

Input Device: Scanner (2D)

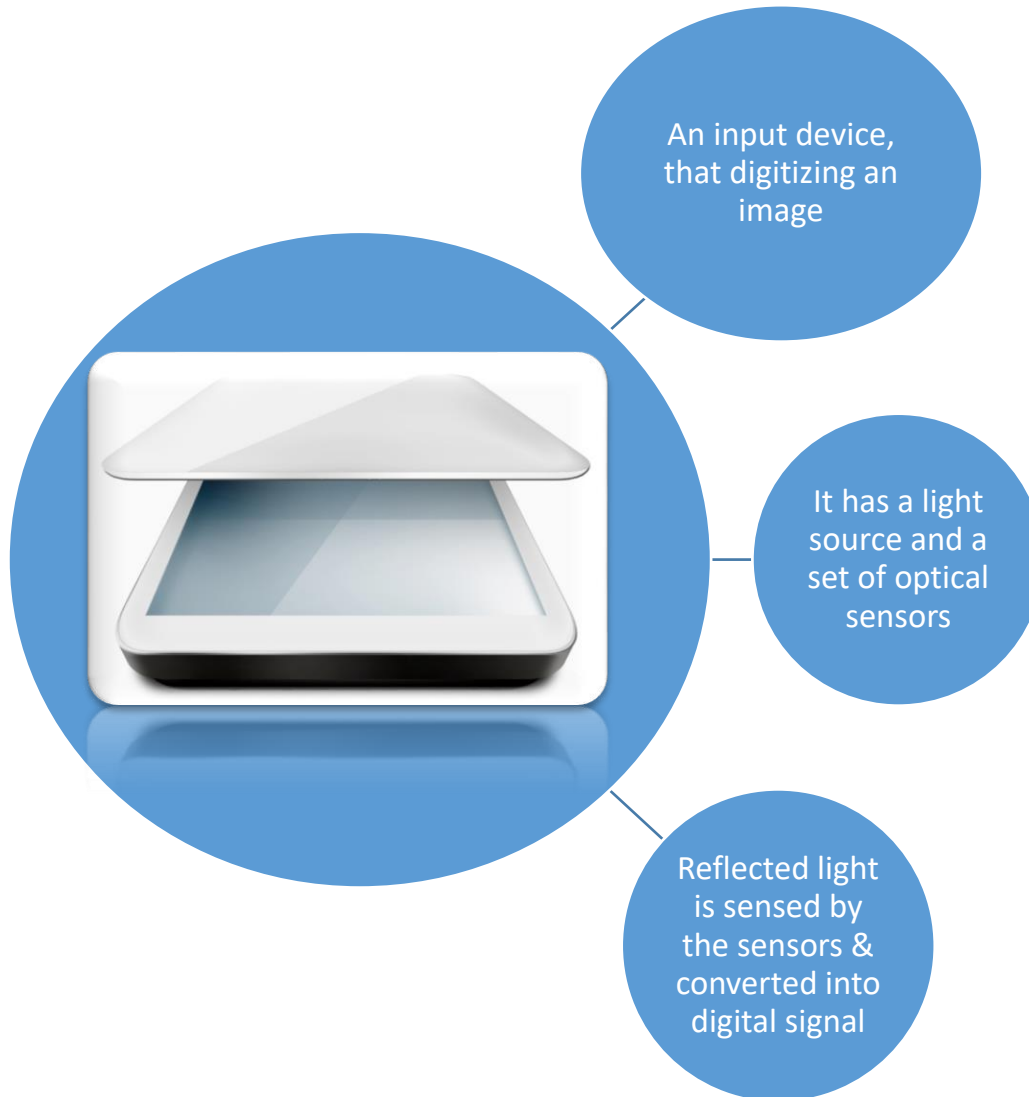
CSE 315

Peripherals & Interfacing

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Input Device : Scanner



Scanners : Classification

On Scan Technology

- Flatbed Scanners
- Sheet-fed Scanners
- Handheld Scanners
- Drum Scanners

On Dimension

- 2D Scanners
- 3D Scanners

Scanner : Flatbed



Scanner : Sheet-fed



Scanner : Handheld



Movable scanner

Can be hold by
