

L.A. COUNTY + IDEO

Deliverable 3.1.3

In-process BMD Prototypes (Audio UI)

VOTING PRINCIPLES

Relevant for Software Prototype 3.1.3

- 4 *The voting system must instill **public trust** by having the ability to produce a physical and tangible record of a voter's ballot to verify the ballot was marked as intended before it is cast and to ensure audibility of the system.*
 - The role of the paper ballot should be understood by the voter.
- 6 *The voting system must offer a **variety of options** to cast a vote to ensure that a single/fixed method of voting does not prove to be a barrier and source of disenfranchisement for any group of voters.*
 - Voters with visual impairments should have an option to vote on the BMD in a way that doesn't require the touchscreen.
- 7 *The voting system must guarantee a **private and independent** voting experience for all voters, including voters with a full range of types of disabilities and voters with limited English proficiency.*
 - Voters who use the BMD should be able to discover and use the audio interface privately and independently if they want to.
 - Voters should be able to cast their ballots and verify their selections privately and independently.
- 8 *The voting system must be **easy** for all voters to use, in particular, for voters with a full range of types of disabilities and voters with limited English proficiency.*
 - The audio UI and the interaction with the hardware inputs and outputs should be easy to use.

GOALS

Goals for Software Prototype 3.1.3 in User Evaluation Session

1. Understand the **relationship between the audio output and keypad input**.
2. Solicit guidance on what **types of settings** are desired.
3. Validate our assumption of a **user-led interaction model** for the audio + keypad user interface.
4. Observe how the preliminary designs of BMD features created for the audio experience--like the **interaction flow models of moving through the contests, making selections, and going back** —are clear to the user and easy to use.
5. Iterate on the **flow and language** of the audio + keypad user interface based on user input.

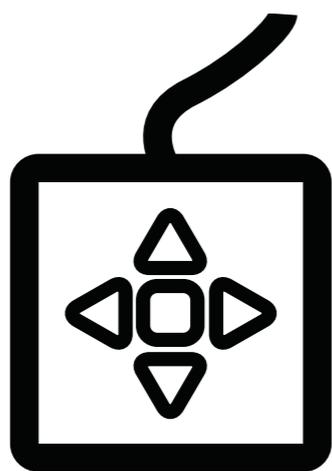
AUDIO UI

Prototype 3.1.3 in User Evaluation Session

Although we build on the learnings from BMD version 3.1.2, this interim prototype is not a direct iteration of that prototype. It is an entirely new prototype designed specifically to learn about an immersive audio experience.

Prototype	3.1.3
Interaction Model	User driven, where the voter controls the pace of the experience
Audio Experience	Voice actor reading script from a UI map, reacting to voter interaction with tactile controller
Control scheme	Cursor cross (up, down, left, right & select) plus volume and speed controls
Audio Output	Headphones for voter + bluetooth speaker for observers

