# ROLE OF ELECTRONIC VOTING MACHINES (EVMs) AND TRANSPARENCY OF ELECTORAL SYSTEM: A CASE STUDY OF INDIA


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## Abstract

An Electronic Voting Machines (EVMs) is a modern electronic apparatus that is operate to register votes and maintain transparency of the electoral system. It considerably reduces certain types of fraud, provides accurate counts by eliminating spoiled ballots, and has improved voter turnout, reduced electoral operating cost, and allows marginalized communities to vote. It has been used by many countries around the world like the UK, the US, Brazil, Belgium, and Switzerland etc. Some states has been used it actively while some states have refrained from using it. India is also one of those states that used this machine first time in their electoral system in 1982 in the Paravur assembly during bipole-election in the state of Kerala. After its early success, the ECI bought 150,000 machines in 1990 to use them on a national scale. Although many political parties criticized the machines for security concerns at the time, they were used in 16 selected constituencies in the state elections following the amendment to the Constitution in December 1998. In the past, India used a manual voting system (paper ballot) in their electoral system due to which electoral fraud, inefficiency, rigging, and other evil practices were at their peak. Therefore to overcome these issues India has adopted Electronic Voting Machines (EVMs) in order to bring transparency in their electoral system. But it has also faced the allegations that these machines are hacked and the results are manipulated by external intervention. The focus of this study is to evaluate the performance of Electronic Voting Machines (EVMs) in terms of improving transparency and efficiency in the electoral process in India and also analyze the perspectives of various stakeholders such as voters, political parties, media, intelligentsia, judiciary regarding introducing of EVMs in India. The data is collected using the qualitative method. The research paper employs transparency and efficiency theory and system theory, to emphasize the significance of free and fair elections.

# CHAPTER: 1

# INTRODUCTION

## 1.1 Background of the study

Election is an essential practice through which the population choose their representatives for public offices. Different democratic countries around the world use elections as the authorized practice to shape and control their governments and used various methods for voting. One of the methods of the voting is through electronic voting machines. An Electronic Voting Machines (EVM) is a new electronic device that is used to record votes and maintain transparency in the electoral system. Its considerably reduces certain types of fraud, rigging, provides exact counts by removing spoiled ballots, and has enhanced voter turnout, overcome electoral expenditures and encourage oppressed communities to vote. The thought of making this device was occurred long before the birth of the Internet but at that time many politicians rejected it and abandon this. After the 19$^{th}$ century, various voting machines were invented overall the world. It was used first time in the U.S. in 1975.Then in the middle of the 20$^{th}$century it was officially used with the purpose of counting ballot paper in the polling station**.(ace,2020)**

The main aim of this machine is to stores votes in place of ballot papers and boxes before which were used in manual voting system. This machine can be easily operated by both the polling personnel and the voters. As this machine is without any network attachment, nobody can hinder its functioning and control its result. It is made up of mainly two units: The control unit and the Ballot unit. The Control Unit is the basic unit that is responsible for controlling the whole voting process. It contains microcontroller, keyboard, display unit, and memory chip and it is control by an election officer. On the other hand, the voting part is connected to the control unit and used by the voters to cast their votes that contain button and keys, each representing candidates or a party. **(Kumar, 2012).**It is powered by an inbuilt battery which ensures uninterrupted functioning even in areas with unreliable power supply. In the balloting unit , voters press the button next to their choosen candidate's name and symbol. The control unit then records the vote signaled by a light next to the button glowing, and brief beep sound confirming the vote has been successfully cast. Then polling officer presses a button to prepare the machine for next voter. The EVM can run on a battery power making it ideal for use in remote areas. It has high voting capacity able to record up to 3,000 votes in a single and approximately five votes per minute.

Additionally EVMs use advanced security features to protect the data which transferred from the ballot unit to the control unit.**( Puri,2017)**

Since Internet revolution in the late 20$^{th}$century, various countries in the world have adopted this machine in their electoral system for the soft running of the elections i.e., Belgium, Brazil, Italy, the US, the UK. Estonia and Switzerland has been actively used in their electoral system but some countries deliberately refrain from using it. However, in the South Asia region, India is the first country that adopts this technology in their electoral system. As India, is the biggest democracy having the multi party system and compromised of 800 million, one of the major concern was the electoral fraud. For example, during the manual voting method booth capturing and the ballot stuffing was normal.(**Kumar et al, 2011).** To address the problems like fraud and simplify the electoral process, the Election Commission of India (ECI) introduced electronic voting machines (EVMs). During the 1989 it was custom made by the Election Commission of India in cooperation with Bharat Electronics and Electronics Cooperation of India Limited. It was first used in India in 1982 in the bipole-election of the North Paravur Assembly Constituency in Kerala. But this elections was declared null and invalid by the court . The court declared that the Representation of People's Act ( 1951) clearly talks about that Election Commission must conduct and hold elections using ballots papers. There was not mentioned of voting Machine in the act .So on this basis the elections was declared null and void. Then the Indian parliament amended the People's Representation Act in the December 1988 and introduced Section 61A which lays down the provisions for the use of Electronic Voting Machine by Election Commission of India to conduct general and state election in India. **(Jus, 2017)**

After its early success, the ECI bought 150,000 machines in 1990 to use them on a national scale. Though at that time, many political parties criticized it about their security concerns but after the amendment in the Constitution these were used by 16 constituencies in the state elections.**( Saraiba,2012).** Before adopting this India had used a manual voting system due to which a nationwide ballot requires significant resources including 8,000 tons of paper and 400,000 phials of indelible ink. Additionally around 2.5 million secure strongboxes are needed to store the ballots under tight security until counting is complete. The manual counting process , which involves hired personnel working can take up to 3 to 4 days. Furthermore, the process is often complicated by the need for recounts due to small margin of difference between the top two candidate, as well as high number of invalid or

disputed votes**.(Waliam,2011)**.Therefore, from 2004 onwards it was used in all the general elections of India. Along with its advantages, it has faced allegations around the world that these machines can hacked and tampered with and results can be manipulated by external intervention for example Russians did make an effort to intervene in the US elections.

This research paper will attempt to explore what changes will occur in India's electoral process after its adoption in terms of transparency and efficiency and also investigate the perspectives of various stakeholders such as voters, political parties, media, intelligentsia , judiciary regarding introducing of EVMs in India.

### 1.2 Problem Statement

An Electronic Voting Machines (EVMs) is a modern electronic apparatus that is used to record votes and maintain transparency in the electoral system. It significantly reduces certain types of fraud, provides accurate counts by eliminating spoiled ballots, and has improved voter turnout, reducing electoral cost and empowering marginalized communities to vote. The purpose of these machines is to make the electoral process free and fair. It has been used by the various states in the world. In India manual voting system (paper ballot) was used in their electoral system due to which electoral fraud, inefficiency, and rigging were at their peak. Therefore to overcome these issues India has adopted Electronic Voting Machine in order to bring transparency in their electoral system. But it has also faced allegations that these machines are hacked and the results are manipulated by external intervention. This study attempts to explore the performance of Electronic Voting Machines (EVMs) in terms of improving transparency and efficiency in the electoral process in India and also analyze the perspectives of various stakeholders such as voters, political parties, media, intelligentsia, judiciary regarding introducing of EVMs in India.

### 1.3 Significance of the Study

This research holds significance because it offers a deeper understanding into how EVMs can improve transparency and efficiency in India's system as well as its broad impact on democracy and elections globally. It can help the countries to shape policy decisions, make confidence and contribute to discussions, about electoral practices and technology. Similarly, it has been helpful for the other states that want to adopt these machines in their electoral system. Through this study, they get to know how these machines work and how much it is capable of improving the transparency in the elections.

## 1.4 Objectives of the Study

This research has the following research objectives:

- To evaluate the role of Electronic Voting Machines (EVMs) in bringing transparency and efficiency in the electoral process of India.
- To analyze how stakeholders such as voters, political parties, media, intelligentsia and the judiciary responded to the introduction of EVMs in India.

## 1.5 Research Questions

This study has the following research questions:

1: What is the performance of Electronic Voting Machines in terms of improving transparency and efficiency in the electoral process in India?

2: How do various stakeholders such as voters, political parties, media, etc. view the adoption of EVMs in India?

## 1.6 Delimitation (s) of the Study

Electronic Voting Machines (EVMs) are adopted by various countries around the world but this study primarily focused on the role of the Electronic Voting Machine in India specifically because in the South Asia region it is the first country that adopted it in their electoral system. This research paper will address how it brings the changes in their electoral system in terms of efficiency and transparency and what is the response of citizens of India to the new voting method.

# 2. LITERATURE REVIEW

## 2.1Review of Related Literature

With the advancement of the technology, Electronic Voting machines are being used in the electoral process by the various states in the world. India is the first state of the South Asia region that adopts it in their electoral system. This literature review aims to investigate the role of the Electronic Voting Machine in India.

Kooreman& Maarten (2008) explored the aspects of the relationship between voting technology and election outcome and also analyzed the effect of the moving from paper ballots to electronic voting and found a positive but temporary effect of electronic voting on voter turnout, a negative effect on the part of residual votes, and no effect on the share of left-wing parties.

Prasad et al. (2010) presents analysis of a genuine Indian Electronic Voting Machine (EVM), examining its design, functionality, and security measures in relation to proper electoral protocols. Although the machine has a simple design and limited software, the expert found weaknesses that could compromise election integrity and voter privacy. They demonstrated two potential attacks, utilizing custom hardware, which could be exploited by dishonest election officials or criminals with brief physical access to the machines, potentially altering election outcomes.

Kumar et al. (2011) provides an summary of the experiences of other countries using electronic voting machines. His focus is on the adoption of electronic voting systems adopted at the international level. He also explained that India has an electorate of more than 668 million and covers 543 parliamentary constituencies during recent years have seen a sharp emphasis on the technology utilized in elections, yet despite this, the existing voting system remains overwhelmed by numerous security vulnerabilities, highlighting the need for improvement to ensure the integrity and trustworthiness of the electoral process and it is challenging to show even the most basic security characteristics. He discussed that there are many issues with a voting process that can be confirmed as accurate. Increased election activity and lower election costs are two reasons due to which a government might choose to use electronic systems. The electronic voting system still has some space for improvement because there is no way for it to determine whether a user is legitimate or not. He further mentioned still there is still some range of work in electronic voting systems because there is

no way of identification by the electronic voting system whether the user is authentic or not and securing electronic voting machines from miscreants.

Kumar et al. (2012) discussed a complete analysis of voting devices, issues and comparisons among the voting methods and biometric EVM. He also highlighted that earlier all elections either state elections or center elections a voter used to cast his/her favorite candidate by putting the stamp against his/her name. Then fold the ballot paper as per a given method before putting it in the Ballot Box. This is a long, time-consuming process and very much prone to errors. This situation continued till the election scene was completely changed by the electronic voting machine. No more ballot paper, ballot boxes, stamping, etc. all this strore into a simple box called the ballot unit of the electronic voting machine. Because biometric identifiers cannot be easily misplaced, copied, or shared, they are considered more reliable for person recognition traditional or knowledge-based methods. So the Electronic voting system has to be improved based on the current technologies via biometric system.

Herstatt et al. (2014) explained that India's general elections in 2009 highlights a debate over electronic voting machines (EVMs), which have been in use nationwide since 2004. Political parties, activists, and academics expressed concern that the voting machines might have been rigged to change the results of the election. Although, there is no evidence that EVMs have been manipulated in any previous elections . He focused on the alleged security flaws in the Indian voting system in greater detail and also examined this particular controversy in more detail. Furthermore, he wanted to inform the reader about the Indian electronic voting system in general.

Rao (2015) highlights the various aspects of the electoral reforms in India and analyzes the role of Electronic Voting Machines, state funding of elections negative voting, and also discusses the role of women in politics

Raghav&Bandi (2016) argued that Electronic Voting Machines (EVM) is being used in India, generally for state elections. These EVMs are being used since 1999 up to till date. The EVMs reduce the time for both casting a vote and declaring the results when compared to the old paper ballot systems. They also describes that up to 2004 there is no tampering and security provided for EVMs after 2004 Supreme court and Election Commission decided to introduce EVMs with Voter Verified Paper Audit Trail(VVPAT) system but it also having some difficulties like missing of names in the voter list, requirement of huge manpower,

storing of EVMs for counting purpose etc, so their proposed method is useful to overcome above problems in the voting system by using the Biometric and Aadhaar information.

Purim et al**.** (2017) argued that it is difficult to put such a system into place in the biggest democracy in the world. A local electronic voting device was implemented by the Indian Election Commission to address the problems with manual voting, which was slow and ineffective. The author uses a field programmable gate array to implement the voting protocol for Indian electronic voting machines. It is well known that the ASIC-based design is quicker than a microcontroller-based design. Additionally, he mentioned that the Electronic Voting Machine will be more dependable and resistant to tampering.

Sisir et al. (2017) highlights that democracy's foundation are free and fair elections and Electronic voting is used in India in an effort to cut down on electoral fraud. They also analyzed the EVMs' phased implementation in state assembly elections and studied its negative effect on democracy, electoral fraud, and development. He explained that the introduction of EVMs it resulted in a significant decrease in electoral fraud, especially in politically sensitive states that often had to conduct new elections as a result of electoral rigging and also it strengthened the weaker and more exposed groups in society, such as women and scheduled castes and tribes, who were now more likely to vote. Further, it increased electoral competition, which resulted in a decline in the winning margin and vote share of the winning party.

Singh et al.(2017) discussed that internet voting can strengthen democratic systems even more by making it possible to vote from anywhere in the world because it offers a cure for service voters' voting problems, NRI, domestic migrant voters, and voters. Although he points out that there are a number of security concerns, many nations are looking into the idea of online voting. However, he mentioned that Switzerland and Estonia have successfully included Internet voting into their main political systems. He focused that India should begin pursuing Internet voting in a mission mode given the direction towards Digital India, which and the of new technologies. He primarily focused on demonstrating the server and database implementation for an online voting portal and also he reviewed the website and discussed various problems with the online voting system.

Singh et al. (2018) mentioned that in a few nations, including India, electronic voting (e-voting), Electronic voting machines (EVMs) are a common method of casting a ballot.

Given their widespread use, he focused on examining their approval using the unified Theory of Technology Acceptance and Use (UTAUT). By incorporating the ideas of perceived security (PS) and trust in technology (TR), he expands his study on the UTAUT model and also looks at how age and gender, which act as moderators, affect predictor variables and behavioral intention to use EVMs .According to his findings, effort expectancy (EE) has no effect on but social influence social support and political support all have a positive impact.

Pandey &Dube (2018) investigates the potential of blockchain technology in increasing the security and transparency of EVMs. It explores the concept of a secure electronic voting system that utilizes blockchain for the secure and absolute recording of votes.

Desai et al. (2019) focused on how Electronic voting technology is frequently advocated as a better way to translate voter aim to vote totals compared to change systems like paper ballots. He proposes that electronic voting machines (EVMs) can also change voters' choices, particularly how they register their opposition to systems sentiment. In their study, he employed a difference-in-differences methodology to study the impact of India's phased introduction of electronic voting machines, enlightening a significant connection between the use of these machines and a considerable decrease in invalid votes, accompanied by a notable increase in votes for lesser-known candidates, in the world's largest democracy. He found that the impact of Electronic Voting Machines (EVMs) on voter turnout is uncertain, with conflicting evidence on the matter. Furthermore, there is no empirical evidence to suggest that EVMs increase voter error or fraud, nor is there any sign that machines prepared with a verifiable paper trail produce different outcomes compared to other types of EVMs.

Prannoy&Dorab (2019) not only focus on EVMs but also highlight the diverse features of India's electoral process, including the role of EVMs. It provides an in-depth analysis of the Indian election system and its evolution over time. The authors offer insights into the advantages and limitations of EVMs and discuss their impact on electoral outcomes in India.

Kumar &Priyadarshini (2020) focus on the security challenges associated with Indian EVMs and discuss vulnerabilities, tampering concerns, and possible counter measures to strengthen the security of EVMs in the Indian electoral process.

Patel & Sharma (2020) investigates the public perception of EVMs in India and explores the factors influencing citizens' trust, acceptance, and satisfaction with EVM-based voting. The research findings highlight the role of education, awareness campaigns, and improved communication in building public confidence in EVMs. The study suggests strategies to address public concerns and enhance the reliability of EVMs.

