

Interactive UI Design

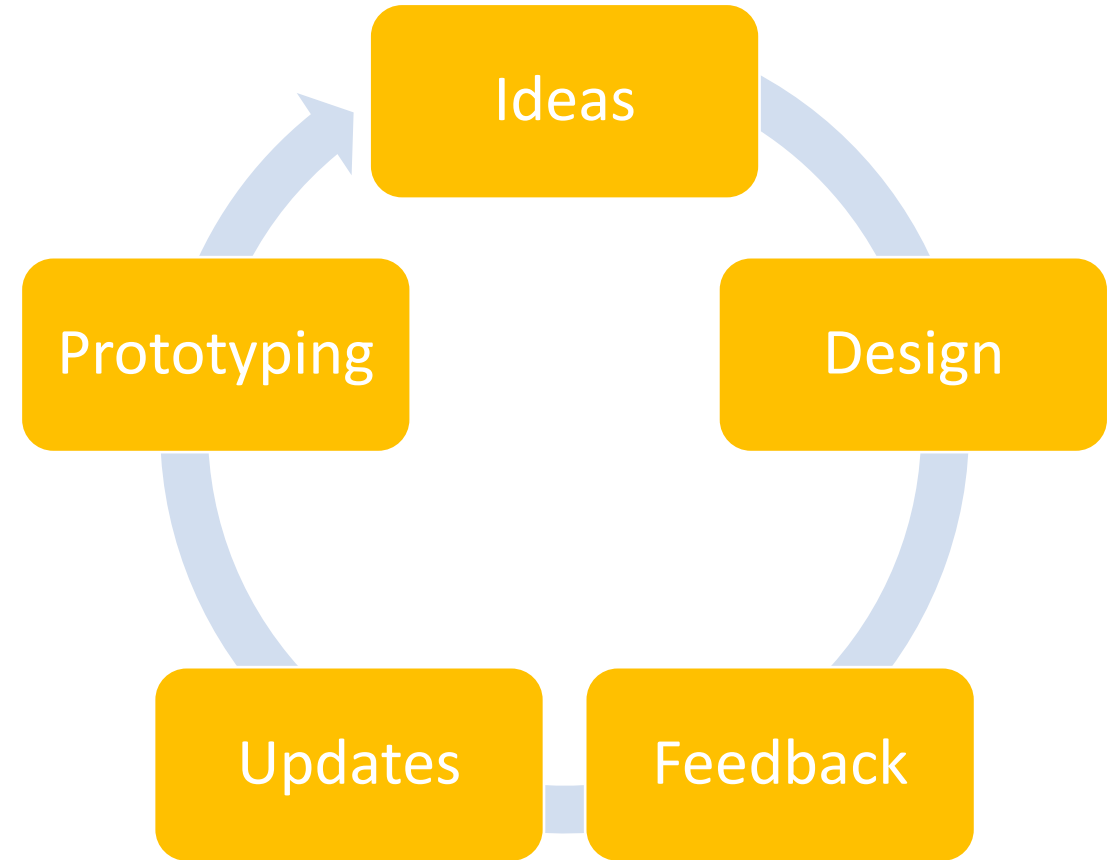
By

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Introduction to Interactive UI Design

- Mainly Focuses on Creating the Interfaces that respond to user actions, and Provide the Dynamic and Engaging Experience.
- Enhanced User Experience.
- Bridges gaps across the platforms.
- Empowers engineers and scientists to interact intuitively with applications.



Principle of Interactive UI Design

- User-Centered Design - Prioritize the needs and preferences of users.
- Maintain Uniformity in design elements and interactions.

Key elements and Visual Hierarchy

- Visual Feedback, navigation paths, Organize, highlight important elements.

Usability and Accessibility

- Ease to use , WCAG, dynamic screen sizes and devices.

Prototyping

- Revised Model or Design from the stakeholders Feedback.

