

A New Emerging Interface: Sorcerous User Interface SUI

Abdur Razzaq

MTB College Khalid Campus, Manthar Road Sadiq Abad, Punjab, Pakistan
mirzarazzaq@gmail.com

Abstract— In this document we want to introduce a new emerging, magical, supernatural, sorcery, enchanting interface of operating system. This interface will support the new developed and in future coming devices those use human gestures, mind scanning etcetera. This interface includes all types of input and output devices whose interaction make the people amazed.

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1. Introduction

There exist many user interface of operating to interact with machines if we search on the World Wide Web. The most famous are command line interface and graphical user interface. The user enters commands in the terminal to interact with operating system that was very tedious to remember commands along with their switches. In graphical user interface even the untrained user easily uses the devices due to its graphical objects like bars, menus icons, buttons, ribbons etc.

But in few years there appear some input or output devices which make the people amazed. These devices includes magic mouse, track pad and its gestures by Apple, touch screens and its gestures, Muse head band and many more which very enchanting devices for human. These new kinds of devices fall in the new category of user interface which we want to discuss in this paper. Now we want to discuss history of user interfaces, related work, and the latest interface in detail.

2. History of User Interfaces

In history there are many user interfaces like HMI Human Machine Interface which was changes from previous terminology MMI man machine interface. Other terminologies were used as HCI human computer interface, OIC operator interface console and OIT operator interface terminal. These were used for human interaction with machines like automobiles, control panels to operate machineries in industries. These are related with mechanical or electrical machines.

The user interface used in computing are many according to types of input and output devices. The main is graphical user interface abbreviated as GUI pronounces as “goe”. It is famous as WIMP; Windows, icons, mouse pointer. Before GUI, the mouse was not existed. In this type, tile bars, menu bars, standard tool bars, formatting tool bars, icons,

command buttons, radio buttons, check boxes and mouse click, double click, right click, drag and drop, mouse hover, scroll bars etc are used. This interface is further categorized as object oriented interface and application oriented interface.

Web based user interface or web user interface in which user clicks on a link of a web page, the request sent to the host containing page machine then page displayed on the user screen.

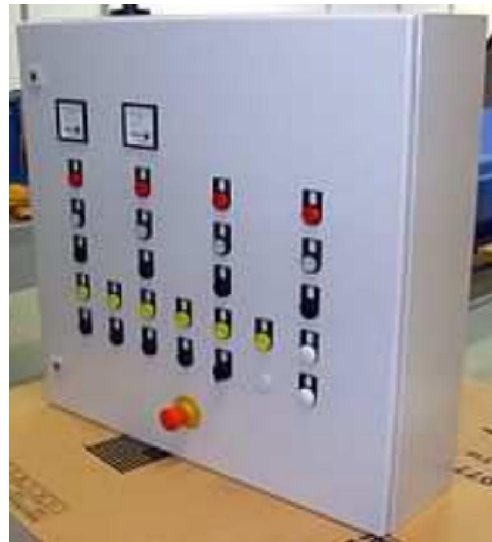


Fig. 1 HMI of sugar industry machine.

Touch user interface in which user taps on the sensitive surface of the screen of the device with finger or stylus, the input is accepted and processed.

Command line interface CLI, this is the first interface for users and still used by expert programmers. It is most famous interface. Two are the most famous CLI and GUI. In CLI the user types commands in the command prompt, the computer processes the input and then prints the result on the

screen. There are many other types we just write the names of those as follows [1].

- Attentive user interface
- Batch interfaces
- Conversational interface Agents
- Crossing based interfaces
- Gesture interfaces
- Intelligent user interfaces
- Motion tracking interfaces
- Multi-screen interfaces
- Non command user interfaces
- Reflexive user interfaces
- Tangible user interfaces
- Task-focused interfaces
- Voice user interfaces
- Natural language interfaces
- Zero input interfaces
- Zooming user interfaces
- Keyboard driven modeless user interface
- Menu driven interface

2.1 Batch Interface

This type of user interface was used extensively from 1945 to 1968. It was a non interactive interface. All commands and options were set by user in a batch and executed on the terminal and process was started

without any interruption or no prompting to user for any kind of input because all options were set prior.

