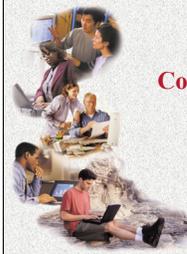


Computers Are Your Future



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Computers Are Your Future



Input/Output Monitors and Printers

Input

- ✓ **Input** is any data entered into the computer's memory



Input Devices: Giving Commands

Keyboard



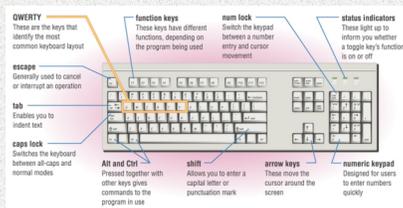
Mouse



Other Pointing Devices



Keyboard



- ✓ The keyboard allows the computer user to enter words, numbers, punctuation, symbols, and special function commands into the computer's memory

Types of Keyboards

Enhanced / Extended Keyboard



Ergonomic Keyboard



- ✓ **Enhanced or Extended keyboard** – Typically 101 keys laid out in the QWERTY fashion; connected to the computer by a cable
- ✓ **Cordless keyboard** – Uses infrared or radio wave signals
- ✓ **Ergonomic keyboard** – Designed to help prevent cumulative trauma disorder (CTD) or damage to nerve tissues in the wrist and hand due to repeated motion



Portable
Virtual
Keyboard
projected
on to any
flat
surface



Types of Mice

Wheel
Mouse



Cordless
Mouse



- ✓ **Wheel mouse** – Contains a rotating wheel used to scroll vertically within a text document; connects to PS/2 port or USB port
- ✓ **Cordless mouse** – Uses infrared signals to connect to the computer's IrDA port; it must be within sight of the receiving port

Other Types of Pointing Devices

Trackball



Touch
Screen

Pointing
Stick



Joystick

Touch Pad



Pen



Using the Mouse

- ✓ Mouse buttons enable the user to initiate actions
 - **Clicking** (left-, right-, or double-clicking) allows the user to select an item on the screen or open a program or dialog box
 - **Click and drag** – Holding down the left mouse button and moving the mouse enables the user to move objects on the screen



Audio Input: Speech Recognition

- ✓ **Speech recognition** is a type of input in which the computer recognizes words spoken into a microphone
- ✓ Special software and a microphone are required
- ✓ Latest technology uses continuous speech recognition where the user does not have to pause between words



Input Peripherals

- ✓ Other special devices
 - Bio feedback
 - Electrodes pick up brain waves
 - Improves ADD



STEVE GRANICK/GETTY IMAGES
Asheville Middle School teacher Peter Freer helps 11-year-old Latravu Geter strap on a biofeedback helmet Freer invented. The helmet helps children with attention deficit problems learn to concentrate better.

Input Peripherals

- ✓ Other special devices
 - Date Match

A MATCH MADE IN BEEPER HEAVEN

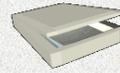
Imagine... You look across a crowded room and catch a glimpse of the most perfect creature you've ever seen. You know this is the one you want to spend the rest of your life with, and then... BEEP! BEEP! BEEP! Lovegery is a tiny battery-operated device. His is blue, hers is pink, and they have differently pitched beeps so you can feel socio-electronically correct. If someone of the opposite sex is within 15 ft. and has selected the same setting that you have, Lovegery sounds off and flashes lights to alert you to a potential match. There are three settings: TALK means you're in the mood for a chat; KARAOKE means you're in search of a date (not that you have to sing); and GO! means anything goes. It may have been a big hit in Japan, but will it work in the U.S.? We'll find out when it arrives here this fall.



Alternative Input Devices

Scanners

Flatbed



Barcode reader



Fax Machines



Monitors



CRT

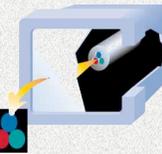


LCD

- ✓ A monitor is a peripheral device which displays computer output on a screen
- ✓ Screen output is referred to as **soft copy**
- ✓ Types of monitors:
 - Cathode-ray tube (CRT)
 - Liquid Crystal Display (LCD or flat-panel)

Pixels

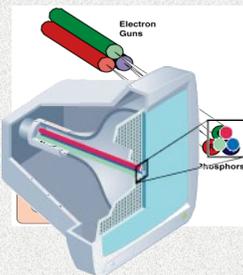
- ✓ Images are made up of dots called **pixels** for picture elements



- The number of **pixels** affects the **resolution** of the monitor
- The higher the resolution, the better the image quality

CRT technology RGB composite color

- ✓ Screen size: diagonal measurement of 15, 17, 19, 21 in
- ✓ Resolution 800x600, 1024x768, 1600 x 1200 pixels
- ✓ phosphors excited by electron gun beams
- ✓ refresh phosphors > 60 times/sec
- ✓ Pitch < 30mm



