

# Projects

An Exploration of User Needs

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## General Project Process and Flow (WIP)



# MC2 App UI/UX Overhaul (Fill)

# MC2 App User Login Implementation (Fill)

# MC2 Viewfinder UI/UX Overhaul

(Fill)

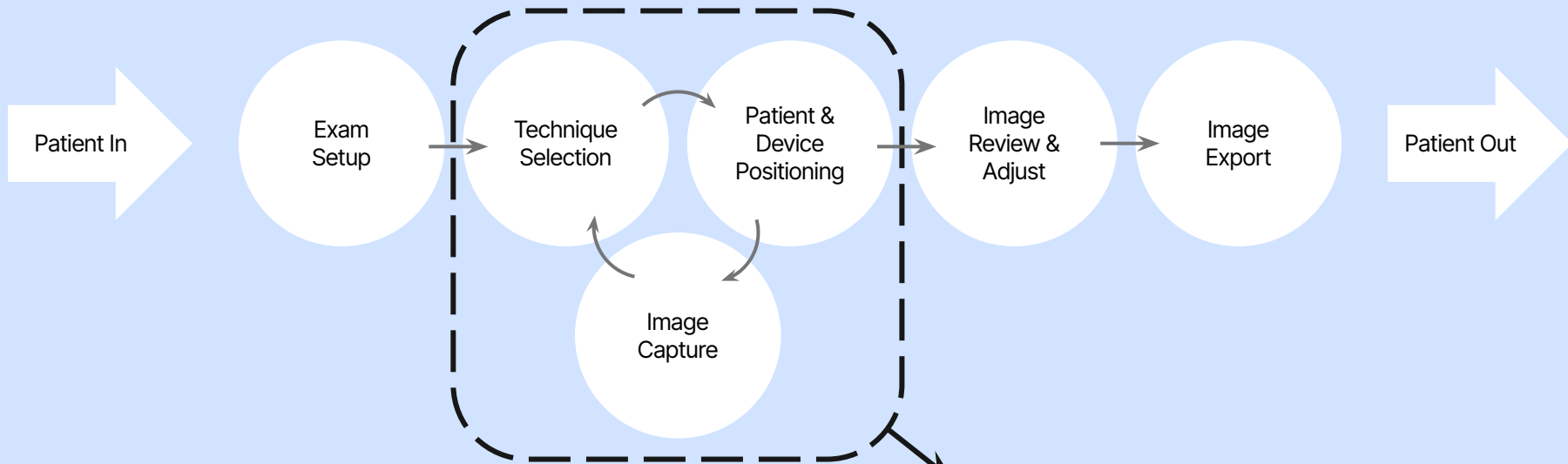
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(Fill)

