

INPUT DEVICES:

A few types of input devices are used to provide a means of communication between computer and outside world. The input devices translate given information into a form in which computer can understand. The input system or devices convert information into a series of signals. Each signal is merely a presence or absence of voltage or current. In binary number system, it is represented by a series of 0's and 1's.

KEYBOARD:

The main communicator with computer is keyboard. The data and other instructions can be inputted by typing at keyboard. The keyboards come in plenty and each new model introduces with making new features making it easier than before. The keyboard may be divided into two groups as:

1. Alphanumeric Keypad
2. Numeric Keypad
3. Function Keypad
4. Special Function Keypad

- **ALPHANUMERIC KEYPAD:**

This is the main part of the keyboard. By using this keypad letters a to z, A to Z, numbers 0 to 9 and special characters like ~ ! @ # \$ % ^ & * () _ etc. may be typed. Many of these characters are typed by holding shift key any type of data can be entered through this keypad.

- **NUMERIC KEYPAD:**

The numeric keypad is located on the right side of the keyboard. When "num lock" key is pressed then the numbers on the numeric keypad can be used to enter numeric data. The indication for num lock is displayed at the upper position of the numeric keypad in the form of a lighting LED (Light Emitting Diode). When the num lock key is off (Simply pressed to turn on), the keys marked with Arrows, Home, End, Pg Up, Pg Dn, Insert and Del can be used.

- **FUNCTION KEY:**

In the enhanced keyboard a set of twelve keys (marked as F1 to F12) is located at the top of the keyboard. In older keyboards this function keypad is located on the left with only ten keys. All of these keys have pre-defined meanings which depend on the application software. In GWBASIC these function keys perform the following operations.

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F1	LIST
F2	RUN
F3	LOAD
F4	SAVE
F5	CONT
F6	LPT1
F7	TRON
F8	TROFF
F9	KEY
F10	Screen 0, 0, 0
F11	(Not Used In GWBASIC)
F12	(Not Used In GWBASIC)

- **SPECIAL FUNCTION KEYPAD:**

When num lock is turn on, the keys on the numeric keypad such as arrow, Home, End, Pg Up, Pg Dn, Insert and Del are disabled. Only to facilitate the user, a duplicates set of there keys is pleased between alphanumeric keypad and numeric keypad. Some other special function keys are spared on keyboard like Ctrl (Control), Alt (Alternate), Esc (Escape), Caps Lock (for Capitals Letters), Print Screen, Scroll Lock, Pause, etc. The Alt (Alternate Key) acts like Shift key. Many ASCII (American Standard Code Information Interchange) characters are not found on the keyboard, but they could be entered by holding Alt key and typing ASCII code on the numeric keypad.

MOUSE:

A device that controls the movement of the cursor or pointer on a display screen . A mouse is a small object you can roll along a hard, flat surface. Its name is derived from its shape, which looks a bit like a mouse, its connecting wire that one can imagine to be the mouse's tail, and the fact that one must make it scurry along a surface. As you move the mouse, the pointer on the display screen moves in the same direction. Mice contain at least one button and sometimes as many as three, which have different functions depending on what program is running. Some newer mice also include a *scroll wheel* for scrolling through long documents.

Invented by Douglas Engelbart of Stanford Research Center in 1963, and pioneered by Xerox in the 1970s, the mouse is one of the great breakthroughs in computer ergonomics because it frees the user to a large extent from using the keyboard. In particular, the mouse is important for graphical user interfaces because you can simply point to options and objects and click a mouse button. Such applications are often called *point-and-click* programs. The mouse is also useful for graphics programs that allow you to draw pictures by using the mouse like a pen, pencil, or paintbrush.

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There are three basic types of mice:

MECHANICAL: It has a rubber or metal ball on its underside that can roll in all directions. Mechanical sensors within the mouse detect the direction the ball is rolling and move the screen pointer accordingly.

OPTOMECHANICAL: Same as a mechanical mouse, but uses optical sensors to detect motion of the ball.

OPTICAL: Uses a laser to detect the mouse's movement. You must move the mouse along a special mat with a grid so that the optical mechanism has a frame of reference. Optical mice have no mechanical moving parts. They respond more quickly and precisely than mechanical and opt mechanical mice, but they are also more expensive.

JOYSTICK:

A joystick is an input device commonly used to control video games. Joysticks consist of a base and a stick that can be moved in any direction. The stick can be moved slowly or quickly and in different amounts. Some joysticks have sticks that can also be rotated to the left or right. Because of the flexible movements a joystick allows, it can provide much greater control than the keys on a keyboard. Joysticks typically include several buttons as well. Most joysticks have at least one button on the top of the stick and another button in the front of the stick for the trigger. Many joysticks also include other buttons on the base that can be pressed using the hand that is not guiding the stick. Joysticks typically connect to your computer using a basic USB or serial port connection and often come with software that allows you to assign the function of each button.

SACNNER:

A computer scanner optically scans an object such as a document and converts the information into a digital image. Every scanner has a variety of specifications, including resolution, color depth and speed. These specifications will help you determine the best use for the scanner. For example, some scanners are very efficient, which may be useful in a business setting, and others are capable of capturing high quality images, which is ideal for the commercial industry.

HISTORY: The computer scanner has been around for several decades. The technology was developed during the 1950s by the National Bureau of Standards, now called the National

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Institute of Standards and Technology, an agency of the United States Department of Commerce. The team that worked on the first computer scanner was led by Russell Kirsch. In 1957, Kirsch was the first person to scan a picture, a grainy, grayscale image of his son. The device developed by NBS is known today as a drum scanner.

