

LIVE
On The GO

Unbearable WEARABLES

By John Miller and Doug Waters
Images: D. Massarik / ML1Media 2014

It may be a passing fad, the start of a trend, or a significant shift in the way technology and the human body are combined. Moreover, wearable technologies represent the fastest growing segment in personal electronics in 2014 and likely 2015. Wearable technology presently spans from head (glasses) to toe (fitness socks) and everything (everything! --- see side bar) in between. As we found out in our lab and field tests, the devices have evolved rapidly.

Wearable tech products owe their existence largely to the leaps in technology brought about in the smart-phone industry. Micro sizing of electronic components – from processors, to sensors and input/output capabilities combined with dramatic drops in prices of the components allowed companies to engineer products of every imaginable shape and function. The most common of these were the devices we tested and include Smart Watches, Activity Trackers, Data Loggers, and Medical Sensors. The names are mostly familiar: FitBit, Reebok, Sensoria, LG, Microsoft and of course, the 800 pound gorilla, Google.

Wearable tech essentially merges the interaction of the body with connected devices. Micro-Electro-Mechanical sensors – MEMS, in industry speak, comprising of gyroscopes, accelerometers, compasses and GPS, thermometers, pressure sensors, even gas and radiation sensors convert a measured signal into an electronic signal, make the technologies more human-functional. As the devices themselves evolve, more and more will incorporate one or more common transmission methods like LTE, Wi-Fi, and Bluetooth to relay data to other devices as well as being cloud-connected.

The largest market for wearables is trending towards people actively interested in their health. Insights gained in the areas such as health & fitness continue to spill over into the medical world when it comes to wearables. Personal data has become a very important part of the connected world – at least for the moment --- security concerns are just beginning to take shape in terms of personal data and may heavily influence early adopters as well as future market segments. Another concern is the issue of accuracy. As seen in some of our test, different devices measuring the same factors have returned different results.

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While it seems everyone in the world has a wearable devices these days, one of the more intriguing is new product from Microsoft. Some suggest Microsoft is perpetually ‘late to the game’ (Zune, anyone?) while others note that Microsoft takes time to bring a more compete and functional product to market

(XBOX, for instance). The Microsoft Band should be available by the time this is published. We were allowed a look at a pre-release version and chose to include it as part of our comparison, in spite of limited test time. Expected to retail for \$199 (US), it runs on Android, iPhones, and Windows Phone devices. It's defined as a ‘SMART’ fitness band –blending Smart Watch capabilities with fitness and health monitoring).

It's built around a large, high-res color OLED display. The Microsoft Band offers complete fitness tracking, including heart rate monitoring and tracking step. At night, the Band tracks sleep based on accelerometer and heart rate info, and calculates your resting heart rate overnight.

During the day, active heart activity during workouts gets analyzed based on heart rate data already collected. For dedicated fitness activities, there are downloadable workout sessions from partners like Gold's Gym and Men's Fitness (free to install) and guide you to training sessions and track when each activity is completed. A serious drawback is it's lack of waterproofness – a fitness /activity tracker that is not suitable for swimming/watersports or the shower. There is an indication that a nano-coated version will be available eventually and may rectify this issue.

Google, arguably, the biggest player in wearable technology made its splash last year with Glass. Glass is a wearable Android-powered computer. Think of it as a smartphone built onto an eye-glasses-like frame that you can place in your field of vision, film, take pictures, search and translate on the go, as well as run Android applications. The form factor and capabilities along with Google's marketing and technology power behind Glass could very well spawn entire new industries and crush long standing legacy industries, much as occurred over the last decade when Apple launched the iPod and iPhone technology, forever altering the music and mobile phone industries.

While eye-glass type displays and headset cameras are not new ideas, the Glass product elevates the concept by integrating so many functions into one easy to use device. With MEM input sensors including voice command-recognition, accelerometer, gyroscope,

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(clockwise, from above):LG G watch, Reebok hat, FitBit wristband, Microsoft BAND, Sensoria SmartSocks (middle):Google GLASS

The Wearable NOT Ready for Prime-Time

By Ray DiSilvestro & Doug Waters

It qualifies as wearable technology....barely. The concept Smart-bra, created by Japanese lingerie brand Ravijour, has a long way to go before breaking into mainstream markets. According to it's developer, the Smart-bra is designed to ward off 'unsuitable' men and claims to be 'an instrument to detect true love'. The device includes a sensor which monitors the Smart-bra wearer's heart rate and transmits the data in real-time to an iPhone app using a Bluetooth connection.



The bra only undoes it's clasp when 'true love' is detected. The developers of the bra insist that the clasp will only be released "when a woman is in love so that her Adrenal Medulla (part of the adrenal gland) secretes the hormone Catecholamine, which increases her heart rate". The app processes the data, measuring heart rate elevation using a specially written algorithm as well as pre-set data. When the app determines a woman's heart rate is suitably elevated and she is in love, the bra catch opens. Uh huh.

We were unable to secure one for testing --- which was just as well --- we were unable to secure a test subject willing to put the device through our rigorous tests (which, I'm told would involve Goggle Glass). The Smart-bra is not on sale and there is no indication when it will become available commercially.

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