



First Time Voters

Case Study

→ February 2023

Introduction

In February 2023, the Free Democracy Foundation (FDF) and Tusk Philanthropies partnered with Civics Unplugged to conduct a mock election with high school students to test the usability of mobile voting technology. Civics Unplugged is a nonprofit, 501(c)(3) organization that seeks to help young people gain the training, experience, funding, and community to become civic innovators, building new, innovative solutions to societal problems. Civics Unplugged engaged in the mock election as a part of their Civic Innovators fellowship, through which 350 diverse high school students from across the country - and around the world - investigate and identify solutions to problems related to topics like climate, media, and politics. The curriculum includes investigations into digital democracy, and the mock election offered the fellows the opportunity to apply their training in order to help test new technology to make voting easier.

The technology used in the mock election was under development by FDF with grant funding from Tusk Philanthropies. Since young voters are a key demographic that stands to benefit from expanded access to digital voting options, FDF, Tusk Philanthropies and Civics Unplugged were interested in collecting user feedback on the usability of the technology and on whether mobile voting applications like it would improve the voting experience for young voters.

The Mock Election

The Mock Election opened on February 8, 2023 and closed at 5pm MT on February 9. A total of 50 fellows participated over the two-day window. The election process was designed to simulate a real-world election, with the "voters" receiving notice when voting was open via email with instructions on how to access the voting application. The email included a Voting Checklist that alerted voters of important information they might need to have available when using the app, such as their sample voter registration information, a witness when signing their ballot affidavit, and links to the verification sites they could optionally use to verify the system is working correctly. The email was the first and only communication voters received ahead of and during the mock election.

Once voters accessed the web application, they then proceeded through the voting process. First, the voters were asked to input personally identifiable information in order to locate their voter registration record, determine their eligibility to vote in the election, and receive their correct ballot. The information required consisted of their first and last name and year of birth along with one of three additional identifiers: a state identification or driver's license number, the last four digits of the voter's social security number, or their residential house number and zip code. Because we did not want to use any PII from the voters themselves, we supplied voters with this data for the purposes of this mock election. The voters were then asked to confirm the registration record found was correct and to verify the system had the correct email address for the voter.

After the voters verified their voter registration data, they were then given the ballot to mark. The ballot consisted of two candidate contests and a ballot question. The candidate contests included a race for President among various famous presidents from history, and a race for county commissioner in which voters could select two candidates from among famous comic book characters. The ballot question asked the students to weigh in on whether or not the use of artificial intelligence should be banned in schools. After marking their ballot, voters were given the opportunity to review their choices and make changes if desired.

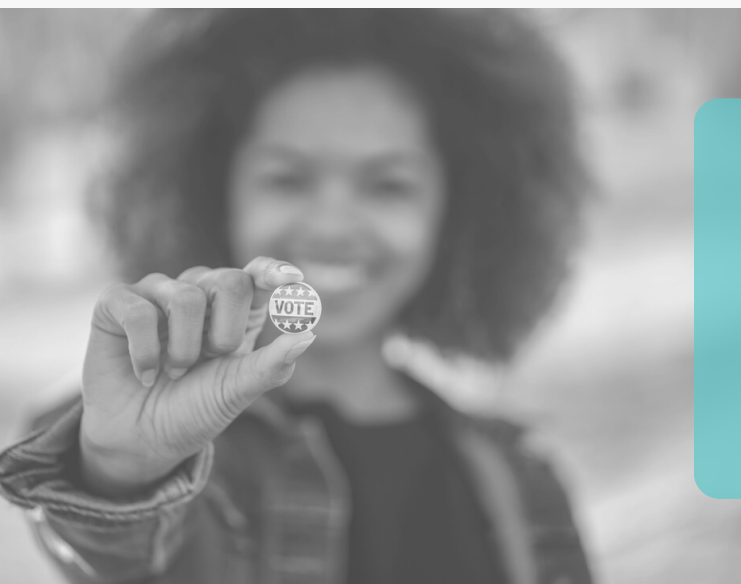
With their ballot marked, voters were then required to sign the absentee ballot affidavit, which, in a real election, would be verified by election officials to confirm the eligible voter submitted the digital ballot. The voting app was also configured to require a witness signature, as many jurisdictions require witnesses, especially if a voter has a disability and is unable to physically sign the affidavit themselves.

