WE CLAIM:

1. A system for automated vehicles license plates characters segmentation and recognition comprising

~~———~~an imaging processor connected to at_least one image grabber module or camera;

said image grabber module captures images of the vehicles and forwards it to said connected imaging processor; ~~and~~

~~said imaging processor segments and recognizes the vehicles license plates character region including the region with deformed license plates characters in the captured vehicle images by involving binarization of maximally stable external regions corresponding to probable license plate region in the captured vehicle images.~~

wherein the imaging processor is configured to (i) localize probable license plate region in the received images of the vehicles, (ii) separate non-license plate noisy regions from said license plate region and discard the non-license plate noisy regions for obtaining actual license plate region and (iii) segment the license plates characters including deformed license plates characters from the actual license plate region by including

calculating pixel values belonging to foreground and background of the actual license plate region and selectively converting the actual license plate region into grey scale based on median of the pixel values for having darkish foreground and whitish background;

applying local-binarization on the gray-scale image for removing of noise component from the binarized output;

applying morphological closing operation on remaining components to get a closed image and thereby removing row-column based extra regions from the closed image to obtain mask image for discarding of noisy components therein based on the pixel values;

involving tight bound rectangle rotation to correct skew in the image and obtain a gray-scale skew corrected image and discarding the noisy components therein based on the pixel values; and

applying a line fitting algorithm to remove noisy components based on bounding box information of remaining characters and applying a noise removal scheme to get final output binary image containing all the characters properly segmented.

~~2. The system as claimed in claim 1, wherein the imaging processor includes~~

~~LP localizer cooperating with the image grabber module or camera to receive captured images of the vehicles and localizes probable license plate region in the received images of the vehicles;~~

~~generic character segmenter connected to said LP localizer to receive the probable license plate region and separate most of non-license plate noisy regions from therefrom for segregating actual license plate regions and subsequently discarding the non-license plate noisy regions; and~~

~~character segmenter connected to said generic character segmenter to receive the actual license plate regions and segmenting license plates characters including deformed license plates characters therefrom free of noisy components by involving said distinguishing pixel statistics belonging to foreground and background of the actual license plate regions thus identified through maximally stable external regions.~~

~~3~~2. The system as claimed in claim 1~~2~~, wherein the imaging processor ~~the LP localizer~~ localizes probable license plate region in the received images of the vehicles by deploying ~~any standard~~ an image processing based l~~L~~icense plate localization techniques ~~based on Image processing, machine learning or Deep learning technology~~.

~~4~~3. The system as claimed in claim 1~~2~~, wherein the imaging processor ~~generic character segmenter~~ separates non-license plate noisy regions from the probable license plate region and segregates the actual license plate regions by applying ~~different~~ filtering criteria based on ~~like~~ number and ~~of connected components,~~ dimensions of the character ~~the connected~~ components in the license plate ~~etc. at different steps of the presented invention~~.

~~5~~4. The system as claimed in claim ~~4~~1, wherein the imaging processor ~~character segmenter is configured to operate on gray-scale of the actual license plate regions subjected to image enhancement schemes whereby said character segmenter~~ involves maximally stable external regions to first ~~crudely~~ segment the characters in the actual license plate regions covering all the characters which corresponds to the foreground objects of the license plate regions along with noisy components while remaining of the license plate regions as the background object.

~~6. The system as claimed in claim 4, wherein the character segmenter segments the license plates characters including deformed license plates characters therefrom free of noisy components by involving~~

~~calculating pixel values belonging to the foreground and the background of the actual license plate regions and selectively converting the actual license plate regions into grey scale based on median of the pixel values for having darkish foreground and whitish background;~~

~~applying local binarization on the gray-scale image for removing of noise component from the binarized output;~~

~~applying morphological closing operation on remaining components to get a closed image and thereby removing row-column based extra regions from the closed image~~

~~to obtain mask image for discarding of noisy components therein based on the pixel values;~~

~~involving tight bound rectangle rotation to correct skew in the image and obtain a gray scale skew corrected image and discarding the noisy components therein based on the pixel values;~~

~~applying a line fitting algorithm to remove noisy components based on bounding box information of remaining characters and applying another noise removal scheme to get the final output binary image containing all the characters properly segmented.~~

~~7~~5. The system as claimed in claim 1~~6~~, wherein the imaging processor~~character segmenter~~ selectively converts the actual license plate regions into grey scale based on median of the pixel values for having the darkish foreground and the whitish background when the median value of the foreground pixels is greater than the median value of the background pixels.

~~8~~6. The system as claimed in claim 1~~6~~, wherein the imaging processor ~~character segmenter~~ which applies the line fitting algorithm to remove noisy components based on bounding box information of remaining characters involves minimum bounding rectangles as final ROIs to prevent discarding of the deformed characters attached to noises whereby remaining binary components which are outside the minimum bounding rectangles are discarded as noise.

~~9~~7. A method for automated vehicles license plates characters segmentation and recognition involving the system as claimed in claim 1 ~~2~~ comprising

~~———~~involving the imaging processor ~~LP localizer~~ cooperating with camera to receive images of the vehicles captured by said camera;

localizing probable license plate region in the received images of the vehicles ~~by the LP localizer~~;

involving the imaging processor ~~generic character segmenter to receive the probable license plate region~~ for separating ~~most of~~ the non-license plate noisy regions from the probable license plate region;

segregating actual license plate regions and subsequently discarding the non-license plate noisy regions by the imaging processor~~generic character segmenter~~; and

involving the imaging processor ~~character segmenter~~ to receive the actual license plate regions and segmenting license plates characters including deformed license plates characters therefrom free of noisy components by involving distinguishing pixel statistics belonging to foreground and background of the actual license plate regions thus identified through maximally stable external regions.