This chapter will evaluate the ALPR algorithm in action with a different scenario in each time, as shown below in cases 4.1, 4.2, 4.3.Also, it will illustrate the output simulation & the process of comparing the results of the extraction.

4.1The characters are extracted, and there is a match to it in the database

First, after selecting the image as shown in figure 4-1 using GUI and the input image has good quality, and can be processed,as shown in figure 4-2. So that the characters can be extracted and saved into a text file, and send to the LP information database and there's a match, and save into the ticket archive. As shown below in figure 4-3a

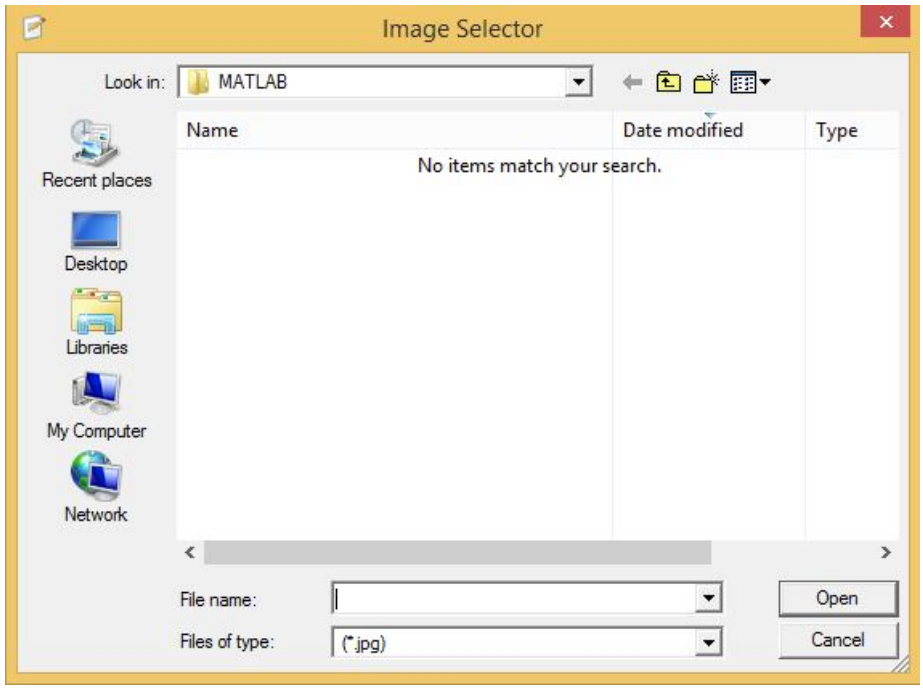

Figure 4.1: The GUI Selection of the Input Image

Figure 4-2a: Input image

Figure 4-2b: RGB to Gray Scale Conversion

Figure 4-2c: Filtered Image

Figure 4-2d: Binary Conversion

As seen in this binary image the characters can be easily extracted in prepare to determine the characters region and then extract them.

Figure 4-2e: Image Filling

This procedure help with extracting the characters to be compared with the database

Figure 4-2f: Characters Segmentation

Compare each character with the stored characters database and define each character to be stored into a text file.

