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# Research Study on Electronic Voting System

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**ABSTRACT:** We present a security analysis of the source code to one such machine used in a significant share of the market. Our analysis shows that this voting system is far below even the most minimal security standards applicable in other contexts. We identify several problems including unauthorized privilege escalation, incorrect use of cryptography, vulnerabilities to network threats, and poor software development processes. We show that voters, without any insider privileges, can cast unlimited votes without being detected by any mechanisms within the voting terminal software. Furthermore, we show that even the most serious of our outsider attacks could have been discovered and executed without access to the source code. In the face of such attacks, the usual worries about insider threats are not the only concerns; outsiders can do the damage.

**KEYWORDS:** Biometrics, fingerprint module, KY-M6 Fingerprint Sensor, ARM9(mini2440), MEGA Microcontroller, LCD Display, GSM, Direct Recording Electronic (DRE).

## I. INTRODUCTION

Voting is an important aspect of democracy, as it is a process in which voters can express their opinions directly. In the old times paper voting system was quite costly and time consuming, and because of this, electronic voting has been proposed as an alternate mode of voting in election. Conventional electronic voting has attempted to provide appropriate and secure voting using cryptographic algorithms. However, in a concentrated structure, it is possible that administrators may take superiority of their privileges and forge or tamper with the voting data. Additionally, since it enables the chances of a single point of failure, it is only utilized with small numbers of people so far. Recently, various research has been conducted on applying the blockchain technique to find an answer to the issue of trust and the threat of a single point of lack of success. Blockchain refers to the fact that all participants in a peer-to-peer (P2P) network are assured of the reliability of the same data by putting in an application of various consensus algorithms. The application of this feature to electronic voting ensures that all voting data is processed as a transaction and stored in a block so that harmful network participants cannot easily tamper with the data.

In this paper, we proposed to decrease the possibility tampering of the voting machine done by some candidate to elect themselves in the election. In the end we conclude the response of the people who want a tamper free election.

## II. RELATED WORK

### 1. ELECTRONIC VOTING SYSTEM

The first-ever electronic voting system was introduced in the early eighties by David Shaum. The system used a public key cryptography, which was used to cast votes and keep voters anonymous[1]. To make sure there were no links between voters and ballots, the Blind Signature Theorem was used. Since the system was first introduced, many scholars have shown interest in the subject, and a lot of research has been done. Most of the research done on the field has focused on the Direct Recording Electronic System and the Internet Voting Systems. The first system is used in polling stations instead of the paper ballot voting system, but the second system is meant to be mobile and allows voters to cast their votes from anywhere using any device Internet connection.

### 2. PAPER-BASED VOTING SYSTEMS (PVS)

Record, count, and produce a tabulation of the vote count from votes that are cast on paper cards or sheets. Some PVSs may allow voters to make selections by means of electronic input devices. Voter selections are, however, not independently recorded, stored or tabulated by such input devices.

### 3. INDIAN VOTING SYSTEM

The Indian electronic voting machine (EVM) were developed in 1989 by Election Commission of India in collaboration with Bharat Electronics Limited and Electronics Corporation of India Limited. The use of EVMs and

electronic voting was developed and tested by the state-owned Electronics Corporation of India and Bharat Electronics in the 1990s. They were introduced in Indian elections between 1998 and 2001, in a phased manner. The electronic voting machines have been used in all general and state assembly elections of India since 2014.

### III. METHODOLOGY

An online survey was held using Google form. The link of the form was circulated in the various social media platform. The questionnaires in the form were designed to get the review or public opinion of the people through them, through this form we could get information or the perfect ratio about the individual having their own voting ID.

i. **Participate**

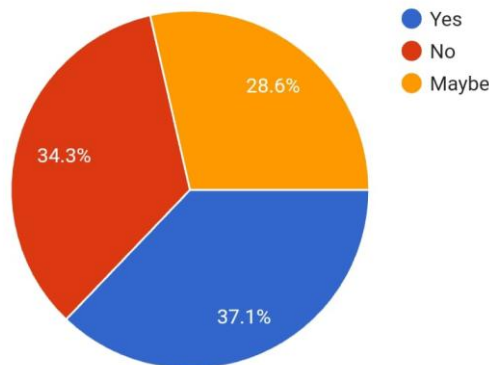
A total number of 35 participates data was collected. Amongwere 60% (21) male and 40% (14) where female. In the form qualification of participate was also asked to know that they can used the electronic system or not.

ii. **Measures**

Participants were ask that they would like to do the election in India through the electronic voting system or else they would like the ballot system that is the current voting system in India.

Are you satisfied with the result of the voting ballots?

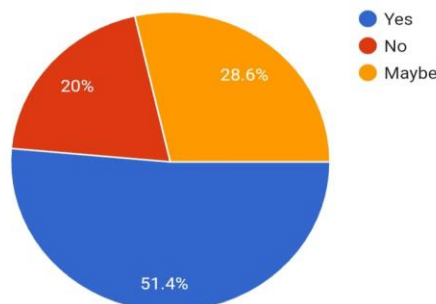
35 responses



Fig(A). Result in favor of Voting system

Do you think that India should also use EVM's for voting like the US?

35 responses



Fig(B). Response of the option onEVM's in India

#### IV. EXPERIMENTAL RESULT

The survey data was collected and solved CHI SQUARE TEST with 0.05 significance level. We also checked that there is relation between and which also include their right to vote. The participants were asked question to collect data (for example, what is your age group? Do you have an election card? ).

We choose

Null hypothesis – There is no significant relation between satisfaction of participants and present voting ballot system to give a vote.

Alternate Hypothesis – There is significant relation between satisfaction of participants and present voting ballot system to give a vote.

$$\chi^2_{\text{tabular}} = 9.49 \chi^2_{\text{cal}} = 16.26$$

#### V. CONCLUSION

In India, as per the survey the response for the EVM's the favor is high as compare to voting ballots than the EVM's. So the main conclusion of this paper is that India should also try the Electronic Voting Machine for election

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