



# Designing Holistic User Experiences

Reintegration will begin soon.....

# UX and UI

## UX – User Experience

Focuses on what the user needs and minimizes “pain points”

Answers questions such as:

- Who will use this UCI and when?
- What are the most common 2-3 tasks?
- How do users recover from mistakes?
- Which controls must always be visible?
- Can non-experts use it if necessary?

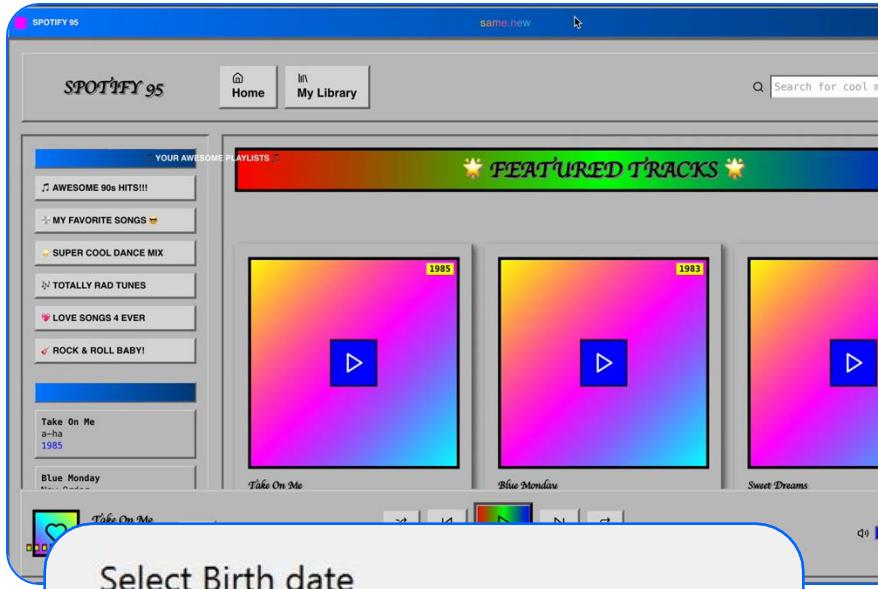
## UI – User Interface

How the UCI looks and responds

Answers questions such as:

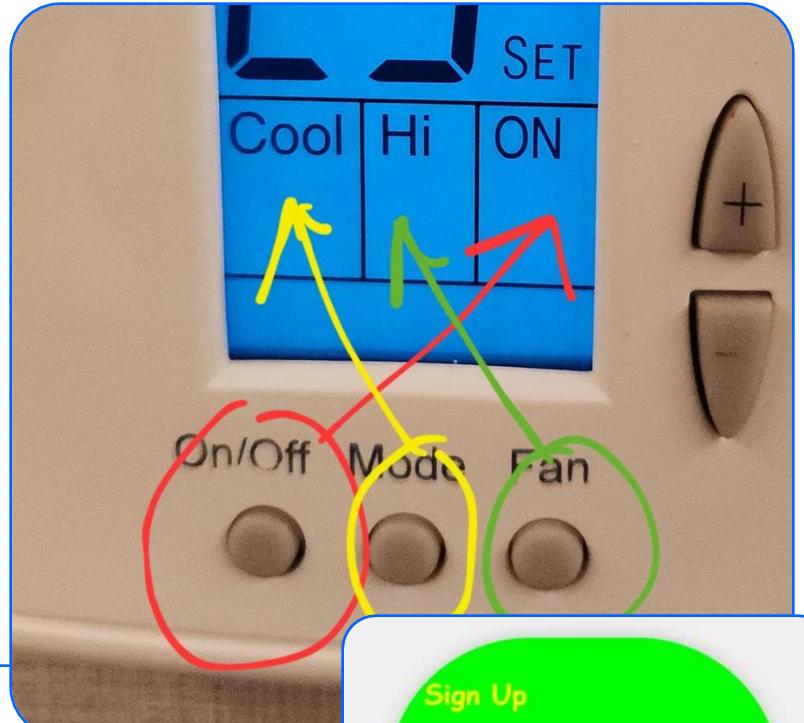
- Are buttons large enough for fingers?
- Is text readable from arm's length?
- Do buttons provide clear press feedback?
- Does the interface feel responsive and premium?

# Good Design



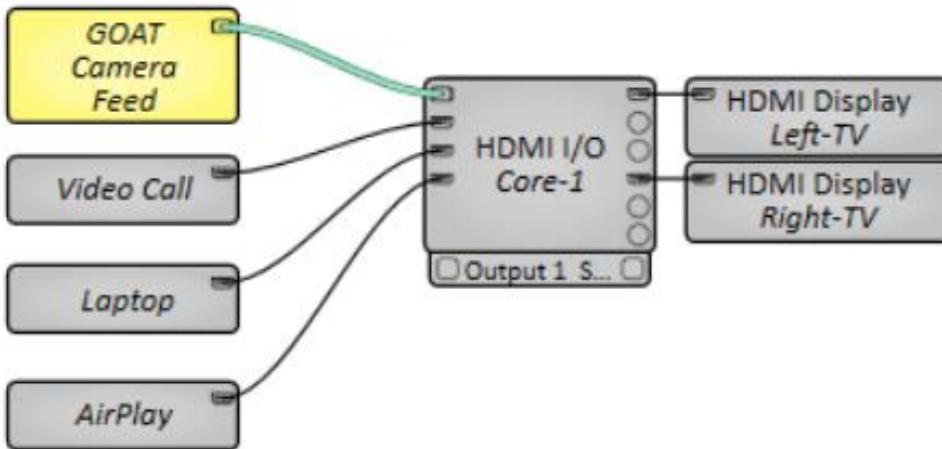
Please indicate the age and gender of your child or children:

- Boy age 6
- Girl age 6
- Boy age 10
- Boy age 2
- Boy age 8
- Girl age 5
- Girl age 3
- Male teen age 14
- Male teen age 15
- Boy age 5
- Girl age 10
- Boy age 12
- Girl age 9
- Boy age 13
- Girl age 11
- Boy age 16
- Girl age 17
- Boy age 18
- Girl age 19
- Boy age 20
- Girl age 21
- Boy age 22
- Girl age 23
- Boy age 24
- Girl age 25
- Boy age 26
- Girl age 27
- Boy age 28
- Girl age 29
- Boy age 30
- Girl age 31



A screenshot of a sign-up form. It includes fields for "Username", "Password", and "First name". There is a CAPTCHA field containing "cGx6HVwdm90ZQ==". A note says "You have 5 seconds to input captcha or it changes". A "Submit" button is at the bottom. Below the form is a "Feedback" section with the question "Thank you for ordering, how did you like the ordering experience?". Five star icons are shown below the question, with one star highlighted in black.

There are bad examples of UI's everywhere...



## Scope of Work

- Sources = Video Call, Laptop, Airplay
- Displays = Left, Right
  - TSC-70-G3 Panel
  - It should be easy enough that someone with no experience or memory of the outside world can use it.
  - Use our brand colors
  - We want a picture from our design team on the touch panel background.
  - (Don't tell anybody about the goats)

# Cool Harbor Room



HDMI Output 1 Source

- HDMI1
- 4
- Graphic 1
- Graphic 2
- Graphic 3
- HDMI1
- HDMI2
- HDMI3
- Mediacast In 1

HDMI Output 2 Source

- Follow HDMI1
- 7
- Graphic 1
- Graphic 2
- Graphic 3
- HDMI1
- HDMI2
- HDMI3
- Follow HDMI1

TV Controls

TV One

Power On

Power Off

TV Two

Power On

Power Off

Video

Call

Lights

Status

# Cool Harbor

Everything is fighting for attention – it lacks structure.

It isn't clear what the user should do on this page.

