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The Birth of the Personal Digitally Connected World

When it comes to consumer electronics, the place to go each year to learn about evolutionary, revolutionary, and incremental technology advances is the Consumer Electronics Show (CES). CES is held each January in Las Vegas, NV. Getting a print magazine through the editing, printing, and mailing process takes time and that is why this CES-themed column, which was written in January, didn't reach your hands until this March issue.

This year's CES was the largest in the show's history. According to the Consumer Electronics Association, which hosts CES, the 2014 show had 3,200 exhibitors spread over 2 million square feet. This area included the full convention center and a number of the hotels on the Las Vegas strip. On the streets of Las Vegas were two experimental cars on the go and one driverless VW repeatedly parking itself. I felt like I walked a hundred miles in an attempt to find the most interesting new products to introduce to you in this column and in online product reviews at www.technologytoday.us/ProductReviews.html.

The most interesting new products had digital interfaces that allowed them to use the Internet for two way communication with a smartphone, wearable tech, or other networks of your choosing. These products were, in a sense, announcing that the birth of your personal connected world is at hand. The ultimate goal is for all your digitally enabled devices to be capable of performing tasks for you automatically.

This technology might now be in its infancy but it is expected to quickly grow smarter as your smartphone and other devices continue to analyze what you are doing and

then slowly start to perform these tasks automatically. This is called *ubiquitous computing*, defined as the automatic seamless integration of everything digital that you come into contact with on a daily basis.

Your connected home can become part of your personal connected world at your front door. A near field communication (NFC) lock can automatically lock or unlock itself when your enabled NFC devices detect that you are walking toward or away from a locked entrance.

Samsung has created its new Integrated Samsung Smart Home Service Platform and LG has developed a similar smart digital system that it calls Smart Thin Q. Both systems digitally empower their new smart appliances so they can take instructions from an app



Photo 1—Digitally enabled appliances allow you to monitor and control them by using the manufacturer's smartphone app.

on your smartphone. Imagine your refrigerator sending you a shopping list of needed items or your oven telling you the roast that is cooking is

now ready to be served. (See Photo 1.) Basically, at this year's CES, companies were showing hardware and apps that could control any item in your home that has a switch.

The Nest company makes smart home thermostats, smoke detectors, and carbon monoxide detectors. Nest devices can automatically control your home environment because they are designed to learn your preferences from your actions in combination with a Nest smartphone app. The dial of the Nest Learning Thermostat



Photo 2 —The Nest Learning Thermostat remembers the temperatures you set and builds its own custom schedule for your home based on what you do.

turns blue when cooling and orange when heating. When you are not home, it turns itself down to save money. The thermostat can be remotely controlled using a smartphone, tablet, or computer. (See Photo 2.)

Days after CES closed, Google purchased Nest, a 300-person company loaded with past Apple engineers, for \$3.2 billion. No doubt, Google's goal is to expand what Nest products can automatically control for you in the near future.

To help make your personal world digitally connected, many companies are marketing wearable digital devices that gather data and then transmit it to your smartphone or home network for analysis. Different devices are designed to collect different types of data. Under the fitness heading, you have Fitbit, with wearable devices that can track walking, running, calories burned, and stairs climbed during the day. At night, the same device can gather data on your sleep patterns so its app can help you use all the collected data to lose weight, get in shape, and/or improve your sleeping habits.

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Other wearable devices on display can gather medical data through contact with your skin. These devices could use your smartphone as a data link to your doctor's office. Sports and safety wearables were shown that can track physical activities to improve your game or detect blows to your head to warn of concussions. The most technologically advanced wearable shown at CES was the Samsung Galaxy Gear watch, which would be the perfect accessory for an international spy if it wasn't getting so much publicity. (See Photo 3.)

The final category of wearable



Samsung

Photo 3—Wearables are the new link to your digital world. With them you don't have to constantly check your phone.

Google has made famous. (See Photo 4.) The Velodyne roof laser array provides the electronic vision that the car's computer system uses to locate the road and all objects that need to be avoided. Other car manufacturers are trying to perform the same tasks using multiple sensors that are hidden throughout the bodywork of their vehicles.

located in many parts of the vehicle and also completely fill the vehicle's trunk. (See Photo 5.)

I did get to drive the BMW i3 concept electric vehicle. As I drove around Las Vegas, I controlled my forward and stopping motion using, for want of a better term, only the "gas" pedal. This all-electric vehicle has regenerative braking, which was automatically activated when I released pressure from the "gas" pedal to slow the vehicle.

The regenerative braking system also generates some electricity each time the car is stopped. The vehicle does have a brake pedal, but during my 20-minute drive around Las



Audi

Photo 5—The Audi Connect Piloted Driving vehicle could, under certain driving conditions, take over full control of the car. The equipment to perform this task completely fills the vehicle's trunk.

Audi did have some Connect Pilot Driving vehicles on the road that could, under certain driving conditions, take over full control of the car while the driver sat relaxed in the driver's seat ready to take back control at a moment's notice. The sensors to perform this task are

Vegas, at varying speeds, I never needed to press it. (See Photo 6.)

Recalling the Facts

1. List all the items around your house that could eventually be controlled by your smartphone.
2. If you could have an app take over something that you now do at home or school, what would you have it do? Would your app be practical? ©



Photo 4—The Velodyne rotating roof laser array, found on Google's self-driving cars, provides the car's electronic vision.

technology was digital glasses that augment the wearer's view of reality. A number of people at this year's CES were wearing Google Glass, but Google was not displaying any of its products.

It was definitely a letdown that Google did not have its fleet of self-driving cars traveling the local roads of Vegas. The almost autonomous experimental vehicles that were on display didn't have the Velodyne rotating electronic vision unit that

Photo 6—The BMW i3 concept electric vehicle that I test-drove at CES doesn't require the driver to use a brake pedal to stop the vehicle.