2.2 Command Line Interface CLI

This type of interface was introduced in 1969 and still used because it is used by expert programmers. It was mostly used in time sharing systems. The early used operating system was MULTICS. In UNIX it was used in 1969. In earliest command line systems teletypes were used with computers. Teletypes were invented for automatic telegraph transmission and reception.

2.3 Graphical User Interface GUI

GUI was developed in 1981 and being used yet. The computer programs take advantage of graphics and make the programs easier to use. Excellent designed graphical interfaces can free the users from learning complex and tough commands. Microsoft Windows, Apple Macintosh and Ubuntu are famous operating systems.

The first graphical user interface was designed by Xerox Corporations Palo Alto Research Centre in the 1970s, but this interface was not popular till 1980. First time it was popularised by Apple and then by Windows.

TABLE I. DIFFERENCE BETWEEN CLI AND GUI

Sr. No.	Difference between command line interface and graphical user interface	
	CLI	GUI
1	Enables users to type commands in terminal or console to interact with OS	Uses graphics along with keyboard and mouse to interact with OS
2	Users respond to visual prompt by typing command on specified line and get response message from the system.	GUI provides windows, pull down menus, buttons, scroll bars, icons, wizards, and mouse which enable users to interact with OS or Applications.

2.4 Touch User Interface TUI

The touch user interface is like a printed paper which is pressure sensitive. When user touches the screen or displaying device it feels the touch and compares the actions stored in the database then execute appropriate command.

2.5 Gesture User Interface

Gesture are captured with the help of cameras and stored in the database. When user captures the gestures with the help of input devices, the devices have scanner or cameras to note gestures and the processor inside the device compares with database and performs action accordingly.



Fig. 2 Example of latest touch system in future

3. The Related Work

The work presented in the history of user interfaces is treated as related work. In the previous point we discussed many types of interfaces but all interfaces particularly represent one kind of interface. Only two

famous interfaces hold big domain. E.g command line interface supports commands at any kinds of machine like DOS, UNIX, or terminal/ command prompt of GUI systems.

Similarly GUI supports graphics related interface like menus, icons, ribbons and latest as metros. That is it also has big domain of characteristics.

My new proposed interface SUI, Sorcerous User Interface holds a big domain of all kind of latest devices which not interact with user with the help of commands or menus, icons etc. These kinds of devices we discussed in next point.

4. The Latest Devices

Now we discuss the latest devices coming in the market and the users do not interact with these devices by executing commands or accessing menus. There are many devices which enchanting the user. Some devices use gesture to interact with user but amazingly like the sixth sense device that we discussed bellow, google glass, and gestures of tracking pad, magic mouse and touch screens by Apple. These devices are supernatural, magical and sorcery. Now we discuss some of these devices which are emerged in this new era.

4.1 The Sixth Sense Device

The inventor of this device is Indian and his name is Pranav Mistry. He named it the sixth sense device [2], and explains his research as follows.

We want to interact with physical objects using latest interface like gestures. Inside the computer is digital world and outside of computer is physical world. And interface provides connection between these two worlds.

“objects ~ gestures”.

We communicate with computer with supernatural way as in the figure 3 bellow with gestures. Keyboard appeared on hand and just touching it input to the computer system which is amazing. Objects ~ how we use them. So he was very interested from the beginning that how can we leverage our knowledge about everyday objects and how we use them to our interaction with the digital world?



Fig. 3 Dialling phone number displaying on palm

Working:

Rather than using keyboard and mouse why can we not use our computer as the same way as we interact with the physical world. He started his research for controlling mouse pointer by hand symbols as gestures. He used two mouses and open it and put out rollers and use them in such a way the hand gestures are transferred in the computer. (Queries can also be used as a paper interface to common applications. A note that contains a question results in the answer being printed as a printer) as in figure 7. He used camera, mic and projector to introduce this kind of interaction between digital and physical worlds. He scan boarding card very easy for flight kit, a coffee cup so you can find more coffee, it can trace that so this was his early exposure inside to connect with outside.

