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New Voter Counter System Uses Encrypted Codes, Invisible Ink

By Rosanne Skirble
Washington, DC
24 October 2008

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Credit: Michelle Sheppard

Invisible ink reveals unique confirmation numbers on optical scan ballots that voters can check against an Internet site

As Americans prepare to cast their ballots in the 2008 national elections, there are growing calls for improvements to the voting process. In recent years, important U.S. elections have been plagued by electronic voting machine failures and other problems. That's why in the presidential and congressional elections on Nov. 4, more than half of all voters will use paper ballots read by optical scanning machines.

Many voters and election experts question whether, without a paper trail to verify one's vote, electronic voting machines can ever be trusted. But that could change with a new vote counting system that might help restore voters' confidence that their ballots are being accurately counted.

Poorvi Vora, an assistant professor of computer science at George Washington University, understands why people are frustrated with the process of voting. She says once ballots are cast, voters must have faith that their vote is recorded.



Credit: Michelle Sheppard

"Essentially, that is all you can do unless you are a privileged polling official or somebody who can come close to the scanner and ballot boxes and ensure that [the votes] are counted correctly," she says.

George Washington University Assistant Professor of Computer Science Poorvi Vora introduces Scantegrity, a vote-counting system involving optical scan ballots, invisible ink and a fool-proof way for voters to ensure their ballots are correctly tallied

Vora says voters want a way to check independent of polling officials and machines. Working with researchers from a half-dozen universities in North America and Europe, Vora helped develop a new vote counting system.

Called **Scantegrity**, it works with the optical scanning devices already in common use. Much like they are accustomed, voters are given a paper ballot and asked to mark it. The only difference is the pen they use has special ink, which reveals hidden codes.

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Before leaving the polling station, the voter would copy those codes on a detachable receipt at the bottom of the ballot. The codes could then be confirmed online.



AP Photo

Vora says Scantegrity would make election fraud more difficult.

"The machine would be caught [in a discrepancy] between voters and Web site numbers if your confirmation code is incorrectly recorded on the Web site," she says.

With the proof, voters would then step in and challenge the system.

More than half of voters across the United States will use optical scanning machines on Election Day

"It helps detect that there really was an error or there wasn't," Vora says.

Team member and George Washington University graduate student Stefan Popoveniuc says invisible ink and encrypted codes aside, the magic of Scantegrity is that it empowers voters to take a greater role in the democratic process.



Credit: Michelle Sheridan

"We really want the public [to] check each and every promise that the election officials make about running the elections correctly, and we can do that if we have enough data," he says.

Scantegrity is ready for use in elections. Since it has been designed to be used with optical scanners, increased costs would be minimal. According to Scantegrity researchers, although election districts would still have to pay for equipment and supplies, the first to adopt the system will get it royalty-free for a lifetime.

Graduate student Stefan Popoveniuc will be one of 1,200 foreign students at George Washington University to vote in the Scantegrity mock election on Election Day, Nov. 4.

The system will get a workout on Election Day when more than 1,200 foreign students on the George Washington University campus cast their ballots in a mock presidential election using the Scantegrity vote counting system.

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