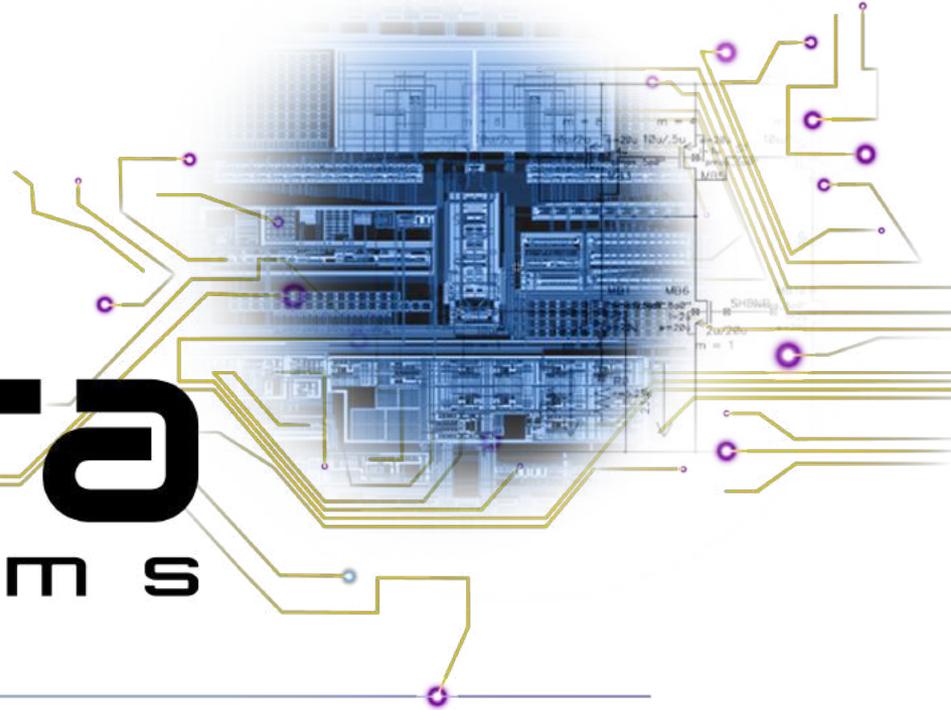


Piera
S y s t e m s



What's in your Air?

Air Pollution Affects Everyone

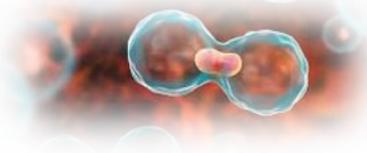


US air quality remains 'very unhealthy' and 'hazardous' for millions of Americans, new report says



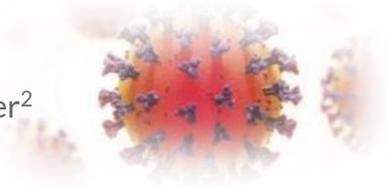
Amazon's top doctor on why air quality is the biggest workplace health challenge of this century