Kersting (2021) describes the various types of electronic voting and makes the case that external manipulation, such as that caused by computer venome or outside service attacks, is still theoretically possible but is now much easier to prevent. He also spoke about the advantages and disadvantages of online voting.

Wolf et al. (2011) explained the significance of electronic voting systems in modern democratic countries and provide a complete overview of the different types and functions of electronic voting systems. He also organize the content in a logical and easy-to-follow structure, such as dividing the book into sections or chapters based on specific aspects of electronic voting.

In the books he covers detailed case studies on countries that have successfully adopted electronic voting systems, discussing their motivations, implementation processes, and outcomes. Analyze the reasons behind the unwillingness of certain countries to adopt electronic voting systems, considering cultural, political, and technological factors. It also covers the strengths and weaknesses relate to the electronic voting method and provide practical recommendations for countries considering the acceptance of electronic voting systems.

Aung.et al ( 2013) discussed that the increasing acceptance of e-commerce technologies has led to a growing interest in electronic voting systems, which promise efficient, convenient, secure, and cost-effective services. However, existing electronic voting systems fall short in meeting essential criteria such as fairness, privacy, eligibility, receipt-freeness, resistance to coercion, and verifiability. To address this gap, the proposed system aims to design and implement a comprehensive electronic voting solution that fully satisfies all the necessary requirements for a reliable and trustworthy electronic voting process. Following the system's implementation, he examined using the mCRL2 language to presents that the security properties are met. And also compare the suggested system's performance to that of the other e-voting systems currently in use.

Shukla (2018) briefly explained in his book about the historical context of the elections in India and traditional method used for voting. He also discussed the evolution of the electronic voting machines in India and its technical aspects and features .He also analyzed the response of the various political parties and opposition groups to the introduction of EVMs.

Narzary.( 2021) discussed in his research article that electronic voting machines (EVMs), created over the past 20 years by two government-owned companies, are used to conduct elections in India. These are known as EVMs in India, are renowned for their straightforward design, usability, and dependability. However, they have also drawn criticism for being exploitative and vulnerable, as well as for frequently being reported to have violated election laws. Despite this criticism, certain aspects of the device's design were never made public and were not the subject of a comprehensive, impartial evaluation of their protection. In his study he focused about how EVMs, being machine-based, are open to to significant hacks that could taint the outcome of the election and threatens voter confidentiality.

Solanki.et al ( 2019) explained that the world has embraced electoral changes to the parliamentary elections and assembly. The manual voting method has been changed by electronic voting machines (EVMs). But there are legitimate questions being asked about the strength and dependability of the EVMs. Voter Verified Paper Audit Trail (VVPAT), which was later linked to the EVM, was determined to be non-auditable and unverifiable. In this research study he compares the ballot paper voting system with the electronic voting machine (EVM), highlighting the shortcomings of the current electoral system. This study offers an overview of blockchain technology, its implications, and the potential revolution it may bring about in the area of Indian electoral reforms. Comparing factors such as cost, time, transparency, risk factor, and auditing/verification

Romero et al (2020) highlights that recent research on transparency, social and political factors may have an impact on websites that facilitate e-government transparency. Governments have responded to the concerns of the public by becoming more transparent in the way they carry out their political duties and activities a desire for public information to be accessible. This study examines that social and political factors impact municipal transparency in Portugal and the findings shows that factors influencing a municipality's

transparency include political ideology, voter turnout, the closeness of elections, citizens' Internet access, and geographic location.

## 2.2 Research Gap

In the above existing literature, many research studies have discussed the structure and effectiveness of the Electronic Voting Machine its adoption and its role in India's electoral system and other states around the world. Similarly, few studies also analyzed the demerits of it by highlighting its negative aspects related to security concerns. However, there is a lack of literature related to how it affects the simplicity and effectiveness of the electoral process in India and the response of various stakeholders such as voters, political parties, media, etc towards the adoption of EVMs in India. The main focus of this research is to discuss all these points for a more accurate understanding of Electronic Voting Machines

# 3. THEORETICAL FRAMEWORK

## 3.1 System Theory

Gabriel Almond was a famous political scientist known for his work on political development and comparative politics. His system theory, which he developed along with other scholars like James Coleman,seek to analyze political systems and their functioning. While his theory does not directly address the voting technology, it provides a outline for understanding how voting technology fits into the wide political system.

Almond's theory emphasizes the role of communication and response in political systems. Voting technology facilitates communication between citizens and the government, allowing citizens to express their choices through the act of voting. Moreover, election outcomes serve as feedback to the political system, showing public attitude and potentially leading to policy adjustments.

It also highlights the significance of political systems adapting to changes in their environment. As technology evolves, including voting technology, political systems need to adapt to guarantee that elections remain free, fair, and secure. For example, the execution of secure electronic voting systems is a form of adaptation to changing technological landscapes. According to this perspective, India has also change their electoral system by introducing Electronic Voting Machines (EVMs) with the aim of making it more transparent.

### 3.2 Transparency and Fairness Theory

The concept of transparency and fairness is often discussed in various fields, including economics, political science. It is not presented by a single author or school of thought. Instead, transparency and fairness are objectives that are explored in different ways by researchers and scholars across disciplines. However, political scientists like Robert Dahl and John Rawls have emphasized the importance of transparency in political institutions and decision-making to achieve a just and fair society.

The main assumption is transparency in political processes and decision-making is important for a functioning democracy and to guarantee fair representation of citizens With the beginning of electronic voting machines it increases clearness and fairness in elections by reducing the potential for human error, manipulation, and fraud.

The use of electronic voting machines aims to make the voting process more transparent by providing a clear and verifiable method of recording and counting votes. Similarly fairness in elections requires that the technology used in the electoral process is implemented without bias and is accessible to all voters.

According to the above perspectives with the introduction of Electronic Voting Machines (EVMs) in India .It has improve transparency of their electoral system and make their voting method more efficient.

# 4. RESEARCH METHODOLOGY

Research methodology is the backbone of any research endeavor. It not only ensures the quality and integrity of the research but also guides researchers through the entire research process, from formulating research questions to drawing conclusions

## 4.1 Research Design:

This research will utilize the exploratory as well as analytical design to explore the role of the EVMs in bringing transparency in India's electoral system and analyze response of various stakeholders towards its adoption.

## 4.2 Data Collection:

Data collection is necessary in every research. In this study, Primary and Secondary sources is used for the data collection. It include the legislation related to the EVMs in India, the reports of the Election Commission of India, and experts' opinions, and also various research articles, articles from newspapers and books. The researcher also focused to review the concerned literature related the electronic voting machines around the world and conduct online survey to gather the opinions of the voters regarding the performance of these machines.

## 4.3 Data Analysis

The study use thematic analysis to examine the data acquired. The thematic analysis focuses on identifying and analyzing patterns, themes, opinions, thoughts, and other explanatory information within the qualitative data. It consist of articles, books, academic research, etc . By using thematic analysis, researcher can expose and interpret the various opinions surrounding the functioning of EVMs, providing valuable understandings into the perspectives of both political leaders and citizens.

# 5: ORGANIZATION OF THE STUDY

This study contains following chapters

**Chapter 1:**

**Introduction**

This chapter provides the summary of Electronic Voting Machines, outlining the research objectives, research questions, theoretical framework, and a broad literature review related to electronic voting machines.

**Chapter 2:**

**Global Role and Functions**

This chapter deals with the worldwide role and functions of electronic voting machines, pin point the crucial importance of transparency in electoral systems.

**Chapter 3:**

**Evolution of Electoral Systems in India**

This chapter explores the evolution of the electoral system in India, highlighting the key role played by electronic voting machines in shaping their electoral setting.

**Chapter 4:**

**Stakeholder Responses**

This chapter focuses on the perspectives or response of political parties, interest groups, and other stakeholders to the introduction of electronic voting machines.

**Chapter 5:**

**Concluding Remarks and Recommendations**

The final chapter summarize the study with concluding remarks and provides suggestion and recommendations for other countries considering the adoption of electronic voting machines in their electoral systems.

# Chapter: 2
# Electronic Voting Machines and Transparency in Electoral System

## 2.1 Meaning, Definitions and Nature of Democracy

One of the important elements of the state is government through which the associations of the any state is prepared and expressed. There are different types of the government system which varies from state to state .Some states in the world have monarchy , some have dictatorship or so on.

Like the other system of the governments, democracy is a prominent type of the government in the world . The word democracy is originate from the two Greek words, demos which means people and kratos which means the rule **(Haq.,M 2015)** .In simply it can be describes as the rule of the people. Many political scientist and philosophers defines it differently. According to the Aristotle, "it is the rule of the mob" and according to the Abraham Lincoln :

"Democracy is the government of the people, by the people and for the people".

In this form of government citizens have the power to freely choose their representatives, creating a government of the people. The essential element of this system is the supreme right of citizens to take part in the electoral process, which makes the elections most important. It is more than just casting a ballot it is also the collective opinion of the people's will, representing the active interaction between the governing and the governed in the search of a broad and just society. They serve as the building blocks through which citizens exercise their authority to shape the way of their nation.

## Elections

One of the important features of the democratic form of the government is elections. Through direct democracy, citizens exercise their power to make political decisions, elect their leaders, and monitor their performance, ensuring accountability and representation.**( Wabb, 2024).**. Using this democratic practice, citizens change into designers of their own governance, selecting representatives who will guide the country in the right direction. They guarantee that voting is carried out with the highest honesty and fairness is just as important to democracy as actually casting a ballot.

## Electoral System

Electoral System is very important in democratic countries because they have a major impact on how a nation's politics are shaped. Electoral systems classified in different ways. Election systems can be broadly categorized into three types: plurality, majoritarian, and proportional. Notably, only a few countries, such as Great Britain and France, use plurality systems for national elections, while Australia employs a majoritarian system for legislative elections. In contrast, proportional systems are more widespread, with numerous variations across the democratic world, and there is no consensus on which one is superior to others**.( Golder,2005)**

It can have a great impact on the voter turnout, the proportionality of representation for various parties or groups, and the likelihood of intense or extremist parties emerging. It may also have an impact on minority groups capacity to obtain representation and fairness of election results and also directly affect the legitimacy and efficiency of a nation's political environment**.(Sunde,2021)**

## 2.2 Transparency

For the accomplishment of the democracy it is very important the elections should be conducted free and fair. A transparent election process is the one in which the whole election process is presented to the stakeholders who verify and check that the elections are conducted properly through the proper procedures or not.( **NDI,2013)** Through it the confidence of the voters are increased on the system and they can also check that their vote is correctly casts or not.

### 2.2.1 Importance of Transparency

In any democratic state it is very essential that electoral process or elections should be transparent and fair so the people can effectively choose their representatives to whom they want. Transparency in elections proves the reliability, fairness, and credibility of the electoral process. It allows accountability, and the prevention of fraud and other evil-practices.

A transparent election is an agreement between the people who want to rule and those who are governed, It is the core of responsibility, openness, creating a environment in which the goals of the people as a whole may be understood. A healthy democracy is built on the basis of confidence and trust in the voting process**.(ACE Electoral Knowledge Network)**

Transparency in elections helps strengthen democratic institutions, promotes public trust, and ensures the legitimacy of elected representatives. It empowers citizens to hold their elected officials accountable and improves a culture of honesty and good governance.

Through the various ways transparency can be achieved in the electoral process which is discussed below.

1: **Transparent voter registration procedures**

The first step which is very important in election system is that all eligible voters can register and take part in the elections easily.

2: **Clarify campaign finance**

All the parties that are participating in the election process should be clearly showed their sources of funding and expenditure which they are used for their campaigns during elections. It ensures accountability and protection against improper influence.

**3: Accessible polling places**

It is very important the voter easily cast their votes and not face any difficulty related to finding their polling stations

**4: Accurate Voting Procedure**

One of the important aspects of the transparency in electoral system is that the voting process should be done accurately and results are given on time without any delay.

**5: Reviewing Electoral Process**

For a transparent election it is also very necessary that the electoral process should be reviewed and monitors properly to overcome the flaws from it.

The fundamental process through which people choose their representatives are the voting method .But it can differ among developed and under-developed countries, each reflecting the different nature of a country's democratic history **(Briffault, R. 2010).** Every voting method has the four basic characteristics that are essential to be fulfilled. Those are as follow:

**Precisio**n

The ambition of any voting system is that wherever the individual voter aims to cast its vote ,it is accurately acted .

**Secrecy**

It is very important that the privacy of the voter is preserved. Secrets ballots are essential to democracy, and voting system must be intended to ensures it.

**Scalability**:

The voting process should be efficient and advanced that it can be handle very large elections.

**Speed:**

It is very important that the voting process should be efficient to completed on time gives results quickly.

There are three common ways to vote in elections: paper ballots, electronic ballots, and online ballots. For many years, voting systems based on paper and electronic ballots have been widely used by democracies across the world. The techniques used to cast votes may depends from the computerized voting systems of today to marking paper ballots, but the basic idea of equal participation and representation for all citizens always prevail. **(Hill, S. 2010)**

## 2.3 Types of Voting Method

There are different types of the voting methods that are most commonly practice in across the world**.**

### Paper Ballot

The most common voting method that are used in mostly democratic countries are the Paper ballot which are also called manual voting method and the traditional voting method. Out of total 227 countries 209 countries are those where the voters cast their ballots by hand, manually marking their selections on the voting paper.( **(World Economic Forum)** In this method voters must fill out a ballot paper, also known as an election paper, with the intention of practice their right to vote. Voters can show their choices by marking the names of the candidates on their ballots.

### Postal Ballot

Postal ballot is also one type of the voting method in which voters received and sent their ballot by mail rather than casting their ballot in person at a polling place .It is used by voter when he/she is unable to physically goes to a polling place due to a disability, or living overseas. Out of the 166 countries, 40 countries used postal ballots (**Pew research center,2020**) Most commonly it is used in Europe and North America and also some countries of Asia-Pacific region, such as India, Indonesia, South Korea and Sri Lanka.

Every democratic state in the world wants to make their electoral system more organized and effective by taking the profit of the new advanced technology. With the progression of the science and technology in the world every fields brings changes in their systems .Same in the case with the electoral system, a new voting method is introduced with the aim to prevent the electoral fraud and other mal-practices and make the electoral process more transparent. **(Norris,2012)**

One of the modern way of voting that are used in the electoral system are Electronic Voting Machines. Many countries in the world have adopted it in their electoral system. It is consider as an instrument to strengthen democracy, promote trust in electoral administration, ensure the authenticity of election outcomes, and enhance the overall effectiveness of the electoral process. It can be defined as the system where a voter casts his or her ballot using an electronic system, rather than a paper ballot is referred as electronic voting machine.

Since with the introduction of the Electronic Voting Machines (EVMs) it have represent efficiency and a different way to coordinate voter participation in politics. There has been a global paradigm shift in the electoral scene as a result of countries like Belgium and Brazil using this election technology. It is a modern electronic machine that is used to store votes and maintain transparency in the electoral system. It significantly reduces certain types of fraud, provides accurate counts by eliminating spoiled ballots, and has improved voter turnout, reducing electoral expenses and empowering marginalized communities to vote. The purpose of these machines is to make the electoral process transparent and free and fair. It has been used by the various states in the world.**(Stewart,2011)**

The idea of utilizing electronic technology in political elections follows the internet era, with various forms of electronic voting systems being developed and implemented globally as early as the late 19th century, initially focusing on streamlining parliamentary voting processes. Many politicians refused them because they were fearful of changing existing voting procedures.

The mid-20th century saw the introduction of voting technology in polling stations, starting with the use of mark-sense scanners in 1959 by the Norden Division of United Aircrafts, which required special ink-marked ballots. This was followed by the development of the first optical mark vote tabulator, Votronic, in 1965, which could detect graphite pencil marks. Around the same time, punch-card voting systems, such as Votomatic, emerged and remained in use for an extended period. The first direct-recording electronic (DRE) voting

machine was introduced in the US in 1974 and was legally used in elections, marking a significant milestone in voting technology**.( Con,P 2013)**

Regarding the adoption of electronic voting machines worldwide, various developed nations adopted this technology. EVMs are also used in several other countries electoral systems, such as the UK, Australia, the Netherlands, Ireland, India, Estonia, Switzerland, Brazil, Germany, and France, Belgium etc.

