FREE$_2$ BREATHE

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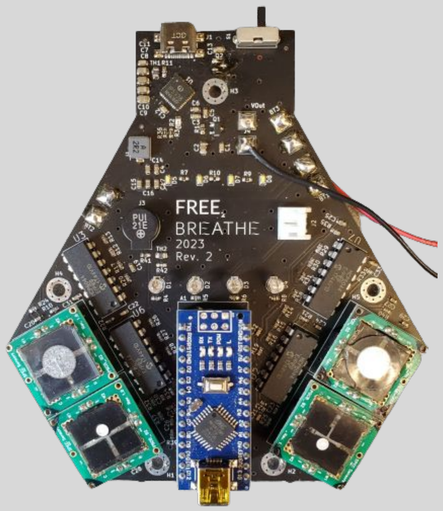

Custom Printed Circuit Board for Electronic Components

Problem: Air Pollution Fatalities

Despite advancements in healthcare and technology, 3.2 million people die each year from long term exposure to air pollutants, particularly carbon monoxide, sulfur dioxide, ozone, and nitrogen dioxide. Exposure to high concentrations of these gases can result in death within minutes, but many illnesses, including chronic obstructive pulmonary disease, lung cancer, and respiratory infection, occur due to long-term exposure at lower concentrations.

Solution: Informative Gas Detection

Without confirmation of dangerous air pollutant conditions, people are unlikely to change their lifestyle. To reduce the number of lives at risk, the Free$_2$Breathe device informs the user of the quality of air they breathe, without requiring any technical knowledge. With access to this device, communities which may be in harm's way can become aware of the dangers in their environment and either adjust their lifestyle to reduce exposure or avoid areas with concentrated air pollution.

Assembled Device with Cover Removed

Design Highlights:

Easy to Use

Device has one switch and one charging port. It comes with an easy-to-follow pamphlet explaining how to get readings. Upon turning the device on, it gives an air pollution reading within 5 minutes.

Custom PCB

Custom printed circuit board designed for electronic components including sensors, LEDs, and batteries.

Sleek Exterior

Device shell uses clips during assembly so that no screw holes are visible. Light from the LEDs is softened and diffused through silicone rubber.

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