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E_ License Plate

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Abstract — Automatic license plate recognition (ALPR) is the extraction of vehicle license plate information from an image or a sequence of images. The extracted information can be used with or without a database in many applications, such as electronic payment systems (toll payment, parking fee payment), and freeway and arterial monitoring systems for traffic surveillance. . The quality of the acquired images is a major factor in the success of the ALPR. ALPR as a real-life application has to quickly and successfully process license plates under different environmental conditions, such as indoors, outdoors, day or night time. ALPR technology tends to be region-specific, owing to plate variation from place to place. Concerns about these systems have centered on privacy fears of government tracking citizens' movements, misidentification, high error rates, and increased government spending. This system is developed based on digital images and can be easily applied to car park systems for the use of documenting access of parking services, secure usage of parking houses and also to prevent car theft issues. Automatic license plate recognition system is to extract vehicle license plate from a digital image. The paper based on a combination of thresholding , labeling , filling up the holes approach method and region props method with area criteria test for the number plate localization. Segmentation of the plate characters was achieved by horizontal and vertical scanning method. The character recognition was accomplished with the aid of optical characters by the process of Template matching.

Keywords: Android Phone, License Plate, Image Acquisition, Plate Extraction, Plate Segmentation ,Character Recognition.

I. INTRODUCTION

This Our project is based on Automatic License Plate Recognition, is used for checking whether the vehicles which are using the License plate(number plate)are valid or not. Automatic license plate recognition (ALPR) plays an important role in numerous real-life applications, such as automatic toll collection, traffic law enforcement, parking lot access control, and road traffic monitoring .The Automatic Number Plate Recognition (ANPR) was invented in 1976 at the Police Scientific Development Branch in the UK. However, it gained much popularity during the last decade along with the improvement of digital camera and the increase in processing speed. ANPR is an image processing technology which enables to extract vehicle license plate number form digital images. It consists of a camera that has the capability to capture an image, finds the location of the number plate in the image and then extracts the characters using character recognition tool that translate the pixels into alphanumerically readable character or string. ANPR can be used in many areas from speed enforcement and tool collection to management of parking lots, etc. . At present, in ANPR there are several techniques used for the recognition plate’s number such as pattern matching,neural network character recognition,and image processing technology.which are computationally expensive or use artificial neural network which involves complex mathematics ALPR recognizes a vehicle’s license plate number from an image or images taken by either a color ,black and white, or infrared camera. But in our project we are just using the Android camera which is more useful and simpler to handle. We are using the ALPR technique this technique is also known as Automatic Number Plate Recognition (ANPR).To implement this most important technique that we are using is Optimal Character Recognition (OCR).

II. LITERATURE SERVEY

Year	Author	Title	Approach	Result		
				Extraction	Segmentation	Recognition
2010	Rajesh Kannan	Extraction of	Mathematical Morp	%91		

	Megalingam, Prasanth Krishna, Pratheesh Somarajan, Vishnu A Pillai, Reswan Ul Hakkim	License Plate Region in Automatic License Plate Recognition	hology, Digital image labeling, Template Matching			
2010	Kumar Parasuramn	A efficient method for Indian Vehicle License Plate Extraction and Character Segmentation	Edge detection algorithm, Vertical Projection, Horizontal Projection, Chain Code Concept	% 98		
2009	Prathamesh Kulkani, Ashish Khatri, Prateek Banga, Kushal Shah	Automatic License-Plate Recognition System for Indian Conditions	Feature-based number plate Localization, Image Scissoring, Statistical Feature Extraction	%87	%95	%85
2009	Zhen-Xue Chen- Yun Liu, Fa Liang Chang, and Guo- You Wang	Automatic License-Plate Location and Recognition Based on Feature Salience	Salient Feature and Feature Salient Classifier	%97.3		-%95.7
2005	Tran Duc Duan, Tran Le Hong Du, Tran Vinh Phuoc, Nguyen Viet Hoang	Building Automatic Vehicle License-Plate Recognition System	Hough transform and Contour algorithm, Vertical and Horizontal Projection, Hidden Morkov Model	%98.2	%97.13	%97.19

