Cairo University
Faculty of Engineering
Computer Department

Image Processing And Computer Vision
Project Proposal

Team Members

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Project idea and need

The project idea is car license plate recognition (LPR). It can be used in many systems such as parking where it is used to open the door cars depending on its license plate. LPR is used with speed camera systems and used with traffic lights systems. It is supposed to take a photo of a car as an input, and get the license plate as output text.

Main Steps

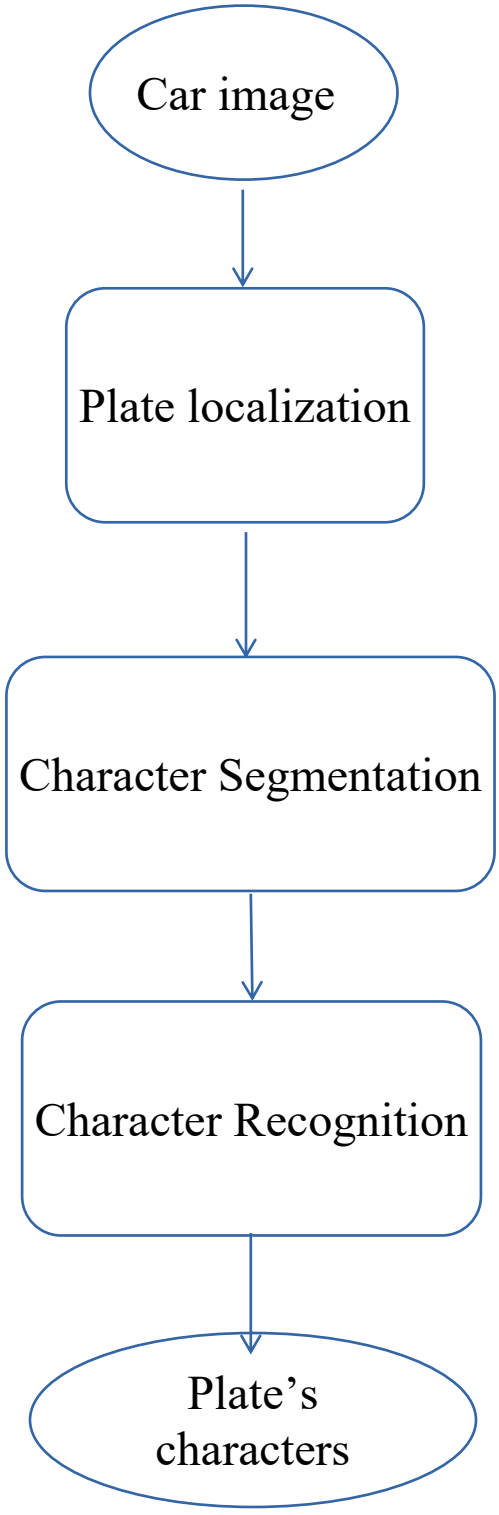
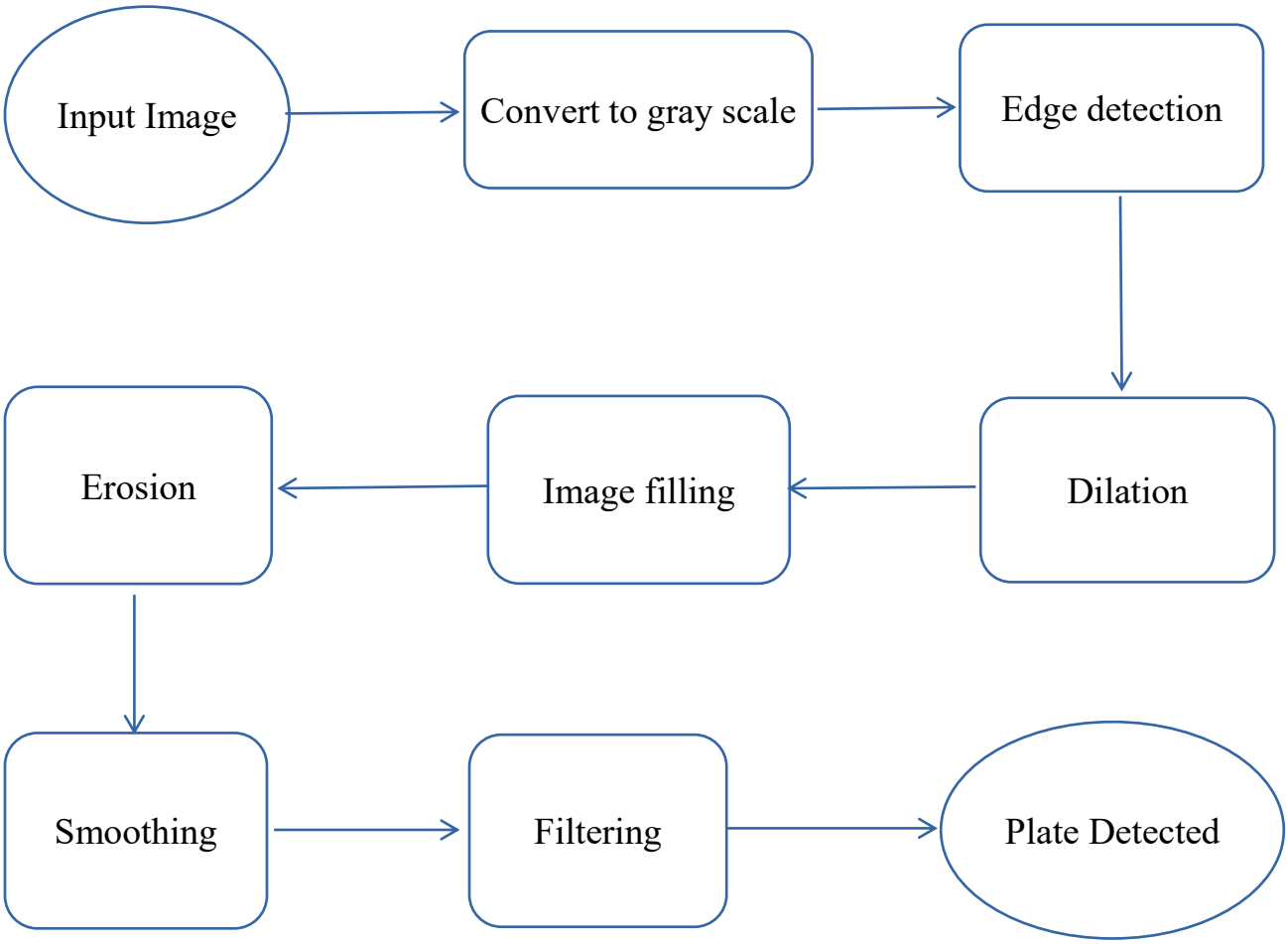
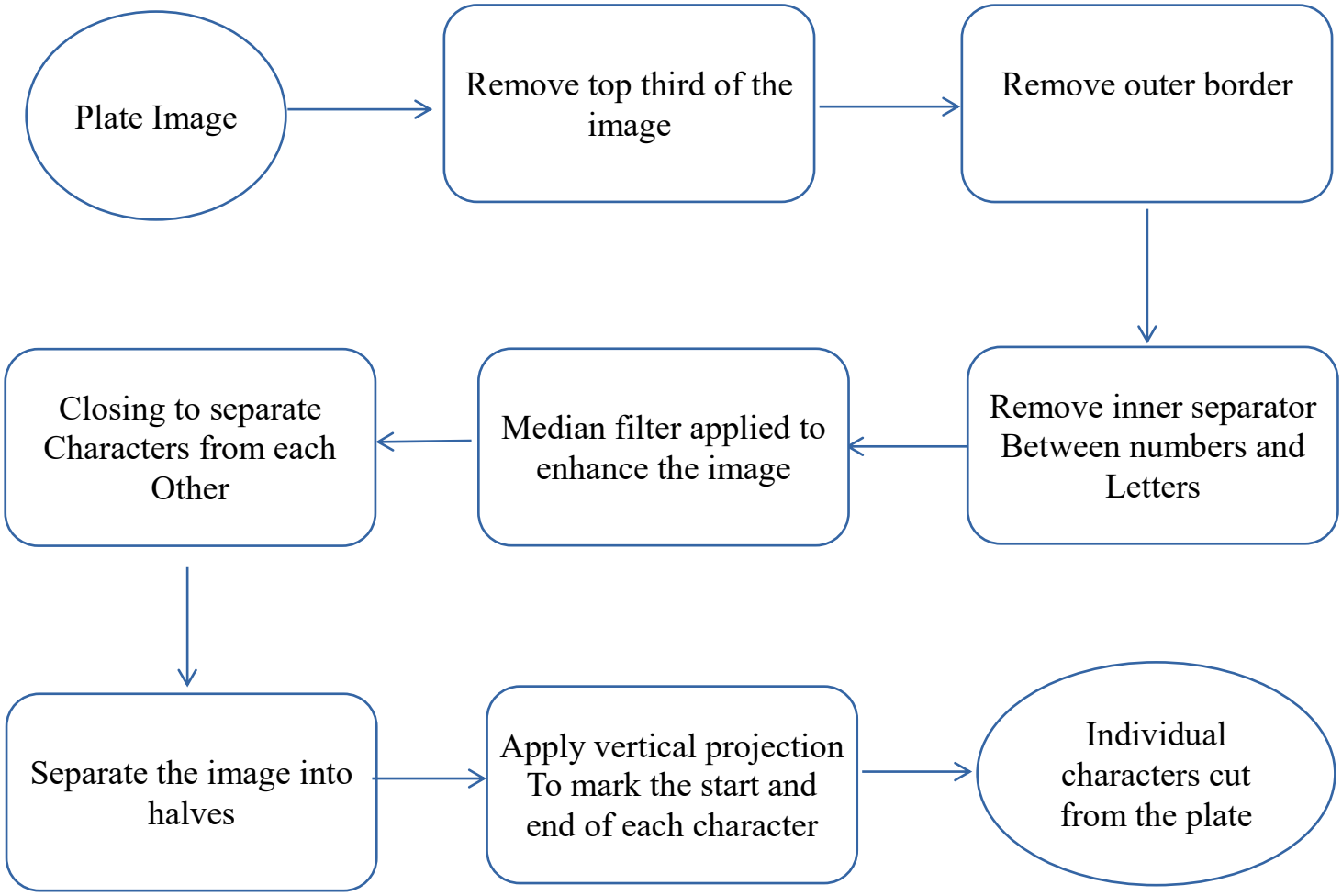

