Swiping on the Six Strings:
Crafting an Interactive Guitar in 'The Last of Us: Part II'

Mark Burroughs & Grant Hoechst
Game Designers @ Naughty Dog

!!! SPOILER ALERT !!!

Importance of the Guitar

Guitar was always a critical part of the game's narrative

The game was always bookended with guitar

The bond between Joel and Ellie

"Future Days" by Pearl Jam

Ashley singing "Take On Me" by A-ha

"Can we put this on the stick?"

- Kurt Margenau

We could leave guitar in cinematics

But we know from other games that "playing guitar" is a fun experience

Could we make it interactive?
- Narrative Resonance
- Immersive
- Empathize with Ellie

How do we make it fit with the tone of the game?
- How do we match the grounded nature of our world?
- How do we embrace the introspection of these guitar moments?
- How do we make the player feel like they are "practicing"?

Constraints & Vision

Controller Constraints

PS4 controller has:

- 4 face buttons
- 4 shoulder buttons
- 4 D-Pad buttons
- 2 analog sticks
- 3 buttons we can't touch (options, share, PS home)

AND A TOUCHPAD!!!

Touchpad has universal affordance of swiping

Could that be something??

Prototype Co

Things We Wanted to Avoid

QTEs

- "Press to unpause"
- Increase in interactivity ≠
- Playing more than one r

Rhythm Game

- Ellie is usually just pra

Additional Avoidances

- Playing with accompaniment
- Harsh Fail

What We're Going For…

What we know before we start prototyping:

1. Strum on the touchpad
2. Feel like someone practicing an acoustic guitar
3. Don't make it a rhythm game

Next Steps:

- Way to play different notes and chords
- Way to play a song "correctly"

Ideally, anyone can play this, but a guitar player can feel they are playing the real thing.

Working Within Our Constraints

First Prototype

Let's start with one song

We already have Ashley playing "Take On Me"

- Put in temp notes and try to recreate her performance

5 chords total in the verse and chorus

- List of face buttons hard to parse
- Wheel menu requires less thought

Timing won't matter, but chord progression (order) will.

- Yellow square for next chord
- Green is "correct," Red is "wrong"