Background containers stand out too much

Color use doesn't align with volume slider's function

Too many options

Buttons and labels are too small and also hard to read

Red/green is hard for colorblind viewers – also used too excessively

Buttons aren't very readable

Background and lower border are very distracting

Video

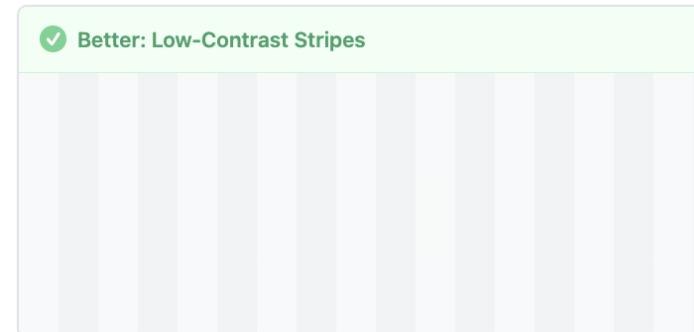
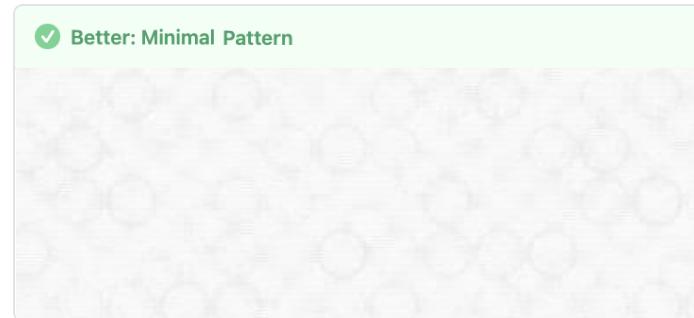
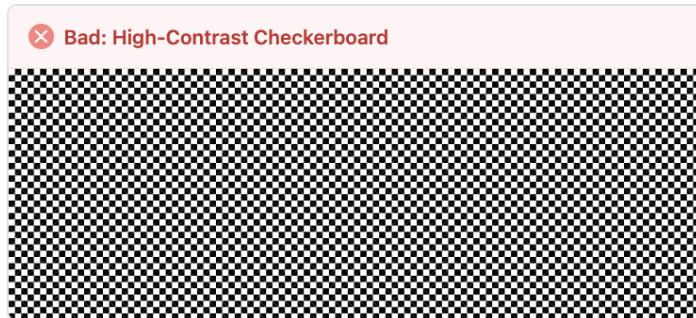
Call

Lights

Star

Overall, colors feel off-brand

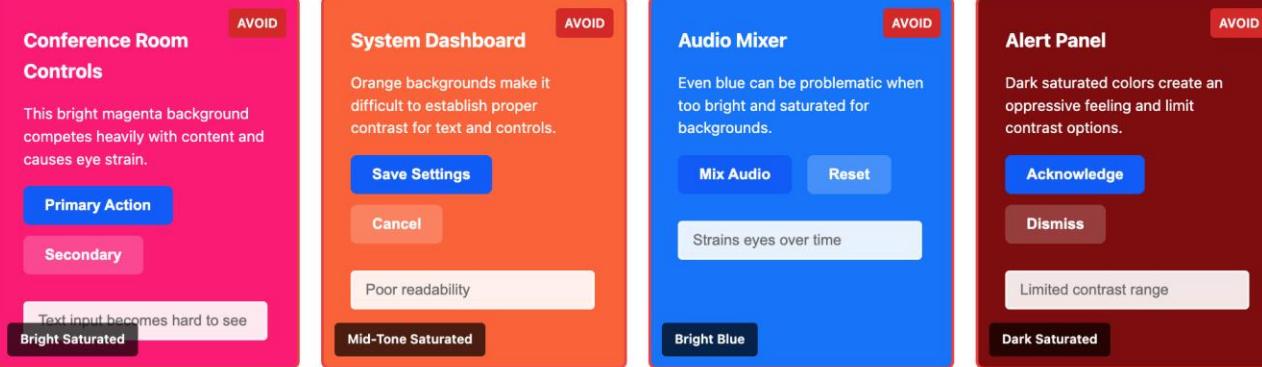
# Avoid scintillation in patterns and colors



Putting colors that have high contrast next to each other can produce an optical effect called scintillation – where colors appear to vibrate off the page or screen.

# Design Tips: Choosing Background Colors

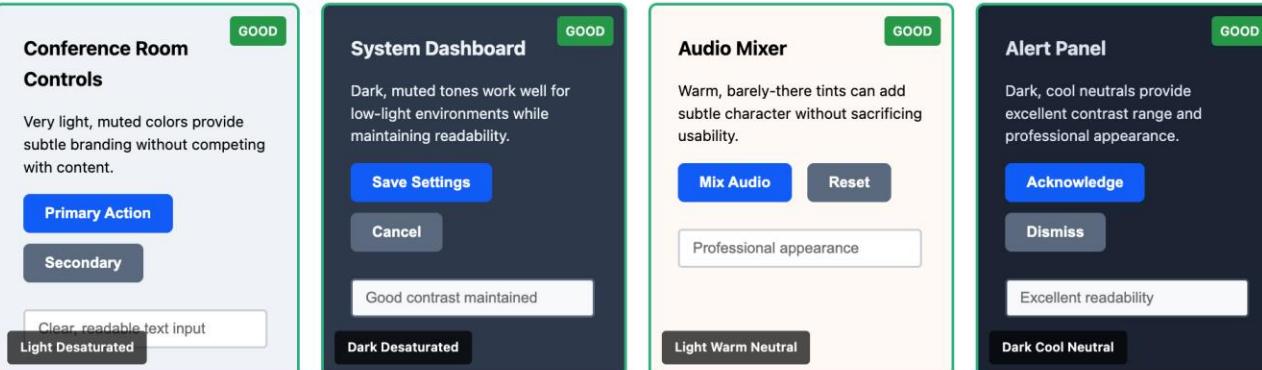
**X Problematic Colored Backgrounds**



The first four cards show problematic background colors:

- Conference Room Controls**: Bright magenta background. **AVOID**. Text input becomes hard to see.
- System Dashboard**: Orange background. **AVOID**. Orange backgrounds make it difficult to establish proper contrast for text and controls.
- Audio Mixer**: Bright blue background. **AVOID**. Even blue can be problematic when too bright and saturated for backgrounds. Strains eyes over time.
- Alert Panel**: Dark red background. **AVOID**. Dark saturated colors create an oppressive feeling and limit contrast options.

**✓ Better Colored Background Choices**



The last four cards show better colored background choices:

- Conference Room Controls**: Very light, muted colors. **GOOD**. Clear, readable text input.
- System Dashboard**: Dark, muted tones. **GOOD**. Good contrast maintained.
- Audio Mixer**: Light warm neutral. **GOOD**. Warm, barely-there tints add subtle character without sacrificing readability.
- Alert Panel**: Dark cool neutral. **GOOD**. Dark, cool neutrals provide excellent contrast range and professional appearance.

It is incredibly hard to make a **bright colored** background readable.

Instead, choose very dark or very light, neutral colors and use brighter colors for the most important actions on the screen.

Note: Pure black on white or white on black can strain vision because there is **too much contrast**.  
#FFFFFF and #000000

# Cool Harbor Room



HDMI Output 1 Source

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- Mediacast In 1

HDMI Output 2 Source

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TV Controls

TV One

Power On

Power Off

TV Two

Power On

Power Off

Video

Call

Lights

Status

# Show the user only what they need.

## Primary Tasks

Main screen - used every session

Select video source

Volume & mute

Display on/off

## Secondary Tasks

Quick access - used occasionally

Display settings

Audio options

Presets

## Tertiary Tasks

Settings menu - setup & admin

Device settings

Network config

System admin

### Focus on User Goals

Group controls and content based on what users are trying to accomplish in a single session, not by technical categories or device features.