# Emitter Viewfinder

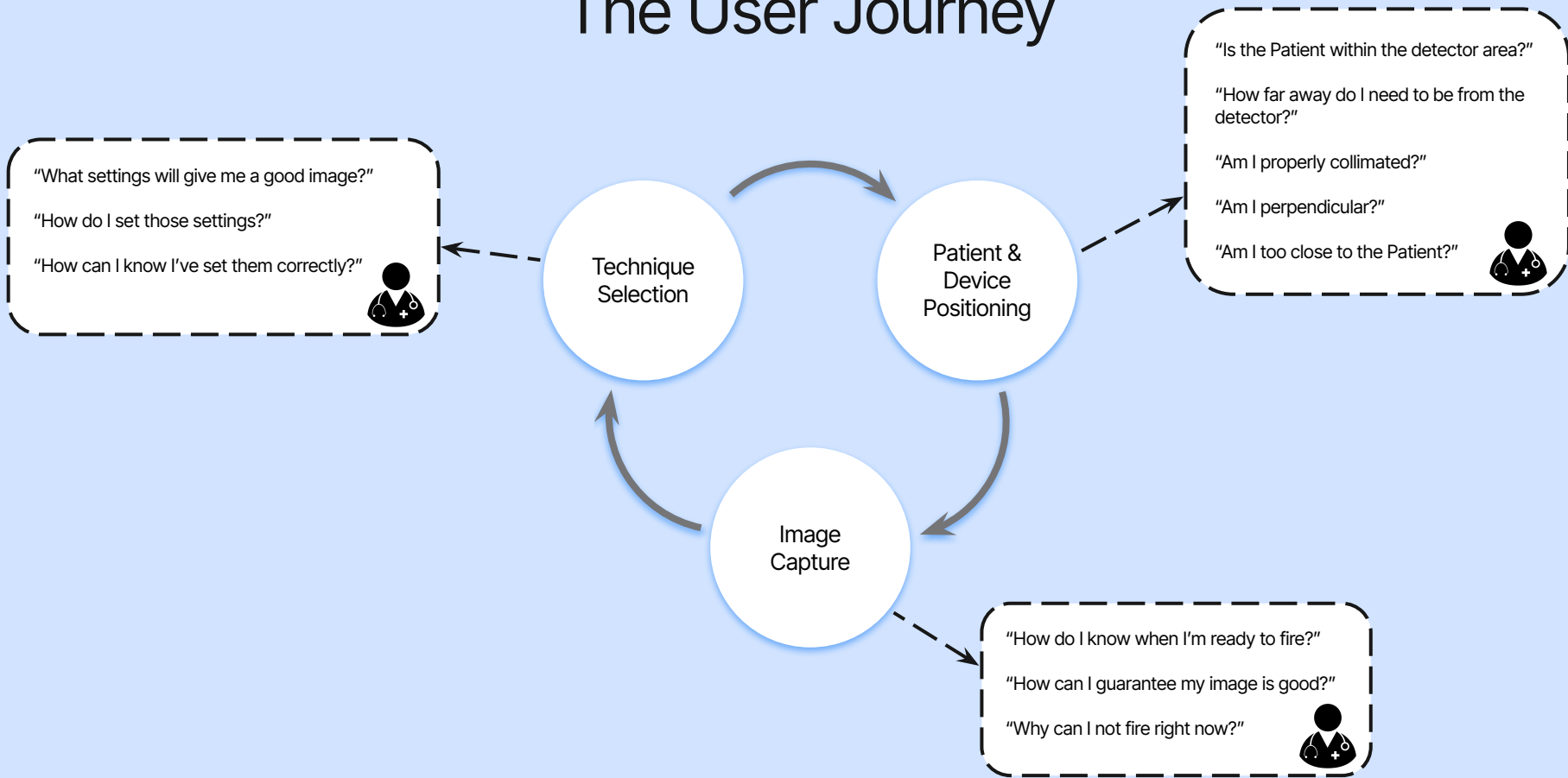
What is the User's Journey when using the Viewfinder? **When** is it in use? **What** is it used for?

# The User Journey

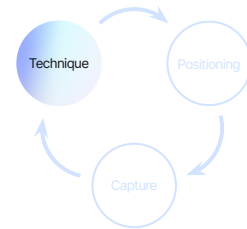


When running through a Patient exam, the user can be expected to interact with the Viewfinder at these three steps.

# The User Journey







In other words, what does the user need to know or do?

# Technique Selection

## For Technique Selection:

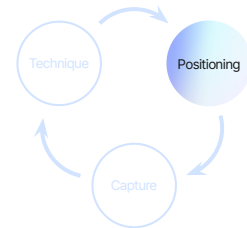
- Know:
  - Recommended kV and mAs for the anatomy
- Do:
  - Change and confirm the device mode, kV, and mAs
- Thoughts:
  -
- Concerns:
  - Accuracy
  - Radiation Safety
- Goals:
  - Select device mode
  - Select loading factors

Settings, Technique, or Loading Factors - kV and mAs, sometimes SID

- Rad Techs are comfortable adjusting these
- Many other user types are not familiar with kV and mAs
  - Don't know what they mean or how to set them
  - Used to

# Device & Patient Positioning

What features are critical to the user at these times? In other words, what does the user need to know or do?

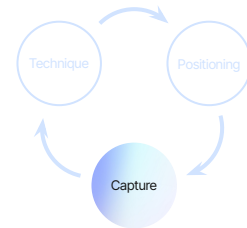


## For Patient & Device Positioning:

- Know:
  - Unrestricted view of the anatomy
  - Perpendicularity or, potentially, angle
  - X-ray field collimation and projection
  - Interlock status(es)
- Do:
  - Match current SID to recommended SID
- Thoughts:
  -
- Concerns:
  -
- Goals:
  - Align anatomy to detector
  - Align X-ray field to anatomy
  - SID

# Image Capture

What features are critical to the user at these times? In other words, what does the user need to know or do?






