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Vehical Recognition System

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Abstract

The strategy of this report is to present a practical design of an automatic system for opening a gate without mounting any signal transmitter on the car. Vehicle recognition system is an image processing technology used to identify vehicles by their license plates. This paper's goal is to build a practical prototype system, which is capable of recognizing a license plate number from a standard license plate. Thus, this paper is to investigate and construct an application whereby the system will recognize the vehicle license plate at a gate entrance of the parking lot. The system will be based on a personal computer and software packages available such as MATLAB and a digital camera that helps in capturing images of vehicles. The software recognizes the plate number, compares the plate number with a built in database, and decides whether a vehicle is allowed to enter the designated area or not. The general algorithm involves the following steps: Image capturing which can be achieved by a digital camera, Plate localization and extraction to obtain the vehicle plate sub image, Character segmentation to determine exactly where characters exist inside the plate, Recognition which identifies the numbers contained in the plate, Evaluating the performance of the algorithm, Designing a database to store the numbers of authorized vehicles that are allowed to enter the parking. Designing a graphical user interface (GUI) to simplify the interaction with the software.

1. Introduction

Vehicle license plate recognition is an image processing system whereby it is used to recognize the vehicles by identifying the license plate. It can be used for traffic control, security purposes, and parking access control. The license plate system works as follows:

Firstly, the vehicle will stop at the car gantry[1]. The cycle will start when the vehicle steps over the detector. It will activate a signal to the vehicle license plate system for the presence of the vehicle.

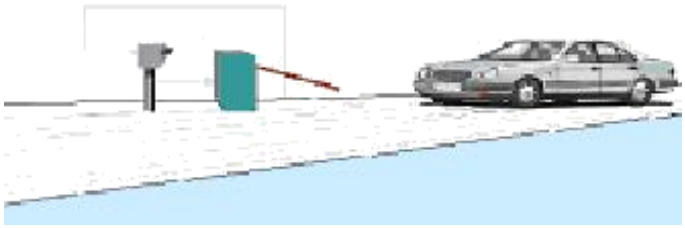

Fig 1: Step one: Car stops at the entrance of parking lot.

Secondly, illumination will be activated and images of the front picture of the vehicle will be taken. Then the system will read the information pixels of the vehicle and run the recognition process.

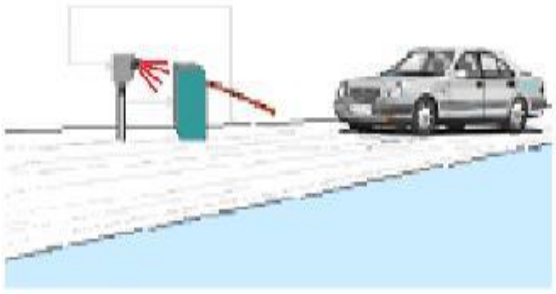

Fig 2: step two: An image is captured for the vehicle.

Thirdly, the system will apply certain algorithm to analyze the vehicle image. If the registration plate number is inside the predefine list, the barricade will be lifted for the vehicle to go through. Otherwise, the vehicle will be denied entry.

Fig 3: step three: The vehicle is allowed to enter if it is authorized.

This project is totally software based, when the vehicle will enter it get detected by motion detector which is connected to the system and activate it then the main operation will start, the detection, recognition and check for its authority, is it is authorised than the automatic gate which is also connected to the system will get open if vehicle is not authorised it will display on LCD "not authorized" and gate ill remain close.

2. Hardware Description

A) Electric Gates

Electric gates provide many benefits to the home owner, and they have become very popular in the recent years because of their low cost nowadays [2]. There are two main types of gate operators: Slide and swing. Both types prevent access by a vehicle until the telephone entry system or the access control system enables entrance. Slide and swing gate operators come in a range of AC or DC powered models with battery and solar panel options

B) Ip camera or Digital camera

IP Camera IP stands for Internet Protocol, which is a protocol for transmitting data across a network. An IP Camera is a camera that plugs directly into a network router, and is not reliant on a PC to work[3]. Data from the IP camera is transmitted through the network, and can be securely viewed at a remote location. An IP camera requires a high speed connection (such as DSL), a router, and an Ethernet cable. A computer is needed to view the data; however the camera works independently of the computer.

c) Motion detector

A motion detector is a piece of equipment that can be used alone or as part of a complete business or home security system. Infrared detectors, passive infrared detectors [3], and outdoor motion detectors are intended to sense any movement that occurs and notify the owner of the location when a motion is detected. Some motion sensors are small parts of a more complicated security system, while others are simple and basic, giving the owner of the location an audible sound during motion detection. A motion detector is a device that detects moving objects, particularly people. Such a device is often integrated as a component of a system that automatically performs a task or alerts a user of motion in an area. They form a vital component of

security, automated lighting control, home control, energy efficiency, and other useful systems.

3. Future Scope

1)Parking: -The Vehicle Recognition System is used to automatically enter prepaid members and calculate parking fee for non members, 2) Access control: -A gate automatically opens for authorized members in a secured area, thus replacing or assisting the security guard, and the management become more reliable as there will be no chances of corruption, 3) Tolling: -The car number is used to calculate the travel fee in a toll-road or used to double check the ticket. 4) Traffic Control: - The vehicles can be directed to different lanes according to their entry permits. The system reduces the traffic congestions and number of attendants. And also will help to automatically detect the non authorized car or fake no. plate by connecting system with internet.

4. Conclusion

We extracted the plate location. We then separated the plate characters individually by the segmentation. Finally, we applied a template matching with the use of correlation for recognizing the plate characters. This system was successfully tested over a number of images. The purpose of this report was to investigate the possibility of making a system for automatic recognition of license plates to be used in parking access control system. We actually have proved that the development of the vehicle license plate recognition system is possible using Matlab. The process of the vehicle number plate recognition requires a very high degree of accuracy. Our setup has been tested for 100 vehicles containing different numbers for different vehicle models, which resulted in an average percentage of success of about 91%.

Reference

[1] Sorin Draghici, "A Neural Network Based Artificial Vision System for License Plate Recognition," International Journal of Neural Systems, Vol. 8, No. 1, pp. 113-126, March 1997.

[2] Rafael C. Gonzalez and Richard E. Woods, "Digital Image Processing," Pearson Education, Inc., 3rd edition, 2008.

[3] Rafael C. Gonzalez, Richard E. Woods, and Steven L. Eddins, "Digital Image Processing Using MATLAB," Gates mark Publishing, 2nd edition, 2009.

[4] Kumar Parasuraman and P.Vasantha Kumar, " An Efficient Method for Indian Vehicle License Plate Extraction and Character Segmentation", IEEE International Conference on Computational Intelligence and Computing Research,2010.