International Research Journal of Innovations in Engineering and Technology (IRJIET)

ISSN (online): 2581-3048

Volume 4, Issue 1, pp 38-41, January-2020

Study on Google Glass Technology

[1]Priti Dhanushkar, [2]Sujata Sahare, [3]Prof. A. M. Dwivedi

[1,2]P.G. Student, Final Year MCA, Department of MCA, VidyaBharti Mahavidyalaya, Amravati (M.S), India
[3]Professor, Final Year MCA, Department of MCA, VidyaBharti Mahavidyalaya, Amravati (M.S), India

***Abstract* - Google Glass interacts with the world via an Android operating system. Google Glass is a new updated technology that includes all Smartphone options and has an Internet connection. Virtual reality and augmented reality are the two most used functions. Google has developed a laptop computer called an optical head display. It works with voice commands and is useful for people with disabilities and people with disabilities. It consists of 4G technologies, the Android system, the tips of your eyes, smart clothes and a laptop.**

Keywords: Virtual Reality, Android System, Eye Tap, Wearable Computers.

I. Introduction

Google Glass is a technology that has been rumored for a long time. As the name suggests, Google Glass is a pair of puffy glasses and racked up by pimped out. I mean, it comes with a head mounted optical screen (OHMD) that allows the wearer to see and visualize the images projected from a small component on the glasses themselves.

Google Glass also has several other features: users can ask the question of the helmet, ask them for Google words, take photos and videos when their voice asks, get directions, display a GPS and even connect via a connection Wi-Fi Group web chats join the -Fi connection. Google Glass takes you to a whole new level of hands-free calling.

1.1 Google glass consists of four generations

- **First generation:** In this generation the use of television camera named as "analysis of glass" camera is located in the eye which will affect the eye for new hours in case of display integration.
- **Second generation:** The second generation is used to define the effect of camera.
- **Third generation:** This generation includes the control mechanism of focus in glass.
- **Fourth generation:** The problem which arises in focusing the lens is solved in this generation.

1.2 Features

1.2.1 Virtual Reality

Virtual reality is defined as an environment for developing the real reality of the user of the software. It is mainly used in the field of education and training for experienced sight and sound.

Figure 1: Features of Google glass

1.2.2 Augmented Reality

It defines direct or indirect living things in the real world. This technology is also used for audio, video, graphics and Internet navigation data for the global positioning of the system. It is easy to use and a useful technology that is used by all types of people. It is mainly used for browsing, socializing and networking purposes.

1.2.3 Display

Google glass uses a liquid crystal display, a sequential field color field and an LED-lit display. The circuit board reflects light and adapts to polarization at the locations of dynamic pixel sensors. The coupled PBS then reflects the 45-degree S-polarized light areas through the coupled beam splitter, which directs the collimated, light an additional 45 degrees into the wearer's eye.

1.2.4 Camera

Google Glass can take photos and videos. Google Glass offers the ability to take 5MP photos and record 720p HD

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videos. Glass Enterprise Edition 2 has an improved 8MP 80 FOV camera.

1.2.5 Touch Pad

A touchpad is in favor of Google Glass, which allows customers to control the gadget through a series of events, such as the onscreen user interface. If you swipe back, current events such as the weather are displayed. As you go along, past events such as phone calls, photos, circle updates, etc. displayed.

II. Technologies used in Google Glass

2.1 Wearable Computers

It is an electronic device and known as body borne computers. This technology is specified used in field of media and information technologies. It provides direct interaction between the user and the computer and no external device should be in on and off mode. It can perform several tasks at the same time (that is, this system can perform one or more tasks at the same time).

Figure 2: Wearable Computers

2.2 Android Operating System

Android is a Linux based operating system. It is commonly found in mobile devices and familiar in modern society. It is developed by Google in open handset alliance. The approximate calculation is found to be 700,000 apps available in play store that is available in android play store.

2.3 Bluetooth

Google Glass has the facility of communicating through Bluetooth. Google glasses can eliminate headphones because of the vibration through the headphones to the earpieces will distract or lower the level of communication.

2.4 Eye Tap

Acts as a camera for capturing picture and audios that is seen by the user. This eye tap is used to convert the user seen and the picture that is been captured by the user into the computer and will be useful for future reference.

2.5 Smart Clothing

It is a form of clothing that functions as an active device. For example, releasing chilled water vapor when it's technology and digital technology. Wearer is hot. It is a combination of fabric.

