



STATUS PAPER ON ELECTRONIC VOTING MACHINE (EVM)

(August, 2018)-Edition-3



Election Commission of India

**STATUS PAPER
ON
ELECTRONIC
VOTING
MACHINE (EVM)**



ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi - 110001

Table of Contents

Introduction	1
The Journey of EVMs in India	3
Socio-Political Feedback	9
Legal Interventions & Court Cases	11
Indian EVM : Design and Manufacturing Protocol	14
EVM safety and Security: Technical & Administrative	17
Role of Technical Experts Committee (TEC)	34
Evolution and Incorporation of Technology in EVMs	37
International Comparison	39
VVPAT	46
Some Issues and controversies	49
All Political Party Meeting	53
EVM Challenge	54
Present Status	55
Conclusion	57
Annexures	60

Abbreviations & Acronyms

AC	Assembly Constituency
BEL	Bharat Electronic Limited
BU	Balloting Unit
CU	Control Unit
DRM	Direct Recording Machines
ECI	Election Commission of India
ECIL	Electronics Corporation of India Limited
EMB	Election Management Body
ERC	Electoral Reforms Committee
EVM	Electronic Voting Machine
HC	High Court
IIT	Indian Institute of Technology
OTP	One Time Programmable
PC	Parliamentary Constituency
PSU	Public Sector Undertaking
SC	Supreme Court
TEC	Technical Experts Committee
VVPAT	Voter Verifiable Paper Audit Trail

Introduction:

India is the largest Participatory Democracy of the world, with about 850 million registered voters. The Constitutional mandate of superintendence, direction and control of Elections to the Parliament and the State Legislative Assemblies has been conferred on the Election Commission of India.

The Election Commission of India is an independent Constitutional entity, which has successfully conducted regular elections to the Parliament and various State Legislative Assemblies for the past 66 years in a free, fair, participative, informed and credible manner. The Commission is widely acknowledged as a “Global Gold Standard” in Election Management across the World, setting ever-higher standards of efficient and professional conduct of Elections.

The Commission has been at the forefront of embracing, adopting and implementing the latest technological advancements in improving and fine-tuning the election processes and systems. The Commission has taken the pioneering initiative of introducing Electronic Voting Machine (EVM) for recording, storing and counting of votes across the length and breadth of the Country in a transparent, credible and secure manner, backed by appropriate legal support. The use of EVM demonstrates the Commission’s unflinching resolve to continually improve, upgrade and strengthen the Electoral Process in the country.

The Commission has successfully used EVMs in conducting 113 General Elections to the State Legislative Assemblies and 3 Lok Sabha Elections over the last 23 years. The List of States, along with the years in which 100% EVMs were used in the Assembly Elections is placed at **ANNEXURE - 1**.

55.41 crore (554 million) voters exercised their franchise in 2014 Lok Sabha elections using EVMs.

Since the very inception of the EVMs in 1982, as a positive electoral reform on the electoral scene in India, blames and aspersions have been cast on the EVMs

from various quarters including political. Recently, after the announcement of the results of the five State Assembly Elections in March 2017, again certain allegations have been levelled against the EVMs. A group of thirteen political parties met the Commission on 10 April 2017 and expressed certain reservations about the use of EVMs.

It needs to be emphasized that the wide range of technical security, administrative protocols and procedural safeguards mandated by the Commission robustly ensures the integrity, non-tamperability and credibility of the EVMs. The stringent procedures and well-defined poll processes prescribed by the Commission protect the EVMs against any sort of manipulation.

It is also significant to highlight that the Commission is committed to the 100% coverage of VVPATs in all future elections to the Parliament and State Assembly Elections. The requisite funds for the procurement of adequate number of VVPATs and latest generation (M3) EVMs have been sanctioned by the Government and machines are expected to be manufactured and delivered by BEL and ECIL to the ECI by November 2018 as committed by the manufacturers.

At the present juncture, when EVMs are once again encumbered with yet another debate on its efficacy and robustness, it is imperative to hold consultations with stakeholders.

The Journey of EVM in India

Voting system in India has gone through multiple changes. During the first two General Elections to the Lok Sabha in 1952 and 1957, each candidate was allotted a separate ballot box pasted with the symbol of the candidate. The names and symbols of the candidates were not printed on the ballot paper and voters had to drop an pre-printed ballot paper in the ballot box of the candidate of their choice. This system ignited fears of tampering, booth capturing, and manipulation in the minds of the various stakeholders and was soon replaced. In 1960-61, a marking system on the ballot paper was introduced during the mid-term elections to the Legislative Assemblies in Kerala and Odisha and this system continued till the 1999 Lok Sabha elections.

Before introduction of the EVM, the ubiquitous Ballot papers were used to cast votes in the Indian Elections, with considerable success. The use of ballot papers was time consuming, prone to malpractices like booth-capturing and ballot-box stuffing, large number of invalid votes due to wrong/incorrect marking, subject to prolonged counting drills, more disputes and delayed result announcement besides being an ecologically straining and non-environment friendly method.

However, in comparison, EVM has substantial comparative and noticeable advantages.

- i. The manner of voting by EVMs is much more simpler and voter-friendly as the voter is merely to press the button on BU for casting his votes in favour of the candidate of his choice.
- ii. Under the EVM system, there is no invalid vote, whereas in the ballot paper system large number of ballot papers were invalidated and in some cases, the number of such invalid ballot papers was even more than the winning margin of the elected candidate.
- iii. It is auditable, transparent, accurate, secure and helps reduce human error.

- iv. It gives faster results in hours, which is particularly relevant in large countries like India having Constituencies of several hundred thousand voters, where counting used to take days and weeks earlier.
- v. In addition, EVM voting saves time, energy and money, not to speak of the millions of trees it saves in the process.
- vi. Earlier crores of ballot papers were printed requiring hundreds of tonnes of paper for printing the same and the printing of ballot papers had to be undertaken in large number of Government Presses for very long periods, involving hundreds of election officials in each constituency.
- vii. Additionally, the innovative use of advancements in modern electronics for voting in the country provides for a fulsome endorsement of the creativity, inventiveness and pioneering acumen of the Indian society at large and serves to enhance the image and prestige of the country in the international arena.

As can be easily appreciated, the weight of cumulative comparative experience of conducting elections for over 7 decades, both with ballot papers and EVMs, and the numerous undeniable merits in the use of EVMs, render the EVMs as a preferred instrument of casting votes.

Quite evidently, the use of ballot papers was a traditional, anachronistic and archaic voting method. In order to overcome the aforementioned problems associated with the erstwhile practice of using ballot papers, and also to keep updated with the advances of technology, the ECI mooted the idea of EVM in 1977.

In 1977, Mr. S.L. Shakdhar, the then Chief Election Commissioner of ECI, during a tour in Hyderabad requested the Electronics Corporation of India (ECIL) to study the possibility of using an electronic device for conducting elections. The Electronics Corporation of India Ltd (ECIL), Hyderabad, a PSU of the Atomic Energy Ministry, was assigned the task to design and develop an electronic

gadget for conducting elections. In 1979, a proto-type was developed and its operation was demonstrated by the ECI before the representatives of political parties on 6th August, 1980.

The Bharat Electronics Limited (BEL), Bengaluru, a Defence Ministry PSU, had also developed a “microcomputer based voting equipment, which they had used for the elections for the various unions of the company”. In January 1981, BEL approached ECI for manufacturing EVMs and on 29th July, 1981, the Commission held a meeting with the representatives of BEL, ECIL, the Ministry of Law and Chief Electoral Officers of some states regarding use of EVMs in elections.

On 19th May, 1982, the ECI issued directives under Article 324 of the Constitution of India for the use of EVMs and conducted elections at fifty polling stations using the machines in an election in 70-Parur Assembly Constituency (AC) of Kerala on an experimental basis. The EVMs were further used in 10 Bye-elections across the country in 1982-83. However, due to the absence of any specific law prescribing the use of EVMs, the election was challenged in a petition (Election Petition 01 of 1982 filed by A.C. Jose) and on 5th March, 1984, the Hon’ble Supreme Court of India held that EVM cannot be used in an election unless a specific provision is made in law for its use. Consequently, the law was amended by the Parliament in December 1988 and a new Section 61A was included in the Representation of the People Act 1951, thereby empowering the ECI to use EVM. The amendment came into force on 15th March, 1989. The Supreme Court upheld the Constitutional validity of Section 61A in its judgment in AIADMK versus Chief Election Commissioner and Others {(2002 UJ(1)387)}.

However, doubts and speculations regarding this new entrant in the voting system of India persisted in the political atmosphere of the country. In order to gain popular trust and affirm the integrity of the new electronic voting system, the Government of India instituted an Electoral Reforms Committee (ERC) in January 1990, consisting of representatives from several national and state-level political parties under the chairmanship of Mr. Dinesh Goswami. The ERC recommended the examination of EVM by a team of technical experts.

Consequently, a Technical Expert Committee was formed under the chairmanship of Mr. S. Sampath, Chairman, RAC, DRDO with eminent scientists like Dr. P.V. Indiresen (IIT, Delhi), Dr. Rao C. Kasarbada (ER&DC, Trivandrum) in the list among others. The members of the TEC have always been renowned professionals of technical excellence and eminent academic/research record. In April 1990, the Expert Committee unanimously recommended the use of EVMs without any further loss of time marking it technically sound, secure and transparent. On 24th March, 1992, necessary amendments to the Conduct of Elections Rules 1961 were notified by the government vis-à-vis the use of EVMs.

In 1998, a general consensus was reached on the use of EVMs for conducting Indian elections. In 1998, EVMs were used in 16 Legislative ACs across three states of Madhya Pradesh, Rajasthan, and Delhi. The use of EVMs further expanded in 1999 to 46 Parliamentary Constituencies (PC), and later, in February 2000, EVMs were used in 45 ACs in Haryana state assembly polls. In 2001, the state assembly elections in Tamil Nadu, Kerala, Puducherry, and West Bengal were completely conducted using EVMs. All state assembly elections thereafter witnessed the use of this machine. In 2004, the EVMs were used in all 543 PCs for the elections to the Lok Sabha. A new technologically advanced voting system completely replaced the erstwhile voting method of using ballot papers. Since 2000, India has witnessed 113 State Assembly Elections and 3 General Elections to the Lok Sabha (2004, 2009, and 2014) where votes were cast and recorded using the EVMs (Annexure 1)

A number of technological changes were made in the EVMs in 2001 and the machines were further upgraded in 2006. The pre-2006 era EVMs are known as '**M1 EVMs**', while EVMs manufactured between 2006 to 2010 are called '**M2 EVMs**'. The next generation of EVMs, produced since 2013 are known as '**M3 EVMs**'.

The latest addition to the Indian EVM is the Voter Verifiable Paper Audit Trail (VVPAT), which was introduced in 2013, as an additional measure of transparency in the EVM-based voting system. The task of developing a VVPAT model was assigned by the Commission to the EVM manufacturers under the expert guidance of the Technical Expert Committee (TEC).

A prototype was manufactured and field trials were conducted in Thiruvananthapuram (Kerala), Delhi, Cherapunjee (Meghalaya), Jaisalmer (Rajasthan) and Leh (Jammu & Kashmir) in July 2011. Following the first field trials, the Commission directed the manufacturers to re-design the VVPAT.

A second field trial was conducted in July-August 2012 after the new model was manufactured. On 19th February, 2013, the final model was approved by the TEC. The model was demonstrated to the political parties in a meeting on 10th May, 2013. The Conduct of Elections Rules, 1961 were amended and notified on 14th August, 2013, thereby, allowing the ECI to use VVPATs along with EVMs. On 4th September, 2013, VVPATs were first used in the bye-election for 51-Noksen AC in Nagaland.

In the meanwhile, on 8th October, 2013, in a Public Interest Litigation matter, the Hon'ble Supreme Court directed the ECI to introduce the VVPAT system in a phased manner. In 2013, the ECI had procured 20,000 VVPATs which were used in different elections. In 2017 during the recently concluded State Assembly Elections, 53500 VVPATs were used in 33 ACs in Punjab, 6 ACs in Manipur, 3 ACs in Uttarakhand, 30 ACs in Uttar Pradesh, and 40 ACs in Goa.

EVM in Indian Elections

Date	Chronology of Events
1977	ECI mooted the idea of EVM
1979	A proto-type was developed
6 th August, 1980	Demonstration by ECI before the representatives of political parties
January 1981	BEL approached ECI for manufacturing EVMs
29 th July, 1981,	ECI held a meeting with the representatives of BEL, ECIL, the Ministry of Law and Chief Electoral Officers of some state
19 th May, 1982	EVMs first used in 70-Parur AC in Kerala
1982-83	EVMs used in 10 Bye-elections in different parts of the Country

Date	Chronology of Events
5 th March, 1984	Supreme Court of India held that EVMs cannot be used in elections
December 1988	A new Section 61A was included in the Representation of the People Act 1951 (The Supreme Court upheld the validity of section 61A in 2001)
15 th March, 1989	The amendment came into force
January 1990	Electoral Reforms Committee (ERC) formed by Government of India
April 1990	Technical Experts Committee recommended the use of EVMs
24 th March, 1992	Necessary amendments to the Conduct of Elections Rules 1961 were notified by the Government
1998	A general consensus was reached on the use of EVMs for conducting Indian elections.
1999-2004	EVMs used in different state assembly elections
2004 - 2014	EVMs used in three consecutive elections to the Lok Sabha
14 th August, 2013	The Conduct of Elections Rules 1961 were further amended and notified to provide for VVPATs
4 th September, 2013,	VVPAT was first used in a bye-election for 51-Noksen AC in Nagaland
8 th October, 2013	Hon'ble Supreme Court directed the ECI to introduce the VVPAT system in a phased manner
2013 – present	Limited number of VVPATs introduced in phases by ECI
April 2017	Approval received for purchase of 16,15,000 VVPATs at a cost of Rs. 3173.47** Crore during 2017-18 and 2018-19. All required VVPATs will be procured by the Commission by September, 2018, subject to manufacturing exigencies. ** Cost of 16,15,000 VVPATs reduced to Rs. 2616.30 Cr. After fixation of price by the Price Negotiation Committee.

Socio-Political Feedback

The use of EVMs meant an amalgamation of technology and trust, tradition and modernity, like moving away from horse-drawn carriage to motor vehicles.

In 1982, when EVM was first used in Kerala, a candidate Sivan Pillai challenged its use even before the election. But, Kerala High Court did not entertain his challenge and EVM was introduced as a pilot project. Interestingly, Mr. Pillai, the challenger, won the election when the result was declared. However, Mr. Pillai's opponent challenged the introduction of EVMs thereafter. The said election was re-conducted with paper ballots after Supreme Court ruling in 1984.

However, the 1984 SC ruling against EVMs had been on a legal technicality, and not about their fundamental suitability, and the legal glitch was corrected through amendment of the Representation of the People Act 1951 in 1988.

The introduction of EVMs for voting in India was met with certain reservations considering the large scale illiteracy and socio-economic backwardness plaguing large parts of the country. It was often asserted by the naysayers that the multitudes of poor, illiterate, down-trodden, especially in the rural areas, would face hardships and problems in accessing the EVMs and may get disenfranchised out of ignorance, lack of voting education or awareness. However, the concerted and focused information, education and communication programmes launched by the Commission, especially to spread awareness and familiarity with the EVMs and its commitment to reach the last elector, effectively nullified all reservations and doubts in this regard. It is heartening to see the cross-section of Indian society eagerly and positively embracing the EVMs and actively and enthusiastically participating in the electoral process by casting their votes on EVMs.

Since the advent of EVMs on the electoral scene certain aspersions on its use have been cast from various quarters, including political parties and

individuals. To meet the challenge raised against the EVMs, the ECI, as an extra-ordinary measure, threw an open challenge to all stakeholders between 3rd and 7th August, 2009 to come forward and prove if the ECI-EVMs could be tampered. None of them could prove that EVMs could be tampered.

In 2017, after the results of the 5 State Assembly elections were declared, some political parties had again cast aspersions on the credibility of EVMs.

