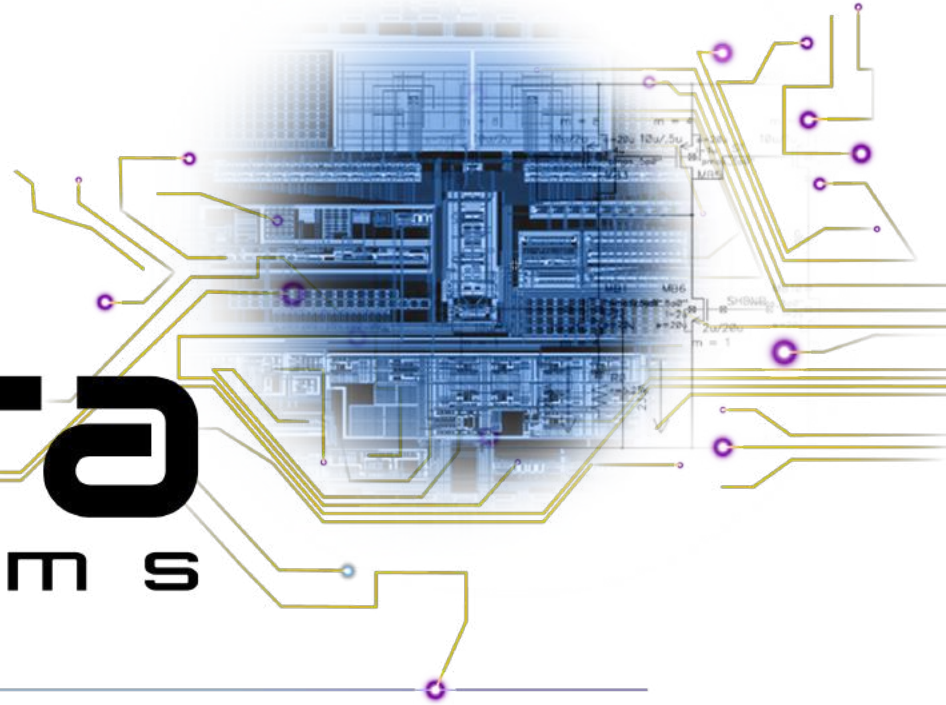




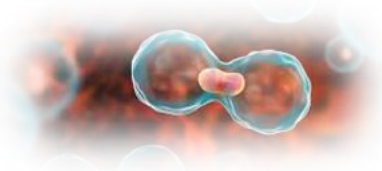
Piera
S y s t e m s



What's in your Air?

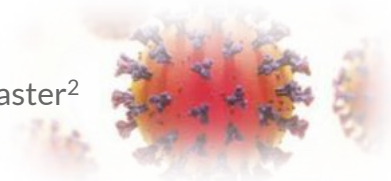
Air Pollution Affects You

“By converting air pollution concentrations into tangible terms—its impact on life expectancy—the [AQLI](#) establishes particulate air pollution as the single greatest threat to human health globally.” Michael Greenstone, EPIC



Causes lung cancer, alzheimer's, and cardiovascular diseases¹

Allows Covid-19 and other respiratory diseases to spread faster²



Debilitates people with respiratory issues³

Severely reduces cognition affecting health & productivity⁴



Indoors 2-5X worse than Outdoors and as much as 100x⁵

Air pollution costs 8 million deaths/year, \$5 trillion in welfare costs, \$225B in lost income⁶

