

10ft Interface and Controller Prototype

Smart TV UI & Controller - Draft

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February 25, 2023 | Spring 2023 Principles of Interaction



Project Deliverables

Scenario: Tasked with creating a new Studio-specific proprietary streaming device and application (like a Chromecast or FireTV stick). Plan out the interface and how the user navigates it through inputs.

Using the concepts of responsive design, plan a user-friendly 10-foot interface that a user would interact with from approximately 10 feet away, i.e., couch and television.

Design requirements

Create wireframes that show at least one viewport of content with two views – a grid view and a single-column view.

Grid view: Show options in a condensed view and should include:

- A screenshot thumbnail
- Movie or show name
- User rating
- Running time (or episode count)
- Year made.

Grid view should allow for more items to be on screen at once.

Single column view: Allows for more expanded metadata.

Required in view:

- All elements from the grid view
- An expanded screenshot or image series
- A brief movie summary
- Top-billed cast/crew
- A similar tv/film list.

Prototype the inputs (controller):

Design of the proprietary controller. Create at least a lo-fi/paper prototype of the controller. Show/describe how the controller will navigate:

- Menus
- The main interface
- Streaming content

See toggle functionality in action:

https://video.kent.edu/media/10ft+UI+Toggle+Interaction/1_2sak95mf

Design Research & Considerations

Users are in a “lean-back” experience or a passive mindset. They aren't looking to do anything complicated and often hope to relax. Because of this, this design stuck to standard UI practices and strategies for this 10ft interface.

All elements must be easily navigatable on screen using a directional controller (d-pad.) Essential functions include left, right, up, down, and select.

The design must consider the text and critical on-screen actions within safe-zone margins that can vary between 85%-95% of the screen (height and width.) When designing these screens, 10ft interfaces with 1080p (and up) displays were top of mind:

- 1080p = 1920x1080px at 320dpi
- Simple san-serif fonts or simple system font
- Layouts that flow within limited-direction navigation

TV screens have a “Flicker” effect due to the display's odds and even scan lines because of this, lines or borders should be no less than 2 pixels thin to prevent them from disappearing or flickering on display.

When it comes to colors, it's best to avoid using pure white (#ffffff) because it can create a halo effect. A slightly off-white (like #f1f1f1) is recommended use instead. It's also best to avoid over-saturated colors (like red) due to their strain on the eyes. Darker colors (close to black) are opted for (mimic dark mode), keeping the eye focused on the available content.

The font size was also a significant consideration for this project. Anywhere from 24px to 96px font size is recommended for 10ft UIs. No text should be less than 24px due to the user's distance from the screen.

Focus/highlight states must indicate the user's location/position within the navigable items - no ambiguity.

Some additional principles followed include:

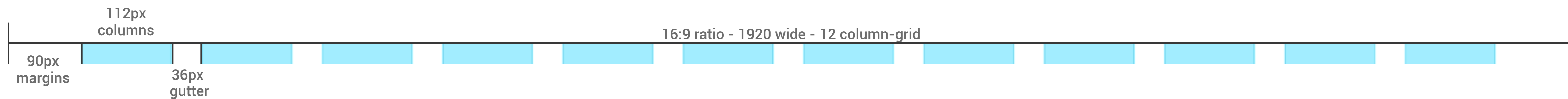
- Simplicity and lightweight interaction
- Clean and simple design
- Use of more prominent (larger) elements with considerable space between them.
- Presenting a clear set of actions/options on the screen
- Putting the most important content/options first for easy navigating
- Avoiding unnecessary screen levels - make it easy to get in and out of screens

Sources for standards, best practices, and inspiration*:

