



Coming to Our Sensors

How would I do research in my lab without sensors? My students and I measure weight, temperature, pressure, potential, current, concentration, pH, and conductivity routinely. We expect fast, accurate and dependable measurements with the correct selectivity and sensitivity for the range of values of importance in the particular environment of interest. We anticipate an easy calibration method to ensure

the device is working correctly. Other desired attributes include long life-time, good reproducibility, and stability. This issue of *Interface* features the Sensor Division with articles that highlight the interdisciplinary effort it takes to produce the sensors we desire in our workplace and home.

While it is certain that sensors are essential for scientific measurements, we also depend upon sensors to give us more information in our home life. The "idiot lights" in automobiles continue to become more sophisticated, so that besides our gauges for speed, mileage and fuel level, we also view the oil pressure, the engine speed (rpm), and the temperature inside and outside the car. We even have more indicators (from buzzers to voices) to tell us to fasten seat belts, turn off lights, and close and lock the doors. Ironically, despite the wealth of sensors and the information they provide, I seem less able than ever to fix by myself anything concerning my car!

In the medical field, the demand for diagnostics to ensure our health is ever increasing. We want better definitive tests for diagnosis of our ailments. We want easy ways to monitor our health or the treatments that keep our conditions in check and us in good health. We want data on blood pressure, cholesterol levels, glucose, electrolytes, and possibly drug concentrations. We want to be able to monitor our health by ourselves if possible. Miniaturization of sensors has increased the use of sensors in clinical analyses and with biological specimens.

In general, sensors provide us with more ways to monitor our lives. However, as with other aspects of the information age, although sensors provide me with more data, I often feel "sensory overload." How do I deal with this? Every summer I backpack into the Sierra Mountains of California. This summer I backpacked to a high altitude lake in King's Canyon (East Lake at about 9,000 ft.) for a couple days. The ability to use only my own senses to enjoy the awesome beauty of the granite peaks, clear creeks, forest, and wildlife brings me great pleasure. It's amazing how well our own sensors work and the pleasure this information brings to improve our well-being.

Jan B. Talbot
Editor

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