On 12th May, 2017, a meeting with all recognised National and State Political parties was organised at Constitution Club, New Delhi. One of the major issues under deliberations during the Meeting was the use of Voter Verifiable Paper Audit Trail (VVPAT) along with EVMs during the elections. The Hon'ble CEC assured 100% coverage of VVPATs in all future election to the Parliament and State Assembly Elections. He informed the political party representatives that the Commission would hold a Challenge and offer opportunity to political parties to demonstrate that EVMs used in the recently concluded Assemblies elections in early 2017 (Uttar Pradesh, Uttarakhand, Goa, Manipur and Punjab) were tampered OR that EVMs can be tampered even under the laid down Technical & Administrative Safeguards.

Commission held a Press Conference on 20th May, 2017 to announce EVM Challenge and sent invitation to all National and State Recognized Political Parties to participate in the EVM Challenge from 3rd June, 2017 onwards.

Only two political parties, namely, Nationalist Congress Party (NCP) and Communist Party of India (Marxist) submitted their interest in participating the EVM Challenge. and reported at the Challenge Venue on 3rd June, 2017. However, they did not wish to participate in the Challenge but only expressed their interest in understanding the EVM process. They interacted extensively with the Technical Expert Committee of the Commission to clear their doubts. The EVM Challenge concluded on 3rd June 2017 itself.

Legal Interventions and Court Cases

Since 2001, the issue of possible tampering of EVM has been raised before various High Courts. Some of these are mentioned below:

- a. Madras High Court-2001
- b. Kerala High Court-2002
- c. Delhi High Court-2004
- d. Karnataka High Court- 2004
- e. Bombay High Court (Nagpur Bench)-2004
- f. Uttarakhand High Court – 2017
- g. Supreme Court of India – 2017
- h. Bombay High Court-2018

Analysis: All the aforementioned High Courts after going through various aspects of the technological soundness and the administrative measures involved in the use of EVMs, have held that the EVMs are credible, reliable and totally tamperproof. In some of these cases, even the Supreme Court has dismissed appeals filed by some petitioners against High Court orders.

In 2004, this matter was placed before the Delhi High Court by advocate Pran Nath Lekhi who had alleged that EVMs were tampered with to favour UPA in the election results. But HC found no merit in the petition. In this context, the Hon'ble Karnataka High Court held that ***“This invention is undoubtedly a great achievement in the electronic and computer technology and a national pride”***. The order was delivered on a plea filed in 1999 by a defeated candidate who had challenged the role of EVM machines in Yelahanka parliamentary constituency. The court studied the safety features and examined BEL scientists and ruled that machines were tamper-proof and any attempt to doctor them cannot be kept away from the public eye.

Both the Karnataka High Court and the Madras High Court observed that use of EVMs in election has several advantages over the system of ballot paper/ ballot box election. The Hon'ble Madras High Court also categorically ruled out any question of tampering of the EVMs. The following observations made by the Madras High Court may be taken note of:

“There is also no question of introducing any virus or bugs for the reason that the EVMs cannot be compared to personal computers. The programming in computers, as suggested, has no bearing with the EVMs. The computer would have inherent limitations having connections through Internet and by their very design, they may allow the alteration of the programme but the EVMs are independent units and the programme in EVM is entirely a different system.”

The Bombay High Court (Nagpur Bench) examined certain witnesses who claimed to be experts in the field of electronics and electronic gadgets. These witnesses, however, admitted before the Court that tampering of EVMs was not possible unless the persons new entire things and had free access to the machines.

In one of the cases, the Hon'ble High Court of Kerala in its order dated 6th February, 2002 had recorded its appreciation on the efficiency of the EVM mechanism. The judgment of the Kerala High Court in the said Election Petition was upheld by the Hon'ble Supreme Court in Civil Appeal (AIR 2003 SC 2271). It is admitted before various courts that the data or technique brought in use of EVM in India were not subject to piracy as nobody knows anything about the contents of any type or has any unauthorized or free access to EVM.

In Oct 2013, to bring about greater transparency, the Hon'ble Supreme Court allowed ECI to introduce VVPAT in phased manner.

The Hon'ble Uttarakhand High Court in its judgement dated 2nd June, 2017 has observed as under:

“Prima facie, it is evident from a combined reading of the entire press release of ECI that this system is seal proof. The EVMs are not hackable. There cannot

be any manipulation at manufacturing stage. The results cannot be altered by activating a Trojan Horse through a sequence of key presses. The ECI-EVMs cannot be physically tampered with. The EVMs use some of the microcontrollers, dynamic coding of key codes, date and time stamping of each and every key press etc. These EVMs also cannot be tampered with during the course of transportation or at the place of storage. There are checks and balances to ensure tamper-proofing of EVMs”.

Further, on 9th August, 2017, Hon’ble Supreme Court of India while deciding the bunch of Petitions on 100% use of VVPAT, observed that

“the above statement of the Election Commission of India contained in the counter affidavit acknowledges, that all prayers made in the group of petitions, stand fulfilled and satisfied. It is also apparent, that the Government of India has sanctioned funds for the purchase of the VVPAT units, needed during the course of the elections, which are to take place in the immediate future. The position expressed leaves no room for any doubt, that all future elections will be held by using VVPAT. The above stance is reiterated during the course of hearing by the learned counsel representing the Election Commission of India.

In view of the above, we are of the considered view that the present bunch of matters does not require any further adjudication at our hands. All the cases clubbed together, are accordingly disposed of in terms of the counter affidavit filed by the Election Commission of India, duly supported by the Government of India”.

Bombay High Court: Order dated 23.02.2018:

In EP No. 15 of 2014, the Bombay High Court ordered a detailed forensic examination of the EVMs from CFSL, Hyderabad for checking any manipulation etc. The CFSL report clearly ruled out any tampering, alteration or manipulation in the EVMs. The said report was accepted by Hon’ble High Court and petition was dismissed.

Indian EVM: Design and Manufacture Protocol:

Indian EVMs and VVPATs are manufactured by Bharat Electronics Limited (PSU under Ministry of Defence, Govt. of India) and Electronics Corporation of India Limited (PSU under the Department of Atomic Energy, Govt. of India). The software of EVMs is developed in-house by a selected group of Engineers in BEL and ECIL independently from each other. This select software development group of few engineers design and develop the source code. After completion of software development, testing and evaluation of the software is carried out by another independent testing group in the PSUs as per the software requirements specifications (SRS). This ensures that the software has really been written as per the requirements laid down for its intended use only. The original source code for the EVM is stored by PSUs under controlled conditions at all times and is not accessible to anyone outside the software development group of PSUs.

In M1 and M2 EVMs manufactured till 2010, Machine code compiled from source programme code was given to the micro controller manufacturer for writing in ONE TIME PROGRAMMABLE (OTP) micro controllers. From this machine code, the exact original source code cannot be read. For such OTP microcontrollers, the code once programmed cannot be modified and cannot be read by any means. The technological advancements permit the writing of the machine code into the chips at PSU premises, hence in M3 (post 2013) EVMs, the program is burnt into the chip at PSU premises itself. Due to absence of requisite facilities to produce micro-controllers in India these are procured from manufacturers abroad.

Up on receipt of machine code, the micro controller manufacturer verifies against any modifications during transit and programs this code in the micro controller in the OTP area and initially provides engineering samples of programmed chip to PSUs for evaluation. These samples are then assembled into the EVM, evaluated and verified for authenticity of code and functionality at great length. Bulk production clearance by PSU is given to micro controller manufacturer only after successful completion of this verification.

During production of EVMs in the factory, functional testing is carried out by production group as per the laid down Quality plan and performance test procedures. Samples of EVMs from production batches are regularly checked for functionality by Quality Assurance Group, which is an independent unit within the PSUs.

Post supply to ECI, the EVMs are kept, transported and used under strict administrative and secure conditions. When used for elections they are operated and kept in full view of stake holders and media scrutiny.

The EVM software is so designed that it allows a voter to cast the vote only once. The vote can be recorded by a voter from the ballot unit only after the Presiding Officer enables the ballot unit from Control Unit. On press of “candidate” button by voter, the voter sees lighting of red LED near the candidate button, and a long beep is heard signifying that vote has been recorded. The CU machine is designed not to receive any signal other than that from BU. It cannot respond to any outside signal (nor receive any signal from outside at any time). The next vote can be recorded only after the Presiding Officer enables the ballot on the Control Unit for the next voter. In between, the BU becomes dead to any signal from outside (except from the Control Unit). Vote stuffing is not possible due to a specially designed feature that CU cannot accept another vote in less than 12 seconds. Votes are date and time stamped, and no votes can be cast before or after the poll.

Voter Verifiable Paper Audit Trail system (VVPAT) was introduced in 2013 to provide even greater transparency to the poll process. The VVPAT is an additional unit attached to the EVM, which prints a small slip of paper that carries the symbol, name and serial number of the candidate voted by Voter, which is visible for 7 (seven) seconds in the viewing window. The voter after pressing the button on BU can view the printed slip on VVPAT through the viewing window and thus can verify that the vote is recorded for the Candidate of his/her choice. These paper slips are automatically cut and stored in a sealed compartment of VVPAT and can be used later to cross check the votes in CU as per the prescribed procedure by ECI. The printing of slip in VVPAT is an additional verification to the voter, besides glowing of LED near candidate

button and the beep in EVM system. The Commission is committed to the 100% deployment of VVPATs with EVMs at all polling stations in all future elections to the Parliament and state Legislative Assemblies. Pursuant to the Government approval, ECIL and BEL have committed to manufacture and supply 16,15,000 VVPAT machines required for conduct of General Elections to Lok Sabha 2019 to the Election Commission by November 2018.

EVM Safety and Security Features:

The machines are non-tamperable, both due to technological measures, and also due to strict administrative and security procedures laid out by ECI, whereby no access to EVM/VVPAT is allowed to any unauthorized person. Hence, these are protected from any tampering/manipulation whether before the polls, or during the polls, or after the polls, in storage or transportation from manufacturer to the State/District or vice versa, or when transported from one state to another.

Technological safeguards that contribute to non-tamperability of EVM are the following.

- i. EVM used by the Commission is a stand-alone non-networked, one time-programmable (OTP) machine, which is neither computer controlled, nor connected to the internet or any network; and hence, cannot be 'Hacked'.
- ii. The machine is electronically protected to prevent any tampering/manipulation. The programme (software) used in these machines is burnt into a One Time Programmable (OTP)/Masked chip so that it cannot be altered or tampered with.
- iii. The software of EVMs is developed in-house by a selected group of Engineers in BEL (Defence Ministry PSU) and ECIL (Atomic Energy Ministry's PSU) independently from each other.
- iv. After completion of software design, testing and evaluation of the software is carried out by an Independent Testing Group as per the software requirements specifications (SRS). This ensures that the software has really been written as per the requirements laid down for its intended use only.
- v. After successful completion of such evaluation, machine code is given to the micro controller manufacturer for writing in the micro controllers. From this machine code, the source code cannot be read.

Source code is never handed over to anyone outside the software group of PSUs.

- vi. Micro controller manufacturer initially provides engineering samples to PSUs for evaluation. These samples are assembled into the EVM, evaluated and verified for functionality at great length. Bulk production clearance by PSU is given to micro controller manufacturer only after successful completion of this verification.
- vii. The source code for the EVM is stored under controlled conditions at all times. Checks and balances are in place to ensure that it is accessible to authorized personnel only.
- viii. During production in the factory, functional testing is done by production group as per the laid down Quality plan and performance test procedures.
- ix. The software is so designed that it allows a voter to cast the vote only once. The vote can be recorded by a voter from the ballot unit only after the Presiding Officer enables the ballot on the Control Unit. The machine does not receive any signal from outside at any time. The next vote can be recorded only after the Presiding Officer enables the ballot on the Control Unit. In between, the machine becomes dead to any signal from outside (except from the Control Unit).
- x. Samples of EVMs from production batches are regularly checked for functionality by Quality Assurance Group, which is an independent unit within the PSUs.
- xi. Certain additional features were introduced in M2 generation of EVMs (Post-2006) such as dynamic coding between **Ballot Unit (BU) and Control Unit (CU)**, installation of real time clock, installation of full display system and date and time stamping of key-pressing in EVM.
- xii. The Report of the Expert Committee for the Technical Evaluation of

the Upgraded EVMs in 2006 has concluded that any tampering of CU by coded signals by wireless or outside or Bluetooth or WiFi is ruled out as CU does not have any radio frequency (RF) receiver and data decoder. CU accepts only specially encrypted and dynamically coded data from BU. Data from any outside source cannot be accepted by CU.

Administrative Procedures laid by ECI for handling of EVMS are stringent.

The Commission has put in place an elaborate administrative system of security measures and procedural checks-and-balances aimed at prevention of any possible misuse or procedural lapses. These safeguards are implemented by ECI transparently with the active and documented involvement of Political Parties, Candidates and their Representatives at every stage, so as to build their confidence on efficacy and reliability of EVMs. All these functions and procedures are implemented through the District Election Officers (DEOs), Returning Officers (ROs), Assistant Returning Officers (AROs) and other officers and officials of the State Government concerned, who are on deemed deputation to the ECI and are under its superintendence, direction and control in so far as election related duties are concerned. These safeguards are:

- i. Before every election, a first level checking (FLC) is done for every EVM to be used in the election by the engineers of the manufacturers **in the presence of political parties' representatives**. The entire FLC process is carried out at the District level under the supervision of the DEO concerned. Any malfunctioning EVM i.e. EVM either not switching on or not displaying results etc., is kept separately and is not used in the election.
- ii. Manufacturers certify at the time of FLC that all components in the EVM are original. After this, the plastic cabinet of Control Unit of the EVM is sealed using a "Pink Paper Seal", **which is signed by representatives of political parties** and stored in strong rooms. After this stage, the plastic cabinet of control unit of the EVMs cannot be opened. There is no access to any component of inside of EVMs.

- iii. Mock poll with a few votes is conducted on every functioning EVM at the time of FLC. Additionally, at the time of FLC, 1200 votes are cast in 1% of EVMs, 1000 votes in 2% and 500 votes in another 2% of EVMs using VVPATs in the presence of the representatives of political parties. After the Mock Poll, the printed VVPAT slips are counted and the result tallied with the electronic result of CU. The tally is also shown to the representative of political parties present in the FLC. **Representatives of political parties are allowed to do mock poll themselves.** It is all documented by DEOs/ROs.
- iv. Subsequently, stored EVMs are **randomized by computer software twice, once for allocation of machines to assembly constituencies and second to polling stations in the presence of candidates or their representatives before they are distributed for use in individual polling stations.** The randomization is carried out through EVM Tracking Software (ETS) by the DEO in the presence of the representatives of political parties/candidates and Central Observers deputed by the ECI for complete transparency. The lists of EVM containing serial number of EVM allocated to particular polling station are provided to the political parties/candidates.
- v. During the process of Candidate setting on the EVMs, Ballot Paper is fixed on the Ballot Unit and the EVMs are prepared for the number of candidates in fray in a particular constituency. It must be noted here that the arrangement of names in the ballot paper, and hence the Ballot Unit, is in alphabetical order, first for the National & State Recognized parties, followed by other State Registered Parties, and then by Independents. Thus, the sequence in which the candidates appear on the Ballot Unit is contingent on the names of the candidates and their party affiliation and cannot be ascertained beforehand. This arrangement of sequencing names of candidates in ballot paper effectively precludes the possibility of any pre-determined manipulation of software for rigging the votes. **Hence, the serial number of the candidates of any particular political party will vary in each constituency and cannot be determined beforehand thereby ruling out any possibility of manipulation.**

- vi. Once the **candidate setting** is done, the Ballot Unit of the EVM is also sealed with thread/Pink Paper seals so that nobody has access to the inside of the Ballot Unit too. These Pink seals also bear signatures of representatives of political parties/candidate.
- vii. During the time of EVM Preparation and Candidate Setting, a mock poll of 1000 votes cast in 5% of randomly selected EVMs, as well as VVPATs. The electronic result is tallied with VVPAT slip count by the RO and his designated officers in the presence of the candidate or his agents for complete transparency.
- viii. On the poll day, a mock poll by casting at least 50 votes is conducted at every polling station by the Presiding Officer **in the presence of the representatives of the candidates/polling agents with their signature and a mock-poll certificate to that effect is obtained from every Presiding Officer.**
- ix. After the mock poll is over, another thread seal and green paper seals are put on the Control Unit to block access to all buttons on the CU, except those, which are used for the conduct of poll. **These paper seals and thread seals are allowed to be signed by the polling agents.** After the poll is over, the Presiding officer presses the “Close” button on the CU in the presence of polling agents. Thereafter, no votes can be polled in the EVM.
- x. After this, the entire EVM is sealed. **Candidates and their agents are allowed to put their signatures on the seals**, which they can check for the intactness of the seal before counting. Candidates/representatives travel behind vehicles carrying EVMs from polling stations to counting storage rooms.
- xi. In addition to this, the strong rooms where EVMs are stored, for counting are also sealed and secured fully by Central Armed Police Force (CAPF) guards round-the-clock. **The candidates and their representatives are allowed to put their own seals on the strong**

rooms. They are also allowed to keep a watch round the clock on the strong room. Security forces are deployed in three layers around storage rooms with Central Armed Police Forces (CAPF) guarding the inner ring.