The Problem

There has not been a cost-effective solution to detect the smallest particles

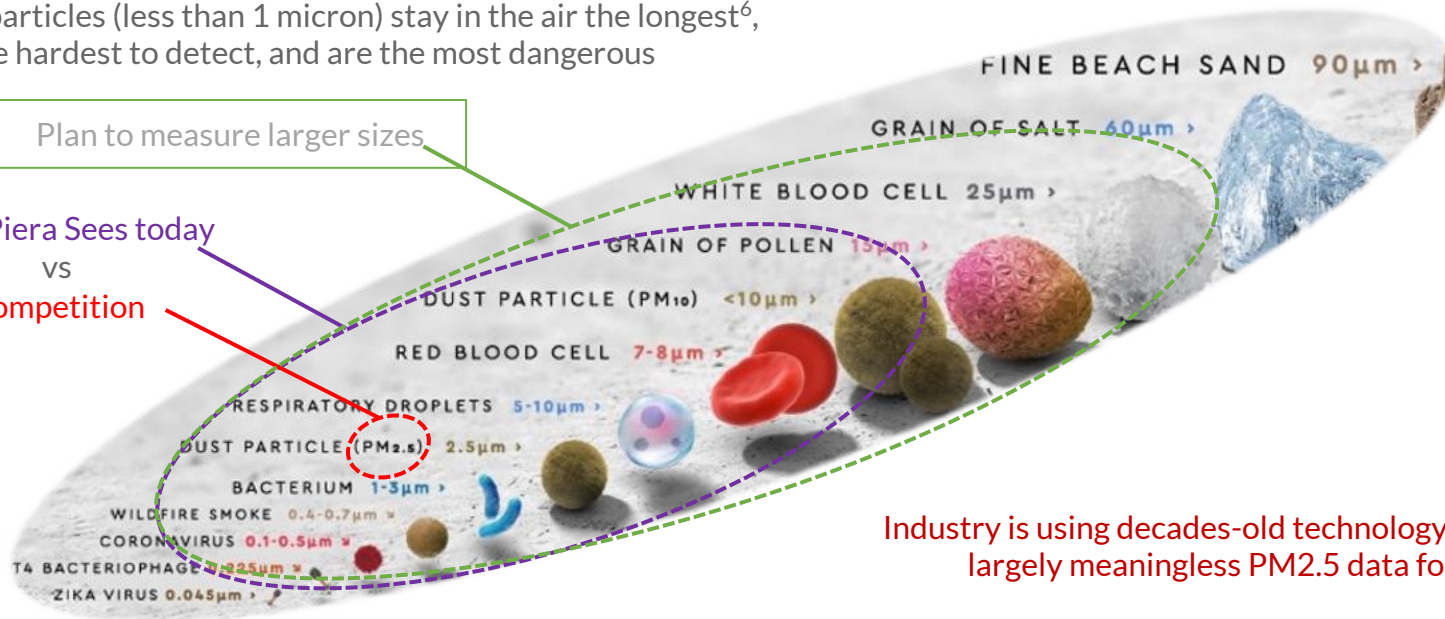
Smallest particles (less than 1 micron) stay in the air the longest⁶,
are hardest to detect, and are the most dangerous

Plan to measure larger sizes

What Piera Sees today

VS

Competition



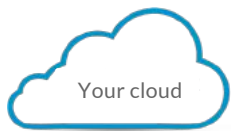
Industry is using decades-old technology to produce
largely meaningless PM_{2.5} data for IAQ

The Solution: Air Quality Monitoring

Revolutionary technology that identifies 'What's In the Air' to provide actionable insights
Instead of just telling you the Air is bad



Air Quality Monitors & Sensors
deployed indoors & outdoors



Air quality data
aggregated in the cloud



Software and Services provide
alerts, insights, mitigation



AI/ML pollutant models
identify likely pollutants

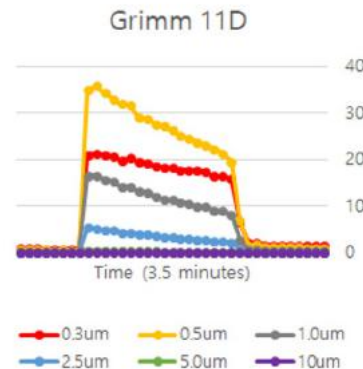
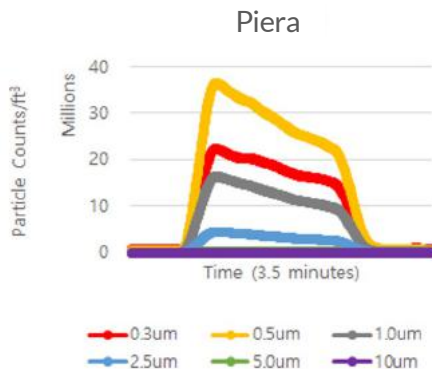
Accurately measure particles from 0.1-10 um as unique signatures,
identify pollutants at a scalable price

