Center for Embedded Networked Sensing

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June 13, 2008 For Immediate Use

UCLA Researchers Create Personal Environmental Impact Reports Using Cell Phones as Sensors

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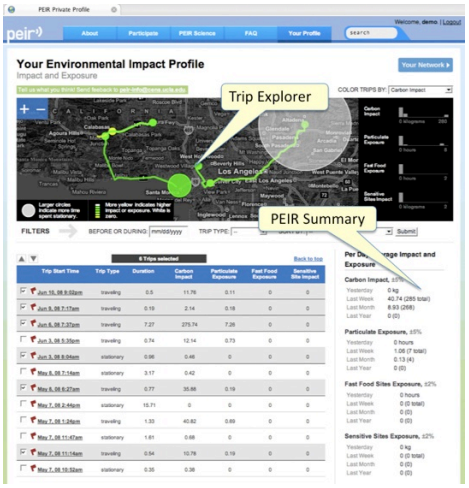

UCLA researchers unveiled a new tool this week to help people understand their relationship with the environment. The Personal Environmental Impact Report (PEIR) (http://peir.cens.ucla.edu/) lets users see online how their daily choices affect the environment and how the environment affects them, by providing personalized, daily estimates of measures like particulate matter exposure on roadways and carbon emissions due to driving. PEIR was developed by the Center for Embedded Networked Sensing (CENS) at the UCLA Henry Samueli School of Engineering and Applied Science in collaboration with the Nokia Research Center, Palo Alto.

PEIR estimates impact and exposure using the actual travel patterns of its users, as uploaded from their GPS-equipped mobile phones. Accepted scientific models, like the California Air Resources Board's Emissions FACtors (EMFAC) vehicle emissions and Southern California Association of Governments traffic models, are used to calculate estimates specific to the user's travel. On the PEIR site, users can compare values for different trips and see how lifestyle changes affect their impact and exposure. They can also compare their averages with other PEIR participants in their Facebook social network.

By employing only the increasingly common location sensing capabilities of modern phones, CENS wants PEIR and projects like it to work on the devices that people already own and use. The project is part of the CENS urban and participatory sensing research program, which aims to make everyday mobile phones act as sensors and collect data for their owners. Applications for participatory sensing range from community "case-making" to systems like PEIR, which promote personal engagement and reflection.

The PEIR site is currently accepting inquiries from people who would like to join its beta testing in late summer. CENS recently released an explanatory video on the participatory sensing concept, available at: http://youtube.com/user/CENSVideo.

The Center for Embedded Networked Sensing is a major research enterprise that develops wireless sensing systems and applies this revolutionary technology to critical scientific and societal applications. Expanding on the concept of the Internet, these distributed systems, composed of stationary and robotic smart sensors, reveal otherwise unobservable phenomena and provide new insights into the physical world. With major funding from the National Science Foundation's Science and Technology Center program, CENS is housed in the UCLA Henry Samueli School of Engineering and Applied Science and is made up of researchers from UCLA, UC Riverside, UC Merced, USC and the California Institute of Technology.

The UCLA Henry Samueli School of Engineering and Applied Science, established in 1945, offers 28 academic and professional degree programs, including an interdepartmental graduate degree program in biomedical engineering. Ranked among the top 10 engineering schools at public universities nationwide, the school is home to seven multimillion-dollar interdisciplinary research centers in space exploration, wireless sensor systems, nanotechnology, nanomanufacturing and nanoelectronics, all funded by federal and private agencies. For more information, visit www.engineer.ucla.edu.

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