ORANIZATION	DESCRIPTION	TABLE NUMBER
Cyanobacteria Assessment Network (CyAN)	Cyanobacteria blooms occur worldwide and are associated with human respiratory and skin irritation, poor taste and odor of drinking water, and human illness. To help environmental managers and decision makers monitor water bodies more effectively and comprehensively, EPA is developing the CyAN mobile application for use on Android devices. The CyAN app uses satellite-derived information from NASA's Moderate Resolution Imaging Spectroradiometer (MODIS), European Space Agency's Ocean Land Color Instrument and USGS Landsat 8 satellite to help make initial water quality assessments and quickly alert managers to potential problems and emerging threats.	5
Occupational Safety and Health Direct-Reading Sensors	A variety of sensors will be shown that have been developed by the National Institute for Occupational Safety and Health. These sensors have been used by NIOSH in occupational safety and health research. Many of these sensors were later commercialized.	6
PERSONAL ULTRAFINE PARTICLE SENSOR	Enmont, LLC (www.enmont.com) offers unsurpassed state-of-the-art particle sensing technology: personal ultrafine particle (PUFP) counter (C100). The PUFPTM has a measurement capabilities of PM0.005 (Dp = 5 nm) and above. The PUFP is rugged within high vibration (or acceleration) environments (± 4-gravitational acceleration) and therefore is operational for human activities. The PUFP has built-in GPS that tags position and time data to measured UFP number concentration within two meters and at 300 millisecond response time for excellent spatial and temporal resolutions. In addition, it incorporates powerful user-friendly software, EViewTM, which includes geographic information system (GIS) mapping, a necessary tool for the analysis of spatiotemporal exposure data. No other UFP sensor has this capability and is currently being used by several organizations including the military, and international institutes in both France and Germany.	15
RTI Environmental Sensor Technologies	RTI researchers are developing a new generation of sensors to more clearly understand personal exposure to air pollutants and their impacts on health. Our focus is development of small, inexpensive sensors that are suitable for personal or stationary sampling. Exaple sensors include the MicroPEM to measure particulate matter concentration in real-time and provides a filter for offline analysis, a NanoFiber VOC sensor that provides real-time concentrations for specific VOCs, and our new FAST sensor that measures real-time bioaerosol concentrations.	16
Passive Ammonia Sensor based on Organic Electronics	Ammonia is a vapor that affects the health of many millions of workers at facilities where ammonia release is chronic, as well as millions more who live, work, or are educated nearby industrial-scale agricultural facilities. Monitoring of ammonia exposures at levels where health effects become apparent is not currently done because of the lack of availability of a suitably sensitive, inexpensive, and convenient sensor. We have developed an air-sampling and ammonia-sensing structure that provides an electronic response to the relevant ammonia concentrations in sub ppm. The sensor element promises to cost an order of magnitude less than the least expensive current technology.	7

Low Cost Air Quality Monitor for Research and Education Applications	U-Pod Air Quality Monitors provide a multiple sensor platform; they can be populated with sensors that respond to gases different gases including ozone, carbon dioxide, and volatile organic compounds. Environmental parameters are also measured and include temperature, humidity, wind speed, and wind direction. Additional sensors that respond to other gases can be added according to a project's specific measurement goals. The U-Pod logs each sensor signal on a continuous basis and stores the data to an on-board micro SD card.	8
AirIQ mobile air pollution monitor	AIrIQ is a small, low-cost sensor prototype for mobile air pollution monitoring that measures ozone, carbon monoxide, nitrogen dioxide, volatile organic compounds, air temperature and relative humidity. It contains a GPS and accelerometer so that local environmental data and personal exposures may be mapped at high spatial resolution from objects in motion (e.g. bicycle). The sensor was developed at the School of the Art Institute of Chicago for air pollution research at Texas Tech University.	9
Rutgers Passive Bioaerosol Sampler	Through an innovative use of electroactive films, we developed the first passive air sampler that is optimized for efficient collection of airborne biological agents without external power or a pump. The sampler is small and lightweight. The final size and shape of the sampler can be customized for different applications, such as by 3D-printing different film holder setups. The sampler streamlines analyses and decreases risk for contamination by fitting into standard 50 mL conical centrifuge tubes.	4
Toxic Gas Exposure Sensors for the Internet of Things	High-Performance, low-power and small gas sensors for CO, H2S, NO2, SO2, and Ozone. Low level ppb measurements with < 30 uWatts of power consumption Sized for consumer devices and portable instruments Capable of high volume broad deployment in society	10
Microfabricated direct-read mass PM2.5 sensor	The sensor provides direct-read mass sensing capabilities for PM2.5 in a footprint of only few square centimeters. The sensor consists of a microfabricated fractionator (virtual impactor) that provides size selectivity for PM2.5, and a microfabricated thermophoretic percipitator, which deposits the PM2.5 particles on the surface of a mass sensing resonator. The sensor has sensitivity of single micrograms/m^3 with the integration time of few minutes.	14
Fugitive dust toxicity, source strength, and exposure sampling systems	This family of dust measurement sensors enable the assessment of source strength and characteristics for windblown and road dust. The TRAKER™ vehicle based system allows for collection of samples from many miles of paved and unpaved roads for toxicity measurements that truly represent spatially averaged sampling. PI-SWERL® is a portable wind tunnel-type device that enables collection of only that component of fugitive dust that is suspendable under given wind conditions.	13
Point-of-Care Sensor for Multi-Metal Exposure Assessment	A “laboratory-in-a-chip” sensor for determination of metals (Mn and Pb) in biological (blood and urine) or environmental (water) sample matrices. The electrochemical sensor is rapid, with analysis time taking less than 20 min. With a cellphone size form factor, the sensor system is compact, while the individual sensors are based on USB interface which makes them easy to use.	3

Colorado State University, Low-Cost Air Sampling Technologies	The UPAS is a low-cost wearable sampler for PM exposure monitoring. The UPAS features interchangeable inlets to affect PM2.5, PM10 or inhalable size-selective sampling onto an integrated 37mm filter. The sensor is Bluetooth-enabled and also features GPS, light, temperature, pressure, accelerometry, and mass flow control. The UPAS is quiet, lightweight (190g), and operates at flows between 0.1 and 3 Lpm with up to 48 hours of run time on a single battery charge.	12
Passive Sampling of PAHs	Twenty passive samplers were deployed at 17 sites in an inner-city neighborhood and one rural location. The galvanized metal housing is open at the bottom to allow air diffusion into the sampler. A wire mesh tube containing XAD-4 resin is suspended inside. Samplers were deployed continuously for three month periods over the two years. Our samplers were designed and built at Oregon State University by Staci Simonich and colleagues who kindly donated them to us for our monitoring campaign.	11
Development of the Portable University of Washington Particle (PUWP) Monitor for the Washington State Twin Registry Study	We showcase the latest version of the Portable University of Washington Particle (PUWP) Monitor, which measures multiple factors relevant to personal exposure assessment, including time-location patterns, physical activity, and particulate matter and noise exposures. Current development and testing of the PUWP is funded by a grant from the NIH NIEHS for use in by the Washington State Twin Registry.	17