Future Days has different chords

- Does it need a new wheel?
- How many wheels do we need for the rest of game?
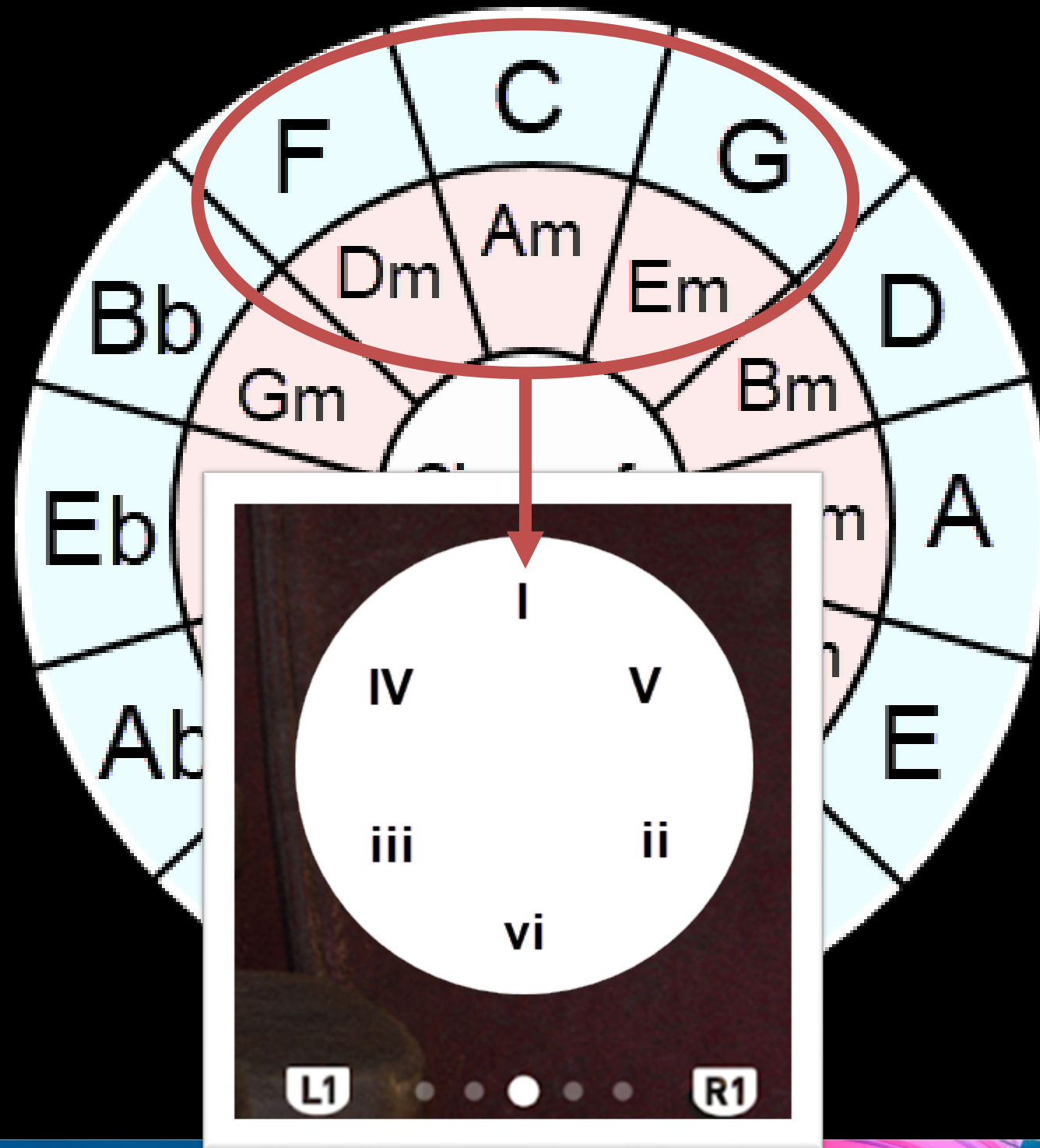- Can we future proof to be able to support any new song?

The Free Play Prototype

(Wait…could we play anything?)

What Makes Up A Wheel?

The Circle of Fifths

What Makes Up A Wheel?

How Many Wheels?

Twelve? One for each key?

