[path file] = uigetfile('\*.jpg','Select Image');

img = imread(fullfile(file,path));

figure;

imshow(img);

title('Original Image');

img2 = rgb2gray(img);

imgX = edge(img2,'sobel','horizontal');

imgY = edge(img2,'sobel','vertical');

img3 = imgX|imgY;

img3 = bwareaopen(img3, 700);

se = strel('line',2,90);

img3 = imdilate(img3,se);

se = strel('line',2,0);

img3 = imdilate(img3,se);

img4 = imfill(img3,'holes');

img4 = bwmorph(img4,'thin',1);

se = strel('line',5,90);

img5 = imerode(img4,se);

img5 = imerode(img5,se);

img6 = immultiply(img2,img5);

verticalProfile = sum(img6, 2);

row1 = find(verticalProfile, 1, 'first');

row2 = find(verticalProfile, 1, 'last');

horizontalProfile = sum(img6, 1);

column1 = find(horizontalProfile, 1, 'first');

column2 = find(horizontalProfile, 1, 'last');

img7 = img6(row1-1:row2+1, column1-1:column2+1);

img7 = ~im2bw(img7);

figure;

imshow(img7);

title('Detected Number Plate');

imgProp = regionprops(img7,'BoundingBox','Image');

x=1;

im0=imread('0.bmp');

im1=imread('1.bmp');

im2=imread('2.bmp');

im3=imread('3.bmp');

im4=imread('4.bmp');

im5=imread('5.bmp');

im6=imread('6.bmp');

im7=imread('7.bmp');

im8=imread('8.bmp');

im9=imread('9.bmp');

imA=imread('A.bmp');

imB=imread('B.bmp');

imC=imread('C.bmp');

imD=imread('D.bmp');

imE=imread('E.bmp');

imF=imread('F.bmp');

imG=imread('G.bmp');

imH=imread('H.bmp');

imI=imread('I.bmp');

imJ=imread('J.bmp');

imK=imread('K.bmp');

imL=imread('L.bmp');

imM=imread('M.bmp');

imN=imread('N.bmp');

imO=imread('O.bmp');

imP=imread('P.bmp');

imQ=imread('Q.bmp');

imR=imread('R.bmp');

imS=imread('S.bmp');

imT=imread('T.bmp');

imU=imread('U.bmp');

imV=imread('V.bmp');

imW=imread('W.bmp');

imX=imread('X.bmp');

imY=imread('Y.bmp');

imZ=imread('Z.bmp');

cnt=0;

out='';

for i = 1 : size(imgProp)

this = imgProp(i).BoundingBox;

if(this(3)>=15 &&this(4)>=30 && this(3)<=80 &&this(4)<=160)

temp = ~imgProp(i).Image;

temp=imresize(temp,[40,20]);

imwrite(temp,'temp.bmp');

imgTest =imread('temp.bmp');

img = imabsdiff(imA,imgTest);

rectangle('position',this,'EdgeColor','r');

minDiff = sum(img(:));

cnt=cnt+1;

ch = 'A';

if cnt==1 || cnt==2 || cnt==6 || cnt==5

img = imabsdiff(imB,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='B';

end

img = imabsdiff(imC,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='C';

end

img = imabsdiff(imD,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='D';

end

img = imabsdiff(imE,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='E';

end

img = imabsdiff(imF,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='F';

end

img = imabsdiff(imG,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='G';

end

img = imabsdiff(imH,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='H';

end

img = imabsdiff(imI,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='I';

end

img = imabsdiff(imJ,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='J';

end

img = imabsdiff(imK,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='K';

end

img = imabsdiff(imL,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='L';

end

img = imabsdiff(imM,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='M';

end

img = imabsdiff(imN,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='N';

end

img = imabsdiff(imO,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='O';

end

img = imabsdiff(imP,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='P';

end

img = imabsdiff(imQ,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='Q';

end

img = imabsdiff(imR,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='R';

end

img = imabsdiff(imS,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='S';

end

img = imabsdiff(imT,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='T';

end

img = imabsdiff(imU,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='U';

end

img = imabsdiff(imV,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='V';

end

img = imabsdiff(imW,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='W';

end

img = imabsdiff(imX,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='X';

end

img = imabsdiff(imY,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='Y';

end

img = imabsdiff(imZ,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='Z';

end

else

img = imabsdiff(im0,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='0';

end

img = imabsdiff(im1,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='1';

end

img = imabsdiff(im2,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='2';

end

img = imabsdiff(im3,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='3';

end

img = imabsdiff(im4,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='4';

end

img = imabsdiff(im5,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='5';

end

img = imabsdiff(im6,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='6';

end

img = imabsdiff(im7,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='7';

end

img = imabsdiff(im8,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='8';

end

img = imabsdiff(im9,imgTest);

if(sum(img(:))<minDiff)

minDiff= sum(img(:));

ch='9';

end

end

out=strcat(out,ch);

end

end

msgbox(strcat('Vehicle Registration Number :',out));