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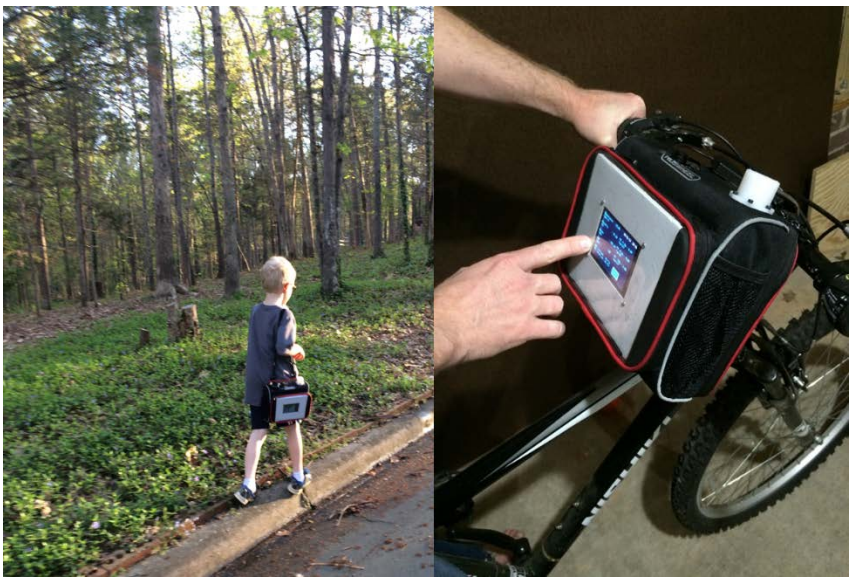
VILLAGE GREEN STATION: CONNECTING AIR QUALITY RESEARCH AND EDUCATION IN CHICAGO, IL

What is happening in southeast Chicago?

The U.S. Environmental Protection Agency (EPA) is developing new ways for community members to learn about air quality in their neighborhood and participate in research. EPA's Region 5 Office is working with the Jane Addams Elementary School in Chicago, IL to test new air pollution monitoring technologies that are designed for research and educational outreach purposes. One technology is called the Village Green station, and the other is the AirMapper.

Village Green station in Chicago, IL



AirMapper prototype

What is a Village Green station?

A Village Green station is a park bench structure containing instruments that measure two air pollutants–ozone and fine particle pollution–and weather conditions. The station is powered by solar panels and a wind turbine, allowing it to be placed in a community outdoor space. The station was installed in the recreation area outside of the Jane Addams Elementary school in February 2016, and operates around the clock. People can learn about air quality at the station and even sit on the bench. The data are shown on a sign next to the bench and streamed to a project website every minute at www.airnow.gov/villagegreen.

Along with the Village Green station installation, the EPA team is developing kindergarten through 8th grade lesson plans on air quality science that include the use of Village Green station data. Schools in communities with Village Green stations can access local data.

Others without a station nearby can access air quality data from other communities on the Village Green Project website.

What is the AirMapper?

The AirMapper is a new portable air sensor that EPA researchers are developing to allow environmental conditions to be easily mapped by researchers and citizen scientists. The AirMapper is a small instrument case that can be carried or attached to a bicycle, and includes rechargeable battery power, a global positioning system (GPS), particle pollution sensor, and other sensors measuring environmental conditions (e.g., temperature, humidity).

The AirMapper uses miniaturized sensors for exploring air quality and a touchscreen interface. Participants can explore the various measurements collected using a free data explorer tool that EPA developed, called RETIGO (www.epa.gov/retigo). RETIGO allows users to interactively explore data on a map and multiple graphs.

EPA will pilot test five AirMapper units with the Jane Addams school. The teachers and students can design their own field monitoring studies and take the AirMapper out on walking field trips, then review the data on RETIGO or write them in a science logbook.

The research team plans to improve the AirMapper design in the summer of 2016 based on the feedback received and will eventually publish the design plans and computer code for others to be able to build similar devices.

How can I learn more?

Please contact one of our team members below. We would be happy to hear from you and share more about the project.

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