III. IMPLEMENTATION

III. A. Algorithm :-

1. Edge Detection Algorithm

Step1: Read image pixel-by-pixel from left-right

Step2: if (pixel_color=white || pixel_color=yellow)

{ horizon_count=0;

read pixels horizontally; horizon_count ++;

if(pixel_color!= white || pixel_color!=yellow) { if(horizon_count > (1/3 image_width)) }

}

verticle_count=0; read pixels vertically; vertical_count ++;

if(pixel_color!= white || pixel_color !=yellow)

{ if(verticle_count > (1/5 image_height)) } Extract_image(horizon_count,vertical_count) ;

}

Step3: Stop

2. Gray Scale Conversion

Step 1 : Represent the given image in Matrix (i,j) form read pixels horizontally;

Step 2 : Store the image in Buffering Package Buffering img = new Buffering("image Path"); img.getpixel(i,j);

Step 3 : Find how many value of RGB color in each pixel of the image

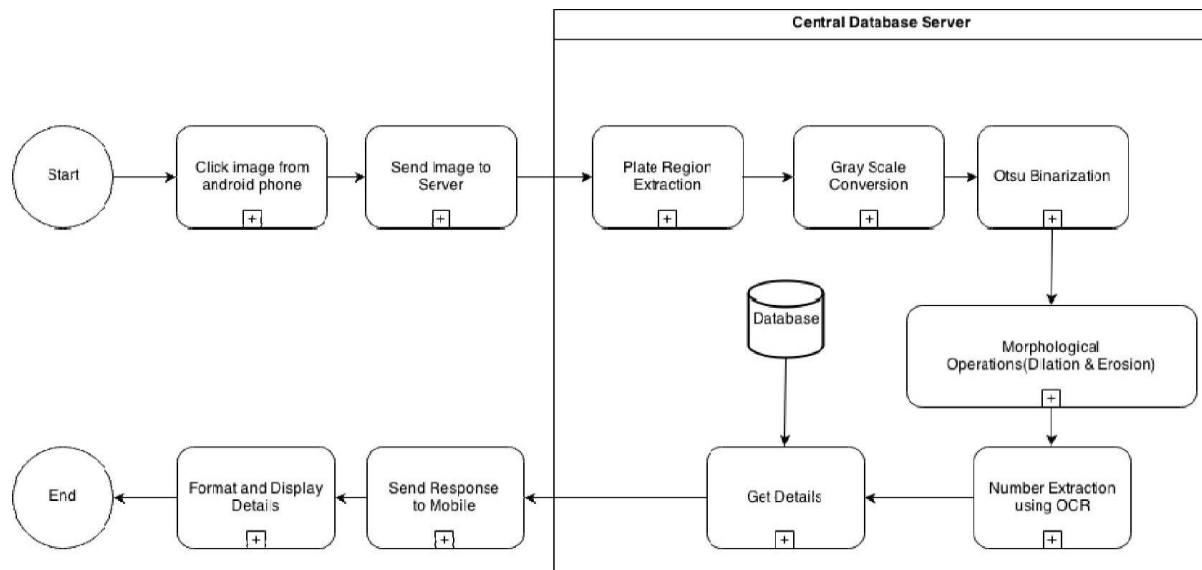
int Red= new color(img.getpixel(i,j)); int Green= new color(img.getpixel(i,j)); int Blue= new color(img.getpixel(i,j));

Step 4 : After getting the RGB color of each pixel then Conveting each pxel into gray color we apply following

formula:int Gray=0.21*Red+0.75*Green+0.07*Blue;