- Scrubbing through 12 keys would be impractical, and lead to dupes
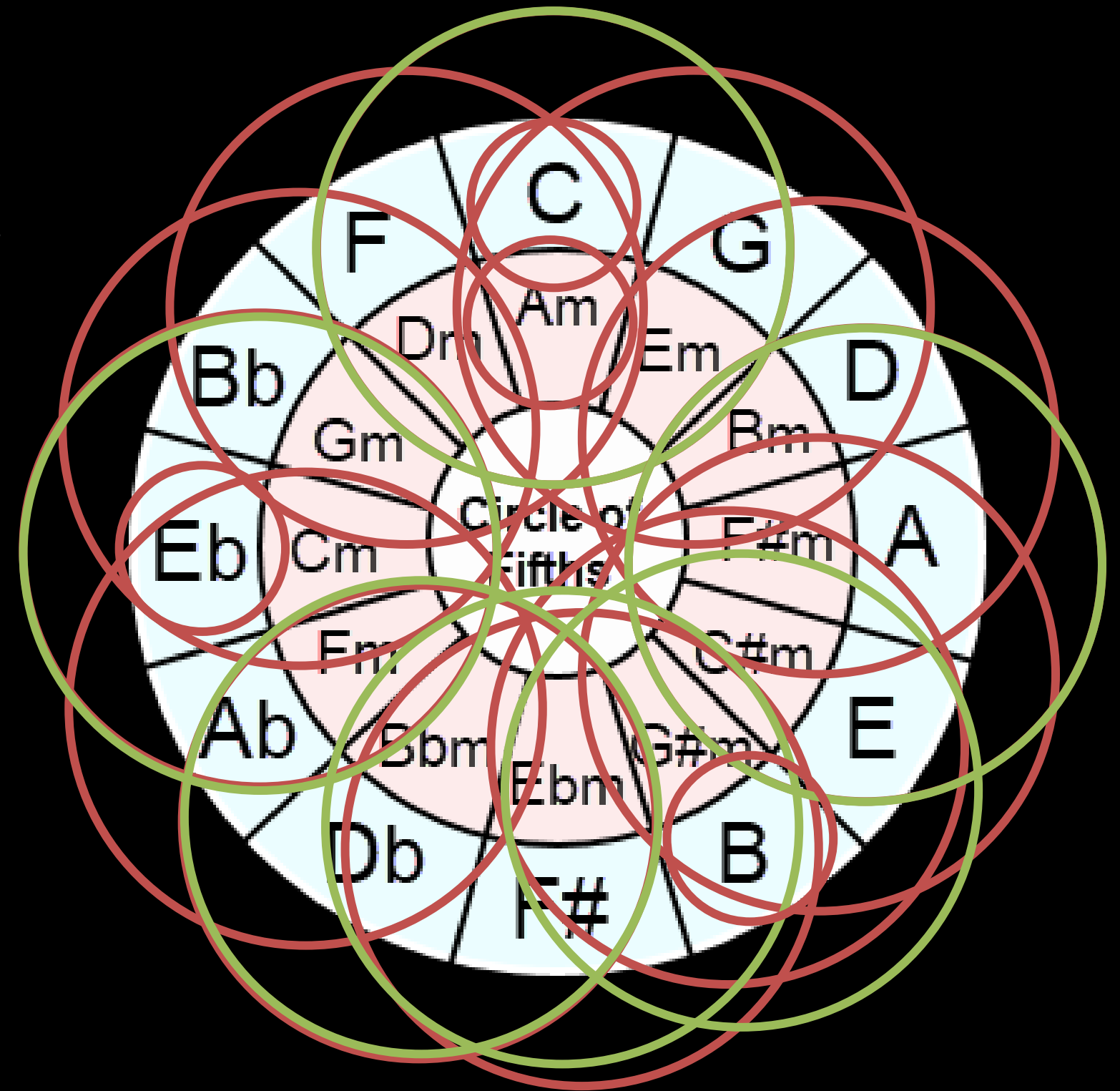
Technically we'd only need FOUR wheels of six

Constraints of existing songs

- Ellie "Future Days" (C)
- "Ecstasy" – Crooked Still (Am)
- Joel "Future Days" (Eb)
- Ellie "Take on Me" (B)

FIVE wheels of six (with some duplicates)

A B C Db Eb

The Final Prototype

Five Wheels of **Six** Chords

- Players can play every major and minor chord
- Players can play "Future Days" and "Take on Me" in Free Play if they want

Side Effect 1: Any chord is maximum two taps away from any other chord (wheel selection cycles)

- That means 5 is as good as 4

Side Effect 2: Some "missing keys"

- Sacrificing "G" or "D" to minimize wheels

Side Effect 3: No crunchy chords (e.g. 7th chords)

- Too niche, and risky for novices

(Secret Solo Mode for anyone wanting more chromatic freedom – L3 + R3)

Feel, Look, and Sound – The Whole Experience
(Where'd We End Up?)