Break-through Particle Sensing Technology

Reference Instrument quality at a fraction of the price

\$30 - \$200

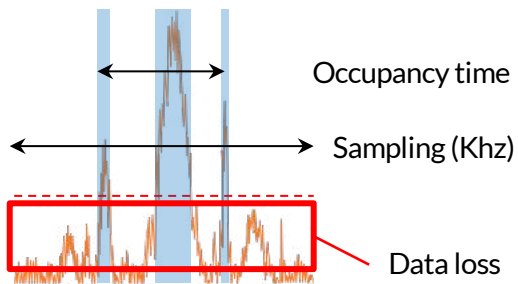
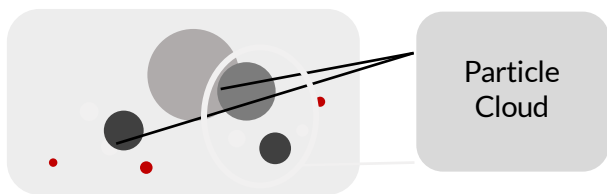
\$22,000



Only certified low-cost sensor that accurately counts particles and size in real-time
Only low-cost sensor to achieve ISO 21501-4 (cleanroom standard) certification

Custom Photon Counting Processor:PSC-1

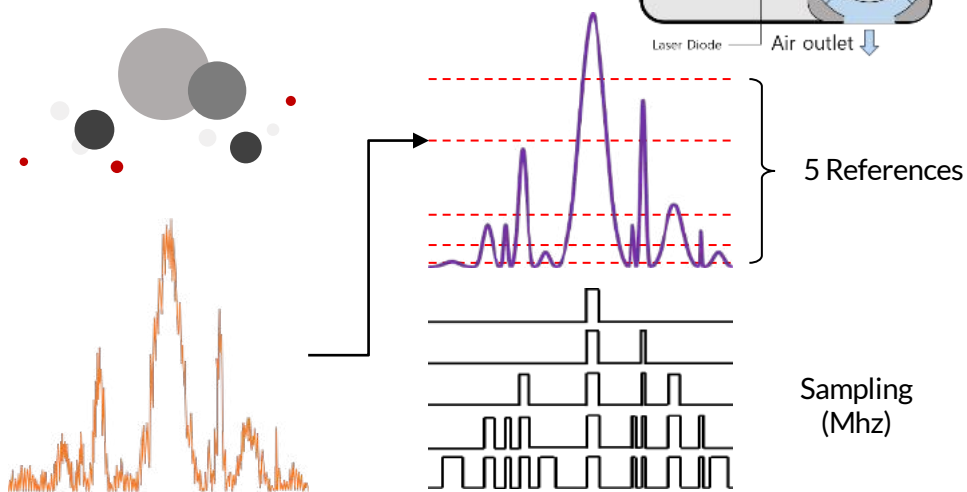
Competition



Estimated Concentration
PM2.5 only

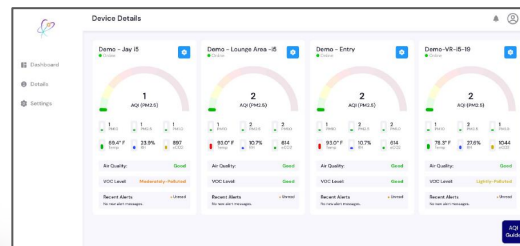


Piera



Software-Defined bin sizes detect and
count particles from 0.1-10 microns

Products and Services



Pollutant Models

- Licensable, subscription service provided by Piera
- Customer developed in partnership with Piera
- OTA updates

SenseiAQ Software and Services

- Air quality monitoring subscription service
- Data and insights from SenseiAQ software
- Stand-alone application or connected to Piera MS Azure Cloud
- API for integration with third party applications
- Software updates

Canaree Air Quality Monitors

- Easy to deploy in Smart Spaces, Hospitals, Schools, and other verticals
- Wireless Access Points (HPE/Aruba)

