**Now Available for Preorder**

# Open Air Outdoor Air Quality Monitor

Open Air is an open-source / open-hardware low cost outdoor air quality monitor enabling citizen scientists and makers measuring air quality with a trusted and accurate design. Pre-order the monitor with expected shipment in March/April.

Preorder Now

Build instructions for the outdoor monitor available here.

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**We are working together with leading Universities and NGO's developing this open-source / open-hardware monitor to ensure it meets the accurateness and requirements to be used as a reliable outdoor air quality monitor. Contact us, if you are interested to participate.**

## The Rationale

Air pollution is one of the largest global environmental and health risks, requiring a high density sensor network to understand and solve the problem. We provide a blueprint of a robust, affordable and open design that citizens and NGOs worldwide can use to accurately measure air quality.

### Parameters

Open Air will focus on PM2.5 measurements with up to two independent PM sensors. Additionally, measures temperature, humidity and TVOCs (optionally).

### Accurateness

Accurateness is achieved by using calibrated PM sensors, optimized enclosure for air flow and modern compensation algorithms.
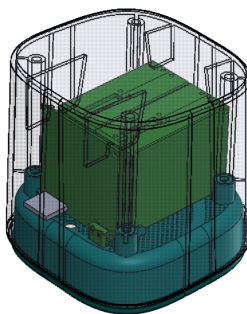
### Open Source Hardware

Open Air will be available as easy to assemble kit from AirGradient but can also be completely built on your own with detailed open-source build instructions.

### Data Ownership

Unlike other popular (commercial) monitors for citizen science projects, the air quality data you generate should belong to you and you should be attributed if it is shared.

**"Paradoxically, countries with the highest air pollution -often in the Global South- tend to have the least transparency on air pollution due to non-affordability of existing solutions. We want to change this."**

Achim Haug, Founder of AirGradient

## Statements from People Involved

Having used the AirGradient indoor DIY kits as well as the commercial AirGradient ONE in awareness projects with schools and universities here in Thailand, I am very keen on piloting this new outdoor monitor. I am also interested in exchanging ideas and resources for student engagement with this open source projct.

**Dr. Titaporn Supasri**
National Astronomical Research Institute, Thailand

The San Joaquin Valley of California has extreme climate injustice and the worst air quality in the United States, yet continues poorly monitored. The SEEN Team has partnered with AirGradient to facilitate low-cost monitoring in rural disadvantaged communities, and to increase awareness and education related to air quality. We intend to provide more and better real-time air quality information for local decision makers to act in the best interest of their underserved communities.

**Angel S. Fernandez-Bou, PhD**
SEEN.team, Central California

I'm very happy to contribute to this open hardware project with my product design experience and working with the team to not only ensuring a beautiful look but a highly functional design. Turning the required air flow characteristics and vent specification into a good looking product was a challenge I really liked. I'm looking forward to see the product in many Citizen Science projects around the world.

**Rinat Alima**
Onion Studio (Product Design)

**In 2019, 99% of the world population was living in places where the WHO air quality guidelines levels were not met. Ambient (outdoor air pollution) in both cities and rural areas was**

## Current Status of the Project (updated February 2023)

Here is a short overview about the progress of the project. Please contact us if you are interested to participate.

### Enclosure Production

The mold for the plastic enclosure is currently in production and we expect the first samples at the end of February. A 3D printable model is already available in the outdoor build instructions.

### Electrical Design and Firmware

The first prototypes of the PCB and firmware are currently tested and appear to work well. The current design is based on the Wemos D1 mini and Plantower PMS5003T (with temperature and humidity sensor built in). First versions of the PCB and firmware are published on the instructions page.

The version that we will offer as a pre-soldered kit will contain a professionally designed PCB with the ESP32-C3 module already on the PCB.

### Data Platform & Map

A first version of the AirGradient map is available and can be accessed here.

## Why we care about Air Quality

AirGradient started as a volunteer project to help a school in Northern Thailand monitor the air quality in classrooms during the highly polluted burning season. From the beginning, we have worked with students and educators to building hardware to increase awareness in the area of air quality, to understand the health impacts of pollutants, and to empower the positive changes that can be made to reduce air pollution.

The experience and expertise that we gained designing and manufacturing our professional AirGradient ONE RESET Air Accredited Monitor has been put into our open-source / open-hardware air quality build instructions and kits.

The industry-grade sensor modules used in our open hardware monitors are the same modules found in pre-built monitors costing hundreds of dollars. As a result, you get highly accurate data quality, essential to having a reliable understanding of the air around you.

Preorder Now

We've pledged 1% of sales to the preservation and restoration of the natural environment.