

7 in 7

## two (10/31/2021)

**name:** disembodied breath no. 1

**soundtrack:** some of Mirrors by Angel Olsen and Late Night Feelings by Mark Ronson et. al  
...piecemeal listening today

This prototype is definitely going to span two days. Today being Halloween seemed like an appropriate day to start, however.

The goal of this prototype is to understand the response to the sound of disembodied breath. To achieve this will use my trusty buckets to "produce" breath sounds. I would say that this prototype is Wizard of Oz adjacent.

First I took a small bluetooth speaker and the biggest USB battery I have. I made sure that they fit inside one 5 gallon bucket when another was placed on inside.

Then I put the bucket from yesterday with the hole and latex tube attached inside the bucket with the speaker.

I connected to the speaker with my cellphone and played a youtube video of breath noises at a loud volume. It was a very striking effect.

I took my buckets – the new, hottest trend in streetwear accessories – out on the street and found a cafe on a pretty busy corner. I put them on the sidewalk and played breath noises.

A number of things went wrong; I needed to use my cellphone for something other than youtube, the bluetooth kept disconnecting, and due to street noise and music from the cafe no one really heard the bucket. I also placed it near a trash can and was worried someone would throw something yucky inside.

Then I went home and created an mp3 from the youtube video. I put it on an old cellphone on repeat and used an aux cable to connect the speaker to the cellphone.

Sometime later I took this, much more solid, combination out to my favorite corner bar with my sister who was visiting. And placed it near a crosswalk (the same one I used for instruction sets for strangers, in fact).

Not too many people noticed the bucket. I think the road noise was a lot to contend with. The people that did notice were pretty funny. Three interactions stand out:

- A young woman kept looking at the bucket while waiting for the crosswalk with a group of friends. She kept looking furtively over her shoulder at the bucket and was clearly perturbed by the noise. It was also clear from her interaction walking away that she didn't immediately mention it to her companions.
- A man in his late 50s perhaps was eating a slice of pizza while crossing the street. When he got to the bucket he stopped and was very curious. He looked inside and listened closely. He clearly wasn't in a rush as he finished his pizza. Throughout the interaction his facial expression was a mix of confusion, disgust and laughter. He walked away shaking his head.
- A young man was smoking a cigarette near the bucket. After some time he started looking at it more closely and clearly noticed the sound. He seemed confused and a bit disconcerted. My sister and I were clearly looking at him so he came over to us and mentioned that he

though someone had “planted something” on the corner. He said he’d thought it was music and had been waiting for a pop song to start playing, but nothing happened.

- Finally, a woman collecting recycling walked by. She stopped at the trash can adjacent to the bucket. And then I watched in seeminly slow motion as her attention turned to my prized buckets. She seemed a bit confused, but bent over and took the inner bucket out. At that point I left my seat and went over and asked her to stop. I explained that the buckets were mine and she apologized and went on her way. Then it was time ot go home.

The big takeaways which I want to adjust on the next iteration aere as follows:

- needs to be louder
- needs a more quiet location
- need a better way to control which breath sounds are playing

To account for these, I think I’m going to try a park. I can’t find a louder speaker, but maybe I can make the noise louder digitally. I am also going to create simple interface which will let me adjust which breath sounds are playing instead of having to listen to the youtube video mp3 on repeat.

**one (10/30/2021)**

**name:** Diaphgarm Test no. 1

**soundtrack:** Treehouse by Sofi Tukker

The objective of this prototype was to create a mechanism for forcing air through a tube so that I can play with different sounds. To do this I intended to create a diaphragm to move the air. My intention was to attach a pice of latex over one end of the bucket and a small tub at the other.

I started with one of the 5 gallon buckets I found and bought a bucket lid (should've tried harder to find the lids when I found the buckets).

I cut the center out of the lid and then did a test to see how well the latex stayed in place under the lid. Luckily it worked well and didn't damage the latex.

Next, I drilled a hole in the bottom of the bucket. I forgot about my hole saw kit and just used a knife to slowly shave off the edges until it was the right size for the tube.

Then I trimmed a pice of Latex to size (this required a fresh box cutter since all my other knives were too dull for a clean cut).

Finally, I attached the latex to the open end of the bucket under the "lid" and poked the tub through the hole in the bottom.

