e-Yantra Robotics Competition Plus

(eYRC+ Pilot)

<eYRCPlus-PS1#603>

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Date	**29/11/2015**

Image Processing (8)

Write down the answers to the following questions.

1. What is the resolution (size) of the test image assigned in the task?
2. What is the use of thresholding an image?

1. Test_image1 =1050*516 and of Test_image2 = 1050*511
2. Thresholding is use to convert the pixel value of an image to fixed 0(dark) or 1(light) . Simply it can be use to convert a grayscale image to a monochrome

Explain the algorithm used to perform the task given in practice test folder

1. Step 1

First Read the given image and convert it into grayscale , then convert it into monochrome

2. Step 2

Replace the unwanted part of the image with 0 so they make processing easier

3. Step 3

Extract all the contours in the image then draw the contours in the required places

4. Step 4

Use a python script to train the code to identify the digits and store its valuable features

5 Step 5

Divide the image into small rectangle the scan each rectangle individually

6 Step 6

Divide the image in to 2 parts D1 and D2 , Use the Knearest method to detect the digits in the image

7 Step 7

Display the digits on the console

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Software used (7)

Write down the answers to the following questions.

1. Write a function in python to open a color image and convert the image into grayscale. You are required to write a function *color_grayscale(filename,g)* which takes two arguments:
    a. filename: a color image (Test color image is in folder "Task1_Practice/test_images". Pick first image to perform the experiment.)
    b. g: an integer

Output of program should be a grayscale image if g = 1 and a color image otherwise.

```
#import opencv library
import cv2

#define the given function

def color_grayscale(filename,g):

      #Read the given image from the folder

    img= cv2.imread(filename)

      #check wehther the user want to convert it into grayscale

    if g==1:

      #convert the image to grayscale

        gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
```

```
        #return the grayscale image
          return gray
    else:
        #else return the original image
          return img


cv2.imshow('image',color_grayscale('test_image1.jpg',1))
#wait for thr user to press a key then exit
cv2.waitKey(0)
cv2.destroyAllWindows()
```