

Setting Accessibility in Motion at Peloton

Be Birchall, Oliver Warfield, Glenda Sims



Getting Acquainted



Be Birchall

She/Her

Engineering Manager +
A11y Engineering Lead at
Peloton



Oliver Warfield

He/Him

Senior Product Manager,
Accessibility + Inclusion at
Peloton



Glenda Sims

She/Her

Team A11y Lead at **Deque**

Today's Takeaways



- Involving people with disabilities has a large positive impact
- Designing “Equivalent Experience” requires creativity, especially when there’s lots of visual data
- Inclusive Design and retrofitting can coexist

What is Peloton?



Digital App with Instructed Content



Peloton Bike and Bike+



Peloton Tread

**Fitness & A11Y
are a journey
not a destination**

Today's talk will focus on screen reader for our connected fitness equipment, but our commitment to accessibility goes much further...

Efforts beyond Bike & Tread screen readers

Software	Hardware	Content
<ul style="list-style-type: none">● Subtitles for live and on-demand classes● Bike+ Auto-resistance follow● Target metrics zones● Touch target sizes● Web + mobile accessibility	<ul style="list-style-type: none">● Inclusion requirements when defining new products that translate into including diverse perspectives throughout design and research● Accessibility Biomechanics workshop series	<ul style="list-style-type: none">● Logan Aldridge is leading the strategic adaptive fitness programming development



Making the Peloton Bike Accessible

For Blind and Low Vision Members



Why?

Peloton's Mission and Values



ACCESSIBILITY AT PELOTON

Our Commitment

Peloton is committed to providing the best, most immersive, and accessible experience for our Members. Everyone has different fitness abilities and ambitions, and we strive to provide a variety of classes and content that allows all our Members to reach their personal goals. Our core values are putting our Members first and empowering people to be the best version of themselves, and we want that to be inclusive of the abilities of all our Members.

Approach: Community Input + Testing



**American Council
of the Blind**
Together for a bright future

The Challenge

**Bike Accessibility for
Screen Reader Users**



Accessibility + Exercise

- Cognitive Load
 - Brain focused on workout
 - Competing Inputs
 - Instructor
 - Music
 - Metrics
- Unusually Large Touchscreen
- Dedicated Android/Talkback Tablet
 - Not an app on a device you already use with a screen reader

Defining Goals

- Define scope of research with
 - American Council of the Blind
 - Peloton Members
- Focus on Bike/Bike+
 - Seated Exercise First
- Use Key Features Independently
- Feedback Loops with Community

Key Features Include:

- Turn on/adjust TalkBack Settings
- Browse and Select a Class
- Take a Class
- Check Metrics
 - Cadence (how fast)
 - Resistance (how hard to pedal)
 - Output (how much work/effort)

Demo

Initial Launch
(2020)

Using TalkBack to

- Find a Class
- Start a Class

Think about

- What could be easier?



Search



Instructor

Length

Music Genre

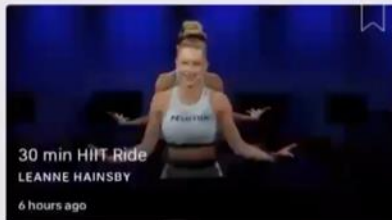
Class Type

Subtitles

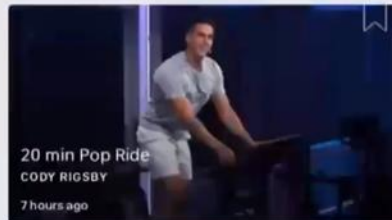
New



30 min Classic Rock Ride
SAM YO
5 hours ago



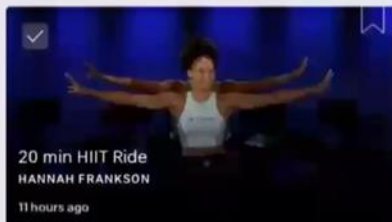
30 min HIIT Ride
LEANNE HAINSBY
6 hours ago



