ONLINE
SUPPROT SERVICES

CERTIFICATE IN
INFORMATION TECHNOLOGY

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INPUT DEVICES

Input devices are used to accept data from user. Then, they convert this data into machine format. Thus, these devices creates link between user and computer. Examples of input devices are keyboard, mouse, scanner etc. The commonly used input devices are described below:

Keyboard:

Keyboard is the most common input device. It is a standard input device. It is generally used to enter text data into the computer. When we press a key from the keyboard, it generates an electric pulse. It is then fed into computer as input. Keyboards allow us to input letters, numbers, and other symbols.

There are two common layouts of keys on the keyboard. These are QWERTY layout and DVORAK layout. There are many keys on these keyboards. Generally, keyboards have 104 or more keys. Multimedia keyboards have many more keys. These keys can be classified into many types:

a) Alphanumeric keys
b) Function Keys
c) Special Keys
d) Arrows Keys
e) Numeric Key Pad Keys

The Alphanumeric Keys: These keys includes alphabets (A-Z or a-z), digits (0-9) and special symbol keys <, >, ?, *, #, :, ", | etc.

The Function Keys: A keyboard has 12 function keys From F1 to F12. Each key has a specific function. For Example: F1 function key is used to display window help.

The Special Keys: These keys include Enter Key, Backspace Key, Delete key, Caps Lock, Num Lock, Ctrl Key, Alt Key, Shift Key etc.

Arrows Keys: These keys are used to move the cursor

Numeric Key Pad Keys: These keys are used during numeric operations

Mouse:

Mouse is another most common used input device. It is a cursor-control device. It is used to control cursor (arrow) at the screen. Mouse can't be used to enter text. There are two or three buttons on the mouse. Pointer arrow moves on the screen when mouse is rolled over a flat surface.

A mouse can be optical or mechanical. **Optical mouse** is based on the laser technology. **Mechanical mouse** has a round ball at the bottom. Following operations can be performed with mouse:

- Click (Left Click),
- Right Click,
- Double Click and
- Click &Drag

Joystick:

A joystick is an input device. It is commonly used to play video games. Joysticks consist of a base and a stick. This stick can be moved in any direction. The stick can be moved slowly or quickly. Joysticks include many buttons. Most joysticks have at least one button on the top of the stick and another button in the front of the stick. Joystick connects with the computer using a USB (Universal Serial Bus) connection.

Scanner:

Scanner is an input device. It is used to scan images. These images are then stored in the computer memory. A scanner can read data from different sources. These sources may be a text document, image, graphs etc. Scanner connects with the computer using a USB (Universal Serial Bus) connection. The Scanner can be **flatbed or handheld**.

Flatbed scanner:
A flatbed scanner is like a photocopy machine. It consists of a box. This box has a glass plate on its top. A lid covers this glass plate. The document to be scanned is placed on this glass plate.

Handheld scanner:
These scanners are small hand-held devices. These scanners are moved across the paper. These scanners are usually used to scan small pictures and photos.

Trackball:

A trackball is an input device. It is a pointing device. It performs the function of a mouse. It is mostly used in notebook or laptop computers. It is a half inserted ball. To move the pointer arrow, we move the fingers on this ball. Trackballs also have buttons like mouse. A trackball has some advantages over mouse. These are:

- It is stationary
- It requires less space
- It's size is compact
- It is most suitable for portable computers

Touch screen:

Touch screen is the simplest input device. It is easiest to learn. Although touch screen is a display screen but it also serves as an input device. Touch screen has a touch-sensitive transparent panel. This panel covers the entire screen. A touch screen gets input when an object comes in contact with the screen. When some object is touched with the screen, the wave signals get interrupted. This interrupted location is recorded as input. Tablets, smart phones and ATMs are the good examples of Touch Screens.

Light Pen

Light Pen is another useful input device. It is a pointing device. It is used to select a displayed menu item. It can also be used to draw pictures on the screen. It consists of a photocell and an optical system34. These components are placed in a small tube. When its tip is moved over the monitor screen and pen button is pressed, its photocell sensing element detects the screen location. This location is then sent to CPU as input.

Digitizer

Digitizer is another useful input device. It is used for converting pictures, maps and drawing into digital form. The digitizer is an operator input device. It consists of a large smooth board and an electronic tracking device. The tracking device contains a switch. This switch is used to record the x and y coordinates positions. These coordinates are then stored in the computer.

Speech or Voice Recognition Devices

It is one of the newest input techniques. Speech recognition / Voice recognition is a computer software program or hardware device. It has the ability to decode the human voice. The user can input data by speaking. Microphone is used to input sound into computer system. A Microphone receives human voice.

Voice recognition is commonly used to operate a device. It can be used to perform commands. It can also be used to write without a keyboard. These systems work by matching input voice with set of words. These systems are mostly user dependent. Only those users are recognized by the system who gets the training with the system by speaking.

Advantages:

- These are more efficient input device
- These are easy to use
- Unauthorized speakers can be identified.
- Gift for blind and handicapped people

Disadvantages:

- These systems have very limited vocabulary.
- These systems are specific user-dependent.

OPTICAL RECOGNITION DEVICES:

These input devices are based on the optical systems. They use laser technology for data input. There are many optical reorganization devices. Commonly used are: OMR, OCR, OBR, MICR. These are explained below:

Optical Mark Reader (OMR):

It is an optical scanner input device. It is used to recognize a pre-specified type of marks. These marks are made by pencil or pen. OMR sheets are commonly used in the examination system. For example, in the objective type examination systems, students mark their answers on the OMR sheet. These OMR sheets are checked using OMR devices. In OMR system, a beam of light is directed onto the sheet. The beam is reflected from the surface to a light sensor. When a mark passes under the beam, light is reflected back. If light is reflected back then the presence of a mark is recorded.

Optical Character Recognition (OCR):

It is also an optical scanner input device. Most OCR systems are the combination of hardware and software. It is used to read a printed text. OCR scans printed text character by character. Then it converts them into a machine readable code. These codes are then stored in the computer memory.

OCR devices scan each character as a set of pixels. After scanning the character, it is compared with the standard fonts. If scanned character is matched, it is stored otherwise it is rejected.

Magnetic Ink Character Recognition (MICR):

It is also an optical scanner input device. These devices are mainly developed for banking industry. These devices are used for processing the cheques in banks. Some codes are printed on cheques using the special magnetic ink. These codes contain bank's identification code and the customer's account information. When the cheque is presented at the bank, it is processed using MICR.

Optical Bar-Code Reader (OBR or BCR):

It is also an optical scanner input device. It is used for reading bar-coded data. This code appears on almost all retail packages. These bars are decoded as 10 digits. The first five digits identify the supplier of the product. The last five digits identify the product details. This detail includes product code and price etc. The most widely known bar code is the Universal Product Code (UPC).