What technology do you expect to take the consumer space by storm in 2013? (Part II)

Kasey Panetta, Associate Editor

Raman Sharma, Vice President of Sales, Americas, Energy Micro, www.energymicro.com **[1])**

Wearable or mobile health (m-health) applications, which combine portable medical technology with established consumer devices such as mobile phones and tablets, look set to move into the mainstream market. This reflects an increasing consumer obsession with personal health and fitness coupled with growth in the electronic content of medical equipment. Further, the rise of social tools, cloud storage and wireless connectivity fuels the “health everywhere” idea. Key to enabling this demand, especially for wearable sensors and monitors, is the ability to realize compact, lightweight and, most importantly, low power sensor solutions that can run for extended periods on disposable batteries. But for sophisticated applications like blood glucose monitors or true ECG heart monitors (not just the simple heart-rate readouts provided by some sports fitness products) this is more challenging than might first appear. Energy Micro is very familiar with the issues posed by processor-intensive ECG and blood glucose measurements and particularly the power constraints that previously compromised resolution and accuracy. Today it is possible to take advantage of powerful 32-bit microcontrollers (MCUs) with DSP functionality to perform these tasks while still minimizing energy consumption.The secret is ensuring that sensor data is collected without processor intervention and that the processor is only active when it needs to perform any signal analysis or interact with the outside world. So having on-chip peripherals such analog-digital converters, comparators and timers that can operate in concert and independently from the core processor is a vital ingredient in allowing the heart of the application, the MCU, to remain in a deep sleep mode for as long as possible. Similarly, given that energy consumption is the product of power consumption and time, using a powerful MCU that can complete a task quickly and return to sleep has proven to be a more efficient solution than seemingly lower power 8-bit and 16-bit devices.

Sid Shaw, Texas Instruments, www.ti.com **[2]**
I expect 2013 will be the year of the Bluetooth low-energy or Bluetooth smart "appcessory" (smartphone and tablet accessories that use an app). Bluetooth low energy saw strong growth in 2012 after its inclusion in the iPhone and iPad. In 2013, more Bluetooth v4.0 smartphones and tablets are expected to launch including those supporting Android and Windows 8. Because of this growth, we will also see more Bluetooth low-energy appcessories for every part of our lives. It is easy to see why. Bluetooth low energy is ultra-low power and can operate over a year on a coin-cell battery, making it ideal to attach to MEMS sensors to detect temperature, positioning, humidity, speed, and more. Texas Instruments has just launched the Bluetooth low energy SensorTag as a low-cost, open-source development kit bridging the world of MEMS with the world of low-power wireless connectivity, and we believe this can be a starting point for many new innovative connected sensor devices

Mariel van Tatenhove, Director of Touch Materials, Atmel Corporation
Touch has become a key interface for many devices we use every day in our lives and it is being implemented in a growing number of devices and applications. With this growth, requirements for new form factors are inevitable. Rather than flat phones, tablets and other devices, just imagine new curved, edgeless touchscreens on your smartphones, tablets and eReader or gaming consoles? Well, imagine no more. With the recent technology innovation, these form factors are becoming a reality in 2013.But the real kicker was at the close of the largest consumer electronics show, 2013 International CES, when a major Korean manufacturer showcased a bendable phone that consists of a matchbox-sized hard enclosure, with a paper-thin, flexible color screen attached to one end. This demonstration was an indicator that flexible touchscreens, enabling these new revolutionary designs are becoming a reality faster than we've all anticipated.With the availability of new cover lens form factors, flexible sensors and flexible displays, the required technologies within the supply chain is nearly complete. Look out for flexible touchscreens later this year, along with touchscreens that include revolutionary new designs at a store near you.

Upal Sengupta, applications manager for TI's Battery Management business, Texas Instruments
Wireless power: "If you build it, they will come..." I've read a few articles that say it's healthier to eat five or six small meals every day rather than three large meals. Regardless of whether this is true or not, those of us who have unpredictable schedules sometimes have to grab a quick snack "on the go" whenever we can. And as we become more and more dependent on our wireless communication

devices, keeping our smartphone batteries charged seems to be as important as keeping ourselves fed. But, just like we may not have time to sit down for a full meal, on a busy workday many of us may not be able to stay in one place for two or three hours at a time waiting for our phones to charge all the way up. (And of course we have to take the device with us wherever we go). But, if the infrastructure to give your phone a quick "snack" of power is there, we can at least keep it fueled up enough to operate as we go from meeting to meeting, running errands, or generally moving around. As wireless power infrastructure extends to workplaces (office furniture), vehicles (automotive consoles), and public places like coffee shops and restaurant tables, every time we set our phones down they can be charged for a few minutes. The evolution of wireless power infrastructure is starting to happen now. As more devices incorporate wireless charging capability, it will become more attractive for businesses to provide the charging infrastructure. No doubt that the wireless power standards will continue to evolve and improve, just like other industry standards (e.g. WiFi and USB) have over the years, but in 2013 we are already seeing real progress in adoption of wireless charging for handheld devices.

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