### Respect Context & Time

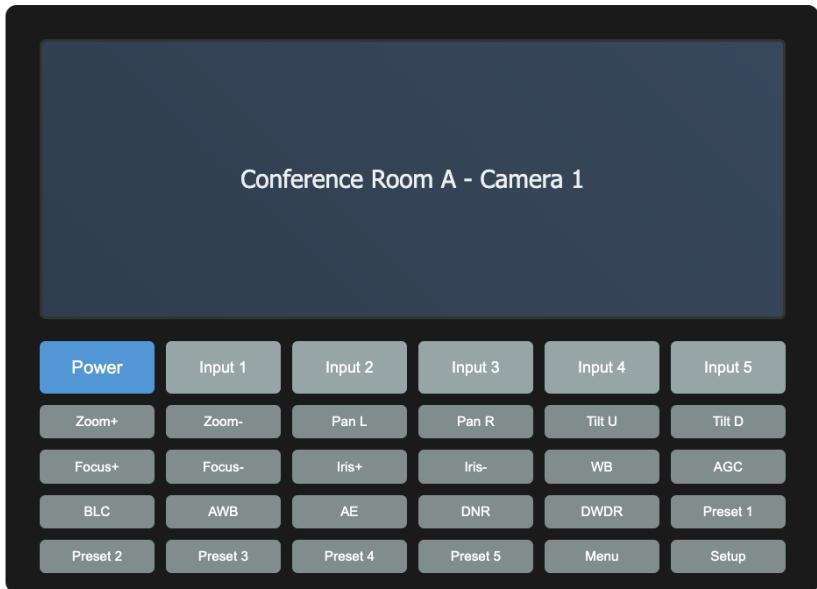
Conference room users are often under time pressure. Put frequently needed controls front and center, with less common functions easily discoverable but out of the way.

### Maintain Discoverability

Secondary functions shouldn't disappear completely. Create clear paths to settings and advanced features through consistent navigation patterns.

# Give the user controls that make sense to them.

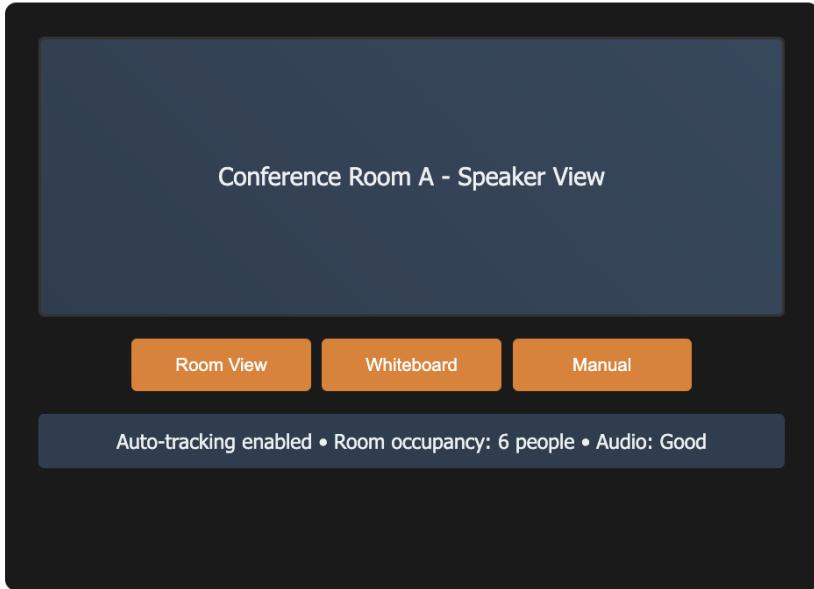
## ✗ What NOT to Do



### Problems:

- Overwhelming number of options
- No clear hierarchy or grouping
- Technical jargon (AWB, DNR, DWDR)
- No guidance on what to use when
- Cognitive overload for users

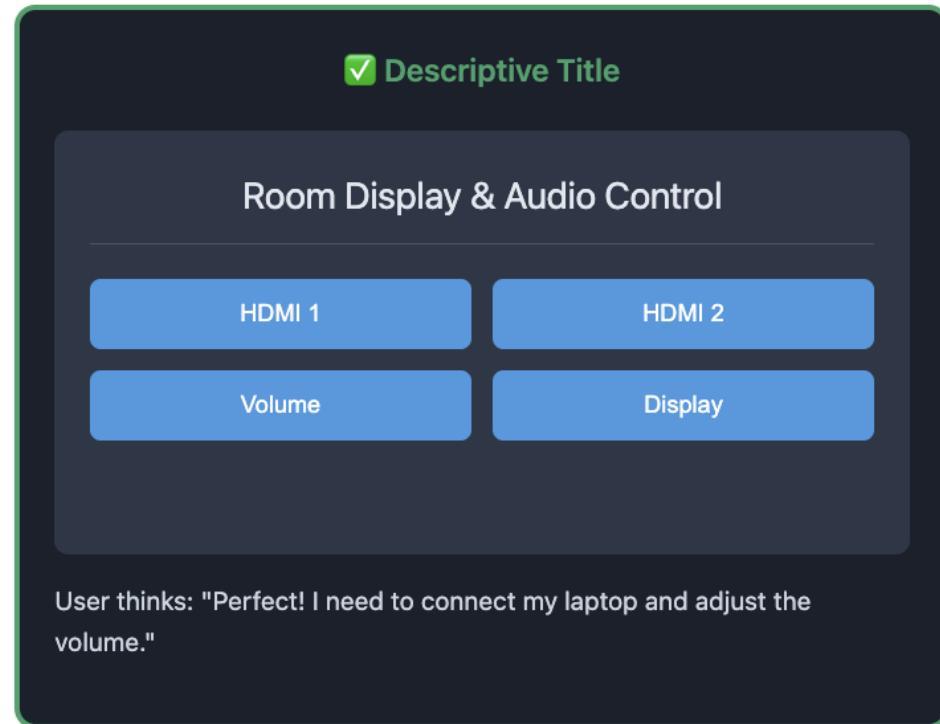
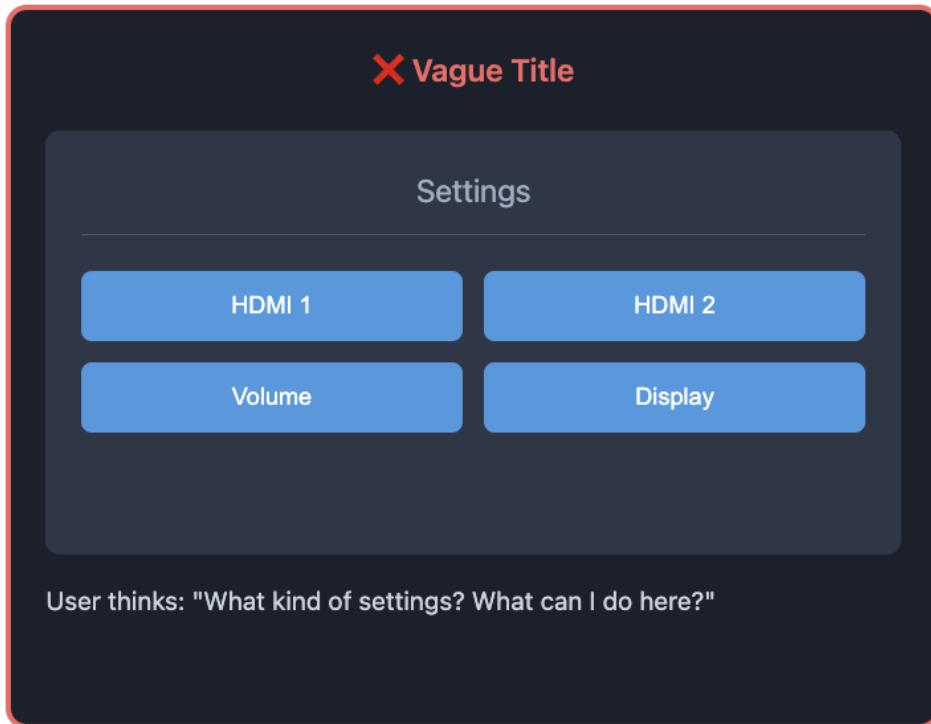
## ✓ What TO Do