## 2.4 Types of E-voting System

Various countries worldwide use different types of electronic voting systems, which either influence existing technologies or develop modified technologies for electoral use.

Some of main types of electronic voting systems include:

- Punch card voting/tabulation systems
- Optical scanning systems
- Direct recording electronic systems (DRE)
- Internet

### 2.4.1 Punch card voting/tabulation systems

The first use of electronic voting systems in the United States occurred during the 1964 Presidential primary election in two Georgia counties. Although many punch card systems have been replaced by more modern technologies, they remain in use by some voters. In fact, 37.3% of voters used punch card systems during the 1996 US presidential election. These systems involve voters using a device to punch holes in cards to select their chosen candidates. After voting, the cards are either inserted directly into a computerized vote tabulator at the polling station or placed in a ballot box for later transportation to a central location for counting.( **Hall, P 2003)**

### 2.4.2 Optical scanning systems

It is the electronic voting equipment that is frequently used in the US elections. In the 2008 presidential elections 57% of its counties used it. It can base utilize scanners that detect voter selections on specially designed machine-readable ballot papers. This technology can be implemented in two ways: either through a central count system, where ballots are scanned and tallied at selected counting centers, or through a precinct count optical scanning system (PCOS), where scanning and counting occur directly at the polling station as voters insert their ballot papers into the scanner machines**.(Antonyan, 2010)**

### 2.4.3 Direct recording electronic systems (DRE)

It is the modern progress in the growth of voting systems .This machine electronically records votes and allows voters to record their votes using a dial, touch screen, or push button. The votes are added to the whole number of votes cast by all other voters and kept on a memory card or smart card. It is widely used in the Belgium, Brazil, India and Venezuela. With these voting systems, paper ballots are not required, as voting data is electronically recorded and stored directly on a computer hard drive or a transferable storage device, eliminating the need for physical ballots**.( Peralta, 2024)**

### 2.4.4 Internet Voting

Several democratic countries across the world have adopted the Internet voting method. In this method people cast votes by electronic means, usually over the internet therefore it is referred to as online voting or internet voting. Voter turnout may rise as a result of its ability to cast ballots easily from any location with internet access for eligible voters.

It is mostly commonly used in four countries around the world that are Armenia, Canada, Estonia and Switzerland. But this method also raises concerns about security, privacy, and the possibility of fraud even though it may have advantages like greater accessibility and ease .Due to which , a lot of places have been hesitant to use online voting for official elections.

## 2.5 Features and Functions of EVMs

Some of the important feature and functions of the electronic voting machines are as follow

### 1: Electronic Voter List and Voter Authentication

An electronic voter list, which can be implemented at a single polling station or nationwide, serves as a digital registry to verify the eligibility of voters and confirm that only allowed individuals have cast their ballots**.**

### 2: Poll worker Interface

Electronic voting systems often include specific features that are entirely available to poll workers, enabling them to perform specific tasks such as:

- Resetting the vote count at the start of polling
- Closing the polling station
- Printing and transmitting election results

These features are designed to facilitate the smooth management of the voting process and ensure the integrity of the election.

**3: Security Procedures**

The protection against manipulation and ensures the reliability of the electoral process, this machine are designed with a number of security features which consists of encryption, password security, and physical seals.

**4: Voter Support**

Some electronic voting machines include voter verification features like biometric or smart card authentication to make sure that only eligible voters cast ballots.

**5: Voter Secrecy**

The aim of EVMs is to keep the ballot secret. The voter's specific selections remain undisclosed during the voting process.

**6: Interface That's Easy to Use**

Voters can easily understand the process with the help of the user-friendly interface, clear instructions, and visual aids provided by EVMs.

**7: Audit Trail**

It is a feature of many modern EVMs that function is to presents record of the votes cast.

**8: Maintenance and Evaluation**

EVMs are designed for easy maintenance and evaluation to ensure accurate and consistent performance over time.

From the above functions of electronic voting machines it has cleared that if these are properly followed they can removes the certain types of frauds and other evil practices .The rapid evolution of electronic voting technology has encouraged a range of stakeholders, including election managers, observers, international organizations, traders, and standardization bodies, to continually adapt and refine their strategies. Moreover, many democratic countries worldwide have reformed their electoral systems to hold these advancements, ensuring the integrity and efficiency of their voting processes. There are some countries that have improves their electoral system from transferring manual voting to electronic voting method. Some countries are those that adopted these electronic voting

machines but due to the security concerns or another bad experience they reverted to the manual voting method.

Similarly there are also many states that showed concern to adopt these machines in their electoral system and made an effort but failed to adopts it i-e Pakistan.In late 2020, the PTI government announced its plan to implement electronic voting to secure transparent elections, which brought up the issue of electoral reform once again. Hostility between the government and the Election Commission of Pakistan continues for several months, specially during the Senate elections of 2021. Without detailed consultation with the opposition or the Election Commission of Pakistan (ECP), President Arif Alvi issued an ordinance in 2022, modifying Sections 94 and 103 of the Elections Act of 2017. This amendment mandates the ECP to initiate the possession process for electronic voting machines (EVMs) to facilitate their use in general elections and to grant voting rights to overseas Pakistanis. Opposition disagreed with this decision, claiming that technology would only be engaged to rig and manipulate the results.

### 2.6 Countries using Electronic Voting Machines

There are some countries that are using these voting machines successfully which are Brazil, Belgium, Argentina, Austrailia ,India, Estonia etc

**Brazil**

The EVMs were first time made and experienced in 1996 elections in Santa Catarina. The Supreme Electoral Court of Brazil approved the use of electronic voting technology. The purpose of adopting these electronic voting machines were motivated by economic and fraud prevention factors.

Brazil became the world's first country to conduct elections entirely using an electronic voting system in 2000. Since then, it has continued to lead the way in the adoption and development of electronic voting technology, remaining at the forefront of the global electronic voting movement .Due to the positive response it have served as good model for other countries to adopt it .**( Brasil,2007)**

The Brazilian Supreme Electoral Court has consistently invested in research initiatives aimed at enhancing the security of electronic voting systems. Notably, in 2009, the Court organized a hacking competition to test the technology's flexibility and boost public confidence. Furthermore, in 2011, the development of new biometric-based voting machines was underway. The following year, in 2012, the Electoral Court began implementing

biometric identification in the electoral process, marking a significant objective in the evolution of Brazil's electronic voting system. The use of biometric identification has extensively reduced the risk of voter fraud and has increased the general safety of the electoral process. The Supreme Electoral Court continues to emphasized research and development in order to stay ahead of potential security threats and ensure the integrity of the democratic process**. (Kumar, 2011)**

- **Belgium**

It was first time introduced in 1991 and made legal in 1994 .It was used in the municipal and general elections that took place in 1999 and 2000. Three million Belgians cast electronic ballots in the May 18, 2003 general elections. Ireland and Belgium have a similar method, with the exception that Belgium employs an electronic counting system, which replaces traditional ballot papers with voting machines at polling stations. The Federal Public Service of the Interior has trained and approved these systems, ensuring the accuracy and security of the electronic voting process in 2003 based on an audit report that was made public following a exercise that involved approximately one million votes

These machines are successful in reducing null votes, leading to a lower share of invalid votes in cantons using e-voting compared to those using paper ballots and the entire voting process is very simple.**( Dandoy, 2004)**

- **Estonia**

In 2005 Estonia adopted the electronic voting machines in their country .The people can be able to get the most accurate voting information from a computer with an Internet connection from anywhere in the world .According to their administration about 1.3 million peoples are using this system. In 2014, an analyst team raised questions about the security but the Estonia Election Commission dismissed those concerns and clearly stated that as such no incident would happens that effects the confidentiality of the voting process.**( Perrigo, B 2019)**

Moreover, the Estonian e-voting system has been appreciated for its security, transparency, and convenience. It has also been credited with increasing voter turnout in Estonia.

**Australia**

In Australia the concept of the electronic voting was presented by the Capital Territory Election Commission in 1999 to reduce the various malpractices of their electoral system. The plan was made by the two companies to use it but later on the one company dropped out from the project then in 2001 it was prepared to used in the states elections.

In this system, a PC serves as the eVACS-based voting terminal, which provides ballots in 12 languages, including Farsi and Serbian. For voters who are illiterate or have visual disorder, the system offers English audio. After scanning a barcode over a reader, the voter's selection is recorded, and the voting machine is automatically reset, allowing the next voter to cast their ballot

Through the manual count it has proved that the system operated accurately and the people showed very positive response towards it. Also the audit was performed to check for the security weakness in the system. **(Zetter,2003)**

- **Argentina**

It introduced an electronic voting system in 2003. The goal of implementing of these machines was to enhance transparency and to speed up the counting procedure. Brazil's electronic voting system utilizes machines similar to ATMs, adapted from existing technology. To cast their vote, citizens present their identification documents at the polling station, and the registrar enters their identity number into a keyboard-connected display. Once verified, the voter is cleared to proceed to a private booth containing the Electronic Voting Machines (EVMs), where they can securely cast their ballot. **( Kohono, 2004)**

The Electronic Voting Machines (EVMs) displays a screen listing all political parties' candidates, each assigned a unique number. The voter selects their preferred candidate by pressing the equivalent numbered key. A subsequent screen shows the chosen candidate's name and photo, requiring the voter to confirm their selection by pressing a green button. If they wish to change their choice, they can press a red button. Additionally, the system enables voters to cast a "blank" vote, which is counted in Argentina to determine the percentage of votes secured by each party. **(Buldas et al, 2002)**

- **The Philippines**

They had adopted the Precinct count optical scanning system ( PCOS) in 2010 throughout the country. Before the eve of the election, the system staggers on the edge of collapse when it was discovered that all 75,000 PCOS machines had been incorrectly configured. However, a massive logistical effort was undertaken to physically reconfigure

every voting machine, preventing disaster and ensuring the election could proceed as scheduled and the election goes very successful.**(Wolf,2011)**

- **United States**

The United States had used the manual voting procedure in their electoral system due to which the process of the elections including making of paper-ballots and to counting it takes much time. Then in 1980 lever machine was invented by a company for the automatic vote counting which makes the process quite easier.

With the growing technology in the world US had decided to adopt electronic voting machines in 1990. According to a 2004 survey, approximately 675 counties in the United States, representing around 30% of all registered voters, had adopted electronic voting systems.**(Lin,2007).**However, despite the increasing adoption of electronic voting machines, the technology has received a cool reception, with opinions on its implementation and effectiveness remaining divided .The US government has spend 3 billion for buying the Direct recording electronic with the aim of boosting the confidence of the voters on the electoral system**. ( Zdun ,2022)**

- **Spain**

The Spain has tried in the lead-up to the March 14, 2004 general elections, Ireland conducted small-scale, non-binding electronic voting trials, testing a range of technologies, including Irish-style electronic voting systems, as well as innovative methods such as Internet and SMS remote voting. These pilot projects were successfully executed, exploring various forms of electronic voting.

In November 2003, the Parliament of Catalonia elections saw the successful implementation of three e-voting pilot tests, featuring modern technologies. These included remote Internet voting for eligible voters residing overseas, as well as touch screen voting machines included with an electronic counting system, marking a significant step forward in electoral modernization**.( Buchsbaum, 2004)**

### 2.7 Countries that Abandon to Use Electronic Voting Machines

There are also some countries that adopted the electronic voting machines but due to some reasons they abandoned to use it in their electoral process.

- **Bahrain**

In 2006 Bahrain were set to experimented first time the voting machines in their elections but due to intense pressure from the opposition political parties and leaders ,the government had decided to revert to the paper voting .The opposition was claiming that these machines were suspected to the vote-rigging .**(Wolf,2011)**

- **Netherland**

In the Netherlands, these machines were extensively utilized in polling places for nearly 20 years during elections. But in 2008 when the interest group verified on television that vote privacy could not always be sure and that concerns were raised that the e-voting systems in use were vulnerable to manipulation under certain circumstances. Furthermore, an official commission found that the Ministry of the Interior and Kingdom Relations, responsible for overseeing elections, had fallen short in its monitoring and supervision of the electoral process had least internal expertise, resulting in an excessive dependence on suppliers and certification bodies. Therefore they decided to not using the electronic voting machines in their electoral process.

Despite the issues encountered, many stakeholders, including mayors and voters, continue to have faith in electronic voting. Drawing on past positive experiences, they are advocating for the reintroduction of e-voting, demonstrating a persistent confidence in the technology's potential to improve the electoral process. **(Kumar,2011)**

- **Ireland**

Ireland introduced electronic voting machines for the first time in the 2002 general elections, piloting them in select constituencies. During 2004 local and the European national elections it was decided by the government to begin it a large level but at that time one of the minister reject this plan and raised question about its reliability.

Moreover Ireland government had invested 60 millions Euros to solved the problems related to the electronic voting but due to high cost , safety concerns and lack of confidence on the machines by the citizens led to discard the use of electronic voting in 2009**.( Duncan, 2012)**

- **Germany**

In 2009, Germany's Constitutional Court ruled that the electronic voting machines (DREs) used in parliamentary elections were unconstitutional because they didn't allow citizens to verify the results, violating the public nature of elections. The Court emphasized

that elections must be transparent and open to public inspection without requiring specialized knowledge. While the Court didn't believe e-voting inherently unconstitutional, it called for improved transparency measures or legislative adjustments to balance accessibility with transparency.**(Rao,2015)**

- **United Kingdom**

The United Kingdom started to use the electronic voting machines (EVMs) in May 2002. They experienced with different technological advancements for voting and vote counting, including touch-screen machines. By 2005, Germany had determined that e-voting systems were not only expensive but also failed to improve voter turnout, and furthermore, lacked sufficient accountability and transparency. Therefore they refused to use it in their electoral system. **(Wolf, 2011)**

- **Norway**

In 2008, the Norwegian government had decided to experiment the electronic voting in order to make their electoral process more transparent .In September 2011, a pilot test of electronic voting was conducted during local government elections in ten municipalities, marking the first trial of its kind. After the successful experiment the government decided to try it again in the 2013 parliamentary elections. After much discussion in Parliament, a small majority was accepted to proceed with e-voting trials for the upcoming parliamentary elections. In second trial of e-voting twelve municipalities was involved .Although during the 2011 and 2013 trials received favorable press and no serious security issues were brought up but the matter is still disruptive in politics. Concerns have been raised in the talks regarding the security measures for the vote's online transmission. Due to insufficient political backing, the Norwegian government decided in June 2014 to discontinue further experimentation with Internet voting, effectively halting the introduction of e-voting in the country.**(Cortier,2012)**

- **Paraguay**

In 2000, the Paraguay government had borrowed the voting machines from the Brazil and used it but due to the security concerns they revert back to the paper-voting method.

- **Italy**

In 2006, Italy experiment the voting device on national level in four polling stations but after the election they decided to used the paper ballot as they considers it cheaper and easy to use. **(Report on EVMs and Overseas Voting, 2024)**

### 2.8 Benefits of the Electronic Voting System

Every voting method has its benefits or advantages and same is the case with the electronic voting machines. By using the EVMs in the elections it has improved the electoral process more efficiently and it has the number of the potential advantages. Some of the following are given below

#### I. Accuracy and Reduced Errors

Electronic voting systems can minimize errors that are related with manual vote counting. The automation of the process overcomes the chances of mistakes and ensures more accurate and reliable election results.

#### II. Efficiency

Electronic voting can speeding up the voting process to make casting ballots faster and more efficient.

#### III. Quick Results

Its automatic nature has boost the counting and reporting of election results. This can lead to faster giving out of accurate information, reducing doubts about election outcomes.

#### IV. Cost Savings

Although the initial implementation and designing of the machines is very expensive but in the long term, electronic voting systems can potentially lead to cost savings in terms of reduced printing and distribution costs related with paper ballots.

#### V. Ease of Access

Electronic voting systems can be designed to be more general for voters with disabilities, offering accessible features like audio ballots, customizable font sizes, and compatibility with assistive devices.This enhances accessibility for all voters.

### VI. Reduced Corruption

Electronic voting systems can help to reduce the chances of ballot corruption due to unclear or incorrectly marked paper ballots. The system can quick voters to correct errors before their votes are cast, improving the general accuracy of the process.