PUBLISHED FRI, OCT 22 2021:10:56 AM EDT | UPDATED MON, OCT 25 2021:10:37 AM EDT



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

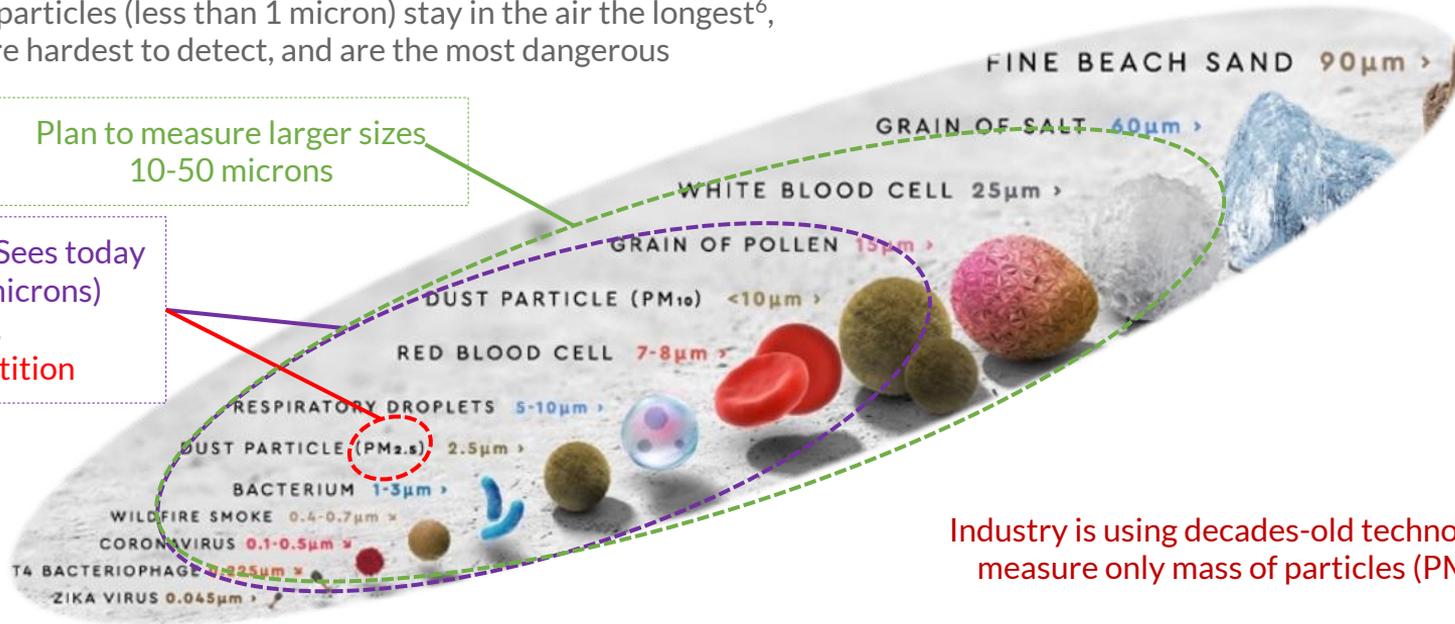
Smallest particles (less than 1 micron) stay in the air the longest⁶, are hardest to detect, and are the most dangerous

Plan to measure larger sizes
10-50 microns

What Piera Sees today
(0.1-10 microns)

VS

Competition



Industry is using decades-old technology to measure only mass of particles (PM_{2.5})

The Solution

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



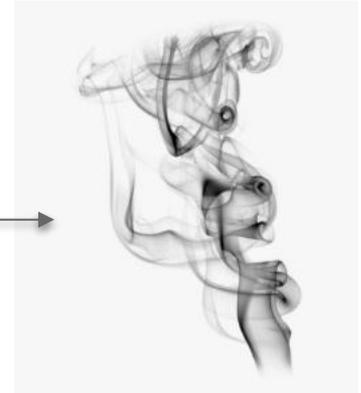
Air Quality Monitors & Sensors
deployed indoors & outdoors



Air quality data aggregated
in the cloud



Software and Services provide
alerts, insights, mitigation



Machine Learning models
identify likely pollutants

Accurately measure particles from 0.1-10 um as unique signatures,
identifies pollutants at a scalable price
Air Quality Monitoring Services

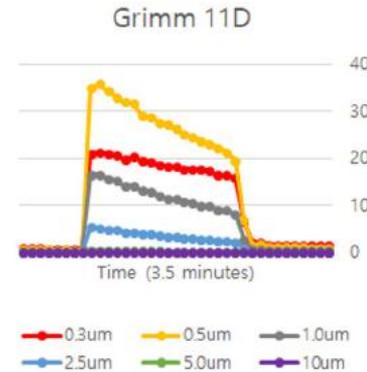
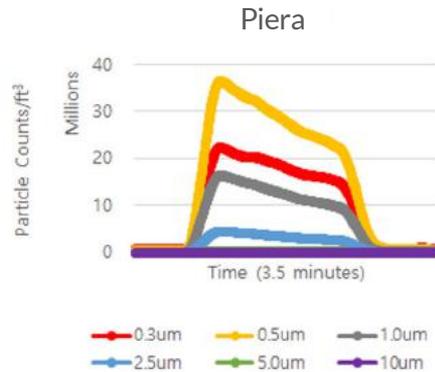
Break-through Particle Sensing Technology