### Why This Works:

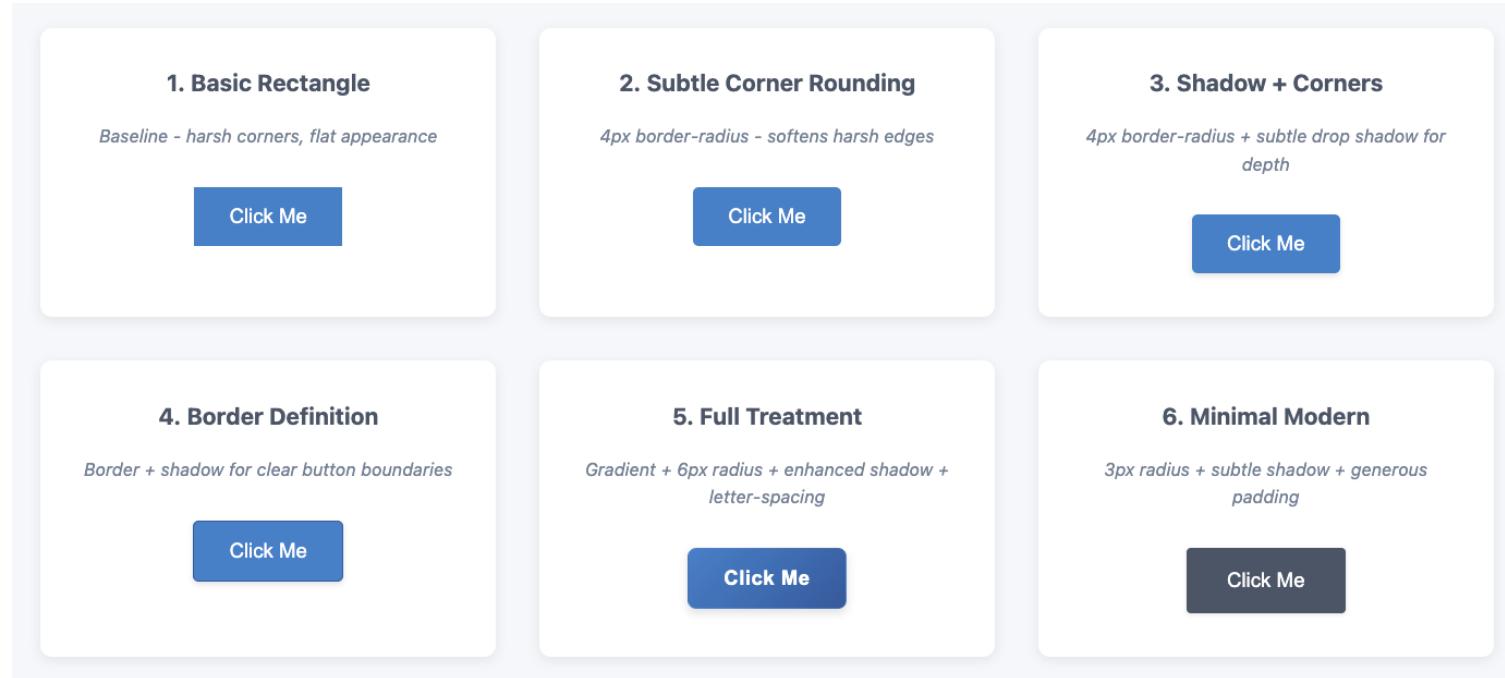
- Task-oriented controls ("Room View" not "Pan/Tilt/Zoom")
- Context-aware suggestions
- Clear, descriptive labels
- System status feedback

# Add a helpful page title



## Design Tips:

# Make your buttons look like buttons



The image displays six examples of button designs, each labeled with a number and a title, followed by a descriptive subtitle and a blue "Click Me" button.

- 1. Basic Rectangle**  
*Baseline - harsh corners, flat appearance*  
Click Me
- 2. Subtle Corner Rounding**  
*4px border-radius - softens harsh edges*  
Click Me
- 3. Shadow + Corners**  
*4px border-radius + subtle drop shadow for depth*  
Click Me
- 4. Border Definition**  
*Border + shadow for clear button boundaries*  
Click Me
- 5. Full Treatment**  
*Gradient + 6px radius + enhanced shadow + letter-spacing*  
Click Me
- 6. Minimal Modern**  
*3px radius + subtle shadow + generous padding*  
Click Me

Sharp Rectangle

Well-Styled Button

Overly Rounded

## Design Tips:

# Make your buttons look like buttons.

### ✖ Problems with Poor Padding

#### Too Cramped

Sign Up

padding: 2px 4px

Text touches edges, hard to tap, looks unprofessional

#### Still Too Tight

Download Now

padding: 4px 8px

Better but still feels cramped, especially on mobile

#### Uneven Ratios

Subscribe

padding: 4px 24px

Wide but short - feels stretched and awkward

### ✓ Proper Padding Examples

#### Minimal (Small Buttons)

OK Cancel

padding: 8px 12px

Good for secondary actions, compact interfaces

#### Comfortable (Most Common)

Get Started

padding: 12px 24px

Sweet spot - good balance of size and clickability

#### Generous (Primary CTAs)

Start Free Trial

padding: 16px 32px

Perfect for important actions, landing pages

## QSC Q-SYS Touch Panel Specifications

### TSC-50-G3 (5-inch)

1280×720px | 294 DPI

**Minimum: 85px for 7.4mm** ✓

**Recommended: 100px for 8.7mm**

### TSC-70-G3 (7-inch)

1280×800px | 216 DPI

**Minimum: 60px for 7.4mm** ✓

**Recommended: 75px for 9.3mm**

### TSC-101-G3 (10.1-inch)

1920×1200px | 225 DPI

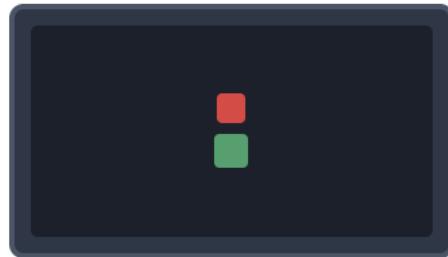
**Minimum: 65px for 7.4mm** ✓

**Recommended: 80px for 9.1mm**

## Button Size Proportions on Each Panel

### TSC-50-G3 (5")

1280×720px



- 85px min (6.6% width)
- 100px rec (7.8% width)

### TSC-70-G3 (7")

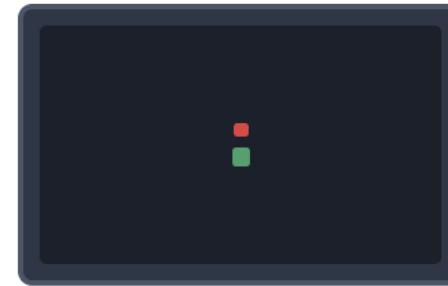
1280×800px



- 60px min (4.7% width)
- 75px rec (5.9% width)

### TSC-101-G3 (10.1")

1920×1200px



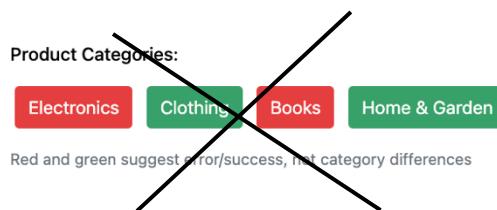
- 65px min (3.4% width)
- 80px rec (4.2% width)