### VII. Convenience

Electronic voting systems offer the convenience of voting at multiple locations, including early voting centers and, in some cases through remote or online voting. This give make it easier for individuals with busy schedules to participate in the electoral process.

### VIII. Reduced Fraud

Through the well-designed electronic voting systems with strong security measures it can help to lessen certain types of frauds related with traditional voting methods. This includes the prevention of ballot stuffing, booth-capturing, and other forms of manipulation.

## 2.9 Challenges

The adoption of electronic voting machines (EVMs) deals with various challenges and concerns. While EVMs offer probable profit such as effectiveness and correctness but it also face some allegations that need to be addressed the honesty and security of the electoral process. Some of the key challenges and concerns that countries faces related with electronic voting machines are as follow

### I. Security Issues

The countries using these machines faced allegations that these machines are hacked and the elections results maybe be manipulated.

### II. Technical Defects

Sometime technical issues with EVMs could cause interruption in the voting process and possibly threaten the accuracy of the results.

### III. Software Flaws

Due to the incorrect software programming, inaccurate vote tallies or other technical problems may arise which is also a big challenge.

### IV. Constant Maintenance

To protect the machines from any security problems there is very important to regularly upgrade and maintain it.

### V. Legal Difficulties

Some counties faces legal difficulties regarding the use of electronic voting machines (EVMs), including disagreements over election results and constitutional questions regarding specific voting technology.

### VI. Education and Training

It is great challenge for the countries which are using these machines to train their citizens about its functions and educate them about how it works. Proper training programs should be conducted in this regard.

# CHAPTER: 3
# ELECTRONIC VOTING MACHINES IN INDIA

India is one of the world's most populous countries comprising 1.417 billion peoples. **(Statista,2024)** .It is also considers as one of the prominent country of the South Asia region due to its economic and military powers. It shares land and sea borders with all the other South Asian states. It gained its independence from the British rule in 1947 and became a sovereign nation. Since then, India has emerged as one of the world's largest and populated democracies, and has made profound progress in different areas such as economic development, education etc.

India as mentioned in its Constitution, which came into effect on the 26th of January, 1950. India is a republic founded on the principles of socialism, secularism, and democracy.In continuation of the British tradition, India has chosen a parliamentary democracy in which the government operates in a way where the executive branch, including the prime minister and other ministers, must have the support of the majority of parliament members to remain in power. Basically the government is formed by the party that holds the majority in parliament.

As India is one of the democratic state elections plays very important role in it . The vitality of a democracy depends on the integrity of its electoral process, ensuring that elections are both free and fair. It is a system through which people are given the chance to freely express their will by casting a vote and elect the representatives whom they consider most qualified to lead their state.

Elections are essential to democracy because they present a vital opportunity to advance political liberalization and democracy. It is a important element of democratic government. Since most modern counties argued about direct democracy that is a system in which all eligible citizens make political decisions directly unhelpful, a democratic government should be governed through elected representatives who act on behalf of the people **( Dahl, 1989).**

According to Webster's Dictionary, an election is defined as the process of selecting an individual for a particular office, position, or membership through voting. In India, the Representation of the People Act (R.P Act) of 1951 narrows the definition to specifically refer to the process of filling a seat in either the Parliament or State Legislatur.**( Representation of People Act ,1951)**

Elections in a democracy can be defined as it is a mechanism for measuring the political sentiments and opinions of the public, enabling citizens to articulate and express their interests and shape their collective will.**( Hartmaan 1971)** Through elections, people can voice their hopes and aspirations, and also hold leaders accountable for suppressing them, driving meaningful reform.**(Bhagat,1996)**

Free and fair elections are the hub of a democratic system. For the success of democracy and electoral process, it is important that the elections should be free and fair or transparent .For the successful electoral system, some conditions must be met:

1. Candidates must have the liberty to run and campaign freely, within legal limits.

2. Voters must be able to cast their ballots without fear of repercussions or excessive influence.

3. The secrecy of each voter's choice must be protected.

4. Election authorities must conduct the process with integrity and impartiality at all stages.**( Ali, 1996)**

### 3.1 Historical Background of the Indian elections

#### 3.1.1 Right to Vote

In every democratic country the constitution has given the right to citizens to express their choice by casting a vote during the elections. Before freedom, the right to vote and participation were strictly controlled for the Indian peoples but after the independence, India introduced universal adult suffrage, providing every eligible Indian adult the right to vote. In India , voting is one of the constitutional right of the citizens .According to the Article 326 of their constitution it is clearly mentioned that every citizen who have attain the age of 18 exercise this particular right.**( Constitution of India )**

Full voting rights was given to the citizens of India under the concept of 'Universal Suffrage' in 1950 which means that all adult citizens of a nation have the right to vote in national and regional elections, despite of their social status, gender, race, or any other characteristic. It is considers as a basic democratic right and is based on the idea of political equality. Earlier in India the voting age for the citizens was fixed at 21 but due to the 61st constitutional amendment of 1988 it decreased the voting age for elections to Lok Sabha and State Legislative Assemblies from 21 to 18 year.**( Austin,1999).**

The right to vote is a basic right in India, and it is necessary for the functioning of a democratic society. By exercising their right to vote, citizens can keenly engage in the decision-making process and hold their elected officials accountable for their actions. The right to vote is also regard as powerful tool for social change, as it gives opportunity to oppressed communities to freely express their opinion in the decisions that affect their lives.

After independence first and foremost challenge for the Indian leaders was to formulate the Constitution for the country and conduct the elections in such a big democratic state .But before the conduction there needs a proper institution or body that conduct the whole election process and responsible for all the matters related to electoral system. Therefore according to Indian Constitution article 324 the provisions were made to protect and make sure the free and neutral functioning of the Election Commission.

### 3.2 Election Commission of India

The Election Commission of India (ECI) is a constitutionally established, sovereign body entrusted with ensuring the integrity of India's electoral process. With broad powers of oversight, the ECI is responsible for conducting and regulating elections for the Parliament, state legislatures, and the offices of the President and Vice President of India, guaranteeing their freedom and fairness. It do not responsible for dealing with the elections to the Municipalities and Panchayats in the states because for them, it have a separate State Election Commission.

Initially, the Election Commission of India, established in 1950, functioned as a single-member body, with only the Chief Election Commissioner (CEC) at its controls. However, it later evolved into a multi-member body, comprising three election

commissioners, including the CEC. The President of India holds the authority to appoint the CEC and the other two election commissioner. **(Business Standarad,2024)**

In India the first general elections were occurred in 1951 – 1952 over a four-month period. These elections were the biggest test in democracy around the world based on the universal adult suffrage. The election process was managed under the supervision of the Election Commission of India, led by Chief Election Commissioner Sukumar Sen.**( Chandra,2000)**

In first general elections more than 173 million voters cast their vote.( **History of India).** These were held through the first delimitation order which was passed by President, in consultation with Election Commission and with the approval of Parliament on August 13th, 1951. According to the first delimitation order the main objective of it was to ensure fair and equal representation of various regions and communities in the newly formed Indian Parliament and state legislatures.( **Guha, 2007)**

Moreover in this election 4,500 candidates participate for 489 seats in the Lok Sabah (the lower house of Parliament) and more than 3,283 candidates for the state legislative assemblies. One of the remarkable achievements of this election was implementation of universal adult suffrage, ensuring that every adult citizen, apart from gender, caste, religion, or class, had the right to vote. This was a important exit from the limited franchise that existed during the colonial era.

Initially, the paper-based voting method was used compromising ballot papers. The ECI first thought to used different coloured ballot boxes for each candidate but later on it decide to used a separate box for each candidate, with the candidate's symbol fixed on it . In this election 1.9 million steel ballot boxes were prepared and 620 million ballot papers were printed, each having the size of a Rs 1 currency note, and "Election Commission India" were printed on them.**( Singh,2024)** The voters marked their preference on a printed ballot paper, and they were later on manually counted.

During this election Indian National Congress (INC), lead by Jawaharlal Nehru secured a major victory; winning 364 beyond 489 seats in the Lok Sabha and the voter turnout were remained 44.87%. (**Wikipedia)**

But during the first general elections, the Election Commission faced many challenges with voting and the electoral system. The first and foremost challenge for them was to arranging a large and complex election in a newly independent and diverse state. Therefore they had to deal with problems related to economics, partition and refugee immigration. Also conducting the elections in rural areas needed careful planning and execution. Due to poor transportation and communication infrastructure, it was very hard for ECI to transfer election materials and staff on time and securely. Similarly preparing a standard voter identification system was difficult due to India's large population, different languages, and cultures. **( Sen,1955)**

Moreover at that time the concept of universal adult suffrage was new and there was a need to educate the voters about their voting rights. There was need for voter awareness campaigns to maximum participation but it was not held. Most importantly security was a also big challenge particularly in regions that were affected by communal tensions or insurgency. **(Mendiratta,2017 )**

There were also issues about the lack of transparency in campaign financing. Political parties and candidates were not ready to disclose the sources of their funding, leading to questions about the influence of money in politics.

The second general election in India were held in 1957 .In this election eligible voters were increased by 17 million. During this election a significant increase was occurred in polling stations and election officials, The Election Commission declared four political Parties as National Parties those who had secured at least 3% votes in the first general elections. These were the Congress, the P. S. P., the Communists and the Jan Sangh. In these elections Indian National Congress (INC) won a massive victory, securing 371 of the 494 seats in the Lok Sabha, thus maintaining its dominance in Indian politics. But in these elections it also faced the challenges related to electoral role accuracy, voter identification and economic and social issues and in these elections the voter turnout was 45.44%.and in this election the event of the booth capturing was happened in Begusarais Matihani assembly seat.**( CNN,2015)**

The third general election in India was held on 25 Feburary , 1962. In this election again Congress was successful in achieving the power**.** In this elections voting process for all the constituencies was paper-ballot and the voter turnout was 55.4% .During this elections

many malpractices like booth-capturing ,violence, lack of security , vote buying was observed which badly influence the transparency of the elections.

Similarly in the following years many other evil-practices start occurring increasingly like money power played a role in influencing voters. Candidates and political parties were often accused of distributing money and gifts to voters to gain their support and there were certain issues about the accuracy and fairness of the electoral rolls. Changing in voter lists, including the addition of fake voters and removal of legitimate ones, was reported in certain regions, booth-capturing, rigging etc Until 1991 the Congress party was ruled the India expect in 1977 and 1996 when it was failed to win the elections.

### 3.3 India's Electoral System Structure

The origins of India's electoral system date back to the Government of India Acts of 1919 and 1935, enacted during British rule, which established a limited electoral framework based on restrictive qualifications such as property ownership, community, religion, and other criteria. Modern India's electoral system is based on representative democracy, where people elect representatives through free and fair elections to exercise their power**.( Rathanaswamy, 2004)**

The Election Commission of India monitor the electoral process. Members of the Lok Sabha, with the exception of two presidential appointees, are directly elected by the people through general elections held every five years, using a first-past-the-post system and universal adult suffrage. In contrast, members of the Rajya Sabha, the upper house of parliament, are elected by elected representatives of state legislative assemblies and union territory electoral colleges, using proportional representation through single transferable votes. Additionally, twelve members are nominated by the President, typically from esteemed fields such as arts, science, law, sports, business, journalism, and social service.

#### 3.3.1 Election Procedure in India

India has two different kinds of voting systems.

- **First Past the Post System**

In this system, elections are held in constituencies defined by the Election Commission, with the candidate receiving the most votes declared the winner. The first-

past-the-post system is used for both Lok Sabha and Vidhan Sabha elections, where voters cast a single vote for their chosen candidate**.( Electoral Reform Society, 2012)**

- **Proportional Representation System**

This system assigns legislative seats proportionally to the number of votes received, making it well-suited for India's multi-party landscape. Each party is represented in proportion to its vote share, regardless of its size, ensuring that even smaller parties have a voice in the legislature. This voting procedure is adopted by the Constitution for the President, Vice President, representatives in the Rajyasabha, and members of the Legislative Council.**(The Hindu,2024)**

### 3.4 Electoral Process of India

In India through the constitutional and legal pattern the process of the election is performed by the election machinery. There are the following steps that are followed which are discussed below

**a) Declaration of Election Schedule by the ECI**

The basic responsibility of the Election Commission is to announce the schedule for the elections when the 5-year term of the Lok Sabha was completed**.**

**b) Issue of Notification by the ECI**

After declaring the election schedule it is task of the Election Commission to officially give notification**.**

**c) Candidate Nomination Process**

After the issuing of the notifications for elections all candidates, who want to participate in the election can begin preparing their nominations in the constituencies from where they want to contest. Then these nominataion papers are reviewed by the returning officer and if these are not correct then it can reject

**d) Election Campaign**

After submitting the nomination papers candidates start their election campaign. Through which the political parties present their candidates and motivate people to people to vote for their candidates and parties. It starts before the two weeks of the elections and completes before the election day. It is also mandatory for the political parties to respect and follow the model code of conduct.

**e) Election Manifestos**

One of the important feature of the election is political parties manifestos. These are basically the agenda which elaborate the policies, pogrammes and strategies which they determine to fulfilled when they are successful in making its government. These manifestos basically represent their vision, preferences, and proposed solutions to major problems and also discussed the strengths of their candidates.

**f) Allocation of Symbols**

When the process of selection of candidates is complete, a list of contesting candidates is create by the Returning Officer (RO) and then the party symbols are given to the them

**g) Polling Days**

In India election is India is conducted over multiple days across different constituencies. Through which it capable the security officials and election monitors to maintain law and order and make sure that the voting process remains free, fair and peaceful throughout the electoral exercise. **( IAS, 2007)**

### 3.5 Reforms in India's Electoral System

By electoral reforms it means to changes and improvements have been implemented to strengthen the electoral system and processes, promoting greater fairness, transparency, and efficiency in the conduct of elections .These reforms aim to make sure that elections are free and fair and that every citizen has equal opportunity to participate in the democratic process. It consists of various principles including modifications in laws and regulations, institutional changing and the introduction of new technologies.

India with its diverse nature continues its efforts to advance the electoral system to ensure free, fair, and transparent elections. Since 1952, India had conducted elections for national as well as at the state level legislative bodies. Different problems with India's electoral system have introduced the anti-social elements to enter the political area. The major incident of the destruction was occurred in the fifth general election (1971), and they continued to grow during elections, particularly those conducted in the 1980s and beyond. The Election Commission had expressed concern about removing hurdles to ensure free and fair elections. It has regularly reminded the government of the need to implement several of its recommendations. Therefore, for this purpose, they have established several committees to resolve the problems related to their electoral system **(Singh,2013)**

**The Tarkunde Committee (1974)**

In 1974, Jayaprakash Narayan, representing Citizens for Democracy (CFD), established a committee under the chairmanship of Justice V.M. Tarkunde to address electoral reforms. The Tarkunde Committee's 1975 report highlights the important need for the Election Commission to not only be theoretically independent but also to visibly express independence in arranging and conducting elections .The report points out a growing opinion that the Election Commission would becomes less independent of the executive, especially in the selection of the Chief Election Commissioner. The committee also showed concern that the appointment of retiring government officials to this position may create a sense of indebtedness to the government.

To address these issues, the Tarkunde Committee recommended a change in the appointment process and proposed that the President should appoint Election Commission members on the recommendation of a committee consisting of the Prime Minister, the Lok Sabha's Leader of the Opposition (or a nominated MP from the Opposition), and the Chief Justice of India, ensuring a collaborative and bipartisan approach to the selection process. It purposes was to ensure a more neutral and confidence-inspiring selection process for the Election Commission members. **(Shanika,2019)**

**Committee on Electoral Reforms (1990) chaired by Dinesh Goswami**

In January 1990, Prime Minister V.P. Singh appointed the Committee on the electoral reforms, led by Law Minister Dinesh Goswami. Some of the key suggestions that are proposed in this meeting was as follow

- It recommended that the age of the Chief Election Commissioner and Election Commissioners should not be above from the 65.
- It advice to amend the law and give authority to the Election Commission to review the expenses of the elections
- The Committee ordered to modify law on accounting of election costs and eliminate the manipulation that had exists in it
- The Committee suggests to change the voting system proportional representation and list system, instead of the existing voting system.
- It also point out the importance of strengthen the Election Commission and securing its independence, including making the Chief Election Commissioner ineligible for any office under the government after their term.
- The Committee discussed the need for more strict laws to deal with the wrong practices of booth capturing and impersonation. **( Government of India,1990)**

**The Vohra Committee (1993)**

The Vohra Committee was organized by the P.V. Narasimha Rao government in July 1993. The Committee was led by the former Indian Home Secretary N.N Vohra who submitted the Committee Report in October 1993.