- xii. FLC, Preparation of EVMs before poll, mock poll, etc., are mandatorily conducted in the presence of the representatives of candidates or political parties and duly documented.
- xiii. Coupled with randomization of EVMs, the polling officials deputed to the Polling Stations are also randomized through a 3 stage randomization process.

Storage and Transportation Protocols:

Election Commission of India ensures the storage and transportation of EVMs/VVPATs remain under the strict control of ECI at all times through the following procedures and instructions:

A. DURING NON-ELECTION PERIOD:

[Non-election period means, after passage of the Election Petition (EP) period (i.e. 45-days from the date of declaration of the result of the last election) and upto the announcement of next election in the constituency.]

Physical Verification of EVMs: During non-election period, 100% physical verification of EVMs is carried out by the District Election Officers (DEOs) annually. For this purpose, the Commission issues a direction for opening of EVM-warehouses. On receiving direction from the Commission, the DEOs take the following course of action:-

- a) CEO/DEO shall ensure that EVM-warehouses, in which EVMs pertaining to any election petition or court cases are stored, shall not be opened for the purpose of physical verification of EVMs.

b) DEO shall nominate an Election authority for the purpose of opening of EVM-warehouse [except EVM-warehouse mentioned at (a) above] and for conducting physical verification of EVMs.

c) National and State recognized political parties shall be informed in writing, at least 24 hours in advance, about the date and time of opening and closure of EVM warehouse. Their authorized representatives shall be allowed to remain present at the time of opening and closure of the warehouse. A report shall be prepared in this regard and signature of the authorized representatives of political parties shall also be taken on the report.

Storage of EVMs

- i. EVM should be stored in Treasury, wherever possible.
- ii. Where not stored in the Treasury, EVMs must be stored in a separate warehouse where nothing other than EVM is kept.
- iii. Normally the EVMs should be stored at District Head Quarters.
- iv. However, if it is not possible to store the EVMs at District HQs, then EVM storage warehouse should not be at a place below Tehsil headquarters.
- v. No EVM shall be kept outside the EVM warehouse (i.e. all the EVMs should be kept in EVM warehouse and not at any other place) for any purpose without specific approval of the Commission
- vi. EVM storage warehouse must not have more than one (1) entry point. If there are any other doors or windows in the warehouse, they should be sealed using brick-masonry or concrete.
- vii. Entry of EVM storage warehouse must be secured by a double lock system. The keys shall be in custody of DEO and Dy.DEO, each having one key. Handing over and taking over of keys to be a part of CTC.

- viii. 24x7 Police Security of EVM/VVPAT warehouses. In addition, CCTV from start of FLC till EP completion period.
- ix. Security: Non Poll (Post EP to FLC)- Minimum ½ Section
 FLC to Polling- Minimum 1 Section
 Poll to EP- Minimum 1 Platoon
- x. Warehouse must be free from dampness, pests, rodents etc. Proper fire-fighting arrangement must be made available. Warehouse should be free from flood/water logging risk/cracks/leakage/broken window etc. To provide an inlet/outlet for air-circulation to avoid foul smell in strong rooms, exhaust fan may be installed, subject to the following conditions:-
- a) Exhaust fan shall be installed on the front side of the strong room, where security guards are posted and not on the rear side;
- b) Exhaust fan shall be installed at the highest point feasible, below the roof;
- c) A strong iron grill shall be installed at the vent/passage where exhaust fan will be installed.
- d) EVMs must be kept in a safe manner.
- ix. Adequate security arrangement must be made at warehouse by deputing police/security guard round the clock.

Movement of EVMs: During non-election period, EVMs shall not be moved in or out of the EVM warehouse without specific approval of the Commission. In case of intra or inter State shifting of EVMs, on the direction of the Commission, the following shall be strictly followed:

- i. The CEO will communicate the direction of the Commission on shifting of EVMs to the DEO concerned.
- ii. DEO(s) will issue written order to the officer in-charge for opening of EVM-warehouse to shift the required number of EVMs.
- iii. On receiving the written order of the DEO, the nominated Officer shall identify the EVMs to be moved out and make an entry of the details of such EVMs in the Master Stock Register/Movement Register and shall take a written acknowledgement from the officer, who is receiving the EVM, as proof of having received the EVMs.
- iv. Containerized trucks or sealed trucks on which proper locking arrangements can be made are used for transporting EVMs and VVPATs, so that these could be locked and sealed with paper seals.
- v. Vehicles with GPS tracking only are used for movement of EVMs/VVPATs.
- vi. Political Parties are informed in advance about opening, stocking and sealing of warehouses while shifting EVMs and VVPATs.

Protocol for Repairs:

EVMs found defective during the poll period or non-poll period and requiring electronic repairs are sent to the manufacturers BEL and ECIL for repairs and are tracked under ETS. The repaired EVMs are allocated by the Commission once the report of repair is received from the manufacturer.

EVM Tracking Software (ETS):

The Commission has introduced an ETS as a modern inventory management system where the identity and physical presence of all EVMS/VVPATs is tracked on real time basis by the Election Commission of India and any movement of these machines ordered by ECI has to mandatorily be through this system.

B. DURING ELECTION PERIOD:

Physical Verification of EVMs: If there is a general election during the year, the DEO shall carry out 100% physical verification of EVMs during the First Level Checking of the EVMs and send the report to the Commission through Chief Electoral Officer in the prescribed format.

Storage of EVMs

Pre-Poll Storage: After FLC and first randomization of EVMs, EVMs shall be handed over to the Returning Officer/Assistant Returning Officer concerned. The Returning Officers shall follow the following guidelines:-

- i) RO/ARO shall store the EVMs, allocated for his constituency, in a strong room in the presence of representatives of National/State Level Political Parties, under videography. EVMs meant for training and awareness of voters shall be kept in a separate strong room so that strong room having EVMs (including reserve EVMs) meant for poll need not be opened before preparation of EVMs. Reserve EVMs are those EVMs which are used to replace a malfunctioning/defective EVM on the poll day. The Reserve EVMs are duly prepared with Candidate setting and ballot paper fixing like other EVMs earmarked for polls and are subjected to the same standards of security and storage protocols.
- ii) Thereafter, RO shall open the strong room having EVMs (including reserve EVMs) meant for poll at the time of preparation of EVMs (candidate setting) in the presence of candidates/their representatives, under videography.
- iii) After preparation of EVMs at RO level, EVMs including reserve EVMs shall again be kept in strong room in the presence of candidates/their representatives, under videography.
- iv) Thereafter, RO shall open the strong room having EVMs (including reserve EVMs) on the day of dispersal of polling parties in the presence of candidates/their representatives, under videography.

- v) After completion of poll on the Polling Day, the polled EVMs shall be escorted back to the strong room for storing in double lock system in the presence of candidates/their representatives, under videography.

Procedure to be followed for storing polled EVMs in strong room:

- (i) All Presiding Officers or the Collecting Parties should deposit the voting machines and election papers and materials at the storage centres without any avoidable delay. Any officer who defaults in this respect will make himself liable to disciplinary action.
- (ii) Returning Officer may earmark inside the storage room or building, specified parts of the floor space in the form of squares in advance for stacking the voting machines received from particular polling stations. The arrangement for this should follow the serial number of polling stations.
- (iii) All Balloting unit(s) and control unit received from one polling station must invariably be kept together at one place on the same square. The control unit should be kept on top of the Balloting unit(s). One copy of the Part I of Form-17 C, as filled by the concerned Presiding Officer of each polling station, should be kept on top of the control unit pertaining to the polling station. Sealed envelope containing the declarations made by the Presiding Officers before the start of the poll and at the end of the poll should also be kept in the strong room with polled EVMs. The duplicate copy of the account of votes recorded and the paper seal account should be kept under your safe custody along with the Presiding Officers Diary and other records like Register of Voters(17A), reports of Sector/Zonal magistrates, Additional inputs provided by the Presiding Officer (refer ECI instruction in this regard) etc. Under no circumstance, these papers/records should be put in strong room where polled EVMs are kept.
- (iv) Sufficient space should be left between rows of voting machines as they are being stacked so that other machines received subsequently out of turn (from the point of view of serial numbers of the polling stations) may be kept at their appropriate allotted space without the necessity of having to shift any of the voting machines received and stacked in earlier point of time.

- (v) If any of the contesting candidates so desires, he may be permitted to post an agent to keep watch at the place where the voting machines are stored pending the counting and allow him to affix his own seals to the doors and windows of the building in which voting machines have been stored in addition to the seals that may be affixed by you. It should also be ensured that immediately after all the voting machines have been received and stored, the room is locked forthwith. Thereafter, no one is allowed to go in until the morning of the day fixed for counting. If during this interval, for some unavoidable reason, the room has to be opened you should send for the candidates or their authorized representatives by giving them intimation in writing and open the room in their presence and immediately after the purpose for which the room is opened is over, this room should be closed and sealed and the candidates or their representatives should again be allowed to put their seal on the door lock and windows.
- (vi) Whenever it is necessary to open the room in which the voting machines are stored, proper entries should be made in the logbook giving details of the persons entering the room, the purpose of such entry, time of entry, time of exit, signature of the guards, etc. These instructions will also apply mutatis mutandis to the storage of the voting machines during the interval between the original count and the recount, if any.

Post-Poll Storage: The following instructions shall be strictly followed for the security and safety of strong rooms where the polled EVMs are kept for counting of votes –

- i The strong rooms should have double lock system. One key should be kept with District Election Officer and the other with Returning Officer of concerned assembly constituency.
- ii Three cordoned security arrangements should be made round the clock for the strong rooms having polled EVMs kept for counting of votes. The CPF should man the innermost perimeter security immediately outside the strong room and the State Armed Police should man the outermost perimeter security.

- iii All contesting candidates should be intimated in writing to depute their representatives to keep a close watch on security arrangement of strong room. They should be allowed to stay outside the inner perimeter at a location, which enables them to view the entry points of the strong room. As far as possible, facilities such as proper shade, drinking water, etc. shall be provided to them. If there is no direct view to the entry point of the strong room, CCTV may be arranged at such location, from where they can see the strong room door on CCTV. In such a case, they may be taken periodically to the inner perimeter in batches, to see, verify and satisfy themselves regarding the security of strong room. The CCTV display of Strong Room shall be arranged on a large TV screen at the place earmarked for the representatives of Political Parties and agents of the candidates, so that they can continuously monitor the Strong Room.
- iv A control room adjacent to the strong room SHOULD BE operative round the clock.
- v A Gazetted officer along with a senior police officer should be put on duty round the clock for monitoring the security arrangements of strong room.
- vi There should be sufficient arrangement of fire extinguishers near and inside the strong room.
- vii There should be an arrangement round the clock for the security of unused EVMs also.
- viii No one should be allowed to enter the inner perimeter without adhering the following protocols:-
 - a) The log book shall be maintained by the CPF in which entry should be made about date, time, duration and name(s) of person(s) crossing the second security ring i.e. the middle perimeter. This

includes visits by the Observers or DEOs or SPs or candidates or their agents or any other person.

b) Video cameras should be provided to the CPF contingent to record all visits made by such visitors.

- ix It should be ensured that there is uninterrupted power supply at the strong room locations during the entire period wherein EVMs are stored. CEO may address the Chairman of Electricity Board concerned separately regarding this. Local Electricity Board officials should be asked to ensure the same. Contingency arrangement of stand-by generators should be made to ensure uninterrupted power supply.
- x The phone nos. of CEO, Addl. CEOs, DEC in-charge in the ECI and the DEO/SP/COP/ROs concerned should be given to the candidates, who may provide the same to their representatives, keeping vigil at the strong room location(s). The candidates may advise their representatives to contact the officials, in case of any emergency.
- xi All the entry points (doors etc.) of strong rooms should be under constant videography using the web-cams and laptops available. If there are other doors of the strong room, they should also be covered by the web-cams/videography.
- xii Returning Officers should visit the storage campus (upto the inner perimeter only) every day in the morning and evening and check the log book and videography and send a report to the DEO on the status every day. In case of strong rooms located in the district headquarters, the DEO should do the same. Where the strong rooms are situated outside the District Headquarters, DEO should visit the same as frequently as possible and at least once in 3 to 4 days.
- xiii No vehicle, including that of any official or ministers or any other political functionary, should be allowed inside the secured campus where the EVMs are stored. Alighting point for the vehicles should be marked clearly ahead of the outer security perimeter itself beyond it, it should be a pedestrian zone only.

- xiv DEOs and SPs shall be personally responsible for security of strong room within the district and meticulous implementation of the protocol. The copy of this Manual should be made available to all candidates, DEOs, ROs and CPF commandant.
- xv On the day of counting of votes, the strong room shall be opened in the presence of candidates/their representative, RO and Observer under videography.
- xvi After completion of counting of votes, Control Units shall be sealed as per existing instruction of the Commission. Thereafter, EVMs (Balloting Units and Control Units) shall be shifted back to Strong Room for safe storage.

Under rule 94(aa) of the Conduct of Elections Rules 1961, the guidelines of the Commission on retention period of the EVMs after using in election and for using the same in the subsequent elections, are as under:

- A. Every Voting Machine (EVM) used in an election and kept in the custody of the District Election Officer shall be kept untouched, under the standard protocol of security, till confirmation of Election petition position from the High Court concerned after the completion of the period for filing Election Petition i.e. 45 days from the date of declaration of the result.
- B. In the case of elections, where no election petition has been filed or no other court cases are pending, after the aforesaid period, the EVMs may be allowed to be used by the Election Commission for any future election or any other purpose like movement, physical verification of EVMs, etc.
- C. In case of any election where election petition has been filed, the following action shall be taken:-

- (i) If the EVMs are the subject of the election petition, the EVMs used at all Polling Stations in the constituency concerned shall continue to be kept in the safe custody of the District Election Officer, till such time the Election Petition is finally disposed of by the Courts.
- (ii) If the EVMs are not the subject of the election petition, an application may be moved to the concerned Court for allowing the EVMs concerned to be taken out of the strong room for any future election or any other purpose like movement, physical verification of EVMs etc.
- (iii) In case EVMs not involved in any Election Petition/Court Case are stored with the EVMs involved in Election Petition/Court Case, with the Court's permission, the following procedure shall be followed for segregating the EVMs not involved in any election petition/court case from the EVMs involved in EP/Court case:-
 - (a) A Notice informing the opening of Strong Room having EVMs involved in EP/Court Case shall be given to the petitioners/respondents of the EP/Court Case and the representatives of all political parties in writing at least 72 hours in advance, requesting them to remain present at the time of opening of strong room.
 - (b) The strong room shall be opened in the presence of the District Election Officer, Petitioners/respondents of the EP/Court case and representatives of Political Parties.
 - (c) The EVMs not involved in any EP/Court Case shall be segregated from the EVMs involved in EP/Court Case for taking out of the strong room. A list of EVMs being so taken out from the strong room shall be prepared.
 - (d) The EVMs, which are not involved in any EP/Court Case, should alone be taken out of the Strong room.
 - (e) The entire process shall be videographed.

- (f) A copy of the list of EVMs being taken out from the strong room and copy of videography shall be given to the petitioner/respondent of the EP/court case and acknowledgement taken.
- D. If any other Court Case is pending, like, booth capturing, etc., in which any EVM is involved, the EVM concerned or the EVM(s) used at such Polling Station(s) concerned may also be kept till the final disposal of the said case.
- E. After the final disposal of the election petitions or other court cases, as the case may be, referred to above, the EVMs can be used for subsequent elections. **Thus, the technological security features along with administrative safeguards defined by ECI, together make EVMs non-tamperable, leaving nothing to chance, whether in manufacturing, storage, transportation or during use in elections. While design features like using OTP chips, technical safeguards like non – connectivity of EVMs with computers, internet, wireless or wired for any unwanted communication, and numerous internal precautions like encoding to protect data integrity, the administrative safeguards rule out any possibility of tampering by offering transparency via 24x7 scrutiny by party representatives and their participation in sealing and signing important spaces during election.**

In this way the Indian EVM used by ECI is unique in the world and non-tamperable under the control and custody of ECI.

