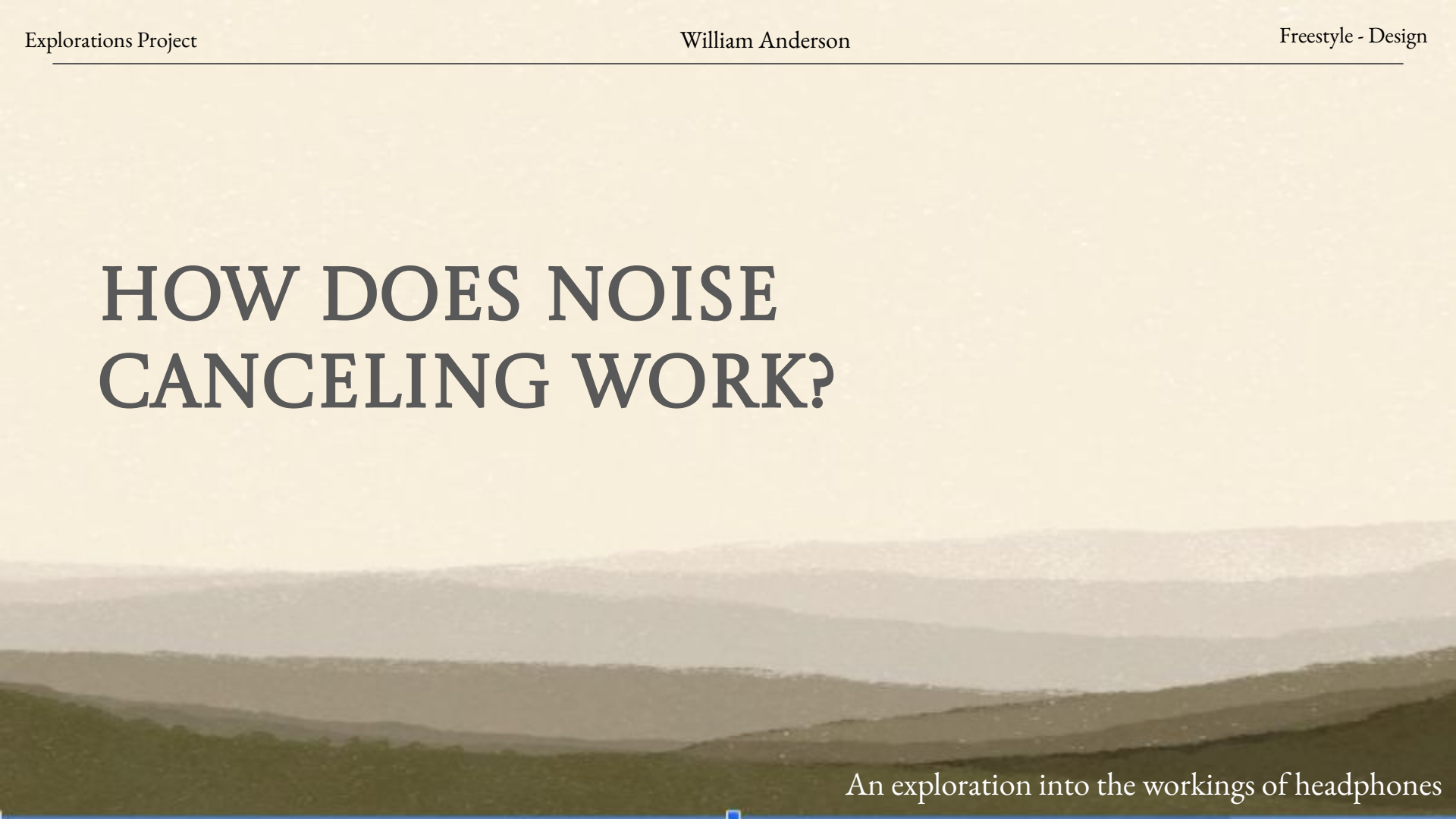
HOW DOES NOISE CANCELING WORK?