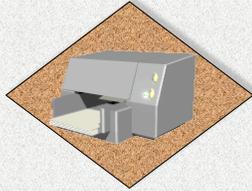
Liquid Crystal Display (LCD)

- ✓ Cells sandwiched between two transparent layers form images
- ✓ Used for notebook computers, PDAs, cellular phones, and personal computers
- ✓ More expensive than a CRT monitor
- ✓ Take up less desk space and use less energy than CRT monitors
- ✓ Types of LCD monitors:
 - Passive-matrix LCD
 - Active-matrix LCD
 - Gas plasma display
 - Field emission display



Printers

- ✓ A printer is a peripheral device that produces a physical copy or **hard copy** of the computer's output

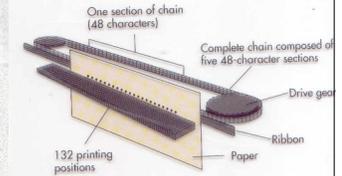


Solid Character Printing



Daisy Wheel

Line Printer



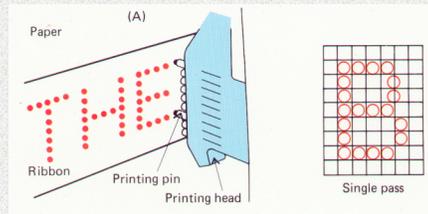
Dot Matrix Output

- ✓ If each character a 5x7 matrix
- ✓ Head must make 5 moves
- ✓ Each move allows appropriate pins to be fired



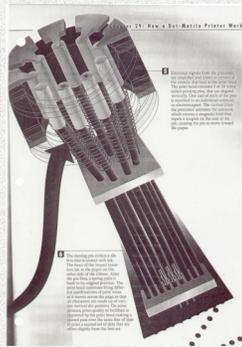
Dot Matrix Output

- ✓ If each character a 5x7 matrix
- ✓ Head must make 5 moves
- ✓ Each move allows appropriate pins to be fired



Dot Matrix Output

- ✓ Each of 9, 18 or 24 pins is activated by an electromagnet.



Types of Printers: Inkjet

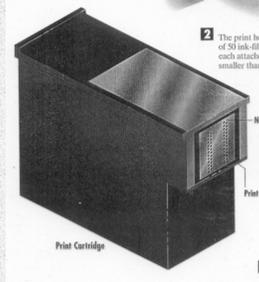
Inkjet



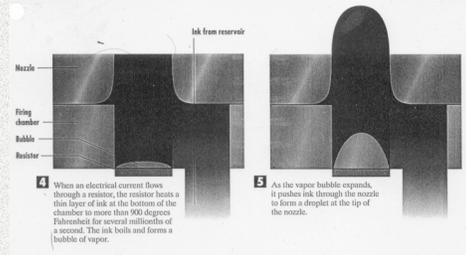
- ✓ **Inkjet printer**, also called a bubble-jet, makes characters by inserting dots of ink onto paper
- ✓ Letter-quality printouts
- ✓ Cost of printer is inexpensive but ink is costly

Ink Jet Output Process

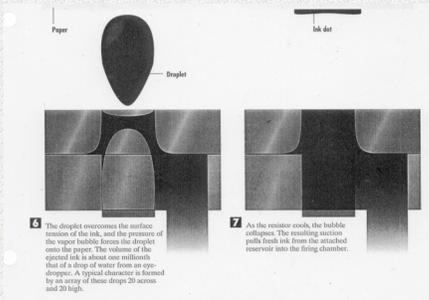
- ✓ Print head similar to Dot Matrix only with 50 ink chambers
- ✓ Each hole is smaller than a human hair.



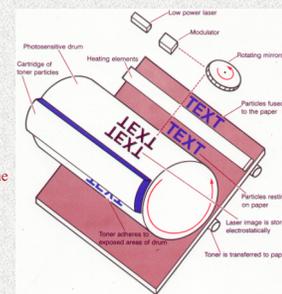
Ink Jet Output Process



Ink Jet Output Process

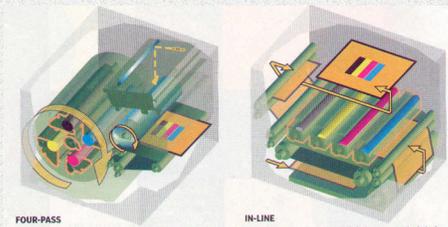


Laser Output Process



- ✓ Similar to the copy machine process.

Color Laser



- ✓ Paper makes **four passes** over each color toner cylinder
- ✓ Paper makes **one pass** over four color toner cylinders

Plotter



- ✓ A plotter is a printer that uses a pen that moves over a large revolving sheet of paper
- ✓ It is used in engineering, drafting, map making, and seismology