TYPES: There are several different types of computer scanners available today. Flatbed scanners are popular and commonly purchased by home users. Sheet-fed scanners are similar to flatbed scanners but allow the user to scan multiple pages at a time. This type of scanner is for business applications. Drum scanners are generally used for commercial purposes. This type of device is more expensive but capable of producing high quality images.

FUNCTION: Flatbed scanners feature a glass panel where a document or other item is placed during scanning. There is a light and a scan head located below the surface of the glass. The light illuminates the document while the scan head moves across the surface. The information that is collected during the scan is transferred back to a computer in the form of a digital image. A sheet-fed scanner works in a similar way. This type of device has a stationary scan head. When documents are mechanically fed through the scanner, they pass over the scan head and the digital image is captured. Drum scanners feature a clear drum which documents are attached to. The drum rotates at high speeds in front of an optical sensor.

TRACK BALL:

A trackball is an input device used to enter motion data into computers or other electronic devices. It serves the same purpose as a mouse, but is designed with a moveable ball on the top, which can be rolled in any direction. Instead of moving the whole device, you simply roll the moveable ball on top of the trackball unit with your hand to generate motion input.

Trackballs designed for computers generally serve as mouse replacements and are primarily used to move the cursor on the screen. Like mice, computer trackball devices also include buttons, which can serve as left-click and right-click buttons, and may also be used to enter other commands. While trackballs are most commonly used with computers, they may also be found in other electronics, such as arcade games, mixing boards, and self-serve kiosks. These devices often have trackballs that are larger than the ones used in computer input devices.

Besides the capability to be built into various devices, trackballs have a number of other advantages over mice. Some advantages include the small footprint (since they don't

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require a mouse pad or large area to move the mouse), fingertip control (which may offer more accuracy), and improved ergonomics (since there is less strain on the wrist). Still, many people find trackballs harder to use than mice, since they feel less natural and may require practice to get used to. For this reason, the vast majority of computers include a mouse, rather than a trackball, as the default input device.

LIGHT PEN:

A light pen is a device similar to a touch screen, but is facilitated by use of a special light sensitive pen instead of the finger. The advantage of using a pen is more accurate screen input than possible with a touch screen, also a light pen needs no special screen but can work with any CRT-based monitor. However, light pens cannot work with LCD screens, projectors etc.

A light pen is fairly simple to implement, but is rather dependent on the video hardware which drives the display. This is one reason it fell out of use - it would require a special port on every video display card, whereas the mouse can be implemented solely in software. In addition, ergonomic factors favor the mouse - it can be tiring to operate a computer using a light pen over long periods. The light pen works by sensing the sudden small change in brightness of a point on the screen when the electron gun refreshes that spot. By noting exactly where the scanning has reached at that moment resolves the X, Y position of the pen. This is usually achieved by making the light pen cause an interrupt, at which point the scan position can be read off from a special register, or computed from a counter or timer. The pen position is updated on every refresh of the screen. Light pens operate best with relatively slow-scanning displays of low resolution, such as a television screen.

The light pen became moderately popular during the early 1980s. It was notable for its use in the Fairlight CMI, and the BBC Micro. However the light pen's usage greatly declined later in the decade with the adoption of mouse-based WIMP interfaces as well as changes in monitor technology. The first light pen was used around 1957 on the Lincoln TX-0 computer at the MIT Lincoln Laboratory.

VOICE SYNTHESIZERS:

A speech (or voice) synthesizer engine is software that converts the textual information encoded by a screen-reader and feeds it to the soundcard for oral reproduction. Under control of the screen-reader software, voice-synthesizers can vary the rate, pitch, volume and language of the information. Early models of voice synthesizers were external boxes which acted in much the same way soundcards do today. Some of these units are still sold. In the case of a dedicated communicator (a portable speech box), the entire unit is often referred to as a voice synthesizer. It converts the textual information encoded by a screen-reader and reproduces it orally through a built-in or external speaker.

MICROPHONE:

A microphone, sometimes called a "mic" (pronounced "mike"), is a device that converts sound into an electrical signal. Microphones are used in many applications such as telephones, tape recorders, hearing aids and in radio and television broadcasting.

The invention of a practical microphone was crucial to the early development of the telephone system. Emile Berliner invented the first microphone on March 4, 1877, but the first useful microphone was invented by Alexander Graham Bell. Many early developments in microphone design took place in Bell Laboratories.

In all microphones, sound waves (sound pressure) are translated into mechanical vibrations in a thin, flexible diaphragm. These sound vibrations are then converted by various methods into an electrical signal which varies in voltage amplitude and frequency in an analog of the original sound. For this reason, a microphone is an acoustic wave to voltage modulation transducer.

DIGITAL VIDEO CAMERA:

A digital camera is another hand-held,, portable input device that takes picture as input.

Normal cameras capture pictures on a special coated film: while digital camera captures images electronically without the need of a film. The camera stores the snapshots in its memory then user can copy them into a computer; these images can be edited, printed or copied in a documented.

DISK DRIVE:

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Disk drive is a peripheral device that reads or writes the disk (hard disk, floppy disk etc) that stores information. Disk drive is called "storage devices" because they store information on portable or permanent disk. The drive contains a motor to rotate the disk at a constant rotate and one or more read/write heads, which are positioned over the desired track. When the disk drive is used to read some data from a disk, it will fall in the category of input device. While during writing on to the disk, it will be considered as a output device.