hand

Can be used for
quick scan

Scan quality is
not much better

E.g. Barcode
reader



Scanner : Drum



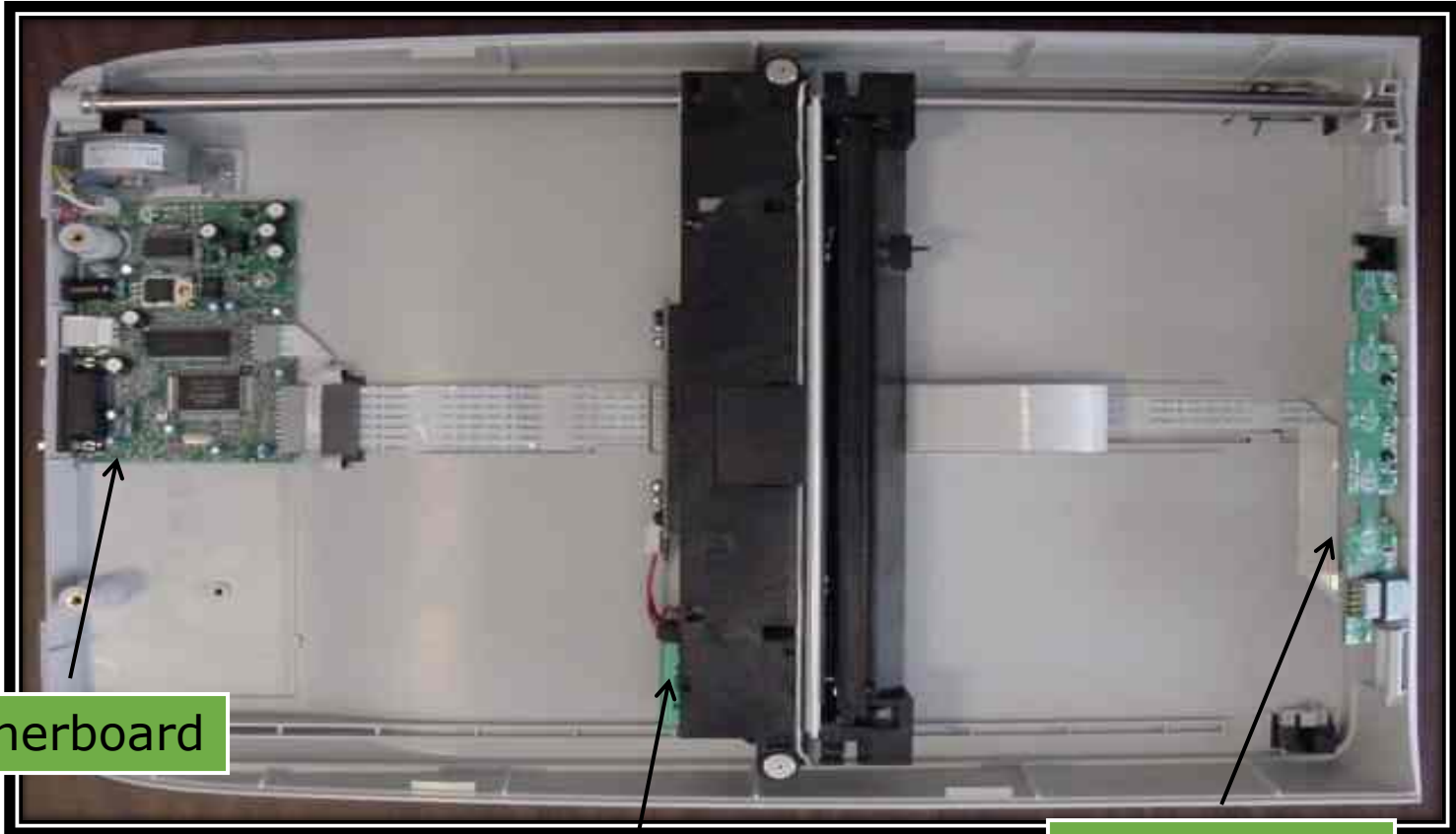
Used in graphics
production houses

Used for scanning a
large size of image

Anatomy : Flatbed Scanner

- Basic components of a flatbed scanner are:
 - **Charged Coupled Device (CCD)** Array
 - Mirrors
 - Lamp
 - Lens
 - Filter
 - Scan Head assembly
 - Mother board
 - Control Panel
 - Frame