Feel

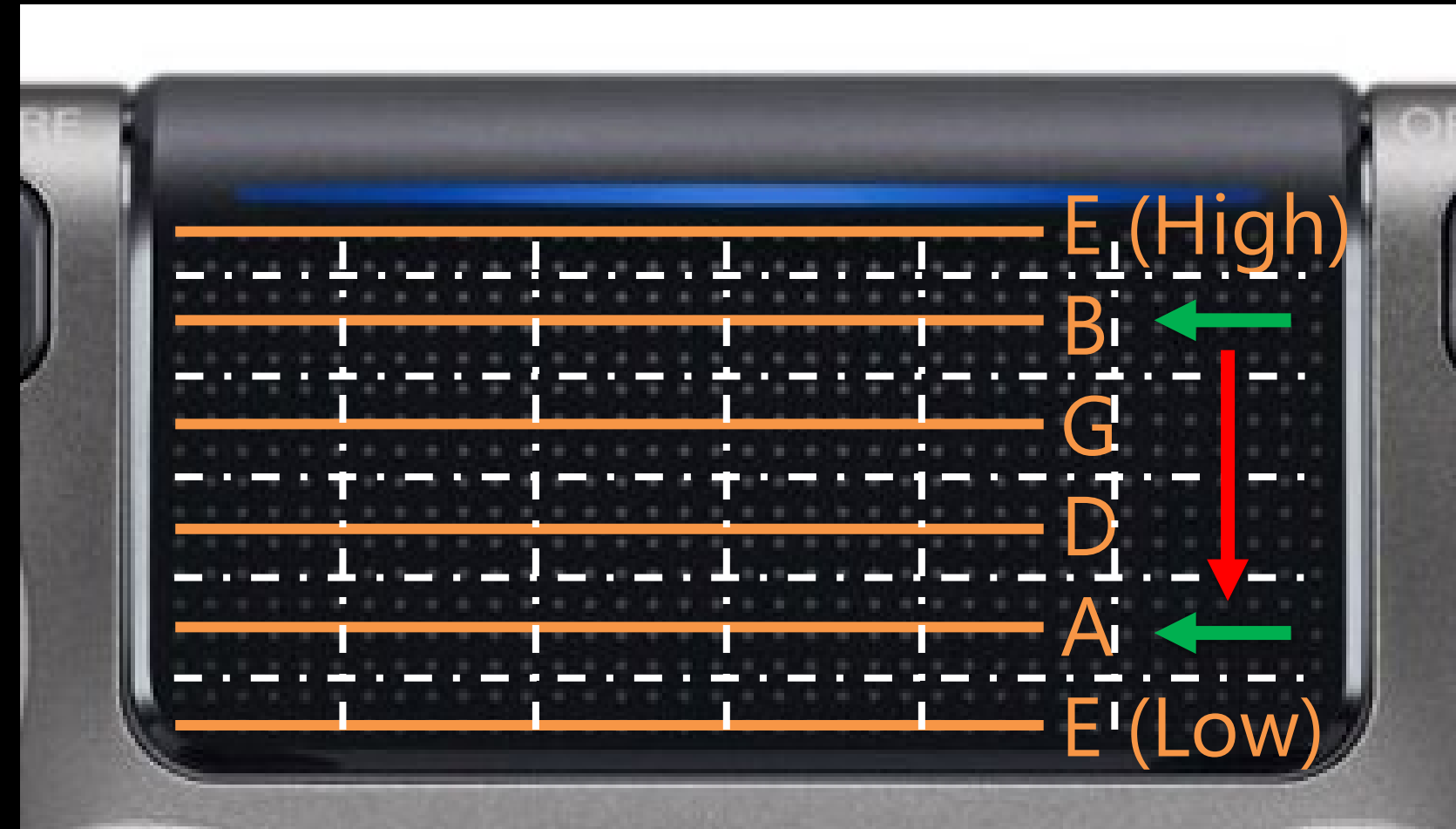How does the Player play the guitar?

Issues with Touchpad

Swiping Direction

- Affordance of controller to guitar suggests vertical strum
- Fidelity increased with horizontal strum