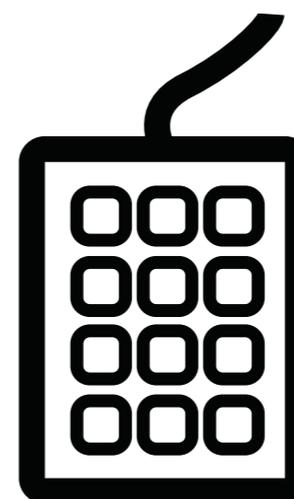
User driven



User initiated

User starts the experience and determines when they would like to move forward

System leading



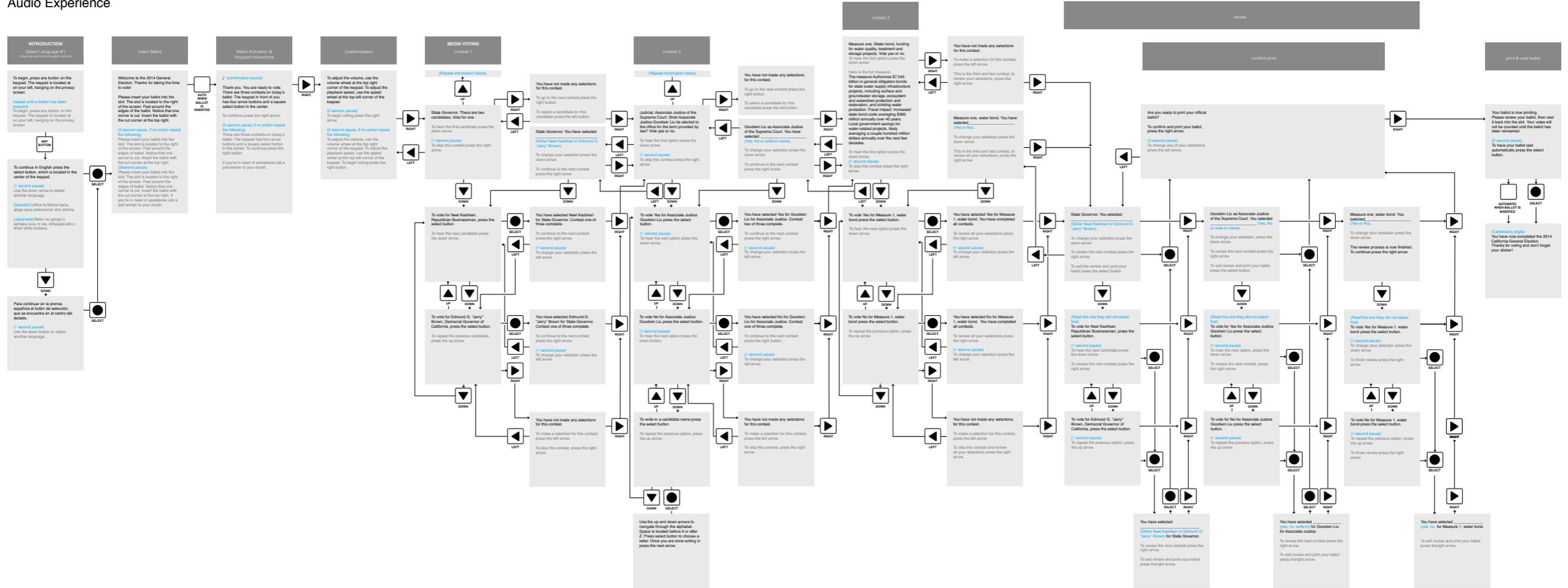
System prompted

System initiates the experience and guides users to next steps

AUDIO UI PROTOTYPE

Interaction Model

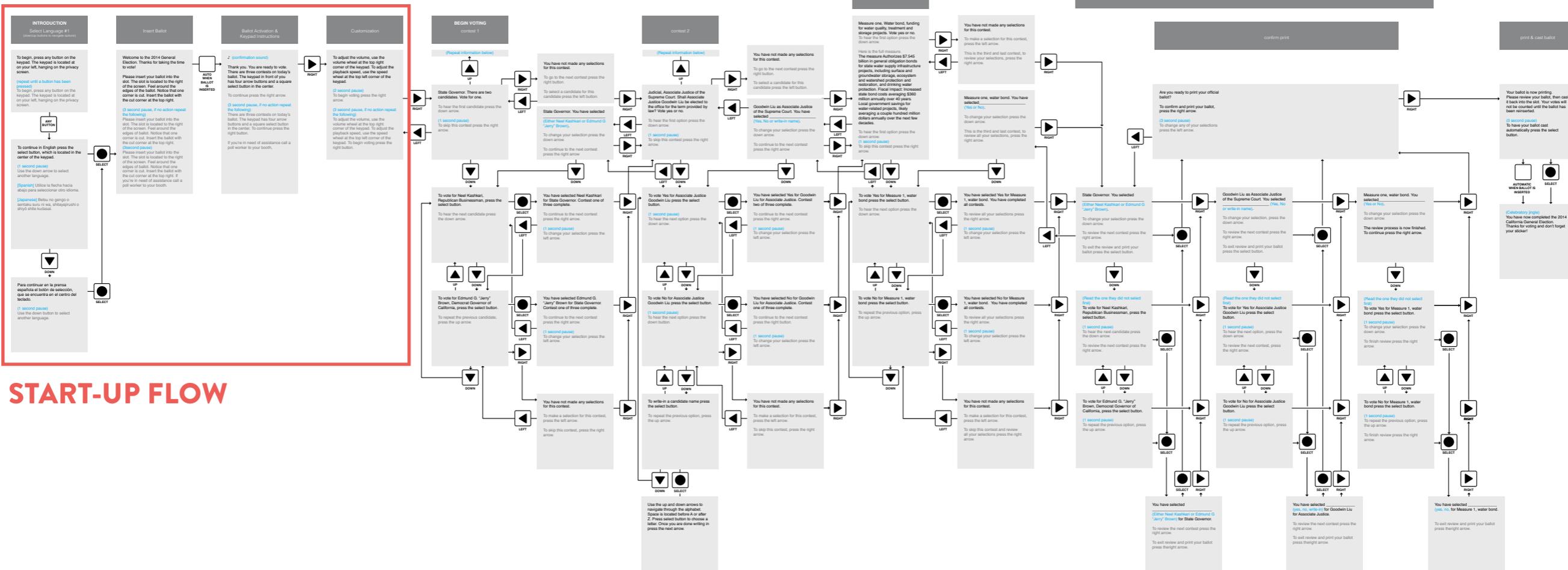