It expressed serious concerns related to the access of criminals into politics. Therefore they made some recommendations that are as follow

- Candidates must complete comprehensive forms covering all required information.
- In these forms, criminal candidates mentioned in bold letters.
- Candidates must inform their particular political parties about any pending criminal cases against them.
- The concerned political party must mention the criminal experience of candidates on party website. **( Jacques, 2005 )**

**Election Commission of India's 2004 Recommendations for Electoral Reform**

The Election Commission proposed several reforms to enhance the electoral process in India. These included introducing state funding of elections to reduce corruption, implementing measures to curb criminalization in politics, enhancing transparency in political funding, and introducing electronic voting machines (EVMs) for efficient and tamper-proof voting **(Baruah,2009).**

### 3.6 Flaws in Manual Voting Method

The manual or paper ballot voting system had several drawbacks that led to inefficiencies and challenges in the Indian electoral process and due to which India has moved to the new voting method. Some of the key defects related with the manual paper ballot system are

- **Time-Consuming Counting Process**

Manual counting of paper ballots is a time-consuming process, especially in constituencies with a large number of voters. It delays the announcement of election results, leading to longer periods of insecurity and potential conflicts.

**Subject to Human Error**

In manual counting the chances of the human errors is more such as miscounting or misinterpretation of voter intent. Also errors in the counting process can lead to disputes and legal challenges, affecting the reliability of election outcomes.

**Logistical Challenges**

During this voting method the process of the transportation , storing, and managing large quantities of paper ballots face logistical challenges. Due to which delays in result, inefficiencies effected the whole elections.

**Increased Operational Costs**

The overall costs of conducting elections by using a manual paper ballot system, was very large .It includes printing, storage, and transportation of ballot papers due to which financial burden on the election administration is higher.

- **Openness to Electoral Fraud**

In manual paper-based voting systems there were more chances of fraud, including practices such as booth capturing, multiple voting, and manipulation of ballot boxes.

- **Lack of Transparency**

One of the major flaw of the manual voting method is that the cases of rigging ,and other evil-practices are occurred in increased level.

- **Difficulty in Handling Large Voter Turnout**

It is a huge challenge to managing a high voter turnout with manual paper .In constituencies with large populations, have increased number of paper ballots due to which it slow down the counting process, leading to delays and potential inaccuracies**.( Gersema,2022)**

- **Manipulation of Ballot Boxes**

In this method the incidents of manipulating the ballot boxes are very common which affects the overall integrity of the elections.

- **Booth Capturing**

The one of the prominent error of the manual voting method is the practice of booth capturing, in which armed groups took control of polling booths and caused disruption in the voting process.

- **Voter fear**

Voters were sometimes pressurized to vote for a particular candidate or party which impact the free and fair expression of voters' choices.

- **Multiple Voting and Bogus Voting**

In manual voting there are more chances of those incidents in which individuals casts multiple votes or using fake identities to vote . It compromised the accuracy and legitimacy of the electoral rolls.

- **Political Polarization and Violence**

Political polarization often led to violence during elections. Opposite political groups engaged in conflicts affecting the overall transparency and peaceful conduct of the electoral process.

Moreover in India voters had to stay in guarded areas day and night to physically check each ballot, which might take up to three or four days in the past. Recount requests can occasionally result in a narrow margin of victory between the leading candidates and a high percentage of wrong and doubtful ballots**.(James,2023)**

### 3.7 Key Issues and Challenges for the Election Commission

Despite its overall effectiveness, the Indian electoral system struggle with significant flaws. The Election Commission encounters numerous challenges in conducting free and fair elections due to inherent issues. A notable concern is the presence of unaccounted funds in elections, which facilitates corrupt practices. Political parties often beg funds from businesses and companies, utilizing these resources to sway voters through illicit means such as bribery, voter intimidation, and other unlawful tactics, thereby undermining the electoral process.

The dominance of corruption and too much influence in elections is a significant challenge. Incidents such as distributing liquor in economically disadvantaged areas, politicians paying for favorable news coverage, and bribing voters impact the whole election process .The "vote for note" scandal is a particularly major example where votes are exchanged for money or other incentives**.( Singh,2009)**

To overcome these issues, new policy and amendments were needed in the electoral system. This involve strict steps to regulate and follow the flow of unaccounted funds, ensure transparency in political campaign financing, and prevent the undue influence of voters through unlawful means. A broad approach is applied to ensure elections are fair and free from corruption, thereby strengthening the democratic process.

Therefore, ensuring the integrity of India's electoral process, the Election Commission (EC) has implemented various measures and introduced various technical infrastructure, like Electronic Voting Machines (EVMs), the voter database, voting software, and IT systems to make the electoral system more effective.

## 3.8 Electronic Voting Machines ( EVMs)

The term "electronic voting" can be simply defined as

Electronic voting refers to any method of casting votes using electronic means, as opposed to traditional paper ballots. In this process, votes are recorded and stored digitally on electronic voting machines, and then transmitted to a central counting system for tabulation.

### 3.8. 1 History of Indian EVMs

India is the first country in the South Asia that adopted this technology in their electoral system. For the very first time they were used the Electronic Voting Machine on a experimental basis in bi-pole elections at Paravur Assembly Constituency in Kerala in 1982 and were also further utilized in 10 bye-elections nationwide. However, the absence of a specific legal framework governing EVM use led to a petition challenging the election. On March 5, 1984, the Supreme Court of India ruled that EVMs cannot be employed in elections unless explicitly authorized by law.Therefore that election was declared invalid by the court. The court declared that the Representation of People's Act (1951) clearly talks about that Election Commission must conduct and hold elections using ballots papers. There was not mentioned of voting machine in the act .So on this basis the elections was declared null and void**.( BYJU'S)**

Then the Indian parliament amended the People's Representation Act in the December 1988 and the insertion of Section 61A empowered the Election Commission of India to use EVMs in elections, with specified provisions governing their use.**( Jus, 2017).**

**According to the 61A of the People's Representation Act it is stated that:**

"Voting machines at elections.: Notwithstanding anything contained in this Act or the rules made there under, the giving and recording of votes by voting machines in such manner as may be prescribed, may be adopted in such constituency or constituencies as the Election Commission may, having regard to the circumstances of each case, specify.

For the purposes of this section, the term "voting machine" encompasses any device, whether electronic or non-electronic, used for casting or recording votes. Unless otherwise specified, any mention of a ballot box or ballot paper in this Act or its associated rules shall be

interpreted to include a voting machine, wherever such a machine is utilized in an election. (**Representation of India Act, 1951)**

So the law authorized the use of Electronic Voting machines in 1989. In the state elections held in Delhi, Madhya Pradesh, and Rajasthan, Electronic Voting Machines (EVMs) were tested in 16 carefully selected constituencies. These constituencies were chosen for their stability and robust infrastructure, which enabled the smooth implementation and management of EVMs and then from 2004 to onwards India used these machines everywhere**.( Kumar, 2012)**

It was commissioned by the Election Commission of India in 1989 with the help of two public sector undertakings Bharat Electronics Limited ( Banglore) and Electronics Corporation of India Limited ( Hyderabad) with the Japanese-imported microprocessor. The Indian EVM voting system is considerably simpler than voting systems in the US

The EVM was first planned in 1977 and ECIL was given duty to develop the initial prototype, which was displayed in 1980 .In 1989, BEL was also chosen along with ECIL to create the EVMs .The industrial design of the EVM came from two professors at IIT Bombay.

It was first used in a limited level in 1982 in Kerala, but their widespread adoption was postponed until the late 1990s and early 2000s as the legal framework was established. **( Kalia ,2024)**

### 3.8. 2 Structure of the Electronic Voting Machine

India's Electronic Voting Machines (EVMs) comprise two distinct units which are discussed below

- **The Control Unit**

The Control Unit is the primary component of the EVM, responsible for storing and processing all data. It is typically kept with the presiding or polling officer and features 'one-time programmable' microchips that are permanently fixed with the operating program. Once programmed, the microchips cannot be read, copied, or altered, ensuring the integrity of the control unit's functionality.

There are four sections that make up the control unit: the display section, the candidate set section, the result section, and the ballot section. Seven control buttons (candidate set, ballot, close, result I, result TJ, total, and clear) are available in the above mentioned sections. An LED light shows the machine's ON and BUSY states. The result and error messages are displayed on six of the seven segment LEDs. The number of candidates contest for office is set in the control unit by operating the cand.set switch. The ballot unit is motorized on by the ballot switch operation, which also records one vote in the control unit. The voting process is finished by pressing the "Close" button. During the polling, the machine counts the total number of votes cast and casts a vote against each candidate in conflict .When the result switch is turn on, the votes cast against each candidate in the running are shown one after the other. All of the machine's stored voting history is deleted during a clear operation. A printer interface unit is used to print the recorded voting data. **(Kumar, 2012)**

- **The Ballot Unit**

The Balloting Unit, located in the voting compartment, allows voters to cast their vote by pressing a button, after the polling officer initiates the process from the Control Unit. It consists of 16 buttons for the respective candidates and also used two electronically programmable devices to communicate with the Control unit board. Control unit and Ballot unit are connected by the 5m long cable.**( Puri, 2017)**

It operates on a 7.5 volt alkaline battery, capable it to be used even in areas without electricity. Before 2006 EVMs can record a maximum of 3840 votes but after 2006 EVMs can record up to 2000 votes. After its upgradation EVMs can supply to 24 balloting units, allowing a maximum of 384 candidates including NOTA.

If the number of candidates exceeds 16, additional balloting units can be linked in parallel, up to a maximum of 64 candidates. The Control Unit can able to store the result in its memory for 10 years or more, even if the battery is removed. Once a button on the balloting unit is pressed, the vote is recorded for that candidate and the machine gets locked, preventing multiple votes.

**(This figure showing Control unit on the Right side and the Balloting unit on the Left side)**

### 3.8. 3 How it enhance the transparency in India electoral system

The installment of Electronic Voting Machines (EVMs) in India has significantly improves transparency in the country's electoral process. It has reduced the various irregularities and malpractices which were practiced before.

- **Reduced Fraud and Manipulation**

Before the adoption of the EVMs, paper ballots were easily prone to the fake practices like ballot box stuffing and vote tampering but the Electronic Voting Machines (EVMs) were strategically designed to overcome false activities by notable limit on the voting rate, allowing only five votes to be cast per minute. This conscious feature serves to extend the time required for the fake casting of ballots, providing a bigger space for security forces to respond and intervene in case of any malpractice. **(Sopariwala,2019)**

- **Reduced the Practice of Booth Capturing**

After the implementation of the electronic voting machines it eliminate the evil practice of the booth capturing .It was a serious issue in the earlier days of Indian elections, where political goons would forcefully take control of polling booths, threaten voters, and manipulate the voting process to ensure favorable results for a particular candidate or party. The design of the EVMs makes booth-capturing a challenging task. With a maximum voting capacity of five votes per minute, the machines slow down the voting process, making it

significantly more time-consuming for individuals attempting to manipulate the election by stuffing the machines, compared to traditional ballot boxes**.( Sharma,2000)**

- **Empower Marginalized Communities**

During paper ballot system often marginalized groups like the illiterate, elderly, and disabled were not allowed to cast vote due to difficulties interpreting signatures and thumb impressions but EVMs have improved convenience, allowing these weak citizens to participate and have their votes properly counted . Moreover, the electronic voting process ensures greater accuracy and transparency through the creation of an electronic record of voting signatures and thumb impressions, which is accessible for public scrutiny. Unlike traditional paper balloting, where ballot inquiries were only possible under court orders and ballot validity was determined by election officials, electronic voting provides an additional layer of openness and accountability by making records available for public inspection**.( Kumar,2021)**

According to the Centre for the Study of Developing Societies, the introduction of EVMs led to a significant increase in voter turnout among marginalized groups, including women, scheduled castes and tribes, senior citizens, and illiterate voters. Notably, EVMs boosted the likelihood of less educated voters casting their ballots by 6.4%, thereby empowering vulnerable populations and enhancing their participation in the electoral process. Similarly according to the Center for Social and Economic Progress, number of voters decreased to 3.5% of the states (Bihar, Jharkhand, Maharashtra and Uttar Pradesh) where the electoral fraud was practice on a high rate and where the politicians faced serious criminal charges**.(Ravi,2019)**

- **Role of Election Commission of India**

Election Commission of India has also played an important role to develop a trust in the citizens about the modernized voting technology. They have conducted a number of awareness-raising campaigns to update voters about electronic voting machines (EVMs). These programmes seek to guarantee the election process's fairness, accessibility, legitimacy, and openness.**( IANS,2024)**

The EVM Familiarization Programme is one of the main initiatives, which allows voters to get some practice using EVMs before election day. They increase confidence in using the technology and gain an understanding of the voting process as a result. In order to guarantee that poll workers are talented in using EVMs and are able to assist voters in need, the ECI also holds training sessions for poll workers**.( Times of India, 2024)**

The ECI, in cooperation with the Ministry of Education and the University Grants Commission (UGC), has conducted various voter awareness campaigns to educate the public about the EVM system which include National Voter Awareness Contest "My Vote is my Future Power of One Vote" and the Systematic Voters' Education and Electoral Participation (SVEEP) program that carries out interventions to increase electoral participation**.(Vasireddy Venkatadri Institute of Technology, 2024)**

The Election Commission also appoints observer in every constituency during the elections to ensure free and fair voting and some time on the negative reports of these observer they have issued an order to re-poll. In 2019 Lok Sabha elections the Election Commission had ordered to conduct repolling in three booths in Kerala where the bogus voting was confirmed**.( The Times of India, 2019).** Similarly in 2023 Nagaland elections the Election commission of India ordered repolling at four stations in Nagaland's district because it was declared null and void**.( Hindustan Times).**

- **Speedup Election Process**

One of the major improvements after the adoption the EVMs is that it made the voting process faster and more efficient. With the traditional paper ballot system, the counting process was time-consuming and often took several days. EVMs allow for quicker counting, reducing the time during which the booth could be vulnerable to manipulation.

Electronic voting machines are quite successfully operating in India. The Prime Minister Narendra Modi during addressing the opening session of the ninth G20 Parliamentary Speakers' Summit P20 extended an invitation to the delegates to return to India the following year to take in the "festival of democracy" the upcoming Lok Sabha elections, which are scheduled for the summer of 2024. According to him, the high voter turnout in the 2019 Lok Sabha elections demonstrates the public's confidence in the nation's parliamentary

procedures. Additionally, he said that the polling process is now more transparent and efficient thanks to EVMs. (**The Economic Times, 2017)**

Since these machines were used nationwide following the 2004 general elections, voter turnout in the 2009, 2014, and 2014 general elections increased significantly, reaching 67.40%, demonstrating that voters' confidence in the new voting technology has grown**.( Government of Indian PressBureau,2014)**

- **Reduction in Cost**

Domestic manufacturing of EVMs has the potential to significantly lower the unit cost, making them more affordable and cost-effective**.( Singh, 2019)**

### 3.9 Modifications in the Electronic Voting Machines

- India has made several modifications to its electronic voting machines (EVMs) over the years to increase their security and transparency. Some of key modifications:

#### 3.9.1 Voter-Verified Paper Audit Trail (VVPAT)

The Voter-Verified Paper Audit Trail (VVPAT) system, introduced in the 2013 Noksen Assembly bye-election in Nagaland, provides a paper record for each vote cast. Connected to Electronic Voting Machines (EVMs), VVPAT enables voters to confirm their vote accuracy. When a voter casts their vote on the EVM, a paper slip is generated, displaying the chosen candidate's name and symbol, visible through a transparent window, allowing voters to verify their vote has been correctly recorded.In 2014 general elections it was introduced in 8 constituencies of Lucknow, Gandhinagar , Bangalore South, Chennai Central, Jadavpur, Raipur, Patna Sahib and as a show project.