- Cooper, Cronin, Reimann. (2014) About Face: The Essentials of Interaction Design (4th) Wiley. (Pg 564-566 - Designing for 10-foot interfaces)
- Design and User Experience Guidelines (Fire TV) | Amazon Fire TV - <https://developer.amazon.com/docs/fire-tv/design-and-user-experience-guidelines.html>
- Introduction - Android TV - <https://tv.withgoogle.com/>
- Designing a 10ft UI. Designing a television user interface... | by Pascal Potvin | Medium - <https://pascalpotvin.medium.com/designing-a-10ft-ui-ae2ca0da08b7>
- A Step Forward: Designing for the 10-Foot User Experience | Solid Digital - <https://www.soliddigital.com/blog/designing-10-foot-user-experience>
- Re-Thinking User Interface Design for the TV Platform | by Pascal Potvin | You.i TV | Medium - <https://medium.com/you-i-tv/designing-for-10ft-ceeb202c1315>
- Beyond the Toilet Paper Roll: Prototyping for 10ft - Medium - <https://medium.com/you-i-tv/beyond-the-toilet-paper-roll-prototyping-for-10ft-dde17c0dc71a>
- How to Design a Smart TV Interface That Works - <https://www.bsgroup.eu/blog/tips-for-ui-ux-design-on-smart-tv/>
- Designing for Television, Part 1 - <https://medium.com/this-also/designing-for-television-part-1-54508432830f>
- Design Inspiration/Examples - <https://pin.it/6J2lv1k>

Note: Annotations in blue

Grid Layout



- 1 Grid**

The categories page would adhere to a grid layout, remaining in-frame horizontally versus having swimlanes (overscan.) Content stays within safe action & text areas.

Directional (d-pad) buttons allow you to scroll up and down, left and right through listings.
- 2 Select movies**

Thumbnails would feature cover images (or a movie screenshot.) When a movie is focused/highlighted (first one by default on page load), the thumbnail will expand slightly with a thick border & shadow to signify where the user is on the page.

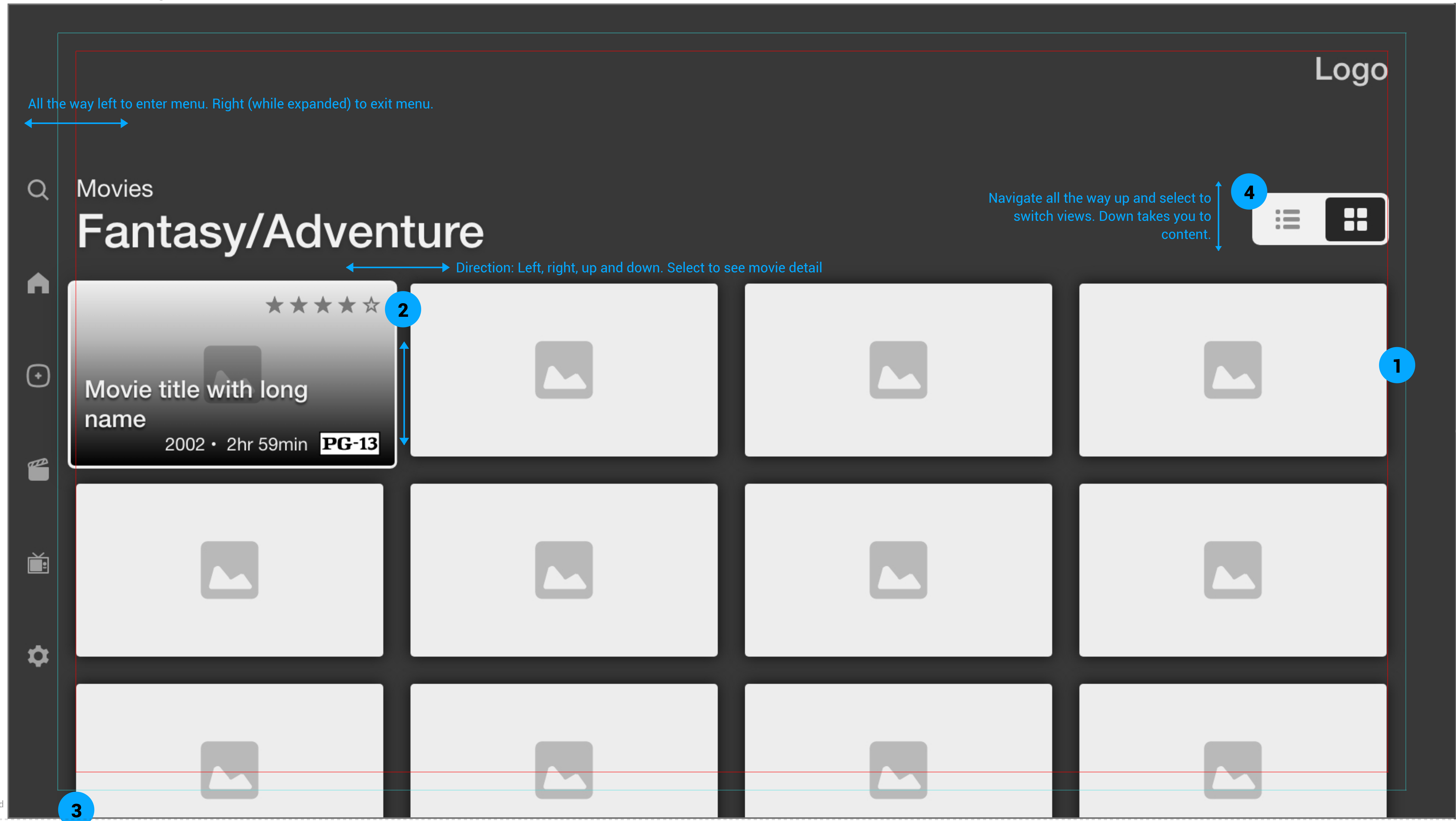
When highlighted, metadata would appear (overlaid), including:

