keep themselves updated with all things going on in the organization.
- No one can cast votes on behalf of others and multiple times.
- Saves time and reduces human intervention.
- It makes employees happy as their opinions are considered for the matters in organization.
- Admin can get instant result.
- The system is flexible and secured to be used.

Disadvantages:

- Every employee must have an android device for casting the vote.

Applications:

- This project can be used in commercial organizations, corporations.
- It can also be used in schools, colleges, institutes, banks.

IV. CONCLUSION

This research forms a guideline for election generals in developing a fully functional system that has the potential to increase voter turnout and participation. subsequently reinforce transparency and fairness.

REFERENCE

- [1] Rexha, B. N. (2012). International Journal of Computers and Communications. Improving authentication and transparency of e-Voting system – Kosovo case.
- [2] Topiwala, M. (2015, Nov 3). Now register as e-voter from your mobile in Gujarat.
- [3] S. Hashimi, S. Komatineni, and D. MacLean Pro Android 2, in Pro Android 2. New York, US: Apress, 2010, ch. 1, pp. 10-11.
- [4] “E-voting on Android System” paper (International Journal of Emerging Technology and Advanced Engineering) prepared by : Kirti Autade, Pallavi Ghadge, Sarika Kale ,Co-authors- Prof. N. J. Kulkarni, Prof. S. S. Mujgond, February 2012.
- [5] E-Voting System Using Android Application M.S.Sai Mohit, M.Karthik , T.Rajavel , Ms. J.Sangeetha.
- [6] E-Voting Using Android Mobile by Ashwini Ashok Mandavkar, Prof. Rohini Vijay Agawane
- [7] Amir Omidi and Mohammad Abdollahi Azgomi, “An Architecture for E-Voting Systems Based on Dependable Web Services”, Innovations in Information Technology, 2009. IIT '09, pp. 200 – 204, Dec. 2009.
- [8] Cesar R. K. Stradiotto and et al Web 2.0 E-Voting System Using Android Platform
- [9] P. N. Huu, V. Tran-Quang, and T. Miyoshi, “Image compression algorithm considering energy balance on wireless sensor networks,” in IEEE Int. Conf. Industrial Informatics (INDIN), Osaka, Japan, Jul. 13–16, 2010, pp. 1005–1010.
- [10] “Electronic voting,” Encyclopedia of Computers and Computer History, prepared by Lorrie Faith Cranor and edited by Raul Rojas, published by Fitzroy Dearborn, 2001.