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Usability as a property of end-to-end voting systems

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UsabilityWorks

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Usability

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Usability:
Effectiveness

Usability: Efficiency

Usability: Satisfaction

Usability:
Effectiveness
Efficiency
Satisfaction



Evidence

Participants are able to use voting system documentation to:


- Complete tasks without asking questions
- Find the information they need
- Match messages between system and documentation
- Read, understand, and react
- Perform tasks without missing steps
- Perform steps to complete tasks

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Measures

- ✓ Task completion
- ✓ Accuracy of completeness
- ✓ Time on task



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Results



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Matching the
documentatio
n to the
machine was
difficult

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Participants
had
questions
that the
documentatio
n didn't
answer

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Information on troubleshooting was hard to use because it was not related to tasks

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Election Day De

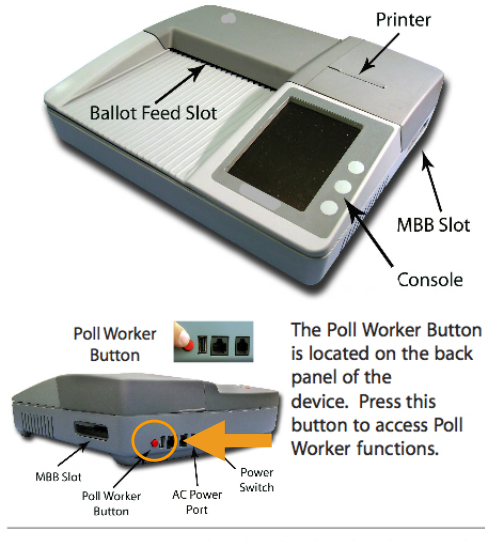
Introduction
 What is the [redacted] Voting System?
 Supplies and layout

[redacted] - Electronic Ballots ←
 Setting up: JBC and eSlates
 Setting up: [redacted] booths
 Opening polls for election day
 [redacted] voter instructions
 Verifying and casting the ballot
 Other features for voters
 Write-in feature
 Adding voters from the JBC
 Helping voters
 Adding provisional voters
 Checking an access code
 Printing an access code report
 Canceling a booth
 Voter using headphones or tactile input switches
 Curbside voting
 Closing the polls: election day
 Disconnecting & packing equipment
 Troubleshooting guide

[redacted] - Paper Ballots ←
 Setting up: [redacted]
 Setting up: [redacted] booths
 Parts of the [redacted]
 [redacted] console
 Opening polls for election day
 [redacted] voter instructions
 Helping [redacted] voters
 Scanning and casting a ballot
 Helping [redacted] voters: improper marks
 Spoiling a ballot

Documentation covered too many systems

parts of the ESCAN



Met many best practices but fails because the configuration is not the same as implementation

1.6 Setting up the HAAT

Follow the steps below to set up the HAAT.

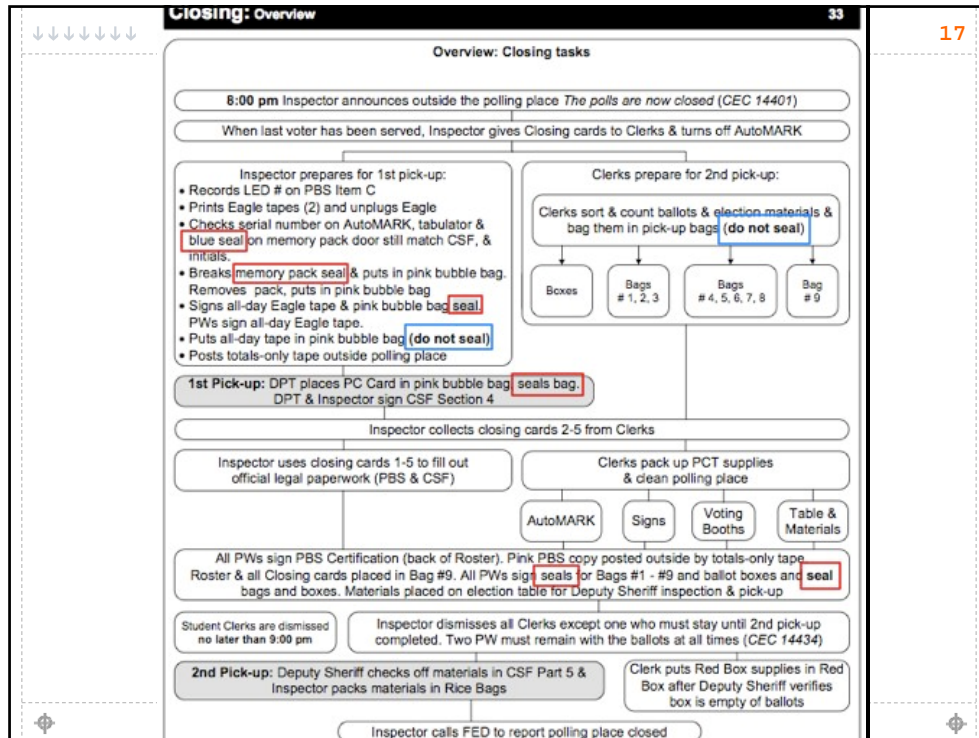
1. Remove the HAAT unit, the case of voter cards, and the AC adapter from the HAAT unit case.