The effect was pretty immediate. By depressing the diaphragm I easliy forced air out through the tube – an exhale – and air came back into the tube when I let the diaphragm rebound – inhale.

There were three physical properties I wanted to play with to see how they impacted the sound coming from the prototype:

1. how much of the tube was outside of the bucket vs. inside
  - This didn't seem to have a big impact. It was really ahrd to tell the difference between the tube being all the way out and all the way in. I think I need to cut the tube ot be different lengths.
2. how sound changed when the tube was pinched in different places
  - when the tube was pinched near the bottom the sound was lower in pitch
  - when the tube was pinched near the top the sounds was higher in pitch
  - nearer the top sounded more like human breathing
3. how sounds changed if the bucket was crushed sideways to be less round
  - this one was also hard to tell, it seemed that there was slighly less resonance when the bucket was crushed
  - the intent was to make the sound less hollow and I think this was slightly true

I think this prototype was pretty successful. It left me with a good number of questions which are as follows.

- how does the length of the output tube effect the sound? need to experiement, but an not ready to cut the tube.
- how does the shape of the cavity effect the sound?
- is this cavity ridiculously large in comparison to normal lungs?
- how do I make the sound less hollow?
- what volume of air is displaced? (if I had a flow meter I could just integrate, but I'll have to be more clever)
- how would a lung structure change the sound?
- how would the sound change if there was some kind of foam or cloth inside the cavity? would that sound less hollow?
- how the heck am I going to automate the diaphragm?

## 7 in 7 planning

The first step of any prototyping exercise is to collect materials. I did some of this a couple weeks ago when I went to canal rubber (so cool, so much sneezy latex powder). This was good fodder for the diaphragm and trachea prototypes, but I still need a chest cavity like thing that would be more robust than the small plastic container I tried already. A large plastic carboy for brewing would be ideal, but that violates my prototyping rule of only buying things you truly need for a material or functional evaluation (like latex) and can't find anywhere else. While out on a late walk this Monday evening I found a lot of recycling outside a restaurant near my apartment. Isolated inside a single clear trashbag were three 5 gallon buckets formerly containing pickles. These streets deliver! They didn't even smell much like pickles once I got them home and opened the bag. After a few days outside and a big rainstorm they were good to go. Seems like I already have the necessary materials for my other physical prototypes.

### proposed prototypes

There are two sensory aspects of this work, the auditory and the physical or visual. It was pretty easy to identify prototypes that fell in each of these categories. The auditory prototypes should play with different types of breath and evaluate the effect of disembodied breath. The physical prototype should focus solely on the mechanical aspect of reproducing breath according to the basic breakdown of the respiratory system I've outlined. I'm not going to start thinking about the electronics used to actuate the things.

It was less easy to think about prototypes that address the less tangible questions I am hoping to probe with this work. To think about this I started by looking back at the questions I asked myself originally. After reviewing that list, the big question I want to start answering is how a viewer sees their own presence near the work impacting its breath. This is an answer to the questions of who holds power over our own breath and how far does breath extend as a metaphor for our relationship with the natural world. I'm going to start with this one isolated question because it has a lot of facets and ultimately will lead to the bigger question of what should the viewer take away from the work (in other words, what experience do I intend for them to have).

Based on the above thinking I concocted the following prototypes.

#### **interactive (how a viewer sees their own presence near the work impacting its breath):**

as someone approaches the bucket the breath becomes worse

as someone leaves the bucket breath becomes worse

breath emanates from a tree? that's a bit random, but perhaps illustrative

#### **auditory (addressing disembodied breath, how breath denotes sickness, difficulty, and emotion):**

Hide a speaker and battery inside two 5 gallon buckets in a public place with moderate traffic and see how people react. Do each of these different types of breath illicit different reactions?

play normal breath sounds

play laboured and sick (covid equivalent) breath sounds

play emotional breath sounds (sad, happy, aroused, etc.)

**visual / physical (addressing how to actually make this thing and how it should look):**

make a big diaphragm and play with *quiet* ways to make it move

make a trachea prototype with multiple rings that contract

play with the idea of a larynx

model a brachea in openSCAD and print one small piece to think about how moisture could interact with this piece