 - Movie title (name)
 - User star rating
 - Year released
 - Runtime
 - Film ratings (for audience appropriateness)

If the select button on the remote is clicked while in focus, it would transition to a details page where you could see more info, play or add to the watchlist.
- 3 Infinite scroll**

Options would scroll until all content within that category is shown. If the user doesn't want to scroll to find content, they could utilize the search function within the side menu (by arrowing left.)
- 4 Toggle views**

For the user who prefers a list or perhaps more details when browsing, they'll be able to toggle their view option from the grid to list view.

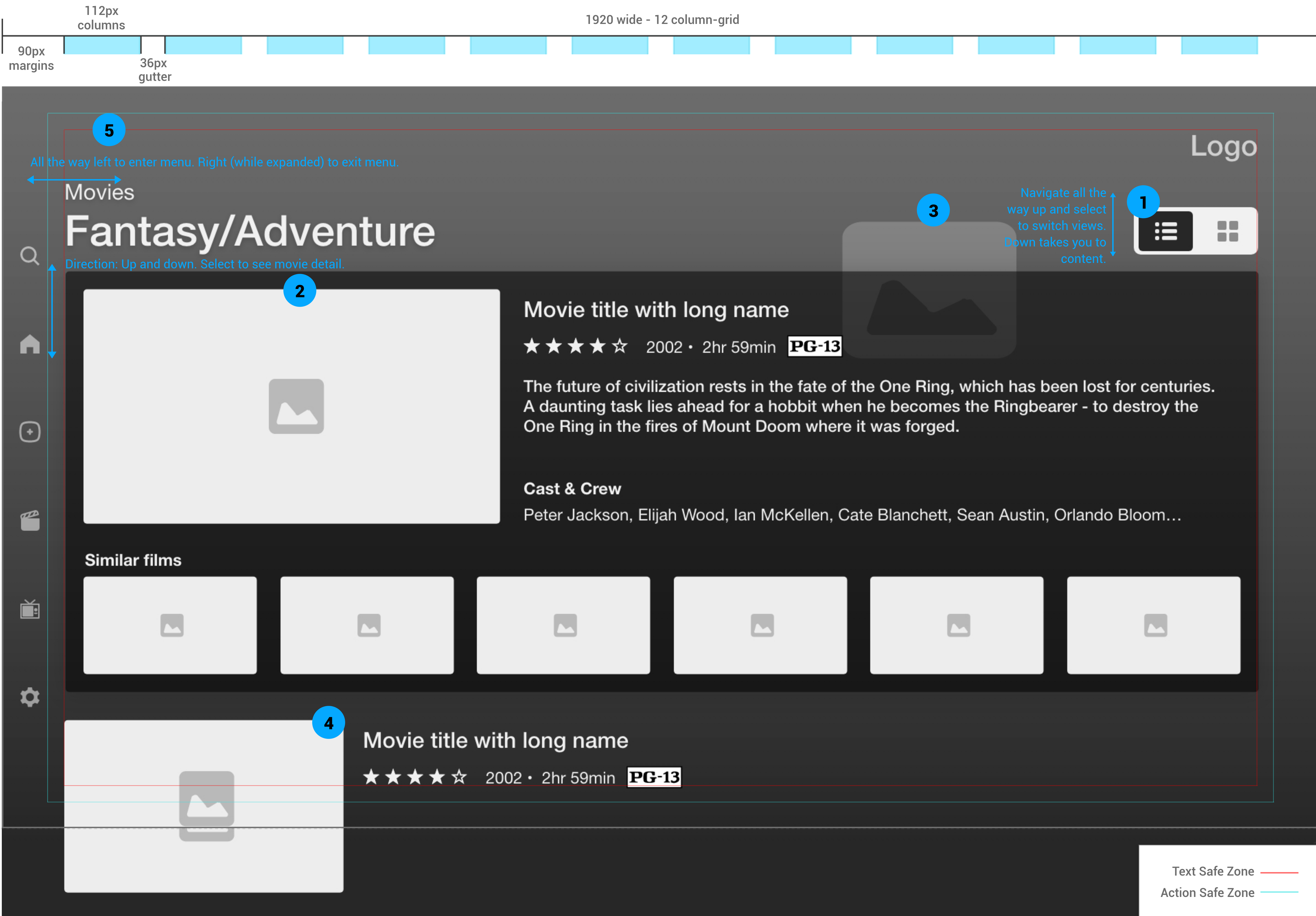


Text Safe Zone ———

Action Safe Zone ———

3

Single-Column Layout



- 1 Moved-up**
When toggled to list view, category headline and toggle buttons would push up to allow more space for the movie/show list.
- 2 More Details**
Content is nested in a box that stretches the entire column grid when a movie is focused. The movie image gets slightly larger (expanded), and the additional content is displayed:
 - Movie Name
 - User star rating
 - Year released
 - Runtime
 - Film ratings
 - Short synopsis/summary
 - Top-billed cast/crew
 - Similar films

If the select button on the remote is pressed while a movie is highlighted, it will, again, transition to a details page where users can see more info, play or add to their watchlist.
- 3 Expanded screenshot image**
An aesthetic feature: an image from a scene in the focused movie would fill the background (with an overlay, so all text is legible.)
- 4 Additional listings**
Non-focused listings would appear in a list with a smaller screenshot and less info until highlighted. The users would scroll through these listings using the D-pad directional up and down buttons..
- 5 No back button**
An on-screen back button was excluded on both views because functionality resides on the remote.*

See toggle functionality in action:
https://video.kent.edu/media/10ft+UI+Toggle+Interaction/1_2sak95mf

Remote Control - Sketched Draft

Contextual inquiry study & in-person moderated testing

Tested: Competitor remotes of similar size and shape with three non-disabled participants:

- one adult male - larger hand size
- one adult female - medium hand size
- one child (age 5) female - small hand size

