# EXPERIMENT – 9

## Aim:

Enhance an Image and remove noise and other artifacts from an Image**.**

Software used: MATLAB

## Theory:

Image noise is random variation of brightness or colour information in images and is usually an aspect of electronic noise. It can be produced by the image sensor and circuitry of a scanner or digital camera. Image noise can also originate in film grain and in the unavoidable shot noise of an ideal photon detector.

The main types of image noise are random noise, fixed pattern noise, and banding noise.

There are typically three types of digital images: Binary images, Gray scale Images, Colour Images

**Code:**

I = imread('MATLAB Drive/927310.jpg');

subplot(2,3,1);

imshow(I);

se = strel('disk',15);

background = imopen(I,se);

imshow(background)

title('strel of the image');

I2 = I - background;

subplot(2,3,2);

imshow(I2);

title('rgb of the image');

gbird = rgb2gray(I2);

I3 = imadjust(gbird);

subplot(2,3,3);

imshow(I3);

title('gray of the image')

bw = imbinarize(I3);

bw = bwareaopen(bw,50);

subplot(2,3,4);

imshow(bw);

title('binary of the image');

cc = bwconncomp(bw,4);

cc.NumObjects;

grain = false(size(bw));

grain(cc.PixelIdxList{50}) = true;

subplot(2,3,5);

imshow(grain);

title('black of the image');

labeled = labelmatrix(cc);

whos labeled;

RGB\_label = label2rgb(labeled,'spring','c','shuffle');

subplot(2,3,6);

imshow(RGB\_label);

title('final image');

**Output:**

Graphical user interface, timeline

Description automatically generated