Our Work

PM-201-FE-Summary

Laser mode
Pulsed CW
Pulsed CW

CW Alignment
Waveplate: PM-201-FE-WP-1
OUT IN
Waveplate: PM-201-FE-WP-3
OUT IN
CW Laser: PM-201-FE-CW-1
Status Reset
Interlock Error
OFF ON
Settings

AWG: PM-201-FE-AWG-1
OFF ON
Load Curve
Settings

PM-201-FE-1-FFE-1
Seed Laser Key: ON OFF **DISABLED**
Wavelength: 1029.3430 nm 1029.3430 nm
Temperature: 0 C
Current: 10 mA
Power: 0 mW
Booster: Virtual Key Enable Disable
ON OFF
Current (A): 0 A
Power (W): 5.00 W 0.00 W
Booster Current: 10 mA
Output Power: 0.02 W
Temperature: 38 C
Trigger mode: Internal State: Off
External Off
AWG: ON OFF
Settings

PM-201-FE-PA-1 disconnected
RESET Open Interlock
Amp LD Current: 43.0 A
Interlock Error
External Interlock Error
LaserDiode: Off On
HighVoltage: Off On
Shutter: Close Open
Width(sync): 1400.00 ns
Settings

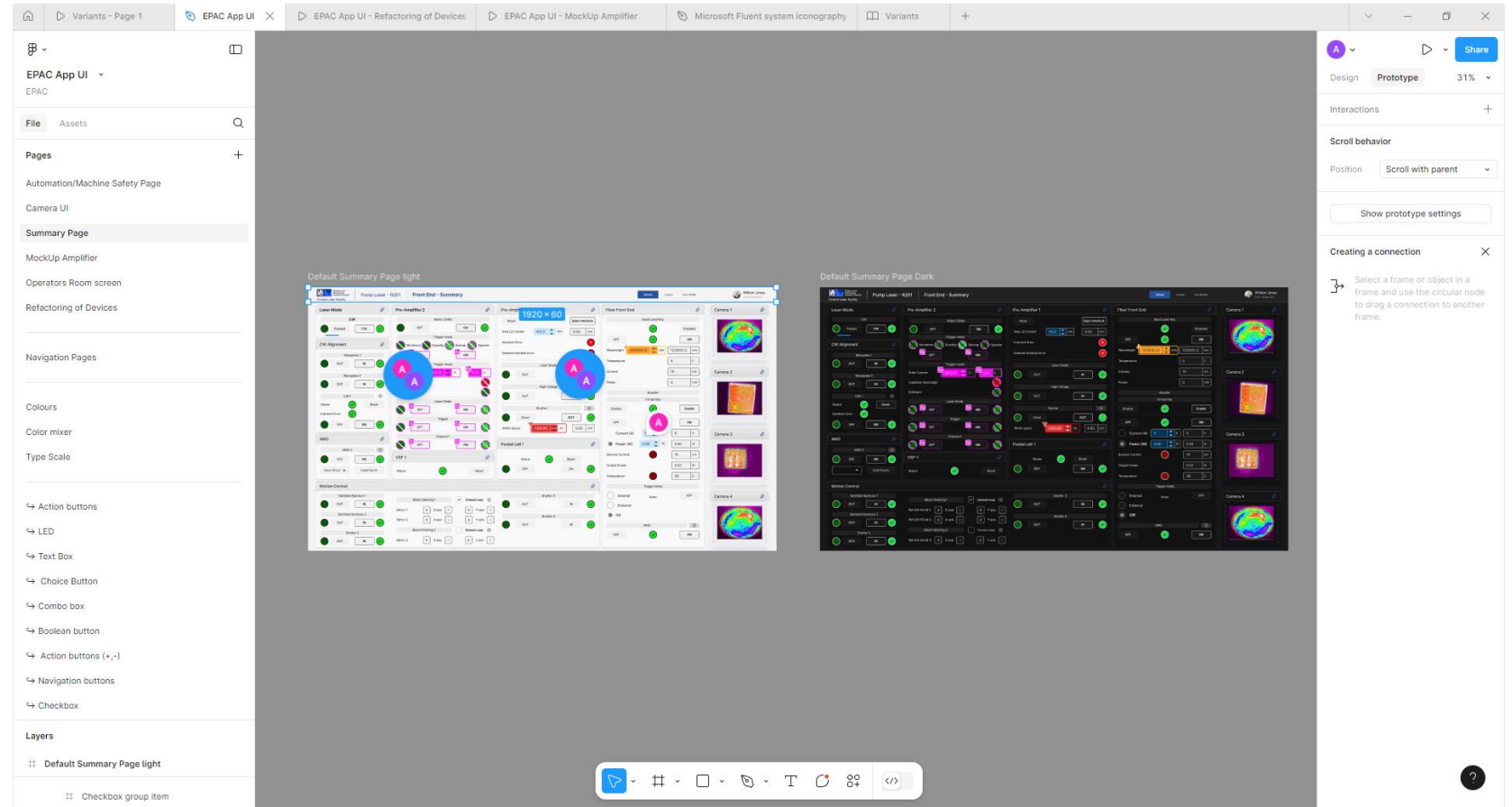
PM-201-FE-PA-2 disconnected
Water Chiller disconnected
Standby OFF ON Operate
Amplifier Control: Standby OFF ON Operate
Startup Shutdown
Laser Diode disconnected
Pulse Current: 380 A
Capacitor Discharge
Softstart
Laser Diode: Standby OFF ON Operate
Trigger: OFF OFF ON ON
Channel 1: OFF OFF ON ON
Settings

