Report on Assignment-3

First We run various codes of sitf,surf,Harris corners etc..... in ass.cpp and the following results are observed.

SIFT:

The opencv function sift.detect() detects the interesting points.They remain invariant with image scale,noise,illumination,transformation etc...
First the keypoints from the images are extracted.This is done by finding extremas at different scales spaces .Scale spaces are found from LOG,DOG methods etc..
To find matching points between two images we used two type of matches .
Regular match which does not do any ratio test and second one knn match which does ratio test to eliminate false matches mostly and very little correct matches .

SURF:

speed up robust features.Computes faster than sift.This is an integer approximation of Hessian Blob detector easily computed using integral images.The results of SIFT,SURF are listed in the table below.

	Sift,normal	Sift,Knn	Surf,normal	Surf,Knn
0,1	5.89	0.08	0.025	1.6
1,2	0.06	0.05	1.37	1.23
2,1	0.14	0.04	1.76	0.93
3,4	0.85	0.24	0.1	0.05

We can not generalize which of sift or surf detector is better from the above table.
We cannot also generalize if ratio test always gives better matches compared to normal match.

Harris Corner:

Corner cause serious change in all direction movement around the corner.We perform eigen analysis of matrix A formed .We declare point as corner if R > threshold we fix in the program. R = det(A) -ktrace(A^2);
If R>>0 then we can declare it as corner.