Note: Some jurisdictions refer to voter cards as SmartCards.

2. Plug the two-pronged AC adapter into a 120V AC outlet.
3. Plug the female plug into the socket on the left side of the HAAT unit.
The power light should illuminate. If not, double check that the AC outlet is operational, and re-check to power adapter connections.
4. At the power switch on the left side of the HAAT unit, press "+" to power on the HAAT unit.



Met many best practices but fails because the configuration is not the same as implementation



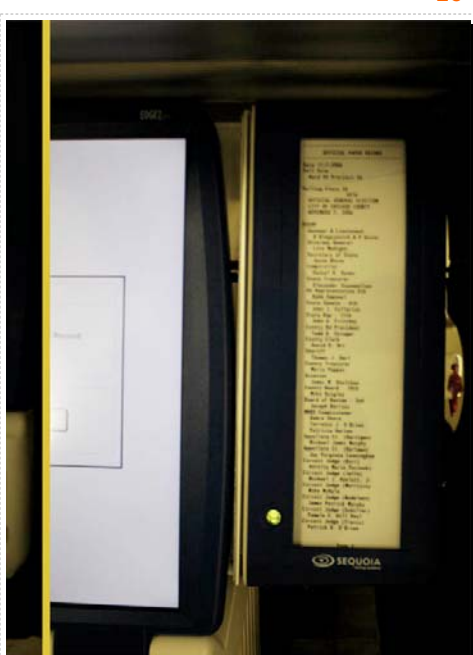
1.8

Cuyahoga County, OH

November, 2006

In at least one case in the 2006 mid-term election, a thermal paper roll had been installed backward, so nothing printed out onto it. In other locations, there were reports of paper jamming so that votes printed over one another.

National Public Radio



Unattributed - Polling Place Photo Project

Washington, DC November, 2008

Data cartridges that store votes were unreadable at one precinct. The voting system manufacturer suggested two possible causes: static discharge or election workers mishandling the cartridges.

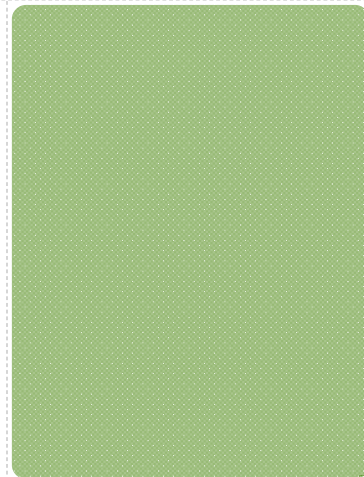
Washington Post

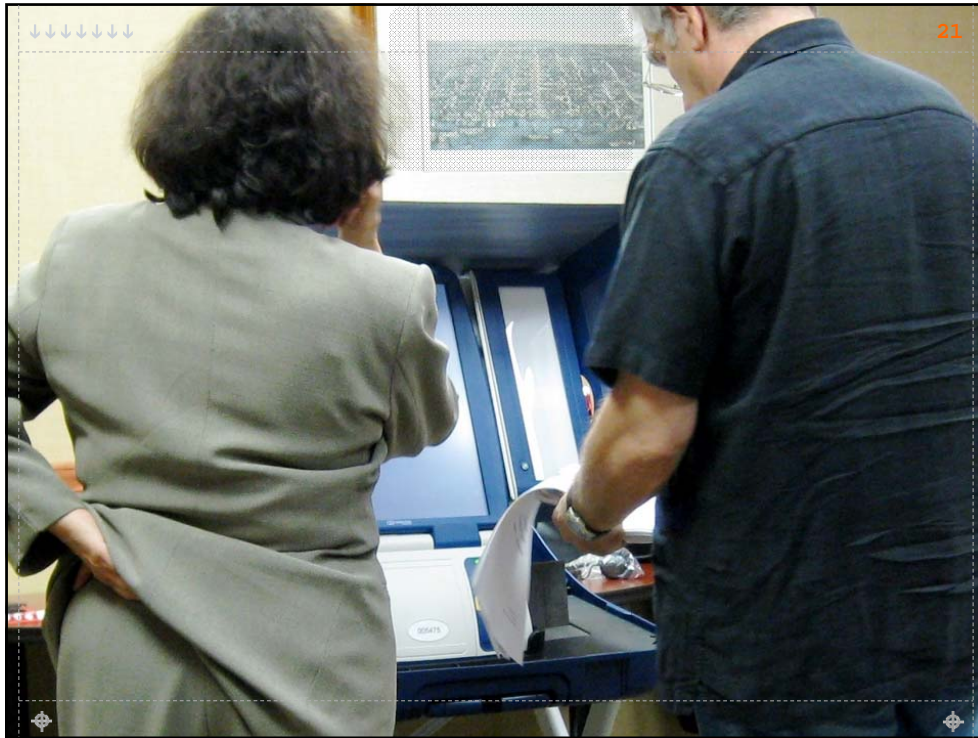


Unattributed voting system documentation

Conclusions

- ✔ Have participants asked for help?
- ✔ Have they completed the tasks in the time allotted?
- ✔ Can they follow the procedures without making mistakes?





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Jeffrey Rubin and Dana Chisnell
Foreword by Jared Spool

Handbook of Usability Testing

How to Plan, Design, and Conduct Effective Tests

SECOND EDITION

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