Once the ballot and affidavit were completed, voters were then prompted to select a return option. The VoteHub app supports both digital and physical ballot return. During the mock election, we asked the voters to select digital return since our goal was to test the usability of the platform for end-to-end verifiable digital voting. Voters were then prompted through an authorization process in order to authorize their device for digital return. The system facilitates the delivery of a time-expiring one-time access code delivered to the email address in the registration record of the voter identified through the initial look-up process. The voters were able to retrieve the one-time access code from their email and input it into the voting app.

Next, the digital ballot and affidavit were encrypted, and voters were presented with two options - either submit their ballot immediately or perform a ballot check to ensure the ballot was recorded and encrypted correctly. As expected, most voters chose to submit their ballot immediately. At that point, the encrypted ballot package was committed to the digital ballot box, and the app presented the voter with a 7-digit ballot tracking number the voter could use to verify the ballot was received correctly. In a live election, voters can use the tracking number to verify when their signature affidavit is verified and their ballot is accepted for counting, and when it is extracted for offline decryption, printing, and tabulation.

A significant number of the mock election voters chose to perform the optional ballot check before they submitted their ballot. In fact, 40 percent of the voters who participated in the election performed the check. They were directed to open a separate webpage hosting the verification site, preferably on a separate device, such as a laptop or tablet. To perform the check, voters first needed to enter the 7-digit ballot checking code displayed in the VoteHub app into the verification site. Once entered, the voter then tapped a button labeled "Code Entered" in the app to initiate the check. At that moment, the digital ballot box spoils that encrypted ballot to make it available to the verifier for the check. Before the decrypted ballot could be displayed in the verifier app, the voter first had to verify an additional seven digit pairing code. The code was displayed in both the VoteHub app and verifier, and voters were asked to confirm they matched. This step ensured the voter was initiating the check and was using a valid verifier. The verifier then displayed a plain text version of the voter's ballot choices as recorded and encrypted by the digital ballot box. The voter reviewed to ensure everything was correct and indicated so in the VoteHub app in order to initiate the re-encryption of their ballot. The ballot check concluded with the voter presented with the option to submit - or perform the ballot check again with a new checking code.

Once the ballot package is submitted, voters received a link to complete a survey about the experience.



40% Performed Ballot Check

78% Want to use mobile voting in future

Results and Findings

A total of 50 students participated in the mock election, and 28 of the participants completed the survey about their experience. The students were all under voting age with no prior voting experience, which was a helpful factor that gave us insight about the user experience for less experienced voters, and particularly how they responded to and interacted with optional verification tools that are critical to protecting the integrity of the election. Given such a high percentage of students opted to perform the ballot check, we are encouraged not only that the user experience is easy to follow and that users (or more particularly, young users) understood the benefit of utilizing those optional verification tools to increase confidence that the system is working correctly.

Survey results also showed the students found the process easy to follow. Just 3.6% of the survey respondents found it difficult to mark their ballot, and 78.6% of survey respondents indicated they would definitely or probably want to use mobile voting technology like this in the future. The election was conducted using an early version of the voting app, and their feedback was helpful as we implemented design changes to improve the user experience and accessibility. The students found the ballot check process relatively easy to follow, with 67% of survey respondents indicating it was very or somewhat easy to complete the check. They had good suggestions on ways to improve the overall experience to give voters greater confidence that they were not only following the right steps, but were using trusted sites for both voting and checking their ballot.

Since the mock election, Tusk Philanthropies has continued to engage several of the fellows who participated to conduct ongoing user testing on the voting application as improvements are made to the user experience. And we look forward to conducting additional mock election pilots with other voting groups, including college-age students, voters with disabilities, military and overseas voters, and others, in order to ensure that the technology is easy to use and to ensure voters are able to easily use the verification tools needed to maintain election security.

The VoteHub mobile voting system is expected to be ready for public election pilots in 2024 following a period of both public usability testing like this mock election as well as public security testing.

For more information about VoteHub and the Free Democracy Foundation, visit www.freedemocracyfoundation.org. To learn more about Tusk Philanthropies' work to expand access to mobile voting, visit www.mobilevoting.org. And for more information about Civics Unplugged, visit www.civicsunplugged.org.



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