Anatomy : Flatbed Scanner



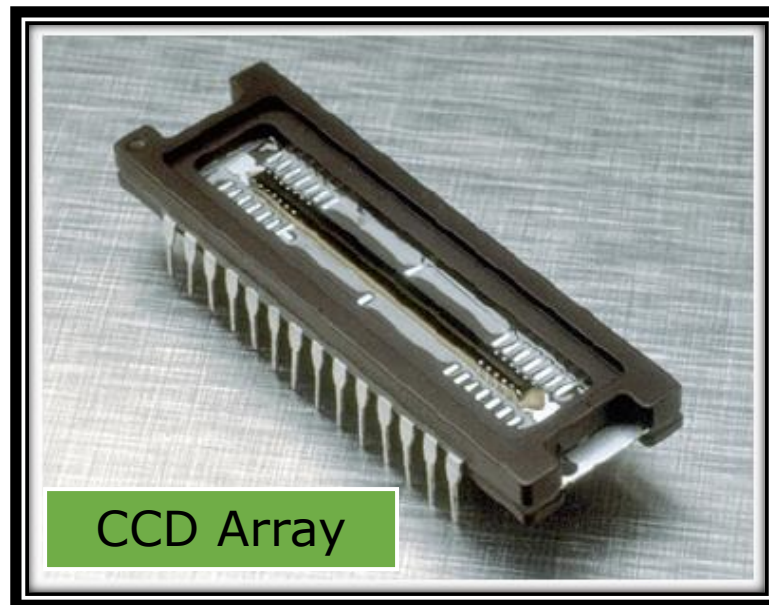
Motherboard

Head Assembly

Control Panel

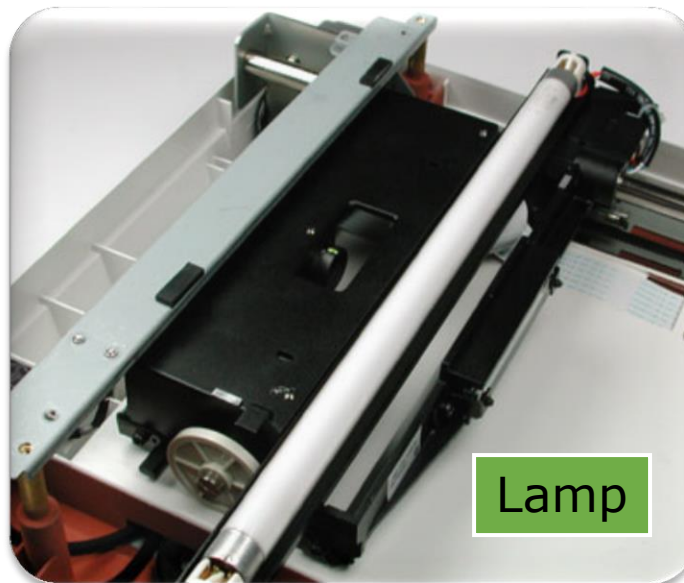
Anatomy : Flatbed Scanner

- CCD Array (image sensor) is the main component of a scanner
- CCD is a set of light sensitive diode known as photosites
- CCD converts photons into electrons



Anatomy : Flatbed Scanner

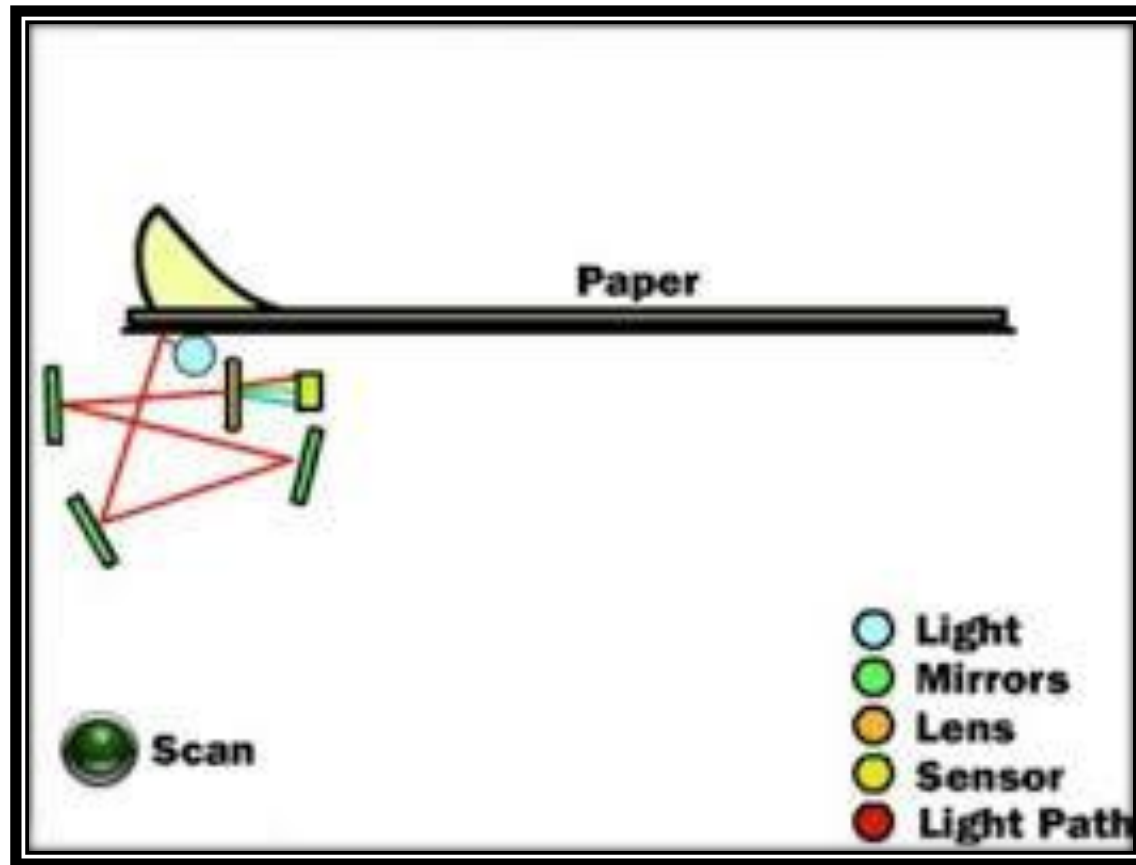
- The document is placed and cover is closed
- A lamp is used to illuminate the document
- The scan head is moved slowly across the document



Anatomy : Flatbed Scanner

- The image of the document is reflected by a mirror (1st one)
- That reflected image, is reflected by two other mirrors
- The last mirror reflects the image onto a lens
- The lens focuses the image through a filter on the CCD Array
- The purpose of three mirrors in a scanner to reduce extra light intensity

Anatomy : Flatbed Scanner



Thank You