Google Glass

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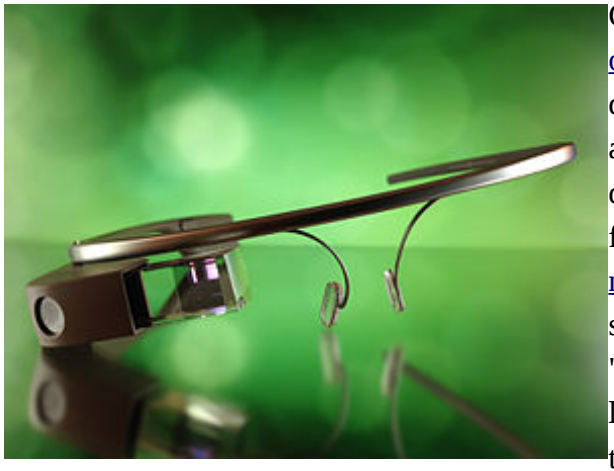

Google Glass is a type of wearable technology with an optical head-mounted display (OHMD). It was developed by Google[9] with the mission of producing a mass-market ubiquitous computer.[1] Google Glass displays information in a smartphone-like hands-free format.[10] Wearers communicate with the Internet via natural language voice commands.[11][12] Google started selling a prototype of Google Glass to qualified "Glass Explorers" in the US on April 15, 2013, for a limited period for $1,500, before it became available to the public on May 15, 2014,[13] for the same price.

On January 15, 2015, Google announced that it would stop producing the Google Glass prototype but remained committed to the development of the product. According to Google, Project Glass was ready to "graduate" from Google Labs, the experimental phase of the project.[14]

Features

- Touchpad: A touchpad is located on the side of Google Glass, allowing users to control the device by swiping through a timeline-like interface displayed on the screen.[29] Sliding backward shows current events, such as weather, and sliding forward shows past events, such as phone calls, photos, circle updates, etc.
- Camera: Google Glass has the ability to take photos and record 720p HD video.[30]
- Display: The Explorer version of Google Glass uses a liquid crystal on silicon (LCoS)(based on an LCoS chip from Himax), field-sequential color system, LED illuminated display.[31] The display's LED illumination is first P-polarized and then shines through the in-coupling polarizing beam splitter (PBS) to the LCoS panel. The panel reflects the light and alters it to S-polarization at active pixel sensor sites. The in-coupling PBS then reflects the S-polarized areas of light at 45° through the out-coupling beam splitter to a collimating reflector at the other end. Finally, the out-coupling beam splitter (which is a partially reflecting mirror, not a polarizing beam splitter) reflects the collimated light another 45° and into the wearer's eye.[32][33]

Criticism and privacy concerns

Concerns have been raised by various sources regarding the intrusion of privacy, and the etiquette and ethics of using the device in public and recording people without their permission.[63][64][65] Google co-founder, Sergey Brin, claims that Glass could be seen as a way to become even more isolated in public, but the intent was quite the opposite: Brin views checking social media as a constant "nervous tic," which is why Glass can notify the user of important notifications and updates and does not obstruct the line of sight.[66]

Privacy advocates are concerned that people wearing such eyewear may be able to identify strangers in public using facial recognition, or surreptitiously record and broadcast private conversations.[1] The "Find my Face" feature on Google+ functions to create a model of your face, and of people you know, in order to simplify tagging photos.[71] However, the only current app that can identify strangers is called MORIS (Mobile Offender Recognition and Identification System), and is a $3,000 iPhone app used by police officers.[72]

Lisa A. Goldstein, a freelance journalist who was born profoundly deaf, tested the product on behalf of people with disabilities and published a review on August 6, 2013. In her review, Goldstein states that Google Glass does not accommodate hearing aids and is not suitable for people who cannot understand speech. Goldstein also explained the limited options for customer support, as telephone contact was her only means of communication.[80]

Healthcare applications

Several proofs of concept for Google Glass have been proposed in healthcare.

Medopad and Google Glass being used in a hospital

In December 2013, Medopad, a London, UK based mobile health solution provider, announced the first wearable health record and had an official showcase of the technology at the CeBIT conference in March 2014.[96][97][98] With the Medopad application for Glass, doctors can access patient records, check live patient vitals, collaborate by sharing what they are viewing in surgery with up to 5 other doctors, and record video or take pictures.[99]

In July 2013, Lucien Engelen commenced research on the usability and impact of Google Glass in the health care field. As of August 2013, Engelen, who is based at Singularity University and in Europe at Radboud University Medical Center,[105] is the first healthcare professional in Europe to participate in the Glass Explorer program.[106] His research on Google Glass (starting August 9, 2013) was conducted in operating rooms, ambulances, a trauma helicopter, general practice, and home care as well as the use in public transportation for visually or physically impaired. Research contained making pictures, videos streaming to other locations dictating operative log, having students watch the procedures and tele-consultation through Hangout. Engelen documented his findings in blogs,[107] videos,[108] pictures, on Twitter,[109] and on Google+.[110] and is still ongoing.