

# Input Device: Scanner (2D)

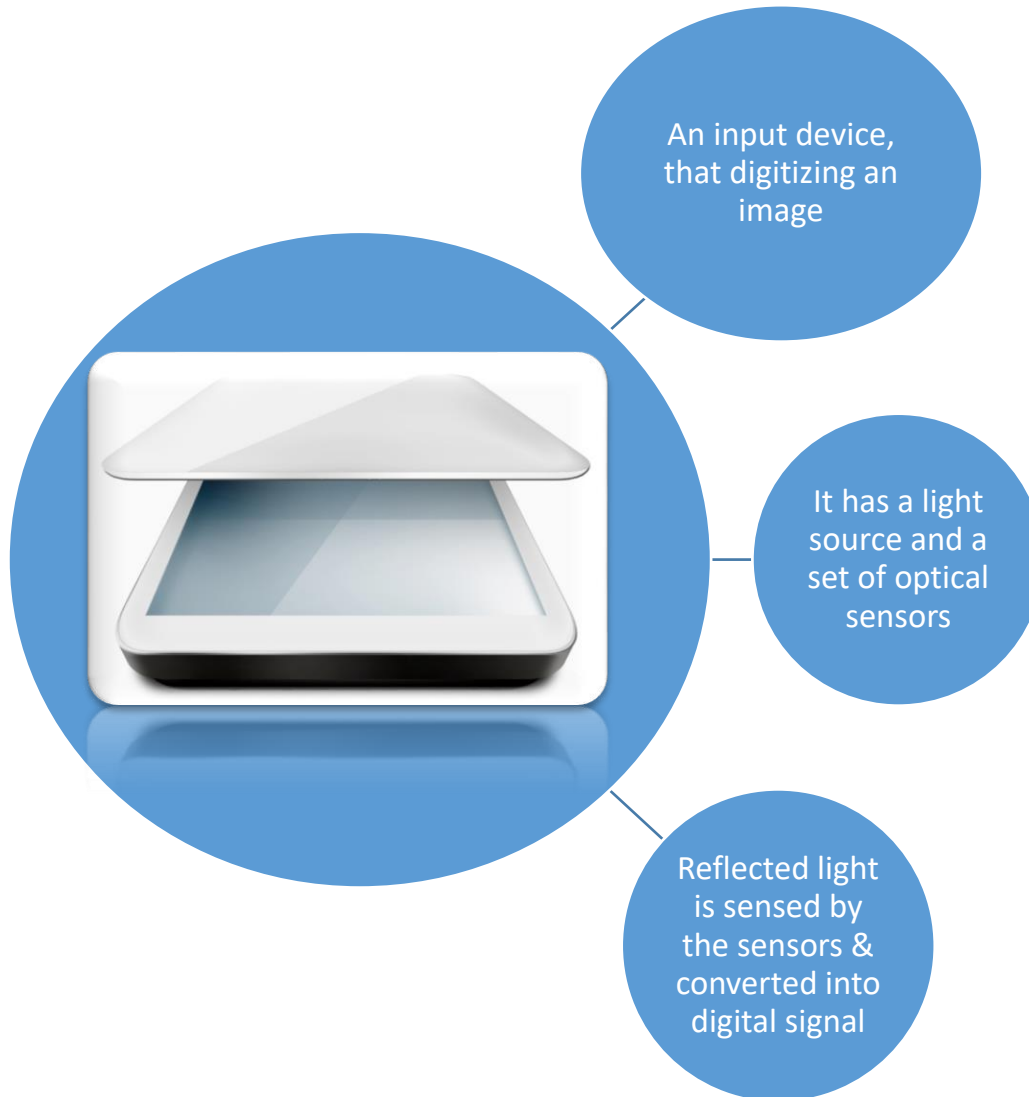
CSE 315

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