Limited Fidelity

- Strumming too quickly
- Tapping too quickly
- Dead space around edges

Look

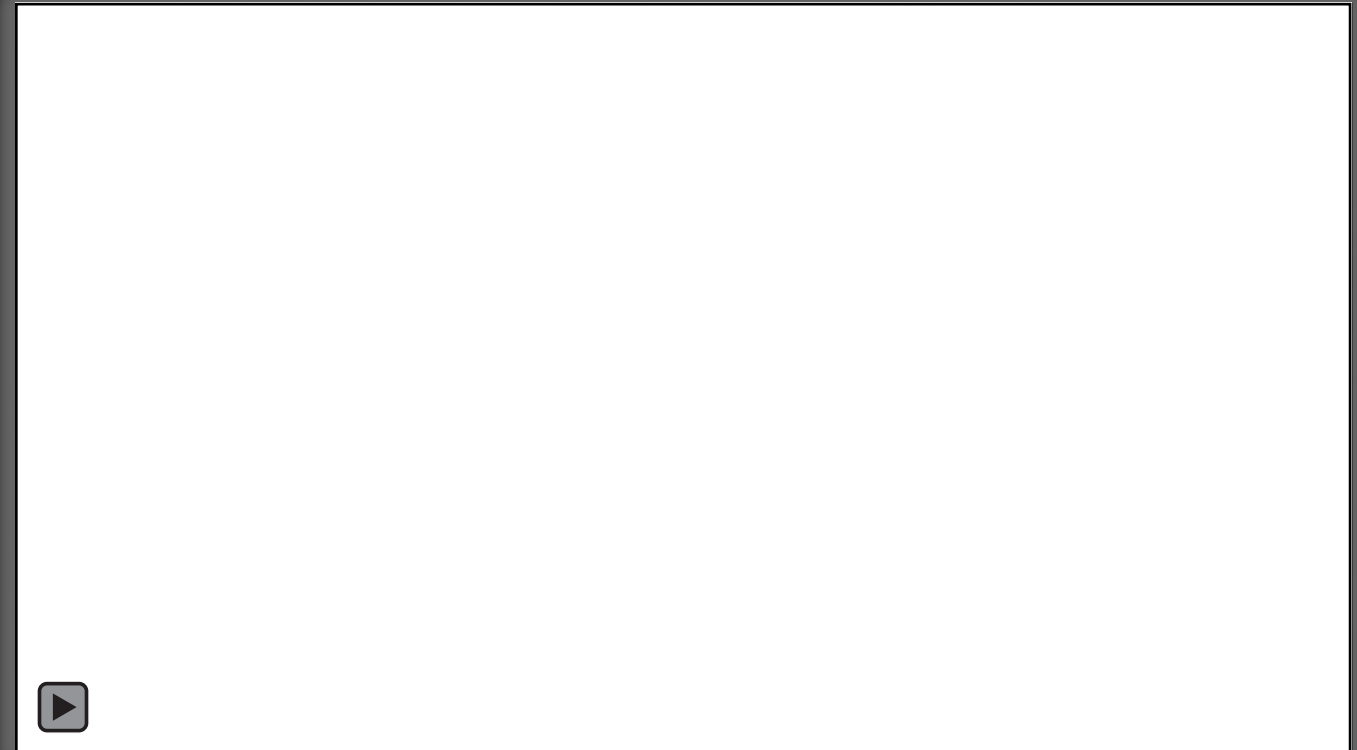How does Ellie play the guitar?

Chord shapes on hands

- 24 basic gestures + handful of extra cases (missing fingers, etc.)
- Blending vs transition animations - can't support all transitions!

Strumming animation vs picking animation

- Whole arm strum, finger pluck

Animation on strings themselves

- Both physical string and UI Element

Sound

How does the Guitar play?