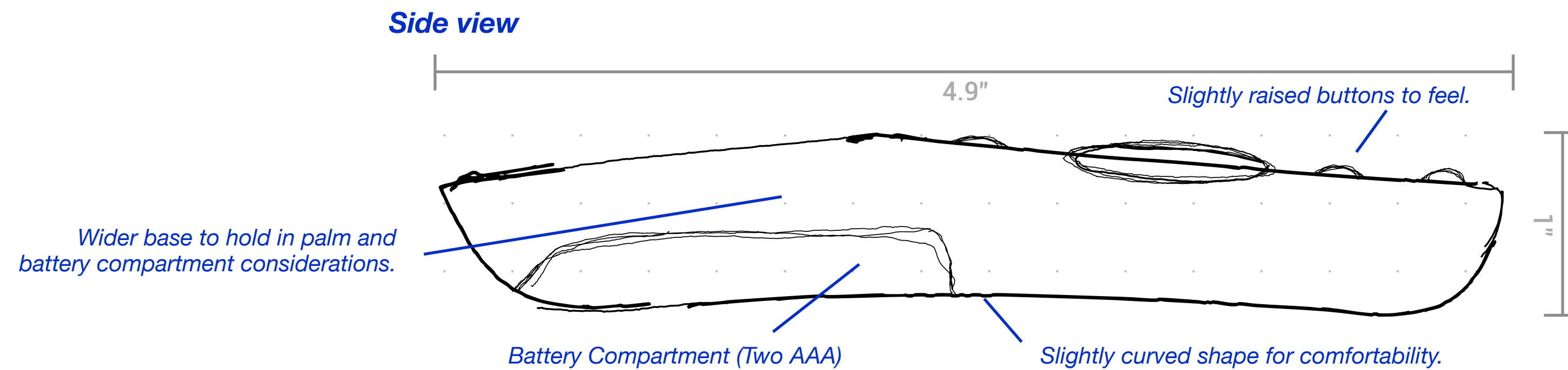
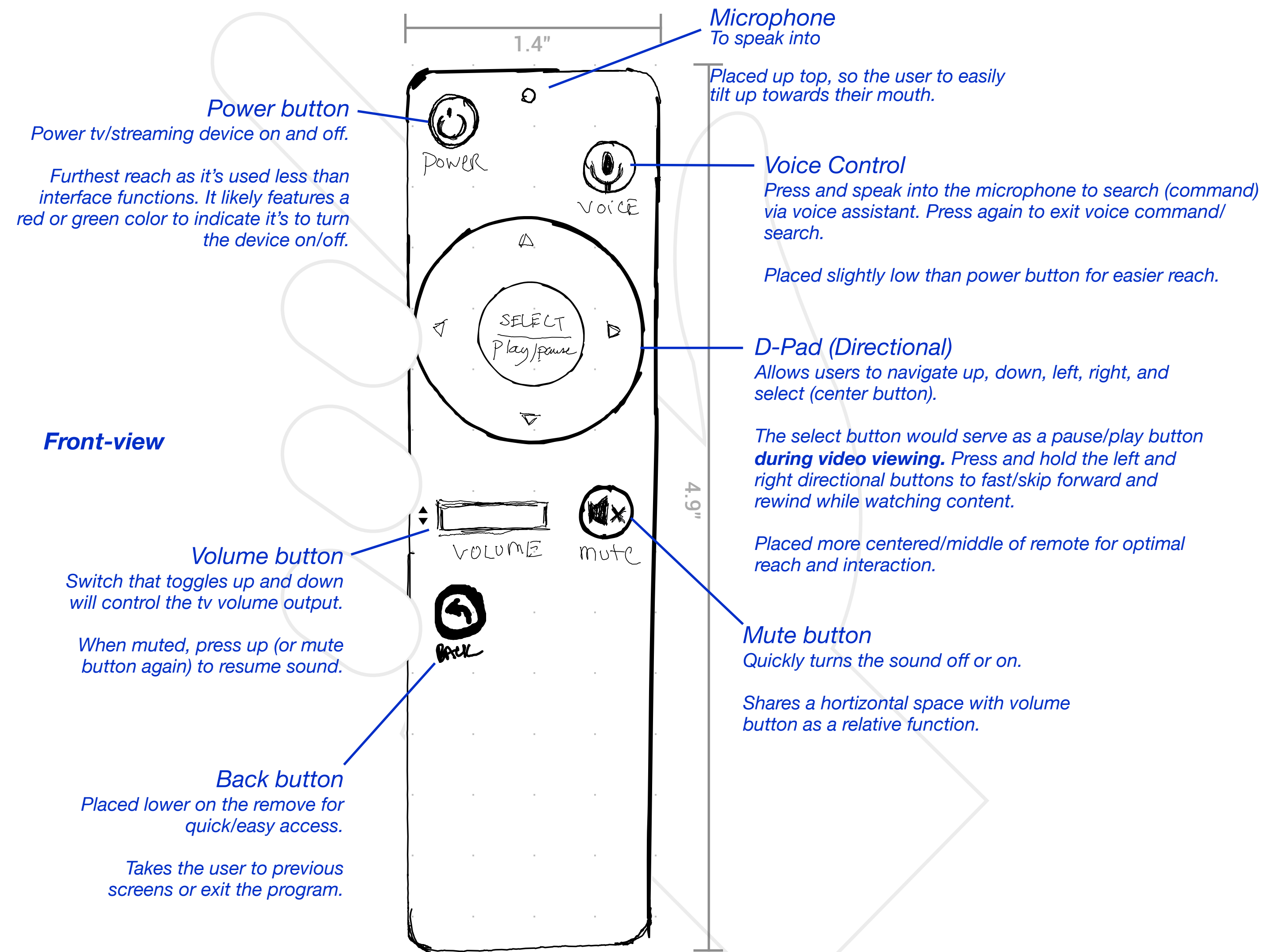
Observation and interviews were conducted to understand usage, behaviors, and remote comfortability.

