**Problem Statement** :

Given is a set of images of vehicle RC's of state Andhra Pradesh and Telangana. The basic objective is to extract the details of the customer and vehicle type details when he/she uploads the image on the bot.

**Image format:**

Images are in format of jpg, jpeg and png. We will be having two side images.

Front side and back side of RC of the respective state.

**STEP 1 :**

**Defining some functions under the class regex checker:**

**Extract chassis number :**

a. Creating the ocr text list to take one word at a time.

b. Applying regex expression to each word for detecting the

Chassis number.

**Extract engine number :**

a. Creating the ocr text list to take one word at a time.

b. Applying regex expression to each word for detecting the

Engine Number.

**Extract date of registration :**

a. Creating the ocr text list to take one word at a time.

b. Applying regex expression to each word for detecting the

Date of Registration.

**Extract registration no :**

a. Creating the ocr text list to take one word at a time.

b. Applying regex expression to each word for detecting the

Registration Number.

**Extract month year of manufacturing :**

a. Creating the ocr text list to take one word at a time.

b. Applying regex expression to each word for detecting the

Month year of manufacturing.

**Extract fuel type :**

a. Creating a list of fuels for detecting the fuel type present in the text.

b. Returns fuel type detected.

**STEP 2 :**

First we will try to pre-process the image. Because the image uploaded by the uploader

Will not be suitable for the ocr detection.

**Cropping the image:**

1. Reading the image.
2. Converting the image into Grayscale format for better processing.
3. Inverting the text of the grayscale image to white for text detection.
4. Finding a non zero pixel value which will be or text now.
5. Finding boundary coordinates of the image for cropping the part of the image which is required.

**Detect rotation angle:**

a. Reading the image.

b. Detecting the text and text bounding box of the original

Image which is not deskewed yet.

c. Knowing the rc type whether it is front side or back side.

d. Deciding the angle of the image for the purpose of just

Rotating the input image.

**Deskew Image:**

a. Read the image into RGB format.

b. Converting RGB into Grayscale format.

c. Determining the skew angle of the grayscale image for the

Purpose of deskewing the image.

d. Now rotate the image with a deskew angle.

**Rotate image:**

a. Open the image for the purpose of rotating it.

b. Rotating the image with its respective rotation angle and

returning the rotated image name and the rotation angle by

which it gets rotated.

**STEP 3 :**

**Detecting the text and extracting the meaningful information using google api:**

**Class detect text ocr :**

**Detect text :**

a. Creating an instance of the class ImageAnnotatorClient()

b. Opening the image and reading it for getting the content of

The Image.

c. Applying Vision for getting text inside the image.

d. Returns ocr text and text coordinates.

**STEP 4 :**

The Final step is to detect the text of RC:

**Class rc detection :**

**Detect RC :**

a. For this purpose we are creating a list for detecting back, excluding

Back, detecting front and excluding front.

b. Creating key list containing the basic keywords and its field

Values. For checking whether required keys are present in the text

Or not and to detect the side of the RC.

c. Creating field values dictionary for storing the values of the

Keywords which we get at output.

d. Creating the empty list value for each keyword for feeding the

Respective value inside it.

e. For handling the misplaced field values of the keyword new\_y1

variable is created.

f. Calculating the frequency of keywords for comparing it with the

new variable.

g. Finally getting ocr text and field values in the form of dictionary

Representing key value pairs of the entity that is required.