Technical Experts Committee (TEC)

Composition of First Technical Expert Committee on EVMs

- Central Government appointed the Electoral Reforms Committee in January, 1990 (Goswami Committee) consisting of representative of several recognized National and State Parties.
- The Electoral Reforms Committee felt that the machines should be tested by technical experts with a view to removing any doubts or misapprehensions in the minds of the public with regard to credibility of the working of the machines and desired that a clearance from the technical experts to the effect that doubts and misapprehension entertained about the credibility of the machines were not well founded should be obtained.
- An Expert Committee for the evaluation of the electronic voting machines was constituted under the chairmanship of Professor S. Sampath, Chairman Technical Advisory Committee, Defence Research & Development Organization (DRDO), Ministry of Defence, Professor P.V. Indiresan of the IIT Delhi and Dr. Rao C. Kasarabada, Director, Electronic Research & Development Centre (ERDC), Trivandrum.
- The Committee, after a review of the material presented to it, technical presentation by the manufacturers, meeting election administrators and technical experts and also detailed laboratory tests, came to the conclusion that the electronic voting machine is a secure system. The expert committee, therefore, unanimously recommended, in April, 1990, the use of the electronic voting machines without further loss of time.

Composition of Second Technical Expert Committee

- The Commission constituted the Second Technical Expert Committee in December, 2005 comprising Prof. P.V. Indiresan, Prof. D.T. Shahani of IIT Delhi and Prof. A.K. Agarwala of IIT Delhi to get the upgraded EVMs (Post 2006 EVMs) evaluated before finally accepting these machines for actual use in elections.

Expansion of Technical Expert Committee

In November, 2010, the Commission expanded its Technical Expert Committee by including two more experts, namely, Prof D.K. Sharma from Department of Electrical Engineering, IIT Bombay and Prof. Rajat Moona from Department of Computer Science and Engineering, IIT of Kanpur (now, Director IIT Bhilai)

The current composition of TEC is as below:

1. Prof. D.T. Shahani of IIT Delhi
2. Prof Rajat Moona, Director IIT Bhilai
3. Prof Dinesh Sharma of IIT Bombay
4. Prof. A.K. Agarwala of IIT Delhi

The members of the TEC are **eminent professionals** and renowned specialists in their respective areas of expertise. The members of TEC have an **illustrious academic record with proven technical excellence** with numerous creditable and pioneering achievements to their credit. The fact that they hail from different Centres of Excellence in public domain, further adds to their calibre, competence and credibility. The honorary contribution made by the TEC towards the design and development of EVMs/VVPATs has also been recognized by the Hon'ble President of India.

Role of Technical Expert Committee on EVMs:

ECI has maintained an independent Technical Expert Committee to help evaluate specific technical features, designs and performance improvement of EVMs.

The role of TEC has been to:

- i. Give technical advice to build specifications and design of newer versions of EVMs/VVPATs so that they incorporate latest Technology both in Hardware and Software Design and Improving Robustness against Tampering
- ii. Examine design proposals of manufacturers on EVMs and offer recommendations for improvement
- iii. Mentor designs process wherever asked.
- iv. Examine concerns raised on EVMs tamperability.
- v. Any other advice that Commission may seek or any other technical work that the Commission may entrust from time to time.

The Commission holds regular intensive and extensive meetings with the TEC and reviews the design, technical specifications and related issues of the EVMs/VVPATs or any other technical matter emerging from time to time.

Evolution & Incorporation of Technology in EVMs:

EVMs being electronic machines, are based on a fast evolving technology, both in software and hardware. With use of EVMs in Polls, many useful suggestions have come from public and political parties, and ECI has responded by incorporating newer features with every version of EVM produced. Also, from time to time, contemporary software practices as matured over time, contemporary components as improved over time and contemporary security practices were taken into account to ensure that EVMs of each version had the best of all practices being used. Nonetheless, the non-tamperability of EVMs is of supreme consideration in all versions. To that extent safety features have been used based on the technologies available at that time and customized for the needs of the EVMs. This along with ECI's strict administrative practices on use of EVMs have ensured truthful operations of EVMs over years.

On advice of Technical Expert Committee (TEC), certain features were introduced in EVMs from time to time, based on available technology and state-of-the-art for hardware and software. **While improvements have been brought in the designs of EVMs which were enabled by the availability of advanced technology in Electronics and which have led to incorporation of many features in newer EVMs, EVMs of earlier versions also had such key features built in. Notwithstanding all this, the non-tamperability of EVMs has been of supreme consideration in all versions of EVMs. This along with ECI's strict administrative practices on use of**

EVMs have ensured truthful operations of EVMs over years.

Some new features added by TEC in M2 (Post 2006) EVMs due to technological advancements:

- (i) Dynamic Coding between Ballot Unit and Control Unit.
- (ii) Real time clock
- (iii) Time stamping of key presses

Some new features added by TEC in M3 (post 2013) EVMs due to latest advancements in technology:

- (i) Mutual authentication among all components of EVMs such as BU, CU and VVPAT
- (ii) Automated self-diagnostics
- (iii) Battery life predication
- (iv) Inoperative on opening of covers
- (v) Digital certification for identification of genuine units

Features of M2 VVPATs:

- (i) Prints Candidate's name, serial number & election symbol on thermal paper slips
- (ai) Sensors to detect errors
- (bi) Can be upgraded from M2 to M3

Features added by TEC in M3 VVPATs due to latest advancements in technology:

- (i) Capable to connect with 24 Ballot Units connected with 01 Control Unit to cater upto 384 Candidates.
- (ii) Inter-operability between BEL and ECIL EVMs
- (iii) Inoperative on opening of covers
- (iv) Digital certification for identification of genuine units

International Comparison:

A point is raised from time to time that several foreign countries have discontinued the use of voting machines and why India is using EVMs.

With the rapid advances in technology over the years, Election Management Bodies, professionals, experts, and activists (particularly Green Activists) have mooted the idea of using paperless electronic voting methods in different parts of the world in order to overcome the disadvantages of manual marking of paper ballots. The marriage between technology and election management goes back to at least 1892, when the first 'lever voting machine' was used in New York, after using the paper ballot for a long time. In the 1960s, punch-card machines were introduced in the USA, and the first EVM was introduced there in 1975. Electronic Voting has moved quite ahead since then.

Types of Electronic Voting:

The process of electronic voting can be of three types:

- (i) Direct Recording Machines placed at designated polling station,
- (ii) Internet Voting
 - Remote Online Voting
 - At Designated Polling Stations
- (iii) Optical Scanners
 - Stand-alone
 - Networked for centralized counting of results

EVMs used in India fall under the first type of stand-alone direct recording

machines with no possibility of any kind of network connectivity where voters cast their votes at an assigned polling station on the day of election under strict administrative security ensured by the ECI.

Even though ECI EVMs are also direct recording machines ECI EVMs are completely different from any of the EVMs used internationally either for direct recording or for internet voting or for optical scanning. This is clearly highlighted in the comparative analysis of ECI EVMs with the DRMs used in countries like Germany, Netherland, Ireland, and USA as follows:

The Netherlands

Electronic Voting was used in The Netherlands in between 1990-2007. The voting machines were manufactured by a private Dutch-company called NEDAP (*Nederlandse Apparaten Fabriek NV*). In 2006, the government ordered an independent testing of the voting machines. Two independent commissions, The Voting Machines Decision-making Commission and the Election Process Advisory Commission (EPAC) were also established on December 19, 2006 and January 18, 2007, respectively, to review the security and reliability features of NEDAP machines.

Following the observations of the two Commissions, the use of NEDAP machines and electronic voting was discontinued in 2007 on the following grounds:

- The Ministry of Interior and Kingdom Relations (MOIKR) of The Netherlands lacked adequate technical knowledge vis-à-vis the NEDAP machines, leading officials to depend on external actors for the conduct of elections.
- Technology vendors became part of the decision making process and the ministry was not in a position to exercise effective oversight.
- The Dutch Organization for Applied Scientific Research (*Toegepast Natuurwetenschappelijk Onderzoek*, TNO) certified and tested these machines following “outdated standards” which were not immune to modern IT and security threats.

- Moreover, the certification and testing reports were not made public depriving independent experts to verify the analysis.
- The legal framework, particularly the necessary security requirements, was inadequate to deal with the specificities of the electronic voting process. (For a comprehensive report on electronic voting in The Netherlands, see link: https://www.ndi.org/sites/default/files/5_Netherlands.pdf)

Germany:

In Germany, the e-voting machines manufactured by NEDAP were used in between 2005 – 2009 before it came under criticism and finally discontinued. The *Bundesverfassungsgericht* (the Federal Constitutional Court of Germany) ordered the discontinuation of the use of NEDAP machines in 2009 because of the below-mentioned reasons:

- The use of Nedap electronic voting machines violated the principle of the public nature of elections (Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law) that requires that all essential steps in the elections are subject to public examinability unless other constitutional interests justify an exception.
- It also observed that “it must be possible for the citizen to check the essential steps in the election act and in the ascertainment of the results reliably and without special expert knowledge”.

(See the judgment in the following link:

http://www.bundesverfassungsgericht.de/SharedDocs/Entscheidungen/EN/2009/03/cs20090303_2bvc000307en.html;jsessionid=FEA71E86E2CEE030FF7AAAC90572279C.2_cid383)

Ireland:

NEDAP machines were used in Ireland in between 2002 – 2004. The use of these machines was questioned following which two independent commissions were set up. The two Commissions on the *Secrecy, Accuracy and Testing of the Chosen Electronic Voting System*, concluded the NEDAP machines could not be used in elections in Ireland on the following grounds:

- Inadequate technological safeguards
- Insecure transfer of data by the use of CDs
- Absence of a comprehensive independent end-to-end testing, verification and certification by a single accredited body
- Inconsistencies in physical security of machines across constituencies
- Absence of a clear policy guideline via-a-vis storage, transport, set-up, use and disposal of voting equipment; and
- Absence of comprehensive electronic register to record the identity, location and movement of the electronic voting devices.

(See links: <http://www.unic.pt/images/stories/publicacoes1/00Index.pdf>; <http://www.unic.pt/images/stories/publicacoes1/Part%200%20Index.pdf>)

United States of America:

In 2000, after the dispute on the voting method in the USA presidential elections, the voting method was reviewed (Esteve, Goldsmith, & Turner, 2012: 185). Accordingly, Direct Recording Electronic (DRE) Systems (like the widely

used AccuVote TS developed by Premier Election Solutions, commonly called Diebold) were introduced. DRE Systems uses “one of three basic interfaces (pushbutton, touchscreen or dial)” through which “voters record their votes directly into computer memory. The voter’s choices are stored in DREs via a memory cartridge, diskette or smart card...Some DREs can be equipped with Voter Verified Paper Audit Trail (VVPAT) printers...” Currently, in the USA, the Direct Recording Machines are used in 27 states, among which paper audit trails are used in 15 states. The other voting methods include: Optical Scan Paper Ballot Systems, Ballot Marking Devices, and the Punch Card Ballot. (See link: <https://www.verifiedvoting.org/resources/voting-equipment/>)

Other countries:

In Brazil, the machines used in elections are called ‘electronic ballot boxes’ which are stand-alone direct electronic recording systems. In Venezuela, SATIS (Smartmatic Auditable Election Systems) voting machines are used which were fully implemented across the nation in 2004. (Esteve, Goldsmith, & Turner, 2012: 185)

India:

Indian EVMs are truly unique compared to the e-voting machines used in other parts of the world for the following reasons:

- ECI-EVMs are stand-alone non-networked machines
- The ECI-EVMs are manufactured in two PSUs namely ECIL and BEL, unlike machines used in other countries, which were manufactured entirely by private entities. Hence there is no chance of involvement of vested interest of private players or technology vendors in decision making or production of the ECI-EVMs.
- ECI-EVMs have been time and again successfully verified and certified by an independent Technical Experts Committee

after an end-to-end testing process. STQC under Ministry of Information and Technology, an accredited third party entity, conducts standardization and certification of ECI EVMs produced by manufacturers, unlike the machines used in Netherlands,

- In ECI EVMs data is stored internally and not transferrable by any device, unlike other countries where voting data recorded in the DRM is transferred by means of CD, etc.
- Commission has evolved full end to end security protocol and administrative safeguards for the use, storage, transportation and tracking of ECI EVMs, unlike in other countries where NEDAP machines were used.
- Unlike MOIKR of Netherlands, the Commission is fully backed by a Technical Expert Committee comprising of eminent professors.
- Every EVM has a unique number attached to it, which is recorded in the Election Commission's database through EVM Tracking Software. This number of the EVM can always be cross-checked against the database.
- The software used in these EVMs is One Time Programmable (OTP), which can't be re-written after manufacture.
- The ECI-EVMs are always under strict, uniform, high profile administrative and physical security as per legal framework across the country.
- Section 61 A of the Representation of the Peoples Act 1951 allows the use of EVMs by ECI. The different High Courts across the country have also upheld the use of EVMs time and again in various judgments and the Karnataka High Court in 2004 declared ECI-EVMs as "national pride" because of its transparency and robustness.

- Following the direction of the Hon'ble Supreme Court, the ECI has introduced the technology of VVPAT in order to ensure public examinability. The Commission is committed to implement VVPATs nation-wide by 2019. Thus there will be 100% voter verifiability and auditability of every vote cast as opposed to lack of such facility in the NEDAP machines which was struck down by the German Supreme Court as un-Constitutional. Whereas Indian Supreme Court has upheld the validity of use of EVM for conducting elections in the country.
- Thus any comparison of ECI-EVMs with machines used elsewhere is misplaced.

VOTER VERIFIABLE PAPER AUDIT TRAIL (VVPAT)

In a meeting of all political parties held on 4th October, 2010, the parties expressed satisfaction with the EVM but some parties requested the Commission to consider introducing Voter Verifiable Paper Audit Trail for further transparency and verifiability in poll process. In India, the demand of VVPAT to increase transparency was floating in the air for some time after such a tool was first demonstrated in New York City in March 2001 and first used in Sacramento, California in 2002. The demand was referred to the Technical Expert Committee (TEC) by the ECI.

Introduction of VVPAT implied that a paper slip is generated bearing name and symbol of the candidate along with recording of vote in Control Unit, so that in case of any dispute, paper slip could be counted to verify the result being shown on the EVM. Under VVPAT, a printer is attached to the balloting Unit and kept in the voting compartment. The paper slip remains visible on VVPAT for 07 seconds through a transparent window. The Commission referred the matter to its Technical Expert Committee (TEC) on EVMs for examining and making a recommendation in this regard. The Expert Committee had several rounds of meetings with the manufacturers of EVM, namely, BEL & ECIL, on this issue and then had met the political parties and other civil society members to explore the design requirement of the VVPAT system with the EVM.

On the direction of the Expert Committee, the BEL and ECIL made a prototype and demonstrated before the Committee and the Commission in 2011. On the recommendation of the Expert Committee on EVM & VVPAT system, the Commission conducted simulated election for the field trial of VVPAT system in Ladakh (Jammu & Kashmir), Thiruvananthapuram (Kerala), Cherrapunjee (Meghalaya), East Delhi District (NCT of Delhi) and Jaisalmer (Rajasthan) in July 2011. All stake holders including senior leaders of political parties and civil society members participated and witnessed enthusiastically in the field trial. After 1st field trial of the VVPAT system, Commission made a detailed reassessment of the VVPAT system to further fine tune the VVPAT system. Accordingly, the manufacturers developed 2nd version of VVPAT prototype.

The same was again subjected to 2nd field trial in the said five locations in July-August 2012.

In the meeting of the Technical Expert Committee held on 19th February, 2013, the Committee approved the design of VVPAT and also recommended the Commission to take action on amendment of the rules for using VVPAT. The model was demonstrated

to all the political parties in an all-party meeting on 10th May, 2013. The Government of India notified the amended Conduct of Elections Rules, 1961 on 14th August, 2013,

enabling the Commission to use VVPAT with EVMs. On 4th September, 2013, the Commission used VVPAT with EVMs first time in bye-election from 51-Noksen (ST) Assembly Constituency of Nagaland.

