

Enviro-tracker is wearable for citizen monitoring

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Mobile hardware and software allow us to count our steps, and to count our calories, but a Vancouver, Canada, startup group asked, what about tracking our environment? TZOA was founded in 2013. Laura Moe, the company's co-founder, said, "We felt there was a missing puzzle piece, that is, and that is, the story of what is happening on the outside of our body—things like sunshine and air quality, intangibles but things that impact our health and well being." What they had in mind was a wearable that could create citizen scientists, out to monitor air quality and UV exposure. The result: A Kickstarter campaign which is going on now for their TZOA enviro-tracker; the device was designed to measure air pollution and UV exposure in the immediate environment. For a smartphone app, TZOA uses Bluetooth Smart to send and share data to the smartphone so that the iOS and Android apps visualize the environment, as to how air pollution and UV impact the user.

The wearable does not sit up against your skin, they said. Moe said it is "not an intrusive wearable," as it can be worn on a backpack or purse or side of your boot. Their vision is all about impact; not only in a device monitoring how the environment can impact the user but how the user can impact the environment by helping to create a street-level pollution map in the user's community. Using TZOA would be creating a crowdsourced map of environmental data in real-time. Their vision is a user empowered enough by the data review to share the data with a social community to build an ecosystem of environment knowledge. Afshin Mehin, lead designer: said the product idea involved understanding the idea of the preciousness of air and that drove the idea of a form that could communicate something that felt precious like the air we breathe.

The device has an optical [air quality](#) sensor that detects PM (Particulate Matter) 2.5 and 10. (Particulate matter is the term for solid or liquid particles found in the air.) "Our sensor counts individual particles, displays concentrations, and distinguish between PM10, which tends to

be allergens, and PM2.5, which is more harmful to human health. TZOA's data will stream onto the TZOA Smartphone App which will be processed to some extent on the device, and then further processed in the cloud."

As the monitors pick up the user's immediate environment, what if there were hundreds of street-level monitors regularly monitoring, to really know what is going on? Just by wearing the device, users are contributing to a crowdsourced, always-on air quality map said Terry Dawes in Cantech Letter. "Ideally, enough people will be wearing these things in your area to [build](#) a map with enough depth to provide a convincing air quality portrait of your immediate [environment](#)."

"Our cities and homes are a patchwork of clean and dirty air that we can't see and haven't had the ability to discover. With something as vital as air, we shouldn't be in the dark any longer." Said the team, who consider themselves "Social Ecopreneurs. "This being the information age, they believe that "[citizen scientists](#) are leading the charge," and "they just need the right tools."

At the time of launching their Kickstarter, TZOA has a completed component package. They said they are seeing great sensitivity and correlations with their waveforms. "The next stage is to build algorithms that analyze these waveforms, which will allow us to count and size particles, and apply calibration curves. We even know how to do this, but it will take three months of coding firmware to reach this point."

One TZOA enviro-tracker with charging dock is on the crowdfunding page at about \$150 CAD (About \$142.56 USD) with estimated delivery in August.

More information: [www.kickstarter.com/projects/t ... first-enviro-](http://www.kickstarter.com/projects/t...first-enviro-)

[tracker](#)

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