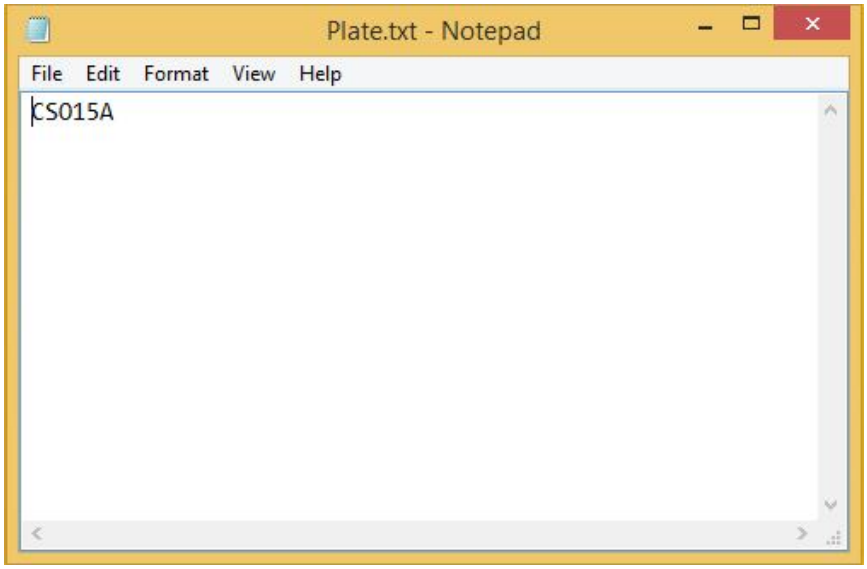

Figure 4-3a: Algorithm Result

The result text file that will send the value of it to be compared with the vehicles license plate information database.

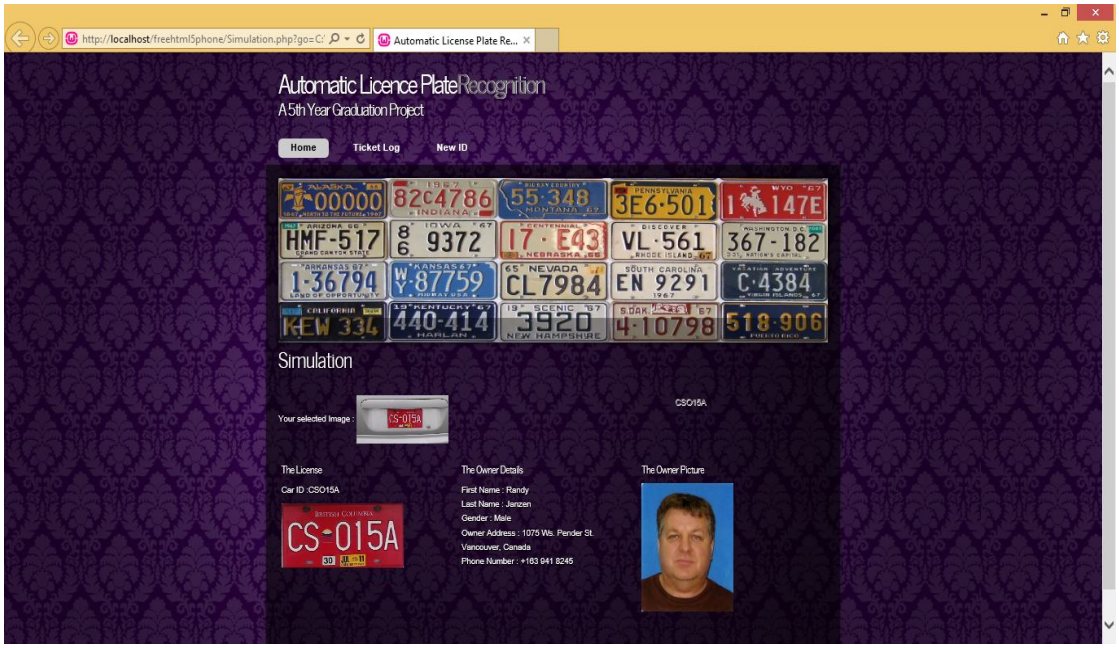

Figure 4-3b: The Web Page

The result displayed after searching the vehicles license plate information database on the webpage.

4.2 The characters can't be extracted & the data has to be interred manually

In some cases the input LP can damaged by any means, such as the fading of characters, as shown in figure 4-6. This mean that the DIP process will not have any effects on the image and will not give us any valid result or any result by that mean, and the algorithm can't extract the characters, as shown in figure 4-7.

