

AUGMENTED REALITY AND GOOGLE GLASSES

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Augmented reality means different things to different people and in many cases ends up being little more than a print advert with a video that can be revealed by a compatible phone. In recent years, apps have appeared on smartphones which aim to take advantage of the device's network connection, GPS receiver, compass and camera in order to present a digital layer on top of the physical environment. Ranging from simple games that let you fight virtual fires or shoot your friends with laser beams to semi-serious applications like finding tube stations, restaurants and office space, the experience offered by these kinds of handheld solutions has always felt a little awkward.

Emerging from the company's secretive X Lab research and development unit, Google Glass is a head-mounted gadget that takes the sort of contextual and location-based information that can already be found on smartphones and presents it directly in the wearer's field of view, thereby mitigating the risk of walking into lampposts and other handset-wielding explorers while checking the weather forecast or navigating to that Chinese restaurant. In addition to a touch interface, wearers can, in theory, control the device with spoken natural language commands, leaving their hands free for other things. The Glass interface takes a huge step towards making the technology invisible to the user and bringing content to the forefront.

GOOGLE GLASS UNBOXING

You have read the news, watched the official video, and marveled at the new gadget the giant search engine has recently announced – Google Glass. It's pretty cool and since not many of you got the chance to get their hands on a pair you might have questions regarding this futuristic device. Up next we will try to cover most frequently asked questions that we bumped into while reading your comments on different publications. For those of you who are not even aware what Google Glass is, what is it used for or what it can do, we will also try to shed some light regarding these aspects.

Before we start with actual review and FAQ please use the comments section below if you think we missed something or have additional curiosities.

INTRODUCTION

What exactly is this new device?

Google Glass is a piece of tech that you can wear that performs just like a smartphone and with the use of a small screen located in the front of your right eye can perform a decent range of tasks. Basically they are nothing more than a pair of glasses powered by nothing less than Google cutting edge technology.

The team behind GoogleGlass Geeks managed to put their hands on two pairs of Google Glass explorer edition (a so call beta product of the upcoming device meant to encourage developers and programmers to start working).

What does it do more exactly?

Using Google Glass you can up to this point do the following:

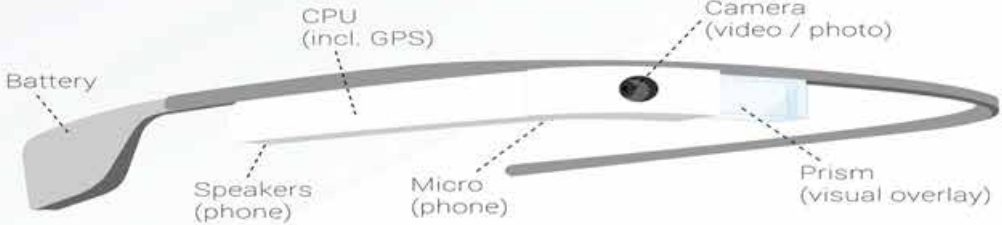
- Perform a Google search using a vocal command
- Use Google Maps to get directions including turn-by-turn, simply walking or riding your bicycle
- Take a photo and share it using your Google Plus account.
- Use your Google Plus account to start a hangout with your friends or contacts
- Answer phone calls using a simple voice command
- Use speech to text and send a SMS.
- Gain access to all kinds of information including weather forecasts, sports results and so on.
- Gain access and control of all kinds of apps

How does it work?

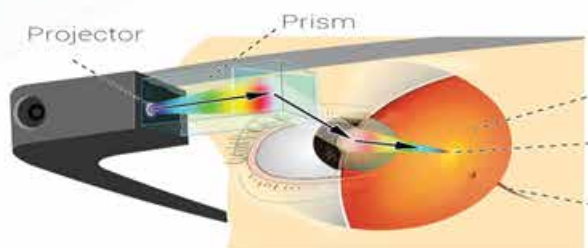
Although Glass is not considered a smartphone or even a cell phone it does make use of WI-Fi and Bluetooth technology in order to connect. To get started you will obviously need a home wireless connection and a standard Google and G+ account in order to start a hangout or share your captures. Although Glass can work as a standalone gadget you will also need an Android based smartphone in order to enable more features. Later Edit: We managed to pair Glass with an iPhone also but it seems that features become more limited.

How Google GLASS works

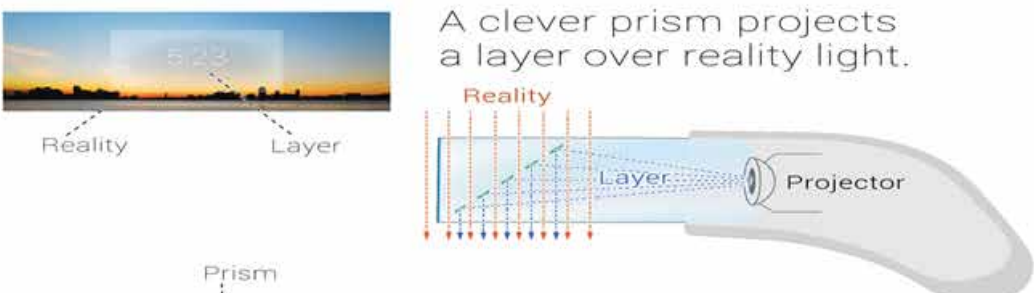
Why can you see a sharp image?
Infographic by M. Missfeldt
www.brille-kaufen.org



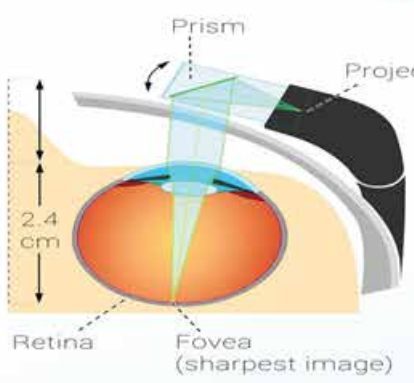
The main function is based on a mini projector.