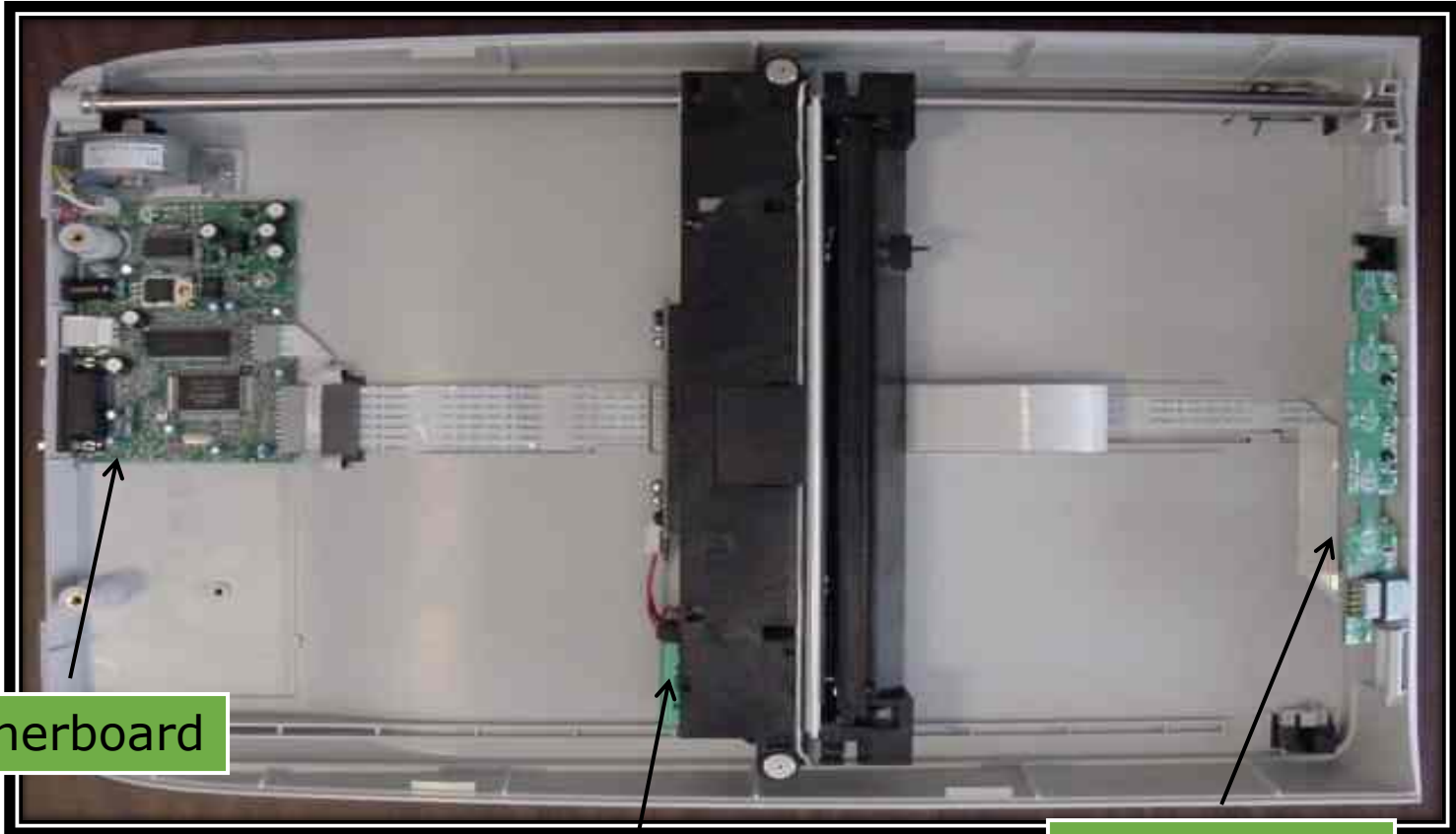
Used for scanning a  
large size of image

