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City Tech Professor Andy Zhang Develops Portable Device to Monitor Air Quality

Brooklyn, NY—June 2, 2014—Andy Zhang, an associate professor in the Department of Mechanical Engineering Technology, and his students at City Tech (New York City College of Technology-CUNY) designed a portable device called AirCasting that monitors air quality and transmits the data to a smartphone app. Zhang said there is interest in the air monitors from institutions in California, Colorado, and as far away as Poland, Hong Kong and China.

AirCasting detects nitrogen oxides, carbon dioxide, temperature, humidity and pollen counts. Zhang envisions the AirCasting monitor having a range of applications from a consumer device that tucks easily into a handbag to a system for helping government agencies monitor public safety.

With support from the New York Hall of Science, the New York State Department of Environmental Conservation and the U.S. National Science Foundation, City Tech has built 15 air monitors, which they tested with success in New York neighborhoods known for poor air quality and elevated rates of human respiratory ailments.

Unlike other systems, the air monitors are appropriate for ordinary residents, not just federal agencies, allowing anyone from joggers to mothers with baby strollers to monitor concentrations of harmful air pollutants in a given area.

AirCasting allows individuals to crowdsource their own information with that from other AirCasters and identify patterns and commonalities. The AirCasting website is maintained by HabitMap.org, and as more AirCasters contribute their data to the website's pollution map, users can derive a better picture of a pollution situation in a large region.

Cumulatively, said Zhang, the data saved in the phone app could keep a history of air quality in a region or send to local government agencies and officials that monitor environmental conditions.

While Zhang awaits patent notification on the basic model, his team plans to improve the monitor capabilities and expand applications, including one that could target terrorism by using bus- and subway-mounted devices to detect substances commonly used to make bombs.

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