Robotic Vision / Machine Vision

Robotics II

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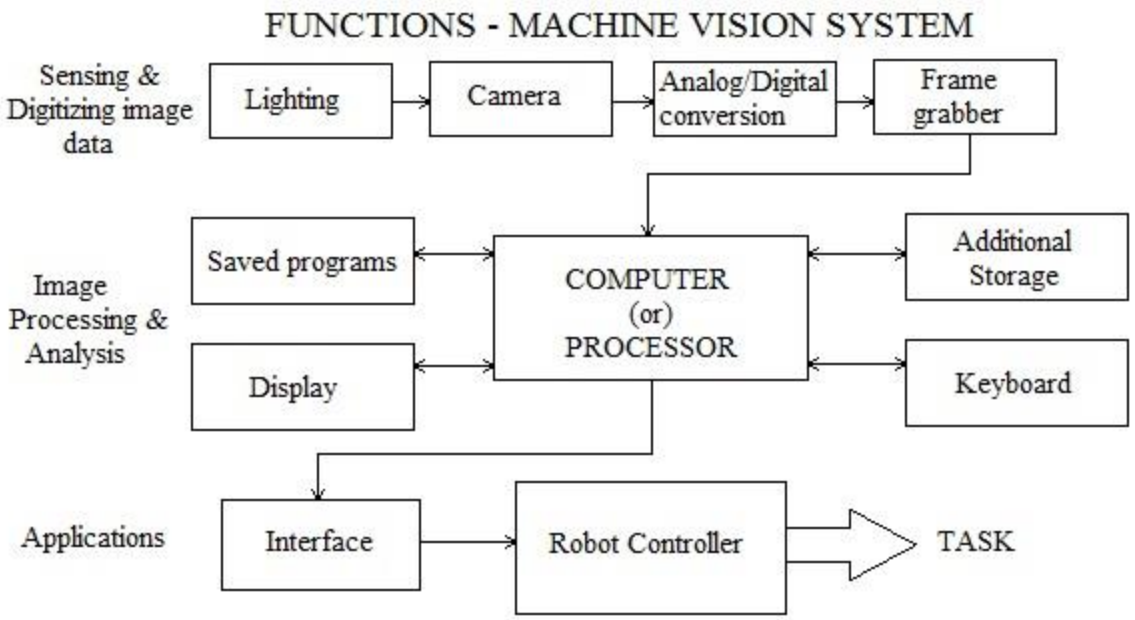
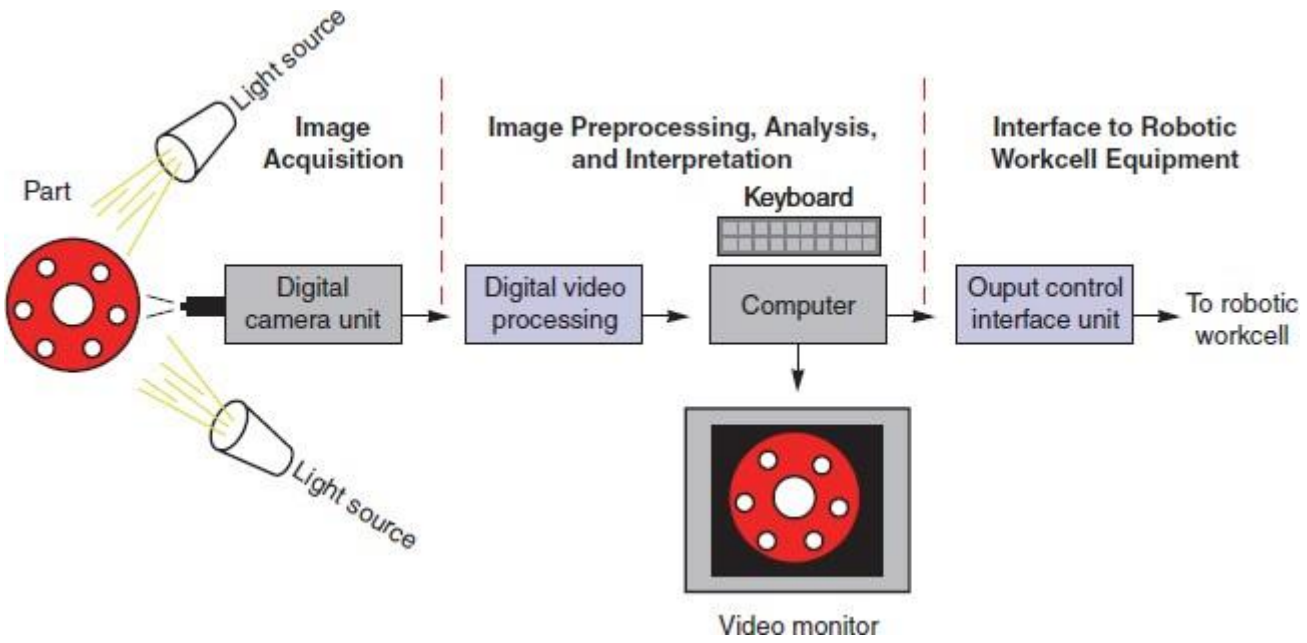
Machine Vision

- Introduced in 1970
- Light energy into an image
- Video Cameras and Computer
- Fast Computer
- Extendable memory



Machine Vision



Fundamental of Machine Vision

- Image Acquisition
- Image Preprocessing
- Image Analysis
- Interpretation

Image Acquisition

- It involves illuminating a work piece and digitally scanning its image.
- Lighting : Fluorescent lamps, incandescent bulbs, strobe lights
- Scanning: Video camera, CCD, CID, Silicon chip an array of photosensitive elements.
- Light reflected into the camera lens from the work piece and fall onto photosensitive surface and converted to analog electrical signal.

Image Preprocessing

- Analog to digital converter change analog signal into an equivalent digital signal.

- These values stored in memory which allows the digital image to be analyzed and interpreted

Image Analysis

- Information from image is gathered and analyzed by computer Software
- Algorithms are used
- Software identify and measured features of the digital image

Image interpretation

- Based on Image robot take decision including :

accuracy of machining

Handling

Inspection

Dimensional measurement

Quality control testing

Image Analysis