



A NEW KIND OF WIRELESS BRIDGE

Researcher Edward Sazonov rigs a kinetic wireless sensor to the underside of a bridge.

FUTURE WATCH

High-Tech Bridge Safety

In a nation with almost 600,000 bridges and overpasses, the U.S. Federal Highway Administration estimates that approximately 25 percent of the structures are classified as either structurally compromised or obsolete. Researchers surmised that placing electronic sensors on bridges could transmit essential data to FHA monitors, reporting on the structural integrity and general overall health of the bridges. But finding an efficient means of providing power to those sensors created a new challenge. Clarkson University assistant professor Edward Sazonov has discovered that the energy source is right there in the bridge. "We found that the energy required to operate the sensors can be harvested from the vibrations emitted by traffic crossing the bridge. By utilizing this low-wave electromagnetic energy, we can create a self-sufficient monitoring device," Dr. Sazonov says. He adds that the more traffic a bridge experiences, the more energy is produced to keep the monitoring system running, so the need for batteries (which eventually require replacement and disposal) is eliminated. Sazonov's company, AmbioSystems, is pitching the system to cities. He hopes it will be in place on bridges throughout the country by 2009.—Susie Parker