IPS Particle Sensors

- Integration into air quality monitors, air purifiers, and HVAC equipment

IPS: A Software Defined Sensor Family

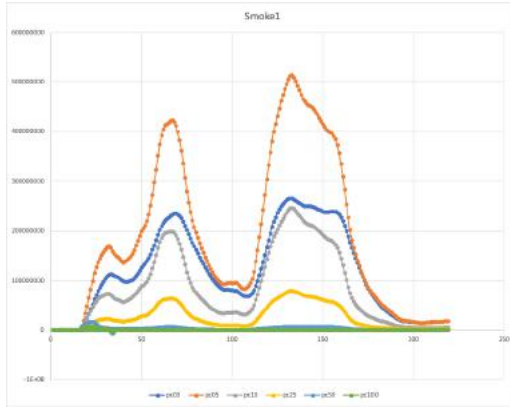
IPS Family			Eval	Series 3		Series 5			Series 7	Series X	
			PEK	Piera-305	Piera-3100	Piera-525	Piera-5100	Piera-5500	Piera-7100	Piera-X7	Piera-X7U
# of Particle Bins			7	3	3	5	5	5	7	7	7
Dynamic Range	Binning Output in Mass Concentration (PM)	<0.1	X*	X		X			X	X	
		0.3	X	X		X			X		
		0.5	X	X		X	X		X		
		1.0	X		X	X	X	X	X		X
		2.5	X		X	X	X	X	X		
		5.0	X				X	X	X		
		10	X		X		X	X	X		
		50					X				
		100									
Features	Output in Particle Counts		X	X	X	X	X	X	X	X	X
	Serial Key for Networking		X			X	X	X	X	X	X
	Firmware Upload Capability		X			X	X	X	X	X	X
	Limited Programmability		X				X	X	X		
	Full Range Programmability									X	X
Release Date			Q3 2020	Q1 2021	Q1 2021	Q1 2021	Q1 2021	Q3 2021	Q4 2020	On Demand	Q3 2023
Pricing (\$) MOQ of 1,000			199	46.55	46.55	65	65	65	75	95	95

Canāree Family of Devices

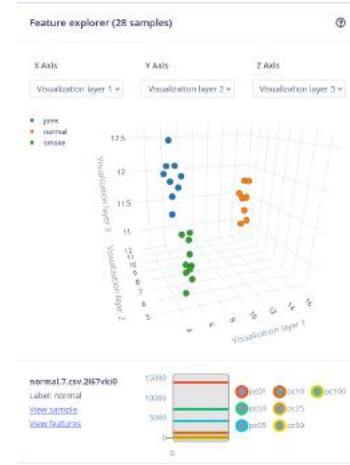


Canāree A1	Canāree I1	Canāree I5
Plug-n-Play Air Quality Monitor Measure particulates from PCs, mobile devices, and wireless access points USB powered Weight 42g	Standalone Air Quality Monitor Monitor particulates anywhere using WiFi, bluetooth, or ethernet & all features of A1 USB or external power Weight 42g	Comprehensive Environmental Monitor All features of I1 & temperature, pressure, humidity, & TVOCs USB or external power Weight 50g
Measure across entire PM range – PM0.1 to PM10 Built-in Vape/Smoke Detection Fully integrated with the cloud. Intuitive UI included Seamless integrations to BMS / BAS solutions Dimensions: 8.98cm x 6.13cm x 2.06cm Covers 100m ² , 1,000ft ²		

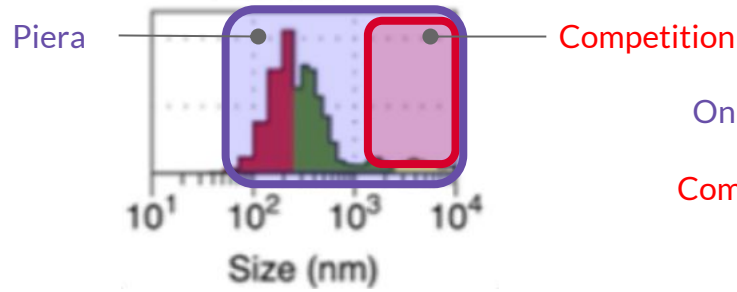
Classifying Pollution Sources



Classification requires accurate particle count and size data, from multiple 'bins', over time



