Looking Sharp at the Consumer Electronics Show

January 14 2013, by Troy Wolverton

Sharp is not a powerhouse electronics company. It was reported this fall to be on the edge of bankruptcy. But even when financially healthy, it has played second or third fiddle, first to Sony and now to Samsung. But among the big electronics firms at the International Consumer Electronics Show here in Las Vegas, it had some of the coolest technology on display.

One theme here this year has been 4K TVs, with most major set-makers and some smaller ones showing off new, ultra-high-resolution sets.

Like its rivals, Sharp is showing off a full suite of 4K TVs in larger screen sizes. But the company also has on display an 85-inch 8K TV.

Yes, 8K. That means it has twice the number of vertical columns of pixels and twice the number of horizontal rows of pixels as 4K TVs.

While 4K sets are impressive enough in their own right, Sharp's 8K is amazing. Despite its large screen size, I had to get within an arm's length to start seeing its individual pixels. Even on smaller 4K televisions, you can start seeing their individual pixels farther away than that.

Sharp also had on display had two flexible OLEDs, which are manufactured on plastic rather than glass, allowing them to be bent and flexed like a playing card. Both are about the size of a playing card and run full-motion, full-color video.

For someone like me - I've long dreamed of a smart device that I could retract from the side of a pen or roll up and throw in my pocket - it was neat to see the technology that might make that possible.

Still, 8K TVs and flexible OLED screens are likely years away from mass market consumer products. So it was exciting to see at Sharp's booth demos of a technology that may be in consumers' hands much sooner.

That technology is called Igzo. It's a new semiconductor process that uses a combination of indium, gallium, zinc and oxygen (thus the name) in place of silicon. Sharp has started to use it in LCD displays and touch-screen elements.

Igzo transistors can be made smaller than those made of silicon and can move electrons faster. As a result, Igzo screens can be much more power-efficient and Igzo touch screens can be less susceptible to noise, allowing them to more accurately recognize when users touch them. An Igzo display also can hold an image much longer than a silicon-based one before having to be refreshed.

According to Sharp, the power savings can be in the neighborhood of 80 percent to 90 percent better than the standard display technologies. So a smartphone could last two days of typical use before its battery runs out - about double the life of today's best smartphones.

And the smaller transistors can make for smaller pixels, leading to dramatically higher resolution screens. Already Sharp is offering a smartphone in the Japanese market that has a 443 pixels-per-inch screen. By contrast, Apple's iPhone 5 has a 326 pixels-per-inch screen.

On another front, many of us have gotten used to using our smartphones to navigate in our cars or to figure out how to walk from one building to

another in a big city.

But the technology used by smartphones to offer directions is generally not effective indoors. GPS satellites often can't be accessed indoors, and Wi-Fi radios, which also are used to find people's locations, are much spottier in their coverage and much less precise.

But one company I met with at the Consumer Electronics Show is developing an interesting solution to this problem.

France-based Movea specializes in working with motion detectors such as gyroscopes, accelerometers and magnetometers. The company has helped tennis racket manufacturer Babolat develop a racket that uses a built-in motion sensor to sense how players are swinging their rackets and hitting balls. The company has also developed software that captures full-body motion from a system of 15 motion sensors attached to various points on a person's body.

Now the company is applying that expertise to the problem of indoor navigation. It uses the motion sensors now commonplace in most smartphones and tablets to determine a person's position indoors using dead reckoning, which is the process of calculating one's current position by using a previously determined position.

Using a prototype application, Dave Rothenberg, Movea's director of marketing, showed how the device can start from a known location, like a hotel lobby, and help a user navigate through a hallway, up an elevator and onto another floor, plotting the movements on a map.

The system detects a user's steps, estimates stride length and taps into magnetometers to get users' compass direction. If there's a pressure sensor present, such as on some newer Android-based phones, the system can estimate the floor of a building a person happens to be on.

The system worked fairly well in our demo, navigating us to within 10 feet of our destination without using the typical location sensors in the phone.

It was an interesting exploration of how you could use essentially the same technology used in Nintendo's Wii remotes to get around the mall.