

Where is wearable tech headed?

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SEP. 28, 2013 - 10:30



SUMMARY:

Wearable technology is all the rage, and it's only the beginning of an array of connected devices that will invade our homes, cars and even our bodies.

Imagine a small adhesive strip that can collect intimate biological data and tell your smartphone that you need to apply sunscreen or hydrate. How about a sensor for service dogs that enables them to transmit “verbal” commands to their handlers? Around the world, researchers are working behind the scenes and around the clock on jaw-dropping applications for wearable technology, driving innovation into areas that were considered science fiction just a few years ago.

We no longer just use technology. The fact that tech is now all around us, on us, and even in us has given birth to a new buzz phrase, the internet of things. The very diversity of internet of things applications is staggering, ranging from smart consumer products to devices that monitor health and behavior—human or animal. Dairymaster already markets a number of smart products to farmers including a cloud-based [MooMonitor](#) necklace that determines a cow's readiness for pregnancy.



The first entries in the wearable tech space were watches and corrective lenses. Evolution brought health and fitness monitors to the scene. After that came smart watches and activity trackers. Samsung recently unveiled its new Android-powered Galaxy Gear smart watch, a touch-screen timepiece that acts as an extension of your smartphone to stream music, track exercise and fitness goals, install apps and make phone calls. With just one small wristband, Jawbone UP tracks sleeping, movement and eating patterns—real-time vital information for a holistic approach to optimal health.

Even more recently, Google captured attention with [Glass](#), eyewear that delivers the functionality of a computer by connecting to your smartphone and displaying information on a screen hovering above one eye. Voice commands enable the hands-free advantage of Glass, which includes built-in GPS navigation, camera and video recording capability. If that sounds too James Bond for mass appeal, a new company by the name of [AugMedix](#) has the sole mission of exploring what Google Glass can do for physicians—in and out of the operating room.



Researchers who are guessing the impact of this mind-boggling, new industry are coming up with figures that are all over the map. Some of the more ambitious predictions are seeing the shipment of more than 100 million wearable devices in 2014 and as many as 485 million by 2018. In the relatively brief history of technology, it is difficult to imagine a market more rife with possibility. Why? Because the sky is no longer the limit.

Wireless makes it happen

The driving force behind the development and adoption of IoT is the wireless connectivity that frees technology to be anywhere and do anything. Sensor-embedded devices can transmit our personal data to the cloud for analysis and safekeeping, but they can also connect to processors like smartphones and tablets that can negotiate data from multiple wearable devices.

Supported by proven technologies like Wi-Fi, Bluetooth Smart, NFC and GPS, efficient radio designs continue to reduce the processing requirements and power needs of wearable devices. These efficiencies, in turn, enable manufacturers to design, produce and go to market with affordable products that encourage mass consumption. Without a doubt, the introduction of Bluetooth Smart, formerly Bluetooth low energy, is the real game changer in that arena, enabling devices to sip energy at such low rates that they can run for months or even years on a tiny, coin-cell battery.



The stunning implications of this incredibly low energy consumption have not been lost on the world's leading OS providers. Quick to see the impact of Bluetooth Smart on the wireless industry, Apple prepared nearly all of their devices to serve as Bluetooth Smart ready hubs. It was Apple's confidence that fueled the development of popular new accessories like [Jawbone UP](#) and the smart keyless entry product [Unikey Kevo](#). But the wearables revolution is not confined to established companies and big players — or even just wearables. Entrepreneurs are using crowd-funding to develop and bring to market their own ideas for intriguing new products such as [iDevices' virtual closet](#) or the [Pebble smart watch](#).

Connecting your body via Bluetooth (or even Wi-Fi).

Apple is not alone in its enthusiasm. Microsoft, Blackberry, Android, Google and Samsung are all increasing Bluetooth Smart integration and setting the stage for an extraordinary explosion of wearables. It is impossible to say what products are on the horizon. This remarkable technology can seamlessly sync a wireless smartphone or tablet to a vehicle's audio and display system for communication with pedestrians, other vehicles and even infrastructure. It also has the potential to connect wearable technology and medical sensors inside the body to the vehicle.

The implications for medical applications are virtually endless as more and more companies experiment with planting sensors directly into the body. [Starkey](#) leverages Wi-Fi and noise reduction technology to improve sound clarity for the hearing-impaired in virtually every setting. Sensortech Corporation has announced a [new orthopedic knee alignment product](#) using

Bluetooth Smart technology that promises to reduce operating and recovery times, promote faster healing, reduce component wear and offer superior pain management.

Wearable technology has the potential to enhance our surroundings, improve our health and change the way we interact with each other. The only two ingredients anyone needs to make the future a reality is imagination and a strong foundation of standards-based connectivity technology. So exactly where is wearable tech heading? The answer is the internet of everything!

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