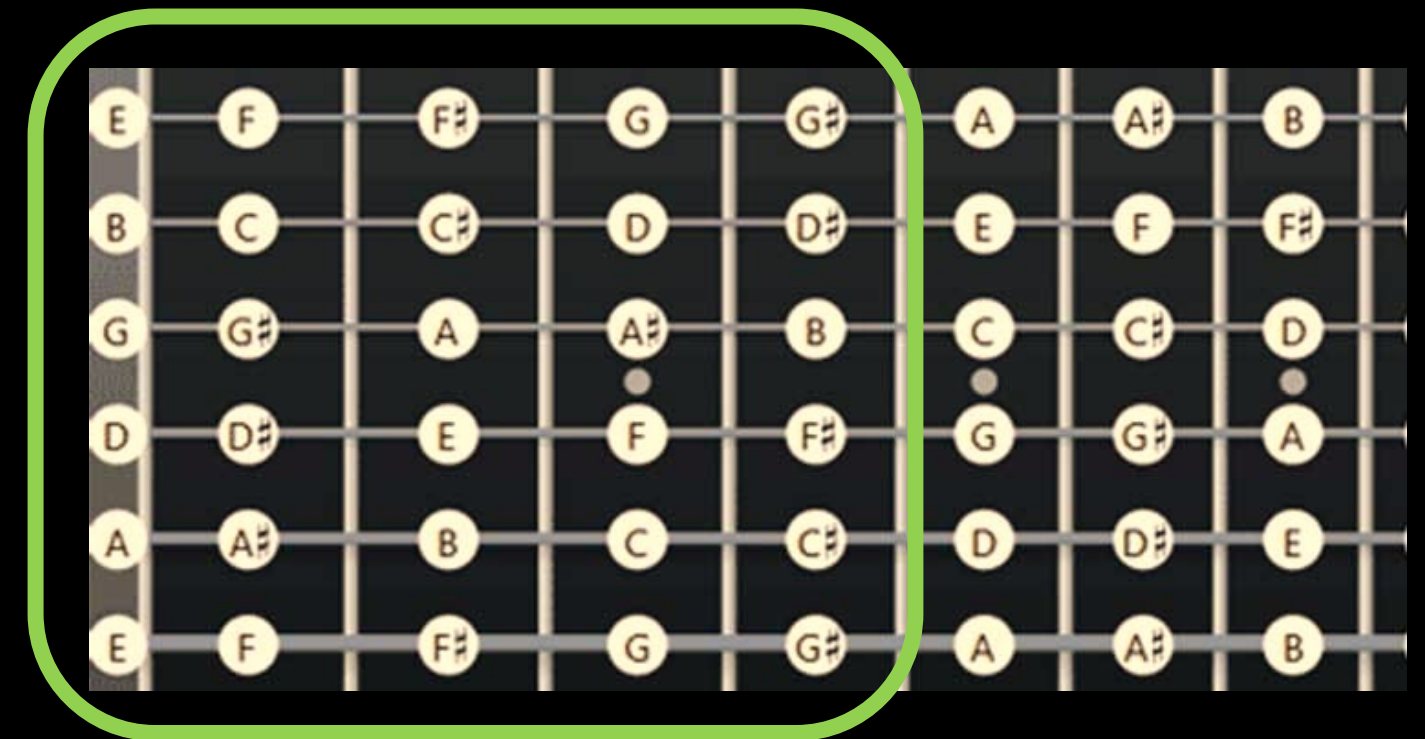4 different guitars in the game (thanks music/audio teams!)

30 different notes
- Plus messy buzzed notes for finale

Multiple takes of each note (round robins)
- Cross-fading

Muting and slide sounds

Conclusion
(How'd we do? What'd we learn?)

The Reaction

Players were very receptive to the guitar

- Multiple articles written about the mini-game alone
- Quite a few reviews pointed it out as one of the most memorable moments

Players started covering songs, both casually and seriously

- Various YouTube/Twitch videos of people playing different songs
- Articles compiling some of the best covers

Some people decided to learn the real guitar!

- Many pointed out you could grab tabs of songs and play them on this guitar
- Ellie uses (mostly) the correct finger shapes
- The organization of the wheels helps tell newcomers what chords work well together

Takeaways

Blue Sky Prototyping ⟵————————————————⟶ Rigid Documentation

SCAFFOLDING

Pre-Prototype

- Define any constraints outside of the game (hardware)
- Determine your own constraints (narrative, mechanical, tonal)
- Determine what you mean to solve by the end of prototype (choosing chords, fail states, UX feedback)

Prototype

- Focus on finding the solutions to the goals defined in Pre-Prototyping

Iteration

- Revisit your constraints, adjust if needed
- Open up to whatever is possible within your constraints
- Explore how to make those possibilities accessible to and understandable by the end user
- Test the boundaries of the constraints and surprise yourself!

Preplanning and Adapting aren't a dichotomy, they're both essential parts of creating a great holistic system.

Thank You!