Diagnostics
PM-201-FE-1-D-CAM-1 View
PM-201-FE-1-D-CAM-2 View
PM-201-FE-1-D-CAM-3 View
PM-201-FE-1-D-CAM-4 View

Motion control
Serrated Aperture: PM-201-FE-SA-1
IN OUT
Serrated Aperture: PM-201-FE-SA-2
IN OUT
Shutter: PM-201-FE-SHUT-2
IN OUT
Mirrors:
PM-201-FE-BS-1 Closed Loop Closed Loop View
PM-201-FE-M-1 X axis Y axis
PM-201-FE-M-2 X axis Y axis
PM-201-FE-BS-2 Closed Loop Closed Loop View
PM-201-FE-M-3 X axis Y axis
Shutter: PM-201-FE-SHUT-3
IN OUT
Shutter: PM-201-FE-SHUT-4
IN OUT
VSF: PM-201-FE-VSF-1
PM-201-FE-VAC-GAG-P1 View
Pockel cell: PM-201-FE-PC-1
Status Reset
OFF ON
Settings

The Role of Design Tools

- **FIGMA** is one of the Commonly used Design Tools While working on the interactive Designs.
- Figma is an cloud based tool and works with real-time collaboration.
- Rich in libraries for Pre Built Components.
- Integration with libraries like Fluent Icons and etc.,



Home Variants - Page 1 EPAC App

EPAC App UI

EPAC

File Assets

Pages

- Automation/Machine Safety Page
- Camera UI
- Summary Page
- MockUp Amplifier
- Operators Room screen
- Refactoring of Devices

