

Smartphone-based voting technology may lead to fewer user errors

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Many U.S. counties have incorporated electronic voting technology, largely in response to well-publicized challenges related to older mechanical and punch-card models. Although these updated systems have solved some usability problems, they present a new set of issues for voters unfamiliar with the technology. A new study published in *Human Factors* examines how smartphone-based voting systems can be incorporated into the current large-scale election process.

"Current [electronic voting](#) systems have numerous issues - from usability and accessibility to security to the fact that many of them are nearing the end of their life cycle - and there are few good certified alternatives currently on the market," said Michael Byrne, professor of psychology and computer science at Rice University and one of the coauthors of "Toward More Usable Electronic Voting: Testing the Usability of a Smartphone Voting System."

Researchers Bryan Campbell, Chad Tossell, Michael Byrne, and Philip Kortum designed a mobile voting system optimized for use on a smartphone and tested its usability against traditional voting platforms. They asked 84 participants with a diverse range of voting histories and educational backgrounds to engage in a series of mock elections using different voting methods. Although the study found no reliable differences between the smartphone-based system and other voting methods in efficiency and perceived usability, smartphone owners committed fewer errors on the mobile voting system than on the traditional voting systems.

"There are numerous potential advantages [to using a smartphone-based system], said Byrne. "Nobody likes to wait in line at the polling place, and so mobile voting offers the opportunity to cast votes when and where it is convenient for the voter. However, making this work as an anywhere,

anytime system requires solving a substantial number of serious security and authentication problems that may not be solvable, and certainly not in the near term."

Ongoing research is needed to develop systems that allow voters to securely and anonymously submit their ballots. "There may be compromise solutions that involve the mobile user interface that do not have the same security requirements, though they would not be as convenient," said Byrne.

Provided by Human Factors and Ergonomics Society

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