20 min Pop Ride
CODY RIGSBY
7 hours ago



30 min Intervals & Arms Ride
CODY RIGSBY
7 hours ago



20 min HIIT Ride
HANNAH FRANKSON
11 hours ago



45 min Grateful Dead Ride
JENN SHERMAN
Yesterday @ 7:30 PM



PROGRAMS



SCHEDULE

CHALLENGES



Unique Accessibility Usability Study

- Recruiting people with disabilities that already use the Bike
- Usability testing during the early months of the pandemic
- Remote Testing Challenge
 - getting camera on zoom call set up when participant has no light perception
- Cognitive Load
 - Accessibility + Exercise
 - Competing audio: instructor, music, screen reader, test participant talking, moderator talking

Surprising Insights

**Bike Accessibility for
Members with Blindness
or Low Vision**



Legally Blind (20/200) not as meaningful as expected

- 20/30
- 20/100
- 20/200
- 20/400
- 20/1600
- 1 degree of visual field

Success/Fail Rates on tasks analyzed by:

- **Primarily used vision.** Used TalkBack as a supplement.
- **No usable vision.** Depend on TalkBack.

Accessibility Usability Heat Map

Summer 2020

#	Task Description	Overall Usability	LV to 1% vision	Blind
1	***	0.3	0.5	0
2	***	0.5	0.33	0.75
3	***	0.5	0.17	1
4	Take a class (start a class)	0.6	0.33	1
5	***	0.7	0.33	1.25
6	***	0.7	1	0.25
7	Check Metrics (experimental)	1	0.6	1.67
8	***	1.1	0.67	1.75
9	***	1.22	1.8	0.5
10	***	1.25	0.5	2
11	Check Metrics (basic)	1.8	1.67	2
12	***	2.75	3	2.5

Usability Rating Scale

0 - Zero difficulty (zero frustration)

1 - Minor problems (little frustration)