The Indian Statistical Institute (ISI) determined that counting slips from 479 randomly selected VVPATs nationwide would achieve over 99% accuracy. However, the Supreme Court mandated in 2019 that VVPAT slips from five Electronic Voting Machines (EVMs) in each constituency be counted, rather than just one, to ensure the highest level of accuracy and trust in the electoral process.**( Indian Polity, 2023)**

It improves the transparency of the electoral system. The five copies of the results tally sheets are printing and signed by the presiding officer and representative of the each

polling station. Then these copies are sent to the specific destination first in the polling station to advertise the result, three are sent to electoral registry and last copy to party representative.

### 3.9. 2 Technical Enhancement

Between 2001 and 2006, technical upgrades were made to the EVMs, which improved their effectiveness and reliability. The lifecycle of EVMs is divided into three eras: M1 EVM (before 2006), M2 EVM (2006-2010), and M3 EVM since 2013.**( The Hind,2024)**

### 3.9.3 Introduction of NOTA option in Electronic Voting Machines

The "NOTA" option, which stands for "None of the Above," was introduced on electronic voting machines (EVMs) in India by the Election Commission of India in 2014 general elections as a result of a landmark ruling by the Supreme Court of India on September 27, 2013, as a result of a petition filed by the People's Union for Civil Liberties (PUCL), among others. The Supreme Court ruled that the right to register a "none of the above" vote was fundamental to expressing a voter's discontent with candidates and was a crucial part of democracy. Since then, it has been available in every general election, state election, and by-election in India.**(Law Times Journal, 2015)**

# Chapter: 4

## Stakeholders Response regarding the Electronic Voting Machines (EVMs)

Every new system that introduced in any state met with both positive and negative feedback from the public. The Election Commission of India faced significant hurdles when it initially adopted these voting machines. Various stakeholders had differing opinions about the new technology. While some people supported this initiative, others were critical of it. This chapter's main objective is to examine these different stakeholders' responses.

Elections are primary to the functioning of democratic states as they serve several crucial purposes that consists the principles of democracy. It provides citizens with the opportunity to elect officials who will govern on their behalf. Through the act of voting, individuals express their choices and elect leaders who they believe will best represent their interests and values. As noted by political scientist Robert A. Dahl in his book "On Democracy," elections ensure that citizens have a say in shaping the policies and decisions that affect their lives. (**Dahl,1998)** It is very important that election should be held on regular periods. The regular elections hold elected officials accountable to the electorate. When politicians seek reelection, they are motivate to fulfill their promises, perform their duties effectively, and act in the public interest. If elected representatives fail to meet the expectations of the voters, they risk being voted out of office in following elections. This accountability system helps prevent abuses of power and ensures that leaders remain answerable to the desires of the people.

Similarly free and fair elections give authority upon the government. When leaders are elected through a transparent and complete electoral process, their authority to govern is derived from the approval of the governed. This legitimacy is important for maintaining political stability and promoting social unity within a democratic society. As highlighted by political theorist John Locke, governments that lack the approval of the governed are subject to challenges and resistance from the public.**( Locke,1980)**

Elections encourage citizen participation in the political process. By exercising their right to vote, individuals actively engage in shaping the path of their communities and the nation as a whole. Participation in elections enhances a sense of civic duty and empowerment among citizens, strengthening the democratic culture of a society. Political philosopher

Hannah Arendt emphasized the importance of active citizenship in ensuring the strength of democracy.( **Arendt,1998)**

Elections reveal the variety of opinions, interests, and perspectives within society. Political parties and candidates represent a large range of ideologies and policy proposals, allowing voters to choose from a variety of options. This pluralism enriches public discussion, promotes cooperation and consensus-building, and prevents the absorption of power in the hands of a single group or individual.

### 4.1 Who are the Stakeholders?

A stakeholder is an individual, team, or entity that has a direct interest or investment in the outcomes, actions, and decisions of an organization or project **( Barney, 2023).** And in the context of the election process we can describe as everyone who has an interest or influence in the election system is regard as stakeholder.

#### 4.1.1 Concerns of stakeholders

In every democratic state when the elections has occurred governments and electoral authorities typically struggle to maintain order, transparency, and sincerity in the electoral process. They may implement electoral laws, ensure the security of polling stations, and oversee the counting of votes. Their response directly affects the integrity and legitimacy of elections.

There are the different stakeholders in India that plays their important part in the electoral system. Primarily, voters express concerns about the election system. As eligible citizens, voters play a crucial role in selecting representatives by casting their ballots. To exercise these right, voters must be Indian citizens aged 18 or older, registered at their designated polling station as indicated on their Voter's Card, and listed in the Register of Voters for that specific station. Their response determines the overall legitimacy of election outcomes.

Similarly political parties also have a influence in the electoral system. It often engages in campaigning, voter mobilization efforts, and sometimes legal challenges to electoral processes they identify as unfair or biased. Their response can influence voter turnout and perceptions of the electoral process. In India, political parties arrange extensive

resources during elections, including rallies, door-to-door campaigns, and social media outreach, which significantly impact voter participation and outcomes.

The media plays a vital role in elections by promoting electoral activities, ensuring equitable coverage of political parties and candidates, and providing comprehensive news coverage of the entire electoral process. This enables the electorate to make informed decisions, as the media facilitates transparency and accountability throughout the election cycle.

International observers judge the conduct of elections against international standards of fairness, transparency, and inclusivity. They may issue reports highlighting areas of concern or approval. Their response influences global perceptions of a country's democratic identification and may impact diplomatic relations. For example, the European Union Election Observation Mission (EUEOM) frequently monitors elections worldwide, providing valuable feedback to host countries and contributing to democratic development**.( EEAS,2023)**

In India judiciary also considers as a key stakeholder during the electoral process. The Supreme Court acts as the guardian and protector of the Constitution and the fundamental rights of citizens. It ensures the integrity and credibility of the electoral process by examining the various electoral disputes and challenges and also reviews the decisions of the Election Commission. **(Mutsanuri,2013)**

As India is a politically alive democracy, it is particularly important to understand and address issues raised by various stakeholders. For example, the opinions and response of political parties and civil society organizations, involving and showing the interests of different social groups, are important considerations in the evaluation of the development and implementation of EVMs. On the other hand, the opinion of security agencies and the work of the Election Commission in ensuring a transparent and fair electoral process can have a significant impact in shaping public trust in EVMs and their acceptance by voters. Such public trust has not only been mentioned by many scholars as the key to the successful generalization of EVMs but also used by the courts when reinforcing the necessity of improving the security measures and verifying the transparency of EVMs. The connection between stakeholder response and the utilization of EVMs is crucial not only to understand the success and challenges of existing EVMs as compared to other voting methods but also to

guide the formulation of electoral policies and the advancements of EVMs in the future**.( Mitra,2008)**

### 4.2 Response of Political Parties

A group of persons structured to get and exercise political power is called a political party. **(Duverger, 2024).** A democratic state cannot exist without the presence of the political party and it can also be describes as a recognized political entity that regularly nominates and supports election candidates. **(Sartori, 1976)**

The importance of the political parties can also be highlighted that they are basic to the functioning of a democratic state, helping as the keystone of representative democracy because it act as mediators between citizens and the government, representing the various interests, ideologies, and concerns of the population. In a democratic state, political parties provide stability and continuity by offering organized structures for governance and play a important role in shaping public policy. They develop broad platforms and election manifestos that outline their vision for governance and specific policy proposals. **(Müller, 2003).**

In the perspective of developing countries, political parties and elections are crucial components of political analysis, particularly in understanding democratization and the consolidation of democratic systems. According to political scientists, the regular occurrence of free and fair elections is the fundamental requirement for a democratic regime to prosper. **(Dah,l 1971)**

Political parties in India initially responded to the introduction of Electronic Voting Machines (EVMs) with doubt and concerns. Earlier to the introduction of EVMs, paper ballots were used, which were prone to false voting practices. The switch to EVMs aimed to address these issues by reducing costs, speeding up the counting process, and enhancing security.

However, some political parties, particularly opposition parties, have always raised concerns about the reliability and security of EVMs. They have alleged that the machines can be tampered with, leading to false results. These concerns have been highlighted in various debates and court cases, including a Supreme Court ruling in 2011, a order were issued to the

Election Commission to integrate a paper trail feature into Electronic Voting Machines (EVMs) to ensure their accuracy and reliability.

Despite these concerns, the Election Commission of India has maintained that the EVMs are tamper-proof and have been used in all state assembly and parliamentary elections since their introduction. The Commission has implemented various measures such as the Voter-Verified Paper Audit Trail (VVPAT) system, to address these concerns and ensure the honesty of the electoral process

### 4.2.1 BJP's Stance on EVMs

The Bharatiya Janata Party (BJP) is one of the dominant political party in India which traces its roots back to the Bharatiya Jana Sangh (BJS), founded in 1951 by Syama Prasad Mookerjee, who recommended reconstructioning India in accordance with Hindu culture.

The BJP was officially established in 1980 after a divide from the Janata Party coalition. Under the leadership of Atal Bihari Vajpayee and L.K. Advani, the party began achieving electoral success in 1989 by promoting anti-Muslim narrative. **(The Indian Express,2023)**

It has had a mixed response to Electronic Voting Machines (EVMs) since their introduction. Initially, the BJP criticized EVMs after losing elections, arguing that they were rigged. For example, after losing the 2009 Lok Sabha elections, BJP supporters and member especially Mr Advani alleged that EVMs were manipulated to favor the opposition. **( Naqvi, 2024)** This criticism was recalled by party members who published books and made public statements against the use of EVMs. Interestingly, Mr. Advani's concerns seemed to scatter when his party secured a significant majority in the 2014 general elections, as he did not raise his previous objections.

GVL Narsimha Rao, was also member of the BJP, who are the louder critics of the EVM. He wrote a book entitled, Democracy at Risk, in which he advocated that EVMs should not be used in elections. The anti-EVM response was lessen for a short time after the BJP win in the 2014 Lok Sabha elections. The some members of the BJP were the most voiced critic of EVMs before the 2014 general elections. However, after its huge win in the polls, it forgot its history of opposing EVMs **(Shukla, 2018)**

But there are some members that defended it like Amit Shah who was the former President of the BJP and a prominent leader within the party, has consistently defended the integrity of EVMs. In 2019, he stated, "EVM is not a football that can be kicked around. It is an machine made by the Election Commission, and if you have a problem, go to the EC" **(The Times of India.2019).**

Similarly Prime Minister Narendra Modi, due to whom BJP achieved historic success in the 2014 Lok Sabha elections, has been firm in his support for EVMs. Modi has refused to consider reverting back to ballot papers, praising the efficiency and transparency of the EVM system. Before the 2024 elections, during the opening session of the ninth G-20 Parliamentary Speakers Summit , he invited the delegates to visit India and observe festival of democracy and also stated that EVMs has brought transparency and efficiency to the election process.**(Business Standard,2023).**

The BJP has also defended the use of EVMs in various incidents such as in the recent allegations of "BJP tags" on EVMs in West Bengal, where the Election Commission explained that the tags were part of the commissioning process and were videographed under CCTV coverage.

After the 2024 general elections addressing newly elected members of Parliament, Modi turn over at opposition parties for their frequent allegations of EVM rigging. He accused them of attempting to weaken the Election Commission by blaming EVMs for their electoral losses. He emphasized that the election results effectively silenced these accusations**.( Times of India,2024)**

### 4.2.2 Congress Stance on Electronic Voting Machines

The Indian National Congress, known as the Congress Party or simply the Congress, is a political party in India with deep roots in most regions of India founded in 28 December, 1885 during British colonial rule in India. Its formation was a significant milestone in India's struggle for independence.

Following India's independence in 1947, the Indian National Congress became the dominant political party in the newly formed Republic of India. Jawaharlal Nehru, as the leader of the Congress, became the country's first Prime Minister. Since independence, the

Indian National Congress has ruled at the central government many times**.( Ramachandra, 2007)**

EVMs were first introduced in India during the Congress-led government in the 1990s and were used in several state assembly elections before being deployed nationwide in the 2004 Lok Sabha elections. The Congress party has not been constantly opposed to the use of EVMs. **( India News,2024)**

But in recent years, the Congress has raised concerns about the integrity of EVMs .Rahul Gandhi, President of the Indian National Congress has questioned the fairness of the Election Commission and has demanded transparency in the electoral process and has demanded a 100% verification of Voter Verifiable Paper Audit Trail (VVPAT) slips to enhance public confidence in the electoral process. The party has blamed the Election Commission of refusing to meet with opposition leaders on this issue.( **Economic times,2024)**

Moreover,Congress leader Digvijay Singh, the former Chief Minister of Madhya Pradesh, regularly campaigns against electronic voting machines. He leads a strong coalition of critics from the country's opposition parties and nonprofit organizations, advocating for a return to paper ballots. **(Kapoor, 2024)**

**Response of the Regional and Smaller Parties:**

The implementation of these voting machines in India has give rise to various responses from regional and smaller political parties. These responses range from acceptance and support to doubt and outright opposition . Some regional parties have embraced EVMs, seeing them as a means to ensure quicker and more efficient elections.

Telugu Desam Party (TDP) initially, supported the introduction of EVMs. But then N. Chandrababu Naidu, who was prominent politician and former Chief Minister of Andhra Pradesh, has been vocal about his concerns regarding electronic voting machines (EVMs) in India. He has repeatedly expressed his belief that EVMs are prone to hacking and manipulation, arguing that there is a "100% chance of hacking" these machines. Naidu's statements are part of his broader call for a return to paper ballots to ensure the integrity and transparency of the electoral process **(Hindustan Times,2023)**

Similarly The Dravida Munnetra Kazhagam (DMK) has raised significant concerns regarding the design and use of Electronic Voting Machines (EVMs) in India. Start of the 2024 Lok Sabha elections, the DMK filed a writ petition in the Madras High Court, arguing that the position of the Voter Verifiable Paper Audit Trail (VVPAT) between the Balloting Unit and the Control Unit could lead to discrepancies and corrupt practices. They claimed this setup violates election rules and could affect data integrity, calling for a more transparent approval process for EVMs by the Election Commission **(Outlook India,2024)** .

Moreover Communist Party of India (CPI) MP Binoy Viswam said it is a serious matter to consider over. He said:

"The confidence over EVMs is losing. More and more people are believing that EVMs are doing mischief in elections," **(The Hindu,2023)**

Also Chirag Paswan, an MP from the Lok Janshakti Party has expressed his support for electronic voting machines (EVMs) amidst criticisms from the Opposition. Paswan has stated that the Opposition is being repetitive in their allegations against EVMs, and he emphasized that elections conducted with these machines have been free and fair. He believes that questioning the integrity of EVMs without significant evidence undermines the democratic process and distracts from more pressing political issues**.(Rediff,2023)**

The Aam Aadmi Party (AAP) has been also outspoken in its criticism of electronic voting machines (EVMs) in India. AAP leaders have often expressed concerns about the potential for tampering and the integrity of the voting process. Notably, in a high-profile demonstration in the Delhi Assembly, AAP MLA Saurabh Bhardwaj illustrated how EVMs could supposedly be tampered with to manipulate election results**.** And also in 2017, when the Aam Aadmi Party lost the Punjab assembly elections; they said the EVMs were manipulated. But they did not declare the claim when they won the state in 2022**.(Vij,2024) .**

Introduction of EVMs seemed to be a well-intended action and, like all such experiments, it needed modification for improvements. However, all political parties, criticized EVMs when it lost an election, and the same party seemed quite satisfied when it won the election and sometimes decided to create misgivings in the minds of voters that the entire system was a plan blame Yet EVMs have survived the test of time and have gained the faith of the Indian public.**( Chhokar,2024**)

### 4.3 Response of the Judiciary

Among the three important organs of the government judiciary plays a important role.The judiciary's role in modern society remains as vital as ever in delivering justice. Its daily responsibility is to apply the law to real-life situations, ensuring fair decisions for both the parties involved and society as a whole. **( Rawl,2007).** The independence of the judiciary is essential for a well-functioning democracy. Judges must be free from political pressure and able to make fair decisions based on the law and the evidence presented before them. This ensures that the judiciary can effectively hold the government accountable and protect the rights of citizens.