## Design Tips:



# Red and green for status

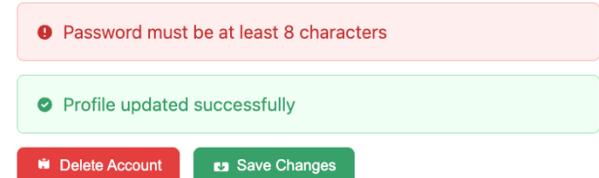
Don't use it for categories



Red/Green should be used for status

● Database Server	ONLINE
● Email Service	OFFLINE
● Backup System	PENDING

Use icons to help reinforce colors

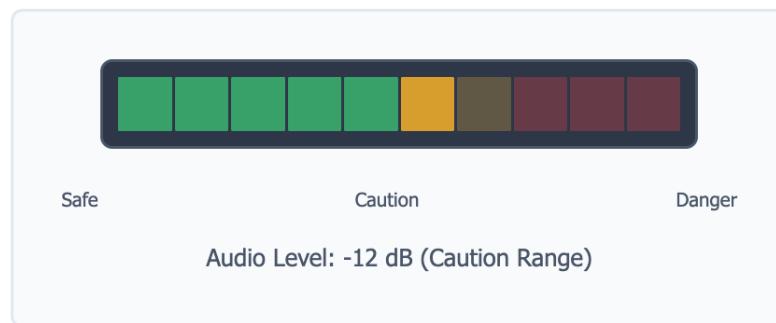


# Design Tips: Use colors where appropriate



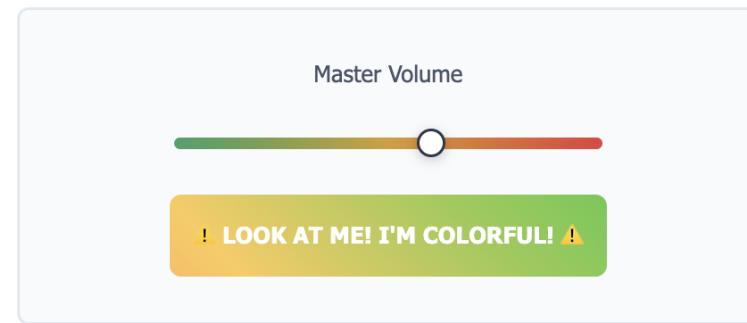
## ✓ Sound Level Meter

Appropriate use of color gradient



## ✗ Volume Slider

Inappropriate use of color gradient



### ⌚ Why This Works:

- **Safety Communication:** Colors indicate hearing damage risk
- **Universal Understanding:** Red = danger is culturally consistent
- **Immediate Recognition:** Users can quickly assess safety levels
- **Functional Purpose:** Colors convey critical information about acceptable limits
- **Passive Monitoring:** Users can see status at a glance

### ⚠ Problems with This Design:

- **False Implications:** Red suggests "bad" but high volume isn't inherently wrong
- **Unnecessary Attention:** Bright colors draw focus away from content
- **Cognitive Load:** Users waste mental energy interpreting meaningless colors
- **Subjective Preference:** Volume level is personal choice, not safety issue
- **Visual Noise:** Gradient creates distraction in the interface

## Design Tips:



# Check your design so that it reads for colorblindness

👁️ Normal Color Vision

Sample Control

ON OFF

Clear color distinction, but still has conceptual problems.

👁️ Protanopia (Red-Blind)

Sample Control

ON OFF

1% of men see reds as brownish-yellow

👁️ Deutanopia (Green-Blind)

Sample Control

ON OFF

1% of men cannot distinguish red/green at all

👁️ Tritanopia (Blue-Blind)

Sample Control

ON OFF

0.01% of people see blues as greenish

About 1 in 12 men and 1 in 200 women have some form of colorblindness.

## Design Tips:



# Check your design so that it reads for colorblindness

daltonlens.org/colorblindness-simulator

DaltonLens Software Posts Color Blindness Simulator About

### Online Color Blindness Simulators

This page lets you simulate various color vision deficiencies (CVD) directly in your browser. There are many simulation methods, with varying degrees of accuracy. Several are proposed here and they all have been carefully implemented by reviewing the state-of-the-art and testing them against reference implementations.

The python algorithms are run unchanged in the browser thanks to [Pyodide](#). It's not as fast as the original numpy code, but still reasonable for small images. Otherwise you can use [DaltonLens for Desktop](#) for real-time simulations.

**Warning: the page might have issues on 32bit systems, it was only tested on 64bit browsers.**

#### Simulated types of CVD

You can choose between the three common types of color vision deficiencies and use the severity slider to switch between full dichromacy and anomalous trichromacy. Here are the 3 kinds of CVD that can be simulated:

Protanopia / Protanomaly	Deficient L-cones (roughly centered on red), leading to red-green blindness. Present in some form in ~2% of males and ~0.04% of females.
Deutanopia / Deutanomaly	Deficient M-cones (roughly centered on green), also leading to red-green blindness. Present in some form in ~6% of males and ~0.39% of females.
Tritanopia / Tritanomaly	Deficient S-cones (roughly centered on blue), leading to blue-yellow blindness. Present in some form in ~0.002% of males and ~0.001% of females (very rare).

The deficiency type can be determined via color blindness tests. Serious ones have to be done in person with a doctor, but online tests like the [coloritelens tests](#) can give you a good hint.

Brettel 1997  Viénot 1999  Machado 2009  Vischeck (GIMP)

Machado 2009 (missing sRGB)  Coblis V1  Coblis V2

Severity:  1  
A severity of 1 means full protanopia/deutanopia/tritanopia.

No CVD (original)  Protan (red-blind)  Deutan (green-blind)  Tritan (blue-blind)

Python progress... upload

Hint: click on the image at any time to show the original.

# Where to find colors...

Someone has probably done all the hard work of figuring this out already.

## Supporting Colors

The derivative tints that make up the primary gradients can **only be used in use cases (below)** where there is the need for multi-color applications. These may include identifying details data in infographics. Please use accessible tints are leveraged in

Ask for Brand Guidelines...

Blue 100 Hex #CCE0FF	Cyan 100 Hex #D1F6F8	Red 100 Hex #FCCDD	Magenta 100 Hex #FAD0EF	Green 100 Hex #D4F8D1
Blue 200 Hex #67A3FF	Cyan 200 Hex #8DE9ED	Red 200 Hex #F56798	Magenta 200 Hex #F173D0	Green 200 Hex #7DE974
Blue 300 Hex #0166FF	Cyan 300 Hex #1BD4DB	Red 300 Hex #EE0153	Magenta 300 Hex #E816B0	Green 300 Hex #26DB18
Blue 400 Hex #0033CC	Cyan 400 Hex #00878E	Red 400 Hex #D4003A	Magenta 400 Hex #B5007D	Green 400 Hex #00A800
Blue 500 Hex #000080	Cyan 500 Hex #00555C	Red 500 Hex #F60000	Magenta 500 Hex #690031	Green 500 Hex #005C00

## Accessibility

Blue must be used with care to ensure legibility and contrast that it meets WCAG contrast ratios:

- **Text contrast:** Minimum 4.5:1 for normal text, 3:1 for large text.
- **Focus and hover states:** Use variations (like increased brightness or outline) to meet both visual and behavioral accessibility standards.
- **Visuals cues:** Provide alternative visual cues (like underline or iconography) for users with color vision deficiencies.

...Web guidelines are even better!