2 - Medium to high frustration

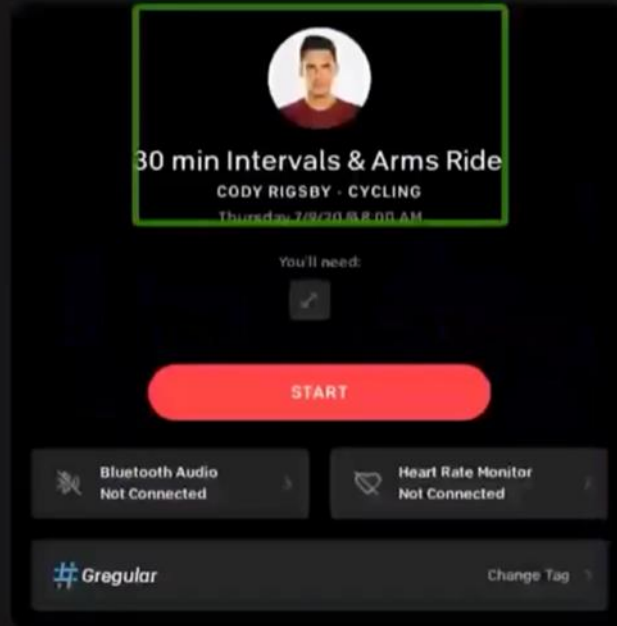
3 - Point of failure

Improving Usability

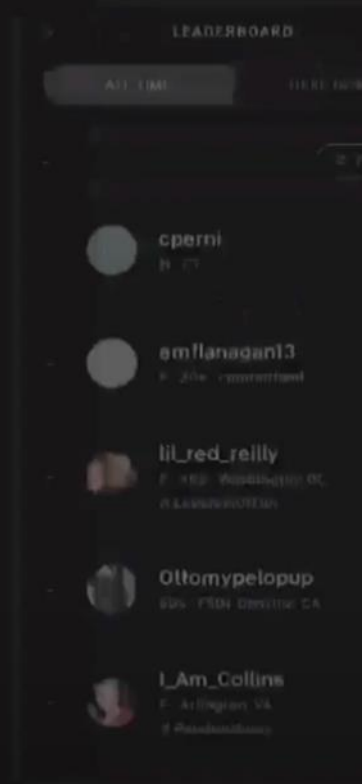
Example 1: Starting a Class

Example 2: Reading Metrics

Equivalent Experience: Starting a Class

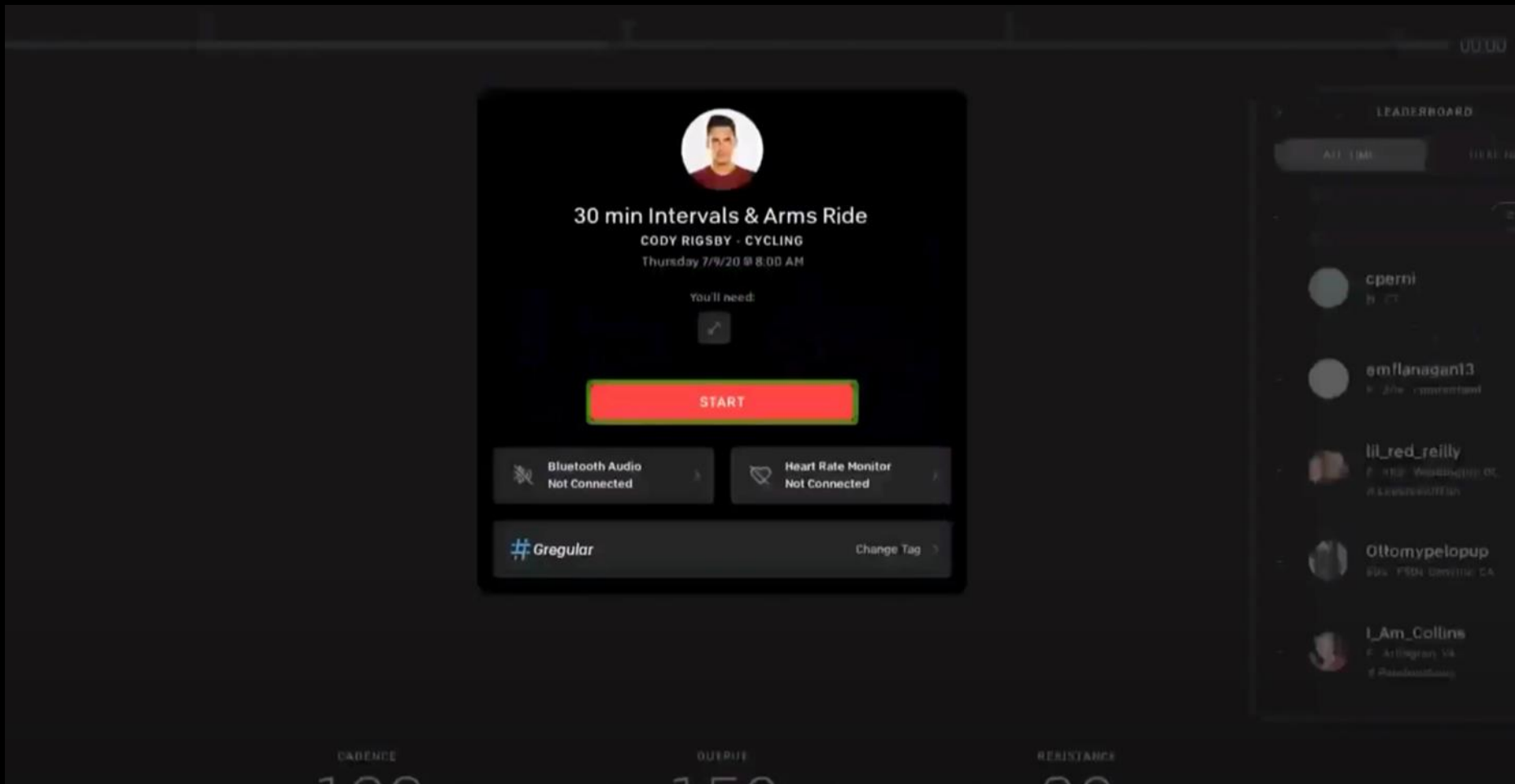


A screenshot of a fitness app interface. At the top, a circular profile picture of a man is highlighted with a green rectangular border. Below the profile picture, the text reads "30 min Intervals & Arms Ride" in a large font, followed by "CODY RIGSBY - CYCLING" and "Thursday 7/9/20 8:00 AM" in a smaller font. Below this, the text "You'll need:" is followed by a small icon of a smartphone. A large red button with the word "START" in white capital letters is centered below. At the bottom, there are two grey buttons: "Bluetooth Audio Not Connected" and "Heart Rate Monitor Not Connected". Below these is a blue hashtag "#Gregular" and a "Change Tag" button.

