New advanced e-voting system selected for Australian state election

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A new, advanced electronic voting system developed by the University of Surrey and the Victorian Electoral Commission (VEC), in collaboration with the Universities of Melbourne and Luxembourg is to be used in Australia's Victorian State election, which opens on Monday. This is the first time worldwide that an electronic election system that can be checked at every stage has been used in a large-scale politically binding election.

The system is specifically designed to work with a range of user interfaces to enable those with vision impairments, limited mobility and low English language proficiency to securely and confidently cast a completely independent and secret vote. The system uses touchscreens and audio interfaces to provide anonymous and straightforward electronically assisted voting in twenty languages. All Victorian citizens living in London will also be able to vote using the system at Victoria House during the election's early voting period (17-28 November).

While other elections have used elements of electronic voting, they have faced issues such as possible manipulation of the final outcome through cyber breaches. This system combats these issues using cryptography to provide ballot secrecy for voters, as well as access for independent external checks to take place to ensure that the system has processed the votes correctly from when ballots are cast, right through to the final tally.

"Electronic voting exists in different forms already, including tallying votes by computer, using electronic equipment in polling stations and

voting over the internet from the voter's own computer or mobile device," said Professor Steve Schneider from the University of Surrey.

"However, it is the spectre of software bugs and security hacks that has so far raised concerns around electronic voting within large-scale political elections. Not only are there fears around the potential for rigging of results, but also there is a worry that the secrecy of the ballot might be compromised.

"In fact, a properly designed and engineered electronic system can actually offer much better security properties than current manual systems. A key principle for modern trustworthy electronic elections is verifiability: the idea that voters should be able to check that their vote was correctly counted, and that any observer, whether a voter or not, should be able to verify that the declared outcome reflects the votes cast. An electronic system such as the one being used in Victoria's election will enable this. It is our hope that once this system is proved in Australia, it will be rolled out more widely."

In using the system, people will cast their vote using a touchscreen tablet device where the selection criteria are presented in legal order. Upon voting, they are provided with a printed receipt giving their voting choices, but with candidate names removed and the choices in a random order. By comparing a similarly re-ordered separate list of candidate names next to this receipt, the elector can briefly check the vote is intact. For blind users, the machine can read both lists to them. The list naming candidates is destroyed at the polling place, with the receipt safe to take home as it does not show the voter's vote at all.

Victorian Electoral Commissioner Warwick Gately said: "Victoria was the world's first democracy to introduce the secret ballot.

"The VEC's electronically assisted voting takes this one step further by

extending this fundamental right to voters who face barriers who would otherwise not have access to a secret ballot."

Provided by University of Surrey

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