

Press Button Verdict!

Electronic Voting Machine (EVM) pioneered by Bharat Electronics is a practical technological solution to a recurrent problem in the country. As the largest democracy in the world and with General Elections becoming almost an annual feature, EVM seems to be an indispensable gadget.

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The whole process is over with the pressing of just three buttons. To commence polling, the polling officer activates the 'Ballot' switch on the control unit. The voter then presses the button of his choice on the ballot unit. This is followed by a short beep sound, indicating that the vote has been cast. Once again, the polling officer presses the 'Ballot' switch to clear the machine for the next voter to cast his vote.

Bharat Electronics has pioneered this unique Electronic Voting Machine (EVM), as it is called that is bound to

revolutionize the very concept of electing representatives in the what is the largest democracy in the world. An electronic marvel that retains all the characteristics of voting by ballot papers, while making polling a lot more expedient. Being fast and absolutely reliable, the EVM saves considerable time, money and manpower. And, of course, helps maintain total voting secrecy without the use of ballot papers.

The EVM has been designed to be an ideal gadget for both the voters and the electoral authorities. Undoubtedly superior to manual voting, the EVM is 100 per cent tamperproof. Most importantly no hassles of protecting the ballot boxes for weeks together and counting the cast votes for several days. All that electoral authorities have to do is just press a button and there you have the results!

The EVM is compact and comes in its reusable carry pack and operates on a battery power source, making it independent and totally reliable. It simplifies the whole electoral process while providing the technological cutting edge to the whole process. Inside the control unit, is an extremely sensitive circuitry that takes care of common election errors or malpractices like vote duplication. For instance, if one were to press two or more buttons simultaneously, then no vote would be cast. Even if there was a microsecond difference in the pressing of the switches, the EVM is sensitive enough to trace and identify the switch that was pressed first. Once polling is completed, the election results can be known instantly at the counting station by pressing the 'Result' switch located in a sealed compartment of the control unit. Each EVM comes with a sophisticated program in assembly language software fully sealed against outside influence. And the program itself is fused onto a customised microprocessor chip at the manufacturer's end. This ensures that the

The inside story

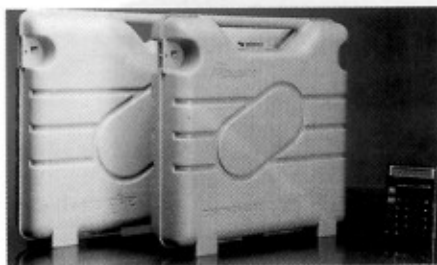
The EVM consists of two units that can be interlinked. One, a ballot unit which a voter uses to exercise his vote and the other, a control unit used by the polling official.

The Ballot Unit: An electronic ballot box

A simple voting device, it displays the list of candidates. A facility to incorporate party names and symbols is in-built. All that the voter has to do is press the desired switch located next to the name of each candidate. The main advantage here is the speed, apart from the simplicity of operation, which requires no training at all. A single ballot unit takes in the names of 16 candidates. And thus, by connecting four ballot units the EVM can accommodate a total of 64 candidates in a single election.

The Control Unit: In total control of the polling

Conduction of polling, display of total votes polled, sealing at the end of the poll and finally, declaration of results – these are the various tasks of the control unit. In total control of the polling, this electronic unit gives all necessary information at the press of a few buttons. For instance, to know the total number of votes polled at any given point of time during voting, you just have to press the 'Total' switch. Candidate-wise results can be had only at the end of polling. The EVM is also totally foolproof.



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program is rendered tamperproof and inaccessible.

The EVM is not just a very convenient machine to use; it also has an economy factor built into it. To start with, the EVM is a onetime investment. That means it can be used and re-used for many elections. Just imagine the savings: no preparation and transport of ballot boxes, no paper, no manpower for counting, or security and transport for carrying away ballot boxes. In just one quick, neat, simple and fully reliable operation, the electorate would have efficiently elected a Government! What's more, the EVM more than recovers its initial cost from the savings it brings about from just one election!

A proven winner

The first challenge the EVM faced was the 1982 state legislative elections of Kerala, where its capabilities were put into acid test. In the decade that

followed, the EVM was upgraded to meet India's national electoral requirements. Little wonder that Bharat Electronics has already won a prestigious order of 75,000 EVMs from the Election Commission of India.

Versatile

The EVM is engineered for error-free polling in more than just an ordinary election. It is ingeniously designed to accommodate simultaneous voting for federal and local bodies. The EVM, in its standard configuration of control unit and ballot units can take care of simultaneous elections. All that is needed is an Auxiliary Control Unit (ACU), an inexpensive gadget that helps make simultaneous elections very economical by avoiding duplication of processes and reduction of personnel and expenditure.

Result printout

Normally, an EVM displays results on the display panel of the control unit. But a printout option is available with the use of a Download Adaptor Unit (DAU). The DAU has to be connected to the



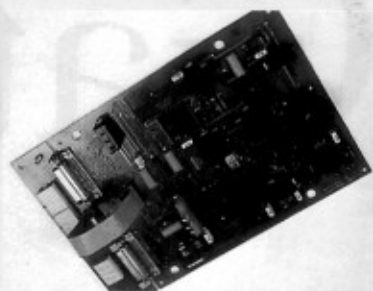
Printout option is available along with an EVM by using a Download Adaptor Unit (DAU). With the help of a modem, the DAU can also enable transmission of voting information to a distant centralized computer.

Rigorous testing

Born in an ultra-modern plant, the EVM is a product of sophisticated robotics and high technology.

The assembly PCBs that go inside the EVM are put through tough vibration tests. These checks ensure the strength and sturdiness of the PCBs and its components. Next, thermal shocks subject these boards to a temperature cycle of +70°C to 25°C to weed out defective components. Then the board, switches and all components are thoroughly checked for all parameters. There's also a special 'fault detector' software that ensures each micro component is fit enough for the task the EVM faces.

After the packaging of the board comes the simulation test. Wherein the EVM is subjected to an electronically simulated polling, complete with rough handling of the machine – a distinct polling possibility. Next, a 'burn-in' test awaits every EVM. Exposing it to temperatures of +50°C for over 8 continuous hours. This is to ensure optimum performance, even under adverse climatic conditions. Only after each EVM has passed these and many other rigid quality tests, does it qualify for the mission it was created for: accurate, fast and reliable elections.



control unit and any standard printer. Further, with the help of a modem, the DAU can also enable transmission of voting information to a distant centralized computer.

Collation of voting information

A totaliser software collates voting information from various control units used in an election. The voting information can be downloaded onto a personal computer through a serial port. The optional software automatically avoids duplication of transmission, checks for errors and prints the results in various formats, as required.

Multi-candidate elections

When more than one candidate is to be chosen in an election, the multiple choice EVM (McEVM) – an enhanced version of the standard EVM – is an ideal gadget. With the McEVM, the voter

selects his choice before pressing the 'Vote' button on the ballot unit. Only after this are his votes registered. There is also a facility for the voter to correct his choices before registering his votes.

Electronic Solution

The overwhelming benefits of the EVM cannot be ignored. Especially when you want free and unbiased exercise of franchise at a low cost, in an accurate, efficient and reliable manner. And if elections are to be conducted at the highest level in the largest democracy of the world as a regular exercise, then the electronic voting machine becomes an indispensable gadget. Sooner the EVM is brought into full fledged application in India better it is for the democracy in India. It is truly a viable electronic solution for electing a Government.