

Embedded Networked Sensing Systems: motivations and challenges

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The emerging ***Embedded*** Internet will transform the way in which we understand and manage our physical world. Embedded Networked Sensing Systems combine the wireless technologies that have revolutionized communications with sensor technologies that have revolutionized medical and industrial technology. Like the Internet, these large-scale, distributed, systems, composed of smart sensors embedded in the physical world, will eventually infuse the planet, monitoring and collecting information on such diverse subjects as endangered species, soil & air contaminants, medical patients, and buildings, bridges and other man-made structures.

This talk will describe several motivating science applications and outline the technical challenges posed by these long-lived, autonomous, massively distributed and physically coupled systems. I will describe several initial building block mechanisms that we and others in the community have implemented (such as time synchronization, data-centric routing, tiered architectures, and in-network storage and processing), as well as experimental deployments currently underway at the Center for Embedded Networked Sensing (<http://cens.ucla.edu>).