Figure 4-4: The input image with fading characters

Figure 4-5a: Gray Conversion

Figure 4-5b: Filtration

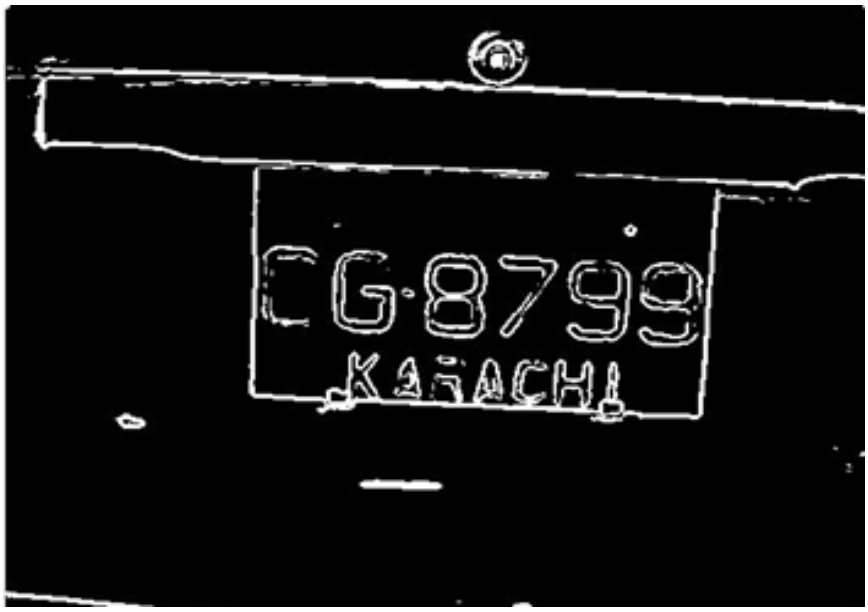

Figure 4-5c: Gray scale to binary conversion

Figure 4-5d: Edge Enhancement

Preparing for extracting the characters, but we see that characters can't be extracted due to the bad shape of the license plate.

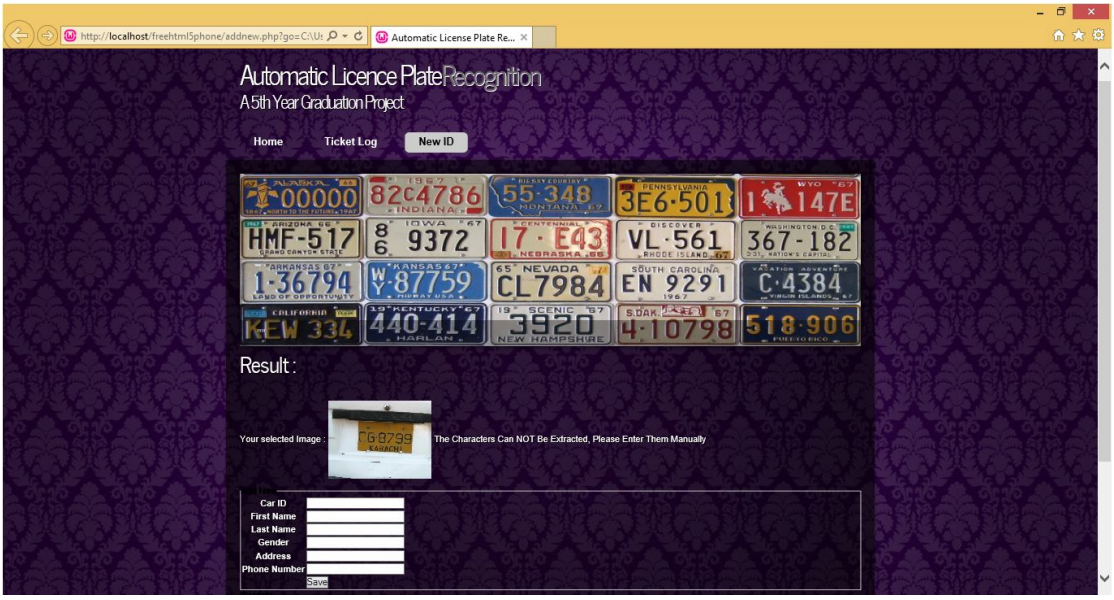

Figure 4-6a: The Web Page Interface

The Program will ask the user that the LP will have to be interred manually associated with its information & the ticket will be stored in the ticket archive.

