CSCA0101
COMPUTING BASICS

Chapter 3
Input Devices

Topics:

- Input Devices

- Examples of Input Device

- Keyboard

- Pointing Devices

- Graphic and Video Input Devices

- Audio Input Devices

Input Devices

Input Devices

- Any peripheral (piece of computer hardware equipment) used to provide data and control signals to a computer.

- Allows the user to put data into the computer.

- Without any input devices, a computer would only be a display device and not allow users to interact with it.

Input Devices

Examples of Input Device

- Keyboard

- Mouse

- Touchscreen

- Graphic tablet

- Microphone

- Scanner

Input Devices

Keyboard

- One of the primary input devices used with a computer.

- The **keyboard** looks very similar to the keyboards of electric typewriters, with some additional keys.

- Keyboards allow a computer user to input letters, numbers, and other symbols into a computer

- Uses an arrangement of buttons or keys.

- Requires pressing and holding several keys simultaneously or in sequence.

Input Devices

Keyboard

Types of Keyboard

Standard

- Desktop computer keyboards, such as the 101-key US traditional keyboards or the 104-key Windows keyboards, include alphabetic characters, punctuation symbols, numbers and a variety of function keys.

Input Devices

Types of Keyboard

- Standard

- Laptop

- Gaming and Multimedia

- Thumb-sized

- Virtual

- Foldable

Types of Keyboard

Laptop Keyboard

- The laptop computer keyboard is a small version of the typical QWERTY keyboard.

- A typical laptop has the same keyboard type as a normal keyboard, except for the fact that most laptop keyboards condense the symbols into fewer buttons to accommodate less space.

Types of Keyboard

Gaming and Multimedia Keyboard

- The gaming keyboards are designed for the convenience of the gamers and these types of keyboards provide the required controls on the keyboards like back lighting.

Types of Keyboard

Thumb-sized keyboard

- Smaller external keyboards have been introduced for devices without a built-in keyboard, such as PDAs, and smartphones.

- Small keyboards are also useful where there is a limited workspace.

Input Devices

Types of Keyboard

Virtual Keyboard

- The virtual keyboards are not actually physical keyboards, but they are simulated using a software.

Types of Keyboard

Foldable Keyboard

- Foldable keyboards are extremely good for travelling.
- Simply roll them up and then unroll them when you need them again.

Input Devices

Keyboard Layouts

- QWERTY
- QWERTZ
- AZERTY
- DVORAK

Input Devices

Keyboard Layouts

QWERTY

- Common layout

Input Devices

Keyboard Layouts

QWERTZ

- Used in Germany, Hungary and Czech Republic

Input Devices

Keyboard Layouts

AZERTY

- It is used by most French speakers based in Europe

Input Devices

Keyboard Layouts

DVORAK

- Alternative for QWERTY

- Dvorak layout uses less finger motion, increases typing rate, and reduces errors compared to the standard QWERTY
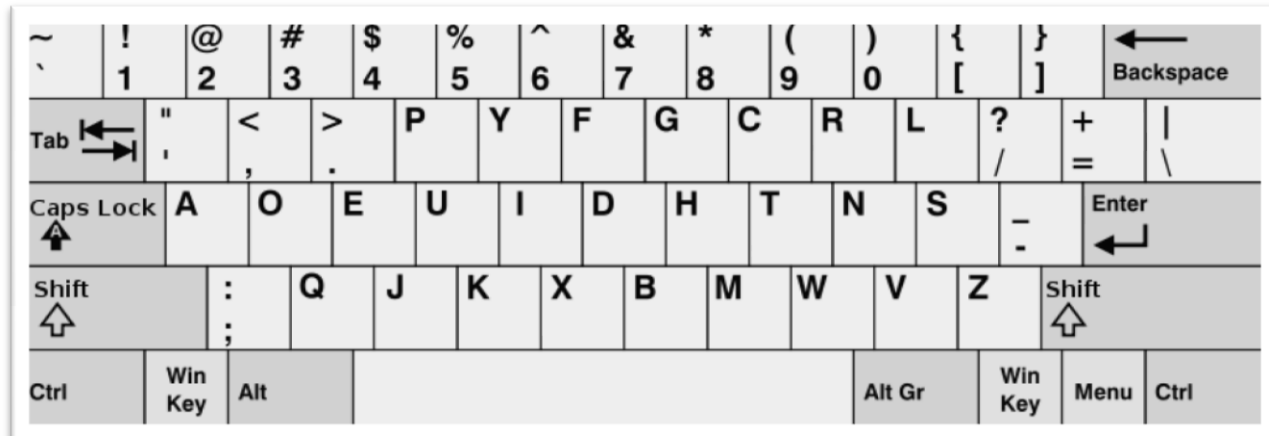
Key Types

Key Type	Example
Alphanumeric	A-Z, 0-9
Punctuation	. , ! " ?
Modifiers	Shift, Space Bar, Enter, Ctrl, Alt
Navigation	Arrows, Home, Page Up
System Command	PrtScn, Esc, F1, Start

Input Devices

Key Types

Function keys

- The Function keys or F1 through F12 keys are used in programs as shortcut keys to performed frequently performed tasks.

