

Body-adapted wearable electronics



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The field of body-adapted electronics has been around for quite some time. People have been wearing calculator watches, mobile phones, music players, ear phones and the like for many years now. I was intrigued by the new ideas that have developed within the last few years in the way of health monitoring devices. There is a wristband available for you to monitor your exercise, health, behavior, and blood pressure. It helps you to understand your exercise and sleep patterns. Also out there for you to detect your blood pressure are ear buds.

Some of the health monitoring devices are able to be embedded under your skin or worn as a tiny patch under clothing. The sensors provide feedback for you or your doctor to track your vital statistics. The vital measures include heart rate, muscle tone, body temperature, sweat, motion and the amount of oxygen in your system. The environmental measures include location, illumination, ambient temperature, humidity, . A body posture detection sensor is worn to determine whether a person is exercising or performing a sport correctly.

Along with this device, another can provide calculations of how many calories you have consumed, or your average speed and distance. This allows you to get the best performance in what you are attempting. For those suffering chronic disease or pain management, their doctor will be able to receive real-time information about the person's health, so as to be able to prescribe medications properly. Alerts systems can be applied for drivers on the road to inform them of dozing off at the wheel.

Fire-fighters have a polo shirt with sensors that collect their vital signs, so supervisors will know when to get them out of a disastrous situation. The Eye Tap, which is worn in front of the eye, or Smart glasses are for wearers to see as a camera or to view computer imagery, is being explored as a tool for people with visual disabilities to have the information directed to parts of their retina that does not function well. Google Glass has been using them since 2013 in operating rooms, ambulances, trauma helicopters, doctors' offices, and also for the visually impaired on public transportation.

It is also being used in several countries during operations, to broadcast the actual surgery to other locations, and on TV, for many doctors to be able to watch how the procedure is being performed. In Australia, the Small World Social Breastfeeding Support Project created the first hands-free breastfeeding application for new mothers. Wearing the Google Glass, the mothers call a consultant to have any questions they might have, answered. In a few months, 100% of the mothers were breastfeeding with confidence.

Several more emerging technologies are currently being developed. A brain-computer interface, for people with disabilities who can type by controlling their brainwaves, and eventually being able to operate using only their thoughts. The shoe soles, using sense of touch feedback and GAPS technology, Hess soles will give the blind wearer vibrations to tell them when to turn or lift their feet. Sensors will let the wearer know when to stop, and read the walker's gestures, example, two taps means "take me home." All of these new products are a great advantage for the medical, health, and disability fields. Along with them goes the disadvantages, until everything can be worked out. The trials that are necessary in order to make sure the

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products are fit for use is the biggest hurdle. Sensors miss firing; wrong data being sent and received; expertise needed around the eyes; missed directions for the blind lasers; battery-life needing to be extended; the cost of research and development and of purchase; and the right to privacy are all issues that need to be addressed.