Smart Voting Joystick

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Project Team

- Sarah Swierenga, Director, MSU UARC (PI)
- Graham Pierce, User Experience Researcher, MSU UARC
- Stephen Blosser, MSU Resource Center for Persons with Disabilities
- Engineering Design Capstone Team:
  - Yangyi Chen, Tyler Dennis, Graham Pence, Behdad Rashidian, Joy Yang
- Introductory engineering student teams

Accessible Voting Systems

- Electronic voting systems **do not work well**.
  - Many individuals with disabilities can't use them at all.
  - Take a very long time and are painful to use, even with no major disabilities.

- Project funded by ITIF to create "Smart Voting Joystick"
- Other Michigan State University voting projects
  - Design of accessible mobile voting system standards
    - Ongoing, funded by NIST
  - Testing Usability Performance of Accessible Voting Systems
    - Complete, funded by NIST

Electronic Voting System Controls

- Common Standard Controls:
- **Touchscreen** requires hand, arm, and shoulder strength and accuracy.
- **Button panel** requires finger/hand strength and accuracy.
- Neither can be used by individuals with significant hand/arm/shoulder disabilities.
- Most cannot be moved – individuals with limited reach (including those in wheelchairs) can’t use them.

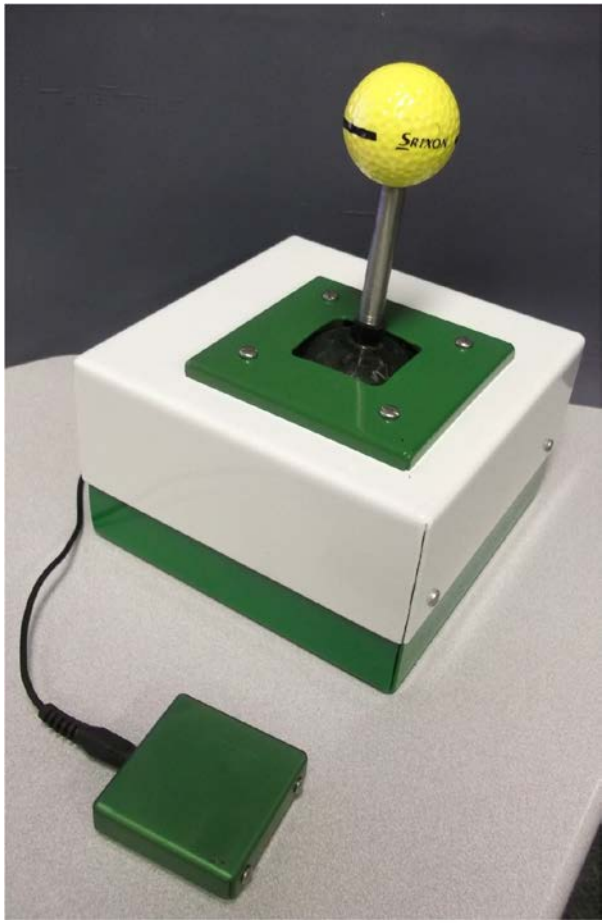
Alternative Electronic Voting System Controls

- Common Alternatives:
- **Sip/puff** is only used by individuals with no hand/arm control.
- **Two-button switch** painful/impossible with hand/arm problems.
  - Requires up to 1200 button-presses to complete the NIST Standard Test Ballot with no mistakes.
  - Every change or mistake can take 100+ button-presses to modify/fix.

Smart Voting Joystick

- MSU Electrical and Computer Engineering capstone design team

- Create a smart joystick to plug in to electronic voting systems.
- Obtain feedback from users voting a shortened NIST ballot using the joystick



Mounting Options Design Challenge

- Engineering student teams asked to design universal mounting devices
- Design Goal:
  - Must be easy to set up
  - Quick mounting
- Several options:
  - Table mount
  - Chair mount (with/without armrests)
  - Wheelchair mount
  - Free-standing mount (locking swing arm?)
  - Other ideas?

Contact Information

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