- For example, the F1 key is the key to open the online help for most programs.

Key Types

Control Keys

- The Control keys are what give you additional control of a document.

Input Devices

Key Types

Keypad

- Although not available on all computer keyboards, especially laptops; the keypad gives the user a quick access to numbers and math functions such as plus, divide, times, and subtract.

Input Devices

Key Types

Arrow keys

- The arrow keys are four directional arrow keys that allow the user to move their cursor and position on a page.

Input Devices

Keyboard Shortcut Keys

Shortcut Keys	Description
Alt + F	File menu options in current program.
Alt + E	Edit options in current program
F1	Universal Help in almost every Windows program.
Ctrl + A	Select all text.
Ctrl + X	Cut selected item.
Shift + Del	Cut selected item.
Ctrl + C	Copy selected item.
Ctrl + Ins	Copy selected item
Ctrl + V	Paste
Shift + Ins	Paste
Ctrl + P	Print the current page or document.
Home	Goes to beginning of current line.
Ctrl + Home	Goes to beginning of document.
End	Goes to end of current line.
Ctrl + End	Goes to end of document.
Shift + Home	Highlights from current position to beginning of line.
Shift + End	Highlights from current position to end of line.
Ctrl + Left arrow	Moves one word to the left at a time.
Ctrl + Right arrow	Moves one word to the right at a time.

Input Devices

Pointing Devices

- A **pointing device** is a hardware input device that allows the user to move the mouse pointer to select items on a display screen.

- Types of pointing device:
  - Based on rolling a ball
  - Based on touching a surface
  - Based on moving stick

Input Devices

Pointing Devices

Based on rolling a ball

- Example:
  - Mouse
  - Trackball

Input Devices

Pointing Devices

Mouse

- A device that controls the movement of the cursor or pointer on a display screen.

- The mouse is important for graphical user interfaces because user can simply point to options and objects and click a mouse button.

Input Devices

Pointing Devices

Type of Mouse

- **Mechanical:** Has a rubber or metal ball on its underside that can roll in all directions.

- **Optical:** Uses a laser to detect the mouse's movement.

Input Devices

Pointing Devices

Trackball

- A trackball is a mouse lying on its back.

- To move the pointer, you rotate the ball with your thumb, your fingers, or the palm of your hand

- It does not require much space to use it

Pointing Devices

Based on touching a surface

- Example:
  - Touchpad
  - Graphic tablet
  - Touch screen
  - Light pen
  - Stylus

Input Devices

Pointing Devices

Touchpad

- A small, touch-sensitive pad used as a pointing device on some portable computers.

- By moving a finger or other object along the pad, you can move the pointer on the display screen.

Pointing Devices

Graphic Tablet

- A graphics tablet (or digitizer, digitizing tablet, graphics pad, drawing tablet) is a computer input device that allows one to hand-draw images and graphics, similar to the way one draws images with a pencil and paper.
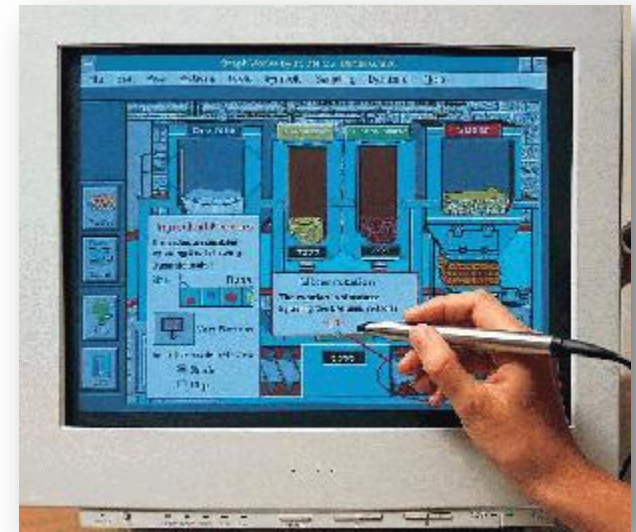
Input Devices

Pointing Devices

Touchscreen

- A **touchscreen** is an electronic visual display that can detect the presence and location of a touch within the display area.