Navigation Pages

Colours

Color mixer

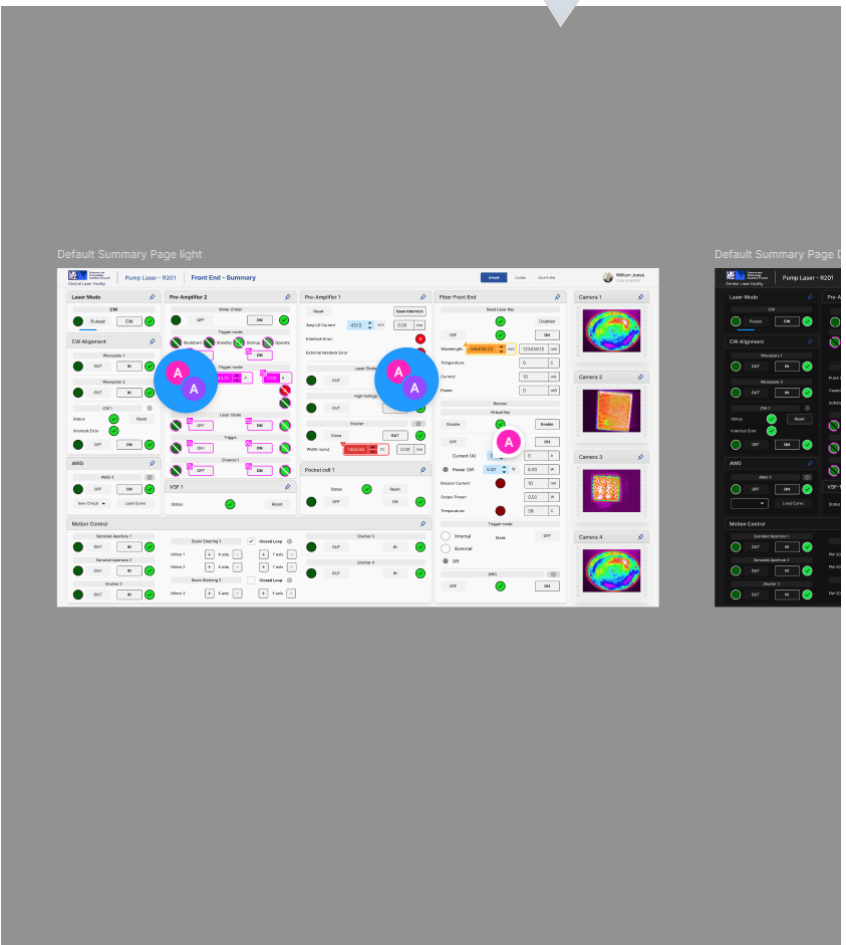
Type Scale

Action buttons

Layers

- Default Summary Page Dark
- Default Summary Page light

Navigation Pane



Workspace

Share

Design Prototype 31%

Frame

Position

X 1204 Y 72

Layout

W 420 H 995

Appearance

Fill

Stroke

Effects

Selection colors