An exploration into the workings of headphones

INSPIRATION

Having active noise cancelling headphones, I wanted to know how it works. I use noise canceling a lot, and I think it’s important to know how things you use, work.

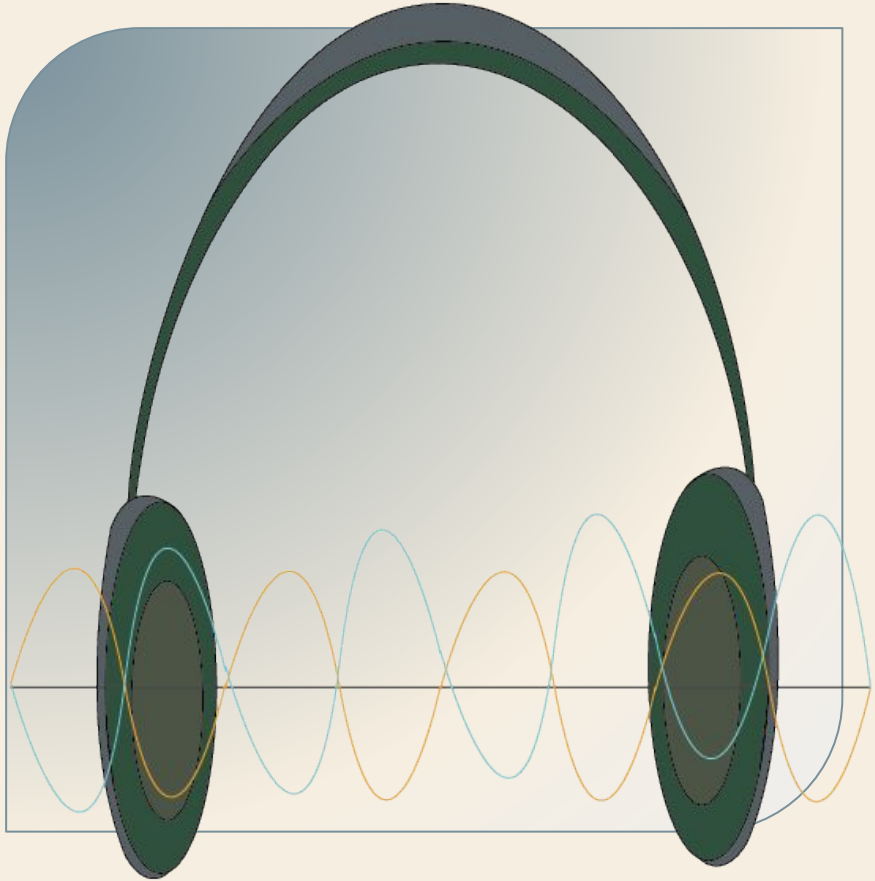
MATERIALS

Beats
Studio 3

BLUE - Outside input

ORANGE - Matched frequency

SO WHAT'S GOING ON ...



PHASE-INVERSION

> The process of matching and flipping frequencies to cancel out wavelength.

Microphones on the outside of the headset pickup the ambient sounds (airplanes, talking, cars) and match the frequencies of the input, a process called "Phase-Inversion," canceling out the outside sound frequencies and sending them into the speaker.

