

Sensor detects bad milk, blood coagulation and road stress

July 17 2008

Craig Grimes, a professor of Electrical Engineering at Penn State, has created a very practical gadget.

Bad milk, juice or soup can be spotted at the grocery store by a thin iron strip that vibrates in a magnetic field. When a customer checks out at the grocery store, the scanner can detect when this strip vibrates differently, indicating a change in the consistency of liquid. But grocery stores aren't the only business to benefit from the inexpensive device.

According to Grimes, similar sensors that detect blood-clotting characteristics will be on the market soon. These sensors can identify blood coagulation by tracking its density. Grimes said that in 2009, COBE Cardiovascular, an international company making advances in the cardiopulmonary market, will distribute these to hospitals worldwide.

But the same sensor technology used in food and in blood clot kinetics can also do more. It can be embedded in new roadways, buildings and bridges to detect when these structures are under stress.

On the road, the sensors will let crews know if salt is needed or if the salt has percolated down into the concrete, which can cause cracks in the roadway. With early detection, a treatment can be provided before too much damage occurs.

"Basically, the idea is to embed the sensor when the road is being made, then it more or less can sit there forever," Grimes said.

The same holds true for new buildings and bridges. Grimes said the sensors placed in these structures would have a specific signature. Once a year these sensors could be checked with a scanner to see if the building or bridge is stressed.

Grimes indicated that minimal tweaking is needed to change the use of the sensors. To learn more about Grimes' discovery, visit Penn State Live at live2.psu.edu/video/490

Source: Penn State

Citation: Sensor detects bad milk, blood coagulation and road stress (2008, July 17) retrieved 5 May 2024 from <https://phys.org/news/2008-07-sensor-bad-blood-coagulation-road.html>

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