On 8th October, 2013, the Hon'ble Supreme Court ordered introduction of VVPAT in phases in its judgment on a PIL and asked Government to sanction funds for procurement. As directed by the Hon'ble Supreme Court of India, the ECI introduced the VVPAT system in a phased manner so that full implementation could be achieved by 2019. In 2013, the ECI procured 20000 VVPATs. On 25th November, 2013, VVPATs were used in 10 ACs in Mizoram; on 4th December 2013, it was used in one AC in Delhi; and thereafter in subsequent elections.

The following table gives us the journey of VVPAT in India at a glance:

Date	Chronology of Events
4th Oct 2010	An all-party meeting held. Agreement on incorporation of VVPATs along with EVMs.
July 2011	Field trial conducted after the prototype was manufactured, in Thiruvananthapuram (Kerala), Delhi, Cherapunjee (Meghalaya), Jaisalmer (Rajasthan) and Leh (Jammu & Kashmir).
July-Aug 2012	A second field trial was conducted
19th Feb 2013	Final model was approved by TEC
10th May 2013	The Model was demonstrated to all political parties
14th Aug 2013	The conduct of Election Rules 1961 was amended and notified

Date	Chronology of Events
8th Oct 2013	Hon'ble Supreme Court directed ECI to introduce the VVPAT system in a phased manner. full implementation to be achieved by 2019
25th Nov 2013	VVPATS were used in 10 ACs of Mizoram
4th Dec 2013	VVPAT was used in one AC in Delhi and thereafter in subsequent elections
Feb-Mar 2017	52000 VVPATs were used in 33 ACs in Punjab, 6 ACs in Manipur, 3 ACs in Uttarakhand, 30 ACs in Uttar Pradesh and 40 ACs in Goa
April 2017	Approval of Government received for purchase of 16, 15,000 VVPATs at a total estimated cost of Rs.3173.47 Crores**. ** Cost of 16,15,000 VVPATs reduced to Rs. 2616.30 Cr. After fixation of price by the Price Negotiation Committee.
12th May 2017	All Political Parties Meeting held. The Commission decided to use 100% VVPATs at every polling station in all future elections to Parliamentary and Assembly constituencies.
19th Sept., 2017	The Commission directed to use 100% VVPATs at every polling station was formally communicated to all Chief Electoral Officers to ensure compliance.
11th Oct, 2017	The Commission decoded to conduct mandatory verification of VVPAT slips of randomly selected 01 Polling Station per AC. Subsequently, mandatory verification of VVPAT slips has been further extended to 01 randomly selected Polling Station of each Assembly segment of Parliamentary Constituency also.

So far, VVPATs have been used in 933 Assembly Constituencies and 18 Parliamentary Constituencies. Till date, VVPAT slip verification has been undertaken for 792 polling stations and in all the cases, the results tallied with the electronic result in the CU.

Some Issues and controversies:

After the declaration of the state assembly elections results in March 2017, some political parties have raised doubts about the fairness of the election process through the EVM, tagging it as tamperable, and hence an unreliable voting gadget.

On 10.04.2017, representatives of thirteen (13) political parties met the Commission and submitted a joint representation expressing concerns about the transparency of voting method with the use of the EVM. Leaders of some of these parties either met or, wrote to the Election Commission of India (ECI), expressing their apprehensions and presenting their arguments against the use of EVM for casting and recording popular votes. Some excerpts from the petitions and representations made to the Commission are reproduced here:

- "In view of the above, it is earnestly prayed that (a) To consider replacing/substituting the current State CEO and Collector/DRO, Bhind. This is a minimum expectation to in still the faith in Indian democratic polity. (b) ECI may direct impartial and unimpeachable experts to revisit and re-verify the authenticity of all voting machines being deployed in the two bye-elections in MP, which must be done transparently in the presence of authorized representatives of political parties and/or candidates. (c).... it is necessary that the entire process should be re-examined thoroughly and all agencies and persons involved in the maintenance, operationalization and data feeding in the machines and all other performing duties and responsibilities including storage before use of EVMs in further elections and all parties should be taken in confidence...". ***(Letter dated 01.04.2017 from All India Congress Committee)***
- "With regard to the Bhind incident, kindly allow us to examine that particular machine in the presence of your officers. There are serious apprehensions that its software has been changed." ***(Letter dated 03.04.2017 from Aam Aadmi Party)***

- “It is in the paramount interest of all political parties concerned, that these incidents/allegations should be impartially investigated and the truth about the same be placed before the people of India... It is imperative that the Election Commission of India which has a Constitutional mandate to conduct national and State elections in a fair, free and impartial manner, take urgent note of the concerns and apprehensions raised by major political parties... till such time, the issues of tampering and malfunctions of the EVMs are addressed and the tamper-proof and flawless functioning of EVMs is technologically established and endorsed globally, to the satisfaction of the political parties, the forthcoming elections should be conducted under the old paper ballot system.” ***(Representation on behalf of Political Parties dated 10.04.2017)***

Two more incidents were brought to the knowledge of the Commission - one pertaining to Bhind (Madhya Pradesh) and the other one relating to Dholpur (Rajasthan). The incidents were enquired and the facts are as follows:

- As far as the incident regarding Ater Assembly Constituency of Bhind District is concerned, it is stated that the Bye-election for the Ater Assembly Constituency was scheduled to be held on 9th April, 2017. On 31st March, 2017, CEO Madhya Pradesh had organized a Review Meeting to assess the Poll Preparedness for the Bye-election for Ater Assembly Constituency of Bhind District. After finishing the Review Meeting, the CEO Madhya Pradesh held a meeting with the media persons, who were present there, and she participated in the Demonstration of EVM with VVPAT, which was placed near the Meeting Hall. After the Demonstration of EVM with VVPAT, certain issues were raised by the media-persons in the Meeting Hall and allegations were levelled regarding printing of the same symbol of a particular political party by the VVPAT Machine. The Commission had promptly ordered for an Enquiry Report regarding the issues raised during the EVM-VVPAT Demonstration at Bhind on 31st March, 2017. The Enquiry report clearly pointed out that the

allegations were totally unsubstantiated and baseless. Special Enquiry team led by Shri Bhanwar Lal, Chief Electoral Officer, Andhra Pradesh had concluded in its Report that no anomaly or tampering in EVM and VVPAT used during demonstration in Ater (Bhind) on 31st March, 2017 was found. The technical examination of the Ballot Unit (BU), Control Unit (CU) and VVPAT of 31st March, 2017 demonstration, oral examination of the officials present during the demonstration, data retrieved from the CU have conclusively established that during the demonstration, 4 buttons of BU were pressed in the following order:

Button No.	Symbol	Name of Candidate
03	Handpump	Raju Pal
04	Lotus	Satya Dev Pachori
03	Handpump	Raju Pal
01	Hand	Ambuj Shukla

Therefore, it is clear that on pressing of FOUR buttons on the EVM during the Demonstration held on 31st March, 2017, correct corresponding symbols were displayed and not the symbols of one particular party. It is further clarified that only reserve VVPAT, not being part of election petition, was brought from Kanpur in Uttar Pradesh (UP), as per order of ECI as was applicable to all other Bye-elections being held elsewhere. No EVM was brought from UP.

In fact, the confusion was created due to the non-adherence of the prescribed protocols and instructions of the Commission at a Mock Demonstration of EVM Machine by the competent officers on 31st March, 2017, due to which the previously stored symbol and name data in VVPAT of Govindnagar AC in Kanpur District, UP was not erased. However, the allegation of every button press yielding the same symbol were found to be utterly and completely untrue and baseless. Nonetheless, the Commission took a serious view of the procedural lapses and non-compliance of extant instructions and initiated prompt action against the district level officers for the said lapse. The detailed Press Note released by the Commission in this regard is available on the Commission's website and is also placed at **ANNEXURE-2**.

- The Dholpur incident relates to the factually incorrect and misleading news reports about 18 tampered and malfunctioning EVMs in Dholpur Bye-elections in Rajasthan on 9th April 2017. The reports also said that the votes given to one party were getting recorded to another party. In this connection, a detailed report was sought from Chief Electoral Officer of Rajasthan and the matter was duly enquired. Contrary to the allegations, it was confirmed by CEO Rajasthan that 8 EVMs were changed before the start of poll and only 2 EVMs in Dholpur AC out of 231 deployed were changed due to some snag during the poll process, which is less than 0.1 percent. EVMs getting defective or non-functional is an absolutely normal scenario with 1-2% EVMs getting defective during each poll and are always replaced. However, none of these defective EVMs ever given incorrect or wrong result. The Chief Electoral Officer also informed that no complaint of mismatch in the voting was reported from anywhere by any voter or candidate/political party during the entire polling period. The Press Release issued by the Commission regarding this issue is also available on the website, as also placed here at **ANNEXURE-3**.

ALL POLITICAL PARTIES MEETING

On 12th May, 2017, a meeting with all recognised National and State Political parties was organised at Constitution Club, New Delhi, in which 07 National and 35 State Parties participated. One of the major issues under deliberations during the Meeting was the use of Voter Verifiable Paper Audit Trail (VVPAT) along with EVMs during the elections.

Dr. Nasim Zaidi, Hon'ble CEC, in his opening remarks, inter alia, highlighted the following important issues:

- He referred the queries raised by some political parties about the incidents of alleged EVM manipulation at Bhind and Dholpur Bye-elections and reiterated that baseless perceptions were generated about these incidents and there was no case of any biased vote results.
- He highlighted the wide range of technical, administrative protocol and procedural safeguards that fortify the EVMs and VVPATs against any sort of manipulation or tampering.
- He informed the political representatives that the Commission will hold a challenge and offer opportunity to political parties to demonstrate that EVMs used in the recently concluded Assemblies elections were tampered OR that EVMs can be tampered even under the laid down Technical & Administrative Safeguards.
- The Hon'ble CEC also assured 100% coverage of VVPATs in all future election to the Parliament and State Assembly Elections.

A detailed presentation on EVM was presented by Shri. Sudeep Jain, Director General of ECI explaining therein its secured design feature, development process, stakeholders' participation at various levels, and administrative processes making the EVMs secure. The Press Note issued in this regard is at **Annexure-4**

EVM CHALLENGE

In All Political Parties Meeting held on 12th May, 2017, the Commission had informed the representatives of the National and State Political Parties that it would hold an EVM challenge and offer opportunity to the political parties to demonstrate that EVMs used in the State Assemblies' elections in Feb-Mar 2017 were tampered OR that EVMs can be tampered even under the laid down Technical & Administrative Safeguards.

Commission held a Press Conference on 20th May, 2017 to announce EVM Challenge and sent invitation to all National and State Recognized Political Parties to participate in the EVM Challenge from 3rd June, 2017 onwards. The Press Note issued in this regard is at **Annexure-5**.

Only two political parties, namely, Nationalist Congress Party (NCP) and Communist Party of India (Marxist) submitted their interest in participating the EVM Challenge. Both parties reported to the Challenge Venue on 3rd June, 2017. However, they did not wish to participate in the Challenge but only expressed their interest in understanding the EVM process. They interacted extensively with the Technical Expert Committee of the Commission to clear their doubts.

The EVM Challenge concluded on 3rd June 2017 itself and the Press Note issued by the Commission is at **Annexure-6**.

Present Status:

Hon'ble Supreme Court in its order dated 8 Oct 2013 has observed that EVMs with VVPAT system ensures the accuracy of the voting system. With an intent to have fullest transparency in the system and to restore the confidence of the voters, it is necessary to set up EVMs with VVPAT systems because vote is nothing but an act of expression which has immense importance in democratic system. The apex court appreciated the efforts and good gesture made by the ECI in introducing VVPATs and permitted the ECI to introduce the same in a gradual stages or geographical wise in the ensuing general elections. The Court also directed the Government of India to provide required financial assistance for the procurement of units of VVPATs for the implementation of VVPAT system in a phased manner.

Amidst the ongoing debate on the EVM, the ECI not only reaffirmed its faith on the transparency, credibility, non-tamperability and robustness of the machines, but also stressed on the immediate deployment of VVPATs for safeguarding the integrity of the voting system as well as strengthening confidence of the voters. In order to ensure the compliance of Hon'ble Supreme Court order The Chief Election Commissioner of India vigorously pursued the allocation of funds to the manufacturers for the timely manufacture and supply of required quantity of VVPATs to the ECI for ensuring 100% VVPAT coverage at all polling stations. The Election Commission also vigorously reviewed the production capacity of the manufacturers impressing upon them the need to strictly adhere to the schedule by enhancing their manufacturing capacity.

Based on Commission's continuous follow up the funds have since been allocated on 19 April 2017 amounting to Rs. 2616.30 crore for purchase of 16,15,000 VVPATs and orders have been issued to the manufacturers. It is pertinent to mention that Rs 1939.95 crore has been sanctioned and released by the Government for the manufacture of M3 EVMs. The manufacturers have committed to manufacture the EVMs and VVPATs and supply to ECI by Sep 2018.

The Commission is committed to using VVPAT machines along with EVMs in all future elections to be conducted under its superintendence and direction for the Parliament and State Legislative Assemblies.

In the All Political Parties Meeting held on 12th May, 2017, the Commission decided to use 100% VVPATs in all future elections. The above decision of the Commission was formally communicated to Chief Electoral Officers of all States and Union Territories on 19th September, 2017.

The Commission mandated verification of VVPAT paper slips of randomly selected 01 polling station in addition to the provisions of Rule 56D of the Conduct of Elections Rules, 1961, as under:

- (a) In case of General and Bye-elections to State Legislative Assemblies, verification of VVPAT paper slips of randomly selected 01 polling station per Assembly Constituency.
- (b) In case of General and Bye-elections to the House of the People, verification of VVPAT paper slips of randomly selected 01 polling station of each Assembly Segment of the Parliamentary Constituency concerned.

Mandatory verification of VVPAT paper slips has been conducted so far in 792 polling stations and no discrepancy was found in electronic result and paper count.

Conclusion:

As is evident, the EVM used in Indian elections have gone through a long journey of evolution amidst challenges and has emerged as an effective machine of electoral reform over the years since its introduction. It has enhanced public confidence as well as legitimacy of Indian elections in the eyes of the world.

The Indian EVM stands as one of the most credible, non-tamperable and transparent machine amongst all such machines used in other parts of the world. Indian EVMs have attracted the attention of many Afro-Asian countries also. Till date, no one could actually demonstrate that EVMs in possession of ECI and used by it, can be tampered with or manipulated. What has been demonstrated or claimed to have been demonstrated is on a privately assembled “look-alike of ECI-EVMs” and not the actual ECI-EVM used by ECI. Recently, on an allegation of EVMs yielding votes for only one political party in Bhind (Madhya Pradesh) and Dholpur (Rajasthan), the ECI promptly conducted an enquiry which found out that such allegations were found to be baseless.

Today, the ECI once again completely reaffirms its faith in the non-tamperability of the EVMs of ECI in view of the technical security features and the stringent administrative protocols and procedural safeguards which are mandatorily to be followed during and after the polls. In conclusion, it will be pertinent to refer to the verdict of the Karnataka High Court in this respect, which observed that EVM in India is a “national pride” and the fact that Indian elections are widely internationally acknowledged as the “Global Gold Standard”.

The Commission and electoral system stakeholders have taken a conscious decision that EVM is the right answer to the formidable task of election management and the huge logistical challenges it throws. The ECI hopes that once the VVPATs cover all the polling booths in the country, the confidence and transparency will be further enhanced.

The Commission firmly believes that the introduction of VVPAT machines with the EVMs in all future elections will bring utmost transparency and credibility

in the EVM-based voting system in our country and conclusively put to rest all misinformed doubts and misgivings regarding these machines.

The Commission will launch a comprehensive, concerted and nation-wide voter education and awareness programme under its flagship SVEEP initiative, to educate, orient and inform the voters about the functioning, usage and advantages of the VVPAT machines and their immense utility in reinforcing the transparency, credibility and authenticity of the voting process. The Commission earnestly solicits the cooperation and collaboration of all the vital stakeholders, particularly the political parties, to join hands in spreading awareness about the advantages of VVPAT machines. The Commission is confident that the collaborative efforts of all the stakeholders in the electoral process will lead to continuous improvements in the electoral management and make our system more transparent, participative, informed and credible.