Audio Experience



AUDIO UI MAP

Audio experience decision tree

Audio Experience

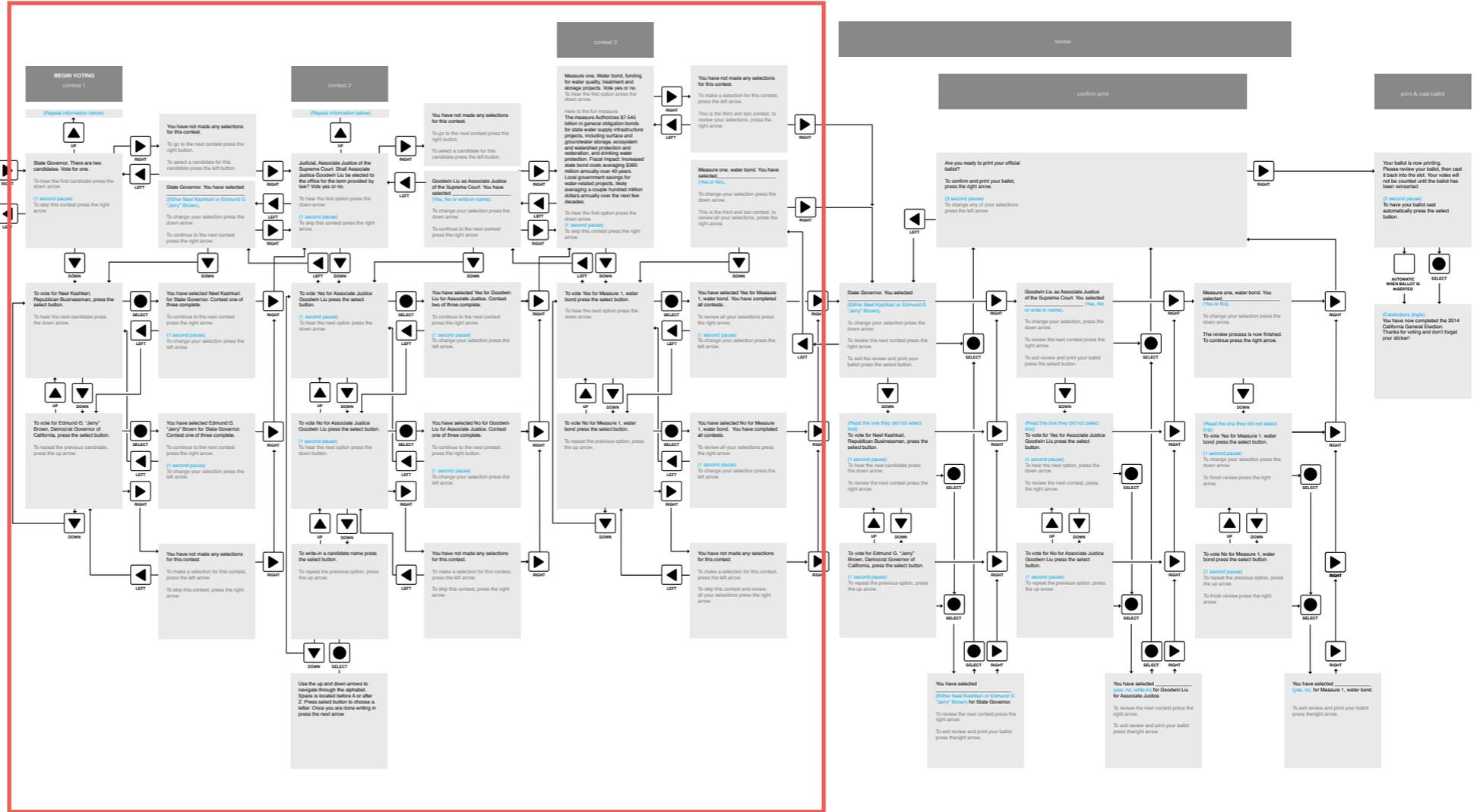
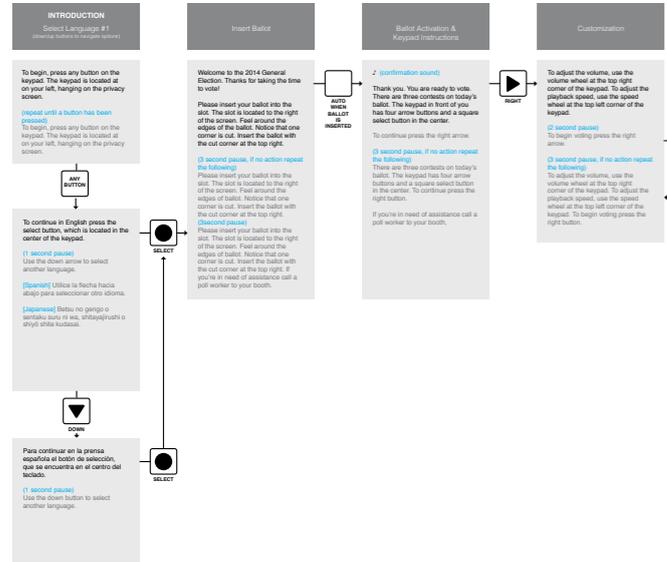


