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# A very important technical update

OCTOBER 26, 2017

## **A very important update to our supporters**

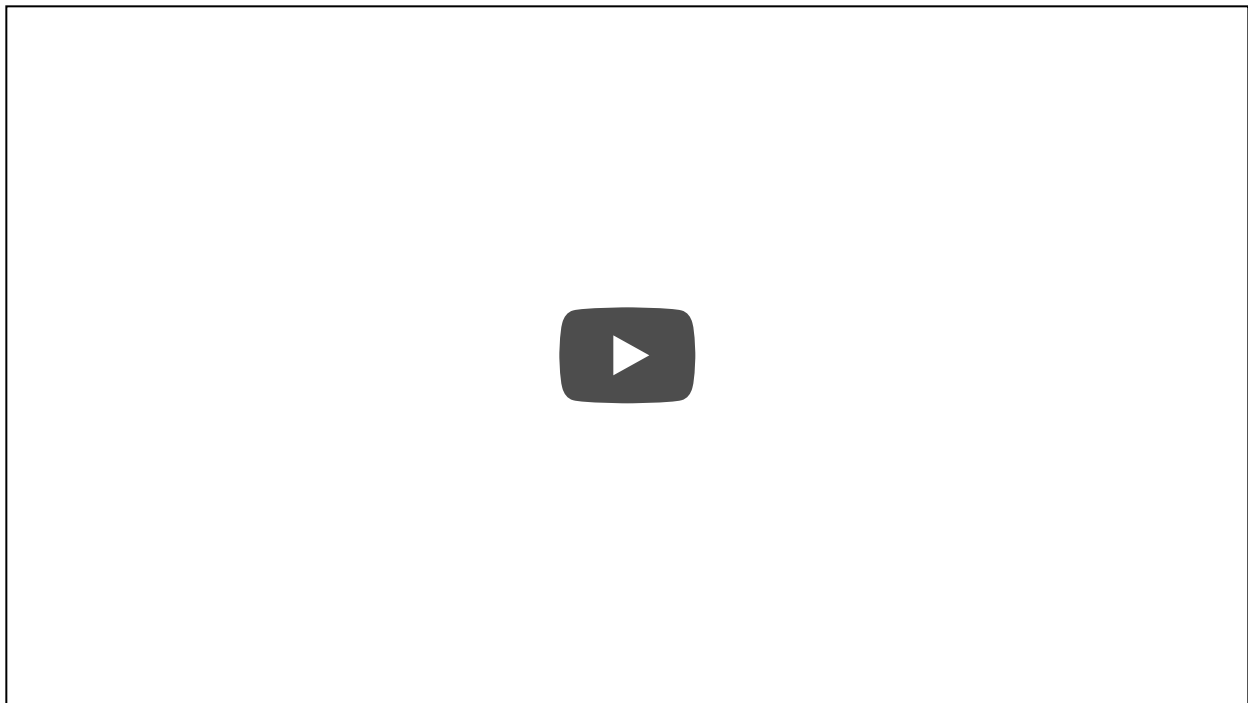
We have been reluctant up to this point to give too much information about how we designed and are building Airing because this is a proprietary invention with revolutionary implications. However, because we have not met our deadline of having a working prototype we feel we owe our loyal supporters more detail.

## **A high hurdle**

In short, we hope we are close to having the micro-blowers functioning properly. As many of you already know, what will make the device work to treat sleep apnea are the tiny micro-blowers, many of them running in parallel, each one blowing a small amount

of air, together blowing the right amount of air. While we achieved many of the engineering goals required to make Airing a reality, these micro-blowers are the tough piece of the puzzle for us and we have had some challenges getting them working.

Engineering is an iterative process and with each iteration you get closer to the goal. We have an engineering challenge we're focused on that is proving to take much longer than we thought to get right. Specifically, we have two valves in each micro-blower that are designed to operate alternately: when one is closed, the other is open and vice versa. This happens thousands of times per second.



***This high magnification picture shows a micro-machined, micron scale air valve operating at three low speeds (so you can see it move) to demonstrate valve operation. The curved air flow path can be seen as well as the [black] valve itself. The valve is transitioning between its open and closed positions. The valve width is about one fourth of a human hair.***

One of the valves appears to be working perfectly. But the other is about 90% of the way there. The problem, simply stated, is that it was “sticking”. In order to fix that, we had to thin it out, and lo and behold, now it doesn’t stick! That’s the good news. Now the issue is it’s too thin to be airtight so we need to find the precise thickness that will allow the valve to move freely while remaining airtight when in the closed position. We’ll get it! But each iteration takes a couple of weeks between designing the change, having it sent to the laser and sending it back to us to test.

Remember, all of this engineering is happening at microscopic scale so it’s a challenge to get it precisely right. But we believe we are close to making it work.

We have had our heads down, expecting every day to be “the” day we get to proclaim “we did it!” Perhaps that’s why we haven’t been as communicative with you as we should have been.

Since we outlined the challenge we are facing, I think it’s important to take stock of what we have accomplished:

- Low cost integrated micro pressure sensor: **prototyped and working**
- Nose buds that stay in place under high pressure: **prototyped and working**
- Ergonomic outer plastic housing: **prototyped and working**
- Micro-blower pump bodies: **prototyped and working**
- Micro-blower valves operating thousands of times per second: **prototyped and under test**

We are grateful for your continued patience and support as we continue our work to bring these innovative technologies to fruition.

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*Special thanks to all our founding members!*

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We launched in June, 2015, a campaign on Indiegogo to generate enough money to

make Airing happen. While the campaign has been very successful, we could still use your help. Whether it's for you or for someone you care about, contribute to the Airing cause today by clicking here. In the meantime, send a link to this site to everyone you know, post it on Facebook, Twitter, LinkedIn, anywhere your friends are. Invite people to get behind this important technological marvel that is just too revolutionary to not exist. Thank you, and sleep well!

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