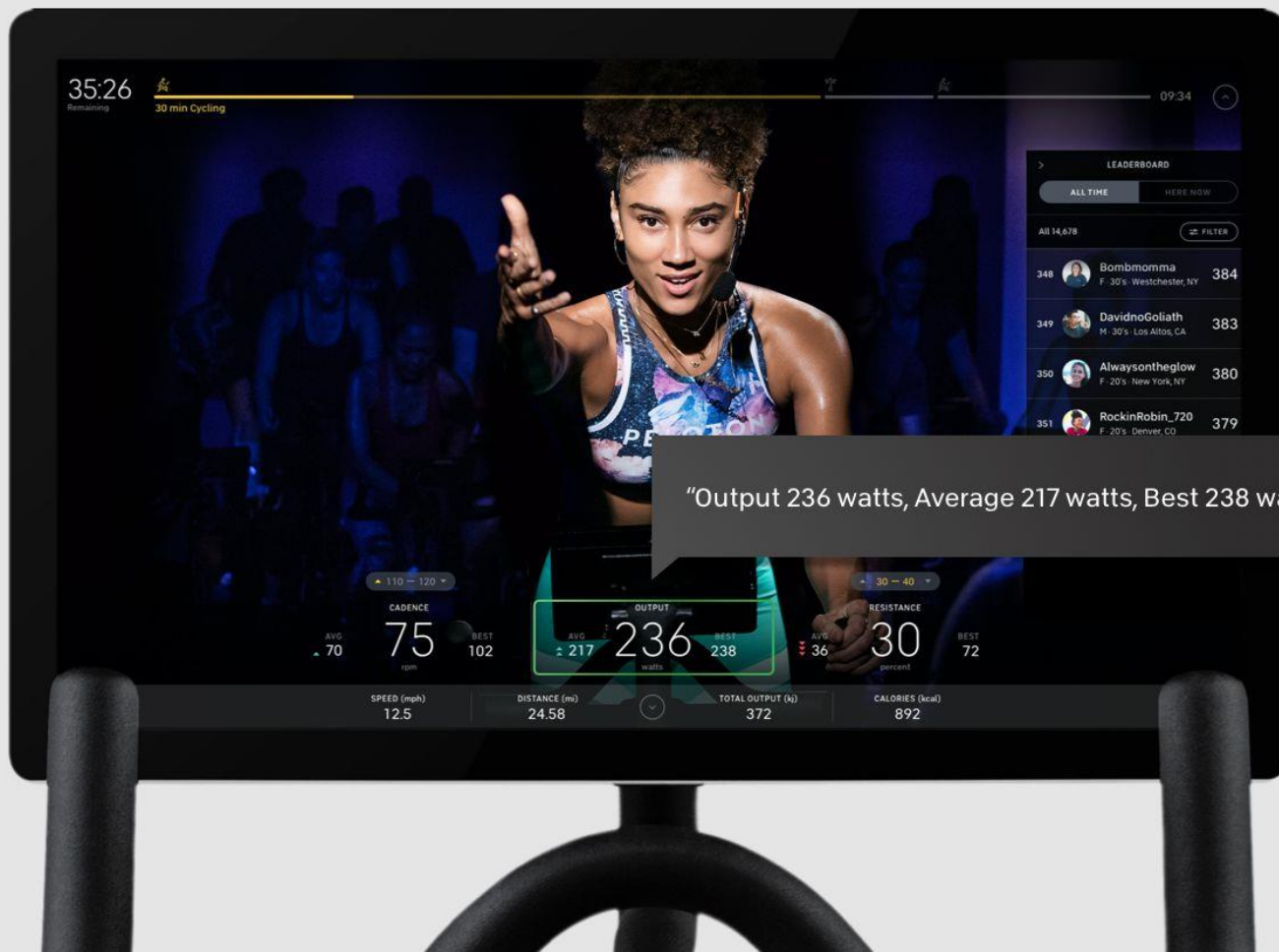


A screenshot of a leaderboard in a fitness app. The title "LEADERBOARD" is at the top. Below it, there are two tabs: "All Time" and "This Week". The leaderboard lists several users with their profile pictures, usernames, and some additional information. The users listed are: "cperni", "amflanagan13", "lil_red_reilly", "Ottomypelopup", and "I_Am_Collins".

Autofocus Start Button



Equivalent Experience: Reading Metrics



Visual user...

- Can **easily** read metrics when interested
- Can ignore metrics
- Can collapse/hide metrics

TalkBack user...

- Hears metrics automatically read out at 90 second intervals
- Can tap to hear metrics
- Can collapse/hide metrics auto read

“

I love it. Because **it is a game changer**. It means that the whole reason I ride is it is the one exercise I can do independently. Right. And now, I can even set up my ride independently. So, it's huge.



– *Natolie W., Blind Peloton Member*

Treadmill Screen Reader Innovation

2021 - Present



Research: How were blind people using treadmills?

There's no treadmill on the market with a screen reader.

- Users reported having to **rely on memory to know their current speed & incline**
- Built-in metrics and programming were inaccessible so users found workarounds

Research: How did people wish treadmills worked?

- Meaningful auditory feedback as speed and incline change
- Regular readouts of metrics instructors use in classes, and personal statistics
- Same level of access to on-screen info and interactions that anyone else has
- Temporarily lower the class volume so important alerts are perceptible (audio ducking)

Why couldn't we just turn TalkBack on?

“TalkBack is a screen reader and Tread is more than just a screen.”

**-Kimberly McCarty,
Software Engineer**



Hardware safety alerts weren't reliably perceptible

- Navigation was usable, but there weren't any audible speed and incline changes and alerts
- Treadmills are loud
- TalkBack had limitations when it came to establishing rules to protect important announcements

**At the end of the day, we wanted to build an
Equivalent Experience, balancing
entertainment with reliably perceptible
feedback and safety alerts.**

**The challenge was condensing the sheer
volume of dynamic visual data into one
accessibility audio stream that plays nicely
with our media.**

