LESSON 4

Alternative Methods Of Input

This lesson includes the following sections:

- Devices for the Hand
- Optical Input Devices
- Audio-Visual (Multimedia) Input Devices

Alternative Input Devices – Devices for the Hand

- **Pens**
- **Touch Screens**
- **Game Controllers**

Devices for the Hand - Pens

- With a pen-based system, you use an electronic pen to write on the screen and choose commands.
- Pens are common input devices for handheld computers, like “personal digital assistants (PDAs).”
- Pens are handy for making notes or selecting commands, not for inputting a lot of text.

The user can point, tap, draw and write on the computer's screen with a pen.

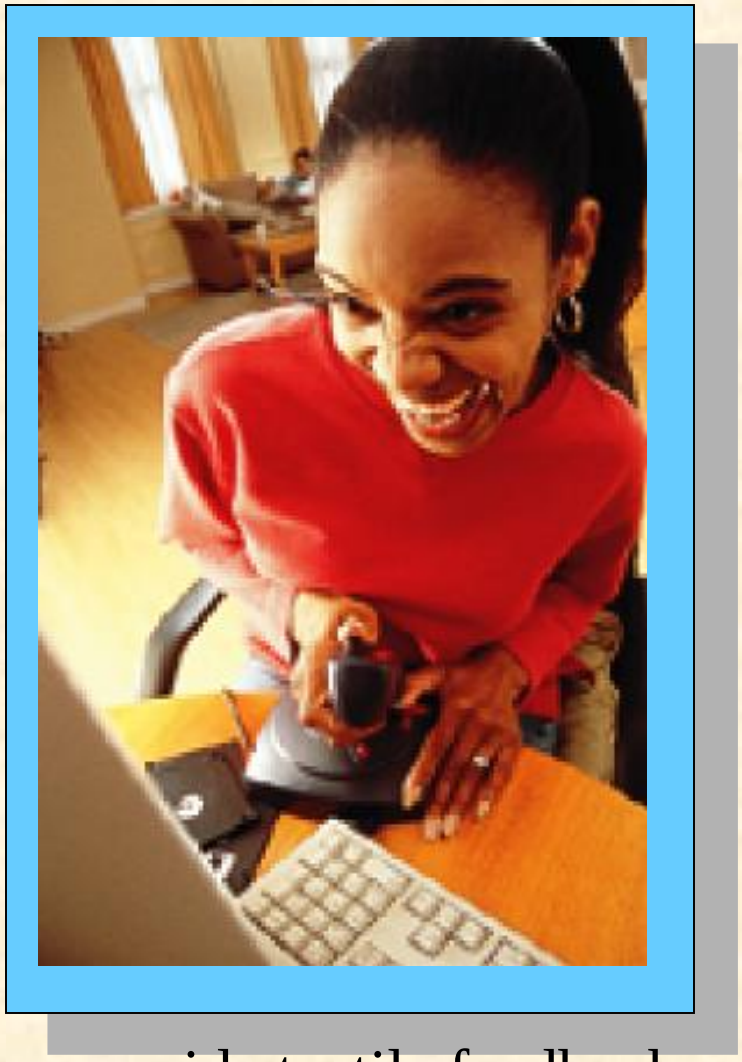
Devices for the Hand - Touch Screens

- **Touch-screen systems accept input directly through the monitor.**
- **Touch screens use sensors to detect the touch of a finger. They are useful where environmental conditions prohibit the use of a keyboard or mouse.**
- **Touch-screen systems are useful for selecting options from menus.**


TOWER

Devices for the Hand - Game Controllers

- The two primary types of game controllers are joysticks and game pads.
- Game pads usually provide controls for each hand.
- Joysticks are popular for flight simulator and driving games.



Some controllers even provide tactile feedback, such as vibrations or pulses, to help players “feel” the action in the game.

