

# Indian Democracy Runs on Briefcase-Sized Voting Machines

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They're portable, economical, and helping more than 800 million Indians cast ballots in this year's election.



A polling official carries an electronic voting machine on April 9 after collecting it from a distribution center in Kerala. Sivaram V/Reuters

Holding India's titanic general election is no simple task. Voting is broken down into nine phases—the fifth and largest of which is scheduled for this Thursday—that are spread over six weeks. Over the six weeks, [an army of 11 million election officials](#) and security forces will staff and operate more than 935,000 polling stations in India's 543 electoral constituencies, where they will serve almost 815 million registered Indian voters. Central to this undertaking are India's 1.7 million electronic voting machines, or EVMs, the portable, affordable, and highly durable systems that help this massive exercise in democracy run smoothly.

Each EVM comes in two parts. The control unit remains with election officials at each polling place and connects by cable to the balloting unit. When a voter enters a polling booth, an official activates the balloting unit. The voter then presses one of up to 64 blue buttons next to each candidate's name and political-party symbol to cast his or her vote. India's Election Commission has produced a video explaining the process:

EVMs help India overcome a number of electoral challenges. The machines are compact and portable, in contrast to bulkier booth-sized voting machines in the United States and elsewhere. They are also built to withstand India's diverse and sometimes-harsh climate. Since they run on two 6-volt alkaline batteries, EVMs can be readily used in rural India, where two-thirds of the country's 1.2 billion citizens live, and other areas with limited or no electricity.

The symbol-oriented design also makes voting more widely accessible [in a country with 287 million illiterate adults](#)—nearly 37 percent of the worldwide total—and a [multilingual electorate](#) that speaks 22 officially-recognized languages and hundreds more unofficial ones. But perhaps the EVM's most impressive feature is its price tag: each unit costs [only 10,500 Indian rupees](#), or about \$175. By comparison, even older, used voting machines in the U.S. can cost [around \\$6,000](#).

After a decade of sporadic and unsanctioned use of EVMs, India [legalized the devices](#) in 1988 alongside the existing (and often-maligned) paper-ballot system. They became standard features of elections in 1998 and the sole method for casting votes in the 2004 general election, in which almost 1.1 million EVMs were deployed in polling stations across the country. The Indian government [boasts](#) that "EVM has become the leitmotif of the world's largest democratic exercise and gets smarter with each avatar." Official election materials cite the EVM's superiority over paper balloting by noting the reduction in environmental waste, the speediness of tabulating results, and the decrease in spoiled or improperly cast votes. Another strength, according to election officials, is the EVM's role in combating electoral fraud through "booth capturing"—an ugly tactic where a candidate's supporters storm a polling place, sideline legitimate voters, and cast ballots—and ballot-stuffing.



But the machines have their limitations as well. EVMs can only record a maximum of 3,840 votes each (the Election Commission says each polling place should only serve about 1,500 voters) and can only list a maximum of 64 candidates at a time to vote for. Because India's elections are staggered over a six-week period, votes are tabulated in one region and the machines are then reused in another. In March, the Election Commission [estimated](#) it would have 1.7 million ballot units and 1.8 million control units—some polling places have more than one ballot unit per control unit—for this year's election. Each Indian constituency is [required](#) to keep 10 percent more EVMs than necessary for emergency situations.

Like all electronic voting systems, EVMs also invite concerns about outside tampering. Since implementing the devices nationwide, the Election Commission has insisted that the machines are not susceptible to hacking or other forms of fraud. But [a 2010 report](#) by Indian computer-security experts challenged this claim after examining one of the machines and cited numerous vulnerabilities, especially if a malicious user had access to the EVMs in advance. "The technology's promise was that attacks on the ballot box and dishonesty in the counting process would be more difficult," the report concluded. "Yet we find that such attacks remain possible, while being potentially more difficult to detect."



A few months after the report's release, Mumbai police arrived at the house of Hari Prasad, one of the researchers, and [arrested and interrogated him for hours](#) about where he had obtained the device his team analyzed, before releasing him on bail. (The U.S.-based Electronic Frontier Foundation later [bestowed upon](#) Prasad its 2010 Pioneer Award for his work and his ordeal.) After repeated legal challenges by activists, the Delhi High Court ruled in January 2012 that the EVMs [weren't tamper-proof](#) and ordered the Election Commission to add a paper trail as an extra security measure against electoral fraud. Election officials pledged to [upgrade 600,000 old EVMs](#) to comply with the new guidelines and procure new ones, and voters [can now file complaints](#) if there are still problems with the devices.

Developing countries from Nepal to Namibia have begun importing India's EVMs for their own elections.

Occasionally, criticism of the machines takes bizarre forms. During last year's regional assembly elections in Chhattisgarh, for instance, the Bharatiya Janata Party (BJP) filed a formal complaint after an Indian National Congress party elder allegedly told tribal voters that [the EVMs would electrocute them](#) if they voted for non-Congress candidates. The BJP won the election, but the Election Commission's FAQ now [reassures](#) prospective

voters that there is no chance of electrocution from "short-circuitry or [any] other reason."

In India, popular sentiment toward EVMs is mixed. [Amit Sheth](#), a professor at Wright State University in Ohio who studies social media's influence in elections like India's, ran a preliminary analysis of Twitter users' feelings about the devices. He found that about 50 percent of the tweets his team analyzed were complaints, though Sheth cautions that the analysis coincided with reports of a faulty machine in [an eastern Indian state](#) that reportedly cast votes for the BJP regardless of which button was pressed. "In the last election, there were many claims about Congress tampering with EVM, usually the ruling party gets blamed more often," Sheth told me. "So far, I have not found systemic differences of one party's view towards EVM than other party's views."

Despite their drawbacks, EVMs help solve electoral problems that aren't unique to India. The Indian government [provided](#) 4,130 EVMs to neighboring Bhutan last year for its legislative elections, and other developing countries, ranging from Nepal to Namibia, have also [imported](#) the Indian-manufactured machines for use in their own contests. Although it's no panacea for poor governance or repressive regimes, this \$150 device from the world's largest democracy could soon make voting easier in burgeoning democracies worldwide.

## About the Author

- [Matt Ford](#) is an associate editor at *The Atlantic*, where he covers news.