## For Image Capture:

- Do:
  - Capture the image when ready
- Thoughts:
  -
- Concerns:
  -
- Goals:
  - Capture the image
  - Review the image

# What is our current solution?

Icons indicate the connection status of the Cassette and Foot Pedal.

When connected:    
When not connected: 

Indicates the current SSD.




Green when in range, red when below 30 (or 20). MC2 interlocks when below 10.

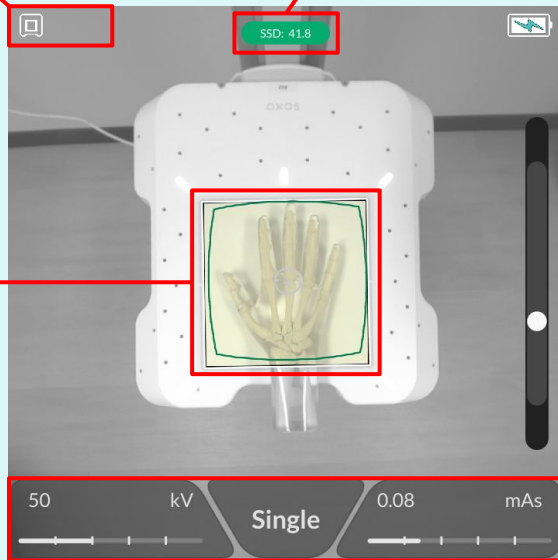
Indicates Emitter battery status.

Normal:   
Dying:   
Charging: 

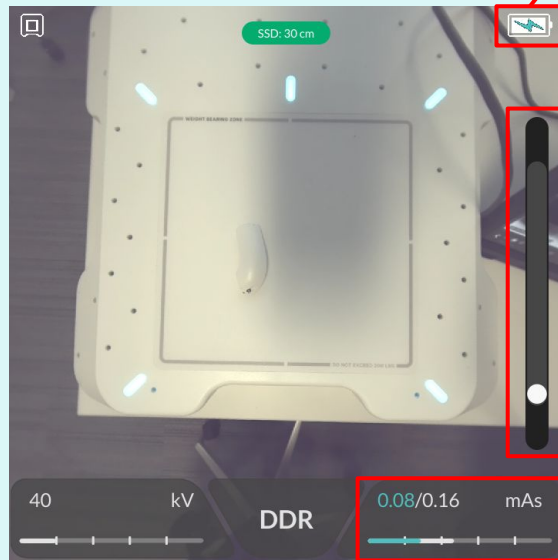
Projections of the Active Area, X-ray collimation field, and perpendicularity crosshair.

The X-ray field grows/shrinks within the Active Area, with the crosshair centered relative to the X-ray field. Angling the Emitter relative to the Cassette moves the crosshair off-center.

When perpendicular:   
When not perpendicular:   
When not in the Active Area: 



Indicates current selection for device mode, kV, and mAs.



When in DDR mode, mAs is split into DDR (only up to .08) and full-powered Single selections. DDR selection is highlighted in blue.

Indicates the current SID

White when in range (gray section), red when above 80 or below 25 (black section)



# What feedback do users have on the current Viewfinder?

## About SSD & SID indications:

- SSD is both “distracting” and “not very noticeable”
  - SSD does not seem to be as important for extremities
  - Also, with the new SSD lockout, SSD will turn red but the device will still allow X-rays - potential for conflicting signals?
- The SID gauge is useful for indicating relative distance and how far you are away from lockout, but it is not intuitive or visually descriptive enough

Splitting up into multiple slides to reduce text bloat and focus more on big ideas rather than lines of individual feedback - also, quotes are king

# What feedback do users have on the current Viewfinder?

## About the X-ray field & perpendicularity indications:

- Perpendicularity indicator is not obvious at all
  - “I can only look at so many things at once”
- An indication of perpendicularity is helpful
- Grayscale is very helpful

# What feedback do users have on the current Viewfinder?

## About connection & battery indications:

- Not clear that the Cassette connection icon is the Cassette
- Only place currently where you can see that the Foot Pedal is connected