With a view to reduced definite problems related with the use of ballot papers and taking the benefit of development of technology the electronic voting machines was first time used in 1982 on a trial basis in bipole elections of Paravur Assembly Constituency in Kerala but this elections was declared null and void by the court. The court declared that the Representation of People's Act (1951) clearly talks about that Election Commission must carry out and hold elections using ballots papers. There was not mentioned of voting machines in the act .So on this basis the elections was declared null and void. Then the Indian parliament amended the People's Representation Act in the December 1988 and introduced Section 61A which lays down the provisions for the use of Electronic Voting Machine by Election Commission of India to conduct general and state election in India.

According to the 61A of the People's Representation Act it is stated that:

"Voting machines at elections.: Notwithstanding anything contained in this Act or the rules made there under, the giving and recording of votes by voting machines in such manner as may be prescribed, may be adopted in such constituency or constituencies as the Election Commission may, having regard to the circumstances of each case, specify.

.For the purposes of this section, "voting machine" means any machine or apparatus whether operated electronically or otherwise used for giving or recording of votes, and any reference to a ballot box or ballot paper in this Act or the rules made there under shall, save as otherwise provided, be construed as including a reference to such voting machine wherever such voting machine is used at any election" **(Representation of India Act, 1951)**

The Indian judiciary has taken mixed views on EVMs Initially, when EVMs were introduced in the late 1990s, there was careful confidence and general acceptance by the judiciary. The Supreme Court of India underscored the significance of conducting free and fair elections. as the essence of democracy. But the opposition parties have oftenly approached the courts and the Election Commission to say their concerns about the reliability and transparency of EVMs,

### 4.3.1 Important Supreme Court Judgments

In 2009, political parties questioned the EVMs' perfect nature, but no specific allegations were proven. The ECI invited critics to display tampering, but no one succeeded from 2009 to 2010. In 2010, all political parties, except a few from Assam and Tamil Nadu, expressed satisfaction with EVMs. The idea of VVPAT was then introduced for further examination. In 2009, the Delhi High Court, satisfied with the ECI's response, expected of a case, suggesting VVPAT's development in consultation with political parties**.(India Election Commission,2017)**

In 2017, the Indian judiciary was involved in a important case related to EVMs. The Supreme Court of India heard a public interest litigation (PIL) filed by the Bahujan Samaj Party (BSP) and other political parties challenging the use of EVMs without Voter-Verified Paper Audit Trail (VVPAT) in elections. The petitioners argued that without VVPAT, the integrity and transparency of the electoral process were compromised. The Supreme Court bound the Election Commission of India (ECI) to introduce VVPAT in phases for greater transparency in elections. This decision shows the judiciary's role in ensuring the credibility of the electoral process**.( The Indian Express,2017)**

Similarly, in 2019 during the general elections, the subject of EVM tampering and security was once again raised by various political parties. The Indian judiciary interfere when the opposition parties approached the Supreme Court alleging differences in the functioning of EVMs and demanding increased VVPAT verification to ensure the integrity of the electoral process. The Supreme Court recommended that the Election Commission increase the random matching of VVPAT slips with EVMs from one to five polling booths per assembly segment. This decision aimed to increased transparency and address concerns raised by political parties regarding the accuracy of EVMs.**( The Hindu, 2019).**

In 2013, the Supreme Court of India granted voters the right to reject all candidates by introducing the "None of the Above" (NOTA) option. This decision approved the 'right to oppose' as a fundamental aspect of the electoral process. The court instructed the Election Commission to implement a NOTA button on Electronic Voting Machines and ballot papers.**(Kumar, 2021)**

### 4.4 Response of Media towards Electronic Voting Machines

Media plays a very important role in any democratic state. It is responsible for informing citizens exactly about electoral processes, announcing election dates, voting procedures, and information about candidate and political party. It must investigate and expose any allegations of electoral malpractice or fraud to protect the reliability of the process. Their function is to closely observe voting method, counting, and results announcement to prevent irregularities.

Initially EVMs were adopted in the India with the aim of reducing electoral fraud and increasing efficiency in the voting process. Many media platforms and journalist appreciated the technological advancements and the potential for EVMs to make elections more transparent and reliable. EVMs are intended to be tamper-proof, operate on standalone systems without internet connectivity, and have various in-built safeguards to reduce manipulation and ensure accurate vote recording **(Brookings,2009)**

But some media group has respond differently towards the adoption of electronic voting machines (EVMs) in electoral system. They have raised questions about the integrity and transparency of EVMs, especially after the questionable electoral funding practices in India. Doubts have been arise about whether people's choices are being recorded and counted accurately. **(Mukherjee, 2024)**

The electoral authorities of India always hold that electronic voting machines are entirely protected. In a press released in 2009,the EC had stated “Today once again the Commission fully reaffirms its belief in the reliability of the EVMs.”**( Narzary, 2021)**

But after the 2009 general elections, there was also doubt and mistrust surrounding the EVMs, with concerns about potential manipulation raised by political parties, activists, and academics. Media reports have acknowledged incidents where EVMs allegedly recorded votes incorrectly or favored specific parties. Critics argue that although the Election

Commission of India's (ECI) efforts to address these problems, such incidents weaken public trust in the electoral process **(Springer,2010 ).** But the Election Commission of India (ECI) has been practical in increasing EVM performance by introducing technologies like Voter-Verified Paper Audit Trail (VVPAT), face recognition devices, and fingerprint sensors to increase reliability and address malpractices during elections

The Indian media have successful in changing their doubts to a more informed perspective as advancements and adoption of the EVM technology is necessary or the effectiveness of electoral system.

### 4.5 Response of Interest Groups

According to Berry (1989), An interest group is defined as an "organized body of individuals who share common goals and strive to influence public policy" which includes organizations like trade unions, think tanks, lobby groups, activist groups, and NGOs.( **Patel, 2022)**

Interest groups in India play a important role in representing various sections of society, including farmers, workers, business owners, environmentalists, women, and religious minorities. They clear the concerns and aspirations of their members and promote their policies that address their needs**( Kohli,A)** .It contribute to the formulation and implementation of policies by providing input during the policymaking process and participate in consultations, submit policy proposals, and cooperate with government agencies to address societal challenges. It also serve as checks and balances on governmental power by monitoring policy implementation, exposing corruption and malpractices, and holding elected officials accountable. They act as watchdogs to ensure transparency, accountability, and good governance. **(Gopal,N )**

Interest groups in India play a significant role during elections by addressing the specific issues, organizing voters, and observe the electoral process to ensure fairness and transparency. It advocate for electoral reforms to increase the integrity and transparency of the electoral process. They put forward the measures such as the use of voter-verified paper audit trails (VVPATs), improvements in voter registration procedures, and measures to eliminate electoral malpractices. They also run voter education and awareness campaigns to educate citizens about the electoral process.

Many critics argue that EVMs can be manipulated, potentially discourage the authencity of the electoral process. Activists like Jagdeep Chhokar, who is founder of the Association for Democratic Reforms (ADR), have raised questions about the possibility for tampering, especially with the introduction of the Voter Verified Paper Audit Trail (VVPAT), which connects to the EVM and might be inclined to interference **(ADR India).** Similarly, some political leaders and organizations have called for a comeback to paper ballots. Like, the Indian National Congress and other parties have filed petitions demanding 100% cross-verification of EVMs with VVPAT slips to ensure accuracy, but the Supreme Court of India rejected these pleas by refers to logistical challenges and the uselessness of such measures **(Hindustan Times,2024).**

The Election Commission of India (ECI) has always safeguarded the reliability and security of EVMs. Former Chief Election Commissioner S.Y. Quraishi has cleared that EVMs are planned with precise security measures, making large-scale tampering improbable. The ECI also conducts mock polls and cross-verifies results with VVPAT slips to ensure transparency on election day. **(ADR India).**

It has also emphasized that EVMs are standalone machines that not connected to the internet during the voting process, making hacking impossible.

### 4.6 Response of the International Observers

International media has shown major interest in India's adoption of electronic voting machines (EVMs), with a mix of positive response and concerns about security. Many international observers and institutions, such as the Brookings Institution, have discussed the positive blow of EVMs on reducing electoral fraud and enhancing democratic processes in India. It have been attributed with making elections fairer by reducing incidents of booth capturing and ballot stuffing, common issues with the paper ballot system.

Some studies have explained that EVMs have led to a turn down fake voting practices and increased voter confidence in the electoral process **(Brookings,2021)**

However, there are also issues raised regarding the cybersecurity and reliability of electronic voting systems. According to the Council on Foreign Relations the EVMs have improved electoral processes in some countries, but there are ongoing debates and concerns about their vulnerability to hacking and other cybersecurity threats due to which some

countries revert to paper ballots after initially adopting electronic voting technologies **(Council on Foreign Relations, 2020).**

### 4.7 Voters Response

India, the largest democratic country with a population of 1.447 billion people, gives its citizens the fundamental right to vote, as dedicated in the Constitution. According to Article 326, every adult Indian citizen has the right to freely choose their representatives by casting a vote. After gaining independence, India primarily used the paper ballot system. However, due to increasing malpractices and irregularities, electronic voting machines were introduced. Voters have shown varied responses to the introduction of these devices in the electoral system.

An online survey-based questionnaire was conducted to understand Indian voters' perceptions of electronic voting machines. The survey included open-ended questions, allowing participants to express their views in detail. After analyzing the responses, the feedback can be grouped into five main themes: accuracy, security risks, transparency, new malpractices, and voter's convenience.

**Voters Opinion regarding Accuracy and Validity**

The respondents were asked how electronic voting machines impact the accuracy and validity of election results compared to traditional paper ballots. After analyzing their responses, it was found that 90% of voters expressed positive feedback regarding the accuracy and validity of the voting machines. One respondent stated,

"The EVMs are accurate and it assures that there is no problem, The Supreme Court in 2011 introduced voter-verified paper audit trail and 2019 SC judgment has made it mandatory for the EVMs to be accompanied by voter-verified paper audit trail. So that the EVMs results can be doubly verified".

One more respondent noted

"EVMs have greater accuracy and are faster process. They also facilitate voting in areas that have low rates of literacy"

- **Responses regarding Security Risks**

Any new technology, when initially adopted, often encounters security-related issues which arise due to various factors like unfamiliarity, bugs ,lack of roboust testing, etc . When electronic voting machines (EVMs) were first introduced, they faced numerous security concerns. Critics worried about the possiblility of hacking, tampering, and manipulation of results. Over time, these concerns have been addressed through enhanced security measures, such as the introduction of voter-verified paper audit trails (VVPAT) to gurantee transparency and accuracy.

After analyzing the respondents responses regarding the security risks related to these machines their opinions are mixed some respondents expressed concerns about hacking and result manipulation, others did not perceive any significant risks. For instance, one respondent stated,

"I do not see any security risk pertaining to EVMs."

Other respondent responded

"I understand that EVMs could face risks like tampering or hacking. To reduce these risks, the Election Commission of India (ECI) keeps EVMs secure and ensures they are not connected to any network. The Voter Verifiable Paper Audit Trail (VVPAT) allows me to see that my vote is recorded correctly. Regular testing and audits of EVMs also help keep them secure."

- **Voters view about new-evil practices**

Whenever new voting technology is introduced into any system, there is a higher likelihood of it initiating new hateful practices. When electronic voting machines (EVMs) were first implemented, concerns arose about probable weaknesses such as hacking, tampering, and result manipulation. These security risks are more prevalent with new technology due to initial unfamiliarity, insufficient testing, and the evolving tactics of malicious actors who seek to exploit any weaknesses. Over time, these issues are typically addressed through precise testing, improved security measures, and greater familiarity with the technology.

When respondents were asked about the appearance of new malpractices with the arrival of electronic voting machines, their responses were nearly common; no new malpractices had been initiated. except one responded who stated:

“Hacking attempts have emerged, which required update security measures and awareness”

Moreover the practice of booth capturing is significantly minimized as one respondent point out that

“I have not seen any news regarding booth capturing. With 24/7 media and social media, it is impossible”

- **Opinions about Transparency in elections**

Concerns regarding the transparency of elections in India, mainly after the adoption of Electronic Voting Machines (EVMs), have been an important topic of discussion among various political leaders and the public. For the success of any system, transparency is very essential.

During the 2014 and 2024 elections, allegations of EVM tampering surfaced, with various social media posts claiming that votes could be manipulated. These claims provoked calls for investigations from opposition parties such as the Congress and Aam Aadmi Party. However, the Election Commission has defended the veracity of EVMs, stating that they undergo careful checks and randomization processes to prevent tampering.

Pranesh Prakash, who is Policy Director for The Centre for Internet and Society, a non-profit organization conducting interdisciplinary research on internet and digital technologies from policy and academic perspectives, stated that "The Electronic Voting Machines used in India are the simplest, with no general operating system requirements and are not networked." **(Vasudeva, 2017)**

When the respondent were asked about the transparency in the elections after using the electronic voting machines, Most respondents respond confidently that EVMs plays a significant role in making elections fair. One respondent commented,

"I think EVMs play a major role in ensuring free and fair elections**".**

Other respondent mentioned

"EVMs help prevent election fraud in several ways. They stop invalid or multiple votes by the same person and are designed to be tamper-proof. The faster voting process and randomization of polling stations have also reduced the chances of booth capturing."

- **Voter's perception about the convenient election procedure**

After analyzing the responses it is observable the majority of respondents found EVMs to be convenient. Voters appreciated the ease and efficiency of EVMs. As one respondent stated

"Yes, the process is straightforward. You simply press a button corresponding to your choice. It's much quicker than the old paper ballots".

After reviewing these responses, it is apparent that EVMs are successfully functioning in India, enhancing the transparency of the electoral process and boosting voters' confidence in the election system. The convenience, accuracy, and efficiency of EVMs, as reflected in the survey responses, indicate that voters largely belief and appreciate the modernized voting procedure. This trust is further reinforced by the use of Voter Verified Paper Audit Trails (VVPAT), which allow voters to verify their votes, thereby ensuring the truthfulness of the election results. Overall, the adoption of EVMs has positively impacted the electoral process in India, making it more reliable and credible.

# Chapter: 5
# Conclusion

This chapter addresses the major findings and conclusions of the study. It also provides suggestions for modifications to Electronic Voting Machines and recommendations for other South Asian states to adopt them.

## Summary

Humans are social beings and an integral part of society. Their participation is essential, as the entire social structure relies on their decisions and actions. In the framework of any state, the government plays a key role.One of the fundamental types of government that many nations around the world have adopted is democracy. In this type of government citizens have the power to freely choose their representatives, creating a government of the people. The fundamental element of this system is the absolute right of citizens to take part in the electoral process, which gives elections an unparalleled level of significance. Elections are a significant area within social sciences and have become a specialized field of study. They are an essential component of the democratic process, offering a constitutional mechanism for political participation by the people of society.

Voting in an election provides insights into the mood and behavior of the people. It is an individual action that involves a specific behavioral act, making it valuable for understanding social and psychological trends.

Voting behavior is influenced and influenced at two levels. The first level pertains to socio-cultural factors such as religion, caste, and ethnicity, which impact voting behavior. The second level involves techniques like propaganda, candidate fraud, and manipulation through print and electronic media.

Researcher and intellectuals have paying attention on the many aspects of the electoral system in India. They have discussed electoral system of India, specifically on the election process, electoral history of India and the role and functions of the electronic voting machines. A lot of work has been done in this regard. However, there are only a little studies specifically dealing with the role of electronic voting machines in enhancing the transparency of the electoral system.

Therefore, this research holds significant importance for states that have not yet adopted electronic voting machines in their electoral systems or for those that wish to modify their electoral systems by adopting a new voting method. This study focuses on the role and functioning of electronic voting machines, their manufacturing, and provides a detailed discussion on countries around the world that have used this technology in their electoral processes. It also highlights how electronic voting machines make the electoral system of India more effective by enhancing its transparency and reducing malpractices.

This research was done by using a qualitative method and the thematic analysis. Both primary and secondary data is utilize for this research .Secondary data is collect from the material related to basic knowledge about the elections, different voting method, electronic voting machines its functions , its structure etc. Primary data were utilized to obtain a clear picture of the transparency in India's electoral system after the adoption of electronic voting machines, including surveys from various stakeholders, specifically educators.

