MRZ Pipeline

Existing PassportEye Pipeline

The existing PassportEye pipeline is using some basic OpenCV techniques to detect the MRZ from images. This technique is good but not robust enough to detect all the variations of images because of their different backgrounds and environments in which the images have been captured. So to solve this problem, some preprocessing steps can be added to ensure the enhancement in the accuracy as these techniques would remove all the different variations and convert the images in a standard format for PassportEye to detect the mrz. The following pre-processing steps would be included for accuracy enhancements.

Step1 (Document Detection):

In the first step an object detection model will be trained for different categories of documents including all types of id cards and passports.
Model will **detect the document** form the image and pass the cropped image to the next model for further processing

Models to use: UNET

Step2 (Image Rotation):

The second step will be to **rotate the image** to ‘0’ degree. For this a deep learning model will be trained.
After document detection from the first step, the image can be rotated clockwise or anticlockwise to an angle.

Models to use: RotNET

Step3 (Image UnShearing):

In this step a function will unshear the image using different logical functions and mathematical formulas (OpenCV).

Step4 (MRZ Detection & OCR):

In this step we will feed the preprocessed image to PassportEye for further processing.

NOTE:

- **The Dataset of all the documents (Id cards, Passports) of all categories will be required form your side.**
- **And the approximate time to develop the pipeline will be 3-4 weeks.**
- **All the pipeline will be written in Python using different python libraries.**