A high color contrast makes anything easier to read



✓ AA (4.56 : 1) for 17pt and below

✓ AA (4.56 : 1) for icons and graphics

A high color contrast makes anything easier to read

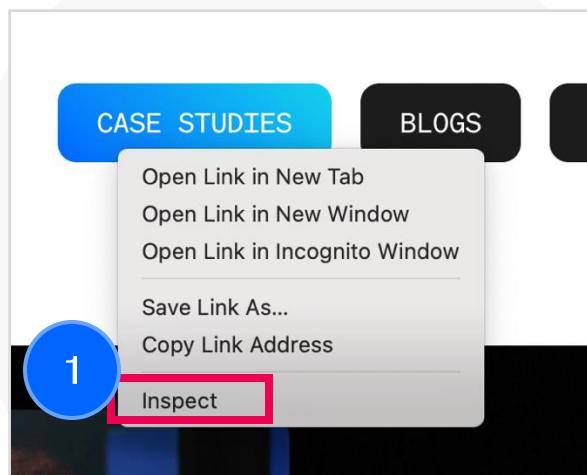


✓ AA (4.6 : 1) for 17pt and below

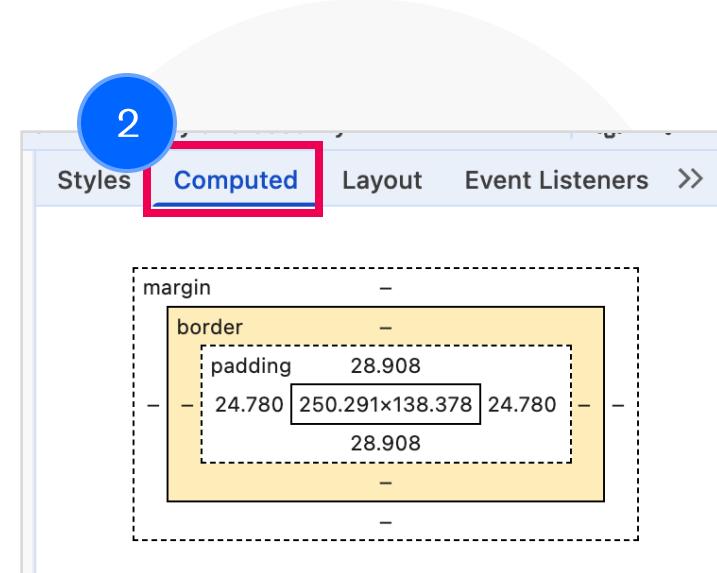
✓ AA (4.6 : 1) for icons and graphics

# Getting colors out of a web page...

Someone has probably done all the hard work figuring this out already...



You can **inspect** their web site in a web browser for color values.



In the panel that pops up, navigate to the “Computed” section



There you can find the exact color of any web element on the screen.

# Design Tips: Visual Hierarchy....



✖ Bad: Poor Visual Hierarchy

Room 204A - Video Control

Audio   Display   **Video Inputs**   Lighting   Climate

Select Video Input:

Laptop 1	Laptop 2	Webcam
Document Camera	Wireless Cast	None

Currently displaying: Laptop 1 (HDMI Port 1)

What is the first thing you notice on this screen?

✓ Good: Clear Visual Hierarchy

Room 204A - Video Control

Audio   Display   **Video Inputs**   Lighting   Climate

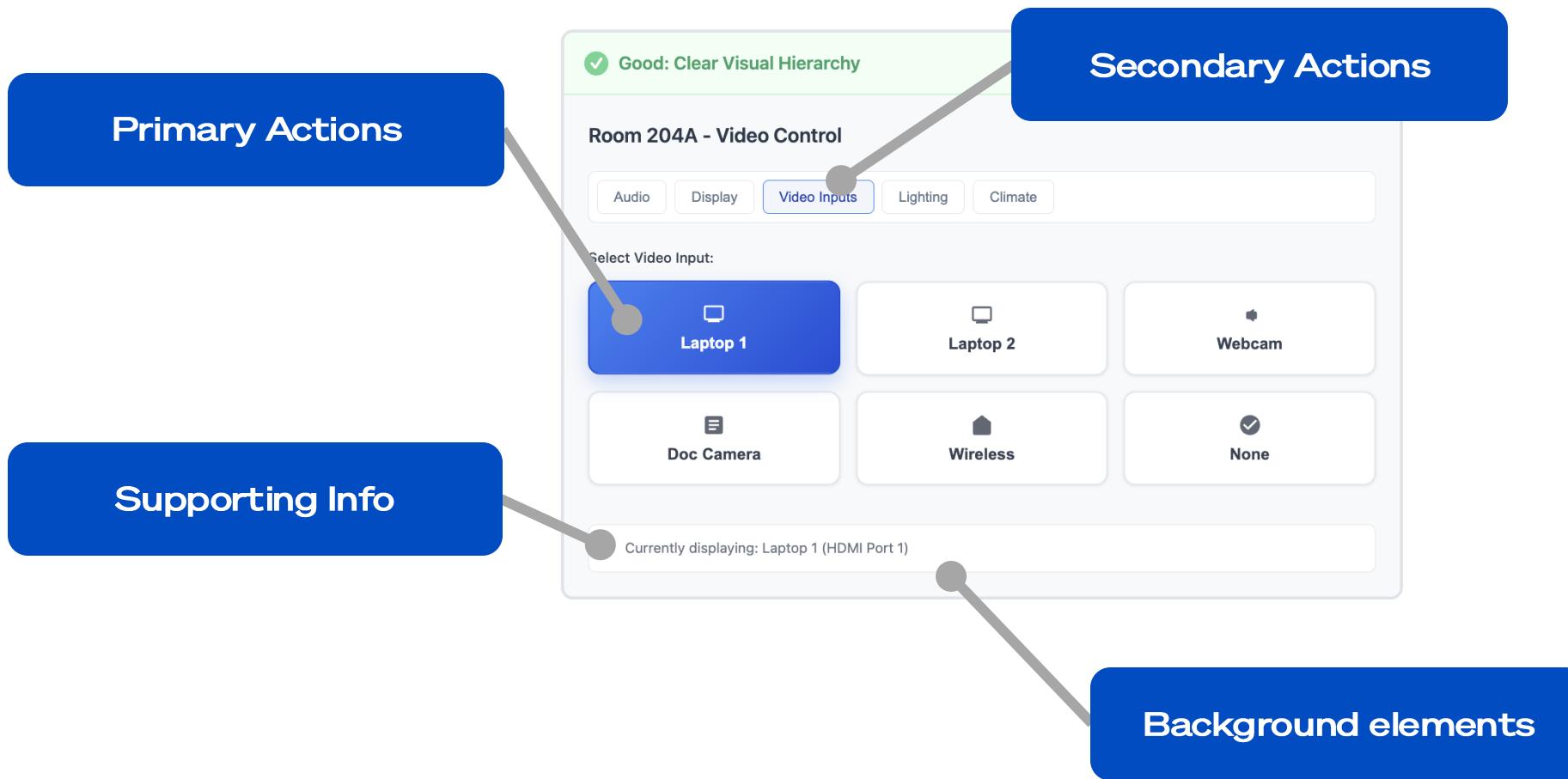
Select Video Input:

Laptop 1	Laptop 2	Webcam
Doc Camera	Wireless	None

Currently displaying: Laptop 1 (HDMI Port 1)

You should notice the thing that's most important to you.

# Design Tips: Visual Hierarchy



## Key Hierarchy Principles

### Size & Weight

Primary actions should be larger and use heavier visual weight through size, padding, and typography.

### Position & Spacing

Give primary elements more space and prominent positioning to draw attention naturally.

### Color & Contrast

Use high contrast and vibrant colors for primary actions, muted colors for secondary elements.

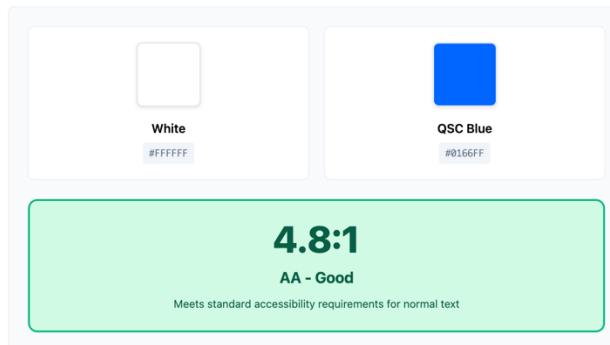
### Visual Effects

Use shadows, gradients, and hover effects to make primary actions feel more interactive and important.

