



Presentation

# Input & output units

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# Input/output units

- Computer is an electronic device which takes input and gives output!
- In **computing**, **input/output**, or **I/O**, refers to the communication between an information processing system (such as a computer) and the outside world .
- **Inputs** are the signals or data received by the system, and **outputs** are the signals or data sent from it.
- I/O devices are used by a person (or other system) to



# INPUT DEVICES !

## EARLY DEVICES :

Unit record equipment :Before the advent of electronic computer

They were in use in industry and government

They allowed large volume data-processing tasks.



Punched cards are a piece of stiff paper that contains digital information

punched cards were widely used throughout the 19th century for controlling textile looms



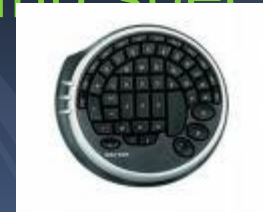
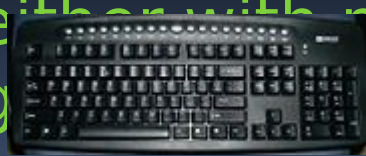
# INPUT DEVICES !

## Computer keyboard

A **keyboard** is a human interface device which is represented as a layout of buttons.

In normal usage, the keyboard is used to type text or numbers into a word processor, text editor or other program.

Keyboards are also used for computer gaming, either with regular keyboards or by using special gaming keyboards.



# INPUT DEVICES

## Pointing devices

A **pointing device** is any human interface device that allows a user to input spatial data to a computer .

**computer mouse** : is a pointing device .



Mouse have one or more buttons .It

so

features other elements, such as

"wheels".

The motion of a pointing device typically translates the motion of a pointing device into a Graphical User Interface (GUI) control of a computer. This motion typically translates the motion of a pointing device into a Graphical User Interface (GUI) control of a computer. This motion typically translates the motion of a pointing device into a Graphical User Interface (GUI) control of a computer.



**Joystick:**

**Pointing sticks:**

# INPUT DEVICES

## High-degree of freedom input devices:

Some devices allow many continuous degrees of freedom as input. These can be used as pointing devices, but are generally used in ways that don't involve pointing to a location in space



A P5 wired glove



3D Mouse

# INPUT DEVICES

## Composite devices

**Game controller** : A **game controller** is an input device used to control a video game.

**Gamepad (or joypad)**: A **gamepad**, also called **joypad** or **control pad**, is a type of game controller held in the hand, where the digits (especially thumbs) are used to provide input



**Paddle (or controller)** : A **paddle** is a game controller with a round *wheel* and one or more *fire buttons*, where the wheel is typically used to control movement



# INPUT DEVICES

## Audio input devices

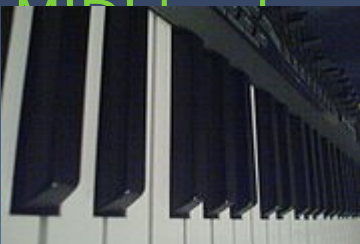
In the fashion of video devices, audio devices are used to either capture or create sound. In some cases, an audio output device can be used as an input device, in order to capture produced sound.

**Microphone** : is an acoustic-to-electric transducer or sensor that converts sound into an electrical signal.



Microphones are used in many applications including telephones, tape recorders, hearing aids, motion picture Production

**MIDI keyboard** : MIDI keyboard is a piano-style digital device used for sending MIDI signals to other devices through the same interface as the keyboard





# INPUT DEVICES

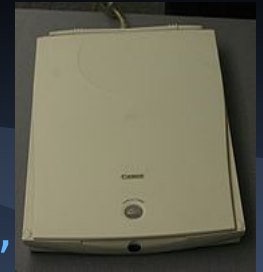
## Imaging and Video input devices

**Webcam** : Webcams are video capturing devices connected to computers or computernetworks



**Image scanner:**

In computing, a scanner is a device that optically scans printed text, handwriting, or an object, converts it to a digital image.



**Barcode reader** (barcode scanner) is an electronic device for reading printed barcodes

# Output devices

- An output device is any piece of **computer hardware equipment** used to communicate the results of data processing carried out by an information processing system (such as a computer) to the outside world.
- The most common outputs are monitors and speakers .

# OUTPUT DEVICES

**Monitor :** is a piece of electrical equipment which displays images generated from the video output of devices such as computers, without producing a permanent record



## Flat panel display



Flat panel displays balance their smaller footprint and trendy modern look with high production costs and in many cases inferior images compared with traditional CRTs



**liquid crystal display (LCD)** is an electro-optical amplitude modulator realized as a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector.

# OUTPUT DEVICES

## Printer

Printers produce a permanent hard copy of the information on paper. A computer peripheral that places texts on paper.

**Laser printer** : Is a common type of computer printer that rapidly produces high



quality text and graphics on plain paper.



They are the most common type of computer printer for general consumer due to their low cost, high quality of output,

and the capability of printing in vivid color, and ease of

use.

# OUTPUT DEVICES

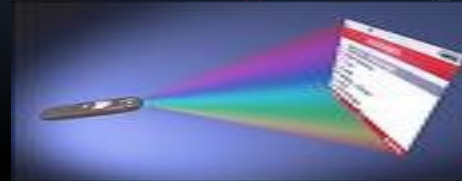
**Speaker:** A speaker can be used for various sounds meant to alert the user, as well as music and spoken text.



# OUTPUT DEVICES

## Projector

**Video projector** : A video projector takes a video signal and projects the corresponding image on a projection screen



**LCD projector** : An LCD projector is a type of video projector for displaying images or computer data on a screen or other flat surface. It is a



images or computer data on a screen or other flat

analog projector



**Laser projector** :

# TERMINOLOGY

- **Computing** - računalništvo
- **Inputs units** -vhodne enote
- **outputs units** -izhodne enote
- **Keyboard**- tipkovnica
- **pointing device** - naprava za kazanje
- **computer mouse** - računalniška miška
- **Early devices** - zgodnje naprav
- **video game** -video igra
- **Gamepad** .- igralna konzola
- **Paddle** – ploščad (igralna )
- **Microphone** – mikrofonski
- **Webcam** - spletna kamera

- **Image scanner** - čitalec slik
- **Barcode reader** - čitalec *črtnih kod*
- **computer hardware equipment**-računalniška strojna oprema
- **stiff paper**-stlačen papir
- **Monitor** – ekran
- **Reflector**- reflektor
- **liquid crystal display** –ekran iz tekočih kristalov
- **monochrome pixels** - slikovne pike
- **Printer**- tiskalnik
- **Laser printer**- laserski tiskalnik
- **Inkjet printer** – inkjetni tiskalnik
- **Speaker**: zvočnik
- **Video projector**- projektor videa
- **computer data**- računalniški podatki





**THAT IS ALL AND THANK YOU  
FOR YOUR ATENTION !**