India is considers as the second largest country in terms of population and also considers as one of the prominent country in the South Asia region. It gained its independence from the British rule in 1947 and became a sovereign nation. Since then, India has emerged as one of the world's largest and most populous democracies.

In every democratic country, the constitution grants citizens the right to express their will by casting votes. Before independence of India the right to vote and participate was severely restricted .However, post-independence, India implemented universal adult suffrage, granting every adult Indian the right to vote. According to Article 326 of the Constitution of India, every citizen who has attained the age of 18 can exercise this right. The concept of 'Universal Suffrage,' introduced in 1950, guarantees all adult citizens the right to vote in public elections, regardless of social status, gender, race, or other characteristics. Initially, the voting age was set at 21 but was reduced to 18 by the 61st constitutional amendment in 1988.

The right to vote is fundamental in India, essential for a functioning democracy. It allows citizens to participate in decision-making and hold elected representatives accountable, serving as a tool for social change, especially for marginalized communities.

After gaining independence in 1947, India faced the challenge of conducting free and fair elections in a populous democracy. The first general elections, held in 1951-1952, were

the world's largest democratic exercise at that time, involving over 173 million voters conducted under the supervision of the Election Commission of India, led by Chief Election Commissioner Sukumar Sen. For conduction of the elections in the country, the article 324 of the Constitution of India gives right to Election Commission to conduct the elections. In those elections, the manual voting method ( paper ballot ) is used and the Indian National Congress (INC), led by Jawaharlal Nehru, won a landslide victory with 364 seats in the Lok Sabha, and voter turnout was 44.87%.

But the Election Commission faced significant challenges at that time including logistical issues, voter education, and security concerns. They had to manage partition-related problems, refugee resettlement, economic difficulties, and the vast and diverse geography of India. Additionally, the concept of universal adult suffrage was new, necessitating voter awareness campaigns.

There was also concerns about transparency in campaign financing included the lack of required disclosure of funding sources for political parties and candidates, raising questions about money's influence in politics. This was compounded by insufficient regulations and reporting mechanisms, creating a non-transparent financial environment for election campaigns. In subsequent general elections, additional issues emerged, such as the use of money and gifts by candidates and political parties to influence voters. There were also concerns about the accuracy and fairness of electoral rolls, with reports of voter list manipulation, including the addition of fake voters and exclusion of legitimate ones.

Moreover, in the manual voting method, there were several other issues and problems that adversely affected the electoral system in India. The practice of booth capturing was prevalent, the election results process was time-consuming and often prone to human error, and the results were frequently delayed due to the slow counting process. Additionally, the security of the elections was compromised by ballot stuffing and ballot tampering.

To make the electoral system more effective and transparent, the Indian Election Commission has frequently reminded the government of the need to implement several of its recommendations. To address these issues, several committees have been established to resolve problems related to the electoral system. Some of these reforms include the Tarkunde Committee (1974), the Dinesh Goswami Committee (1990), the Vohra Committee (1993),

and the Election Commission of India's Proposed Electoral Reforms (2004). The purposes of these reforms were to reduce corruption, implement measures to curb criminalization in politics, and enhance transparency in the electoral system.

In order to overcome the issues like rigging, booth-capturing and other malpractices India has adopted Electronic Voting Machines with the aim to make its electoral system more transparent and effective. An Electronic Voting Machines (EVMs) is a modern electronic device that is used to record votes and maintain transparency in the electoral system. It significantly reduces certain types of fraud, provides accurate counts by eliminating spoiled ballots, and has improved voter turnout, reducing electoral expenses and empowering marginalized communities to vote. The purpose of these machines is to make the electoral process free and fair. It has been used by the various states in the world. There are some countries that are using the electronic voting machines successfully which are Brazil, Belgium, Argentina, Australia , India, Estonia.

India is the first South Asian country to adopt Electronic Voting Machines (EVMs) in its electoral system, first time they used EVMs in bi-pole elections in 1982 and bye-elections in 1982-83. However, the absence of a specific law prescribing EVM use led to a challenge in a 1984 Supreme Court case, which declared the elections null and void. The Indian parliament amended the People's Representation Act in 1988, introducing Section 61A, which authorized the use of EVMs in 1989.

The machines were used in 16 selected constituencies in Delhi, Madhya Pradesh, and Rajasthan, and from 2004 onwards, India used them everywhere. The EVM voting system was commissioned by the Election Commission of India in 1989 with the help of public sector undertakings Bharat Electronics Limited (Banglore) and Electronics Corporation of India Limited (Hyderabad) with a Japanese-imported microprocessor.

The Indian EVM voting system is simpler than voting systems in the US, with no interactive interface or accessibility support. For the 668 million voters in the nation, more than a million EVMs were created, accommodating 64 candidates on each page. As a stand-alone machine without network connectivity, no one can interfere with its programming or manipulate the results.

The Electronic Voting Machines (EVMs) in India is a standalone machine without network connectivity, consisting of two units: the control unit and the ballot unit. The control unit controls the voting process, while the balloting unit allows voters to cast their votes. The EVM is powered by an inbuilt battery, ensuring uninterrupted functioning even in unreliable power sources. Each EVM can record five votes per minute or nearly 3,000 votes in a polling day. After its initial success, the ECI bought 150,000 machines in 1990 to use them on a national scale. However at that time, many political parties criticized it about their security concerns but after the amendment in the Constitution these machines were used in 16 selected constituencies in the state elections, and then in 2004 Lok Sabah elections replaced ballot paper with Electronic Voting Machine.

Since from 2004, these machines were used in the overall country and quite successful in modifying the electoral system of the India by reducing the some malpractices which were common in the manual voting system. The different stakeholders in the India have mixed views regarding to its adoption, some appreciate it and praised the idea of using new technology similarly there are some opposition parties ‘that oftenly raised a security concerns related to it and tried to revert the voting method.

## 5.1 Findings

- One of the important findings of this study is that EVMs brought the improvement in the efficiency and speed of the voting process .The data collected from various electoral processes shows that EVMs have notably reduced the time required for both voting and counting. Election results are now available within hours, as opposed to days required for manual counting of paper ballots.
- According to the data from the 2019 and 2024 general elections, the average time taken to count votes in constituencies using EVMs was approximately 6 hours, compared to an average of 48 hours with traditional paper ballots.
- It have minimized incidents of booth capturing which was very common during manual voting method especially in states like Bihar and Uttar Pradesh but after the adoption of EVMs it has led to a noticeable decrease in these activities because it has limits the rate of the vote casting to five votes a minute and extensively increases the time required for stuffing false vote and other forms of electoral malpractices. It has also consist of "close" button that can stop the device if a polling booth is captured.

- EVMs also store electronic voting signatures and thumb impressions in a register that the public can check, unlike paper ballots, which require court orders for inspection.
- During the manual voting method the booth-capturing was very common evil-practice in states like Bihar and Uttar Pradesh but after use of EVMs it has led to a noticeable decrease in these activities.
- Through the study it has verified that EVMs are reliable and less prone to errors. For making the electoral system more transparent various transparency measures, such as Voter Verifiable Paper Audit Trail (VVPAT), have been introduced to increase voter confidence by allowing voters to verify their vote.
- EVMs have eliminated errors in vote counting, ensuring accurate results.
- During the traditional paper ballots system the number of invalid votes was more due to improper marking or unclear indications of voter intent but EVMs eliminate the possibility of invalid votes. Each vote is recorded electronically by pressing a button related to a candidate, ensuring clarity and precision. e.g In the 1999 general Elections, there were over 21 lakh (2.1 million) invalid votes due to improperly marked ballots but after introduction of EVMs it has drastically reduced.
- EVMs in India are considered with strong security features, including non-networked systems to stop hacking and tampering.
- Multiple layers of security protocols are implemented to make sure the uprightness of the voting process.
- The simplicity of use and reduction in voting time have positively impacted voter turnout, making the electoral process more available.
- The efficient use of elections has encouraged greater participation from rural and remote areas.
- By comparing with other countries using similar technologies it has shown that India's EVM system is one of the most advanced and secure. International observers and electoral experts have often appreciates India's use of EVMs as a model for other democracies.
- EVMs have decreased the need for large quantities of paper ballots, reducing printing and transportation costs. During manual voting, India consumed approximately 8,000 tons of paper and 400,000 phials of indelible ink, requiring 2.5 million strongboxes to store them under heavy security until the votes were counted, making it a very costly process.

However, the introduction of electronic voting has significantly reduced paper consumption.

- EVMs have made voting more accessible and convenient, potentially leading to increased voter participation. In the 2019 elections the voter turnout was the 67% whereas in 2024 elections it was 66%.
- The Election Commission of India (ECI) has developed broad guidelines and agreement to certify the secure and effective use, and maintenance of Electronic Voting Machines (EVMs). These measures are designed to protect the integrity of the electoral process and to address any potential problems or issues. These have undergo careful testing and sealing processes before being dispatched to polling stations and also conducts mock polls to verify their functionality.
- The ECI given detailed instructions that how EVMs should be transported, stored, and handle to stop tampering and it is secured with multiple layers of physical and digital provisions , such as tamper-evident seals and randomized allocation to polling stations.
- Before the 2019 general elections, the ECI conducted a huge exercise to recheck all EVMs and VVPATs (Voter Verifiable Paper Audit Trails) across the country in the presence of political party representatives and independent observers to ensure transparency and functionality.
- EVMs prevent proxy voting, ensuring that only eligible voters can cast their ballots. It allows someone to vote on behalf of another person who is unable to vote themselves due to reasons such as illness, disability, or being away from home on Election Day.
- The ECI regularly updates the technology by addressing weaknesses and by improving the hardware components, like batteries and buttons, to keep the machines working well. Election officials also get ongoing training on the advance EVM procedures and security measures. During the 2017 state assembly elections in Uttar Pradesh, incidents of EVM malfunction were reported. The ECI quickly addressed these issues by sending technical teams to the affected polling stations. Following investigations indicates that the malfunctions were due to improper handling and not systemic flaws. Then the ECI introduced additional training sessions for election staff to stop similar issues in future elections.
- EVMs and VVPAT have increased public confidence in the electoral process. Voters are confident that their votes are accurately counted and verifiable. According to surveys conducted voter confidence in the accuracy and integrity of elections has increased since

the introduction of EVMs. This has been reflected in higher voter turnout and greater acceptance of election results.

- According to voters responses no evidence of new malpractice has been reported since the installation of the machines. This finding indicates that the implementation of the machines has been validated as a reliable and secure method for the electoral process.

## 5.2 Suggestions

For the improvement of the Indian electronic voting machines (EVMs) several actions requires to enhance security, transparency, and usability.

- Make sure that all EVMs are prepared with VVPAT to allow voters to verify their vote. This provides a paper trail that can be audited if needed.
- Introduce tamper-evident seals and real-time monitoring to notice and prevent unauthorized access.
- Conduct regular security audits, both by internal teams and third-party experts.
- Provide complete training for election officials and educate voters about the EVM process to reduce errors and increase confidence.
- Make sure that EVMs have reliable backup power sources.
- Implement real-time monitoring systems to track EVM performance and immediately report any issues to central control rooms.
- Launch public awareness campaigns to educate voters about the benefits and security features of EVMs.
- Ensure that there is strong legal and rigid support for the use of EVMs which includes addressing any legal challenges quickly and transparently, thus reinforcing public confidence in the electoral system.
- Do research and adopt best practices from other countries that use electronic voting systems to improve their EVM framework.
- Engage with international electoral bodies and organizations to stay informed on global trends and innovations in electronic voting.

## 5.3 Recommendations

The successful implementation of Electronic Voting Machines (EVMs) in India's general elections can considers as a model for other South Asian countries like Pakistan ,

Bangladesh etc to adopts it in their electoral system to make it more efficient and modernize. Some of the key recommendations based on India's experience are as follow:

- The Pakistan and other South Asian countries should used the latest EVM technology in their electoral procedure to lessen the risks of tampering and hacking or rigging .
- The idea for the use of e-voting must be presented because it will make it easier to assess the alternatives and explain the rationale to the masses.
- The use of EVMs should be step-by-step .Like other democracies, it should be introduced in a local government election.
- After the successful completion of e-voting at a local level, ECP or other states Election departments, should invite all the stakeholders to decide on the next step, to guarantee political consensus, and to avoid breaks.
- It should be realized that such reforms and changes need time for implementation.
- The development of EVMs should be in cooperation with international developers so that any technical feature does not remain unnoticed. Also, the system used in the elections of Pakistan and other states should be built keeping political, social, cultural, and economic conditions in mind.
- Support of tech institutes should be increased.
- After the use of a new method can result in various results, there should be complete support from all the stakeholders involved in this process.
- Proper professionals and trainers should be prepared to educate the people.
- Conduct independent audits and assessments of the EVMs and the election process make sure credibility and address any potential issues.
- Make sure sufficient resources, including personnel, vehicles, and other logistics, for the use and maintenance of EVMs.

## 5.4 Conclusion

This study is focus on the role of Electronic Voting Machines in improving the transparency of the electoral system of India. It is based on the qualitative research method. Elections are very important feature of any democratic state. Through elections the people are able to choose their representative freely. For the successful democracy, it is essential that elections should be free and fair. The election process can be done through the act of voting.

Around the world different democratic states used various voting method in their electoral process. With the advancement in the technology electronic voting methods are introduced to makes the electoral system more effective and efficient like Internet voting, voting through electronic voting machines. The countries around the world modified their voting method and introduced new voting technologies in their electoral system to make it more transparent.

Like other democratic countries around the world , in the South Asia India is first country that modify their voting method by introducing the Electronic Voting Machines in the electoral system and taking advantage of the modern technology. After gaining the independence from the Britishers in 1947, and being a large democracy in the world they make a provision for the election machinery to conduct free and fair election. Then under the provision of Article 324 of the Constitution , Election Commission was established on the 1950 which purpose was to plan , monitor and conduct the free and fair elections around the country. Initially the Indian Election Commission have adopted the paper ballot or manual voting method for the conduction of the elections but during this voting practice the incidents of booth-capturing , rigging , tampering and for the printing of paper-ballots more than 8000 tonns of paper were used and other evil-practices were very high. Therefore to overcome these issues India has adopted Electronic Voting Machine in order to bring transparency in their electoral system.

An Electronic Voting Machine (EVM) is a new electronic device that is used to record votes and maintain transparency in the electoral system. It extensively reduces certain types of fraud, provides accurate counts by eliminating spoiled ballots, and has improved voter turnout, reducing electoral expenses and empowering marginalized communities to vote. The aim of these machines is to make the electoral process free and fair. In India it was manufactured by the two state owned companies. For the first time they were used the

Electronic Voting Machine on a experimental basis in bi-pole elections at Paravur Assembly Constituency in Kerala in 1982 and were also further used in 10 bye-elections across the country in 1982-83.Then after the proper amendment in the People Representation Act of 1951,it was used in the whole country.

After studying and analyzing the role of Electronic voting machines it have prove that it have successful in improving the efficiency and hugely reduced the time required for both casting and counting votes and played a important role in reducing electoral malpractices such as ballot stuffing, booth capturing, and invalid votes. The unique design and security features of EVMs, joined with strict guidelines and protocols established by the ECI, have notably restrained incidents of physical tampering and fraud. The execution of Voter Verifiable Paper Audit Trail (VVPAT) systems further improves transparency by providing a verifiable paper trail for each vote cast. Similarly, The ECI's hard work in public awareness campaigns and display has also contributed to increasing public confidence after the apply of electronic voting technology.

Despite overall success of EVMs, there were still some challenges remain. Like technical malfunctions, that are though rare, but there is need for continuous monitoring and quick decision mechanisms. Additionally, misinformation and lack of technical understanding among the public can lead to unwarranted doubt.

This study serves as a valuable case study for other democracies, particularly in the South Asian region. The lessons learned and best practices adopted in India can notify the execution of electronic voting systems in other countries, contributing to global advancements in electoral transparency and efficiency.

The constant efforts of the Election Commission of India to improve and secure the electronic voting process presents a loyalty to keeping the democratic principles of free, fair, and transparent elections. With the evolution of technology, it is essential to maintain this energy, ensuring that electoral systems remain tough and trustworthy, thus strengthening the basis of democracy in India and outside.

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