

# sightings

The outlook for new technology

## Power-line current sensor isolates via fiber

**M**EASURING the current on high-voltage power lines is never easy and almost always requires isolation. KVH Industries ([www.kvh.com](http://www.kvh.com)) is joining with ABB Power Technology ([www.abb.com](http://www.abb.com)) to adapt KVH's fiber-optic gyroscope technology to the task (see "Optics, elec-

tronics merge to provide a sense of where you are," *EDN*, May 30, 2002). The planned high-current sensor will use an optical fiber wrapped around the power line, instead of a conventional, large step-down transformer. Changes in the magnetic field surrounding the power line

will induce a differential phase shift in the pair of opposite-rotating optical signals launched into the fiber. The system electronics will detect the phase shift and produce a digital readout corresponding to the magnitude of the shift and, thus, to the current value.

## Millimeter waves detect hidden weapons

START-UP SafeView Inc ([www.safe-view.com](http://www.safe-view.com) or Richard Rowe, chief executive officer, [rick@safe-view.com](mailto:rick@safe-view.com)) is commercializing a system that uses millimeter waves to generate 3-D images. This system will detect and identify hidden weapons and explosives, including plastic, ceramic, and nonmetallic ones, through clothing. The Department of Energy's Pacific Northwest National Laboratory ([www.pnl.gov](http://www.pnl.gov)) developed the technology; the lab operates under contract by the Battelle Memorial Institute ([www.battelle.org](http://www.battelle.org)). The low-power 12.5- to 18-GHz signals project onto the front and back of the person that the technology is screening, penetrate clothing, and bounce off the person and any items he or she is carrying. A sensor array captures the reflected waves and passes them to a high-speed image processor, which in turn produces a holographic image that an operator can evaluate.

## Tilt doesn't bother liquid-level sensor

WHEN SENSING THE LEVEL of liquids in reservoirs that tilt during travel or use, such as truck-tail lifts, the sensor gives misleading results. The VLS omnidirectional level sensor from Gentech International ([www.gentechinternational.com](http://www.gentechinternational.com)) overcomes that problem with a special cylindrical float design. An activating magnet weights the float, which has a hollow oval center. As the liquid level drops, the float and magnet move away from the sensor body to signal a low fluid level. To minimize interaction with the fluid, the float's material is Buna N elastomeric; the stem of the sensor is Nylon 6.6, and the sealing washer is nitrile.



**A clever liquid-level sensor adjusts to tilt of the vessel you are measuring by using a cylindrical float with an integral magnet. The float rotates as it senses a liquid level above threshold (left) and below threshold (right).**

## Algorithm keeps you in your prime

PRIME NUMBERS have fascinated mathematicians for centuries and have special practical importance in encryption schemes. But one challenge remains: how to easily tell whether a number is prime. Existing techniques sometimes decide incorrectly, and the problem is especially difficult as the number you are testing gets larger. But you may not need to worry any longer: A trio of researchers at the Indian Institute of Technology claim to have developed and rigorously proved a deterministic algorithm that quickly makes the prime/nonprime judgment. You can read the paper, which includes the proof and algorithm, at [www.cse.iitk.ac.in](http://www.cse.iitk.ac.in).