Goals

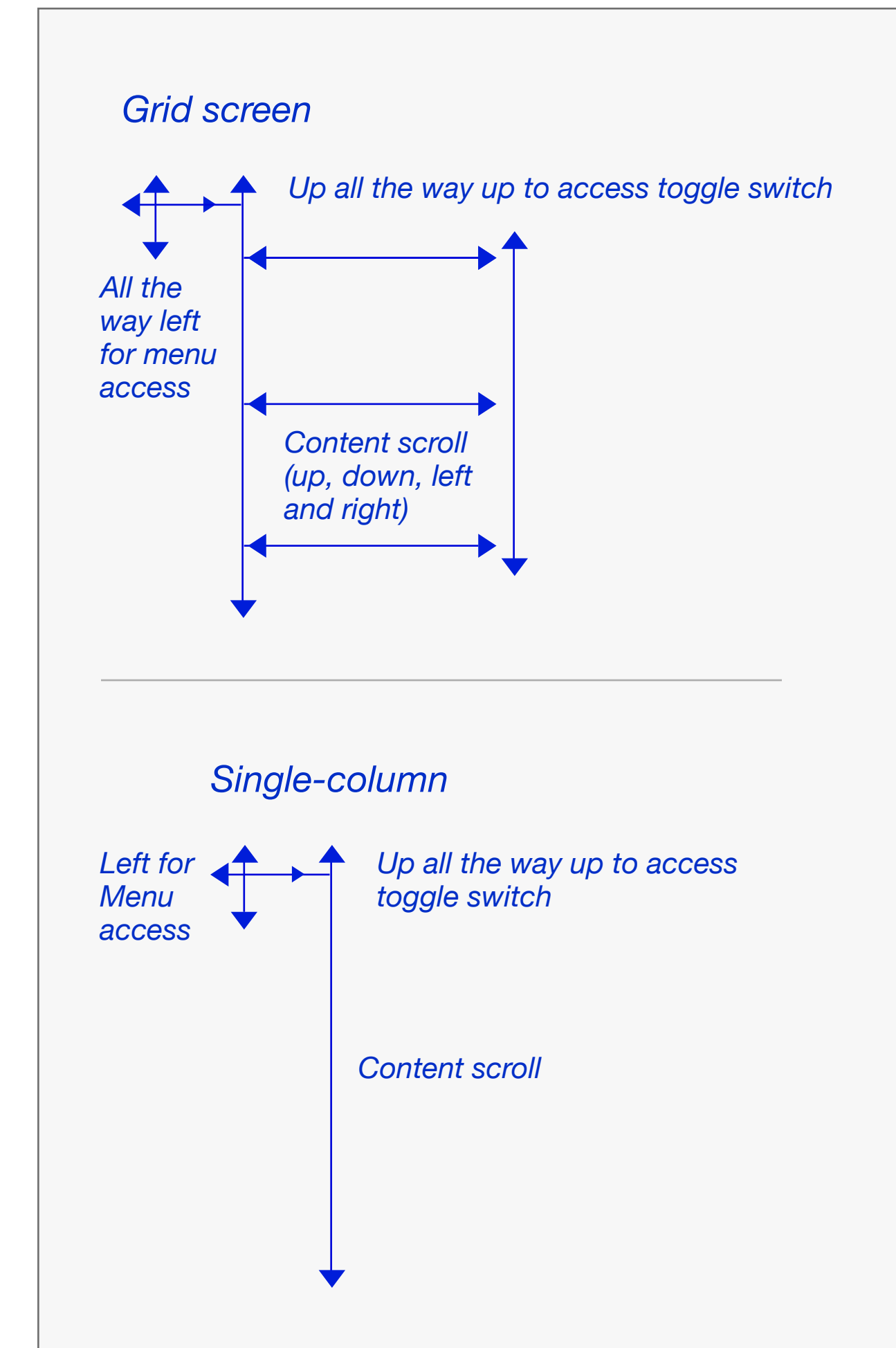
- Discover the ease of functionality - placement & understanding of button
- Ergonomics - comfortability and thumb reach
- Ambidexterity - Used comfortably by left & right handed individuals

