

Embedding More Sensing and Measurement at Embedded World



DaveS



Welcome to embedded world in Nuremberg, Germany. If you happen to be at the show, stop by and visit TI in Hall 3A, Booth No. 129 to see some really cool MSP430™ microcontroller (MCU) demos. If not, let me give you a glimpse of some of the sensing and measurement applications we're highlighting.

At the show, we have our new MSP430 CapTIvate™ MCUs – the MSP430FR2522 and MSP430FR2512 – which are optimized for cost-effective yet robust capacitive touch human machine interface (HMI) applications. (First two photos in the collage above.) You can also see the new MSP430FR6047 integrated ultrasonic-sensing flow-meter device, along with a wide variety of other TI products and designs. (Third photo in the collage above.)

In addition to our highly integrated, complex show demos, we wanted to see how quickly we could put together a simple demo using our available rapid prototyping hardware and software tools. We picked the low-cost MSP-EXP430FR2433 LaunchPad™ development kit for our project, and by using the Sidekick BoosterPack module to connect a solderless breadboard to the MSP-EXP430FR2433, the team was quickly able to connect a light sensor, indicator light-emitting diode (LED) and a simple transistor motor drive to the MSP430FR2433 MCU. (Fourth photo in the collage above.)

We chose the simple-to-use Energia integrated development environment (IDE) to develop code. The functionality of the code runs the motor for a set time frame when the light level reaches the threshold level, perhaps mimicking a simple control system to close an automatic window shade, or to dispense a predetermined amount of pet food. By using Energia, the team had the code up and running in a matter of minutes. Overall, this simple design was complete in under 30 minutes, and shows a great example of how quickly simple ideas can reach proof of concept by using the available MSP430 LaunchPad ecosystem.

The MSP430FR2433 value line MCU offers 16KB of embedded ferroelectric random access memory (FRAM) ultra-low-power nonvolatile memory; 4KB of static RAM (SRAM); a 10-bit, 200KSPS analog-to-digital converter (ADC) and multiple serial communication ports. The device is available in 24-pin very thin quad flat no-lead (VQFN) or die-size ball-grid array (DSBGA) packages.

Also check out our [e-book](#), specifically written for MSP430 value line MCUs, which features 25 simple code examples to help you enhance board functions and jump-start your next project.

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