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D3 – Graphical user interface design document: Abstract

To work with a system, users have to be able to control the system and assess the state of the system. For example, when driving an automobile, the driver uses the steering wheel to control the direction of the vehicle, and the accelerator pedal, brake pedal and gearstick to control the speed of the vehicle. The driver perceives the position of the vehicle by looking through the windscreen and exact speed of the vehicle by reading the speedometer. The *user interface of the automobile* is on the whole composed of the instruments the driver can use to accomplish the tasks of driving and maintaining the automobile. The term *user interface* is often used in the context of computer systems and electronic devices. The user interface of a mechanical system, a vehicle or an industrial installation is sometimes referred to as the **human-machine interface (HMI)**. HMI is a modification of the original term MMI (man-machine interface). In practice, the abbreviation MMI is still frequently used although some may claim that MMI stands for something different now. Another abbreviation is HCI, but is more commonly used for human-computer *interaction* than human-computer *interface*. Other terms used are operator interface console (OIC) and operator interface terminal (OIT).

However it is abbreviated, the terms refer to the 'layer' that separates a human that is operating a machine from the machine itself. In science fiction, HMI is sometimes used to refer to what is better described as direct neural interface. However, this latter usage is seeing increasing application in the real-life use of (medical) prostheses—the artificial extension that replaces a missing body part (e.g., cochlear implants).

The system may expose several user interfaces to serve different kinds of users. For example, a computerized library database might provide two user interfaces, one for library patrons (limited set of functions, optimized for ease of use) and the other for library personnel (wide set of functions, optimized for efficiency). In some circumstance computers might observe the user, and react according to their actions without specific commands. A means of tracking parts of the body is required, and sensors noting the position of the head, direction of gaze and so on have been used experimentally. This is particularly relevant to immersive interfaces.

Human interface guidelines (HIG) are software development documents which offer application developers a set of recommendations. Their aim is to improve the experience for the users by making application interfaces more intuitive, learnable, and consistent. Most guides limit themselves to defining a common look and feel for applications in a particular desktop environment. The guides enumerate specific policies. Policies are sometimes based on studies of human-computer interaction (so called usability studies), but most are based on arbitrary conventions chosen by the platform developers.