The Commission firmly believes in an open, constructive and comprehensive dialogue with all crucial stakeholders in the electoral process and the political parties are a critical stakeholder of the democratic edifice in the country. Considering the recent issues regarding use of EVMs, the Commission convened an All Party Meeting on 12th May 2017. The objective behind the said meeting was to facilitate threadbare discussions and detailed deliberations amongst the important players in the electoral arena on this vital issue, so that all views and counter-views were placed on the table and thrashed out transparently and cogently.

In All Political Parties Meeting the Commission assured 100% coverage of VVPATs in all future election to the Parliament and State Assembly Elections. In the said meeting the representatives of political parties were informed that the Commission would hold a challenge and offered opportunity to political parties to demonstrate that EVMs used in the recently concluded Assemblies elections were tampered OR that EVMs could be tampered even under the laid down Technical and Administrative Safeguards.

Subsequently, on 20th May 2017, the Commission announced the EVM Challenge and sent invitation to all National and State Recognized Political Parties to participate in the Challenge from 3rd June 2017 onwards. Only two Political Parties, namely NCP and CPI(M) submitted their interest in participating the EVM Challenge. However, they did not participate in the Challenge but only expressed their interest in understanding the EVM process. They interacted extensively with TEC of the Commission to clear their doubts. The EVM Challenge concluded on 3rd July 2017.

Since 12th May 2017, every election to the Parliament and State Assembly Elections has been conducted using VVPAT with EVM and the Commission is committed to 100% deployment of VVPATs in all future elections to Parliament and State Legislative Assemblies.

The Commission requests all citizens and stakeholders to remain aware, vigilant and alert about our electoral processes and facilitate the Commission in discharging its Constitutional mandate of conducting free and fair elections in the country.

ANNEXURE - 1

Name of State/UT	Elections in which EVMs used			
States	Year	Year	Year	Year
Andhra Pradesh	2004	2009	2014	
Arunachal Pradesh	2004	2009	2014	
Assam	2001	2006	2011	2016
Bihar	2000	2005	2010	2015
Chhattisgarh	2000	2003	2008	2013
Goa	2002	2007	2012	2017
Gujarat	2002	2007	2012	2017
Haryana	2000	2005	2009	2014
Himachal Pradesh	2003	2007	2012	2017
Jammu & Kashmir*	2000	2004	2009	2014
Jharkhand	2000	2005	2010	2014
Karnataka	2004	2008	2013	2018
Kerala	2001	2006	2011	2016
Madhya Pradesh	2003	2003	2013	
Maharashtra	2004	2009	2014	
Manipur	2002	2007	2012	2017
Meghalaya	2003	2008	2013	2018
Mizoram	2003	2008	2013	
Nagaland	2003	2008	2013	2018
Orissa	2000	2004	2009	2014
Punjab	2002	2007	2012	2017
Rajasthan	2003	2008	2013	
Sikkim	2004	2009	2014	
Tamil Nadu	2001	2006	2011	2016
Tripura	2003	2008	2013	2018
Uttar Pradesh	2002	2007	2012	2017
Uttarakhand	2002	2007	2012	2017
West Bengal	2001	2006	2011	2017

Delhi	2003	2006	2011	2017
Puducherry	2001	2006	2011	2016

TOTAL: 113 State Assembly Elections

EVMs were also used in all constituencies in General Elections to Lok Sabha in 2004, 2009 and 2014.

ANNEXURE - 2

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi – 110 001.

No.PN/34/2017

Dated: 7th April, 2017

PRESS RELEASE

Subject: Enquiry report on Bhind (MP) Episode

Special Enquiry team led by Shri Bhanwar Lal, Chief Electoral Officer, Andhra Pradesh has submitted its report to the Commission. The team has found **no anomaly or tampering** in EVM and VVPAT used during demonstration in Ater (Bhind) on 31st March, 2017. The enquiry was instituted by Election Commission of India to enquire in to all aspects of various allegations raised in the media and by the political parties.

2. The technical examination of the Ballot Unit (BU), Control Unit (CU) and VVPAT of 31st March demonstration, oral examination of the officials present during the demonstration, data retrieved from the CU have conclusively established that during the demonstration, 4 buttons of BU were pressed in the following order:

Button No.	Symbol	Name of Candidate
03	Handpump	Raju Pal
04	Lotus	SatyaDev Pachori
03	Handpump	Raju Pal
01	Hand	Ambuj Shukla

Therefore it is clear that on pressing of various buttons on EVMS during the demonstration, corresponding symbols were displayed.

3. The team in its report concluded that it is completely false to say that at multiple times slips of lotus were printed on pressing different buttons during the demonstration on 31st March as alleged.

4. The lapse related to non-deletion of the pre-loaded data of Govind Nagar AC of Kanpur Nagar from where VVPATs (not EVMs) were received and reloading with the symbols/data of dummy candidate before demonstration as per the laid down protocol of the Commission necessitate appropriate action by the Commission.

The conclusion of the enquiry committee on the allegations are as follows:

1. The EVMs used in the demo in Bhind was not brought from UP. However, the VVPAT used in the demonstration was brought from UP. Since the VVPATs are limited in number and had been used by all the poll going states during the last 5 states elections, the distribution of VVPATs for 10 states bye-elections was made by the Commission by allocating VVPATs from different poll-gone states to different poll-going states. In this case, the VVPAT was allocated from UP and brought from Govind Nagar AC of Kanpur Nagar,UP.

2. Bringing the VVPAT from UP is not in violation of law. As per the law, only the EVMs used in the Poll and the VVPAT slips contained in the box are required to be preserved for the period of 45 days in a secured manner for the purpose of Election Petition, if any. There is no bar on the movement of VVPATs machines as the same are not required to be preserved for Election Petitions **as the paper slips printed through the VVPAT and contained in the Box are required to be preserved separately.** In this case, however, further precaution was taken to move only the reserve VVPATs used as substitutes during poll on which no restriction applies.

The Committee has recommended that the enquiry conclusively establishes that

1. The accuracy of the functioning of the EVMs and VVPATs including the said EVM/VVPAT is beyond doubt.
2. Commission may like to fix responsibility on DEO and RO for the lapses brought out in the enquiry reports.
3. Commission may like to prescribe check list for handling each activity relating to EVM/VVPAT which should be mandatorily adhered to by the electoral authorities and the same should be monitored through MIS online by the Commission. The existing instructions issued from time to time may be compiled in the form of these checklists. The said revised checklists laid down by the Election Commission of India regarding handling of various activities on EVMs/VVPATs, must be rigorously followed by the entire electoral machinery from the level of Presiding Officer to the CEO.
4. Commission may like to reiterate that there should be no room for casualness in handling the electoral matters, least of all, such unwarranted remarks, as the sanctity of electoral process forms the foundation of India's democracy.

-----SD-----
(Dhirendra Ojha)
Director

ANNEXURE - 3

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi-110001

ECI/PN/35/2017

PRESS-NOTE

Dated 11th April, 2017

Sub: Clarification on Dholpur bye poll.

A section of media has reported that 18 EVMs malfunctioned during Dholpur, Rajasthan bye-poll held on 9th April 2017. The reports also say that the votes given to one party were going to another party.

In this connection the report has been sought from Chief Electoral Officer of Rajasthan and CEO has confirmed that only 2 EVMs out of 231 deployed have been changed due to some snag during the poll process, which is less than 0.1 percent.

The Chief Electoral Officer has also informed that no complaint of mismatch in the voting has been reported from anywhere by any voter or candidate/political party during the entire polling period.

It is also clarified that the ECI does not have constitutional mandate to conduct rural and urban local bodies' elections.

In the light of above, the reports appeared in a section of media have been found to be incorrect and baseless.

-----SD-----

(Dhirendra Ojha)

Director

ANNEXURE - 4

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi

PRESS NOTE

No.ECI/PN/39/2017

Dated: 12th May, 2017

Subject: Meeting of all Political Parties on issues related to EVM/VVPAT and other Electoral reforms

The Election Commission held a meeting with all recognised National and State Political parties today at Constitution Club, New Delhi to discuss the following issues:

- (i) EVMs and VVPATs.
- (ii) Making Bribery in Elections a Cognizable Offence.
- (iii) Disqualification on Framing of Charges for the Offence of Bribery in Elections
- (iv) Suggestions on VVPAT Recount Rules.

07 National Parties and 35 State Parties attended the meeting.



In his inaugural address, Chief Election Commissioner Dr. Nasim Zaidi, underlined the contribution of all political parties and stated that systemic improvements and progressive measures aimed at improving the electoral processes and systems have been evolved by the Commission in cooperation with all political parties.

CEC referred the queries raised by some political parties about the incidents of alleged EVM manipulation at Bhind and Dholpur during the recently concluded Bye-elections, and reiterated that baseless perceptions were generated about these incidents and there was no case of biased vote results.

Commission highlighted the wide range of technical, administrative protocol and procedural safeguards that fortify the EVMs and VVPATs against any sort of manipulation or tampering. He said that Commission is open to hear suggestions on how to further improve integrity and credibility of EVMs.

CEC also informed the political representatives that the Commission will hold a challenge and offer opportunity to political parties to demonstrate that EVMs used in the recently concluded Assemblies elections were tampered OR that EVMs can be tampered even under the laid down Technical & Administrative Safeguards.

CEC stated that the Commission will ensure 100% coverage of VVPATs in all future election to the Parliament and State Assembly Elections. That VVPATs slips of a percentage of EVMs to be determined by ECI will be counted. ECI will soon evolve a framework in this regard. To make the election process more transparent, the Commission has made proposal for electoral reforms on misuse of money power and bribery during elections. The Commission has also made proposal for amendments in the Income Tax Act and in the RP Act, 1951, for enhancing transparency in the funding of political parties.

Dr. Nasim Zaidi urged the political parties to ensure their continuous and qualitative participation at all crucial preparatory steps for elections like FLC, Randomization of EVM/VVPAT/Polling personnel, EVM Preparation/candidate setting, Mock Poll, EVM Sealing etc. CEC also stressed that continuous involvement is the shared responsibility of all the stakeholders including the political parties.

CEC conveyed neutral stand and equidistance of ECI from all political parties as it has no favourite which has enhanced India's reputation in the eyes of Global Community.

A detailed presentation on EVM was presented by Shri. Sudeep Jain, Director General of ECI explaining therein its secured design feature, development process, stakeholders' participation at various levels, and administrative processes making the EVMs secure.



Representatives of the political parties presented their views & suggestions on each of the agenda items.

Commission assured the political parties that their concerns & apprehensions regarding EVMs have been taken note of and would be duly considered & addressed through forthcoming challenge and further necessary actions. In respect of other Electoral Reforms, their views/suggestions would be examined and further action would be initiated appropriately.

-sd/-
(Dhirendra Ojha)
Director

ANNEXURE-5

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi-110001

No. ECI/PN/42/2017

Dated: 20th May 2017

PRESS NOTE

Sub: EVM Challenge by Election Commission of India

1. The Election Commission of India is globally acknowledged as a “Gold Standard” in conduct of free and fair elections with integrity in India. It has set ever-higher standards of efficient, smooth and professional conduct of Elections and has been at the forefront of embracing, adopting and implementing the latest technological advancements in improving and fine-tuning the election processes and systems.

2. The Commission has taken the pioneering initiative of introducing Electronic Voting Machine (EVM) for recording, storing and counting of votes across the length and breadth of this country in a transparent, credible and secure manner, duly backed by appropriate legal support.

3. Over the last twenty years, the Commission has successfully conducted 107 State Legislative Assembly elections and 03 Lok Sabha elections using EVMs. Since September 2013, Voter Verifiable Paper Audit Trail (VVPAT) machines have also been used in various State Assembly and Parliamentary constituencies for enhanced transparency and credibility in the voting process.

4. The introduction of EVMs in 90's was a positive electoral reform by the Commission. Some doubts have been raised on the functioning of the EVMs from time to time and from some quarters.

5. After the announcement of the results of the five State Assembly Elections (UP, Uttarakhand, Punjab, Goa and Manipur), in March 2017, again certain doubts have

been raised on the functioning of EVMs. Some complaints and suggestions were received by Commission after declaration of results of five State Assembly elections. The Commission duly examined these complaints and asked for evidence and credible material information supporting the claims, but so far no evidence has been provided by complainants to ECI.

6. A group of thirteen political parties met the Commission on 10th April, 2017 and expressed certain reservations about the use of EVMs. Some political parties also raised queries about incidents relating to VVPATs used on 31/3/17 during demonstration (NOT in actual poll) at Bhind (M.P) and Dholpur (Rajasthan) Bye-elections held in the first week of April, 2017.

7. To understand the concerns of political parties, Commission convened an all party meeting on 12th May. A press statement was also issued by ECI the same day to the following effects.

(i) The Commission stated before political parties that all future elections will be mandatorily held with VVPATs. The Commission firmly believes that use of VVPAT machines along with the EVMs in all polling stations, in all future elections, will bring utmost transparency and credibility in the EVM-based voting system. This will enable each voter to see for himself in VVPAT whether his or her vote has gone to the right candidate. After press of button on BU, name and symbol the concerned candidate will appear on the screen of VVPAT machine and paper slip bearing name and symbol will be dropped in a sealed box connected with VVPAT. These slips will serve as audit trail of the vote cast by voter on EVM. Audit trail will enhance confidence and trust of voters. Use of VVPATs with EVMs must conclusively put to rest all misinformed doubts and misgivings regarding EVMs. It will also be a matter of pride that India will become the first country to deploy 100% VVPATs or paper trail in the world, an element that was missing in many countries including Netherland, Germany and Ireland. Funds for procuring the required VVPATs for 100% deployment have already been sanctioned and production is to begin in August, 2017 and will be completed by September, 2018.

(ii) It was also stated that the Commission has also taken into account suggestions made by various political parties regarding counting of VVPAT slips. The Commission

will count VVPAT slips up to a definite percentage, which will be determined by the Commission. The ECI will shortly evolve an appropriate framework in this regard.

(iii) The Commission will hold a challenge and offer opportunity to political parties to demonstrate that EVMs used in the recently concluded Assembly elections were tampered or that EVMs can be tampered even under the laid down technical and administrative safeguards of ECI.

(iv) Commission also urged all parties to ensure their continuous and qualitative participation in all crucial steps during elections such as First Level Checking (FLC), randomisation of EVMs/VVPATs/polling personnel, EVM preparation and candidate setting, mock poll, EVM sealing and storage. The Commission also invited more suggestions from political parties on how to further increase their participation, so that absolute transparency is maintained at all times.

(v) Commission, further, urged political parties that improving integrity of election process is a shared responsibility of all the stake holders. We solicited their suggestions to fill up gaps, if any, during election and non election period. The Commission made it clear that ECI want total transparency and have nothing to hide from people and other stakeholders. Commission will always receive suggestions from its stakeholders for improvement of its processes.

(vi) The Commission also emphasised that Commission is committed and it maintains equidistance from all parties and groups. The Commission further emphasised that ECI has no favourites. Further, this equidistance by ECI has enhanced India's reputation in the eyes of the global community.

8. The Commission has already issued detailed Press releases on Credibility of Electronic Voting Machines on 16th March, 2017, on alleged VVPAT incident during mock EVM demonstration on 31st March 2017 (and not in actual poll as alleged) at Bhind (Madhya Pradesh) on 07th April, 2017 and also regarding EVMs in Dholpur (Rajasthan) on 11th April, 2017. In Bhind, a wrong notion was created that for any key pressed on the Ballot Unit, only one symbol was printed by VVPAT. Commission's

thorough enquiry clearly established that during the EVM demo held on 31.03.2017 in DEOs office the 4 buttons were pressed during the demo and not the actual poll and every time the correct corresponding symbol was printed. A Status Paper on EVMs has also been circulated to all stakeholders on 12th May, 2017 elaborating various aspects about EVMs and VVPATs for information and awareness. (All these documents are available on ECI website).

9. Certain complaints of alleged tampering of EVMs during the recently held Municipal elections in Maharashtra and elsewhere also generated wrong perception about EVMs of ECI. It was noted that confusion exists in the minds of many about the jurisdiction of ECI. We would like to clarify once again on this occasion that ECI is not responsible for the conduct of local body elections by the State Govts in the country and consequently about various protocols and procedures adopted by the concerned State Election Commissions. Election to local bodies, both urban and rural, are conducted by separate constitutional authorities State Election Commissions constituted by the State Govts. Under Article 243 of the Constitution. Moreover, a particular complaint of some candidate receiving zero vote in Mumbai Municipal elections has been found to be totally false by SEC Maharashtra.