Reference Instrument quality at a fraction of the price



\$50 - \$350

\$22,000

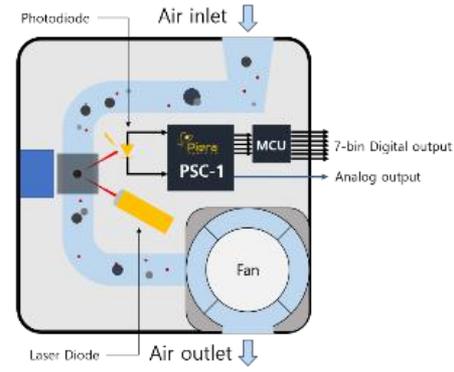


Piera uses proprietary technology to truly distinguish different sized particles, also has ability to customize for specific size range

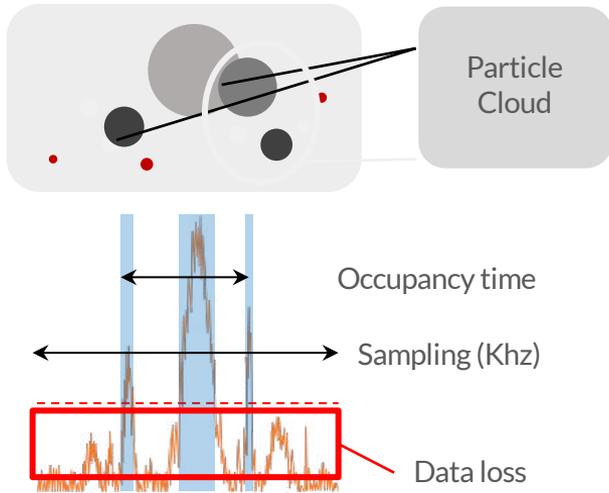
Only certified low-cost sensor that accurately counts particles and size in real-time
Only low-cost sensor to achieve ISO 21501-4 (cleanroom standard) certification

Custom Photon Counting Processor: PSC-1

3 US patents granted



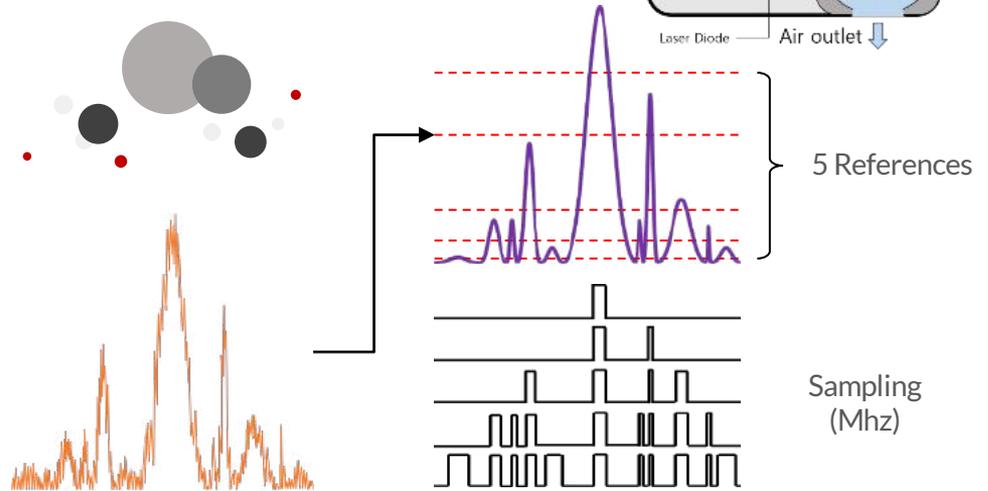
Competition



Estimated Mass
PM2.5 only

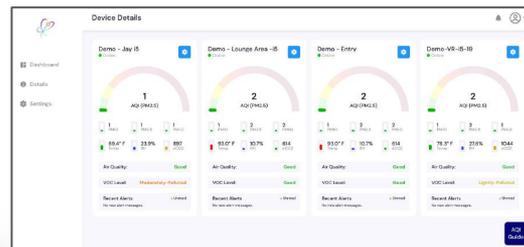
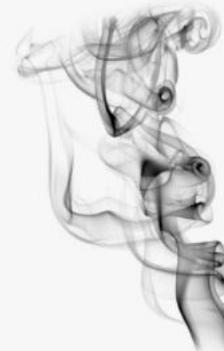