# 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



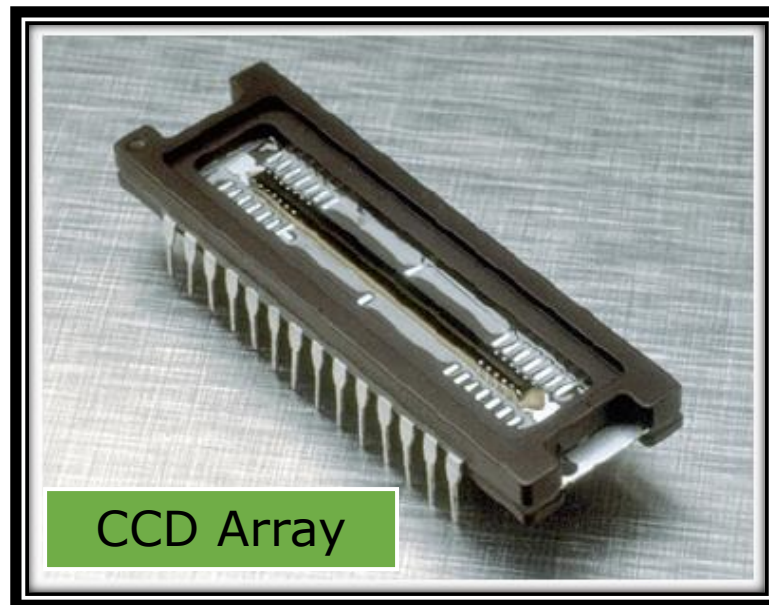
Motherboard

Head Assembly

Control Panel

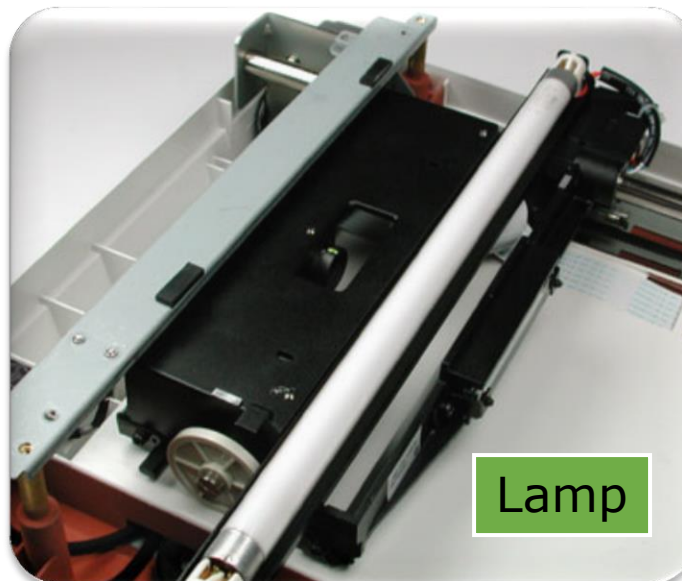
# Anatomy : Flatbed Scanner

- 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

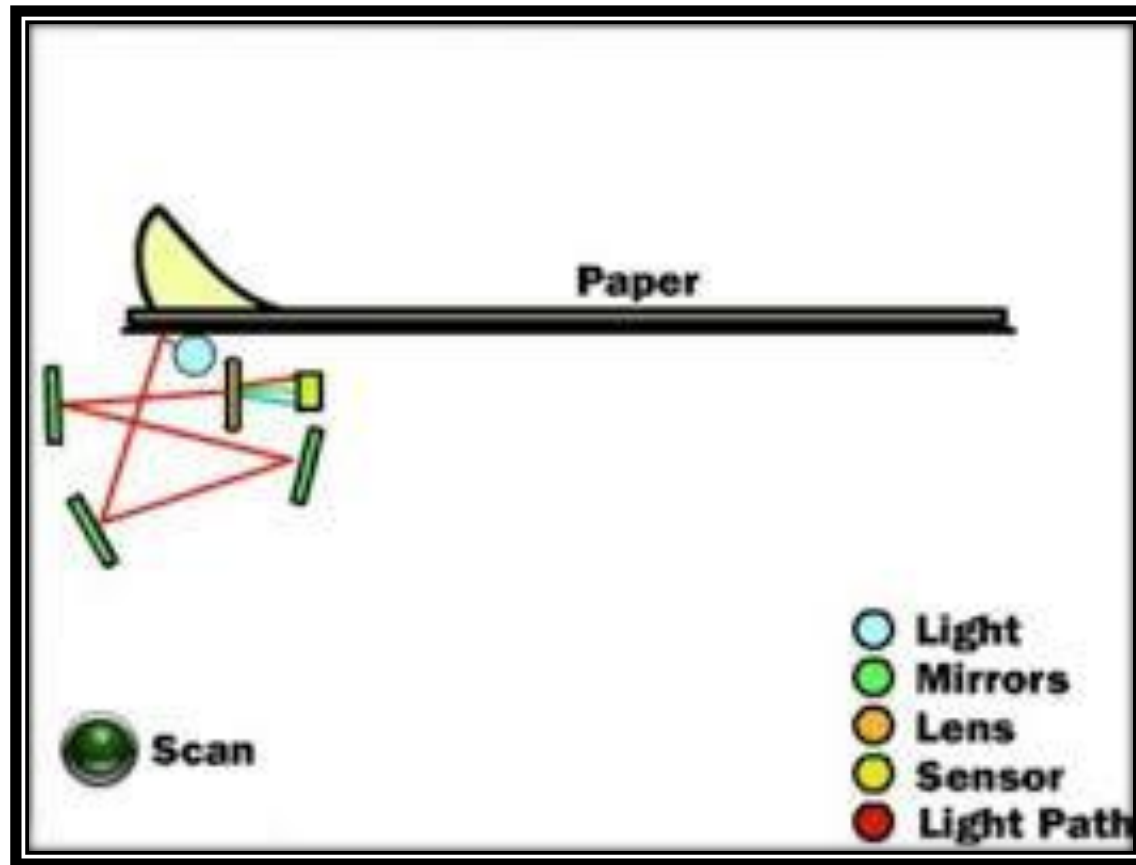
- The document is placed and cover is closed
- A lamp is used to illuminate the document
- The scan head is moved slowly across the document



# Anatomy : Flatbed Scanner

- The image of the document is reflected by a mirror (1<sup>st</sup> 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**