10. The Commission is confident and has firm conviction about the integrity, non-tamperability and credibility of the EVMs. The basis of confidence of the Commission flows from a wide range of technical and administrative protocols and procedural safeguards that protects our EVMs and VVPATs against any sort of tampering during manufacture, transportation, storage, polling and counting process. Still, the Commission is open to receiving from all stakeholders' suggestions on how to further improve the integrity and credibility of our EVMs and VVPATs. The Commission will not allow even a shade of doubt about EVM operations.

11. The Commission would like to address some of the important issues that have been raised from time to time in past two months:

A. ECI- EVMs are not hackable as these, are stand alone machines and not connected to the internet and /or any other network at any point of time during polling. Hence, there is no chance of hacking. The ECI-EVMs do not have any frequency

receiver or data decoder for wireless and hence cannot receive any coded signal by wireless. Hence, no tampering can be carried out through external hardware **Wireless, Wi-Fi or Bluetooth device**. Moreover, machines are always in the custody of ECI and its election authorities.

B. Manipulation at manufacturing stage is ruled out as there is very stringent security protocol regarding the security of software. Further, the Machines have been manufactured in different years starting from 1989. After manufacturing, EVMs are sent by ECI to State and district within a State. The manufacturers are in no position to know several years ahead which candidate will be contesting from a particular constituency and what will be the sequence of the candidates on the BU and, therefore, cannot manipulate EVMs in a predetermined manner at manufacturing stage.

C. Results cannot be altered by activating a Trojan Horse through a sequence of key presses because

1. Trojan Horse cannot be inserted into the software code of ECI EVM burnt into the Microcontroller Chip since the chip is one time Programmable only.
2. The stringent security measures by ECI make it impossible to access the EVMs which is an essential prerequisite for attempting to change the Micro-controller for inserting a Trojan Horse.
3. Control Unit activates Ballot Unit for only one key press at a time. Any additional key pressed on the Ballot Unit is not sensed by the Control Unit making it impossible to send signals by pressing a sequence of keys or secret codes. Once a ballot key is pressed in CU, the CU enables BU for registering the vote and waits for the key pressing in the BU. During this period, all keys in the CU become inactive till the entire sequence of casting of that vote is complete. Once any of the keys (candidates vote button) is pressed by a voter in BU, the BU transmits the key information to CU in dynamically encrypted form. The CU gets the data and acknowledges it by glowing the corresponding red LED lamps in BU. After the enabling of ballot in CU, only the 'first key press' is sensed and accepted by CU.

After this, even if a voter keeps on pressing the other buttons, that is of no use as there will not be any communication between CU and BU of those subsequent key presses, nor will BU register any key press. To put it in other words, there can be only one valid key press (the first key press) for every ballot enabled using CU. Once a valid key press (voting process) is complete, until another ballot enabling key press is made there will not be any activity between the CU and the BU. Hence, sending of any malicious signal, by way of so called 'sequenced key presses', is impossible in the Electronic Voting Machines being used in the country.

D. ECI-EVMs cannot be Physically Tampered with nor their components be changed without anyone noticing. It is clarified that replacement of micro controller/chip and the motherboard in earlier generations of machines like **M1** and **M2** is ruled out due to robust administrative and technical safeguards. Further, the new **M3** EVM produced after 2013 have additional features like **Tamper Detection** and **Self Diagnostics**. The tamper detection feature makes an EVM inoperative the moment anyone tries to open the machine. The **Self diagnostic** feature checks the EVM fully every time it is switched on. Any change in its hardware or software will be detected. Rs. 1900 Crore have already been sanctioned to the manufacturers for production of 13.95 Lakh BU and 9.30 Lakh CU of M3 generation. Also, 16.15 Lakh VVPATs are also under production and Rs. 3173 Crore have been sanctioned for the same.

E. The latest technological features make ECI-EVMs tamper proof. The ECI-EVMs use some of the most sophisticated technological features like one time programmable (OTP) microcontrollers, dynamic coding of key codes, date and time stamping of each and every key press, advanced encryption technology and EVM-tracking software to handle EVM logistics, among others to make the machine 100% tamper proof.

In addition to these, new model M3 EVMs also have tamper detection and self-diagnostics as added features. OTP software implies that the programme in the EVM cannot be altered, re-written or re-read by anyone under safe custody of ECI. This makes EVM tamper proof. If anyone makes an unauthorized attempt, the machine will become in-operative.

F. Contrary to misinformation spread and alleged by some, ECI does not use any EVMs produced abroad. EVMs are produced indigenously by two PSU manufacturers viz. Bharat Electronics Ltd., Bengaluru and Electronics Corporation of India Ltd., Hyderabad. The Software Program Code is written in-house by these two companies and not outsourced and approved by TEC of ECI and subjected to strict security procedures at factory level to maintain the highest levels of integrity.

The software programme is converted into **machine code** by manufacturers and only then given to the chip manufacturer abroad. (We don't have the adequate capability of producing semi-conductor microchips within the country). Every microchip has an identification number embedded into memory and the producers have their digital signatures on them. So, the question of their replacement does not arise at all because microchips brought back to manufacturers are subjected to functional tests with regard to the software. Any attempt to replace microchip is detectable and can make EVM in-operative. Thus, both changing existing program and introducing new one are detectable making EVM in-operative because EVMs are tamper detect. Also the technological advancement now permits fusing of the software on the chip at BEL and ECIL itself and hence, in M3 the software is fused on the chip inside BEL and ECIL.

G. There are no possibilities of manipulation in EVM during transportation or at the place of storage. At the district headquarters, EVMs are kept in a **double-lock system under appropriate security. Their safety is periodically checked.** The election authorities do not open the strong room, and they only regularly check whether it's fully protected and whether the lock is in proper condition or not. **No Unauthorized person can get access to the EVMs at any point of time.** During the nonelection period, annual physical verification of all EVMs is done by DEOs and report sent to ECI. Further, strong rooms are always opened in the presence of representative of political parties.

H. There are different levels of checks and balances ensuring tamper proofing of ECI-EVMs which are as follows:

- **First Level Checking:** Authorized BEL/ECIL engineers certify originality of components after technical and physical examination of each EVM, which is

undertaken in the presence of representatives of political parties. Defective EVMs are sent back to the factory. The FLC Hall is sanitized, entry is restricted and no camera, mobile phone or spy pen is allowed inside. The Mock Poll is conducted on EACH EVM by election officials in the presence of representatives of political parties. The Mock poll of at least 1000 votes is conducted on 5% EVMs selected randomly by representatives of political parties and the result shown to them. The entire process is video graphed.

- **Candidate Setting:** Yet another significant safeguard is the process of candidate setting, which is done after the finalization of contesting candidates. A ballot paper is inserted in the Ballot Unit, which is then sealed with Pink Paper Seal. BU is sealed at this stage. Where VVPATs are used, candidates' symbols are loaded in each VVPAT at this stage. Once again, every EVM is subjected to mock poll and 5% EVMs are randomly picked up for 1000 mock poll.

- **Randomization:** EVMs are randomized twice while being allocated to an Assembly and then to a polling booth ruling out any fixed allocation. As you can appreciate, till first randomization no-one knows the sequence of names on the ballot paper till the finalization of list of contesting candidates, the names of contesting candidates are placed alphabetically on the ballot paper first for National and State Parties, followed by other Registered Parties, followed by independents and NOTA. Thus the Serial no. of any political party, candidate on the BU would be variable from constituency to constituency. It is therefore clear that serial no. of any political party candidate is not fixed or pre-determined in all the constituencies of the state. Hence, till candidate setting, none, not even RO or DEO or CEO or the Commission could know which button on which BU will be assigned to which candidate.

- Mock Poll of at least 50 votes at the polling station is also conducted in front of polling agents of candidates on the poll day, before poll begins.

- After Poll, EVMs are sealed and polling agents put their signature on the seal. Polling agents can travel up to strong room during transportation of polled EVMs from the polling station to the EVM Strong room.

- **Strong Rooms:** Candidates or their representatives can put their own seals on the strong rooms, where polled EVMs are stored after the poll and also camp in front of

the strong room. These strong rooms are guarded 24x7 in multilayers, with CCTV facilities.

- **Counting Centres:** The polled EVMs are brought to the Counting Centres under security and in presence of candidates and Unique IDs of the seals, signature of polling agents on CU are shown to representatives of candidates before the start of counting. 12. Looking at the above series of fool-proof checks and balances that are undertaken by the ECI to make EVMs tamper proof, it is evident that neither the machines can be tampered-with nor they can leave the ECI-EVM system. Further, neither defective machines nor Non-ECI-EVM can get reinducted/ inducted into the polling process at any point of time. Non ECIEVMs will get detected by the above process due to mismatch of BU & CU.

13. Some people argue that why have Developed Nations like the US and the European Union not adopted EVMs and some have even discontinued?

ECI EVMs are far superior to any EVMs worldwide. EVM, used in the Netherlands, Ireland and Germany were privately manufactured and had no independent certification system unlike a very robust verification and certification system through independent TEC or an ECI approved third party in case of ECI EVMs. Also, voting data in these NEDAP EVMs in the Netherlands was transferred using CDs, unlike our EVMs where it is stored internally and never transferred. Also these countries lacked full end to end administrative and security safeguards as well as legal framework. Finally their EVMs also lacked auditability.

A point is raised from time to time that several foreign countries have discontinued the use of voting machines and why India is using EVMs. With the rapid advances in technology over the years, Election Management Bodies, professionals, experts, and activists (particularly Green Activists) have mooted the idea of using paperless electronic voting methods in different parts of the world in order to overcome the disadvantages of manual marking of paper ballots. The marriage between technology and election management goes back to at least 1892, when the first 'lever voting machine' was used in New York, after using the paper ballot for a long time. In the 1960s, punch-card machines were introduced in the USA, and the first EVM was introduced there in 1975. Electronic Voting has moved quite ahead since then.

Types of Electronic Voting:

The process of electronic voting can be of three types:

- (i) Direct Recording Machines placed at designated polling station,
- (ii) Internet Voting
 - Remote Online Voting
 - At Designated Polling Stations
- (iii) Optical Scanners
 - Stand-alone
 - Networked for centralized counting of results

EVMs used in India fall under the first type of stand-alone direct recording machines with no possibility of any kind of network connectivity where voters cast their votes at an assigned polling station on the day of election under strict administrative security ensured by the ECI.

Even though ECI EVMs are also direct recording machines ECI EVMs are completely different from any of the EVMs used internationally either for direct recording or for internet voting or for optical scanning. This is clearly highlighted in the comparative analysis of ECI EVMs with the DRMs used in countries like Germany, Netherland, Ireland, and USA as follows:

The Netherlands

Electronic Voting was used in The Netherlands in between 1990-2007. The voting machines were manufactured by a private Dutch-company called NEDAP (Nederlandse Apparaten Fabriek NV). In 2006, the government ordered an independent testing of the voting machines. Two independent commissions, The Voting Machines Decision-making Commission and the Election Process Advisory Commission (EPAC) were also established on December 19, 2006 and January 18, 2007, respectively, to review the security and reliability features of NEDAP machines. Following the observations of the two Commissions, the use of NEDAP machines and electronic voting was discontinued in 2007 on the following grounds:

- The Ministry of Interior and Kingdom Relations (MOIKR) of The Netherlands lacked adequate technical knowledge vis-à-vis the NEDAP machines, leading officials to depend on external actors for the conduct of elections.
- Technology vendors became part of the decision making process and the ministry was not in a position to exercise effective oversight.
- The Dutch Organization for Applied Scientific Research (Toegepast Natuurwetenschappelijk Onderzoek, TNO) certified and tested these machines following “outdated standards” which were not immune to modern IT and security threats.
- Moreover, the certification and testing reports were not made public depriving independent experts to verify the analysis.
- The legal framework, particularly the necessary security requirements, was inadequate to deal with the specificities of the electronic voting process.
(For a comprehensive report on electronic voting in The Netherlands, see link: https://www.ndi.org/sites/default/files/5_Netherlands.pdf)

Germany:

In Germany, the e-voting machines manufactured by NEDAP were used in between 2005 – 2009 before it came under criticism and finally discontinued. The Bundesverfassungsgericht (the Federal Constitutional Court of Germany) ordered the discontinuation of the use of NEDAP machines in 2009 because of the below-mentioned reasons:

- The use of Nedap electronic voting machines violated the principle of the public nature of elections (Article 38 in conjunction with Article 20.1 and 20.2 of the Basic Law) that requires that all essential steps in the elections are subject to public examinability unless other constitutional interests justify an exception.
- It also observed that “it must be possible for the citizen to check the essential steps in the election act and in the ascertainment of the results reliably and without special expert knowledge”.

(See the judgment in the following link: http://www.bundesverfassungsgericht.de/SharedDocs/Entscheidungen/EN/2009/03/cs20090303_2bvc000307en.html;jsessionid=FEA71E86E2CEE030FF7AAA_C905_72279C.2_cid383)

Ireland:

NEDAP machines were used in Ireland in between 2002 – 2004. The use of these machines was questioned following which two independent commissions were set up. The two Commissions on the Secrecy, Accuracy and Testing of the Chosen Electronic Voting System, concluded the NEDAP machines could not be used in elections in Ireland on the following grounds:

- Inadequate technological safeguards
- Insecure transfer of data by the use of CDs
- Absence of a comprehensive independent end-to-end testing, verification and certification by a single accredited body
- Inconsistencies in physical security of machines across constituencies
- Absence of a clear policy guideline via-a-vis storage, transport, set-up, use and disposal of voting equipment; and
- Absence of comprehensive electronic register to record the identity, location and movement of the electronic voting devices.

(See links: <http://www.unic.pt/images/stories/publicacoes1/00Index.pdf>;
<http://www.unic.pt/images/stories/publicacoes1/Part%200%20Index.pdf>)

United States of America:

In 2000, after the dispute on the voting method in the USA presidential elections, the voting method was reviewed (Esteve, Goldsmith, & Turner, 2012: 185). Accordingly, Direct Recording Electronic (DRE) Systems (like the widely used AccuVote TS developed by Premier Election Solutions, commonly called Diebold) were introduced. DRE Systems uses “one of three basic interfaces (pushbutton, touchscreen or dial)” through which “voters record their votes directly into computer memory. The voter’s choices are stored in DREs via a memory cartridge, diskette or smart card...Some DREs can be equipped with Voter Verified Paper Audit Trail (VVPAT) printers...” Currently, in the USA, the Direct Recording Machines are used in 27 states, among which paper

audit trails are used in 15 states. The other voting methods include: Optical Scan Paper Ballot Systems, Ballot Marking Devices, and the Punch Card Ballot.

(See link: <https://www.verifiedvoting.org/resources/voting-equipment/>)

Other countries:

In Brazil, the machines used in elections are called 'electronic ballot boxes' which are stand-alone direct electronic recording systems. In Venezuela, SATIS (Smartmatic Auditable Election Systems) voting machines are used which were fully implemented across the nation in 2004. (Esteve, Goldsmith, & Turner, 2012: 185)

India:

Indian EVMs are truly unique compared to the e-voting machines used in other parts of the world for the following reasons:

- ECI-EVMs are stand-alone non-networked machines
- The ECI-EVMs are manufactured in two PSUs namely ECIL and BEL, unlike machines used in other countries, which were manufactured entirely by private entities. Hence there is no chance of involvement of vested interest of private players or technology vendors in decision making or production of the ECI-EVMs.
- ECI-EVMs have been time and again successfully verified and certified by an independent Technical Experts Committee after an end-to-end testing process. STQC under Ministry of Information and Technology, an accredited third party entity, conducts standardization and certification of ECI EVMs produced by manufacturers, unlike the machines used in Netherlands,
- In ECI EVMs data is stored internally and not transferrable by any device, unlike other countries where voting data recorded in the DRM is transferred by means of CD, etc.
- Commission has evolved full end to end security protocol and administrative safeguards for the use, storage, transportation and tracking of ECI EVMs, unlike in other countries where NEDAP machines were used.