ML Model for Vape, Tobacco Smoke and Good Air



Only Piera can measure PM_{0.1-1.0}
with 7 distinct particle sizes
Competition cannot classify particles

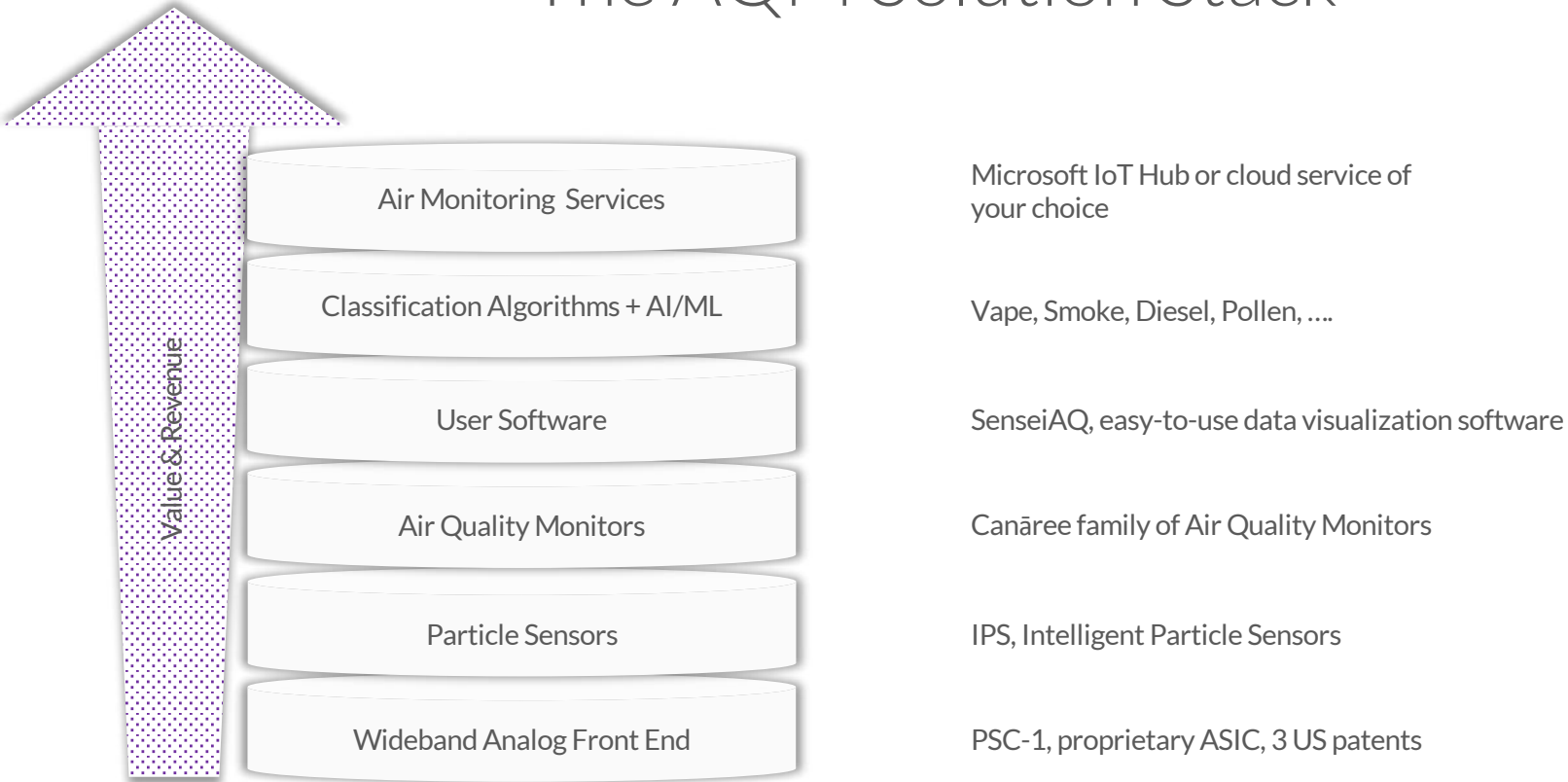
Vape/Smoke Detection

- Highly accurate event detection; within 30 seconds
- Distinguishes smoke from vape with proprietary algorithms
- SenseiAQ displays events as they happen and logs them
- LED on Canaree flashes **red** for smoke and **purple** for vape