# What feedback do users have on the current Viewfinder?

## About device mode, kV, and mAs selections:

- Not sure how “full” the kV and mAs gauges are in Fluoro mode
  - The selection values also do not align with the tick marks
- DDR/Single mAs is confusingly presented
  - Makes sense when you explain it, but no guarantee you’ll remember
  - There is a use case, but no one is sure how prevalent it is
- mAs is a 2 variable equation, and we only display one variable
  - Users from fluoroscopy backgrounds are used to seeing mA
- “kV” vs “kVp”



# What do users wish was on the Viewfinder?

- 
- I want to be able to see the LED indicators through the Viewfinder
  - It might be more helpful for Interlock reasons to be on the Viewfinder than the app
  - Viewfinder should be projectable to a bigger screen

# Problem Set Slide?

What are the **User Needs** that align with the User Journey and encompasses the feedback identified in the interviews?

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1. Users need to have as unobstructed of a view of the anatomy as possible
2. Users need to be able to predict and standardize their resulting image
3. Users need to be able to easily tell:
  - a. When they are interlocked
  - b. Why they are interlocked
  - c. What to do to no longer be interlocked
4. Users need to be able to set and confirm their X-ray mode and technique factors (kV, mAs, and SID)
5. Users need to be able to confirm device connections (?)

# What does the user need out of the Viewfinder?

## (User Needs Slide?)

What are the **User Needs** that align with the User Journey and encompasses the feedback identified in the interviews?

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Feedback on VF mockups:

#### Battery Pop-up

- Everyone liked the pop-up
- Most people thought dismissable was good (if we can make it work)
- Pop back up if you try to trigger

#### Fuel Gauge

- Emptying "Fuel" makes more sense
- People preferred fuel gauge on left (vertical), can't tell which way horizontal is supposed to go
- Don't have the "Fuel" title move with emptying
- Numbers aren't necessary, "already have a lot of numbers on the screen"
  - One person thought numbers were more useful, "lets you prepare for it"

#### Connection Icons

- Most people thought the new icons were an improvement
- "Are the Cassette and Foot Pedal icons even necessary"
  - Gotta check with Gage on what info we get from the foot pedal - battery life indication?

Feedback on VF mockups:

### Perpendicularity



#### Cross+Tick

- Tally: 3
- Align the lines to know you are center
- Looks "sniper"



#### Dot+Tick

- Tally: 4
- Higher visibility
- Maybe "too bold"



#### Cross+Circle

- Tally: 2
- Good enough when paired with lasers ("they'll rely on lasers a lot")



#### Cross+Square

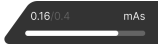
- Tally: 1

### kV & mAs Settings



#### No Tick

- Tally: 3
- "Squint test, you only see the white bar"



#### No Tick + Max

- Tally: 1
- "Max number not important"



#### Ticks (Uniform)

- Tally: 4
- Relays confusing info
- Make ticks less pronounced



#### Ticks (Not Uniform)

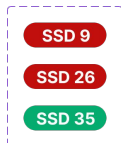
- Tally: 2
- Proportion doesn't matter, only "do you wanna go up a step or down a step?"
- Make ticks less pronounced

### SSD



#### Only show red + red text/white bubble

- Consider red text/white bubble effect on regulatory
- Go away when not needed is good



#### Show all + all red

- Showing green all the time is not necessary
- Red doesn't really make sense if you can still shoot; some people probably won't care though
- After red, show green for a little bit then go away

#### For centered SSD bubbles overall:

- Top center makes it seem more important than it is, can it be moved?
- Red is scary, is that what we want? (yes)
- Doesn't visually indicate SSD

### SID

#### Tag, number only

- Tag sticks out too far

#### Bubble, number only

- Number small, easy to miss, too hard to read
- Bubble is cleaner visually though

#### Tags (SID & SSD), number + title

- Tag sticks out too far
- Theoretically same plane makes sense, but scale may be confusing
- People care more about SID than SSD, and SID/SSD have very similar names
- Lots of movement

#### Two gauges on opposite sides (SID & SSD)

- Lots of movement
- Don't wanna look right and left for SID and SSD
- Need to determine SSD scale
- "Having 3 total sliders is a lot, feels like I'm trying to play a balancing beam game"

#### For all SID gauges:

- Prefer not to convey titles with words
- "If a number is useful, it's worth the distraction"