- Unlike MOIKR of Netherlands, the Commission is fully backed by a Technical Expert Committee comprising of eminent professors.
- Every EVM has a unique number attached to it, which is recorded in the Election Commission's database through EVM Tracking Software. This number of the EVM can always be cross-checked against the database.
- The software used in these EVMs is One Time Programmable (OTP), which can't be re-written after manufacture.
- The ECI-EVMs are always under strict, uniform, high profile administrative and physical security as per legal framework across the country.
- Section 61 A of the Representation of the Peoples Act 1951 allows the use of EVMs by ECI. The different High Courts across the country have also upheld the use of EVMs time and again in various judgments and the Karnataka High Court in 2004 declared ECI-EVMs as "national pride" because of its transparency and robustness.
- Following the direction of the Hon'ble Supreme Court, the ECI has introduced the technology of VVPAT in order to ensure public verifiability. The Commission is committed to implement VVPATs nation-wide by 2019. Thus there will be 100% voter verifiability and auditability of every vote cast as opposed to lack of such facility in the NEDAP machines, which was struck down by the German Supreme Court as un-Constitutional, whereas Indian Supreme Court has upheld the validity of use of EVM for conducting elections in the country.
- Thus any comparison of ECI-EVMs with machines used elsewhere is misplaced. The Commission has always worked in an open and transparent manner and always welcome questions, doubts and constructive and decent criticism of our processes so that we can further strengthen electoral processes. During political party meeting on 12 May 2017, Commission had promised to organise an open challenge to give an opportunity to political parties to demonstrate that EVMs used in five States were tampered or EVMs even under technical and administrative safeguards can

be tampered. Accordingly, ECI now proposed to open a challenge on 3rd June 2017 onwards to all political parties.

Frame-work of the challenge:

Election Commission of India invites the nominees of National and State Recognized political parties who contested and claimed that the EVM machines held under the ownership of Election Commission of India and used in the recently held General Assembly Elections of five states namely Punjab, Goa, Manipur, Uttarakhand and Uttar Pradesh in Feb-Mar 2017 were tampered or that these could be tampered even under technical and administrative safeguards of ECI, to demonstrate their claims at the ECI Headquarters within the framework of the extant administrative and security protocols prescribed by the Commission.

Salient features of the EVM Challenge of the Commission are as follows:

Challenge Statement I:

That the EVMs used in the General Elections to five States-2017 were tampered to favour a particular candidate/political party by altering the results stored in the EVMs after the polls. The claimants will hence have to alter the results in the Control Units used during these polls in exactly the same scenario as the EVMs remain within the technical and administrative safeguards of ECI after the poll, i.e. during the storage in strong rooms or during counting, through

- a. using press of combination of keys on CU or BU or BOTH, or
- b. By communication to CU or BU or Both via external wireless/Bluetooth/mobile phone etc.

Challenge Statement II

That the EVMs used in the General Elections to the five States-2017 were tampered before or during the poll day. The claimants will hence have to alter the results in the EVMs used during these polls in exactly the same scenario as the EVMs remain within the technical and administrative safeguards of ECI before the poll, i.e. during the storage in strong rooms or during the poll, through

- c. using press of combination of keys of CU or BU or Both, or
- d. by communication to CU or BU or Both via external wireless/Bluetooth/mobile phone etc.

Common Procedure for Challenge I and Challenge II

1. The EVM Challenge is open for participation from the National and State Recognized Political Parties only which participated in the five States' Assemblies Elections viz. Goa, Punjab, Manipur, Uttarakhand and Uttar Pradesh.
2. Each National and State Recognized Party intending to participate may nominate a maximum of 3 persons only to participate in the EVM Challenge. Each Party shall intimate the names of maximum **3 authorized persons**, if any, who wish to accompany the chosen EVMs from the Warehouses to the Commission at New Delhi during transportation at their own cost.
3. The Political Parties willing to participate in the EVM Challenge must mandatorily confirm their interest to ECI **by 5.00 pm on 26th May, 2017** through the email (**evmchallenge@eci.gov.in**), wherein the details of the Nominated members must be furnished as per the prescribed Performa. Only those Political Parties, which respond by **5.00 pm on 26th May, 2017** to the ECI, shall be allowed to participate in the EVM Challenge. The response of the political parties shall mandatorily be made on the official letter-head of the party duly signed by the President or General Secretary of the political party concerned, which shall be scanned and emailed to the email id mentioned above.
4. Further, if the Nominees of any Political Party, to whom a Challenge date-time Slot has been allotted, fail to report at the designated time and venue without prior intimation or approval, shall forfeit their right to participation in the EVM Challenge.
5. Each Political Party will be allowed to choose a maximum of 4 EVMs of their choice from any 4 polling stations out of the Five poll-gone States. Examples; Maximum of 4 EVMs only from 4 polling stations can be chosen, either from one AC or from multiple ACs in a State or from any of the five States. It is clarified that any EVMs involved in EP (Election Petition) or those under any sealing by the orders of a competent Court, shall not be part of this EVM Challenge. If a Political Party does not wish to specify a particular EVM but wants ECI to provide any EVM of Commission's choice, then the same should be intimated by **26th May, 2017**.

6. The choice of the EVMs shall be emailed (evmchallenge@eci.gov.in) in the prescribed proforma by **5.00 pm on 26th May, 2017**.

7. The chosen EVM machines, including Control Units (CU), Ballot Units (BU) (one or more as deployed) and VVPAT (wherever deployed) shall be brought to the ECI at New Delhi, on as-is-where basis, in compliance of the extent of established protocol of ECI regarding opening of EVM strong-rooms/warehouse and EVM transportation.

8. The representatives of the Political Parties at State Level are at liberty to witness the opening of EVM Strong-rooms at the District/AC level where the EVMs are presently stored, inspect the machines for the various seals (as in protocol) and accompany the machines during their transportation to ECI in sealed trunks, if they so desire.

9. As these EVMs were used in the recently held elections and were stored post counting, the EVMs would still have the candidate setting and the result of the said election.

10. The results of the machines as recorded during the counting in the previous elections shall be available in paper form also, having details like total votes polled and votes casted for each candidates etc.

11. A Challenge Slot of 4 Hours shall be allotted to each participating Political Party, wherein their registered nominees shall be given access to one of their chosen EVMs (CU+BU + VVPAT if deployed) for the purpose of PROVING the Challenge Statement 1 and 2. In case the first chosen EVM is in-operative as a result of transportation, then the second of the chosen EVM shall be allowed to be used for the challenge and so on. However, if a Political Party desires to avail of more time, the request shall be made in writing to the Commission, which shall decide the issue on merits and demands of reasonability.

12. The nominees may before proceeding for challenge if they want, check the result of previous election already stored in CU and verify that these are same as given by ECI in item 10 above as per ECI protocol of declaring results from CU. This step is

optional and will be recorded if they opt for it in writing. The result of re-count also will be recorded.

13. The Nominees of the participating Political Parties shall be allowed the following methods on the Challenge EVMs to prove the challenge:

- a. Pressing any sequence of buttons on the CU or BU or Both.
- b. The use of any external wireless/Bluetooth/Mobile Phone device/Transmitter.

14. All Key Presses made by the Challenger shall be declared prior to the actual execution of key presses and these will manually be recorded by the ECI Counter Staff for keeping a “written record of exact process of conduct” of the “challenge proving” poll. In case the challenger wishes to use mobile or blue tooth during poll, he should inform the Election officials and this should also be recorded. This is especially relevant, in case the Challenger wishes to conduct any mock poll or full poll by either use of key presses or mobile phone / blue-tooth during his tamper attempt to prove the Challenge Statements.

15. All Key Presses shall be made in clear and unhindered view of the ECI Counter Staff and the recording Cameras and made with a Specially Designed Presser, so as to avoid any confusion or ambiguity in the key presses made by the Challenger using his fingers.

16. EVMs can be opened and only visually inspected during Challenge-II as this is allowed during First Level Check (FLC). However, EVMs cannot be opened during Challenge- I as EVMs are always kept sealed after the Poll till counting in actual poll scenario.

17. During the Challenge period, with regard to any written representation or any dispute or interpretation issues, the decision of the ECI Officer In-charge shall be final.

18. The EVM challenge shall be organised from **03.06.2017 onwards** at Nirvachan Sadan, Ashoka Road, New Delhi.

Challenge Conclusion:

1. The Challenger under Challenge I shall be deemed to have “FAILED” if:
 - a. The EVM becomes non-functional after the tamper attempt made by the Challenger. (Reason: ECI EVMs are designed to go into error mode if any unwarranted technical operations are conducted rather than recording any wrong results).
 - b. The EVM is functional and results displayed on the CU after conduct of challenge attempt are the same as ECI declared results stored on the chosen CU (prior to the pressing of CLEAR Button).
 - c. If the Challenger violates any of the guidelines prescribed for the EVM Challenge.
 - d. The challenger withdraws from current challenge.
2. The Challenger under Challenge II shall be deemed to have “FAILED” if:
 - a. The EVM becomes non-functional after the tamper attempt made by the Challenger. (Reason: ECI EVMs are designed to go into error mode if any unwarranted technical operations are conducted rather than recording any wrong results).
 - b. The EVM remains functional and after erasing the earlier stored result, a mock poll or full poll is conducted by the Challenger along with his challenge attempt and manually recorded votes(by ECI staff) are the same as that stored on the chosen CU after the said mock/full poll.
 - c. If the Challenger violates any of the guidelines prescribed for the EVM Challenge.
 - d. The challenger withdraws from current challenge.
10. Certain naysayers have demanded that ECI should either permit them to take the EVMs with them for tampering or allow changing of internal circuit etc. of the EVM. This is like saying that they should be permitted to manufacture a new machine and introduce their new EVMs in our system. Further, it is common knowledge that **changing the ‘ internal circuit’ of any electronic device is like changing the**

whole device itself, after which it is no longer the same device. As any person with common sense will be able to appreciate, a non-ECI EVM or an EVM with a different 'internal circuit' is simply a **different machine** or look alike of ECI EVM hence can never be guaranteed by ECI to give correct results. Such a scenario is completely ruled out within our administrative safeguards and that's why it is not proposed in the Challenge.

11. The Commission is thankful to all the citizens, voters, political parties and all stakeholders for their unwavering faith in the Commission for more than 67 years. The Commission would further like to thank all political parties for showing their continuous trust and confidence in the Election Commission of India as expressed during interventions of political parties on 12th May in the All Party Meeting. The Commission would like to reassure the people of the country that the Commission would leave no stone unturned in preserving the purity, integrity and credibility of the Elections and reinforcing the faith and trust of the people in the electoral democracy of our country. I wish to reassure that citizens of the country that the Commission will never ever allow the faith of the people in the integrity of the election process to be shaken. The Commission desire all citizens and stakeholders to remain aware ,vigilant and alert about our electoral processes so that conduct of free and fair election by Commission is further strengthened.

(Dhirendra Ojha)
Director

ANNEXURE-6

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No. ECI/PN/47/2017

Dated: 3rd June, 2017

Press Note

Subject- EVM Challenge concludes.

At the outset ECI thanks all the stakeholders for reaffirming their faith and confidence in the EVMs whether by participation or otherwise in the whole exercise of EVM Challenge. The Election Commission of India had, in an extraordinary measure, invited all national and state recognized political parties to come and participate in the EVM challenge announced by it on 20th May, 2017 as per the framework of the challenge. Only two political parties namely, NCP and CPI(M) submitted their interest in participating the EVM challenge till 5.00 PM on 26th May, 2017. Since none of the two political parties specified their choices for EVMs to be chosen from five poll gone states, the Commission brought 14 EVMs randomly in sealed condition kept in strong rooms from 12 Assembly Constituencies of Punjab, Uttarakhand and Uttar Pradesh for the EVM challenge scheduled for 3rd June, 2017.

Earlier, Commission had a meeting with all National and State Political Parties on 12 May 2017 in which 42 parties participated. While majority expressed full confidence on the integrity of EVMs, a few continued to raise doubts on functioning of the ECI-EVM.

Commission held a press conference on 20 May 2017 and explained in great detail why it has absolute confidence on non-tamperability of ECI-EVMs working within the technical and administrative safeguards. Commission then announced an EVM Challenge and spelt out a complete framework and send to all political parties on 20th May, 2017 alongwith invitation.

Today both the parties (NCP and CPI-M) reported to the Challenge Venue on the 7th floor. However CPI(M) told they do not wish to participate in the challenge but only want to understand the EVM process. A detailed demonstration of the entire process was given to them by our technical team. They also expressed desire to interact with the TEC and had a detailed doubt clearing session in which in depth technical doubts were clarified by TEC of the Commission. CPI(M) team then expressed complete satisfaction and suggested that to allay any such doubts Commission should hold such demonstrations and awareness sessions with technical community proactively. Commission welcomes their very constructive suggestion.

NCP team led by Mrs Vandana Chavan, MP, informed that they too do not want to participate in any challenge but were only interested to participate in an academic exercise. She referred to her earlier request to provided them the memory number and battery number of the EVM four days in advance. The Director General Mr Sudeep Jain informed her that Commission had already replied to their request mentioning that the EVMs have to be kept under sealed conditions it is not possible for the Commission to open the EVMs to take out the memory and battery numbers in the absence of party representatives in the Commission. Commission had accordingly informed that the party can access these numbers at the time of the Challenge by opening themselves the sealed EVMs which is provided as per Challenge Framework. DG again informed her that they can choose an EVM and open the same to access these memory numbers. However NCP representative submitted a letter saying they cannot participate in the challenge because of non-provision of this information. In the letter NCP representative also raised an objection of last minute change in the EVM selection protocol by asking them to select an EVM out of the list of 14 EVMs.

Commission then offered her to have all her technical doubts clarified by interacting with TEC. NCP team then had a detailed discussion with TEC which clarified all their issues, including the 8 issues listed by them in their letter submitted today to which the response would be sent separately.

NCP team again met the Commission where the Commission reiterated their offer that they can still participate in the Challenge or by way of academic exercise by

selecting the EVM and then accessing the memory and battery numbers by opening the machines themselves. Commission also offered them that they can come back, as they had demanded, to prove their point.

However NCP representative mentioned that the source of all their doubt had been alleged problems with EVMs during Municipal Elections in Maharashtra. Commission clarified that EVMs used by SEC, Maharashtra for urban local bodies elections do not belong to ECI. The NCP team then expressed their willingness to opt out requesting that Commission should evolve a system which clearly distinguishes ECI-EVMs from SEC EVMs. Commission has taken note of NCPs suggestion.

The Commission has already stated publicly and before political parties that all future elections will be mandatorily held with VVPATs. The Commission firmly believes that use of VVPAT machines along with the EVMs in all polling stations, in all future elections, will bring utmost transparency and credibility in the EVM-based voting system. Audit trail will enhance confidence and trust of voters. Use of VVPATs with EVMs must conclusively put to rest all misinformed doubts and misgivings regarding EVMs.

Honourable Uttarakhand High Court in its judgement yesterday said “*Prima facie, it is evident from a combined reading of the entire press release of ECI that this system is seal proof. The EVMs are not hackable. There cannot be any manipulation at manufacturing stage. The results cannot be altered by activating a Trojan Horse through a sequence of key presses. The ECI-EVMs cannot be physically tampered with. The EVMs use some of the microcontrollers, dynamic coding of key codes, date and time stamping of each and every key press etc. These EVMs also cannot be tampered with during the course of transportation or at the place of storage. There are checks and balances to ensure tamper-proofing of EVMs*”.

It is clarified that for visual Inspection EVMs can be opened and visually inspected during Challenge-II as this is allowed during First Level Check (FLC).

The Commission is thankful to all the citizens, voters, political parties and all stakeholders for their unwavering faith in the Commission for more than 67 years. The Commission would further like to thank all political parties for showing their continuous trust and confidence in the Election Commission of India as expressed during interventions of political parties on 12th May in the All Party Meeting. The Commission would like to reassure the people of the country that the Commission would leave no stone unturned in preserving the purity, integrity and credibility of the Elections and reinforcing the faith and trust of the people in the electoral democracy of our country. I wish to reassure that citizens of the country that the Commission will never ever allow the faith of the people in the integrity of the election process to be shaken. The Commission desire all citizens and stakeholders to remain aware, vigilant and alert about our electoral processes so that Commission can further strengthen the conduct of free and fair elections in the country.

-----Sd--
(Suman Kumar Das)
Under Secretary



Note

[illegible]









“NO VOTER TO BE LEFT BEHIND”



Election Commission of India

Nirvachan Sadan, Ashoka Road, New Delhi – 110001

Tel.: +91-11-23717391; Fax: +91-11-23713412

URL: www.eci.nic.in

ecisveep.nic.in