
# Number plate - text recognition using OpenCV

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## Overview

OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in the commercial products. In this task you will be using some of the libraries of open CV to detect the shapes of images, and to detect the text written on a number plate.

# Task 1

## Installing required software (day 1)

On day 1 the team members are supposed to install the necessary software and libraries required for completing the task.

1. Python
2. Spyder for Python
3. Python Library - cv2, pytesseract, numpy etc.(Team is supposed to add the required libraries)

Also the team members are advised to stage up their GitHub account before the commencement of the tasks.

## Basic Shape Detection(day 2 & 3)

Learn more about open computer vision and use the basic libraries to detect the shapes given in test images, also find out the area, centroid and color of the shape and pass the parameters in an array. Also you should display the name of the shape below every image.

Link to the test images

# Task 2

## Implement the contour detection code for rectangular license plate (day 4 and 5)

Implement the algorithm for detecting and extracting the rectangular contour of the license plate from the main image. Apply all the necessary image pre-processing techniques to fulfill this task.

Link for test samples of number plate

## Character segmentation for the image (day 6)

Apply all the basic operations on the final image of the number plate such as: crop, resize, rotate, filters etc. Make sure that the image is converted to appropriate form for the image-to-text conversion engine.

## Perform final text detection (day 7)

Use the pytesseract library and explore its features. Obtain the final detected number from the number plate. Try out five test cases of your own apart from the ones provided and comment on the results.

**Note: Try to study every function of the cv2 library thoroughly.**