Step 5 : Stop

III .B. Block Diagram

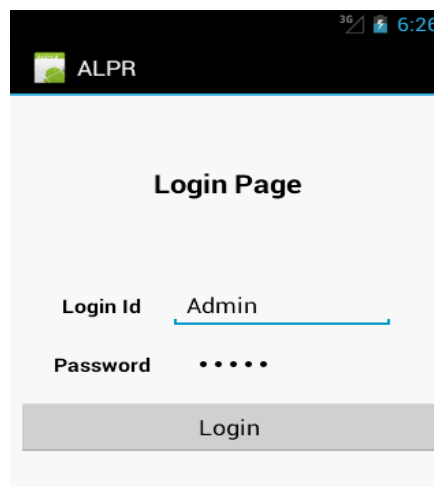


IV. ADVANTAGES

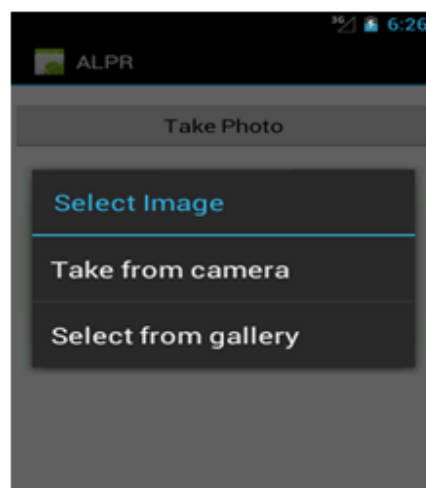
Documents of vehicles can be viewed or checked when required. That is documents will be available on App at any moment of time. Process used for verification of duplicate number plates is made simpler and efficient. Traffic Police don't have to always verify the vehicle documents from RTO. The target users for the App are restricted. Hence the chances of misusing the App is reduced.

V. SNAPSHOTS

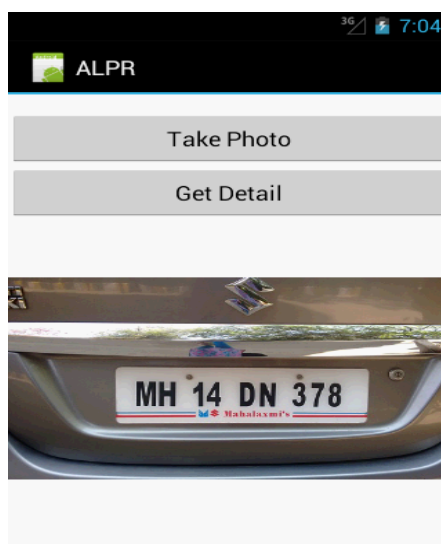
1. Login Page



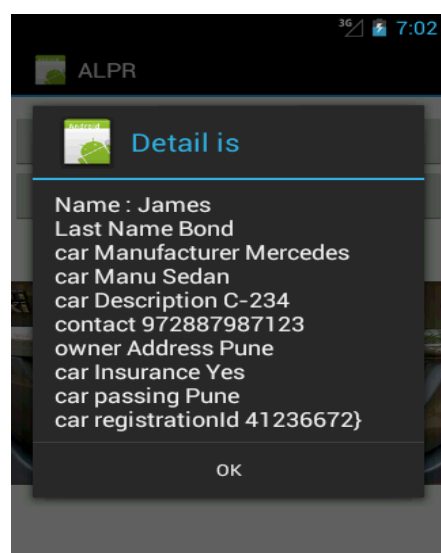
2. Take a image



3. Select Image



4. Get Details



VI. CONCLUSION

In this paper, the automatic number plate recognition system using vehicle license plate is presented. The system use image processing techniques for identifying the vehicle from the database stored in the server side. The system works satisfactorily for wide variation of conditions and different types of number plates. The system works quite well however, there is still room for improvement. The camera used in the system for this project is sensitive to vibration and fast changing targets due to the long shutter time. The system speed can be increase with high resolution camera. The OCR method is sensitive to misalignment and to different sizes, so the affine transformation can be used to improve the OCR recognition from different size and angles. The statistical analysis can also be used to define the probability of detection and recognition of the vehicle number plate. At present there are certain limits on parameters like speed of the vehicle, script on the vehicle number plate, skew in the image which can be removed by enhancing the algorithms further.

No need to carry hard documents of vehicles everytime. Details of vehicles by using its number plate image can be viewed on the App. Target users of the App are Police and Traffic Police. So the App cannot be misused.

Parking lot management

Automatic Toll Booth on highway

Border Crossing

Mass material management system

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