This new system is too artificially intelligent that any person appearing before it, it recognizes as its profession. The figure 4 shows this activity. We captured this frame from video.



Fig. 4 A person coming before this system recognized as student

So the user just draw gesture of watch on forehead, the watch appears he can see the time as in figure 5 using this sixth sense device[2].



Fig. 5 watch on hand

He takes a piece of paper and wants to play game on paper. The sixth sense device displays game on paper, he just rotates paper to move the car in the game as in figure 6.



Fig. 6 Playing game on paper

So actually he wants to combine digital worlds and physical world. And this device is also connected with internet so when he picks a book, the system scans the book, searches audio version from internet and may have sound that we can hear book as on the physical book. Obama's last visit and see live his talk outside the newspaper. The newspapers in these days are on line. When we read news paper with help of this device it scans the picture from newspaper, searches its video from news channel and play video on the newspaper which is marvellous.



Fig. 7 printing document

We can offcourse watch movies. And when he play games and take data from computer, may some pictures on the paper screen like in fig 7 and touch print button on paper with finger the command sends to printer which prints hard copy of data.

4.2 Google Glass

This is an amazing, magical glass, connected with internet, and interacts with user without any command or any graphical object. It is also called a project glass. It is head mounted and shows information to user[3] without touching with hands that is hand free. It can take photographs, make videos and display in front of eye. It has WiFi connection to remain connected with internet for surfing.



Fig. 8 The Google Glass

Google glass is a wearable small gadget[4], it is the next version of android presenting next era of mobile computing. While capturing images there is no need to touch the hardware. We can send emails to our friends. It has memory to store data and messages etc.

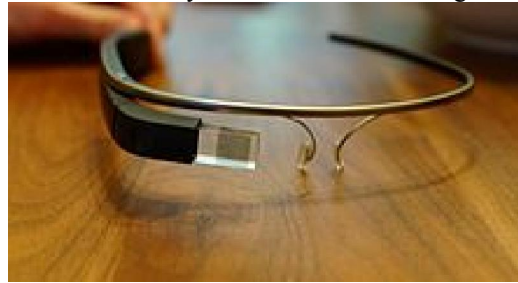


Fig. 9 The Google Glass

To search the information from internet we can just ask verbally the Google Glass will find the data from internet and display before our eyes. We want to say that no command, no GUI, then what's? This is the new proposed interface. It also incorporated with map to take help, can send videos of anniversaries to friends, family members.

GLASS

Fig. 10 The monogram of Google Glass

The Google glass notes the daily routines of the owner and helps in different scenarios like if there is rush on a road it suggests choosing different route with less congestion [4]. We can communicate in many languages with help of Google translate feature included in the Glass.

Working:

The Google glass uses camera, touchpad and voice recognition for interaction between user and glass.

4.3 Muse Head Band

A few months ago hot news appeared on CNN about the latest mind reading device the Muse Head Band [5]. It has four sensors to detect mind waves and extract information from these waves. What you think

in your mind could be applied in computer like changing the font of text, playing games on computer without any physical interaction. We can reduce our brain stress just with the help of this Head Band.

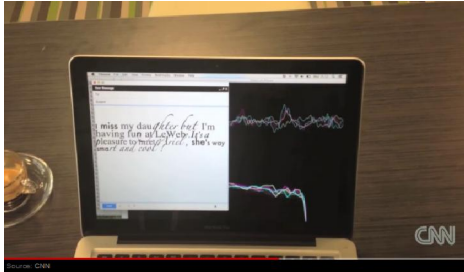


Fig. 11 The brain waves detected by Head Band and font changed due to just thinking.

The above [11] figure shows the tracks of brain waves with the help of Head Band. The font of typed txt automatically changed just by coming idea in mind.



Fig. 12 The Muse Head Band.

The Muse Head Band can communicate with avatars, the developers claimed [5]. Now what is this kind of gadget? This is the new proposed interface through which it interacts with the user.

5. Conclusion

In this paper we tried to present the supernatural, magical, amazing, emerging, and sorcery devices of current and future era. There are many new devices and ideas in the world which do not interact with the user with traditional kind of user interfaces. We introduce new category of interface SUI, which provide new emerging interface.

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