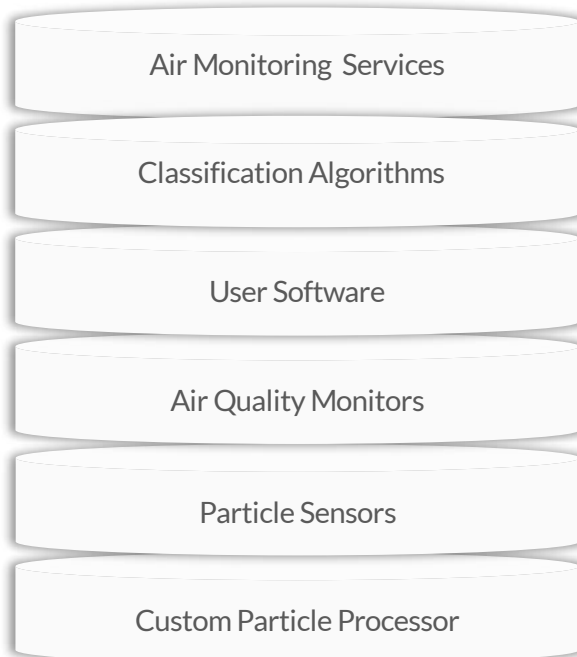


SenseiAQ Cloud Dashboard enables event detection from remote sensors

The AQM Solution Stack



The Competition



Sensor Companies



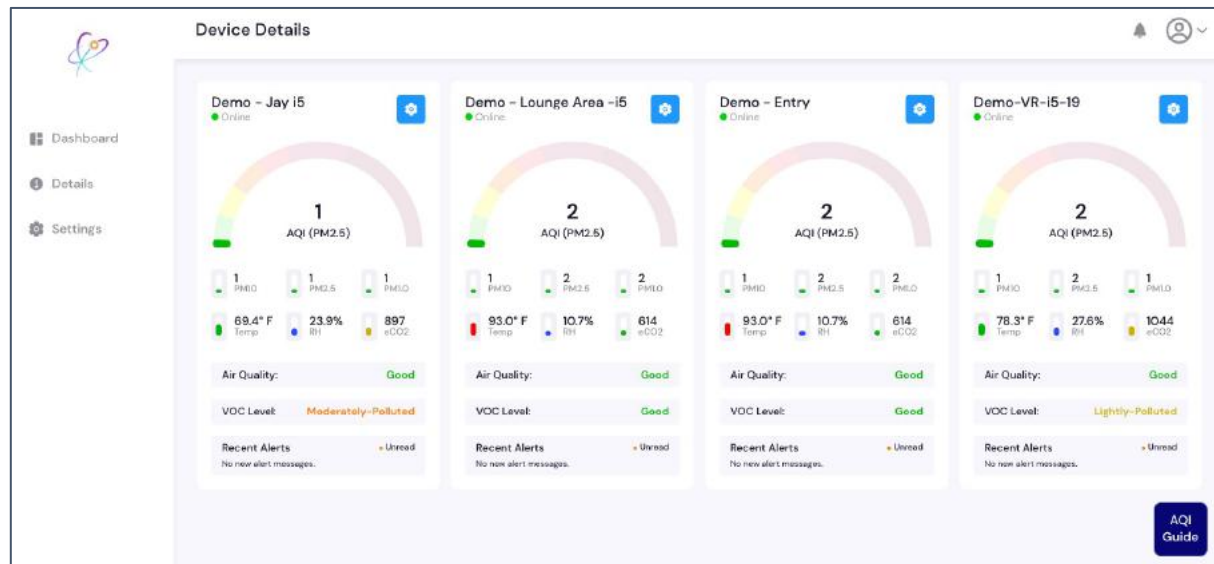
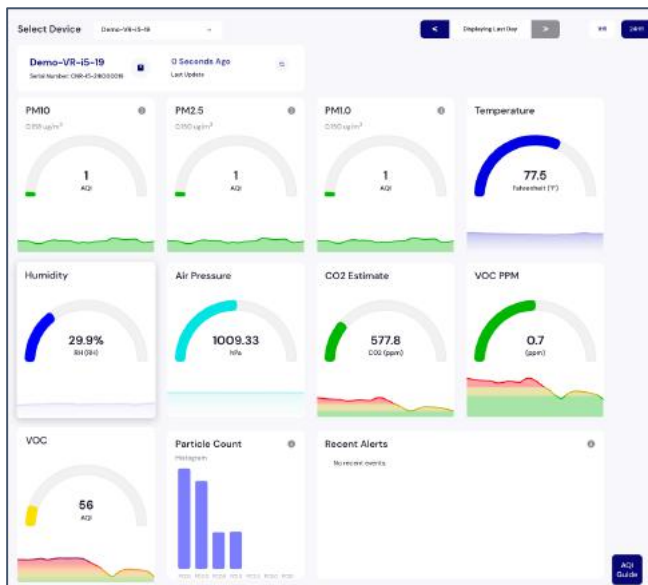
AQM Companies