Piera



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

Canãree 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

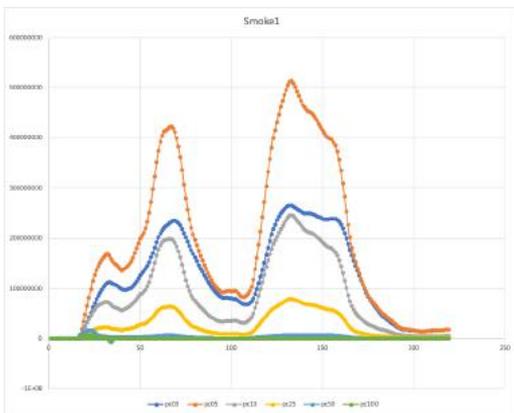
IPS Family		Eval	Series 3		Series 5			Series 7	Series X	
		PEK	Piera-305	Piera-3100	Piera-525	Piera-5100	Piera-5500	Piera-7100	Piera-X7	Piera-X7U
# of Particle Bins		7	3	3	5	5	5	7	7	7
Dynamic Range	Binning Output in Mass Concentration (PM)	<0.1	X*	X		X			X	
		0.3	X	X		X			X	
		0.5	X	X		X	X		X	
		1.0	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	Q3 2022	Q4 2022
Pricing (\$) MOQ of 1,000		199	\$46.55	\$46.55	65	65	65	75	95	95

Canāree Family of Devices

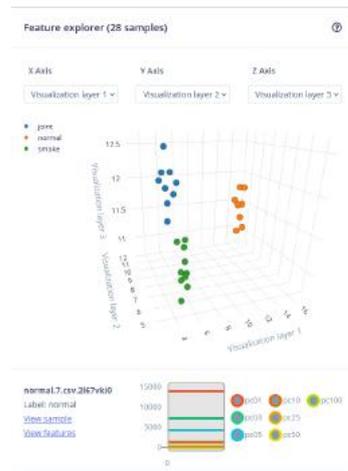


Canāree A1	Canāree I1	Canāree I5
<p>Plug-n-Play Air Quality Monitor</p> <p>Measure particulates from PCs, mobile devices, and wireless access points</p> <p>USB powered</p> <p>Weight 42g</p>	<p>Standalone Air Quality Monitor</p> <p>Monitor particulates anywhere using WiFi, bluetooth, or ethernet & all features of A1</p> <p>USB or external power</p> <p>Weight 42g</p>	<p>Comprehensive Environmental Monitor</p> <p>All features of I1 & temperature, pressure, humidity, & TVOCs</p> <p>USB or external power</p> <p>Weight 50g</p>
<p>Measure across entire PM range – PM0.1 to PM10</p> <p>Built-in Vape/Smoke Detection</p> <p>Fully integrated with the cloud. Intuitive UI included</p> <p>Seamless integrations to BMS / BAS solutions</p> <p>Dimensions: 8.98cm x 6.13cm x 2.06cm</p> <p>Covers 100m², 1,000ft²</p>		

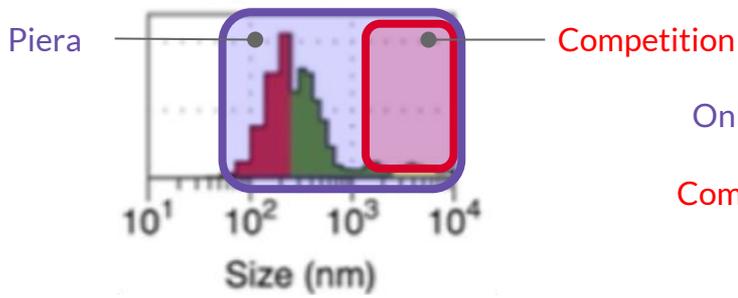
Classifying Pollution Sources



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



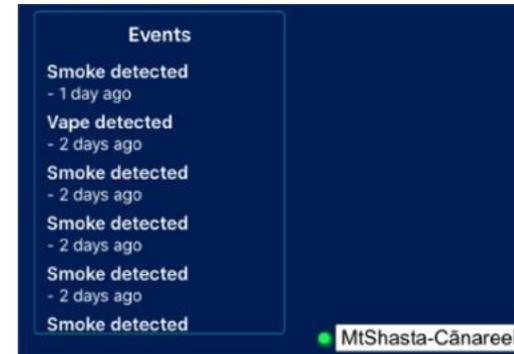
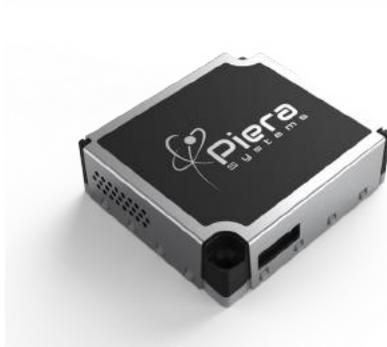
ML Model for Vape, Tobacco Smoke and Good Air



