Image Processing Workshop

{ Day\_2 }

Date: 10/12/2017

1.**Colour Extraction** - Separating out apple from fruit basket

* using the Range of RBG values were given
* using Trackbar for adjusting values of B,G,R intensities seperately.

2. **Resizing image**

* Enlarging an image by x2 times by copying the intensities of one pixel into 4 pixels in the enlarged image.

3. **Adaptive Thresholding**: Threshold for every small region of the same image is calculated and it gives us better results for images with varying illumination.

4. **Callback function**: This is used to get the RGB values of any point in the image by using the left mouse button.

5. **Noise Reduction**: There are different kinds of noises which exist in images.

* Impulsive (Salt and Pepper/No-Linear): Median is used.
* Additive (Broadband/Linear): Mean, Gaussian is used

**Methods to reduce noise**:

1. Mean Blur: the value inside a pixel is replaced by the average of its neighbours.
2. Median Blur: the value inside a pixel is replaced by the median of its neighbors.
3. Gaussian Blur: this has the weighted average of the neighbors depending on the distance from the pixel. A[8] = {1/16,⅛,1/16,⅛ ,1/4,⅛,1/16,⅛,1/16} is Gaussian Kernel/Mask.

6. **Kernel** - array of pixels( mostly 3x3 ) used to traverse the neighbour.

7. **Histogram Plot** : 1)grayscale image 2)3channel image

* Creating a plot of intensity(0to255) and no.of pixels with that intensity
* It tells about the contrast of the image.

8. **Erosion and Dilation** :

* Erosion is the replacement of central white pixel of a kernel if any other pixel in the kernel is black.
* Dilation is the replacement of central black pixel of a kernel if any other pixel in the kernel is white.
* Thicker lines could be removed using these multiples times.
* To improve pic quality increase kernel size to 5x5 or 7x7