

# Accessible Voting Technology Initiative

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# Three Phase Research Project

1. Defining the problem
2. Designing a solution
3. Looking to the future

# Defining the Problem

- Accessibility of current voting systems  
(University of Washington)

# Defining the Problem

- Barriers to political participation for people with disabilities (University of Utah)
- Ethnographic research on the voting experience of people with disabilities (Georgia Tech)




# Designing a Solution

- Accessible voting design workshops (Georgia Tech)

In-Person Voting
TEAM 2

**VOTING AT POLLING PLACES & VOTE CENTERS**

## Sample Ballot & Information Transfer System



**DESCRIPTION**

Our design solution is a system to better prepare voters for going to a polling center, and create a more engaging voting experience. Ballots are available on paper or in digital form, they're filled out by the voter then brought to the polling center. Eliminating polling times, discomfort, and anxiety—the polling machine scans the sample ballot and greets your choices on screen. You can confirm the selections and cast your vote. The machine itself is an accessibility designed polling machine equipped with a camera.

**ADVANTAGES**

- + Increased voting participation
- + Increased voter accuracy, more informed choices with less in-person anxiety
- + Increased device flexibility (iPad phone, etc.)
- + Reduces paper cost with more targeted ballot printing
- + Modular interpretation of machines (adding printer & scanner to electronic voting machine)

**1. SCAN BALLOT**

- + Camera digitizes and loads the voting machine with your choices

**2. CONFIRM ENTRIES**

- + Review your vote, and double-check your choices.

**3. CAST VOTE**

- + Vote is cast electronically, with a paper copy printed for paper-mail purposes.

### 7 Principles of Universal Design

**1. EQUITABLE USE**

- + Sample technology is publically accessible
- + Voting machines are accessible

**2. FLEXIBILITY IN USE**

- + Facilitate more accurate choices.
- + Access in comfort of home (while using assistive technologies)
- + Ability to confirm choices
- + Make ballot verification into reasonable partitions

**3. SIMPLE & INTUITIVE USE**

- + Need human verifiable code
- + Relies on using current best practices towards usability design.

**4. PERCEPTIBLE INFORMATION**

- + Internet access enables higher technology
- + Allows use of personal assistive technologies
- + Safe space

**5. TOLERANCE FOR ERROR**


- + Error handling in process
- + Multiple chances to examine answers

**6. LOW PHYSICAL EFFORT**

- + Major actions and thoughts can be made in comfort of home (with existing AT)
- + Minimize time spent in voting location

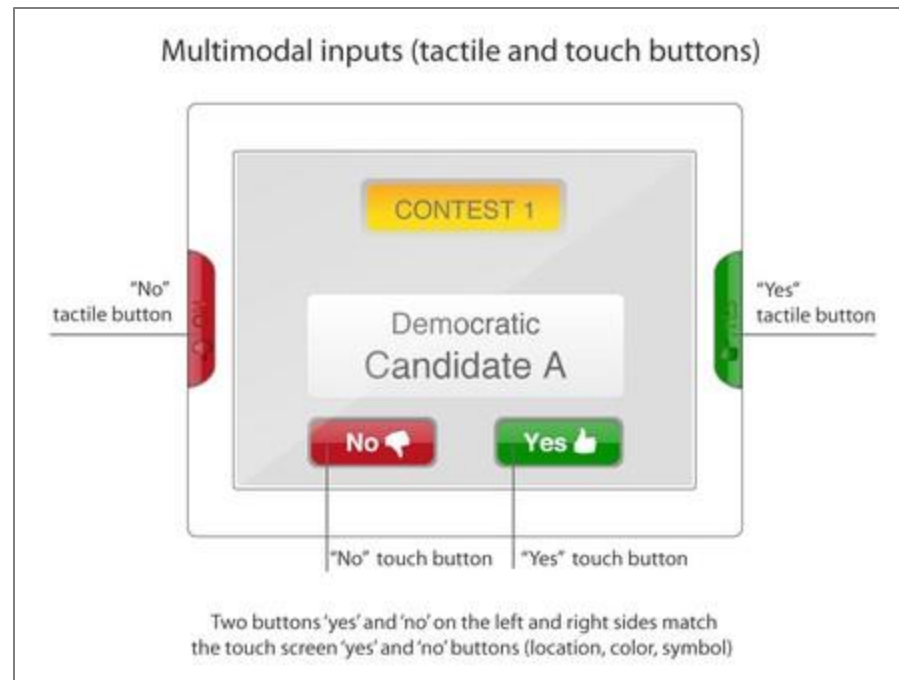
**7. SIZE & SPACE FOR APPROACH AND USE**

