Research in Accessible Voting Project

Write-in System for Audio-only Voting Systems without Alphabetic Keypads
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Problem

• Audio-only voting is difficult and time consuming; writing in a candidate’s name is typically the most difficult task to complete
• Most systems do not include an alphabetic keyboard
• To maintain fairness during the voting process, text prediction and other assistive strategies cannot be employed

Solution

A write-in system that improves audio voting on systems without alphabetic keyboards:
• Two speeds for letter browsing with markers that provide context
• Coherent review of what has been typed
• Meaningful help
• Physical controls that expose features

Implementation

An audio-only candidate write-in system was created as a Google Chrome Extension with HTML and JavaScript that utilizes the Chrome browser’s text-to-speech capabilities and HTML5 Audio.

Controls

Press-hold Fast letter scrolling Single-letter movement
Review already typed A Help
Select current letter delete

Fewer buttons with intuitive modes improved feature recall and utilization

Testing

• Four iterative usability studies were conducted
• Fifteen individuals from the CMUSV student community took part

Notable results included:
• A small control set with an intuitive reading speed mode switch was best
• Providing strategically placed markers in the alphabet during fast scrolling improved listening accuracy
• A review mechanism is necessary, but current methods can also be confusing
• Instruction on appropriate strategy required for most users to work efficiently

Instructions

J O H N

Without review, users often lost track of their typing, causing letters to be selected twice

Two versions of review were tested

Version One: System repeats previously entered letters after every new letter typed.
Some users found this distracting

Version Two: Users hear review after pressing the down key.
Some users forgot review was an available feature
However, both versions allowed users to track their progress better.

Review Mechanism

Without instruction
Some users would only utilize a single scrolling mode – fast or slow

With instruction
Users efficiently utilized both scrolling modes

Results from the pilot study suggest that our system can double typing speeds.
Next steps will focus on an improved review mechanism and conducting tests with blind voters.

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