Car image
Plate localization
Character Segmentation
Character Recognition
Plate's characters

Plate localization

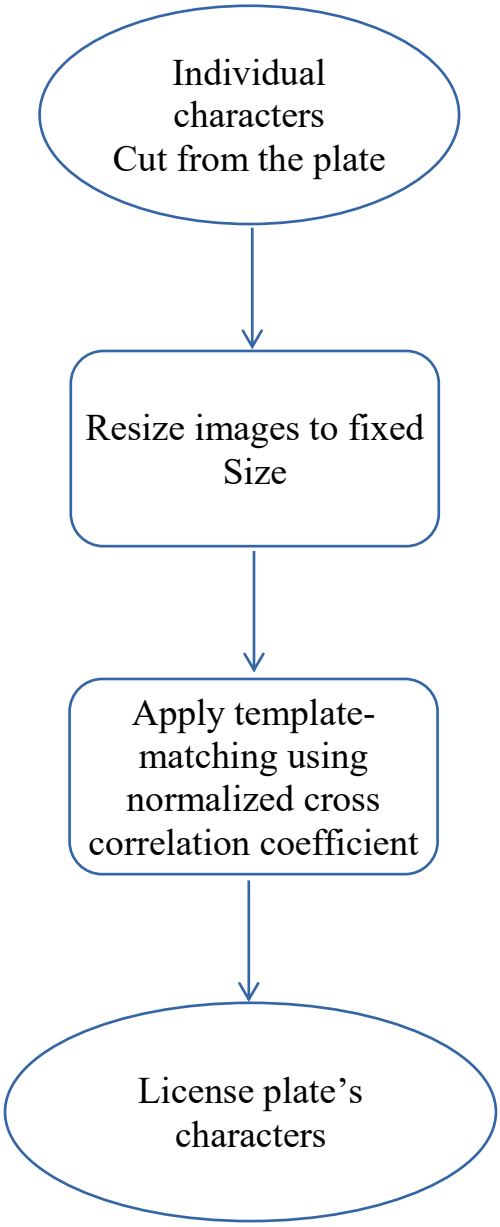


Character Segmentation

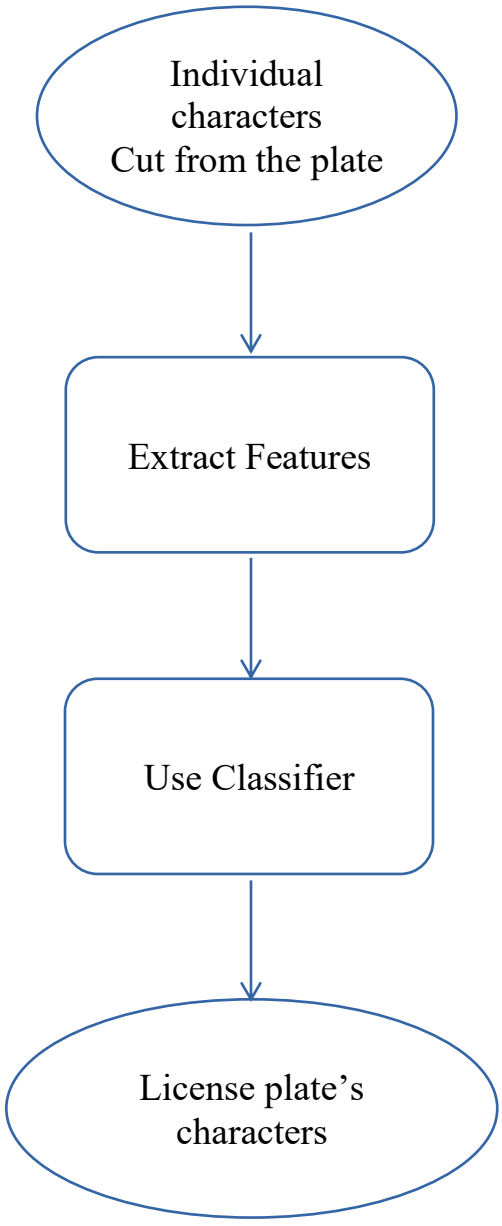


Character Recognition

First Approach:



Second approach:



Constrains:

- Input image contains only one car.
- Car's plate is clear, in a good condition and can be recognized easily by eye.
- Input image does not contain any other object similar to a license plate such as advertisements.
- Image must be horizontal such that the plate axes are nearly aligned with image axes.
- Good image quality
- Car should be in a suitable distance from camera such that plate can be recognized.
- Plate edges must be clear.
- Image does not contain too many edges.
- Good light conditions.

Comments:

- In edge detection, we will use (Canny and Sobel) and see which filter gives better result.
- In the Character Recognition phase, we have not decided which approach we will use yet so we include both approaches.

- We consider the input images to be properly aligned, but if we have to handle skewed images, we will add skew correction step in plate localization diagram.
- We consider the input images to have nearly equal contrast values, but if we have to handle images have different contrast values as if (car half-in shadow and half-in sun) we will add contrast equalization step in plate localization diagram.

Non-primitive tools:

- Open cv
- SVM (Supporting vector machines)

References and Papers

- https://www.sciencedirect.com/science/article/pii/S1110016813000276
- https://github.com/YousraHesham/Arabic-License-Plate-Recognition/blob/master/original.pptx
- https://link.springer.com/article/10.1007/s00500-014-1245-5
- http://acit2k.org/ACIT/images/stories/year2014/month1/proceeding/67_.pdf