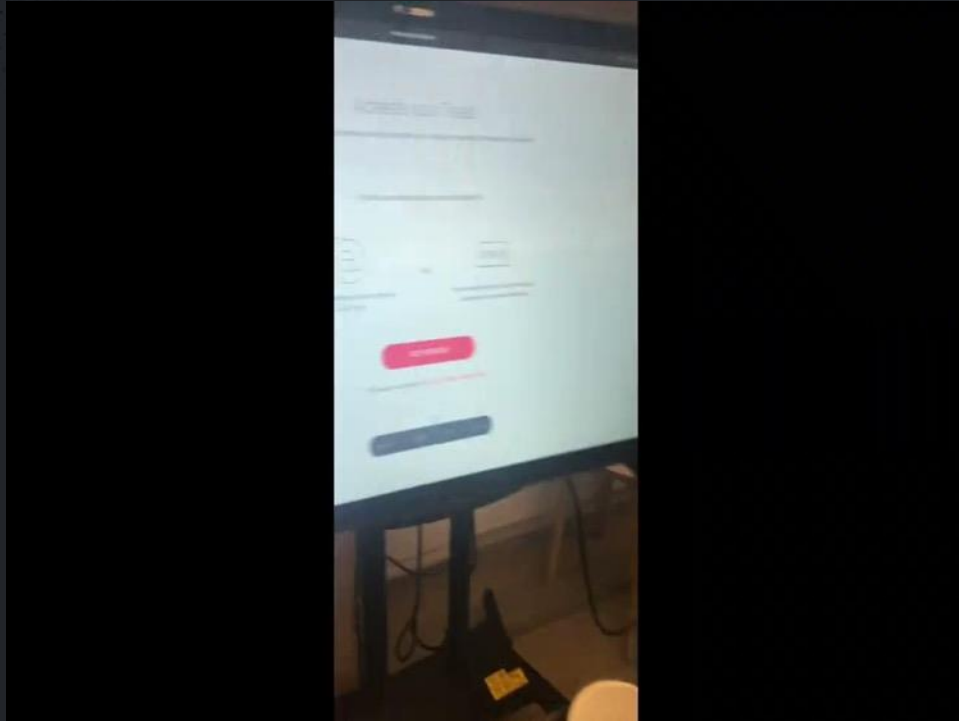
Car Infotainment Systems

Striking a balance in informational audio



- Hierarchy of announcements and alerts
- Earcon chimes quickly draw attention and minimize entertainment interruption
- Audio ducking & auditory processing human factors research