III. Working of Google Glass

The device makes use of Wi-Fi and Bluetooth technology to connect with the mobile phones. The video camera perceives the atmosphere and recognizes objects and people in the area. The full functionality of Google glasses depends on the voice commands of the user himself. In order to start hangout or share a photo, you only need to have a wireless connection and a Google+ account.

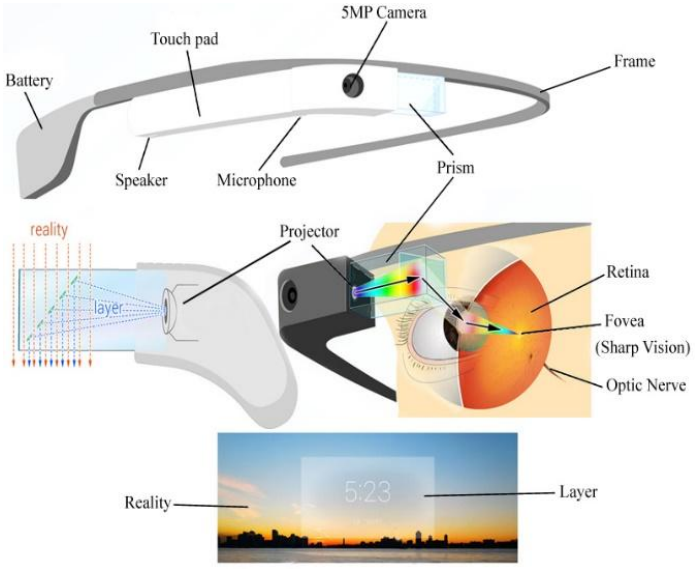

Figure 3: Working of Google Glass

The main feature of Google Glass is to place a virtual layer over the reality or augmented reality. Google Glass has a mini-projector which projects the layer directly on the retina with the help of a clever semi-transparent prism. This helps you to see a sharp and clear image even though it is too close. You can optimize the focus of Google Glass by moving it's front part. The layer that appears in the upper corner of the right eye is depending on the way you wear the Glass.

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IV. Application of Google Glasses

4.1 Recording Videos

Just say the word and Google Glass will take a picture or record a video, you will never have to touch the hardware. Photos and videos are saved to the device's 4 GB flash memory and can also be shared on social networking sites or sent via email.

4.2 Text messages

Google Glass will show you text messages as well as emails you receive and allow you to reply to them via voice commands.

4.3 Browsing

If you are in the habit of Googling things a lot, you will find that your task has been made easier by the new Glass. All you have to do is ask a question and the device will get the answer over the Internet. For example, you can ask when the Red Fort was built or show photos of the monument, and the device will give the appropriate answers on the small screen in front of your eye.

4.4 Translate

This is a neat feature that may come in handy when you travel abroad. You simply need to ask Google Glass to translate a phrase or sentence from one language to another and it will speak that out.

V. Advantages of Google Glass

- Portable headgear that allows people to have their hands free.
- We can record video and audio from the user's point of view.
- User can receive information and notifications on the Internet and social media without having to verify a phone or other mobile device.
- The screen is always in the user's field of vision.
- Information can be stored or accessed via cloud computing storage.

VI. Disadvantages of Google Glass

- Google Glass is currently only available to developers at a high cost, $1500.
- Recording function (audio, photo, video) could make others concerned about their privacy.
- Cloud computing storage of information from Google Glass could be used by Google or third parties, raising privacy concerned.
- Legal issues regarding some features, such as facial recognition software, are still unresolved.
- Overuse could adversely affect social relationship if people look at the screen rather than at each other.

VII. Conclusion

Google Glass is a fast developing technology. Even though it is sensible easy to use and found an easier way for wearing compared to normal glasses. This is a revolutionary technology that is introduced by Google. It is just an overview of Google glass. Through this use, people can understand that the technology is under development.

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AUTHOR BIOGRAPHIES

Priti R. Dhanushkar is pursuing MCA in Computer Science from Amravati, Maharashtra, India. I'm currently doing 5th semester project in PHP language. My interest of area is Cloud Computing Wireless Sensor Network (WSN), Network Security, Neural Network, Artificial Intelligence and MANET (Mobile Ad-Hoc Network).

Sujata D. Sahare is pursuing MCA in Computer Science from Amravati, Maharashtra, India. I'm doing my 5th semester project in PHP language. My interest of area in IT sector is in ethical hacking, network security, cyber security, cloud computing.

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Citation of this Article:

Priti Dhanushkar, Sujata Sahare, Prof. A. M. Dwivedi, "Study on Google Glass Technology" Published in *International Research Journal of Innovations in Engineering and Technology (IRJIET)*, Volume 4, Issue 1, pp 38-41, January 2020.

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