Piera is the only company that can classify and identify pollutants



SenseiAQ Software and Dashboard



sensei.pierasystems.com

Diverse Markets & Applications

PropTech



Vape/Smoke

Classification



Energy Efficiency

Human Health



Customer Spotlight



Powerful combination of their proprietary diffusers, data analytics, and Piera's highly accurate sensors, Poppy can:

- Map pathogen transmission pathways
- Identify pathogen hotspots
- Quantify pathogen clearance rates

Poppy + Piera deliver Healthy & Energy Efficient Spaces



"We have picked Piera as our long-term partner to attack a vastly untouched sector with a huge demand for robust industrial sensing technology"

- CEO, Trolex, Mining and Industrial Solutions

"Human health is directly correlated to sub-micron particles and Piera's sensors are a game-changer as this allows us to monitor air quality at an unprecedented scale"

- VP, Build Equinox, HVAC equipment & Prof, Univ of Illinois – Urbana Champaign

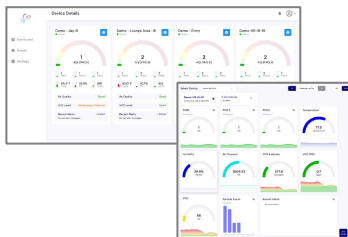
"Your sensor is so powerful that it'd be a shame to use it just to control the range hood"

- Chief Engineer, Faber Spa, Kitchen Appliance Maker



Building Automation Goals:

Energy, Health, Occupancy



- Monitor accurately measure the air quality
- Inform derive insights, identify pollutant sources
- Mitigate energy-efficient methods to clean the air



Act Now: Install Monitors and start gathering data before committing to Sustainability or ROI goals

ROI for Improving Air Quality

- Improved IAQ for healthier, more productive employees
- Improved Employee Health = \$34 per sq. m
- Improved Staff productivity => \$410 per sq. m
- Possible ROI = 120 %



Increased Indoor
Air Quality



Healthier Employees,
Reduced Absenteeism



Increase in
Productivity

Indoor Air Quality Matters



People spend
more than **80%**
of their time indoors



Indoor Air Quality
is **2 to 5 x worse**
than outdoor air quality




Indoor air pollution
is ranked as one of EPA's
**TOP 5 environmental
risks** to public health



50% of illness are
caused by aggravated
indoor air pollution

[Source: 75F](#)

An aerial photograph showing a dense, vibrant green forest that meets a body of water with a bright turquoise hue. The forest covers the majority of the upper and right portions of the frame, while the water occupies the lower-left and bottom-right areas. The boundary between the land and water is irregular and natural.

No more guessing, know exactly ‘What’s in your Air’

- Most accurate, affordable sensors and air quality monitors

Gain Insight into your Air Quality

- Fine, Very-Fine and Ultrafine particle data needed to identify sources

Let’s partner on new possibilities

- Our disruptive technology empowers new markets and applications
- www.pierasystems.com