Alternative Input Devices – Optical Input Devices

- **Bar Code Readers**
- **Image Scanners and OCR (Optical Character Recognition)**

Optical Input Devices - Bar Code Readers

- **Bar code readers can read bar codes—patterns of printed bars.**
- **The reader emits light, which reflects off the bar code and into a detector in the reader. The detector translates the code into numbers.**
- **Flatbed bar code readers are commonly found in supermarkets. Courier services often use handheld readers.**

Bar code readers commonly track sales in retail stores

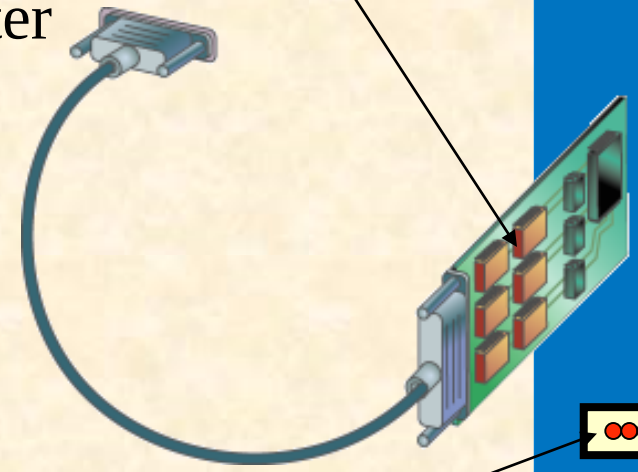
Optical Input Devices – Image Scanners and OCR

- Image scanners digitize printed images for storage and manipulation in a computer.
- A scanner shines light onto the image and interprets the reflection.
- Optical character recognition (OCR) software translates scanned text into editable electronic documents.
- =====Fig. 4.7=====