Only Piera can measure PM0.1-1.0
with 7 distinct particle sizes
Competition cannot classify particles

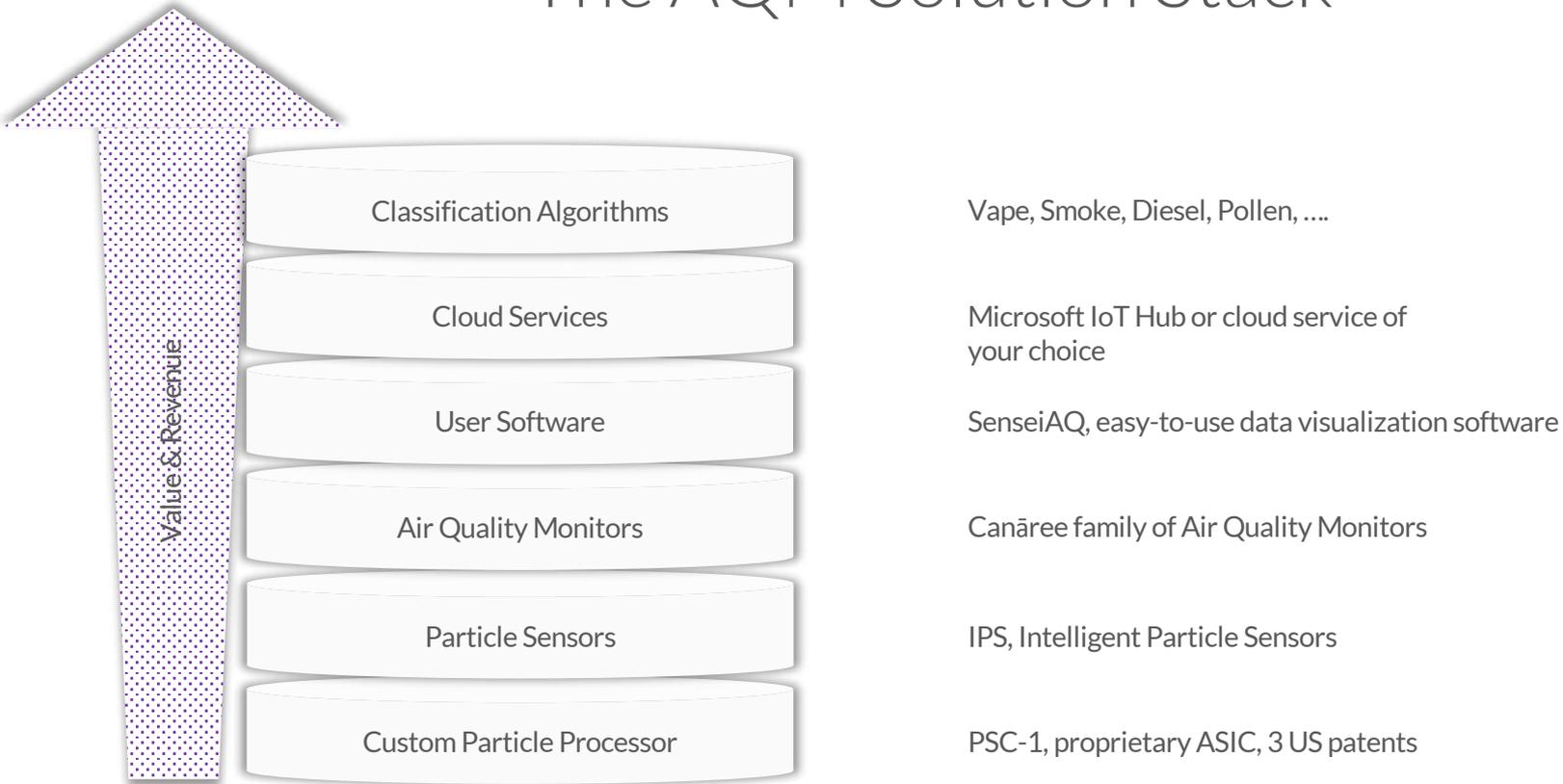
Vape/Smoke Detection

- 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

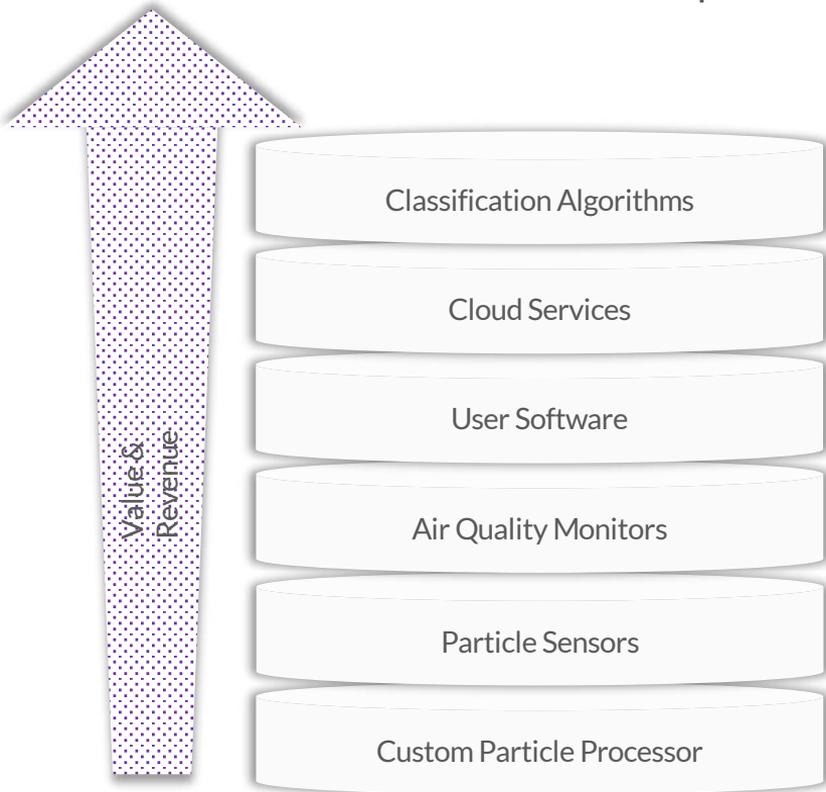


SenseiAQ Cloud Dashboard enables event detection from remote sensors

The AQM Solution Stack



The Competition



Sensor Companies

AQM Companies

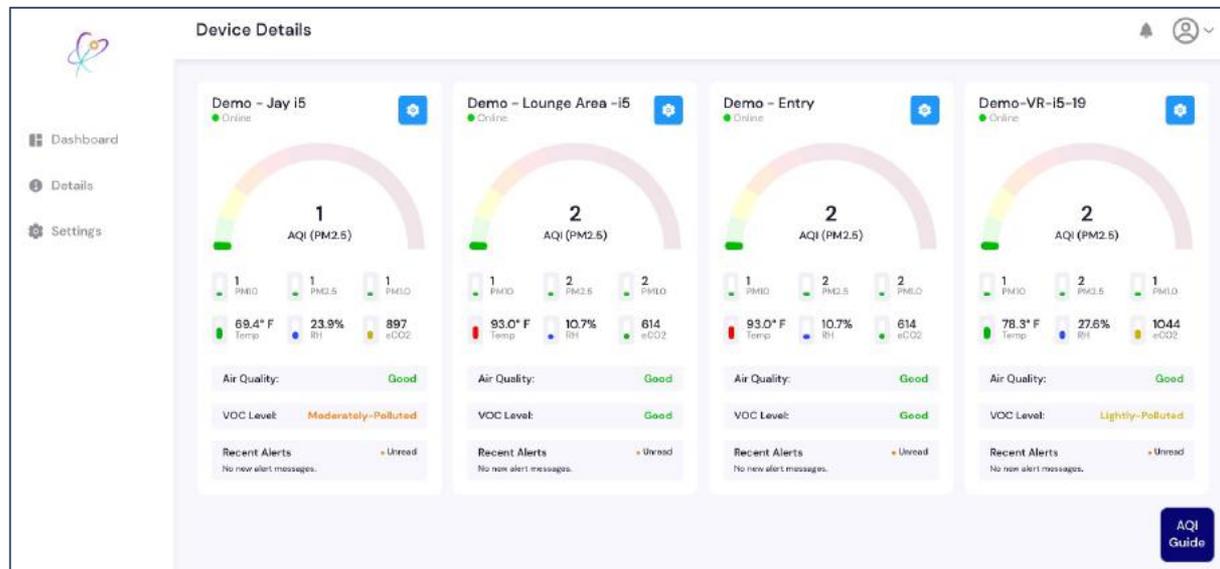
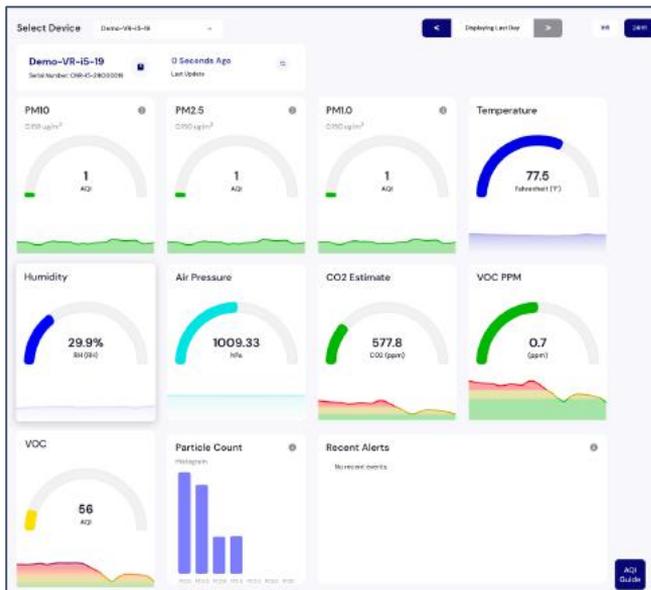


✓		
✓		✓
✓	✓	✓
✓		✓
✓	✓	✗
✓	✗	

Piera is the only company that can classify and identify pollutants



SenseiAQ Software and Dashboard



sensei.pierasystems.com

Our Customers

“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

“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

“Air pollution is an enormous global health problem and our ability to combat it starts with accurately measuring it. We couldn’t be more pleased with our collaboration with Piera and the quality of their particle sensors, We are now able to offer highly accurate outdoor air quality monitors while unlocking brand new applications.”