- + Majority of time and use can be spent in comfortable environments



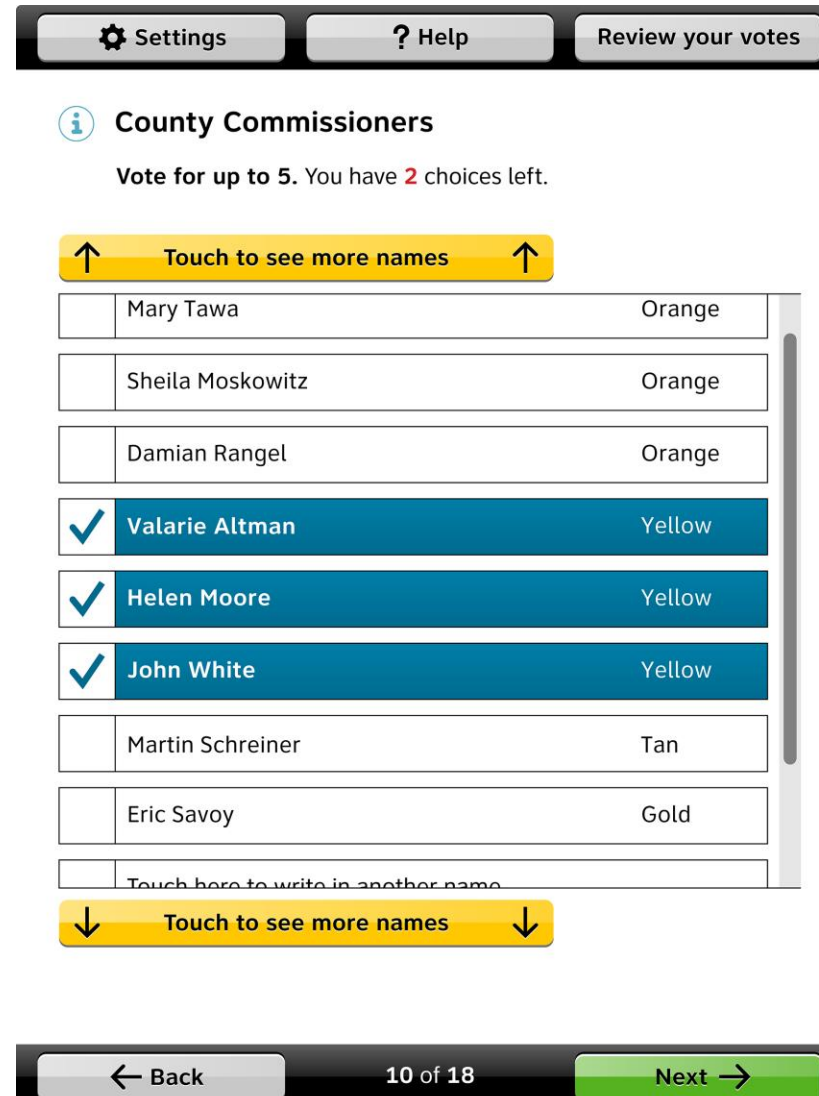
# Designing a Solution

- Simplified ballot interface (Georgia Tech)



# Designing a Solution

- Mobile ballot interface  
(University of Baltimore)



The screenshot shows a mobile ballot interface for County Commissioners. At the top, there are three buttons: "Settings", "? Help", and "Review your votes". Below this is a section titled "County Commissioners" with an information icon. A message states "Vote for up to 5. You have 2 choices left." A yellow button with upward arrows says "Touch to see more names". Below this is a list of candidates with their names and party affiliations:

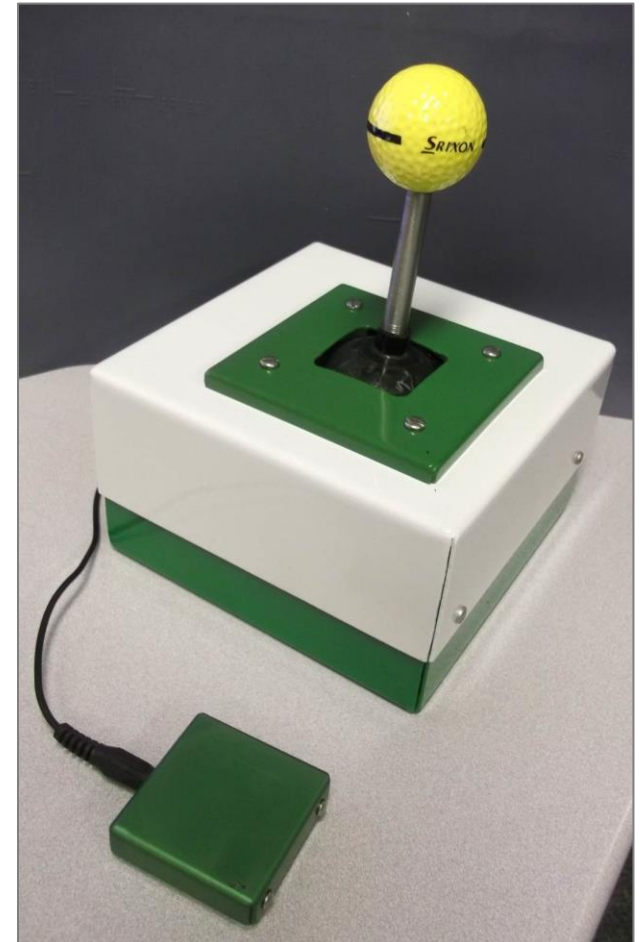
<input type="checkbox"/>	Mary Tawa	Orange
<input type="checkbox"/>	Sheila Moskowitz	Orange
<input type="checkbox"/>	Damian Rangel	Orange
<input checked="" type="checkbox"/>	Valarie Altman	Yellow
<input checked="" type="checkbox"/>	Helen Moore	Yellow
<input checked="" type="checkbox"/>	John White	Yellow
<input type="checkbox"/>	Martin Schreiner	Tan
<input type="checkbox"/>	Eric Savoy	Gold
<input type="checkbox"/>	Touch here to write in another name	