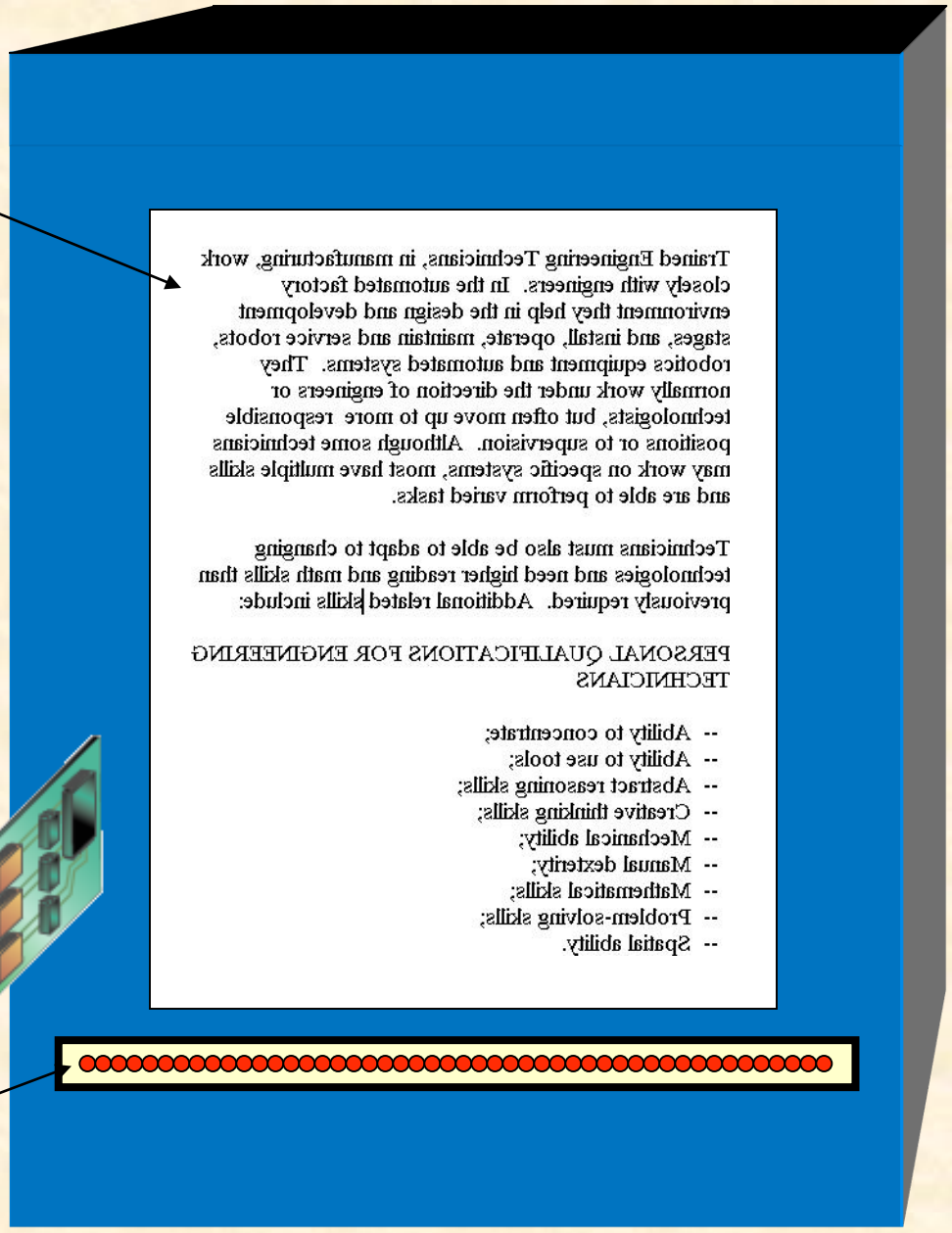
Document being scanned

Converts diode signals to numbers

To computer



Light source, lens and diode array



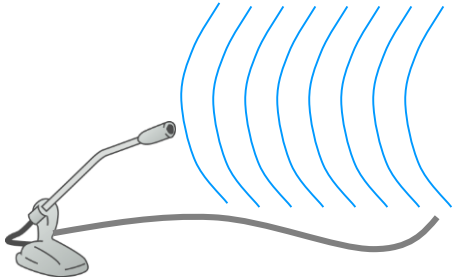
Alternative Input Devices – Audio-Visual (Multimedia) Input Devices

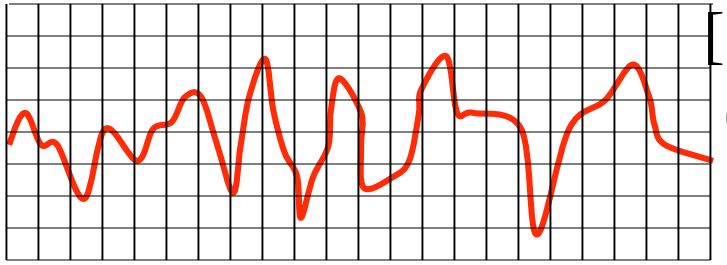
- **Microphones and Speech Recognition**
- **Video Input**

Audio-Visual (Multimedia) Input Devices - Microphones and Speech Recognition

- Microphones can accept auditory input. A microphone requires a sound card in the PC.
- A sound card can digitize analog sound signals, and convert digital sound signals to analog form.
- With speech recognition software, you can use your microphone to dictate text, navigate programs, and choose commands.

Analog Sound Signals





Digital Audio Output [electrical signals] (ex. 11100011) to computer

Analog Signals are Digitized

Audio-Visual (Multimedia) Input Devices – Video Input

- PC video cameras digitize full-motion images.
- Digital cameras capture still images.
- These cameras break images into pixels and store data about each pixel.
- Video images may be compressed to use less memory and storage space.


SONY
MICRO FLOPPYDISK
Double Sided
MFD-2HD
10x
OPTICAL ZOOM
SONY
Digital Mavica
QUICK ACCESS FD DRIVE 2X