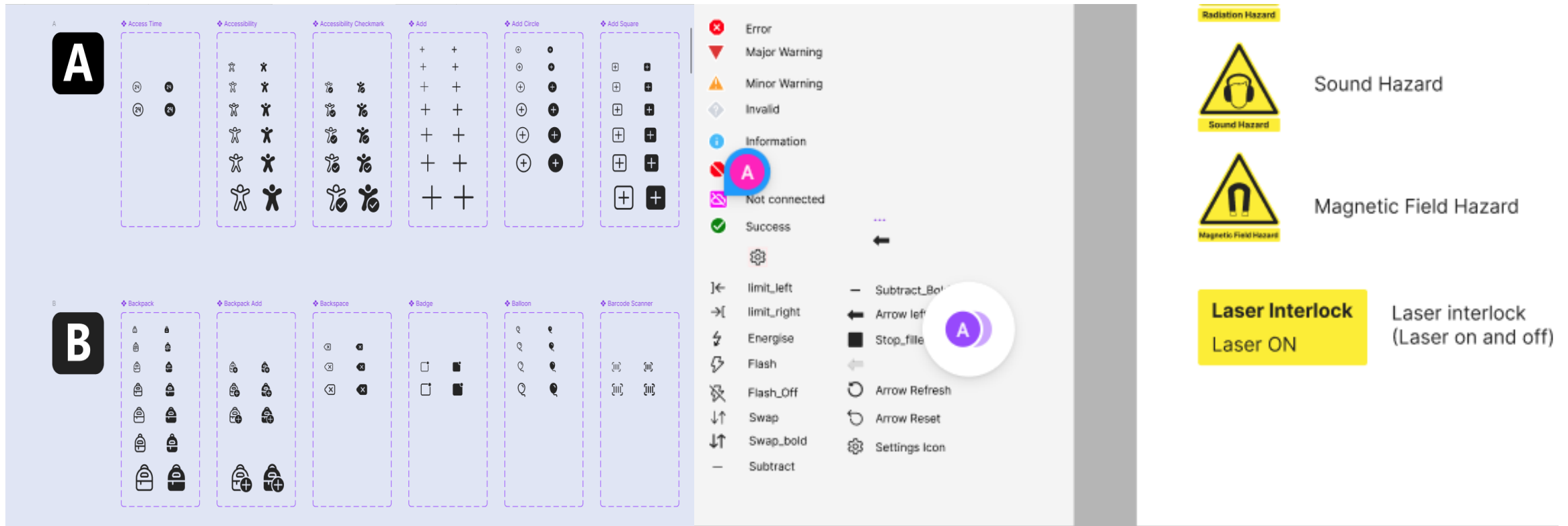
Layout grid

Export

Properties Pane



External or Open sources Libraries



A

- Access Time
- Accessibility
- Accessibility Checkmark
- Add
- Add Circle
- Add Square

B

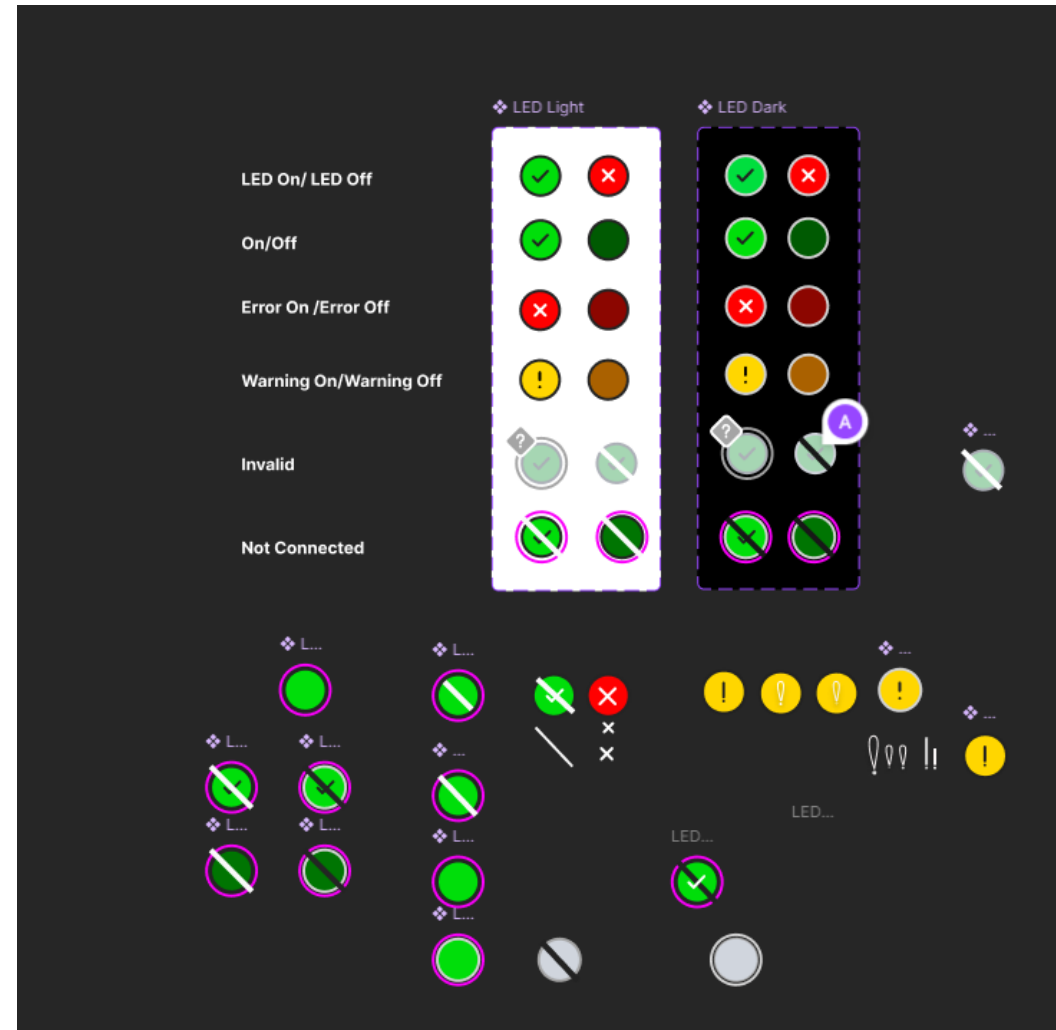
- Backpack
- Backpack Add
- Backspace
- Badge
- Balloon
- Barcode Scanner