At the bottom of the list, a yellow button with downward arrows says "Touch to see more names". At the very bottom of the screen, there are three buttons: "← Back", "10 of 18", and "Next →".



# Designing a Solution

- Voting Technology
  - Joystick control and mounting bracket (Michigan State University)



# Designing a Solution

- Accessible iPad case for elections (Georgia Tech Research Institute)



# Designing Solutions

- Voter Guides
  - Web-based voter guide for people with aphasia (University of Maryland, Baltimore County)
  - Interactive voter guide for people with cognitive disabilities (CITRIS)
  - Election data lookup tool (Apps4Android)

# Designing Solutions

- Pilot programs for supervised voting by people in group living facilities (UC Berkeley)

# Designing Solutions

- Evaluation of iPad voting for people living in long-term care facilities (Assistive Technology Partners)

# Looking to the Future

- Online training materials for poll workers (Georgia Tech)
- Online course on universal design for voting system developers (Georgia Tech)

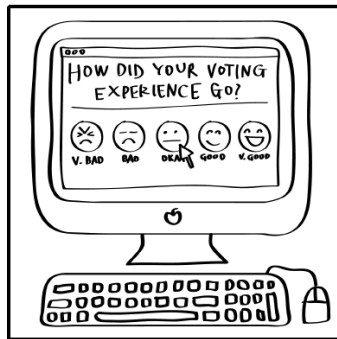
# Looking to the Future

## • 50 Ideas for More Accessible Voting

### 5. A “Yelp” for polling places

**Problem:** Election officials do not always receive a lot of feedback on how well a polling place is run, especially in big districts with many polling places.

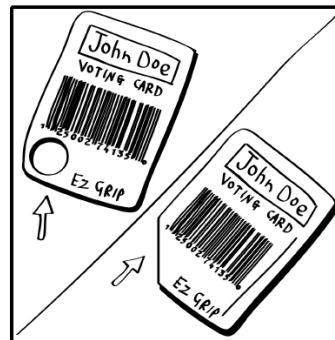
**Idea:** An online rating system could allow voters to give feedback to election officials on what is, or is not, working and how to improve the voting experience. Ratings for polling places could help voters identify the most accessible early voting centers and well-run polling places. This would also let the community recognize the expertise of election officials who operate the best polling places, who can then help improve neighboring locations.



### 8. An easier-to-grip smartcard

**Problem:** Some voting systems are activated with smooth, flat, plastic smartcards, but they can be hard for voters with arthritis or low dexterity to hold, and inserting them in the right direction is a challenge for blind voters.

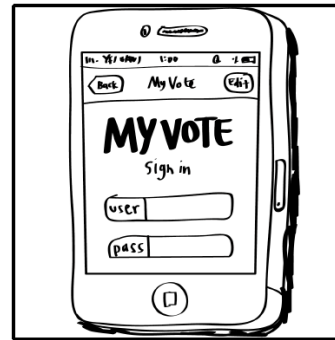
**Idea:** Election officials could add a hole for a finger grip and cut an angle off of one corner or add a notch in the bottom for orientation to make these plastic cards more accessible.



### 15. Mobile-friendly election web sites

**Problem:** For people with disabilities, smartphones can be a lifeline, but election web sites do not always work well on a small mobile device screen. This can keep voters who rely on their phone as their main computer from finding election information.

**Idea:** Election officials should make sure that election web sites and applications, like online voter registration, work on mobile devices, either with a mobile app or a website designed so that it automatically adapts to the size of the screen. One way to help ensure that forms and web sites work on smartphones is to keep the layout simple.



# Looking to the Future

- Innovations for Accessible Elections





# Learn more

- All material from the ITIF Accessible Voting Technology Initiative is available at: <http://elections.itif.org>

# Thank you!

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