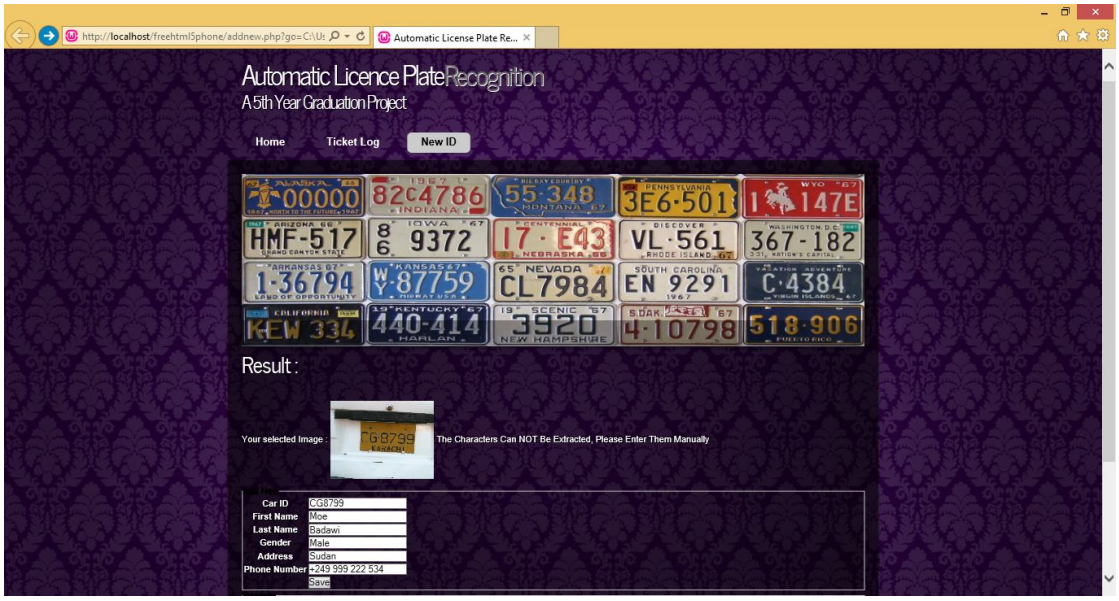

Figure 4-6b: The Manual Entering

The LP information which was interred manually will be stored into the LP information database.

4.2 The Archive of Tickets

After each picture captured, the system save the ticket to be reviewed in the future to ensure that the tickets are archived and no ticket is lost or deleted, this will increase the level of authenticity of the officer.

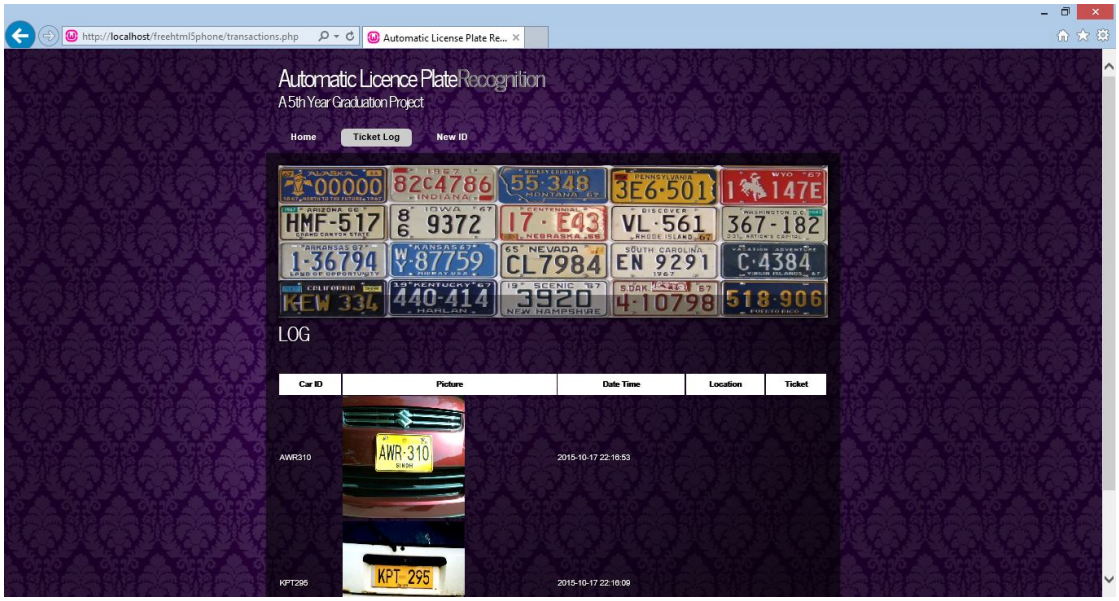

Figure 4-7: The Archive of Tickets