- Error
- Major Warning
- Minor Warning
- Invalid
- Information
- Not connected
- Success
- Limit left
- Limit right
- Energise
- Flash
- Flash_Off
- Swap
- Swap_bold
- Subtract
- Subtract_Bot
- Arrow left
- Stop_file
- Arrow Refresh
- Arrow Reset
- Settings Icon

- Radiation Hazard
- Sound Hazard
- Magnetic Field Hazard
- Laser Interlock
Laser ON
- Laser interlock
(Laser on and off)

Component Libraries

- We have our own Customized components Section based on our requirements.
- One of Monitoring Widget is LED Component.
- LED Component required to have the following Property with the ON/OFF Features.
- The Following States are Error, Warning, Invalid and Not Connected.
- We have made it feasible to see that even the scientist had their goggles on.



Led Examples

	Round		Rectangle	
	On	Off	On	Off
Binary				
Default				
Error				
Warning				
Invalid				
Not Connected				

Designing Device UI

Mirror Summary UI

PM-201-FE-1-M-10

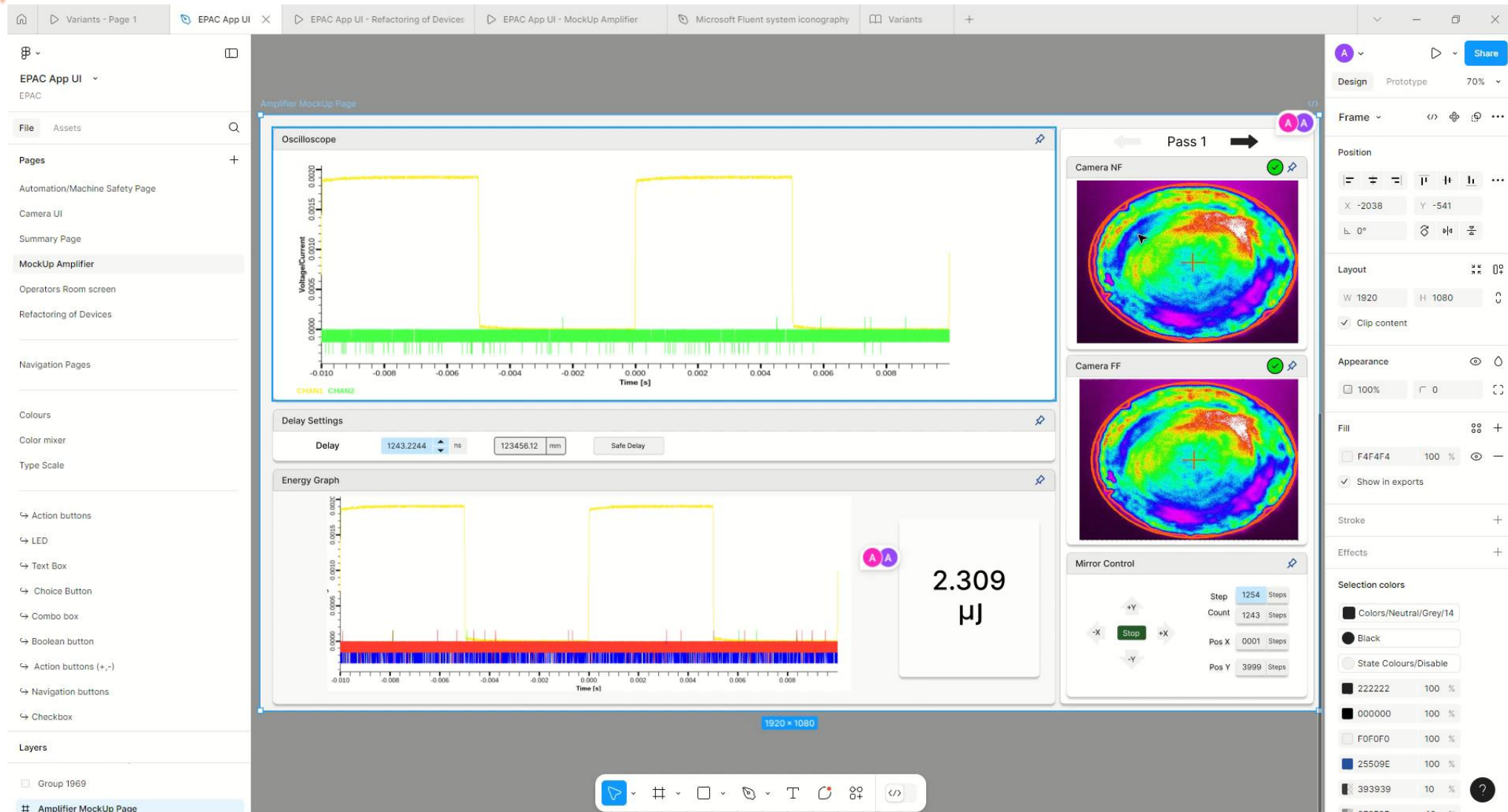
Previous Design

Created Three New Design ideas

Final Design

Customization and Prototyping

- The Figma Tool gives the Flexibility of Designing.
- Ensures our Unique Component Consistency.
- Helps us to visualize it in Dark and Light Modes UI Design.
- Prototyping gives the early interaction to test the Usability and flow.
- Identifies the Pain points before the development
- The prototypes have the navigation paths and forms etc.,
- These prototypes will be shared with the teams and stakeholders for final Approval.



The screenshot displays a software interface for the EPAC App UI, titled "Amplifier MockUp Page". The interface is divided into several sections:

- Left Panel:** A navigation sidebar with sections for "File Assets", "Pages" (listing Automation/Machine Safety Page, Camera UI, Summary Page, MockUp Amplifier, Operators Room screen, Refactoring of Devices), "Navigation Pages", "Colours", "Color mixer", "Type Scale", "Action buttons", "LED", "Text Box", "Choice Button", "Combo box", "Boolean button", "Action buttons (+,-)", "Navigation buttons", "Checkbox", and "Layers" (showing Group 1969 and Amplifier MockUp Page).
- Top Panel:** A browser-like tab bar with tabs for "Variants - Page 1", "EPAC App UI", "EPAC App UI - Refactoring of Devices", "EPAC App UI - MockUp Amplifier", and "Microsoft Fluent system iconography".
- Main Content Area:**
 - Oscilloscope:** A plot showing Voltage/Current vs Time [s]. The y-axis ranges from -0.0010 to 0.0020, and the x-axis ranges from -0.010 to 0.008. It displays a square wave signal.
 - Delay Settings:** A control panel with a "Delay" field set to 1243.2244 ns, a "Safe Delay" button, and a value of 123456.12 mm.
 - Energy Graph:** A plot showing Energy vs Time [s]. The y-axis ranges from 0.0000 to 0.0020, and the x-axis ranges from -0.010 to 0.008. It displays a square wave signal with a red area under the curve. A callout box shows "2.309 μJ".
 - Camera NF and Camera FF:** Two circular heatmaps showing intensity distributions. The top one is labeled "Camera NF" and the bottom one "Camera FF".
 - Mirror Control:** A control panel with directional buttons (+Y, -Y, +X, -X) and a "Stop" button. It includes a table of settings:

Parameter	Value	Unit
Step	1254	Steps
Count	1243	Steps
Pos X	0001	Steps
Pos Y	3999	Steps
- Right Panel:** A design tool sidebar with sections for "Design" (70% zoom), "Frame", "Position" (X: -2038, Y: -541), "Layout" (W: 1920, H: 1080), "Appearance" (100% zoom, 0 opacity), "Fill" (F4F4F4, 100%), "Stroke", "Effects", and "Selection colors" (listing various color swatches).
- Bottom Panel:** A toolbar with icons for navigation, zoom, pan, and other UI controls.

Our Work

PM-201-FE-1-Summary

PM-201-FE-1-Summary

Load Profile:

Press and hold CTRL + Left-click to drag and drop dashboard panes.

PM-201-CO-PLC

SHUTTERS

PM-201-FE-WP-2	<input checked="" type="checkbox"/>	IN	OUT	<input type="checkbox"/>	Shutter Status	<input checked="" type="button" value="Connected"/>
PM-201-FE-WP-4	<input checked="" type="checkbox"/>	IN	OUT	<input type="checkbox"/>	Shutter Status	<input checked="" type="button" value="Connected"/>
PM-201-FE-1-SHUT-2	<input type="checkbox"/>	IN	OUT	<input checked="" type="checkbox"/>	Shutter Status	<input checked="" type="button" value="Connected"/>
PM-201-FE-CW-SHUT-3	<input type="checkbox"/>	IN	OUT	<input checked="" type="checkbox"/>	Shutter Status	<input checked="" type="button" value="Connected"/>
PM-201-FE-1-SHUT-4	<input type="checkbox"/>	IN	OUT	<input checked="" type="checkbox"/>	Shutter Status	<input checked="" type="button" value="Connected"/>

FLIPPERS

PM-201-FE-1-SA	<input checked="" type="checkbox"/>	IN	OUT	<input type="checkbox"/>	Flipper Status	<input checked="" type="button" value="Connected"/>
PM-201-TJ-CW-SA	<input type="checkbox"/>	IN	OUT	<input checked="" type="checkbox"/>	Flipper Status	<input checked="" type="button" value="Connected"/>

PRESSURE GAUGES

PM-201-FE-1-VAC-GAG-1 Value mBar VSF Status

VALVES

Laser Mode

Pulsed CW

Energy Meter 1

Energy Value mJ

Energy Meter 2

Energy Value

Fiber Front End

Seed Laser

Key: DISABLED

Wavelength: nm nm

Temperature C

Current mA

Power mW

CW 1

Interlock Connection To Device

FE

TJ-DF

TJ

HJ-DF

BT / HJ-CW

Pre-Amplifier 1

Amp LD Current A A

Interlock Error

External Interlock Error

LaserDiode

Off On

Conclusion

The Impact of Interactive UI Design

- Easy for the stakeholders to finalize, since it has clear intuitive.
- Increased Productivity ,Reduced Development time.
- Ensures better cross-platform performance.
- Tools like Figma and other open sources libraries which support increases the flexibility and Efficiency.
- Emphasize the Scalability and consistent design practices.

Thank You

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By

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