- The term generally refers to touching the display of the device with a finger or hand.

Input Devices

Pointing Devices

Light Pen

- A **light pen** is a computer input device in the form of a light-sensitive wand used in conjunction with a computer's CRT display.

- It allows the user to point to displayed objects or draw on the screen in a similar way to a touchscreen but with greater positional accuracy.

Input Devices

Pointing Devices

Stylus

- A stylus is a small pen-shaped instrument that is used to input commands to a computer screen, mobile device or graphics tablet.

Pointing Devices

Based on moving stick

- Example:
  - Joystick
  - Gamepad

Input Devices

Pointing Devices

Joystick

*   A **joystick** allows an individual to move an object in a game such as navigating a plane in a flight simulator.

Pointing Devices

Gamepad

- A **gamepad**, **game controller**, **joypad**, or **video game controller** is a peripheral device designed to be connected to a computer or console gaming system.

- It has multiple buttons and may have one or two mini joysticks.

Imaging and Video Input Devices

- Used to digitize images or video from the outside world into the computer.

- Example:
    - Digital camera

    - Webcam

    - Optical scanner

    - 3D scanner

    - Fingerprint scanner

    - Barcode reader

Imaging and Video Input Devices

Digital Camera

- A camera that stores the pictures or video it takes in electronic format instead of to film.

- Digital cameras have become the camera solution for most users today as the quality of the picture they take has greatly improved and as the price has decreased.

Input Devices

Imaging and Video Input Devices

Webcam

- A **webcam** is a hardware camera connected to a computer that allows anyone connected to the Internet to view either still pictures or motion video of a user or other object.

Imaging and Video Input Devices

Optical Scanner

- An **optical scanner** is a hardware input device that allows a user to take an image or text and convert it into a digital file, allowing the computer to read or display the scanned object.

- Two types of scanner:
    - Flatbed
    - Hand-held

Input Devices

Imaging and Video Input Devices

Image Scanner

Flatbed Scanner

Hand-held Scanner

Input Devices

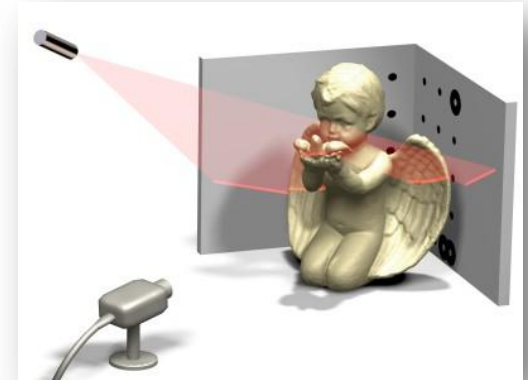# Imaging and Video Input Devices

Image Scanner

Flatbed Scanner	Handheld Scanner
Flatbed scanners look similar to a small photocopier with the document remaining flat and stationary during the scanning	Hand-held scanners are used for entering text and images that are less than a page wide. Hand-held scanners are adequate for small pictures and photos but are difficult for entire pages.

Imaging and Video Input Devices

3D Scanner

- A 3D scanner is a device that analyzes a real-world object or environment to collect data on its shape and possibly its appearance (i.e. color).

- The collected data can then be used to construct digital, three dimensional models.

Imaging and Video Input Devices

Fingerprint Scanner

- A **fingerprint scanner** or **fingerprint reader** is a hardware device that verifies a user or enters password information by scanning their finger.

Imaging and Video Input Devices

Barcode Reader

- A **barcode reader** or **scanner** is a hardware device capable of reading a barcode and printing out the details of the product or logging that product into a database.

Input Devices

Audio Input Devices

- Audio input devices allow a user to send audio signals to a computer for processing, recording, or carrying out commands.

- Example:
    - Microphone
    - MIDI keyboard

Input Devices

Audio Input Devices

Microphone

- A **microphone** is a hardware peripheral that allows computer users to input audio into their computers.

Audio Input Devices

MIDI Keyboard

- A **MIDI (Musical Instruments Digital Interface) keyboard** is typically a piano-style user interface keyboard device used for sending MIDI signals to a computer.

- MIDI information is sent to a computer that capable of reproducing an array of digital sounds or samples that resemble traditional analog musical instruments.

Input Devices

Audio Input Devices

MIDI Keyboard