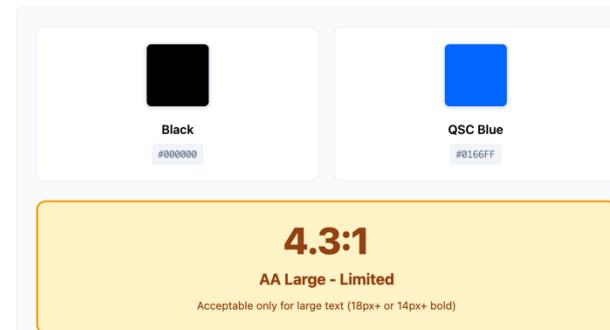
## Design Tips:



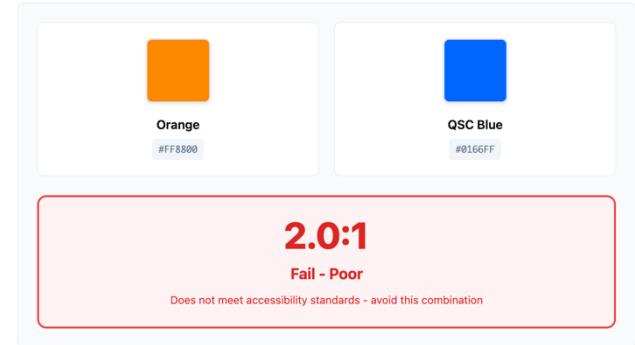
# Make sure that the contrast is high enough that text is readable



Good contrast ratios are easy to read, even small.



Limited contrast ratios should only be for larger text



Combinations like this one should NEVER be used!!!

These are the minimum you should use.

## Design Tips:

# Demo checking contrast

A screenshot of the Adobe Color website's "Accessibility Tools" section, specifically the "Contrast Checker". The interface shows two color swatches: a light gray "#D4D4D4" for Text Color and a dark blue "#02199C" for Background Color. A horizontal slider indicates a contrast ratio of 8.74 : 1, which is marked as a "Pass" (green checkmark). On the right, a sidebar displays "Contrast Suggestions" with three options: "T" (Text) with a contrast ratio of 10.0:1, another "T" with 10.0:1, and "T" with 11.0:1. Below this is a "Set a Contrast Ratio" input field. At the bottom right is a "Save to Libraries" button.

Adobe Color

CREATE EXPLORE TRENDS New LAB LIBRARIES

Tools Contrast Checker AA Import Colors

WCAG 2.1 Level AA

Text Color #D4D4D4 Background Color #02199C

Contrast Ratio 8.74 : 1 Pass

Preview

Regular Text: A high color contrast makes anything easier to read. Pass for 17pt and below.

Large Text: A high color contrast makes anything easier to read. Pass for 18pt and above / 14pt bold and above.

Graphic Components: Pass for icons and actionable graphics.