David Löwenbrand, CEO of Sensorbee.

150+ evaluations by commercial, industrial, academic, and citizen scientist groups on 6 continents across a broad range of applications



Air Cleaning



Healthcare



Transportation



HVAC



Outdoor



Back-to-Work/School



Consumer



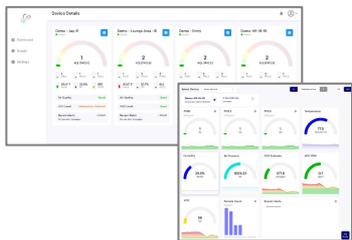
Industrial



Smart Spaces optimize Energy, Health



- Monitor accurately report air quality data



- Inform derive insights, classify sources, remove



- Mitigate employ effective methods to clean the air



Act Now: Install Monitors and start gathering data before committing to ESG /ROI goals

HVAC Systems need the Accuracy

“... we found very strong correlation of submicron particulates with occupancy, unlike larger particles (>1micron) that did not correlate with occupancy.”

“Some fraction of these small particulates are respiratory, and our experiment showed that we could reduce their concentration through both increased fresh air ventilation and improved filtration (MERV13).”

“... we think today's standards are half of what they should be ...”

“Air cleaning products require in-situ monitoring and control”

Certifications, Standards

Challenge: Indoor Air Quality Test Standards

LEED – Building and its services not health of occupants

WELL - is for People, not prescriptive, audits,

RESET – Focused on Air: A, B, C Grade Monitors

ASTM D8405-1 Certification by AQ-SPEC

ISO 21501-4 Standard for Calibrating Optical Particle Sensors

Solution

Indoor Air Quality Metrics based on EPA PM 2.5, 10 MC

Most sources of indoor emissions are PM <1.0

Canaree meets WELL, RESET Grade A specs at low cost

[ISO 21501-4 complete](#), ASTM D8405-21 underway.



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](#)



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