Our proof of concept



Featuring Haley Holden, Software Engineer

Initial Reaction, ft. Patrick Sturdivant

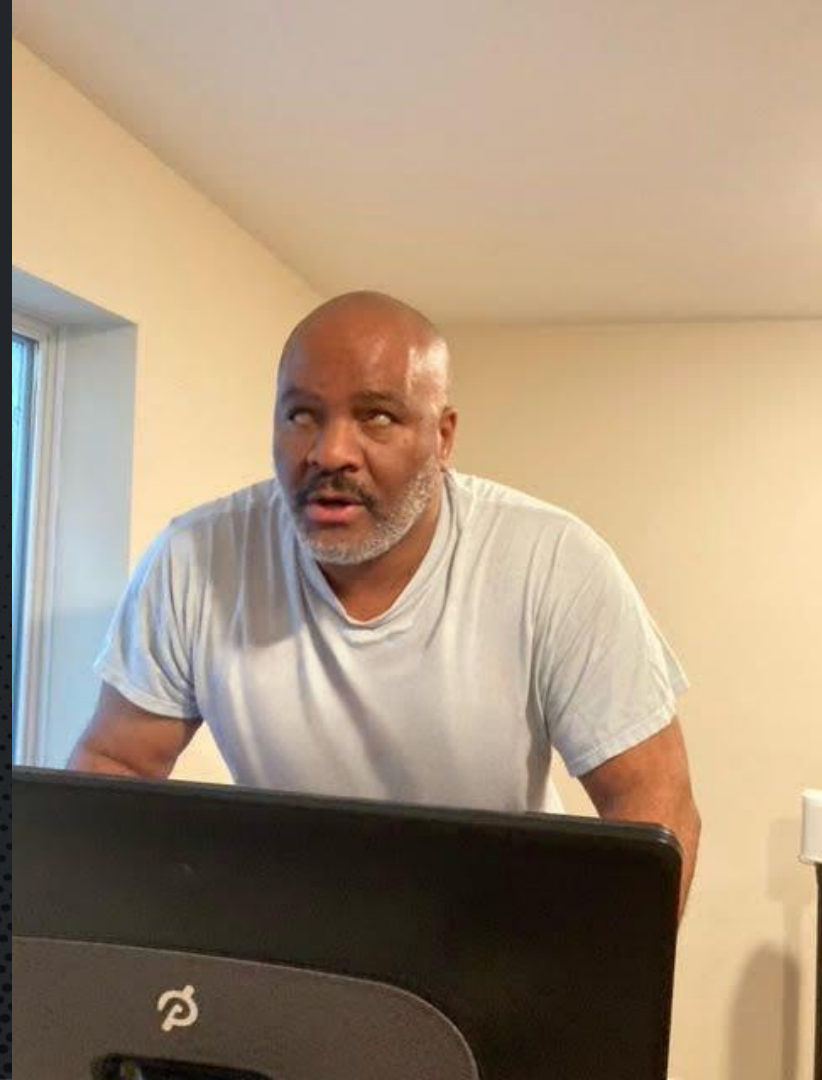


all Patrick Sturdivant

3 Key Takeaways

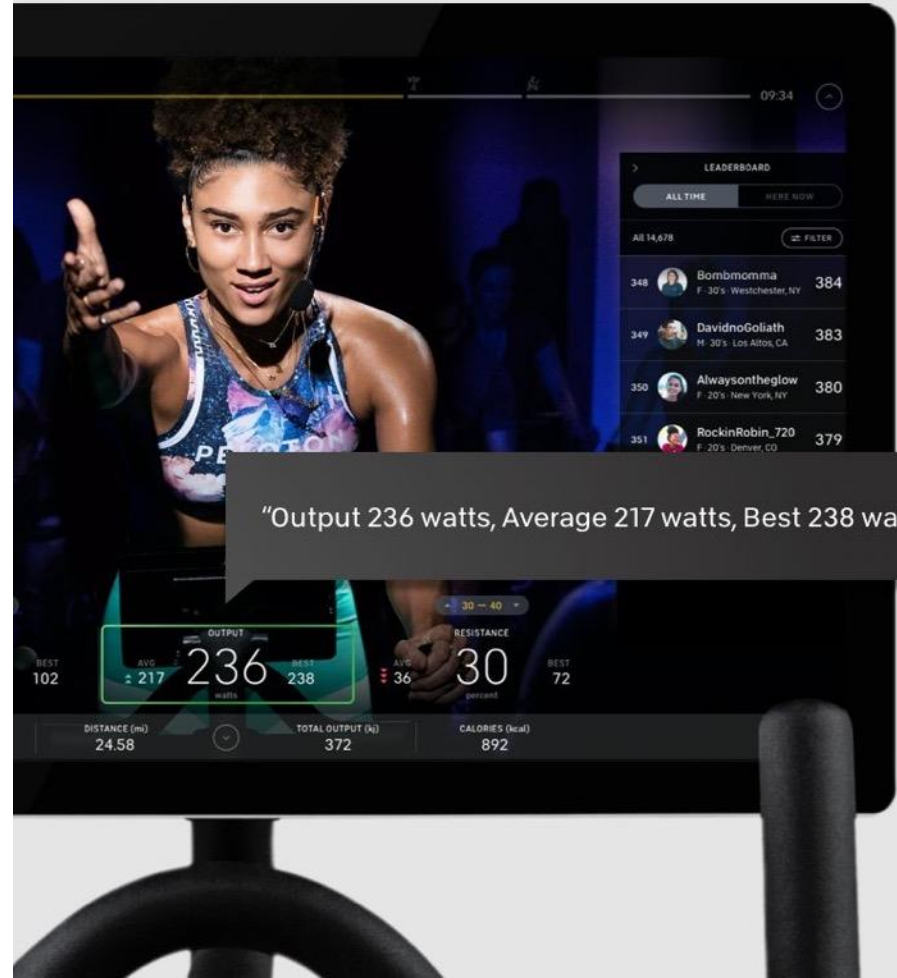


Involving People with
Disabilities has a Large
Positive Impact



Designing Equivalent Experience requires Creativity

especially when there is a
lot of visual data



Inclusive Design can Coexist with Retrofitting

Inclusive Approach

- Involve people with disabilities
- Incorporate more perspectives
- Iterate and test

Retrofitting

- Adding accessibility later

Questions?