Recommendations Save

Contrast Suggestions

Contrast Ratio 10.0:1

Contrast Ratio 10.0:1

Contrast Ratio 11.0:1

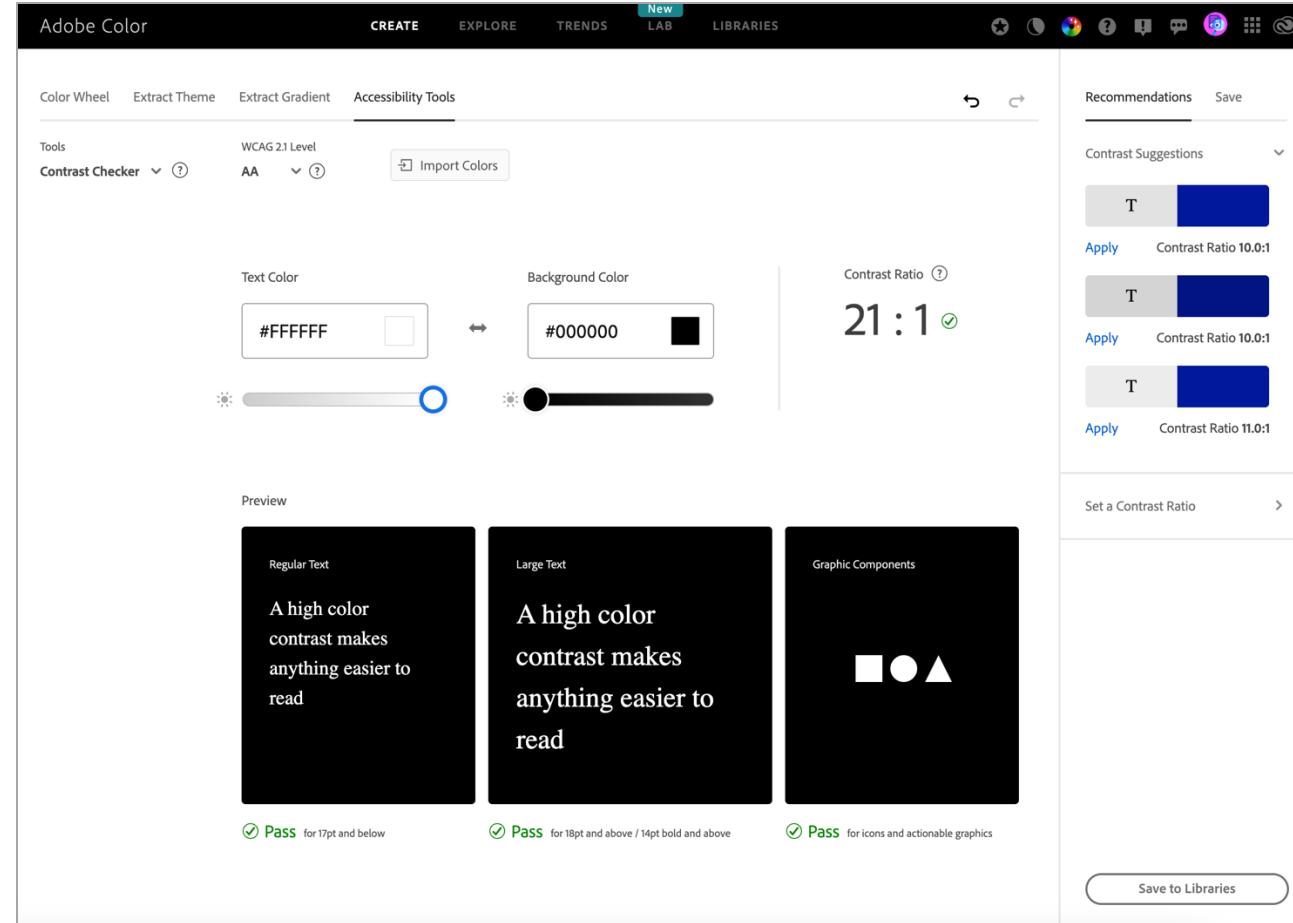
Set a Contrast Ratio

Save to Libraries

<https://color.adobe.com/create/color-contrast-analyzer>

## Design Tips:

## Demo extreme contrast

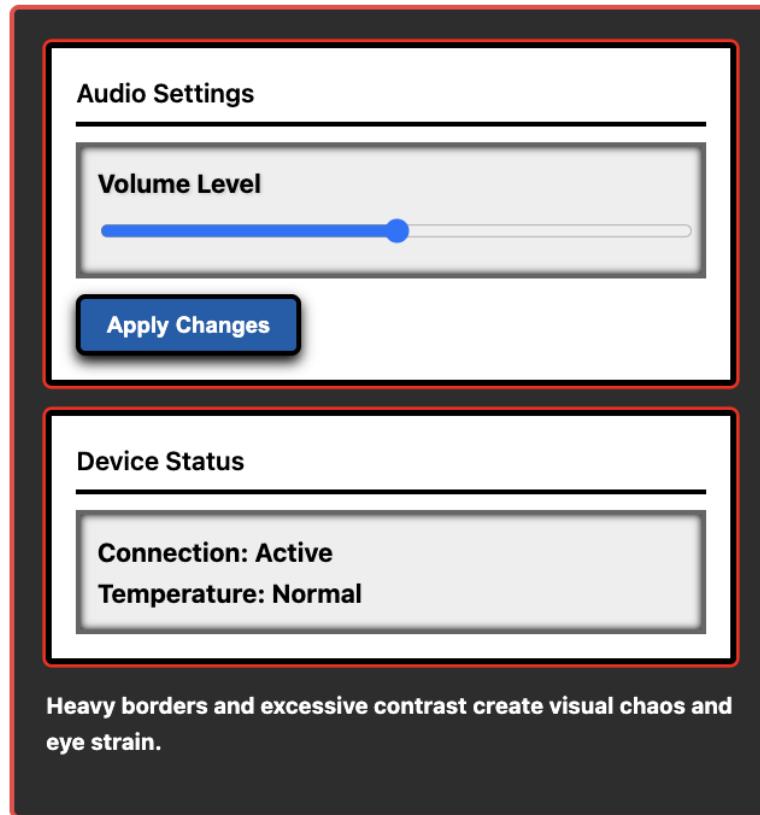


<https://color.adobe.com/create/color-contrast-analyzer>

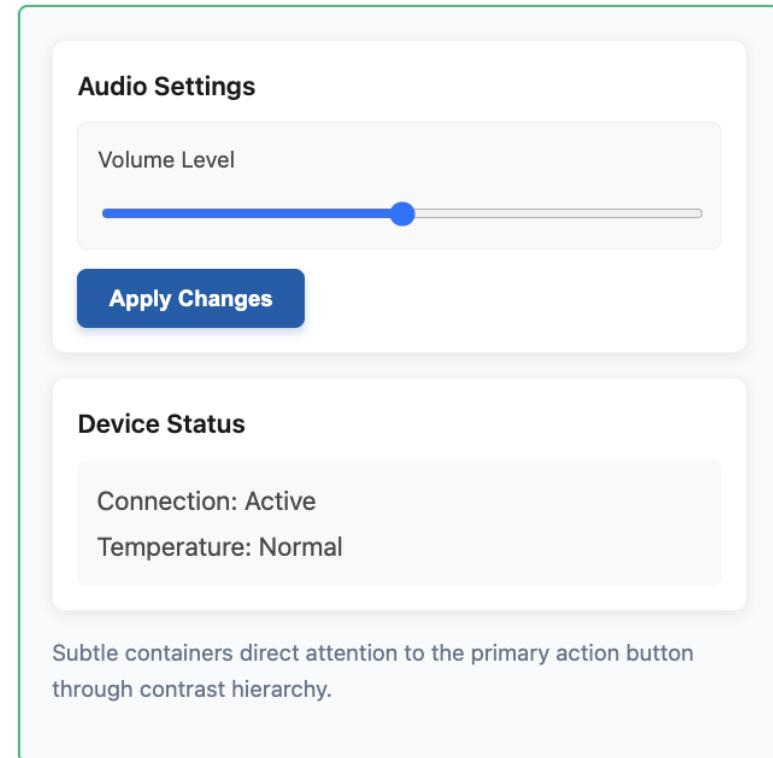
## Design Tips:

# Reduce contrast of background elements

✗ Bad - Heavy Borders Compete for Attention



✓ Good - Subtle Containers, Bold Actions



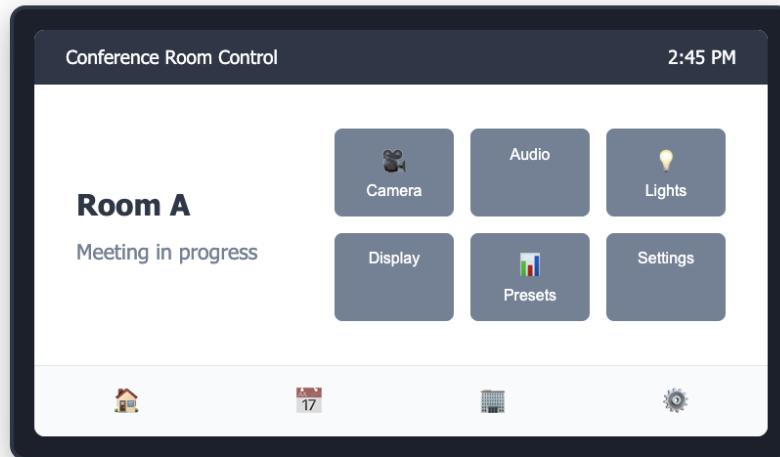
## Design Tips:



# Use icons to add visual interest-consistently and intentionally.

### ✗ Inconsistent Icon Usage

Icons scattered everywhere

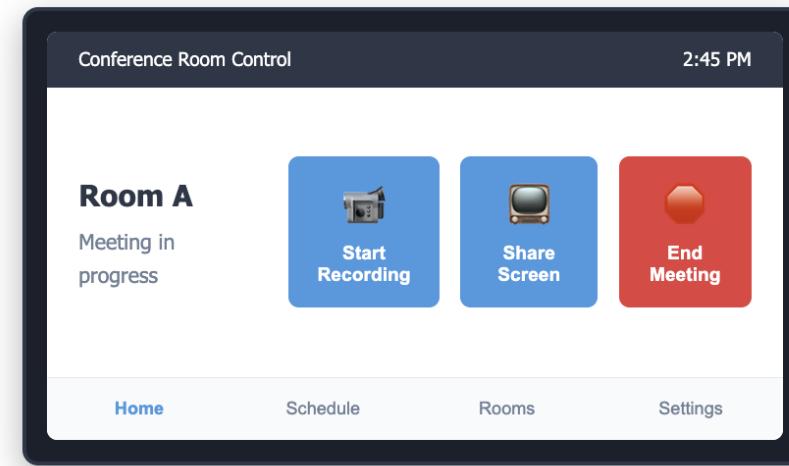


#### ⚠ Problems with Mixed Usage:

- **Visual Inconsistency:** Some buttons have icons, others don't
- **Confusing Hierarchy:** No clear pattern for what gets an icon
- **Scanning Difficulty:** Eye has to process different button types
- **Random Emphasis:** Icons don't indicate importance
- **Cluttered Navigation:** Bottom nav competes with main actions

### ✓ Grouped Icon Strategy

Icons where they belong, text where it's clearer



#### ⌚ Why Grouped Strategy Works:

- **Visual Consistency:** Main actions all have icons, navigation all text
- **Clear Hierarchy:** Icons emphasize primary actions only
- **Fast Recognition:** Icons for actions you need to find quickly
- **Clean Navigation:** Text-only nav reduces visual competition
- **Logical Grouping:** Similar elements styled consistently

Cool Harbor Room

Speaker icon Mute icon Volume slider + Power icon

# Please Select a Video Source

 Video Call

 Laptop

 AirPlay

Video Call button

Video Call button

Call button

Lights button

Status button

**QSC** On-Demand Training ▾ Live Training ▾ Contact English (En) ▾ **PRO AUDIO TRAINING - CLICK HERE** Log in / Register

## New Trainings!

### CONTROL & UCI TRAINING SERIES

## Control training. Reimagined for you.



Welcome to QSC Training

#### Learning Made Simple

- Non-Linear Curriculum**  
Easily navigate to something you missed from a previous course or skip a module to come back to it later.
- Hundreds of Video Courses**  
...and growing. New modules are produced as QSC technology develops and grows.
- On-The-Go Learning**  
Take our courses on the road! Fully scalable for your smart phone or tablet.
- Multiple Languages**  
No matter what language you speak, we've got you covered.
- Transcript Search**  
Our brand new transcript system allows you to follow along for those particularly technical moments.
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