Findings

- Buttons should be labeled with icons
- Need an easy way to get back to the previous screen
- Placement power button out of range of main directional functions to avoid accidental shut off
- Direction pad, back & volume buttons should be placed for easy thumb access • Size of the device should comfortably fit into hands of all sizes



D-pad trajectory

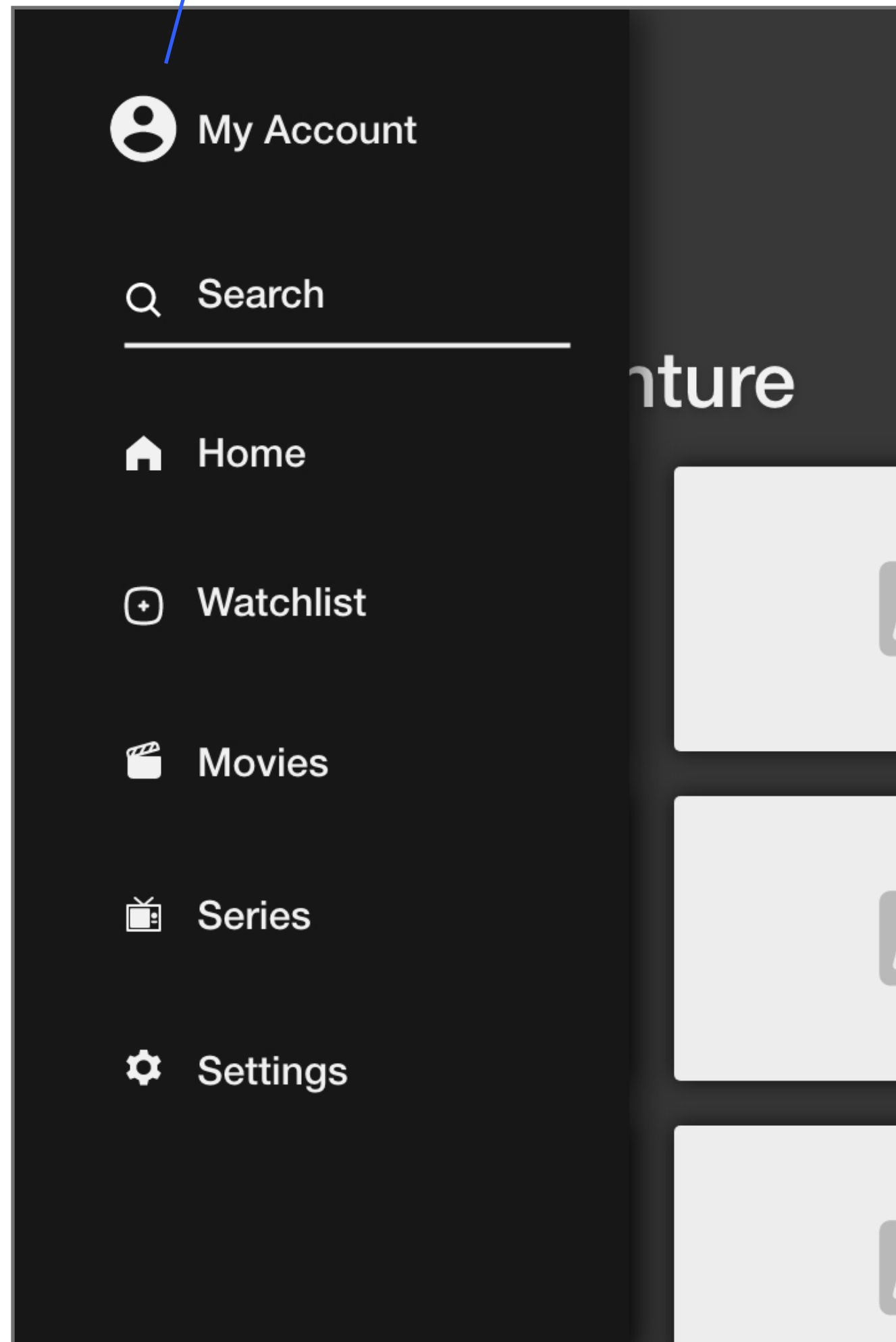


Additional views, sketches and notes

Included to show process and idea iteration.

Menus functions would slide out in a drawer function. All menu options would move into the text and actions safe zone.

Account access (to switch users) would appear when the menu is expanded.



Tap directional buttons (up and down) to access menu options.

Hit the back or right buttons to resume the current screen.

10ft UI Grid - categories

1 D list view - content level
Select a category & Shows all content, format categories.

grid view - options in condensed view.

- Screenshot thumbnail
- name
- rating
- runtime (or episode count)
- year made
- multiple items on screen

Provide rationale List - categories

prototype inputs

- Consider: touch capacity
- led/small interface
- motion sensing (wii)
- voice control

propensity controller

10ft - paper prototype of how it will

- Navigate menus
- Control streaming content (pause, play, etc)