START-UP FLOW

AUDIO UI MAP

Audio experience decision tree

Audio Experience

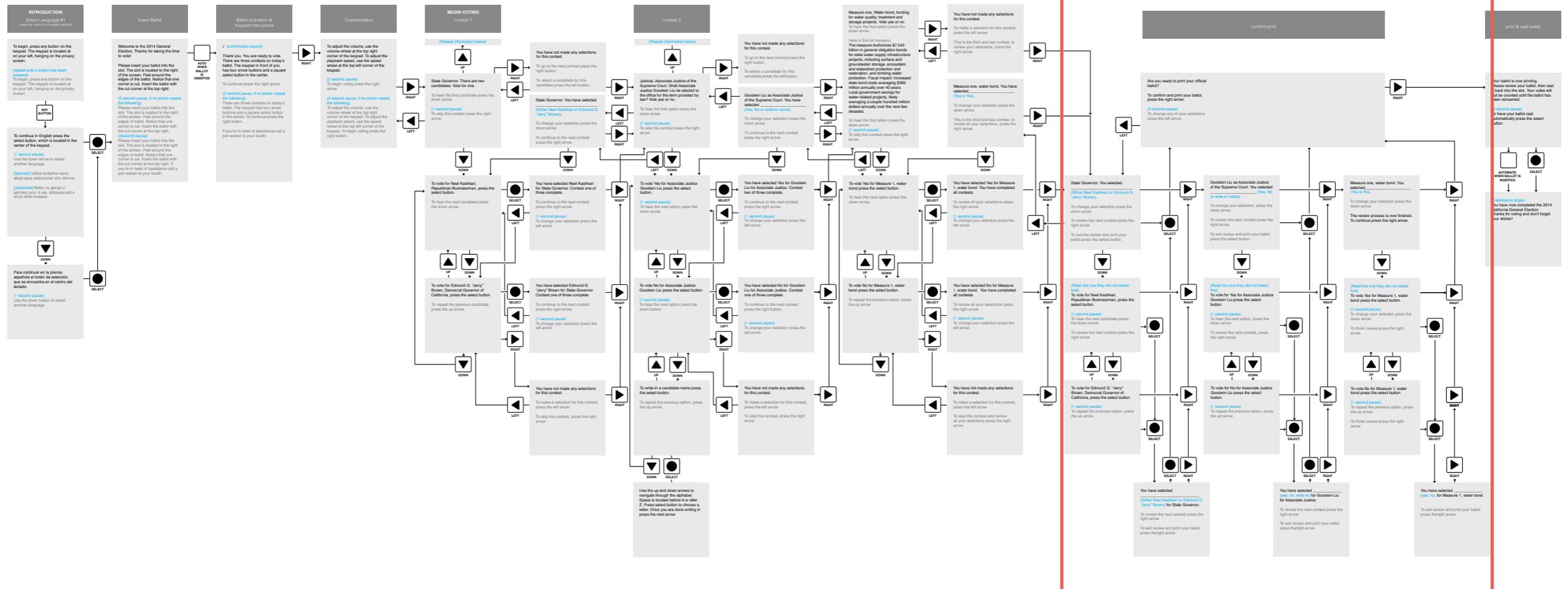


CONTEST SELECTIONS FLOW

AUDIO UI MAP

Audio experience decision tree

Audio Experience

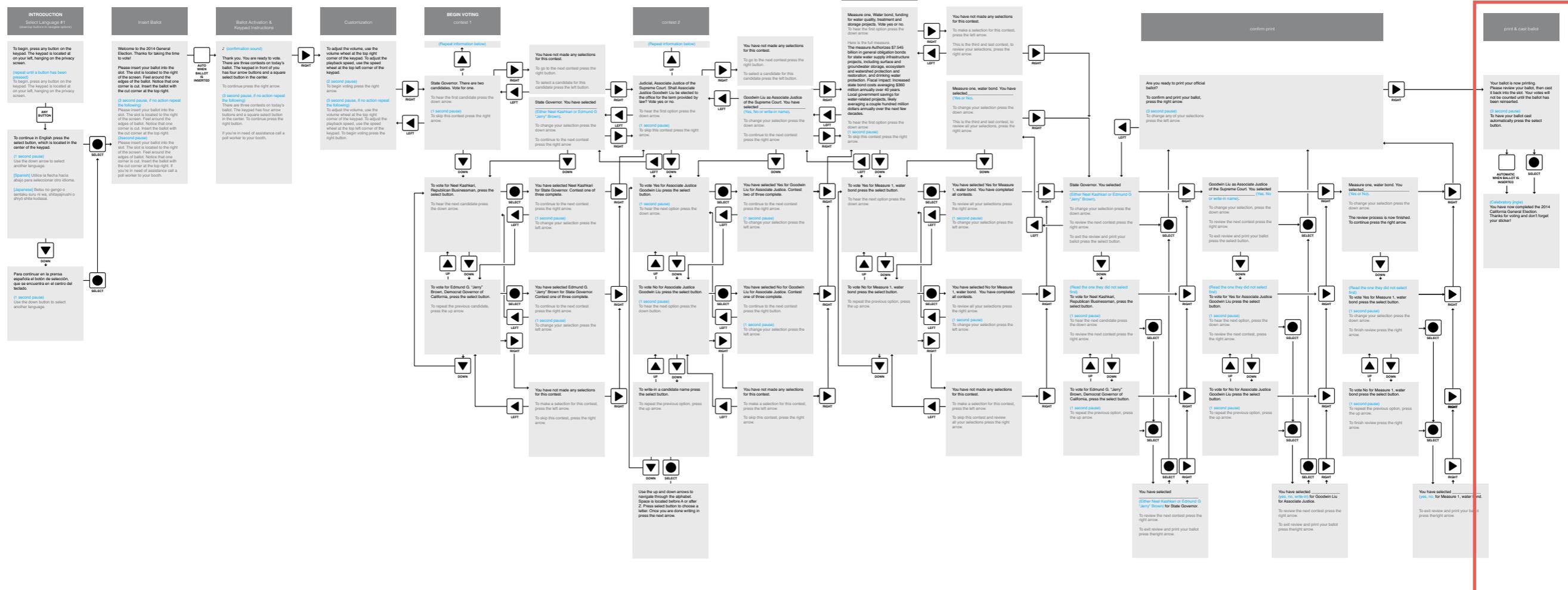


REVIEW SELECTIONS FLOW

AUDIO UI MAP

Audio experience decision tree

Audio Experience



PRINT & CAST FLOW

AUDIO UI MAP

Audio experience decision tree

AUDIO UI PROTOTYPE

Overview of components

- 1 Keypad (Reflected to Mirror App)
- 2 Headphones



AUDIO UI PROTOTYPE

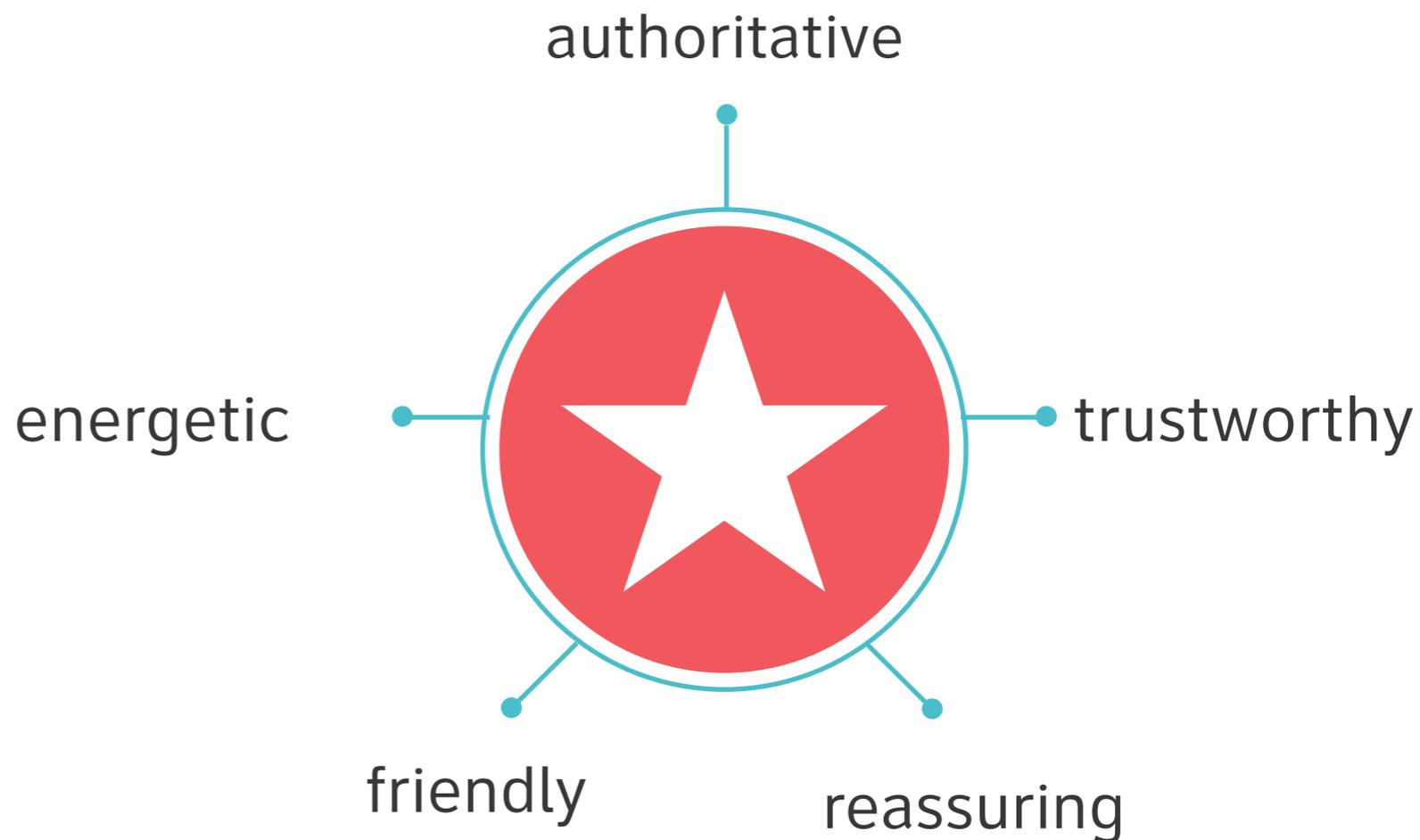
Overview of components (behind-the-scenes)

- 1 Audio UI map that shows how the audio script proceeds depending on the keypad button the user selects
- 2 Custom mirror app that displays when a button is pressed on the keypad
- 3 Voice actor who reads from the Audio UI map script, guided by a designer holding the mirror app



VOICE PERSONALITY

Desired tone for recorded voice



NEXT STEPS

High level conclusions from the research session with voters with visual impairments are communicated in a separate research report document.

- Visually impaired users touched the touchscreen in the process of exploring the BMD setup. The startup sequence should be tolerant of inadvertent touchscreen touches.
- Users expressed that some additional keypad buttons, such as pause, repeat or cancel, might be useful. Consider which additional functions to add.
- Users were delighted when the audio started as soon as they placed headphones on their head. Consider whether there is a reasonable and reliable way to make this happen.
- A consistent repeat function - exploration needed digital vs. tactile buttons.
- The review selections section wasn't obvious to all users. Improve the verification flow.
- The user driven interaction model for the tactile controller + audio UI actually isn't appropriate for other audio + input combinations, such as touchscreen or A/B switch. Evaluate and prioritize these combinations to find the right solution for the BMD.