Design Your Own RF Sensors

Aug 16, 2002 — Microchip Technology (Nasdaq: MCHP), a Chandler, Ariz., maker of specialized semiconductors, has teamed with distributor Future Electronics to offer a wireless sensor reference design kit. The aim is to make it easy for designers without a lot of radio frequency experience to develop RF sensors for tracking temperature, pressure, humidity and other conditions.

The kit is a working prototype temperature sensor using Microchip's rfPIC UHF transmitter and the PIC16C925 micro-controller with an LCD display. The 433MHz low-power temperature sensor can send data over a short range to a receiver board that displays temperature on a LCD display. Several sensors can communicate with a single receiver board, which can transfer the data to a PC.

The kit includes design files, schematics, printed circuit board layouts, software, and supporting circuitry needed to design wireless sensor applications. The kit is sold through the Web site of Future Electronics, the world's largest distributor of electronic components, or through the company's sales offices.

"We've seen an increase in people who want to do RF applications," says Fanie Duvenhage, Microchip's rfPIC product marketing manager. "The problem is there aren't a lot of people with extensive RF experience. We wanted to make it possible for digital designers with no RF background to develop their own sensors."

To create a wireless pressure sensor, or smoke detector, a designer would have to acquire the sensor separately and then reprogram the micro-controller to the specifications of the new sensor. Duvenhage says that the cost of the sensor would depend on the components, but would likely be between $50 and $100. The price would be substantially less if the LCD readout weren't needed, he says.

Each sensor has a unique serial number so the temperature or pressure readings can be tracked to a specific location or application. The devices are designed to be used where installing wires is not feasible due to space or physical constraints, such as sensing tire pressure.

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