%%

clc

close all

a1=imread('Capture.PNG');

% imwrite(a1,'IMG\_20161208\_230700\_HDR.png');

%%

a2=imread('Captureclutter.PNG');

% figure,imshow(a);title('comp');

b=rgb2gray(a1);

n=rgb2gray(a2);

hold on;

points1=detectSURFFeatures(b);

points2=detectSURFFeatures(n);

[k1,l1]=extractFeatures(b,points1);

[k2,l2]= extractFeatures(n,points2);

imshow(a1);hold on;plot(l1,'showOrientation',true);

figure,imshow(a2);hold on;plot(l2,'showOrientation',true);

%%

index\_pairs=matchFeatures(k1,k2);

match1=l1(index\_pairs(:,1));

match2=l2(index\_pairs(:,2));

figure;showMatchedFeatures(a1,a2,match1,match2,'montage');

[tform,p1,p2]=estimateGeometricTransform(match1,match2,'affine');

showMatchedFeatures(a1,a2,p1,p2,'montage');

boxpol=[1,1;size(a1,2),1;size(a1,2),size(a1,1);1,size(a1,1);1,1];

box=transformPointsForward(tform,boxpol);

figure,imshow(a2);

hold on;

line(box(:,1),box(:,2),'color','g','linewidth',5);