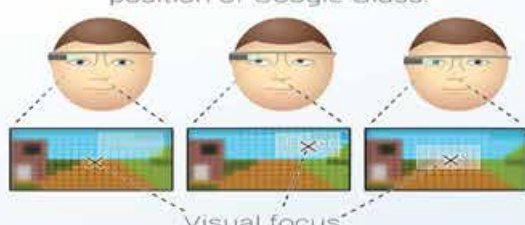
A clever prism projects a layer over reality light.



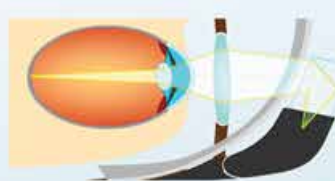
The prism focuses the image directly on the retina.



Position of layer depends on position of Google Glass:



Challenge: What about people with normal glasses?
(more than 50% in most countries)



greater distance -> not a glass look & feel
individual production is much more expensive.

Conclusion: Google Glass is a technical masterpiece. It is based on a projector and a very clever prism, that projects the image directly on the retina.

Sources Patent No. 212686 -> <http://goo.gl/5q6eC>
 Google Glass project -> www.google.com/glass/
 Google Glass on Google+ -> plus.google.com/+projectglass/
 Wikipedia: Virtual retinal display -> <http://goo.gl/dMU9Y>
 The Verge -I used Google Glass- -> <http://goo.gl/FzXhA>
 Wie funktioniert die Google Brille? -> <http://goo.gl/Q5goF>

Infographic by Martin Missfeldt
Feb 2013
<http://www.brille-kaufen.org>
More about this:
www.brille-kaufen.org/en/googleglass

WHO CAN USE GOOGLE GLASS?

As we speak, the new Google device was released to journalists and developers only in order to stimulate software development. Currently the gadget has a price tag of \$1500 or \$1600 (including taxes). Some lucky folks got a pair after winning the Google Glass. We assume that considering the success of the initial “public release” it won’t take long before average consumers will get their hands on such a marvelous piece of Google technology. We also expect that optics giants such as Zeiss to show their interest in producing high-end lenses for Google Glass.

Looks, Hardware And Specs

HOW DO THEY LOOK LIKE?

Google Glass resembles pretty much a normal pair of glasses without rims that feature a rather thick stem on the right part and a transparent rectangle in the front of your right eye. On the right side the On/Off button is also located as well as a LED indicator a micro USB port used for charging and a button that can be used to activate the camera shutter. The power juice comes right from behind your ear. On the right stem (the outside part) a touch sensitive area was also incorporated which you can use to zoom in or out or scroll.

THE TECHNOLOGY INVOLVED

The Screen

The screen is located in the right corner not quite in front of your right eye but between your eyebrow and your upper lid. The screen measures 0.75 inch deep, 0,375 inch wide and 0,375 inch tall. You just need to look a little bit up and you’ll notice right away the wonderful display zone.

Can you move the screen on the left side?

Currently no, but since this is only a developer only release we tend to believe that this will be possible after the official public release somewhere in 2014.

What can we use Google Glass display for?

You can use it to view the search results you requested via voice command, read all sorts of texts and pretty much everything Google Glass does comes up one the screen.

The screen is advertised to have a high-res display that can be compared with a high definition 25 inch TV seen from a distance of no more than eight feet. The screen measures between its diagonals no more than 1/2 inches. The images projected in front of you are very clear and spicy if seen against a dark background and tend to lose quality if gazed against a piece of white paper.

How is Google Glass Controlled?

Glass is controlled by two means: voice and touch. You start by addressing the gadget with "OK Glass" then an actual command like "Take A Photo" or "Record Video". The touch pad area is coupled with the voice command and you can tap it to scroll down, zoom in, and switch between "tabs" and so on. Tilting your head or shaking it won't change the way Glass is controlled. Moving your sight in the upper corner of the visual field (where the screen is located) will make it come to life.

What Is It Made Of?

The outside shell of the device is manufactured using strong plastic and titanium. Drop test is not recommended at this point considering its price tag and availability. Also keep in mind that Google Glass is not waterproof and liquid exposure will damage its internal components.

Google Glass Battery Life

Despite its producer claims that it will last for a full day, we managed to achieve five hours of intermittent use. This is quite fair considering we tested the hangout feature for almost an hour or so. We are nothing but certain that the final product will feature an improved battery life.

Glass Internal Storage

Currently the device comes with a total of 16 GB of internal storage as well as a cloud-sync feature. We found it more than enough. The total storage capacity available is around 12.5 GB (3.5 GB are probably used by its firmware)

Processor

Since no one managed to open it so far without damaging it or even tried as far as of now, we must rely on the statements of the Android developer who used a debugging utility to take a peek at the Google Glass processor specs. If his information is correct the Glass is powered by a Texas Instruments OMAP 4430 processor which was also used in the Amazon Kindle Fire.

GOOGLE AND THE 'APPLE EFFECT'

Products like Google Glass will certainly make augmented reality more accessible but mass adoption will ultimately be driven by quality content and useful implementations. If Google can replicate the Apple effect and make Glass an object of desire and a fashion statement, we can expect to see the young and trendy acting as unsuspecting ambassadors on the street. It will take a while but the possibilities are exciting.

RESOURCES:

<http://www.googleglass.gs/what-is-google-glass-faq-and-full-review/>

<https://www.redant.com/articles/design-and-build/augmented-reality-and-google-glass-technology-with-potential/>

<http://www.cloudsolutions.co.uk/google/how-google-glass-works/>