Single column view

- provide expanded meta data
- all info from grid view
- + expanded screenshots/images
- + brief summary
- + top billed cast/crow
- + similar to/film list?
- + Add to watchlist
- + play / New trailer

Wireframe prototype: Annotate

Controller:

- organization of design
- How it works for user
- Note patterns & principles used.

Annotate layout & functionality

- How its usable/enjoyable/easier or intuitive

Provide rationale - include as many visuals as possible

4:3 Ratio -

- 93.4% w x 93% h action
- 86.6% w x 98% title

16:9 Aspect Ratio

93% w x h Action SAFE

80% w x 90% h title safe area?

Default minimum:

- D-pad - L, R, U, D, S
- Back
- Home
- power?
- mic

Provide rationale - include as many visuals as possible

93% w x h Action SAFE

80% w x 90% h title safe area?

Default minimum:

- D-pad - L, R, U, D, S
- Back
- Home
- power?
- mic

Ideas for remotes & digital media device.

power mic

Directional (L, R, U, D, S)

volume/channel?

voice control activation

power? mic

voice assistant

mute

controller

Home

column grid?

Streaming unit (plug in)

Homepage

Click to category listing

new expanded

Expanded menu

Ambidexterity

Left & right handed

ergonomic?

power mic mute

Volume

Swimlanes were reserved for the home screen or subcategories within a main category (where applicable.)