1. AMBIENT SOUND IS DETECTED

Through externally mounted microphones

2. SOUND WAVES ARE PROCESSED

Sound frequencies are matched

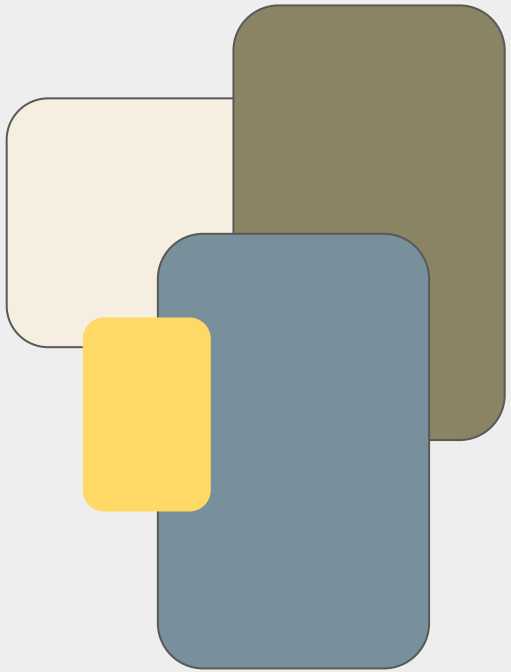
3. EQUALIZED SOUND IS PLAYED

Back through the headset

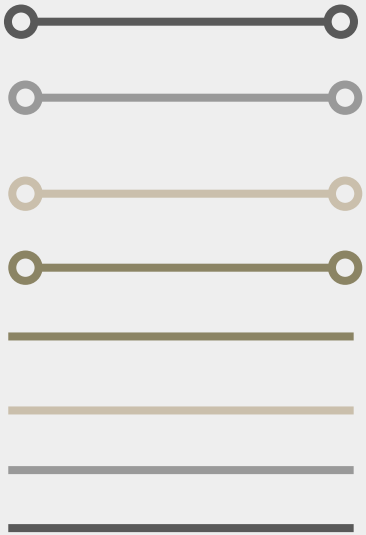
4. NOISE CANCELLING IS ACHIEVED

ORTHOPEDIC VIEW OF BEATS STUDIO HEADSET

DESIGN ELEMENTS



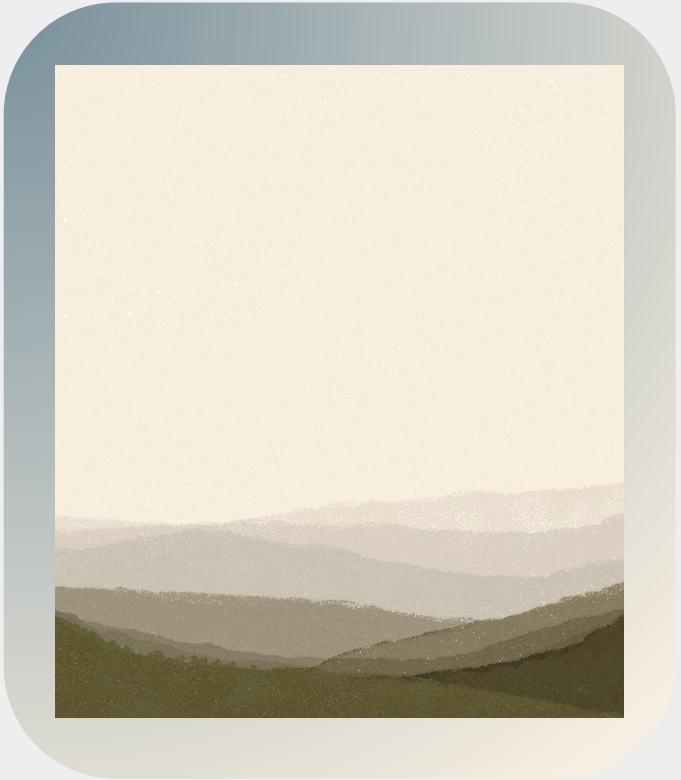
COLOR SCHEME



- FONTS -

CASTORO TITLING

EB Garamond



ILLUSTRATOR BACKGROUND

INFORMATION GATHERED FROM...

https://www.bose.com/en_us/better_with_bose/noise-cancelling-vs-noise-masking.html#

https://www.bang-olufsen.com/en/us/story/active-noise-cancellation

My own explorations through taking apart a Beats Studio 2 headset