

# User Interface- A Comparative Study

Nikita .S. Ranadive<sup>1</sup>, Prof. Ashok Suryavanshi<sup>2</sup>

Department of ECE

<sup>1</sup>ME Student, Pimpri Chinchwad College Of Engineering, Pune

<sup>2</sup>Professor, Pimpri Chinchwad College Of Engineering, Pune

**Abstract-** User interface is nothing but the interaction between user and machine/device. User provides some input with the help of user interface and accordingly user get the output. User interface should be designed in such a way that it should be easy to understand, speedy execution of operations and user should enjoy. User interface is for every device may be it is a mobile phone, tab, personal computer or house hold appliance like washing machine, television, refrigerator and many more. In industrial sector it plays important role.

**Keywords-** Touch screen, GUI, Button type

## I. INTRODUCTION

The user interface (UI), in the industrial design field of human-machine interaction, is the space where interactions between humans and machines occur. The goal of this interaction is to allow effective operation and control of the machine from the human end, mean while the machine simultaneously feeds back information that aids the operator's decision-making process. Examples of this broad concept of user interfaces include the interactive aspects of computer operating systems, hand tools, heavy machinery operator controls, and process controls.

Generally, the goal of user interface design is to produce a user interface which makes it easy (self-explanatory), efficient, and enjoyable (user-friendly) to operate a machine in the way which produces the desired result. This generally means that the operator needs to provide minimal input to achieve the desired output, and also that the machine minimizes undesired outputs to the human.

## II. RESEARCH FOR DIFFERENT TYPES OF USER INTERFACE

User interface is classified as follows

### 1. GUI

In computer science, a graphical user interface is a type of user interface that allows users to interact with electronic devices through graphical icons and visual indicators such as secondary notation, instead of text-based user interfaces, typed command labels or text navigation.

The actions in a GUI are usually performed through direct manipulation of the graphical elements. Beyond computers, GUIs are used in many handheld mobile devices such as MP3 players, portable media players, gaming devices, smart phones and smaller household, office and industrial controls. The term GUI tends not to be applied to other lower-display resolution types of interfaces, such as video games (where head-up display (HUD) is preferred), or not restricted to flat screens, like volumetric displays because the term is restricted to the scope of two-dimensional display screens able to describe generic information, in the tradition of the computer science research at the Xerox Palo Alto Research Center (PARC)



Figure1. Example of a GUI

### 2. Button type



Figure 2 Example of Button type

Button type UI, were used in order to control various machinery before touch screen. Various electronic instrument like control panel for machineries in industries are button type.

Combination of GUI and touch screen is also used in various video games an control panels. Touch screen makes the user interface compact in size

**3.Touch Type**



Figure 4.3 Example of touch screen type UI

The touchscreen enables the user to interact directly with what is displayed, rather than using a mouse, touchpad, or any other intermediate device (other than a stylus, which is optional for most modern touchscreens). Touchscreens are common in devices such as game consoles, personal computers, tablet computers, electronic voting machines, and smartphones. They can also be attached to computers or, as terminals, to networks. They also play a prominent role in the design of digital appliances such as personal digital assistants (PDAs) and some e-readers.

Comparison in between the user interface

	GUI	Button Type	Touch Type
Compon ents	Windows, ic ons, and menus	Buttons, sliders, rotating knobs, pushbuttons	Touch
Size	GUI is compact in size physically but requires more memory	It captures the maximum physical area, it requires more human effort for building this type of UI	Compact in size
Power	Power Utilization is maximum	Power Utilization is maximum	Less power Utilization

By comparing three types of user interface touch screen type user interface is cost effective, operations are easy and no training is required for touch screen user interface, even a one year old can use it.

**III. CONCLUSION**

GUI, button type and touch screen based user interface are widely used. By comparing three types of user interface touch screen type user interface is cost effective, operations are easy and no training is required for touch screen user interface, even a one year old can use it.

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